EXTENSION OF RUNWAY 1-19 AT ZEPHYRHILLS MUNICIPAL AIRPORT, PASCO COUNTY, FLORIDA

Environmental Assessment

Prepared for
The City of Zephyrhills
5335 8th Street
Zephyrhills, Florida 33542

by
Environmental Science Associates
4200 W, Cypress Street, Suite 450
Tampa, Florida, 33607

August 2020

Zephyrhills Municipal Airport

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of Transportation
**Federal Aviation
Administration**

Department of Transportation

Federal Aviation Administration
Orlando Airports District Office
Orlando, Florida

FINDING OF NO SIGNIFICANT IMPACT
AND
RECORD OF DECISION

Environmental Assessment for the
Extension of Runway 1-19 and Associated Improvements

Zephyrhills Municipal Airport

Zephyrhills, Florida

August 18, 2020

BACKGROUND: The Zephyrhills Municipal Airport (ZPH) is a public-use general aviation airport that is owned and operated by the City of Zephyrhills (also referred to in this document as the "City" or "Airport Sponsor"). The airport is located in the City of Zephyrhills, Pasco County, Florida. The airport serves and supports local and regional corporate, business, and recreational users.

The City requested approval from the FAA to extend Runway 1-19 from its present length of 4,694 feet to 6,200 feet. Because the proposed runway extension requires federal action, an Environmental Assessment (EA) was prepared by the City for the Federal Aviation Administration's (FAA) use in complying with the requirements of the *National Environmental Policy Act of 1969* (NEPA). The EA was prepared in accordance with Council on Environmental Quality (CEQ) regulations implementing NEPA; FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*; and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

This Finding of No Significant Impact (FONSI) and Record of Decision (ROD) provides the FAA's environmental determination and approval for agency actions that are necessary to implement the proposed action at ZPH. This FONSI/ROD is based on information and analyses contained in the attached *Environmental Assessment for the Extension of Runway 1-19 and Related Improvements*, which is incorporated by reference, and other related documents available to the agency. The ROD is issued in accordance with CEQ regulations at 40 CFR §1505.2.

PROPOSED ACTION: The actions and improvements associated with the Proposed Undertaking described in Section 4.2 of the EA is summarized below.

- Extend Runway 1-19 by 1,506 feet to provide 6,200 feet of runway length.
- Construct a partial parallel taxiway on the west side of Runway 1-19.
- Clear approximately 40 acres of trees, vegetation, and objects around the new sections of runway and taxiway pavements and Runway 1 Protection Zone. The cleared areas will be maintained as grassed airfield. Clear an additional 37 acres of land for the relocation of a section of 6th Avenue, the Runway 19 Protection Zone, and for drainage improvements.
- Modify the airport's stormwater management system to accommodate run-off from the new impervious surfaces.
- Acquire land on the north and south end of the runway to provide control over Runway Protection Zones, including the acquisition of 4.2 acres of private property and the transfer 42.7 acres of City-owned property to the airport.

- Install new runway and taxiway edge lights; relocate Runway 1 threshold lights, Precision Approach Path Indicator Lights, and Runway End Identifier Lights; and re-mark Runway 1-19 pavement.
- Install security fencing and gates.
- Realign a section of 6th Avenue around the Runway 19 Protection Zone (construct 2,200 feet of new roadway and remove 1,100 feet of existing road).
- Modify the layout of Skydive City, a leased area on the airport, to maintain safety and separation clearances.

PURPOSE AND NEED: The purpose of the Proposed Action is to improve the accessibility of the airport to a wider range of general aviation business jet aircraft. The two runways at ZPH are capable of supporting business jets; however, medium to large business jets can incur operational (weight) restrictions when visiting the airport, especially on hot days. The runway length analysis included in Appendix B of the EA recommended a runway length of 6,200 feet.

ESTIMATED TIMEFRAME: Implementation of the project is expected to begin in 2020.

ALTERNATIVES: In addition to the Proposed Action, four alternatives were examined in Section 6 of the EA. These alternatives are described below.

Alternative 1 - Use of Other Airports: Alternative 1 would not address the need for additional runway length at ZPH. Further, the Airport Sponsor does not have the authority to place restrictions on a targeted segment of the general aviation fleet that operates at ZPH and cannot dictate that certain general aviation aircraft use another airport. Alternative 1 did not satisfy the purpose of and need for the Proposed Action and was eliminated from further consideration in the EA.

Alternative 2 - Other Modes of Transportation: This alternative considered the use of ground-based transportation for the movement of people and goods as an alternative mode of transportation for the users of ZPH. Ground-based transportation would not provide a meaningful alternative to air travel in terms of travel time and convenience and would not satisfy the purpose of and need for the Proposed Action. Therefore, Alternative 2 was eliminated from further consideration in the EA.

Alternative 3 - Extend Runway 5-23: This alternative evaluated two options for extending Runway 5-23 to 6-200 feet: 1) extend the runway 1,199 feet to the southwest and 2) extend both ends of the runway (749 feet to the southwest and 450 feet to the northeast). Both options require the acquisition of land from private landowners. Extending the runway to the southwest would displace four residences and would acquire land from and affect the operation of the

Zephyrhills Bottled Water Plant. Extending both ends of the runway would displace two residences and would also affect the water bottling plant. Road closures and realignments would also be required. When compared to the Proposed Action, Alternative 3 had substantial land use, community, and roadway impacts. This alternative was eliminated from further consideration in the EA.

Alternative 4 – Extend Runway 1-19 to the North and South: This alternative would extend Runway 1-19 475 feet to the north and 1,031 feet to the south. The alternative includes shortening Runway 5-23 by 670 feet, the acquisition of land from private land owners, the transfer of City-owned property to the airport, and the relocation of a section of 6th Avenue. When compared to the Proposed Action, Alternative 4 had greater land use, land acquisition, and roadway impacts. The alternative would also shorten Runway 5-23. Therefore, Alternative 4 was eliminated from further consideration in the EA.

No-Action Alternative – Under this alternative, the City would not implement the proposed runway extension project; however, the City would continue to operate and maintain the airport to accommodate existing airport users.

Alternatives 1, 2, 3 and 4 were eliminated from further consideration in the EA. The No-Action Alternative was retained in the EA in accordance with NEPA and CEQ regulations.

FEDERAL ACTIONS: The requested federal action includes:

Unconditional approval of the portion of the ZPH Airport Layout Plan (ALP) that depicts the components of the proposed runway extension project pursuant to 49 U.S.C. Sections 47107(a)(16), 40103(b), 44718 and Title 14 CFR Parts 77, 157, and 139.

ENVIRONMENTAL IMPACTS: As documented in the attached EA, the Proposed Action and the No-Action Alternative were evaluated for potential impacts on the environmental resource categories identified in FAA Order 1050.1F. The Affected Environment and Environmental Consequences sections of the EA (Sections 7 and 8, respectively) provide a description of existing conditions and an analysis of direct, indirect, and cumulative impacts associated with the Proposed Action and the No-Action Alternative.

Under the No-Action Alternative, the proposed runway extension and related improvements would not occur and there would be no associated environmental impacts. When compared to the No-Action Alternative, the Proposed Action is anticipated to increase the number of annual aircraft operations at ZPH by 1,500 (or 2.7 percent) in 2026. The Proposed Project is projected to induce an average

of two additional aircraft flying in and out of the airport per day. Impacts associated with the Proposed Action are discussed below.

Air Quality – Pasco County is located in an attainment area for all National Ambient Air Quality Standards criteria air pollutants and is not subject to the requirements of a State Implementation Plan. The Proposed Action would result in a small increase in aircraft emissions and temporary construction emissions. The Proposed Action would not have any significant air quality impacts.

Biological Resources – Land cover within the project site includes open land, hardwood conifer mixed vegetation, upland-cut ditches and stormwater ponds, and grassed airfield. No jurisdictional wetlands are located within the project site.

Effect on Federally-Listed Species

No Critical Habitat is present on or in the vicinity of the project site. The Proposed Action "may affect, but not likely adversely affect" the wood stork. To mitigate impacts to this species, in-kind, onsite replacement of stormwater management features and/or acquisition of credits at an USFWS-approved Wood Stork Mitigation Bank is proposed. The Proposed Action "may affect, but not likely adversely affect" the Eastern indigo snake. To minimize effects on this species, the City will implement the US Fish and Wildlife Service's (USFWS) *Standard Protection Measures for the Eastern Indigo Snake*. The USFWS concurred with FAA's effect determination for both the wood stork and Eastern indigo snake.

Effect on State-Listed Species

The project site contains evidence of gopher tortoise activity. To minimize impacts to this state-listed species, a survey of the project site will be conducted prior to construction. If necessary, a Gopher Tortoise Conservation Permit will be applied for, burrows will be excavated, and tortoises that are recovered will be relocated to an approved conservation site.

No significant impacts on habitat, wildlife, designated Critical Habitat, or protected species would occur.

Climate – Greenhouse gas (GHG) emissions associated with the construction of the proposed runway extension are expected to be minor. The increase in aircraft activity associated with the Proposed Action would generate a relatively small increase in GHG emissions. The Proposed Action would not result in significant climate or climate change impacts.

Coastal Resources – Pasco County is subject to the Florida Coastal Management Program (FCMP). However, the project would not directly or indirectly affect coastal resources. Coordination with the Florida State Clearinghouse indicates the proposed action is consistent with the Florida Coastal Management Program. Final

consistency will be determined through the environmental permit application process.

DOT Act, Section 4(f) Resources – The Proposed Action will not directly affect any publicly-owned parks; recreation areas; or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately owned land from an historic site of national, state, or local significance. The Zephyrhills Municipal Golf Course, a publicly-owned recreation facility that is open to the public, is located on airport property. The Proposed Action would result in a small increase in the size of the DNL 65 noise contour that presently extends over the golf course. However, the golf course is compatible with noise levels up to DNL 70. Therefore, no significant impacts would occur.

Farmlands – Prime, unique, or important farmland soils are not present at ZPH. The Proposed Action would not affect farmland.

Hazardous Materials, Solid Waste, and Pollution Prevention – An environmental database search and site reconnaissance revealed no known sites or areas with environmental concerns within and adjacent to the project site. The Proposed Action would not alter existing hazardous materials/waste generation, storage, or transport practices at the airport. The Proposed Action will not affect any existing or former landfills. No significant impacts related to hazardous materials, solid wastes, and pollution are anticipated.

Historical, Architectural, Archeological and Cultural Resources – A review of the Florida Master Site File showed no previously recorded historic, archaeological, or cultural resources within the Area of Potential Effect (APE) established for the proposed undertaking. Cultural Resource Assessment Surveys were conducted for the Proposed Action.

Consultation was initiated with the Florida State Historic Preservation Officer (SHPO) and Native American Indian tribes. The SHPO concurred with the findings that the Proposed Project will have no effect on historic properties. No response was received from the tribes. The Proposed Action would not significantly impact historic architectural, archaeological, and cultural resources.

Land Use – The Proposed Action would not affect off-airport land uses and would not conflict with local comprehensive plans, zoning ordinances, or land use plans.

Natural Resources – The Proposed Action would not cause a substantial increase in aviation fuel consumption at ZPH and would not affect local energy supplies. No impacts to natural resources would occur.

Noise and Compatible Land Use – A noise analysis was prepared using FAA's noise model (AEDT 2d). In 2021, the Proposed Action's DNL 65 noise contour

would be contained entirely on existing airport property. Similarly, the Proposed Action's 2026 DNL 65 contour would be contained entirely on airport property (including land acquired to implement the project). In both 2021 and 2026, the changes in aircraft noise in the vicinity of the airport would be minor and would not create any incompatible land uses. Significant noise impacts would not occur if the proposed action was implemented. No mitigation is required.

Socioeconomics, Environmental Justice, And Children's Environmental Health and Safety Risks – The Proposed Action would not affect public service demands or affect social conditions. The Proposed Action would not displace any residences or businesses. No significant socioeconomic impacts would occur.

The Proposed Action would not affect local transportation networks. The project would generate a negligible increase vehicle traffic and would not alter traffic patterns in the vicinity of the airport. No significant traffic impacts would occur.

Although census tracts representing minority and low-income populations were identified within the study area, no significant direct or indirect impacts were identified that could affect people living within these census tracts. Therefore, there is no potential for the Proposed Action to have a disproportionately high and adverse impact on minority or low-income populations. The Proposed Action will not increase safety risks or environmental health risks for children. No significant Environmental Justice and children's health and safety risk impacts would occur.

Visual Effects Including Light Emissions – Medium-intensity edge lights would be installed on the new sections of runway and taxiway pavement. The threshold lights and Precision Approach Path Indicator Lights on Runway 1 would be relocated. Visually, the new and relocated lights would be a nearly indistinguishable modification to the existing airfield lighting system at ZPH. No significant visual or lighting impacts would occur.

Water Resources

Wetlands – No Waters of the U.S., including wetlands, would be affected by the Proposed Action.

Floodplains – The Proposed Action would encroach on regulatory (100-year) floodplains located on the airport. The floodplain is associated with low areas and man-made drainage features. The project's design and permitting process will require the City to meet applicable local development code and state requirements for stormwater attenuation and storage. Consistent with Executive Order 11988, the EA evaluated floodplain impacts and found: 1) there is no practicable alternative to siting the Proposed Action in a floodplain, 2) the project would conform to applicable local and state floodplain regulations, 3) the project would not increase floodplain risks, and 4) potential impacts will be minimized.

The floodplain encroachment would not be significant as there is: 1) no high probability of loss of life; 2) no substantial cost or damage, including interruption of aircraft service or loss of a vital transportation facility; and 3) would not cause adverse impacts on natural and beneficial floodplain values.

Surface Waters and Groundwater – The Proposed Action would not directly impact natural surface waters. The project would modify the airport's stormwater management system and require an update to the airport's state-issued Environmental Resource Permit. Commonly-accepted measures to minimize erosion and sedimentation and maintain water quality during construction activities are available and would be included in the project's construction plans and specifications. Measures outlined in FAA Advisory Circular 150/5370.10H, *Standards for Specifying the Construction of Airports*, would also be implemented to minimize the potential for water quality impacts. Prior to construction, the contractor will be required to obtain and comply with the conditions contained in the state-issued National Pollutant Discharge Elimination System (NPDES) permit for discharges from construction activities.

The Proposed Action will not introduce any new or different activities at the airport that would affect the quality of surface waters or groundwater. No significant water resource impacts are anticipated.

Drinking Water Supplies – The proposed action would not substantially increase water usage at the airport and would not affect a public drinking water infrastructure or supplies.

Wild and Scenic Rivers – The proposed action will not affect Wild and Scenic Rivers or river segments included in the Nationwide Rivers Inventory.

Cumulative Impacts – The past, present, and future cumulative projects identified in Section 9 of the EA have generated, or are anticipated to generate, low to moderate environmental impacts. The projects are subject to different environmental regulatory programs, some of which may require mitigation. The minimal impacts associated with the Proposed Action, when considered in addition to other on-airport and off-airport projects, is not expected to exceed any threshold that would indicate a significant impact.

OTHER FEDERAL, STATE AND LOCAL ACTIONS AND PERMITS:

The City is required to obtain all permits and regulatory approvals necessary to implement the Proposed Action. The permits identified in the EA are listed below.

- Florida Department of Environmental Protection - Environmental Resource Permit and NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities.

- Florida Fish and Wildlife Conservation Commission - Gopher Tortoise Conservation permit, as necessary.
- City of Zephyrhills / Pasco County – Tree removal permit
- City of Zephyrhills – Local land development and construction permits

CONSISTENCY WITH APPROVED PLANS OR LAWS: The Proposed Action is consistent with the current Airport Layout Plan. The Proposed Action is consistent with environmental plans, laws, and administrative environmental determinations of federal, state, regional, or local agencies. The project would not require land use or zoning changes.

MITIGATION MEASURES: The Proposed Action will not cause significant environmental impacts that require mitigation. However, other regulatory programs applicable to the Proposed Action require the City to provide mitigation and implement certain protective measures. As discussed in the EA, the City of Zephyrhills will be responsible for implementing the following minimization and mitigation measures:

- For the wood stork, the City will provide in-kind, onsite replacement of stormwater management features and/or acquire mitigation credits from a USFWS-approved Wood Stork Mitigation Bank.
- During construction, the City will implement conservation measures for the Eastern indigo snake.
- The City will conduct pre-construction surveys for the gopher tortoise and relocate any individuals (and other commensal species) to an approved off-site location. Concurrent with the gopher tortoise survey, the City will conduct surveys for the Florida burrowing owl and Florida sandhill crane.
- The City will incorporate measures into the project's permitting and design plans to mitigate floodplain encroachment.

PUBLIC INVOLVEMENT: Early coordination was conducted with select federal, state, and local agencies to gather information and identify issues of concern relative to the Proposed Action.

The Notice of Availability of the Draft EA was published in the Tampa Bay Times on October 27, 2019 and in the Zephyrhills News on October 24 and 31, 2019. The Draft EA was available for review at Zephyrhills City Hall, Zephyrhills Public Library, and at the airport's administrative office. The Draft EA was also provided to the Florida State Clearinghouse; select federal, state, and local agencies; and Native American Indian tribes. No public or agency comments were received.

FUNDING: Section 4 of the EA states that the Proposed Action would be implemented using funds provided by the State of Florida.

The EA provides information necessary for the FAA to fulfill its obligations under NEPA. The FAA's environmental findings on the Proposed Action do not signify an FAA commitment to provide financial support for the Proposed Action. A funding commitment can only be made if, and when, the City of Zephyrhills submits a federal 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.

FEDERAL FINDING OF NO SIGNIFICANT IMPACT: I have carefully and thoroughly considered the facts contained in the attached Environmental Assessment (EA). Based on my independent review, I find the EA is consistent with FAA's regulations and is consistent with the Council on Environmental Quality's regulations implementing the *National Environmental Policy Act* (NEPA) (40 CFR Part 1500) as well as FAA's Orders 1050.1F and 5050.4B for implementing the procedural provisions of NEPA. Consequently, I find the proposed Federal action will not significantly affect the quality of the human environment or include any condition requiring any consultation pursuant to section 102(2)(C) of NEPA. As a result, the FAA issues this Finding of No Significant Impact, determining that an Environmental Impact Statement for this action is not necessary.

APPROVED: BARTHOLOMEW VERNACE Digitally signed by BARTHOLOMEW VERNACE Date: 2020.08.18 12:01:56 -04'00'

Bart Vernace, Manager, Orlando Airports District Office

DATE: August 18, 2020

DISAPPROVED: _____

DATE: _____

RECORD OF DECISION AND ORDER

I have carefully considered the FAA's statutory mandate to ensure the safe and efficient use of the national airspace system as well as the other aeronautical goals and objectives discussed in the EA. My review of the EA and determination regarding issuance of the FONSI included evaluation of the purpose and need that this proposed action would serve, the alternate means of achieving the purpose and need, the environmental impacts associated with these alternatives, and any mitigation necessary to preserve and enhance the human, cultural, and natural environment.

Under the authority delegated to me by the FAA Administrator, I find the proposed action described in the EA is reasonably supported. I, therefore, direct that action be taken to carry forward the necessary agency actions discussed in the EA and in the attached FONSI. This Record of Decision (ROD) represents the FAA's final decision and approval for the actions identified in the EA and constitutes a final order of the FAA Administrator subject to review by the Courts of Appeal of the United States in accordance with the provisions of 49 U.S.C. 46110. Any party seeking to stay implementation of the ROD must file an application with the FAA prior to seeking judicial relief as provided in Rule 18(a) of the Federal Rules of Appellate Procedure.

APPROVED: BARTHOLOMEW VERNACE Digitally signed by BARTHOLOMEW VERNACE Date: 2020.08.18 12:02:26 -04'00'

Bart Vernace, Manager, Orlando Airports District Office

DATE: August 2020

DISAPPROVED: _____

DATE: _____

ENVIRONMENTAL ASSESSMENT
FOR
AIRPORT DEVELOPMENT ACTIONS

August 2020

FEDERAL AVIATION ADMINISTRATION
ORLANDO AIRPORTS DISTRICT OFFICE
SOUTHERN REGION AIRPORTS DIVISION

Airport Name: Zephyrhills Municipal Airport (ZPH)

Proposed Action: Extension of Runway 1-19 and Associated Improvements

This Environmental Assessment becomes a Federal document when evaluated and signed by the responsible FAA official.

Responsible FAA Official: BARTHOLOMEW VERNACE Digitally signed by BARTHOLOMEW VERNACE Date: 2020.08.18 12:00:59 -04'00'

Date: August 18, 2020

This Environmental Assessment (EA) Form is intended for use in the Federal Aviation Administration (FAA) Orlando Airports District Office (ORL/ADO) only, and with the approval of an ORL/ADO Environmental Protection Specialist (EPS). The Airport Sponsor must discuss the use of this EA Form with an ORL/ADO EPS before beginning the EA scoping and environmental analysis process. An electronic version of this EA Form is available upon request from an ORL/ADO EPS.

APPLICABILITY

The purpose of an EA is to determine whether a proposed action has the potential to significantly affect the human environment (see FAA Order 1050.1F, Paragraph 4-3 for more information on determining significance). An EA is a concise public document that briefly provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significance (FONSI). An EA, at a minimum, must be prepared when the proposed action does not normally require an EIS (see Paragraph 3-13, Actions Normally Requiring an Environmental Impact Statement) and:

1) Does not fall within the scope of a Categorical Exclusion (CATEX) (see FAA Order 1050.1F, Paragraph 5-6 *The Federal Aviation Administration's Categorical Exclusions*);

2) Falls within the scope of a CATEX, but there are one or more Extraordinary Circumstances (see FAA Order 1050.1F, Paragraph 5-2 *Extraordinary Circumstances*).

See FAA Order 1050.1F, Paragraph 3-1.2. Actions Normally Requiring an Environmental Assessment.

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INSTRUCTIONS

Introduction: This EA Form is based upon the guidance in FAA Order 1050.1F – *Environmental Impacts: Policies and Procedures,* and the related publication FAA Order 1050.1F Desk Reference (1050.1F Desk Reference). The Order provides the FAA policies and procedures to ensure agency compliance with the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] §§ 4321-4335), the requirements set forth in the Council on Environmental Quality (CEQ), Title 40, Code of Federal Regulations (CFR), parts 1500-1508, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (CEQ Regulations), and Department of Transportation (DOT) Order 5610.1C, *Procedures for Considering Environmental Impacts*. The CEQ Regulations establish procedures for complying with NEPA. In accordance with 40 CFR § 1507.3 of the CEQ Regulations, the Order contains the FAA's implementing procedures, which supplement those regulations. The 1050.1F Desk Reference provides details on current guidance and updated technical information. This includes information about permits, licenses, consultations, and other forms of approval or review; up-to-date details on technical information such as FAA-approved tools for analyzing noise and air emissions; overviews of special purpose laws and requirements; and specific responsibilities and guidance for gathering data, assessing impacts, consulting other agencies, and involving the public.

Early Planning: Environmental issues should be identified and considered early in a proposed action's planning process to ensure efficient, timely, and effective environmental review. Preparation for any applicable permit application and other review process requirements should be part of the planning process to ensure that necessary information is collected and provided to the permitting or reviewing agencies in a timely manner. The Airport Sponsor should identify known environmental impact categories that the Action and alternatives (if any) could affect, including specially protected resources. These tasks should be completed at the earliest possible time during Action planning to ensure full consideration of all environmental impact categories and facilitate the FAA's NEPA process. Sufficient planning and Action justification must be available to support the environmental review.

******IMPORTANT******

The Airport Sponsor must contact their ORL/ADO Program Manager if the Proposed Action is not depicted on the Airport's conditionally-approved ALP. The ORL/ADO will determine if an update to the ALP is required. If an interim ALP update is required, coordination and approval can take up to 90 days and must be finalized prior to an environmental decision.

A Proposed Action's pre-application for Federal funding (design or construction) must include an environmental finding in accordance with NEPA. Pre-applications are normally due in the ORL/ADO in January in order to receive a grant for the following fiscal year. The Airport Sponsor should allow 6-12 months prior to submitting a pre-application to the ORL/ADO for Federal funding to complete the EA process.

1. PROPOSED ACTION LOCATION

Airport Name and Identifier:	Zephyrhills Municipal Airport (ZPH)		
Airport Address:	39450 South Avenue		
City:	Zephyrhills	**County:**	Pasco
State:	Florida	**Zip Code:**	33542

2. AIRPORT SPONSOR INFORMATION

Point of Contact:	William Poe, City Manager
Address:	5335 8th Street, Zephyrhills, FL 33542
Business Phone:	813-780-0011
EMAIL:	WPoe@ci.zephyrhills.fl.us

3. PREPARER INFORMATION

Point of Contact:	Amy Paulson, Environmental Science Associates		
Address:	4200 W. Cypress Street, Suite 450, Tampa, FL 33607		
Business Phone:	251- 210-6757		
FAX:	813-207-7201	**EMAIL:**	apaulson@esassoc.com

4. PROPOSED ACTION

Describe the Proposed Action with sufficient detail in terms that are understandable to individuals who are not familiar with aviation or commercial aerospace activities. List and describe all components of the Proposed Action including all connected actions. Summarize how the Proposed Action fits into the Airport's ALP. Attach an exhibit of the Airport's conditionally approved ALP depicting the Proposed Action, and an exhibit of the Proposed Action on a recent airport aerial. Summarize costs, including any mitigation costs, if applicable. Discuss how the Proposed Action will be funded. Provide a timeframe identifying when the Proposed Action is to be constructed and operational.

In order to support existing businesses and further attract industries to the area, the City of Zephyrhills (City) proposes to improve the accessibility of Zephyrhills Municipal Airport (ZPH) for a wider range of modern business jet aircraft by extending Runway 1-19 to a total length of 6,200 feet. The need for a longer runway to promote local and regional economic development is a part of ongoing ZPH and City planning initiatives and was identified in the ZPH 2003 Airport Master Plan Update. The City has prepared this Environmental Assessment (EA) for the extension of Runway 1-19 and associated improvements in accordance with the *National Environmental Policy Act*, Council on Environmental Quality regulations, and Federal Aviation Administration (FAA) policy and guidance contained in Order 1050.1F, *Environmental Impacts: Policies and*

Procedures, and FAA Order 5050.4B, *National Environmental Policy Act implementing Instructions for Airport Actions*.

4.1 Airport Background and Activity

ZPH is located in the City of Zephyrhills, Pasco County, Florida (**Appendix A, Exhibit 1**). ZPH is classified as a public use, basic general aviation airport,[1] primarily serving aircraft operated by local and regional corporate, business, and recreational users in Pasco County and the Central Florida and Tampa Bay area, including the Wesley Chapel, Dade City, and St. Leo communities of West Central Florida. The Airport is part of the West Central Florida Region of the Continuing Florida Aviation System Planning Process, which is established by the FAA and the Florida Department of Transportation (FDOT) to monitor and maintain the Florida Aviation System Plan.

The airport currently offers Runway 5-23, which is 5,000 feet long by 100 feet wide, and Runway 1-19, which is 4,694 feet by 100 feet. The existing runways accommodate single-engine, multi-engine, and jet aircraft as well as rotorcraft and glider operations. Amenities include 160 aircraft hangars, 24-hour fueling, a Fixed Base Operator, and a passenger terminal that provides a full range of facilities and services for arriving and departing airport users. Additional services offered at the airport include aircraft rentals, flight instruction, air taxi and charter flights, and aircraft repair services.

ZPH is known to generate over $106 million annual economic impact to the region.[2] There are 13 businesses in operation on the airport itself or within the adjacent industrial park, including Florida's most popular skydiving center, Skydive City. The Skydive City operation includes a pro shop, camping grounds, and instructional school and contributes an estimated $6 million to the City each year. Aviation Instrument Technologies Inc., a manufacturer of electronic instrumentation panels, aviation clusters, vehicle consoles, and other mechanical devices, is also a primary user at ZPH. Additionally, ZPH hosts a Canadian-based air ambulance provider and other local private businesses, such as Philips & Jordan and Nestlé's Corporation. Other ZPH users include aircraft engine and repair facilities and paint, avionics, airframe, and power plant maintenance services. There were 176 based aircraft present at ZPH in 2017.[3]

Aircraft activity has been steady at the airport for the past five years, and the FAA estimates an average of 135 daily aircraft operations occurred at ZPH from 2013 to 2017, 66 percent of which were local operations and 34 percent of which were itinerant operations.[4]

4.2 Description of the Proposed Project

The Proposed Project includes the extension of Runway 1-19 and associated taxiway, the relocation of 6th Avenue, modification to the Skydive City layout, and associated construction and maintenance actions **(Appendix A, Exhibit 2)**.

Runway 1-19 would be extended to the south by 1,506 feet to provide an overall runway length of 6,200 feet (**Appendix A, Exhibit 2a**). The runway length analysis documents the need for the runway improvements and identifies the airport design standards applicable to the proposed runway (**Appendix B)**. The Proposed Project also includes the construction of a 35-foot-wide, 1,700 linear foot partial parallel taxiway on the west side of the runway. Both extensions would be the same width as the existing runway (100 feet) and taxiway (35 feet). The anticipated total area of new runway, taxiway, and associated connector asphalt pavement is

[1] Federal Aviation Administration. *Report to Congress - National Plan of Integrated Airport Systems (2019-2023)*. September 26, 2018.
[2] Florida Department of Transportation, Aviation and Spaceports Office, 2019. *Statewide Aviation Economic Impact Study: The Economic Impact of Zephyrhills Municipal Airport.* March.
[3] FAA *Terminal Area Forecast*, issued January 2019.
[4] FAA *Terminal Area Forecast*, issued January 2019.

approximately 210,100 square feet. Project elements specific to the Runway extension at the southern end of the existing Runway 1-19 include:

- Construct approximately 1,506 linear feet by 100-foot-wide asphalt pavement runway extension to bring Runway 1-19 to total length of 6,200 feet.
- Construct approximately 1,700 linear feet of 35-foot-wide asphalt pavement partial parallel taxiway on the west side of the proposed Runway 1-19 extension. This addition will allow a connection to Taxiway B at the end of the existing Runway 1.
- Clear approximately 40 acres of trees, vegetation, and objects within the proposed runway safety area (PRSA), proposed runway and taxiway object free areas (PROFA and PTOFA), and approach surfaces (i.e. proposed Runway Protection Zones [PRPZ]). The PRSA area will be graded, and the existing Borrow Pond 1 is to be removed (filled) to support the new PRPZ. Most cleared area will be re-planted with grass to ease efficiency of future, ongoing landscape management.
- Construct stormwater management features supporting the new runway pavements and graded areas. Further engineering of stormwater management features will be the result of ongoing site planning and permitting processes, but may include the reconfiguration of existing Borrow Pond 2, and the construction of additional ditches and swales. The existing open stormwater drainage ditches may be converted to a closed culvert system (i.e., reinforced concrete pipe) as vegetation is removed throughout the PRSA, PROFA/PTOFA, and PRPZ. Note that these proposed stormwater management improvements are conceptual at this time and may be further refined as the design process continues.
- Land acquisitions are required as part of this Proposed Action in order to establish and maintain adequate runway and safety areas (e.g., ROFA/TOFA and RPZ). Land acquisitions associated with extending the southern end of Runway 1-19 include:
    - 0.8 acres of privately-owned land to the southeast of the Runway 1-19 extension to be purchased from the adjacent landowner.
    - 3.5 acres of City-owned land to the southeast of the Runway 1-19 extension to be transferred to the ZPH Airport activity.
    - 24.2 acres of City-owned land to the south of the Runway 1-19 extension to be transferred to the ZPH Airport activity.
- Install new runway and taxiway edge lights; relocate/upgrade Runway 1 threshold lights, Precision Approach Path Indicator Lights, and Runway End Identifier Lights; and re-mark Runway 1-19 pavement surfaces.
- Install security fencing and gates.
- Publish instrument approach procedures for Runway 1-19. Remove obstructions, as needed.

To meet airport design standards applicable to the Proposed Project, which would allow larger aircraft to use ZPH, 6th Avenue must be relocated to the north and outside of the proposed RPZ. Project elements specific to the 6th Avenue road relocation at the northern end of the existing Runway 1-19 (**Appendix A, Exhibit 2b**) include:

- Construct up to 2,000 linear feet of new road from the intersection of Airport Road and 6th Avenue to reconnect with 6th Avenue before the intersection of Chancey Road. The realigned road segment will be 25 feet wide with a 50-foot right-of-way to accommodate stormwater management features. The

anticipated total area of new asphalt pavement associated with the new portion of 6th Avenue is approximately 50,000 square feet (1.1 acres). The final placement and configuration of the roadway will be determined in ongoing design and permitting processes.

- Remove and restore approximately 1,100 linear feet of the portion of 6th Avenue to be closed (25,700 square feet). The closed section of roadway pavement will be removed and the area will be minimally graded and re-seeded in accordance with stormwater best management practices. Removed pavement may be recycled and used as base layer for construction of the new road pavement.
- Remove approximately 16 acres of vegetation associated with the new road and right-of-way alignment.
- Remove approximately 8 acres of vegetation associated with the establishment of the PRPZ.
- Land acquisitions associated with relocating 6th Avenue include:
    - One 15-acre parcel and one 22-acre parcel of City-owned land to the north of the existing end of Runway 1-19 to be transferred to the ZPH Airport activity.
    - One 1-acre parcel of privately-owned land to the east of the City-owned land to be purchased from an adjacent landowner.
    - One 2.4-acre parcel of privately-owned land to the east of the City-owned land to be purchased from an adjacent landowner.

The layout of Skydive City would be modified in order to maintain proper safety and separation of on-airport recreational activities and other aircraft operations, including the following project elements (**Appendix A, Exhibit 2a**):

- Re-orientation and expansion of existing 0.9-acre Swoop Pond, which is currently utilized in an east-west direction and occasionally results in jumpers landing in the existing RSA. The Swoop Pond would be re-established at 2.1 acres, and a north-south orientation would ensure that skydivers do not encroach or land upon the extended runway area and remain out of the PROFA, PRSA, and off the Runway surface as the stunt is completed.
- 12.9 acres of vegetation clearing, grading, and ongoing maintenance of area to the south of the reoriented Swoop Pond to remove obstructions and potential vegetation hazards for skydivers.
- Upgrade existing stormwater management features, potentially including the conversion of an existing open stormwater drainage ditch to a closed culvert (reinforced concrete pipe). Additional vegetation clearing, grading, and ongoing maintenance would occur along existing drainage ditch. Note that these proposed stormwater management improvements are conceptual at this time and may be further refined as the design process continues.
- Consolidate existing recreational vehicle (RV) park from its existing location west of Skydive Lane to behind security fencing just east of Skydive Lane. Remove structures currently located on west side and rehabilitate ground cover at this location.

A summary of the Proposed Project footprint is given in **Table 4-1.**

TABLE 4-1
SUMMARY OF PROPOSED PROJECT FOOTPRINT AREA

Project Element	Project Footprint (pavement)	Vegetation Clearing	Surface Water	Land Acquisition
Extension of Runway 19 (South)				
Runway	1,506 x 100 ft. 150,600 sq ft.	Grading	None	None
Taxiway	1,700 x 35 ft. 59,500 sq. ft.	Grading	None	None
PRSA/PROFA	No new pavement	26.2 acres	Remove Borrow Pond 1 (OSW 2): 7.2 acres (4.3 acres in PRSA/PROFA and 2.9 acres in RPZ) Culvert Drainage Ditch (OSW 1) : 2.2 acres	3.5 acres transferred from City 0.8 acres purchased from landowner
PRPZ	No new pavement	13.2 acres	Modify Borrow Pond 2 (OSW 3): 2.1 acres	24.2 acres transferred from City
6th Avenue Road Relocation (Runway 1 / North)				
New Road	200 x 25 ft. 50,000 sq. ft. (pavement only)	15.9 acres	None	3.4 acres purchased from 2 landowners
Remove Old Road	Remove 1,100 x 25 ft. / 27,500 sq. ft.	Grading	None	None
RPZ	No new pavement	8 acres	None	37 acres transferred from City
Modifications to Skydive City				
Re-orient Swoop Pond	No new pavement	12.9 acres	Existing Swoop Pond (OSW 5): 0.9 acres Swoop Pond Remove/fill: 0.5 acres New Swoop Pond: 2.1 acres Culvert Drainage Ditch (OSW 1) : 4.6	None
Relocate RV Park	Unknown	7.7 acres	Culvert Drainage Ditch (OSW 1) : 0.8	None

TOTAL	260,100 sq. ft. of new pavement (less 27,000 sq. ft. of removed pavement)	83.9 acres	Modification to OSW 1: 7.7 acres / 6,077 linear feet of buried, closed-culvert installed Pond Modification: 7.2 acres Pond Establishment: 2.1 acres	68.9 acres (4.2 acres from 3 private landowners)

NOTES: Total sq. ft. includes connector pavement
PROFA = Proposed Runway Object Free Area; PRPZ = Proposed Runway Protection Zone; PRSA = Proposed Runway Safety Area; OSW = Other Surface Waters; Sq. Ft = square feet

4.3 Anticipated Induced Activity

The Proposed Project would enhance the accessibility of existing ZPH aviation facilities, which is anticipated to result in an increase in aircraft operations at the airport. **Table 4-2** presents a forecast of future operations based on the current level of activity and the FAA Terminal Area Forecast.[5] The year 2021 is anticipated to be the first full year the Proposed Project will be in operation, and the forecast developed for this EA anticipates approximately 500 additional aircraft operations at ZPH in the first full year of operation. When compared to the No-Action Alternative forecast for 2026 (55,739 operations), the 57,239 Proposed Project operations represent an increase of 1,500 or 2.7 percent.[6] Assuming equal distribution over a calendar year, this increase is equivalent to an additional 4 operations[7] per day by 2026.

TABLE 4-2
AIRCRAFT OPERATIONS FORECAST: NO-ACTION VS. PROPOSED PROJECT

Year	No-Action Operations Forecast (TAF)		Proposed Project Operations Forecast	
	Total Aircraft Operations	Annual Average Growth Rate	Total Aircraft Operations	Annual Average Growth Rate
2018	50,088	N/A	N/A	N/A
2021	52,133	1.34%	52,633 (+500 over No Action)	1.58%
2026	55,739	1.35%	57,239 (+1,500 over No Action)	1.69%

Sources: *2018 FAA Terminal Area Forecast*, issued February 2019; Environmental Science Associates, 2019
NA = not applicable

4.4 Project Costs and Funding Mechanisms

The Proposed Project conceptual development cost is approximately $6.7 million (**Table 4-3**). The City has received $5.9 million from the State of Florida to implement the Proposed Project, and the City will provide additional funding, as needed.

[5] *2018 FAA Terminal Area Forecast*, issued February 2019
[6] 2.7 percent represents the cumulative increase in operations (1,500) of 2026 Proposed Project over the 2026 No Action alternative.
[7] An operation is defined as one aircraft landing (arrival) or takeoff (departure).

TABLE 4-3
CONCEPTUAL DEVELOPMENT COST

Project Element	Projected Cost
Extend Runway 1-19	
Design	$400,000
Construction	$4,600,000
Private Land Acquisition	$120,000
Modify Skydive City	
Design	$100,000
Construction	$1,200,000
Relocate 6th Avenue	
Design	$85,000
Construction	$300,000
Private Land Acquisition	$357,000

Source: AID, 2019
NOTE: The estimated cost of extending Runway 1-19 does not include costs wildlife management.

4.5 Proposed Development Schedule

Table 4-4 outlines the preliminary project development schedule for the Proposed Project.

TABLE 4-4
PRELIMINARY PROJECT DEVELOPMENT SCHEDULE

Project Element	Construction Period
Extend Runway 1-19	
Design	2019
Construction	2020
Modify Skydive City	
Design	2019
Construction	2020
Relocate 6th Avenue	
Design	2019
Construction	2020

Source: City of Zephyrhills, 2019; FDOT, 2019 *Florida Aviation Database;* ZPH, 2019 *Capital Improvement Program*.

5. PURPOSE AND NEED

(1) Describe the underlying purpose and need for the Proposed Action. Present the problem being addressed, describe what the Airport Sponsor is trying to achieve with the Proposed Action, and take into account the FAA's primary mission to provide the safest, most efficient aerospace system in the world. The purpose and need of the Proposed Action must be clearly explained and stated in terms that are understandable to individuals who are not familiar with aviation or commercial aerospace activities. The purpose and need must be supported by recent data. To keep this section brief, incorporate by reference any supporting data, inventories, assessments, analyses, or studies. This can include but is not limited to FAA compliance or standard changes, letters from users showing need per FAA design standards, letters of commitment from current or prospective tenants, based aircraft data, fuel data, scheduled service, critical aircraft needs, TAF and Master Plan forecasts, capacity issues (actual use/need of aircraft or airline, or scheduled commercial service. IMPORTANT: If the Airport Sponsor intends

to request Federal funding, the purpose and need for the Proposed Action must be justified by recent airport planning analysis and concurred with by ADO management before initiating the EA.

5.1 Purpose and Need for the Proposed Project

5.1.1 Purpose of the Proposed Project

The purpose of the Proposed Project is to improve the accessibility of the airport to a wider range of business jet aircraft. The runways at ZPH are capable of supporting business jets; however, their lengths (5,000 and 4,694 feet) are only capable of supporting the smaller end of the general aviation jet fleet with minimal operational restrictions. The current length of the airport's runways limits the utility of the airport, and operators of medium-size to large business jets incur substantial operational restrictions or are required to use alternate airports. Overall, ZPH does not have a runway that fully accommodates the needs of its current and prospective business jet operators. The Proposed Project would reduce operational restrictions imposed on business jet operators at ZPH.

A runway length analysis was prepared in 2018 clarifying the aircraft size class selection at ZPH (**Appendix B**). The 6,200-foot runway length represents the length needed to accommodate 75 percent of the aircraft fleet weighing between 12,500 and 60,000 pounds. It also provides the length needed for the specific general aviation jets evaluated in order to operate at ZPH with only minor weight restrictions required on the hottest of days and at the aircraft's Maximum Takeoff Weight. The 6,200-foot runway length is consistent with the runway development program outlined in the ZPH Master Plan and is depicted on the Airport Layout Plan (ALP) (**Appendix C**).

5.1.2 Need for the Proposed Project

The City and ZPH have identified the need to accommodate a wider range of general aviation jets in order to serve existing businesses and attract new local industries, ultimately contributing to the achievement of economic goals established through the City's master planning processes. Providing a 6,200-foot runway would better accommodate the needs of existing users and allow ZPH to compete for the growing needs of their businesses and others that find Zephyrhills an attractive location. The Florida State Legislature appropriated $5.9 million to extend the runway and implement other improvements at ZPH in Fiscal year 2018-2019,[8] and the funding was specifically directed to enhance economic and aviation-related development at ZPH, within the City's industrial corridor, and throughout southeast Pasco County and the Tampa Bay Region.

Ongoing community planning initiatives have repeatedly identified ZPH as an asset to support economic growth in the area. The 2015 *Zephyrhills Community Redevelopment Agency Master Plan* established goals to help stimulate economic development and generate positive economic and employment benefits within the City.[9] This Plan determined that attracting new businesses to Zephyrhills, especially those providing high-paying jobs as often supported by general aviation airports, would help diversify the local economy and improve employment opportunities in the community. Likewise, the airport corridor was identified as a crucial element of the 2016 *City of Zephyrhills Economic Development Strategy*, which further outlined the vision

[8] Resolution 754-18, *A Resolution of the City Council of the City of Zephyrhills, Florida Supporting State Funding of Improvements at the Zephyrhills Municipal Airport Including the Extension of Runway 1-19 and Addition of Internal Access Roads that Enhance Economic and Aviation Related Development at the Airport and Industrial Corridor*.
[9] *Zephyrhills Community Redevelopment Agency Master Plan*, Zephyrhills Community Redevelopment Agency, 2015.

to establish "a strong manufacturing/airport corridor where high paying jobs are created."[10] Following the 2016 Strategy, a 2018 *Airport Industrial Corridor Study* coordinated land use, infrastructure, and economic development planning to diversify and strengthen local and regional (Tampa/Orlando) economies.[11]

Master planning for the airport and airport corridor identified ways to develop the area's potential as an economic generator and regional industrial hub. The City is currently in the process of updating its *Comprehensive Plan*, and community input documented as part of this process includes ongoing interest in positioning the City to capitalize on ZPH, as well as other existing attributes and partnerships such as ZPH Industrial Park, the sky diving industry, railroad access (e.g., freight movement), shovel-ready industrial sites, downtown Zephyrhills, new state roads (SR 56), proximity to Tampa and Lakeland, and strong City-County partnerships."[12]

(2) Identify the Airport Sponsor's requested FAA Federal action in the space below. For the FAA Office of Airports (ARP), a Federal action may include one or more actions (See FAA Order 5050.4B, Paragraph 9.g.). Note: *The information provided in this EA Form allows the FAA to determine if a Finding of No Significant Impact (FONSI) can be issued because the proposed action's environmental impacts, with no additional mitigation, would not be significant, or a mitigated FONSI can be issued because the proposed action's environmental impacts, with additional mitigation, would not be significant (see FAA Order 1050.1F, Paragraph 6-2.3a). FAA environmental findings on an Action do not constitute FAA decisions or approvals regarding Federal funding of the Action.*

The specific federal actions under consideration in this EA include:

- Unconditional approval of the portion of the ZPH ALP[13] that depicts the components of the Proposed Project and its connected actions pursuant to 49 U.S.C. Sections 40103(b), 44718, and 47107(a)(16), and Title 14 Code of Federal Regulations (CFR) Parts 77 and 157.

The FAA's statutory mission is to ensure the safe operation of the airport and airway system in the United States pursuant to Title 49, United States Code (USC) §47101. The FAA ensures compliance with safety, operational, airspace, and airport design standards through the review and approval of proposed airport development projects.

FAA acceptance of a NEPA document and issuance of a decision document or finding is only a determination that the NEPA document satisfies applicable environmental statutes and regulations. Similarly, FAA approval of an ALP does not indicate the FAA will participate in the cost of any proposed development; rather, ALP approval indicates that all existing and proposed airport development shown on the plan meets applicable FAA airport design standards or a current FAA-approved Modification of Airport Design Standards and that the proposed development is useful and efficient.

6. ALTERNATIVES (INCLUDING THE PROPOSED ACTION)

There is no requirement for a specific number of alternatives or a specific range of alternatives to be included in an EA. Alternatives are to be considered to the degree commensurate with the nature of the proposed Action and agency experience with the environmental issues involved. The Sponsor's preferred alternative, if one has been identified, should be indicated. For alternatives considered but eliminated from

[10] *Clearly Zephyrhills* (brochure), Greater Zephyrhills Chamber of Commerce, 2016. Accessed in November 2018 at: https://www.zephyrhillschamber.org/economic-development
[11] *Five-Year Strategic Action Plan Airport Industrial Corridor,* City of Zephyrhills, June 2018.
[12] *Comprehensive Plan Update 2032*, City of Zephyrhills, 2018.
[13] The *Zephyrhills Municipal Airport Layout Plan* (ALP) depicts the development of the runway extension and associated projects.

further study, the EA should briefly explain why these were eliminated. Note: *An EA may limit the range of alternatives to the proposed action and no action when there are no unresolved conflicts concerning alternative uses of available resources. This means that you may limit the range of alternatives to the proposed action and no action if you can establish consensus based on input from interested parties that there are no unresolved conflicts, or if there are no reasonable alternatives that would be substantially different in design or effects. If you are able to do this, you must document the basis for concluding consensus and identify the parties that participated; and, you must discuss why there are no reasonable alternatives that would be substantially different in design or effects. This is why the Purpose and Need is important in helping define the range of alternatives.*

(1) Discuss in comparable format to that listed below the Proposed Action and alternatives. Discuss how the Proposed Action and alternatives were developed e.g. recent planning study or Master Plan Update. Attach figures for the Proposed Action and alternatives to aid in understanding the physical layout and differences in the alternative configurations.

For each alternative:
a. Discuss to what extent an alternative meets the Purpose and Need.

b. Discuss if an alternative is technically and economically feasible e.g. operational considerations/regulations, safety considerations, constructability, infrastructure requirements, property acquisition requirements, and costs.

c. Discuss potential social, socioeconomic, and/or environmental resource impacts for each alternative e.g. business or residential relocations, road relocations or closures, environmental resources protected under Federal statutes (wetlands, floodplains, and listed species, and Section 4(f), or Section 106 resources).

d. For each alternative considered but eliminated from further study, summarize why it is not considered reasonable. Note: ***To be reasonable, an alternative must respond to the purpose and need, be technically and economically feasible, and be reasonably consistent with the land use plan for management of the area.***

A two-level evaluation screening process was used to screen potential alternatives for the Proposed Project. The first level of screening evaluated whether or not each alternative would satisfy the purpose of and need for the Proposed Project (as defined in Section 5 of this EA). All alternatives that satisfied the Purpose and Need evaluation were carried forward to the next screening level. The second level of screening evaluated the remaining alternatives in terms of existing land uses, constructability, and potentially significant environmental effects. Level two screening narrowed the range of alternatives to those that were considered reasonable and focused on cursory, fatal-flaw environmental resource review based on best available data and professional judgement. Alternatives that did not meet the evaluation criteria established at levels one and/or two were eliminated from further consideration and were not subject to a detailed analysis of environmental impacts in this EA. **Table 6-1** presents the results of the two-level evaluation screening process on all identified potential alternatives to the Proposed Project. The on-airport alternatives are derived from the 2003 Airport Master Plan, which identified a series of future development alternatives as part of the planning process that were considered during the identification of potential alternatives to the Proposed Project.

6.1 Alternatives Considered but Eliminated from Detailed Analysis

6.1.1 Alternative 1 - Use of Other Airports

This alternative considered the utilization of other airport(s) within a 30-minute drive (or 20 miles) of ZPH. 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.[14] The following airports operate within 20 miles of ZPH:[15]

- Plant City Airport is located approximately 16 miles south of ZPH. It operates Runway 10-28, which is 3,950 feet long by 75 feet wide.
- Lakeland Linder International Airport is located 19 miles southeast of ZPH. It operates Runway 9-27, which is 8,499 feet long by 150 feet wide; Runway 5-23, which is 5,005 feet long by 150 feet wide; and Runway 8-26, which is 2,205 feet long by 60 feet wide.
- Tampa Executive Airport is located 18 miles to the southwest. It operates Runway 5-23, which is 5,000 feet long by 100 feet wide and Runway 18-36, which is 3,219 feet long by 75 feet wide.

The Brooksville-Tampa Bay Regional Airport and Winter Haven Regional Airport are 24 miles northwest and 27 miles southeast of ZPH.

Level 1 Screening. This alternative does not address the runway length limitation at ZPH, and the use of an alternate airport would not allow a broader range of business jet aircraft to use ZPH. Existing users have determined that ZPH is the most economic and efficient location to base their operations, and the City seeks to support further growth at ZPH and local economic development objectives. Furthermore, while Lakeland Linder International Airport is the only airport within 20 miles that could meet the need for aircraft requiring a 6,200-foot runway, the City does not have the authority to dictate that general aviation 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 (**Table 6-1**).

6.1.2 Alternative 2 - Other Modes of Transportation

This alternative considered the use of other modes of transportation for the demand placed on ZPH, 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 by ZPH.

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 reduce demand at ZPH or allow a broader range of business jet aircraft to use the airport. Additionally, as there is no funding or timetable for the implementation of a high-speed rail system that would serve Pasco County, high-speed rail is not a reasonable alternative to the Proposed Project. 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 (**Table 6-1**).

[14] National Plan of Integrated Airport Systems (2019-2023), *Chapter 1: Airport System Composition*, page 1.
[15] Location information accessed in May 2019 at: http://www.airnav.com/airport/KZPH

6.1.3 Alternative 3 - Extend Runway 5-23

This alternative would extend Runway 5-23 and corresponding segments of the full-length parallel taxiway 1,199 feet to provide an overall runway/taxiway length of 6,200 feet. This alternative evaluated both the potential to construct the extension entirely at the southwest end of the existing runway (**Appendix A, Exhibit 3 - Alternative 3a**) as well as accommodating the extension in part at both ends by constructing 749 feet to the southwest and 450 feet to the northeast (**Appendix A, Exhibit 4 - Alternative 3b**).

Level 1 Screening. This alternative would satisfy the Purpose and Need as it provides additional runway length at ZPH that would allow a broader range of business jet aircraft to use the airport. In addition, this runway is served by a full-length taxiway and the majority of airfield hangar, fueling, and other ramp facilities.

Level 2 Screening. This alternative is constrained by existing businesses and residences. No other significant environmental impacts are anticipated.

Land Acquisition and Relocations – In order to accommodate the runway design requirements associated with both options under this Alternative, the PRSA, PROFA, and PRPZ would extend beyond the existing airport property line. Extending the runway fully to the southwest (Alternative 3a) would require the minimum acquisition of approximately 26.8 acres of private land at the Runway 5 end, including portions of 8 parcels privately owned by 6 individual entities and affecting 4 homes located within the PRPZ. The location of the PRSA, PROFA, and PRPZ in this area would also require the adjacent Zephyrhills Bottled Water Plant to completely reconfigure their existing trucking bays, trailer storage, and movement areas located on the east side of the plant. To the northeast, approximately 17 acres of land associated with the Runway 23 PRPZ would require acquisition, including portions of 2 parcels privately owned by one entity and portions of 2 city-owned parcels.

If the extension was implemented by adding length to each side of the existing runway (Alternative 3b), the additional 749 feet at the southwest end would still require the acquisition of approximately 19.1 acres of private land, affecting portions of 7 parcels privately owned by 5 individual entities and affecting 2 homes, due to Runway 5 PRPZ requirements. There would be a minor decrease in the impacts to the Zephyrhills Bottled Water Plant over Alternative 3a as a smaller portion of existing trucking bays, trailer storage, and movement areas located on the east side of the plant would fall under the Runway 5 PRPZ and be unaffected by the Runway 5 PROFA and PRSA. Extending the runway 450 feet to the northeast would require the acquisition of approximately 25.4 acres, affecting a portion of one privately-owned agricultural parcel and a small portion of City-owned land, to accommodate the portions of the PRSA, PROFA, and PRPZ extending off-airport.

Connected Construction Requirements – Due to the extended airfield surfaces, existing stormwater management infrastructure running adjacent to Alston Avenue at the southwestern end of the runway would be modified, including the need to convert the existing open stormwater drainage ditch to a closed culvert (reinforced concrete pipe) for a minimum of 600 linear feet (Alternative 3a, full extension) to 300 linear feet (Alternative 3b, partial extension).

Roadway Impacts – To meet federal standards, all public use roads must have a minimum vertical clearance of 15 feet to the Approach Surface off each runway end. At the southwestern end of the runway, both a full or partial runway extension and associated safety areas would extend across Alston Avenue requiring it to be relocated to maintain the required 15-foot vertical clearance and to remain clear of the PROFA, PRSA, and PRPZ. For both options under this alternative, the eastern half of Alston Avenue would have to be completely re-routed to the south due to the proximity of and lack of available space between the Zephyrhills Bottled Water Plant and required airport surfaces. Roadwork

would include the removal of approximately 2,200 feet of Alston Avenue and the addition of approximately 4,500 feet of paved road, including the improvement of 3,100 feet of unpaved Tucker Road and 1,400 feet of an existing single-lane gravel utility road (**Appendix A, Exhibit 3 - Alternative 3a and Exhibit 4, Alternative 3b)**.

Both alternatives would likewise require the relocation of 6th Avenue in order to maintain 15-foot vertical clearance between the road and the Approach Surface as well as to remain clear of the PRPZ. Alternative 3a would require the removal of approximately 1,700 feet of 6th Avenue and the construction of approximately 2,300 feet of new road to realign 6th Avenue around the PRPZ. Alternative 3b would be similar, but would require the removal of approximately 1,800 feet of existing 6th Avenue and the addition of approximately 2,300 feet of new pavement to realign 6th Avenue.

Conclusion. The Level 2 screening process highlighted significant land use compatibility issues; thus, the alternative of extending Runway 5-23 1,199 feet to the southwest or 749 feet to the southwest and 450 feet to the northeast was eliminated from further consideration. A summary of this alternative is provided in **Table 6-1**.

6.1.4 Alternative 4 – Extend Runway 1-19 to the North and South

This alternative would extend Runway 1-19 475 feet to the north and 1,031 feet to the south to provide an overall runway length of 6,200 feet (**Appendix A, Exhibit 5**).

Level 1 Screening. This alternative would satisfy the Purpose and Need as it provides additional runway length at ZPH that would allow a broader range of business jet aircraft to use the airport. It would also facilitate aviation-related development of the east side of the airport.

Level 2 Screening. This alternative is constrained by existing and planned future land uses. Moderate land use compatibility issues and construction impacts are anticipated. No significant environmental impacts are anticipated.

Operational and Tenant Impacts – Any extension of Runway 1-19 to the north would result in the Runway 1-19 pavement overlapping the current Runway 23 threshold. Therefore, this alternative would require relocating the current Runway 23 threshold to the southwest by approximately 670 feet. In addition to reducing the overall length of Runway 5-23, this alternative would reduce/modify the northeast end of Taxiway A and ultimately airfield access into facilities proposed on the northwest side of the airfield. Runway 1-19 would be established as the primary runway and the bulk of operations and larger aircraft would be shifted to this runway. Additionally, the layout of Skydive City would be modified in order to maintain proper safety and separation of on-airport recreational activities and other aircraft operations, including the re-orientation and expansion of the existing Swoop Pond and consolidation of the RV park to behind security fencing just east of Skydive Lane.

Land Acquisition and Relocations – There are no existing structures in any area to be acquired and no relocations or impacts to permanent or temporary structures would be required; however, adjacent land would be acquired to support establishment of runway safety surfaces. Extending Runway 1-19 and its PRSA, PROFA, and PRPZ to the south would require the acquisition of 0.8 acres of privately-owned land to the southeast of the runway and the transfer of 3.5 acres of City-owned land to the ZPH Airport. Land acquisition to the north would be required as associated with establishing the runway extension and to facilitate the relocation of 6th Avenue, including the transfer of two parcels (15 acres and 22 acres) of City-owned land to the ZPH Airport and the acquisition of portions of two privately owned parcels from two landowners east of the City-owned land (1 acre and 2.4 acres). A further northward extension of the runway in this location beyond 475 feet is constrained by future City plans

to promote 442 acres (bounded by Chancey Road, 6th Avenue, and County Road 54) as a Zephyrhills Industrial Park development.[16]

Connected Construction Requirements –Stormwater management infrastructure currently located at the southern end of the extended runway would be modified, including the need to convert approximately 6,077 feet of the existing open stormwater drainage ditch to a closed culvert (reinforced concrete pipe). It is anticipated that a closed-culvert/buried concrete pipe may be installed throughout the extent of the system to reduce wildlife attractiveness to open water features as the trees currently lining the drainage ditches are removed to establish the runway surface and maintain grading/clearing requirements for the PRSA/PROFA.

Roadway Impacts – In order to provide the proper runway design requirements, to include ensuring the 15-foot vertical clearance between the road and the Approach Surface as well as to remain clear of the PRPZ, 6th Avenue would be relocated to the north of its existing location (**Appendix A, Exhibit 5**). Relocating 6th Avenue in support of this Alternative would include removing approximately 1,400 feet of existing County Road and constructing 2,300 feet of new pavement to the north.

Conclusion. The Level 2 screening process highlighted moderate land use compatibility issues and construction impacts and would introduce operational inefficiencies; thus, the alternative of extending the runway 475 feet to the north and 1,031 feet to the south was eliminated from further consideration. A summary of this alternative is provided in **Table 6-1**.

6.2 Alternatives Considered and Retained for Detailed Analysis

Two alternatives are retained beyond the two-level alternatives screening process for further analysis, including the Proposed Project and No Action Alternative. The two-level screening process failed to identify any reasonable alternatives to the Proposed Project that would be substantially different in design or effects.

6.2.1 Proposed Project – Extend Runway 1-19 to the South

The Proposed Project is fully detailed in Section 4.2 (**Appendix A, Exhibits 2, 2a, and 2b**) and depicted on the ZPH ALP (**Appendix C**).

Level 1 Screening. The Proposed Project would satisfy the Purpose and Need, as it provides additional runway length at ZPH that would allow a broader range of business jet aircraft to use the airport. As with Alternative 4, it would also facilitate aviation-related development of the east side of the airport.

Level 2 Screening. Moderate land use compatibility issues and construction impacts are anticipated. No significant environmental impacts are anticipated.

Land Acquisition and Relocations – Land acquisition requirements are the same as described for Alternative 4 at both the northern end, to relocate 6th Avenue outside of the RPZ, and at the southern end, to accommodate the extended runway and related design surfaces. There are no existing structures in any area to be acquired and no relocations or impacts to permanent or temporary structures would be required.

Operational and Tenant Impacts – No operational impacts to Runway 5-23 are anticipated. Similar to Alternative 4, Runway 1-19 would be established as the primary runway and the bulk of operations and larger aircraft would be shifted to this runway. Tenant impacts are the same as described for Alternative 4.

[16] McCallum Sweeny / Duke Energy Site Readiness Program. 2015. *Presentation: Attracting Investment and Employment: Prepared Communities Win, Pasco County, Florida.* 22 June.

Connected Construction Requirements – Anticipated construction requirements associated with stormwater management are the same as described for Alternative 4.

Roadway Impacts – The requirement to relocate a portion of 6th Avenue is the same as described for Alternative 4; however, relocating 6th Avenue in support of this Alternative would include removing approximately 1,100 feet of existing County Road and constructing 2,000 feet of new pavement to the north (**Appendix A, Exhibit 2a**).

Conclusion. As a result of the evaluation process, it is determined that the Proposed Project is appropriate to carry forward for full evaluation of potential environmental impacts. The Proposed Project meets the Purpose and Need as defined in Section 5 of this EA. Likewise, no significant land use, constructability issues, or operational impacts are anticipated, and the Proposed Project would not result in significant environmental impacts to the resources examined in the alternatives screening process.

(2) Although the No Action alternative does not meet the purpose and need, NEPA, and it's implementing regulations requires consideration of the No Action alternative. The No Action alternative, when compared with other alternatives, enables the identification of the potential environmental impacts of the Proposed Action and alternatives. Describe the consequences of the No Action alternative e.g. what are the operational, safety, efficiency, economic effects, and environmental effects of taking no action.

6.2.2 No Action Alternative

In accordance with CEQ regulations, the No Action Alternative has been retained for detailed analysis in the subsequent sections of this EA for baseline comparative purposes and to disclose any potential environmental impacts that may occur without implementation of the Proposed Project.

The No Action Alternative would not involve any runway development or construction activities that are associated with the Proposed Project, and the length of Runway 1-19 and existing location of 6th Avenue would remain unchanged. However, the City would continue to operate and maintain the existing buildings, hangars, airfield pavements, access roads, stormwater and utility services, and various associated infrastructure. As necessary, the City may also undertake projects to enhance safety and maintain compliance with airport design standards and grant assurances. The No Action Alternative does not meet the Purpose and Need to improve the accessibility of the airport to a greater spectrum of modern business jet aircraft utilizing ZPH, and both the Zephyrhills community and ZPH would not realize the beneficial economic effects anticipated as a result of implementation of the Proposed Project.

(3) You must provide a summary table depicting the alternatives analysis that compares the Proposed Action, alternatives considered, and the No Action alternative based on the screening criteria discussed in (1) a. through d.

TABLE 6-1
SUMMARY OF TWO-LEVEL ALTERNATIVES ANALYSIS

Screening Level	Screening Criteria	No Action Alternative	Use Other Airports - Alternative 1	Other Modes of Transportation -Alternative 2	Extend Runway 5-23 - Alternative Options 3a and 3b	Extend Runway 1-19 to the North and South -Alternative 4	Proposed Project
LEVEL 1 Purpose and Need	Allow a broader range of business jet aircraft to use the Zephyrhills Municipal Airport	No	No	No	Yes	Yes	Yes
Continue to Level 2 Screening?		**Yes**	**No**	**No**	**Yes**	**Yes**	**Yes**
LEVEL 2 Constructability Criteria	Constructability Issues?	No	--	--	Yes	Yes	Yes
	Land Acquisition and Residential or Business Relocations Required?	No	--	--	Yes	Yes	Yes
	Roadway Impacts?	No	--	--	Yes	Yes	Yes
LEVEL 2 Operational Criteria	Effects to Airport or Tenant Operations?	No	No	No	No	Yes	Yes
LEVEL 2 Environmental Impacts	Aircraft overflight or approach/ departure profile changes over nearby residences?	No	--	--	No	No	No
	Wetland Impacts?	No	--	--	No	No	No
	Historic and/or Archaeological Resource Impacts?	No	--	--	No	No	No
Retain for detailed analysis in EA?		**Yes**	**No**	**No**	**No**	**No**	**Yes**

SOURCE: AID/Environmental Science Associates 2019; ZPH 2003 Master Plan

7. AFFECTED ENVIRONMENT

Succinctly describe the existing conditions in the Proposed Action's *direct impact area* (construction footprint) and airport vicinity (land use and cover, terrain features, level and type of urbanization, biotic resources, noise sensitive sites (residential, churches, schools, parks, recreational facilities, etc.)). This *indirect impact area* should be large enough to include the area within the composite DNL 65 dB noise contour for the Proposed Action and retained alternatives (if any). The discussion of the affected environment should be no longer than is necessary to understand the impacts of the alternatives; data and analyses should be presented in detail commensurate with the importance of the impact. Discuss any actions taken or issues raised by the local community or citizen groups pertinent to the Proposed Action. If not already provided, attach a graphic and recent aerial of the area with the Proposed Action's and retained alternatives direct and indirect impact areas clearly identified.

7.1 Direct and Indirect Impact Study Areas

The direct impact area is identified as the Proposed Project footprint as depicted in **Appendix A, Exhibits 2a and 2b**; however, analysis of potential direct impacts extends throughout airport property to address additional environmental concerns related to potential noise impacts as well as stormwater improvements that may be required in the final site design and permitting process. The Study Area, as referenced throughout this document, includes the Proposed Project's direct and indirect impact analysis area for each impact category discussed below. The maximum indirect impact Study Area defined for the Proposed Project is shown as a yellow rectangle in various project Exhibits (**Appendix A)**, and is sized and shaped (at approximately 1.25 by 2.3 miles from proposed Runway 1-19) to accommodate the review of potential impacts to wildlife, socioeconomic, and visual resources, and is likewise inclusive of the runway and taxiway safety zones and the composite day/night average sound level (DNL) A-weighted 65 decibel (dBA) noise contour. The analysis for most resources considers the potential effects of the Proposed Project within the Study Area but may be further scaled as appropriate to the individual resource.

7.2 Area Characterization

7.2.1 Physical Setting

The topography at ZPH is relatively flat with an elevation of 79 to 90 feet across airport-owned property. However, just outside ZPH property limits the topography gradually slopes south and southeast towards the Hillsborough River, with elevations ranging from 80 feet to 60 feet.

7.2.2 Level and Type of Urbanization

ZPH is generally located in a rural/industrial setting on the eastern side of the City of Zephyrhills. According to 2017 population estimates, Pasco County is 868 square miles with 498,136 persons (considered a mostly urbanized area), and Zephyrhills City is 9.43 square miles with a population of 14,608.[17] Within the City limits there are a total of 8,517 housing units and a population density of approximately 1,623 people per square mile (considered low density).

There are no sensitive land uses within the airport boundary, but others do exist within or adjacent to the Study Area (**Appendix A, Exhibit 1**). The nearest school (Zephyrhills Middle School) is located 0.88 mile west of ZPH property limits and is outside of the Study Area. Four places of worship are identified within the Study Area (Macedonia Missionary Baptist Church, 0.4 miles north of ZPH; Miracle Temple Community Church, 0.1 mile north of ZPH; Zephyrhills Hispanic Church of God, less than 50 feet north of ZPH; and

[17] US Census Bureau, 2013 - 2017 *American Community Survey 5-year Estimates* and *Fact Finder* reports for City of Zephyrhills , FL and Pasco County, FL. Accessed March, 2019 at http://www.census.gov

Agape Baptist Church of Zephyrhills, Inc., 0.5 miles south of ZPH). Thirteen additional places of worship are located outside of the Study Area within one mile of ZPH, generally to the east and northeast of ZPH.

Five parks and one golf course are identified within the Study Area (Veterans Memorial Park and Lincoln Park, both located adjacent to and north of ZPH; Krusen Park adjacent to ZPH to the west; Zephyrhills Municipal Golf Course located on ZPH; and Meadowood Paw Park and Samuel W Pasco Recreation Park, both located 0.2 and 0.3 miles south of ZPH) (**Appendix A, Exhibit 1**). Krusen Park is a 33-acre athletic facility including baseball/softball, basketball, football, hockey, soccer, and other sports amenities. The 102-acre Samuel W. Pasco Recreation Complex to the southwest of the Proposed Project area is County-owned and offers soccer, baseball, softball, and football amenities. Three additional parks are located outside of the Study Area within one mile of ZPH (Krusen Skate Parks, 0.2 miles; Depot Park, 0.4 miles; and Sheppard Park, 0.92 miles from ZPH). The 9,961-acre Upper Hillsborough Preserve is directly adjacent to the Skydive City and the airport boundary to the east. The Preserve is managed by the Southwest Florida Water Management District (SWFWMD) and serves recreational uses as well as floodwater storage, water quality protection, and as a core habitat and greenway corridor system for wildlife. The nearest USFWS National Wildlife Refuges are located over 51 miles from the Study Area.**7.2.3 Aircraft Noise**

The 2018 existing condition DNL 65 dBA and higher noise contours are located entirely on ZPH property. There are no noise sensitive land uses or sites within the area exposed to aircraft noise levels of DNL 65 dBA or higher. However, approximately 3.74 acres of the Zephyrhills Municipal Golf Course were exposed to aircraft noise levels of DNL 65 dB or higher in 2018, which is determined under 14 CFR Part 150 Appendix A Table 1 to be a compatible land use. The 2018 existing condition noise contours are depicted in **Appendix A, Exhibit 6**.

Existing aircraft noise levels at ZPH (2018) were evaluated using the FAA's Aviation Environmental Design Tool (AEDT) Version 2d. Details on the methods and information used to model existing aircraft noise levels at ZPH is provided in **Appendix D**. Noise impacts are further discussed in Section 8.11.

7.3 Biotic Resources

Best available data coupled with information collected from site visits and field reviews was used to describe the affected environment and identify the potential environmental consequences that may occur with implementation of the Proposed Project. A thorough review of publically available resources, prior studies, and known site conditions was conducted to characterize biological resources within the Study Area and to provide comprehensive listing of the potential for species occurrence, including any special status species, such as those listed under the Endangered Species Act. A Florida Natural Areas Inventory Tracking List for those species that may be present within Pasco County is provided in **Appendix E**.

A Study Team of environmental scientists and biologists conducted onsite field surveys within the boundaries of the Proposed Project footprint and the Study Area on August 20 and November 6, 2018, and on April 2, 2019. These surveys included site-specific delineations of other surface waters (OSW [i.e. wetlands and other waterbodies]), vegetative community identification, habitat assessments / evaluations, historical review, and a preliminary special status species review.

7.3.1 Land Cover

A vegetative review of the Study Area was conducted during the site assessments, and the upland vegetation and habitat types within the Study Area were identified using the Florida Land Use, Cover, and Forms Classification System (FLUCFCS).[18] Several of the FLUCFCS classifications describe human-dominated landscapes that are generally absent of natural habitat or vegetation communities and are thus

[18] Florida Department of Transportation 1999, Florida Land Use, Cover, and Forms Classification System Handbook.

best characterized by their use and associated features; otherwise, the dominant plant species composition typically defines the vegetative community type. Wetland and waterbody features identified within the Study Area are further classified according to the Cowardin classification system.[19] The vegetative communities and various land uses identified at or adjacent to ZPH are identified in **Appendix A, Exhibit 7** and described below.

Residential, Low Density (110) – is characterized by a relatively small number of homes (typically less than two dwelling units per acre). The residential boundary may be vague and difficult to discern and may include other habitat types such as forests, rangeland, or landscaped areas of ornamental and/or native vegetative cover. Areas meeting these criteria can be found both immediately north and south of ZPH.

Residential, Medium Density (120) – is characterized by residential areas having a density of two to five dwelling units per acre, and can be found north/northwest and south of ZPH.

Residential, High Density (130) – contains residential areas with a maximum density of 7.3 dwelling units per acre, and a maximum of 14.6 dwelling units per acre for duplexes.[20] Areas with this designation are located north and south of ZPH.

Commercial and Services (140) – commercial areas are predominantly associated with the distribution of products and services. This category also consists of secondary structures used to support these types of activities and can include sheds, office buildings, warehouses, parking lots, and landscape areas. Commercial and Service buildings are identified south of ZPH.

Industrial (150) – Lands used for the manufacturing, processing, and assembly of materials and/or products. Facilities can range from light manufacturing and industrial parks to heavy manufacturing plants and can also include facilities for administration, research, storage, and warehousing. Industrial uses are located both on and adjacent to ZPH.

Extractive (160) – Extractive uses are typically those involving surface and subsurface mining operations, and also includes the facilities where the extracted material is refined, processed, and packaged. Land in this category is located immediately north of ZPH.

Recreational (180) – This category contains a variety of uses meant for user-oriented activities, including, but not limited to golf courses, parks, marinas, sports facilities, swimming beaches, fairgrounds, etc.

Golf Courses (182) – Recreational lands dedicated to the sport of golf, and can be either public or private in nature. The Zephyrhills Golf Course is located within the southwest corner of ZPH property.

Open Land (190) – Undeveloped land within an urban landscape. Most areas identified as Open Land are inactive and typically in a transitional state to be developed in congruence with surrounding land use. This classification within the Study Area is utilized for cattle grazing and harvesting operations, especially areas located south of ZPH. Typical vegetation within the area is identified as bahia grass (*Paspalum notatum*), sand blackberry (*Rubus cuneifolius*), saw palmetto (*Serenoa repens*), and a variety of forb species.

Cropland and Pastureland (210) – Includes agricultural lands that are managed for the production of row or field crops and improved, unimproved, or woodland pasture. Areas east and south of ZPH property meet this designation.

[19] Cowardin, Carter, Golet, and LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*.
[20] Pasco County Land Development Code, available at: https://www.pascocountyfl.net/DocumentCenter/View/3828/LDC-Section-517-R-4-High-Density-Residential-District?bidId=

Shrubland and Brushland (320) – Includes natural lands that contain a variety of shrubby plant species such as saw palmetto (*Serenoa repens*), gallberry (*Ilex glabra*), blackberry (*Rubus cuneifolius*), beautyberry (*Callicarpa americana*), and other shrubs and brush species. This land use type is located south of ZPH.

Pine Flatwoods (411) – Pine flatwoods are natural areas dominated by slash (*Pinus elliottii*) and loblolly pine (*Pinus taeda*) with an understory of saw palmetto, blackberry, prickly pear (*Opuntia lindheimeri*), and dog fennel (*Eupatorium capillifolium*). Pine flatwood community types are located within the southern portion of the Study Area, outside ZPH property limits.

Upland Hardwood – Conifer Mixed (434) – Natural upland areas that refers to a canopy closure of 10 percent or greater, with equal canopy dominance between both conifers and hardwoods. This habitat type contained a combination of species such as slash pine, laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), cherry laurel (*Prunus caroliniana*), saw palmetto, grapevine (*Vitus rotundafolia*), and blackberry. This habitat type is located along the southern property limits of ZPH and the southern section of the Study Area.

Streams and Waterways (510) - This classification of water features includes all linear waterbodies such as creeks, streams, rivers, and upland-cut canals. Upland-cut canals or ditches are manmade stormwater management features that are typically referred to as OSWs. Areas identified as Streams and Waterways within the Study Area (the majority of which are located on ZPH property) are upland-cut, man-made stormwater features. These features are generally described as steeply-cut OSWs that are heavily vegetated with canopy, brush, and herbaceous species. Species observed include maple (*Acer rubrum*), cabage palm (*Sabal palmetto*), laurel oak (*Quercus laurifolia*), live oak (*Quercus virginiana*), elderberry (*Sambucus canadensis*), saw palmetto, para grass (*Brachiaria mutica*), elephant grass (*Pennise purpureum*), smut grass (*Sporobolus* sp.), air potato (*Dioscorea bulbifera*), and torpedo grass (*Panicum repens*).

Reservoirs (530) – Reservoirs are defined by the artificial impoundment of water used for irrigation, flood control, water supply, power generation, and recreation. Several areas meeting this designation are located throughout the Study Area, which are generally associated with either stormwater retention areas or have been created for water impoundment. These features range in depth and contain a variety of vegetative herbaceous species such as pickerelweed (*Pontederia cordata*), maidencain (*Panicum hemitomon*), Spanish needle (*Bidens alba*), sedge (*Cyperus* spp.), American cup-scale grass (*Sacciolepis striata*), torpedo grass, spadderduck (*Nuphar adventa*), broomsedge (*Andropogon virginicus*), spikerush (Eleocharis cellulose), and pennywort (*Hydrocotyle umbrellata*).

Cypress (621) / Cowardin Classification: Palustrine Forested Wetland (PFO) –this natural wetland community type consists of pond (*Taxodium ascendens*) and/or bald cypress (*Taxodium distichum*) as the predominant species. This community type exists throughout the Study Area.

Freshwater Marshes (641) / Cowardin Classification: Palustrine Emergent Wetland (PEM) – Freshwater marshes are typically dominated by herbaceous plant species such as pickerelweed, duck potato (*Saggitaria* spp.), spikerush, and varieties of sedges. Although no areas classified as freshwater marsh exist at ZPH, a few areas are noted within the southern portion of the Study Area.

Wet Prairies (643) Cowardin Classification: PEM – These communities are predominantly composed of grassy vegetation, such as American cup-scale and clubrush, and occur on hydric soils. These areas distinguish themselves from marshes by holding less water and containing short-growing vegetation. Although this classification does not exist within ZPH, several wet prairies are identified within the southern portion of the Study Area.

Transportation, Airports (811) – This area is defined by the active and non-active airfield and supporting structures associated with ZPH. These spaces contain paved surfaces and grassed areas that are regularly mowed and otherwise maintained as free of woody or vertical vegetation. This land use classification is located within the Study Area, specifically associated with ZPH.

Utilities (830) – Includes facilities used for power generation and transmission and can include aeration fields for sewage treatment plants. The City operates a wastewater treatment facility located on the south side of ZPH property.

7.3.2 Jurisdictional Wetlands

A general assessment of the jurisdictional and non-jurisdictional (OSW) waterbodies located within the Study Area was performed. Field investigations to determine the extent of federal and state jurisdiction of the existing waterbodies at ZPH were conducted pursuant to the *U.S. Army Corps of Engineers Wetland Delineation Manual* (1987) and the state methodology (Chapter 62-340, Florida Administrative Code [FAC]). Although many small wetland features jurisdictional to both the state and federal agencies exist within the Study Area, there are no jurisdictional wetland features present within the Proposed Project footprint.

7.3.3 Wildlife

7.3.3.1 Common Wildlife

Birds, mammals, reptiles, amphibians, fishes, and invertebrates considered relatively common within the vicinity of the airport include those generally associated with and tolerant of human presence and a manipulated rural landscape. Characteristic wildlife found in the vicinity of ZPH includes small- to medium-sized mammals, such as rabbits, raccoons, opossum, armadillo, squirrels, native and nonnative anoles, and rodents; predatory animals such as coyotes, fox, and hawks; and various bird guilds including doves, crows, sparrows, starlings, finches, and swallows. Common bird species including blue jays, Northern cardinal, mourning doves, common grackles, mocking birds, red wing blackbirds, and meadow larks were observed in the Study Area. This observation included several resident species, incidental seasonal visitors or migrants, and species attracted to developed or disturbed habitats. Existing onsite water features generally support fish communities common to storm water conveyance and isolated retention systems or abandoned borrow pits.

7.3.3.2 Special Status Species

Prior to conducting field visits, a literature search was performed in order to evaluate the potential presence of any protected species and/or their critical habitats within or adjacent to the Proposed Project area. General literature referenced included:

- Florida Fish and Wildlife Conservation Commission (FWC) *List of Florida's Endangered Wildlife Species* (68A-27.003 FAC) and *Species of Special Concern* (68A-27.005 FAC)
- FWC *Florida's Imperiled Species Management Plan* (2016)
- Florida Department of Agriculture and Consumer Services *List of Florida's Endangered Plant Species* (5B-40.0055 FAC) (2018)
- U.S. Fish and Wildlife Service (USFWS) *Endangered & Threatened Wildlife and Plants* 50 CFR 17.11 and 17.12. (2018) and *Critical Habitat Mapper* website
- FWC Bald Eagle Nest Locator
- Various USFWS, FFWCC, and Florida Natural Areas Inventory listed species occurrence data

A list of special status species with potential to occur within the vicinity of ZPH is identified in **Appendix E**. Special status species having the potential to occur within the Study Area were identified based on habitat types and soils, which were field-verified during the site assessments. The onsite species assessments and surveys performed in relation to the Proposed Project included:

- Initial habitat assessments and ground-truthing using current aerial photography and existing land use data.
- Review of upland and wetland habitat quality, including potential wildlife utilization.
- Surveys for protected plant and wildlife species, per relevant guidance.

Based on field observations, site conditions, and species-specific habitat requirements, the following special status species have some potential to occur in the Study Area:

Eastern indigo snake (*Drymarchon couperi*) – Federally Listed as Threatened

The Eastern indigo snake is glossy, blue-black in color and may reach a length of 8.5 feet. A wide variety of habitats are utilized by this species; however, they are more greatly associated with xeric habitat types. In more northerly portions of its range, the Eastern indigo snake occupies sandhills during the winter using gopher tortoise burrows as a retreat from cold temperatures. During the warmer months, snakes move to nearby wetland systems to forage. Appropriate Eastern indigo snake habitat exists within the Study Area, including gopher tortoise (*Gopherus Polyphemus*) burrows.

Wood Stork (*Mycteria americana*) – Federally Listed as Threatened

Wood storks are large, bald-headed wading birds. Wood stork habitat includes freshwater and estuarine wetlands where they forage and cypress or mangrove swamps for nesting and loafing activities. The stork feeds in freshwater marshes, narrow tidal creeks, or flooded tidal pools.

Gopher Tortoise (*Gopherus polyphemus*) – Federal Candidate Species / State-listed as Threatened[21]

Gopher tortoises are long-lived reptiles that occupy upland habitat throughout Florida including forests, pastures, and other open areas. The gopher tortoise is known for excavating deep burrows that are shared by many other species of animals, including the Eastern indigo snake.

Pine Snake (*Pitauophis melanoleucus*) – State Listed as Threatened

The Florida Pine Snake inhabits areas of well-drained sandy soils that occur in a moderate to open tree canopy. Pine snakes have a brown to grey back with dark patches, a white belly, ridged scales, and a pointed snout. They can be found throughout Florida, with the exception of the Everglades.

Florida Burrowing Owl (*Athene cunicularia floridana*) – State Listed as Threatened

The Florida burrowing owl is a small, long-legged ground dweller that is typically associated with areas containing short groundcover such as maintained grassy areas usually found in agricultural fields and prairies. Burrowing owls nest in shallow burrows excavated in the soil matrix.

Florida Sandhill Crane (*Antigone canadensis pratensis*) – State Listed as Threatened

Two subspecies of sandhill cranes can be found in Florida (*Antigone canadensis pratensis* and *Antigone canadensis tabida*). Both subspecies are long-legged and long-necked with a grey body with a bald red

[21] East of the Tombigbee River (in Alabama, Mississippi, and Louisiana), the gopher tortoise is a Candidate Species under the Endangered Species Act. Candidate Species have no statutory protection under the Endangered Species Act and a federal determination is not required. However, the USFWS encourages cooperative conservation efforts for these species because they are, by definition, species that may warrant future protection under the Endangered Species Act.

patch on top of their head. Sandhill crane foraging and nesting habitat can be found throughout the Study Area.

Sherman's Fox Squirrel (*Sciurus niger shermani*) – State Species of Special Concern

Sherman's fox squirrel can be found in the open pine woods typical to central and northeastern Florida. Size ranges from 1 to 3 pounds, and they are beige, gray, and black on top with white undersides and a long, bushy tail.

8. ENVIRONMENTAL CONSEQUENCES –IMPACT CATEGORIES

Environmental impact categories that may be relevant to FAA actions are identified below in sections (1) through (14). Construction and secondary (induced) impacts should be addressed within the relevant environmental impact category. FAA-specific requirements for assessing impacts are highlighted in FAA Order 1050.1F, Appendix B *Federal Aviation Administration Requirements for Assessing Impacts Related to Noise and Noise-Compatible Land Use and Section 4(f) of the Department of Transportation Act (49 U.S.C. § 303).* Methodologies for conducting the analyses are discussed in detail in the 1050.1F Desk Reference. The latest FAA-approved models must be used for both air quality and noise analysis. A list of approved models for each type of analysis is available in the 1050.1F Desk Reference.

Note: *The Desk Reference may be cited only as a reference for the methodologies and processes it contains, and may not be cited as the source of requirements under laws, regulations, Executive Orders, DOT or FAA directives, or other authorities. It further notes that you should cite the original source when citing requirements from laws, regulations, or other authorities*.

FAA Order 1050.1F, paragraph 4-3.3, Significance Thresholds and Exhibit 4-1, provide a significance determination table for the Proposed Action and retained alternatives (if any) based on the analysis in sections (1) through (14) below. Note: *Quantitative significance thresholds do not exist for all impact categories; however, consistent with the CEQ Regulations, the FAA has identified factors that should be considered in evaluating the context and intensity of potential environmental impacts.*

*******IMPORTANT*******

Environmental impacts for the following categories must be calculated for the year of project implementation and the planning horizon year in this EA Form. The implementation year represents the first year in which the Proposed Action would be fully operational. The planning horizon year typically represents the implementation year plus five years. Sometimes if appropriate due to project phasing or if requested by a reviewing agency, impact analysis may need to be conducted for intermediate years. Coordinate with an FAA ORL-ADO environmental specialist before conducting an intermediate year impact analysis.

TABLE 8-1
SIGNIFICANCE DETERMINATION

Environmental Impact Category	FAA Significance Thresholds[22]	Summary of Findings
Air Quality	*The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.*	The Proposed Project would not exceed federal thresholds indicating a significant impact.
Biological Resources (including fish, wildlife, and plants)	*The U.S. Fish and Wildlife Service or the National Marine Fisheries Service determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat.* The FAA has not established a significance threshold for non-listed species.	The Proposed Project would not exceed federal thresholds indicating a significant impact.
Climate	The FAA has not established a significance threshold for Climate.	There are no FAA significance thresholds applicable to the Proposed Project for Climate.
Costal Resources	The FAA has not established a significance threshold for Coastal Resources.	The Proposed Project would not exceed any thresholds indicating a significant impact.
DOT Section 4(f)	*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.* Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately owned land from an historic site of national, state, or local significance. FAA defines a "Substantial Impairment" to occur when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.	The Proposed Project would not exceed FAA thresholds indicating a significant impact.
Farmlands	*The total combined score on Form AD-1006, "Farmland Conversion Impact Rating," ranges between 200 and 260 points.*	The Proposed Project would not exceed FAA thresholds indicating a significant impact.
Hazardous Materials, Pollution Prevention and Solid Waste	The FAA has not established a significance threshold for Hazardous Materials, Solid Waste, and Pollution Prevention.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Historical, Architectural, Archaeological, and Cultural Resources	The FAA has not established a significance threshold for Historical, Architectural, Archeological, and Cultural Resources.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Land Use	The FAA has not established a significance threshold for Land Use.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Natural Resources and Energy Supply	The FAA has not established a significance threshold for Natural Resources and Energy Supply.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Noise and Noise Compatible Land Uses	*The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe.* For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB.	The Proposed Project would not exceed FAA thresholds indicating a significant impact.
Socioeconomic, Environmental Justice, Children's Health Safety	The FAA has not established a significance threshold for Socioeconomics.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Environmental Justice	The FAA has not established a significance threshold for Environmental Justice.	The Proposed Project would not exceed any thresholds indicating a significant impact.

[22] Italicized text indicates thresholds identified in FAA Order 1050.1F and/or Order 5050.4B.

Children's Environmental Health and Safety Risks	The FAA has not established a significance threshold for Children's Environmental Health and Safety Risks.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Surface Transportation	The FAA has not established a significance threshold for. However, substantial impacts would occur if an action would degrade the Level-of-Service at any off-airport roadways or intersections below unacceptable levels.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Light Emissions	The FAA has not established a significance threshold for Light Emissions.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Visual Effects	The FAA has not established a significance threshold for Visual Resources / Visual Character.	The Proposed Project would not exceed any thresholds indicating a significant impact.
Wetlands	*The action would:* *1. Adversely affect a wetland's function to protect the quality or quantity of 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.*	Impacts to jurisdictional wetlands and waterbodies are not anticipated; therefore the Proposed Project would not exceed any federal thresholds indicating a significant impact.
Floodplains	*The action would cause notable adverse impacts on natural and beneficial floodplain values.* Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, *Floodplain Management and Protection*	The Proposed Project would not exceed established thresholds indicating a significant impact.
Surface Water Resources	*The 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.*	The Proposed Project would not exceed established thresholds indicating a significant impact.
Ground Water Resources	*The action 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 not exceed established thresholds indicating a significant impact.
Wild and Scenic Rivers	The FAA has not established a significance threshold for Wild and Scenic Rivers.	The Proposed Project would not affect wild and scenic rivers and therefore has no effect on this resource.

(1) AIR QUALITY

The FAA has a responsibility under NEPA to include in its EA's sufficient analysis to disclose the extent of a project's impact on the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) and any applicable state air quality standards. Thus, a project's impact on air quality is assessed by evaluating whether it would cause a new violation of a NAAQS or contribute to a new violation in a manner that would increase the frequency or severity of the new violation. Very small projects sometimes can be evaluated qualitatively or by comparison to a previous project for which a quantitative air quality analysis is available. However, if a project requires the preparation of an EA, it is likely that a quantitative, project-specific air quality assessment would be needed. This can be accomplished by first identifying the emissions sources associated with a project, and then estimating the emissions for each retained alternative. Knowing the emissions may help to characterize a project's impact for the EA. The FAA's *Air Quality Handbook* provides information on how to conduct an air quality analysis.
https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/

(a) Compared to the No Action alternative, will the Proposed Action or any of the retained alternatives cause or create a reasonably foreseeable increase in air emissions due to implementation? If the action will not cause a reasonably foreseeable emission increase, a *qualitative* air quality assessment is justifiable for disclosure purposes under NEPA. Provide an explanation of the conditions and rationale upon which this finding is based along with any supporting data, reasoning and/or justification. The assessment should explain how or why implementation of the Proposed Action or any of the retained alternatives will not cause or create a reasonably foreseeable increase in air emissions. **Note:** *Examples of projects and actions that will likely cause or create a reasonably foreseeable increase in emissions include those that will cause or create an increase in aircraft operations and/or ground access vehicle trips. Other projects such as runway/taxiway improvements, roadway modifications, and/or parking facility expansions, may cause or create reasonably foreseeable increases in emissions by changing aircraft and vehicle travel patterns. By comparison, examples of projects and actions that will not likely cause or create increases in emissions include land acquisition programs or the upgrading of airfield lighting systems.*

Discuss the potential for a reasonably foreseeable increase in air emissions:

The implementation of the Proposed Project would result in negligible increases in air emissions as a result of future induced aircraft operations (**Table 8-2**). Under the No Action Alternative, the sources of air emissions associated with aircraft activity would be relatively the same as existing conditions, increasing at a rate of approximately 1.35 percent annually (see **Section 4.3, Table 4-2**).[23] The Proposed Project is anticipated to increase the number of annual aircraft operations at ZPH over the No Action Alternative by 1,500 (or 2.7 percent) in 2026. The Proposed Project is projected to induce an average of 2 additional aircraft flying in and out of ZPH per day throughout a calendar year.

Additionally, the implementation of the Proposed Project would result in negligible increases in air emissions during construction activities, such as temporary emissions from material stockpiles and runway, taxiway, and road paving as well as fugitive dust emissions and mobile emissions from construction vehicles, equipment, and private automobiles used to access the Proposed Project area. In general, combustion emissions and fugitive dust would produce localized, short-term elevated air pollutant concentrations, which would disperse quickly in the ambient environment and are not expected to result in any long-term impacts to the air quality in Pasco County. Construction effects would be temporary, lasting only for the duration of construction and would affect only the immediate vicinity of the construction site and access routes to and from the airport. Emissions from fugitive dust would be minimized by the use of practices that comply with *FAA Standards for Specifying Construction of Airports* (FAA AC 150/5370-10H, 2018).

(b) Is the Proposed Action located in a nonattainment or maintenance area for any of the NAAQS established under the Clean Air Act? If the Proposed Project is in a nonattainment or maintenance area, identify for what pollutant(s), and do not complete this EA Form without first contacting an ORL-ADO EPS for further guidance. **Note:** *To review the current list of areas designated nonattainment, see the U.S. Environmental Protection Agency reference book, The Green Book Nonattainment Areas for Criteria Pollutants at* www.epa.gov/oaqps001/greenbk/.

Document area status:

Pasco County is currently classified as in attainment for all criteria pollutants.[24]

[23] 2018 FAA Terminal Area Forecast, issued February 2019

[24] U.S. Environmental Protection Agency. *Currently Designated Nonattainment Areas for All Criteria Pollutants (as of May 8, 2019)*. https://www3.epa.gov/airquality/greenbook/anayo_fl.html.

(c) If the action is located in an attainment area and will cause a reasonably foreseeable emission increase, you must prepare an emissions inventory for NAAQS priority pollutants and Green House Gases (GHG's) and disclose the results. You must contact an ORL-ADO EPS before conducting an air quality analysis. **Note:** *As the Aviation Emissions and Air Quality Handbook explains, there are different types or components of an air quality analysis that can be undertaken depending on project/action type, the change(s) to the emission sources affected, and other relevant factors. There is no single, universal criterion for determining what type of analysis is appropriate for FAA-supported projects or actions. As an aid in selecting the appropriate air quality assessment methodology, see Figure 4-5 (Air Quality Assessment Examples) in the Aviation Emissions and Air Quality Handbook. Figure 4-5 identifies the types of air quality analyses (i.e., emissions inventory, dispersion modeling, etc.) that may be appropriate for FAA-supported projects and actions. Listed by project/action type, each assessment method is generally symbolized as High, Medium or Low in terms of the likely applicability of the analysis to the project/action type. Review the Aviation Emissions and Air Quality Handbook to understand how to prepare the analysis (including selecting the analysis years, identifying the emission types and emission sources of interest, obtaining and/or developing the necessary input data, and running the appropriate models and/or supplemental analyses.*

******IMPORTANT******

As of May 29, 2015, the FAA accepted modeling tool for predicting air emissions is the Aviation Environmental Design Tool (AEDT). The most current version of this model, currently AEDT2b *must* be used for any new analysis started after that date. Please contact an ORL-ADO Environmental Specialist if you have any questions regarding the emissions analysis or the current version of the model to use in your analysis.

Provide the emissions inventory for the No Action Alternative, Proposed Action and Retained Alternatives for the EA Study Years including both direct and indirect emissions that are reasonably foreseeable which includes operational as well as construction emissions.

An emissions inventory specific to aircraft operations for the baseline year, No Action, and Proposed Project is given in **Table 8-2**.

TABLE 8-2
ANNUAL AIRCRAFT EMISSIONS (METRIC TONS)

Scenario	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$
2018 Baseline	109.248	1.672	2.508	0.551	0.179	0.179
2021						
2021 Proposed Project	113.862	1.763	2.935	0.606	0.193	0.193
2021 No Action	113.705	1.737	2.610	0.573	0.190	0.190
2021 Proposed Project - 2021 No Action	0.157	0.026	0.325	0.033	0.004	0.004
2026						
2026 Proposed Project	122.016	1.913	3.814	0.719	0.212	0.212
2026 No Action	121.574	1.858	2.789	0.617	0.204	0.204
2026 Proposed Project - 2026 No Action	0.442	0.055	1.026	0.102	0.007	0.007

An air emissions inventory was not performed for construction activities associated with the Proposed Project. Section 8.1(a) presents a qualitative assessment of anticipated air emissions from construction activities associated with the Proposed Project and No Action Alternative.

Discuss the results of the emissions inventory and make a determination if the impacts are considered significant.

The Proposed Project is not anticipated to exceed any air quality threshold indicating a significant impact (**Table 8-1**). Minor, temporary construction activities and negligible levels of induced operations are not anticipated to generate a substantial amount of criteria air pollutants and thus are expected to have minimal effect on air quality.

(2) BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)

(a) Using the Florida Land Use and Cover Classification System (FLUCCS), provide an assessment of the Proposed Action's and retained alternatives (if any) direct impact area (construction footprint) and indirect impact area (area indirectly impacted through facility lighting, noise contours, air emissions, and changes to water quality or quantity caused by construction equipment or facility operations). Attach a figure and table (for direct and indirect impact areas) with acreages per land use cover type to assist in the explanation.

Quantitatively discuss potential direct and indirect impacts:

Impacts to biological resources would be confined to the Proposed Project footprint, which includes existing airport property and adjacent parcels (ZPH purchase in process; **Appendix A, Exhibits 2, 2a, and 2b**). Land use types identified within the Proposed Project footprint include low density residential, open land, hardwood conifer mixed, upland-cut OSWs such as ditches and reservoirs, and airports (**Appendix A, Exhibit 8** and **Table 8-3**). A total of 103.4 acres is anticipated to be impacted as a result of the Proposed Project, the majority of which is considered disturbed as it has been previously cleared of native vegetation and is dominated by non-native and ruderal vegetative species for aviation, cattle grazing, or construction storage/stockpiling purposes. It is anticipated that the extent of the existing and future runway and associated safety areas may be directly or indirectly impacted during construction activities, as construction and field equipment is used and transported throughout the airport and as stormwater management features are modified. The runway and taxiway extension will convert 6 acres of grassed airport property to pavement. In addition, the Proposed Project will include the conversion of 1.1 acres of disturbed open land for the reconfiguration of 6th Avenue. The remaining impacts associated with the Proposed Project will include reconfiguring 7.7 acres of the existing Sky Dive City RV Park. The remaining 71 acres of disturbance in the Proposed Project footprint includes clearing and grubbing activities. The removal of trees may require a permit from the City.

A total of 4 upland-cut OSWs (1, 2, 3, and 5 classified as FLUCFCS 510 - Ditch and 530 - Reservoirs) were delineated within the Proposed Project footprint (**Appendix A, Exhibit 9**). These OSWs are not anticipated to be classified as jurisdictional. Proposed Project would impact the OSWs as follows:

- OSW 1 – Up to 7.7 acres of OSW 1 may be culverted and filled as part of the Proposed Project. OSW 1 is a heavily vegetated, upland-cut stormwater feature that is classified as a deeply cut ditch system. Portions of OSW 1 may be culverted as the Runway and Taxiway extensions and associated safety surfaces require modification of the stormwater management system.
- OSW 2 – 7.2 acres will be completely filled to accommodate the PRSA. OSW 2 is an isolated, upland-cut borrow pit pond that is relatively shallow and maintains aquatic vegetation.

- OSW 3 – Potential modification of 2.1 acres will be reconfigured to support additional stormwater capacity while discouraging wildlife use. OSW 3 is an isolated, upland-cut borrow pit pond that is relatively shallow and maintains aquatic vegetation.
- OSW 5 – Upland-cut Swoop Pond (0.9 acres) is an area currently used by Sky Dive City for the Canopy Piloting Sport. OSW 5 will be reconfigured from an east-west to a north-south orientation and enlarged to 2.1 acres as part of the Proposed Project.

TABLE 8-3
VEGETATION COMMUNITY IMPACTS

FLUCFCS Classifications	FLUCFCS Classification Code	Proposed Project Impact (acres)
Low Density Residential	110	3.1
Open land	190	27.4
Hardwood Conifer Mixed	434	10.5
Upland-Cut Waterways - Ditch	510	11.8
Reservoirs - Pond	530	6.7
Transportation - Airports	811	43.9
Total		103.4

Source: Environmental Science Associates, 2019.
FLUCFCS = Florida Land Use, Cover, and Forms Classification System

(b) Describe the potential for the Proposed Action and retained alternatives (if any) to result in long-term or permanent loss of plant or wildlife species, to directly or indirectly affect plant communities, and/or involve the displacement of wildlife. Cross reference Category (14) Water Resources, if jurisdictional water bodies or wetlands are present.

Quantitatively discuss potential direct and indirect impacts:

The Proposed Project would result in the permanent alteration of approximately 103.4 acres of previously disturbed upland area, but will not result in loss of plant or wildlife species. Affects to plant communities are described in Section 8(a).

No direct impacts to special status or common wildlife species observed onsite are anticipated; however various species (such as rabbits, possums, raccoons, and other mobile wildlife) may relocate to nearby suitable upland and wetland habitats to avoid disturbance from construction activities and additional aircraft operations and in response to the removal of existing vegetation and habitat. Temporary disturbance to aquatic species may occur during construction activities associated with the proposed modifications to OSW 1, 3, and 5, but long-term adverse impacts would be minimized to the extent practicable with the use of sediment control and other best management practices. Culverting OSW1 would permit the continued egress of resident aquatic species through the conveyance; however, species that cannot migrate would be impacted by the filling of OSW 2.

The Proposed Project is not anticipated to impact jurisdictional wetlands or waterbodies.

(c) Using U.S. Fish and Wildlife (FWS) and National Marine Fisheries Service (NMFS) flora and fauna species lists for the Action vicinity, describe the potential for the Proposed Action and retained alternatives (if any) to directly or indirectly affect any federally listed or candidate

species of flora or fauna or designated critical habitat protected under the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), or affect Essential Fish Habitat (EFH) identified under the Magnuson-Stevens Act. You must attach records of consultation with FWS and NMFS, as appropriate, in an appendix to the EA. **Note:** *If the Proposed Action and retained alternatives (if any) would potentially affect federally protected or candidate species, or designated critical habitat,* ***do not complete this EA*** *and immediately contact an FAA ORL-ADO EPS.*

Quantitatively discuss the potential for the Proposed Action and retained alternatives to directly or indirectly impact federally-protected species and designated critical habitat:

The comprehensive analysis (including database review and onsite surveys of the Study Area) performed to ascertain the potential occurrence of special status and common species within the Study Area is described in Section 7.3. The determination for the likelihood of occurrence of special status species within the Study Area and the potential for the Proposed Project to affect each species, including wood stork, Eastern indigo snake and gopher tortoise, Audubon's crested caracara, and scrub jay, is provided below. No species covered under the Marine Mammal Protection Act or Essential Fish Habitat will be impacted as a result of the Proposed Project.

Wood stork (Federally Listed – Threatened)

Surface water features were delineated within and surrounding the Proposed Project footprint. While there were no wetlands identified as jurisdictional pursuant to state and federal criteria, the two isolated, upland-cut borrow features (OSW 2 and 3) located south of the existing Runway 1-19 contain areas that could support minimally Suitable Foraging Habitat (SFH) for wood storks. These areas include the littoral edges of the steep-sided OSW 2 and the majority of OSW 3, for a total of approximately 2.8 acres of SFH (**Appendix A**, **Exhibit 10**).

No wood storks were observed in the vicinity of the Proposed Project footprint during the field evaluations; however, ZPH is located within the 15-mile Core Foraging Area (CFA) of three active wood stork rookeries (approximately 7.5 miles from the Little Gator Creek rookery, approximately 11 miles from the Saddlebrook Resort rookery, and approximately 14.5 miles from the Lone Palm rookery) (**Appendix A, Exhibit 11**). As SFH within active CFAs would be impacted, the Corps of Engineers, Jacksonville District; USFWS, Jacksonville Ecological Services Field Office; and State of Florida (2008) *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida* (**Appendix E**) was consulted to arrive at an appropriate effect determination for this species.

The Proposed Project is anticipated to impact up to 2.8 acres of littoral and shallow areas of two OSW features that contain potential foraging habitat. OSW 2 will be completely impacted (removed/filled) due to safety zone requirements associated with construction of the Proposed Project. OSW 3 will also be modified / reconfigured for additional stormwater needs. In order to offset the loss of 2.8 acres of potential wood stork SFH, a combination of on-site and off-site mitigation options will be identified through the Section 7 Consultation Process during the state Environmental Resource Permitting (ERP) process. It is anticipated that a combination of in-kind, onsite replacement (through development of the new stormwater management system), and off-site mitigation at an USFWS-approved Wood Stork Mitigation Bank will be proposed as part of the development and permitting plan for the Project. In-kind and off-site SFH compensation would occur within the same CFA as the impact, and habitat compensation would provide SFH matching the type and hydroperiod of SFH affected, providing foraging value similar or higher than that of impacted SFH.

Per the *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida*[25], the Proposed Project "May Affect, but is Not Likely to Adversely Affect" wood stork. With an outcome of either "No Effect" or "Not Likely to Adversely Affect" as outlined in the Key, the requirements of Section 7 of the Endangered Species Act are fulfilled for wood stork, and no further consultation is required for this species.

Eastern Indigo Snake (Federally Listed – Threatened)

The Eastern indigo snake can be found in a broad range of habitats, from scrub and sandhill to the edges of wetland habitats. Eastern indigo snakes are known to winter in gopher tortoise burrows (xeric uplands) but forage in more hydric habitats. The Proposed Project footprint contains no xeric habitat; however, gopher tortoise burrows were observed throughout the Project area. Although gopher tortoise burrows were observed, Eastern indigo snakes were not observed during the field reviews. The Corps of Engineers, Jacksonville District; USFWS, North and South Florida Ecological Services Field Offices; and State of Florida (2010) *Eastern Indigo Snake Programmatic Effects Determination Key and Update Addendum* (**Appendix E**) was consulted to arrive at an appropriate effect determination for this species.

Although gopher tortoise burrows were observed within the Proposed Project footprint, no xeric habitat exists within the Proposed Project area, and Indigo snakes were not observed during the field reviews and surveys. ZPH will conduct a 100 percent gopher tortoise burrow survey within the Proposed Project footprint within 90 days prior to the commencement of construction activities, allowing enough time to permit and excavate each burrow identified during the survey. Recovered tortoises will be relocated to off-site, long-term conservation areas, and any other individuals removed from burrows, including Eastern indigo snakes and other commensals, will be properly relocated as specified by the on-site relocation permit. In addition, conservation measures for the Eastern indigo snake will be implemented prior to site preparation and construction activities in accordance with the *Standard Protection Measures for the Eastern Indigo Snake.*[26] Holes, or other refugia where a snake could reside, will also be examined prior to the initiation of construction activities.

Per the *Eastern Indigo Snake Effects Determination Key*,[27] the Proposed Project "May Affect, but is Not Likely to Adversely Affect" Eastern indigo snake. With an outcome of either "No Effect" or "May Affect, Not Likely to Adversely Affect" as outlined in the Key, the requirements of Section 7 of the Endangered Species Act are fulfilled for the Eastern indigo snake, and no further consultation is required.

Audubon's Crested Caracara (*Polyborus plancus audubonii*), Federally Listed - Threatened and the Florida Scrub Jay (*Aphelocoma coerulescens*), Federally listed as Threatened

Although ZPH is located within FWS Consultation Area for caracara and Florida scrub jay, habitat does not exist within ZPH or the Proposed Project footprint to support either species.

U.S. Fish and Wildlife Informal Review of Affected Species

An informal review of listed species potentially occurring within the Project footprint was submitted to the FWS on January 9, 2019, and USFWS agreed with special status species effect determinations, provided that the standard protection for the Eastern indigo snake be incorporated within the Project Plan (March 7, 2019; **Appendix H**). The Draft EA was submitted to the USFWS on October 25, 2019, and the USFWS responded on November 6, 2019 that they had no further comments on this Proposed Project. Based on the

[25] The Corps of Engineers, Jacksonville District; U. S. Fish and Wildlife Service, Jacksonville Ecological Services Field Office; and State of Florida (2008) *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida*
[26] USFWS *Standard Protection Measures for the Easter Indigo Snake* (2013), accessed in December 2018 at: https://www.fws.gov/northflorida/IndigoSnakes/20130812_Eastern_indigo_snake_Standard_Protection_Measures.htm
[27] The Corps of Engineers, Jacksonville District; U. S. Fish and Wildlife Service, North and South Florida Ecological Services Field Offices; and State of Florida (2010) *Eastern Indigo Snake Programmatic Effects Determination Key and Update Addendum*

information developed for the EA and the Service's response to the early coordination package and Draft EA, FAA determines that the Proposed Project may affect but is not likely to adversely affect special status species in the Proposed Project area, including wood stork and Eastern indigo snake. No further consultation under Section 7 is necessary.

Conclusions

Thresholds indicating adverse impacts include actions that would jeopardize the continued existence of threatened or endangered species, result in the destruction or adverse modification of federally-designated critical habitat, or have substantial impacts to non-listed species. A large majority of the Proposed Project will be constructed on previously disturbed airport property with limited native, natural habitat available, and, as part of the permitting process, multiple species surveys and conservation measures will be implemented prior to construction activities (such as a 100 percent FWC-approved pedestrian survey, relocation services for gopher tortoise, and FWS standard protection procedures for the Eastern indigo snake). No adverse impacts to special status species or their habitats or substantial loss or fragmentation of native species' habitats or their populations are anticipated.

(d) Using Florida Fish and Wildlife Commission (FWC) flora and fauna species lists for the Action vicinity, describe the potential for the Proposed Action and retained alternatives (if any) to directly or indirectly affect any state-listed species protected in the State of Florida. You must attach records of consultation with state jurisdictional agencies such as the FWC and Florida Department of Environmental Protection (DEP), as appropriate, in an appendix to the EA.

Quantitatively discuss the potential for the Proposed Action and retained alternatives to directly or indirectly impact state-protected species and designated critical habitat:

The determination for the likelihood of occurrence of state of Florida special status species within the Study Area and the potential for the Proposed Project to affect each species, including gopher tortoise, Florida burrowing owl, and Florida Sandhill Crane, is provided below.

Gopher Tortoise (State Listed – Threatened)

Field scientists observed substantial presence of gopher tortoise during survey events, including the identification of several gopher tortoise burrows within the Proposed Project footprint. Within 90-days prior to construction of the Proposed Project, a FWC-Authorized Agent will conduct a species-specific re-survey covering 100% of potentially suitable gopher tortoise habitat within the Limits of Construction of the Proposed Project, which includes areas for construction equipment access and all laydown areas. In order to safely protect or remove individuals and commensals that co-inhabit the burrows (e.g., Eastern indigo snake), biologists will use the burrow locations from the updated survey results to develop a tortoise relocation and protection plan. Silt fence will be erected along the Limits of Construction identifying acceptable equipment access pathways, which will be established no closer than 25 feet from any potentially occupied gopher tortoise burrow. Fencing will prevent damage to individual burrows and keep individual tortoises from wandering into an active construction site. Any burrows that cannot be avoided or properly protected from construction activities will be permitted and resident tortoises relocated to a protected long-term conservation bank per FWC gopher tortoise management guidelines.

Because all tortoises will either be protected from construction activities using exclusionary silt fencing or relocated, the Proposed Project is not likely to have an adverse effect on the gopher tortoise population. It is anticipated that the Proposed Project "May Affect but is Not Likely to Adversely Affect" the gopher tortoise.

Florida Burrowing Owl – (State Listed – Threatened / Federally Protected Under the Migratory Bird Treaty Act)

Suitable Florida burrowing owl habitat is located within proximity to the Proposed Project area at several locations outside of airport property; however, no burrowing owls or their burrows were observed within the Proposed Project footprint during various site assessments. As such, it is not anticipated that the burrowing owl will be impacted by the Proposed Project. However, as an added conservation measure, the survey methodology applied to conduct the required 100 percent gopher tortoise survey would also locate any burrowing owl burrows that may exist onsite. Should burrows be identified within the Proposed Project footprint, proper FWC permitting and relocation guidelines will be implemented prior to the initiation of construction activities. It is anticipated that the Proposed Project will have "No Effect" on Florida burrowing owl.

Florida Sandhill Crane (State Listed as Threatened)

The Proposed Project site does provide foraging and nesting habitat for sandhill cranes; however, no cranes were observed within the Project footprint. Prior to construction activities, surveys for nesting sandhill cranes will be conducted within appropriate habitat during the breeding season (December through August). If nests are observed prior to construction, the nest site will be buffered by a 400-foot protection zone to avoid disturbance by human activities. If a nest is discovered after construction has begun, or if maintaining the recommended buffer is not possible, FWC staff will be contacted in order to discuss potential permitting needs as described within the *Florida Sandhill Crane Species Conservation Measures and Permitting Guidelines*.[28]

FWC Informal Review of Affected Species

The FWC provided an informal review of special status state and federal species potentially occurring within the Project footprint (January 30, 2019) in response to a Notice of Preparation of Environmental Assessment for the Proposed Project submitted to the Florida State Clearinghouse on January 9, 2019 (*SAI Number FL201901188517C;* **Appendix H**). All FWC conservation recommendations for each species are incorporated in the determinations identified above. The Draft EA was submitted to the Florida State Clearinghouse on October 30, 2019, and no additional comments have been received as of the date of this Final EA.

(e) Describe the potential for the Proposed Action and retained alternatives (if any) to directly or indirectly affect species protected under the Migratory Bird Act. You must attach a record of consultation with FWS in an appendix to the EA.

Quantitatively discuss the potential impacts:

(Potential effects to Florida Burrowing Owl are discussed in Section 8.2(d).)

Bald Eagle (Federally Protected under Bald and Golden Eagle Act and the Migratory Bird Treaty Act)

Bald eagle nesting habitat does not occur within the Proposed Project footprint. The closest documented nest (PS033) is located outside of the Study Area, approximately 2.8 miles north of the airport, well beyond the established USFWS National Bald Eagle Management Guideline Protective 660-foot Nest Buffer Protection Area for this nest. Likewise, bald eagle foraging habitat does not occur on airport property. The

[28] Florida Fish and Wildlife Commission (FWC), 2016. *Species Conservation Measures and Permitting Guidelines: Florida Sandhill Crane*. Accessed in May 2019 at: https://myfwc.com/media/11565/final-florida-sandhill-crane-species-guidelines-2016.pdf

on-site ditch systems are constructed to move stormwater rapidly from the airfield and are deeply cut and overgrown to discourage foraging habitat. The Proposed Project will have "No Effect" to the bald eagle.

(f) Discuss any operational, avoidance, minimization or mitigation measures (including construction mitigation measures) that have been considered in the siting of the Proposed Action and retained alternatives (if any) to mitigate impacts to biological resources. Identify all required Federal, state or local permits. ***Note:*** *Analyses for undisturbed areas including water bodies must be conducted in consultation with FWS, other Federal agencies (NMFS, EPA, USACE), and state agencies (DEP, FWC, and water management districts), having expertise on potentially affected biotic resources and their habitats. Federal and state-listed species lists must be consulted and the potential for occurrence in the Proposed Action area must be documented. Include an analysis of construction impacts and measures to avoid and minimize impacts to ensure that this document properly addresses both permanent and temporary, constructed-related impacts on these resources.*

Quantitatively discuss any operational, avoidance, minimization or mitigation measures:

Although jurisdictional wetlands are not anticipated to be impacted, the anticipated 2.8 acres of impacts to wood stork SFH will be mitigated in-kind on and/or off site as determined through the ERP permitting process. Protective conservation measures will also be implemented for Eastern indigo snakes, gopher tortoises, Florida burrowing owls, and Florida sandhill cranes (in the form of additional surveys, relocation permitting, excavation/relocation activities, and the distribution of information brochures and posters) as required by USFWS and FWC and discussed in Sections 8.2(c-d). (A comprehensive list of required permits is given in Section 11.)

(3) CLIMATE

(a) Affected Environment - For airport actions, the study area is defined by the extent of the project changes (i.e., immediate vicinity of the airport) and should reflect the full extent of aircraft movements as part of the project changes. Consult the FAA's Air Quality Handbook for more information on defining the study area. As explained in the 1050.1F Desk Reference, analysis of GHG emissions should be quantitatively assessed in certain circumstances, but otherwise may be qualitatively assessed. Where the analysis is quantitative, the affected environment section for climate should provide the quantitative data for the existing condition, which provides the baseline of existing GHG emissions in the study area. The affected environment section should also discuss the current level of preparedness in the study area with respect to the impacts of climate change. This involves describing current measures that are in place within the study area to adapt to the impacts of climate change (e.g., sea level rise, stronger or more frequent storms, etc.). This discussion should be concise and may be quantitative or qualitative, depending on the nature of the project area.

Describe the current Climate and level of preparedness conditions in the Study Area:

The City of Zephyrhills has a humid, subtropical climate characterized by hot and humid summers and dry winters. Although the airport is located 36 miles east of the Gulf of Mexico and 95 miles west of the Atlantic Ocean, ZPH can be affected by the high winds and rain from tropical storms and hurricanes. Pasco County receives an average of 54 inches of rain per year, and the average annual high and low temperatures are 84 and 61 degrees Fahrenheit (° F), respectively. The mean monthly high temperature of 92° F occurs in July, while the mean monthly low temperature of 48° F occurs in January.

Although Stormwater improvements are considered as an element of the Proposed Project, the airport is not disproportionately vulnerable to severe or extreme storm events and thus does not have a specific Disaster Preparedness Plan. Due to its inland location and higher elevations, ZPH is likewise not vulnerable to the effects of sea level rise.[29]

The *Pasco County Post-Disaster Redevelopment Plan* (2016) [30] maps the immediate and long-range steps toward community recovery after a given disaster in a way that likewise promotes resilience from potential future ones. Although ZPH operation is not specifically addressed in the Plan, Pasco County municipal airports are discussed in reference to transportation emergency support functions. The Plan promotes immediate hazard mitigation and community improvement per local, citizen-developed comprehensive planning efforts.

(b) Environmental Consequences - If GHG's and climate are not relevant to the Proposed Action and alternative(s) (i.e., because there would be no GHG emissions), this should be briefly noted and no further analysis is required.

Qualitatively discuss the reasons that the Proposed Action and retained alternatives would not affect GHG's or Climate Change:

As discussed in Section 8.1(a-c), Air Quality, the Proposed Project would negligibly increase the amount of air emissions at ZPH.

(c) Where the Proposed Action or alternative(s) *would not* result in a net increase in GHG emissions (as indicated by quantitative data or proxy measures such as reduction in fuel burn, delay, or flight operations), a brief statement describing the factual basis for this conclusion is sufficient and no further analysis is required.

As discussed in Section 8.1(a-c), Air Quality, the Proposed Project would negligibly increase the amount of air emissions at ZPH.

(d) Where the Proposed Action or alternative(s) *would* result in an increase in GHG emissions as *compared* to the No Action alternative for the same study year, the emissions should be assessed either qualitatively or quantitatively using the methodology described in FAA's 1050.1F Desk Reference, Section 3.3.2 (Data Analysis). **Note:** Contact an ORL-ADO EPS prior to undertaking a quantitative analysis.

Explain

An increase in greenhouse gas (GHG) emissions would result from implementation of the Proposed Project, including the combustion of fossil fuels for aircraft, facilities use, user and employee vehicles, and the temporary use of construction equipment. As described in Section 8.1(a), the Proposed Project is anticipated to increase the number of annual aircraft operations at ZPH over the No Action Alternative by 1,500 (or 2.7 percent) in 2026, which would increase in GHG emissions in the vicinity of ZPH[31] by approximately 529 metric tons of CO_2 annually by 2026 (**Table 8-4**). As described in Section 4.5, the construction phase is anticipated to be temporary and would conclude within approximately 12 months.

[29] National Oceanic and Atmospheric Agency, 2019. *Sea Level Rise and Coastal Flooding Viewer.* Accessed in May 2019 at: https://coast.noaa.gov/slr/#/layer/vul-soc/8/-9142813.653709978/3280121.316836695/14/satellite/90/0.8/2050/high/midAccretion

[30] Pasco County Planning Department, 2016. *Post-Disaster Redevelopment Plan.* Maintained as a living document, accessed in May 2019, here: https://www.pascocountyfl.net/642/Post-Disaster-Redevelopment-Plan

[31] For further description of area within which GHG was calculated see definition of flight tracks given in **Appendix D**, Section D2.1.4

(e) Documentation - When CO2e is quantified, the metric tonnes (MT) CO2e results should be provided in a table or similar format that compares the alternatives directly. When fuel burn is computed, the MT CO2 equal to that fuel content should be documented and discussed. See Section 3.3.3 of 1050.1F. **Note:** *There are no significance thresholds for aviation or commercial space launch GHG emissions, nor has the FAA identified specific factors to consider in making a significance determination for GHG emissions. There are currently no accepted methods of determining significance applicable to aviation or commercial space launch projects given the small percentage of emissions they contribute. CEQ has noted that "it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions, as such direct linkage is difficult to isolate and to understand." Accordingly, it is not useful to attempt to determine the significance of such impacts. There is a considerable amount of ongoing scientific research to improve understanding of global climate change and FAA guidance will evolve as the science matures or if new Federal requirements are established.*

Provide a discussion of the analysis including data tables comparing the No Action and retained alternatives for each study year:

GHG emissions derived from aircraft operations are given in **Table 8-4**. Note that, due to the negligible GHG emissions anticipated from the Proposed Project in regards to increased facility operations and user and employee vehicles to support the 2.7 percent increase in aircraft operations,[32] and because of the small project footprint and the temporary nature of construction equipment, only aircraft emissions were quantified.

TABLE 8-4
ANNUAL AIRCRAFT GREENHOUSE GAS EMISSIONS AT ZPH

Scenario	Metric Tons of CO_2e per year
2018 Baseline	3,054.91
2021	
2021 Proposed Project	3,368.98
2021 No Action	3,179.68
2021 Change	+189.30
2026	
2026 Proposed Project	3,965.88
2026 No Action	3,399.12
2026 Change	+566.76

SOURCE: Environmental Science Associates, 2019 - AEDT, 2d.
NOTE: GHG emissions are calculated from aircraft emissions only. Per Appendix C of the FAA Order 1050.1F Desk Reference (2015), GHG estimates include CO2 produced from fuel consumption calculated by AEDT through the full extents of modeled aircraft flights (flight track information is available in Appendix D).
CO_2e = carbon dioxide equivalent

(f) Reducing Emissions - Reduction of GHG emissions resulting from FAA actions contributes towards the U.S. goal of reducing aviation's impacts on climate. For NEPA reviews of proposed FAA actions that would result in increased emissions of GHGs, consideration should be given to whether there are areas within the scope of a project where such emissions could be reduced. GHG emission reduction can come from measures such as changes to more fuel efficient equipment, delay reductions, use of renewable fuels, and operational changes (e.g.,

[32] 2.7 percent represents the cumulative increase in operations (1,500) of 2026 Proposed Project over the 2026 No Action alternative.

performance-based navigation procedures). However, GHG emission reduction is not mandated and will not be possible in all situations.

Discuss measures to reduce emissions associated with the Proposed Action:

No additional measures within the scope of the Proposed Project were identified that would reduce or offset the anticipated GHG emissions.

(g) Climate Adaptation - The environmental consequences section should include a discussion of the extent to which the proposed action or alternatives(s) could be affected by future climate conditions, based on published sources applicable to the study area. For example, a project area's ability to sustain impacts caused by climate changes should be described (e.g., identify current robustness and height of seawalls for coastal airports). This discussion should include any considerations to adapt to forecasted climate change conditions.
Discuss potential climate conditions relevant to the Proposed Action:

ZPH is located between 80 to 90 feet above mean sea level, approximately 36 miles east of the Gulf of Mexico, and is not considered susceptible to the direct effects of sea level rise in the foreseeable future.[33] However, the climate of Zephyrhills (considered a suburb of the Tampa Bay Metropolitan Area) is characterized by hot, humid summers and warm, generally dry winters that could encounter changes in rainfall patterns, temperature levels, and tropical storm frequency and intensity. ZPH is likely to be able to adapt to changes in rainfall patterns and temperature without a loss of service or substantial impact on its facilities; however, changes in tropical storm frequency and/or intensity could affect structures at ZPH.

(4) COASTAL RESOURCES

(a) Is the Proposed Action located within the Coastal Barrier Resources System (CBRS), as delineated by the U.S. Fish and Wildlife Service (FWS) Official CBRS maps? If the Proposed Action is located within the CBRS, **do not complete this EA** and immediately contact an FAA ORL-ADO EPS.

Explain:

ZPH is not located within the Coastal Barrier Resources System.

(b) The Florida Department of Environmental Protection (DEP), Florida State Clearinghouse, Office of Intergovernmental Programs, will coordinate a consistency review of the Proposed Action under the following authorities: Presidential Executive Order 12372; § 403.061 (42), Florida Statutes; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended. The ORL-ADO EPS must review the Draft EA prior to submittal to the Clearinghouse for consistency review. The Airport Sponsor then submits the Draft EA to the Clearinghouse. Contact the Clearinghouse (850-245-2161) for the required number of copies and format. The Clearinghouse will make a determination of the Proposed Action's consistency with Florida's Coastal Management Program (FCMP) based on information contained in the Draft EA. ***Note:*** *The FCMP consistency review process normally takes 30 to 45 days and is conducted during the public and agency review of the Draft EA. The Clearinghouse will send a consistency determination letter with state comments to the Airport Sponsor. The Airport Sponsor must include a copy of the consistency letter and the Airport Sponsor's responses to any comments received from state agencies in an appendix to the Final EA submitted to the FAA ORL-ADO.*

[33] National Oceanic and Atmospheric Agency, 2019. *Sea Level Rise and Coastal Flooding Viewer.* Accessed in May 2019 at: https://coast.noaa.gov/slr/#/layer/vul-soc/8/-9142813.653709978/3280121.316836695/14/satellite/90/0.8/2050/high/midAccretion

Ensure that the Proposed Action is consistent with the enforceable policies of the FCMP (http://www.dep.state.fl.us/cmp/Federal/). Acknowledge submittal of the Draft EA to the Clearinghouse for review.

As noted in the *Florida Coastal Management Program Guide*, the entire state of Florida is included within the coastal zone, and the Florida Department of Environmental Protection typically conducts consistency reviews in coastal counties.[34] In addition to focusing conservation and protection efforts within coastal zones, areas of Critical State Concern are designated to assist local government planning and protection of inland resources with statewide and regional importance. Pasco County is designated as a coastal county, and Green Swamp, which is located adjacent to but not within Pasco County, is identified as an Area of Critical State Concern.

ZPH is approximately 36 miles east of the Gulf of Mexico and does not meaningfully contribute stormwater runoff to major tributaries of a marine watershed system.[35] Likewise, marine species of vegetation do not constitute the dominant plant communities, and ZPH does not impact marine vegetation (such as mangroves or sea grasses). ZPH is located over 6.5 miles southwest of the western tract of the Green Swamp and likewise does not impact the Swamp as most hydrologic flow produced onsite is either managed onsite or channeled to the east or south toward the Hillsborough River.

Due to the distance from ZPH to the ocean, as well as the isolated nature of anticipated impacts and commitment to water quality protection (Section 8.15(d)), it is anticipated that the Proposed Project will have no direct or indirect impacts on coastal resources or Areas of Critical State Concern. A coordination letter providing notice of the preparation on this EA was submitted to the Florida State Clearinghouse on January 7, 2019). On March 12, 2019, the Florida Department of Environmental Protection stated no objections to the Proposed Project at this time **(Appendix H)**. Final consistency with the enforceable policies of the Florida Coastal Management Program will be determined through the state permit application process.

(5) DOT SECTION 4(f)

(a) Describe and identify on an attached figure all DOT Section 4(f) resources both on-airport and within the airport's vicinity (or area encompassed by the composite DNL 65 dBA noise contour for the Proposed Action, reasonable alternatives (if any) and No Action alternative). Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately owned land from an historic site of national, state, or local significance. Cross-reference Category (11) Noise and Compatible Land Use, as applicable.

Describe 4(f) resources and attach a figure if applicable:

The Zephyrhills Municipal Golf Course is considered a DOT Section (f) resource located within the Proposed Project footprint. 3.74 acres of the Golf Course are encompassed by the existing condition 2018 DNL 65 dBA noise contour. Increased exposure under the No Action Alternative and Proposed Project in 2021 and 2026 is described in **Table 8-5**.

[34] Florida Department of Environmental Protection, *Florida Coastal Management Program Guide*. 7 September 2018.

[35] NOAA 2012. *State Coastal Zone Boundaries.* Accessed in May, 2019 at: *https://coast.noaa.gov/czm/media/StateCZBoundaries.pdf*

TABLE 8-5
ZEPHYRHILLS MUNICIPAL GOLF COURSE EXPOSURE TO DNL 65 DBA NOISE CONTOUR AREA COMPARISON

	Total Area Exposed to DNL 65 dBA Contour (acres)	Difference over Existing Condition
2018 (Existing Condition)	3.74	N/A
2021 No Action	4.01	+0.27
2021 Proposed Project	4.01	+0.27
2026 No Action	4.47	+0.73
2026 Proposed Project	4.52	+0.78

SOURCE: AEDT 2d; Environmental Science Associates, 2019

As identified in Section 7.2.2, Four City-owned parks/recreation areas (Lincoln Heights, Veteran's Memorial, Krusen, and Meadowood Paw Parks) and one County-owned park (Samuel W. Pasco Recreation Complex) are located outside of the Proposed Project footprint but within the Study Area and adjacent to ZPH (**Appendix A, Exhibit 1**).The Upper Hillsborough Preserve is directly adjacent to Skydive City and the airport boundary to the east, and there are no properties listed or eligible for listing in the National Register of Historic Places (NRHP) within the Study Area (**Appendix F**).[36]

(b) Compared to the No Action alternative, would the Proposed Action and retained alternatives (if any) have a direct impact (physical use or "taking") or indirect impact (constructive use) on any of any Section 4(f) sites or facilities? To assess constructive use refer to *"FAR Part 150, Appendix "A", Table 1, Land Use Compatibility With Yearly Day-Night Average Sound Levels"* If **YES**, **do not complete this EA** and contact the FAA ORL-ADO EPS.

Discuss the results of the analysis:

The Proposed Project would not result in a physical use or "taking" (direct impact) of a Section 4(f) resource. There would be minimal increase in acreage exposed to the DNL 65 dBA noise contour at the Zephyrhills Municipal Golf Course under the No Action and Proposed Project in 2021 and 2026; however, the Golf Course is determined to be a compatible use under 14 CFR Part 150 Appendix A Table 1, and no taking or constructive use would occur. Furthermore, the Proposed Project is located entirely within the airport boundary and, although operations may increase 2.7 percent by 2026 over the No Action Alternative as a result of the Proposed Project, flight paths are not anticipated to change in a way that would cause constructive use (indirect impacts) to 4(f) resources in the vicinity of the Study Area.

(6) FARMLANDS--PRIME, UNIQUE OR STATE-SIGNIFICANT FARMLAND

(a) Compared to the No Action alternative does the Proposed Action and retained alternatives (if any) involve the acquisition of Prime, Unique or statewide and locally important farmland, or the conversion/use of these types of farmlands that are protected by the Federal Farmland Protection Policy Act (FPPA)? Contact the Florida Natural Resources Conservation Service (NRCS). For more information see: http://www.nrcs.usda.gov/wps/portal/nrcs/main/fl/soils/

[36] LG2ES, 2019. *Phase I Cultural Resources Assessment Survey for the ZPH Runway Extension EA, Pasco County, FL.*[37] U.S. Department of Agriculture Natural Resources Conservation Service, *Web Soil Survey*. Accessed in May, 2019 at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

If appropriate, attach record of coordination with the Florida NRCS, including a completed Form AD-1006. ***Note:*** *Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not land used for water storage or urban built-up land. Also, the "Part 523-Farmland Protection Policy Manual" notes that lands identified as "urbanized area" (UA) on Census Bureau maps are not subject to the provisions of the FPPA. See https://www.census.gov/geo/maps-data/maps/2010ua.html for Census Bureau maps.*

Discuss analysis and add tables and graphics as appropriate:

Prime, unique, or state-significant farmland is not present throughout ZPH or within the Study Area.[37] Thus, no impacts to farmlands are anticipated.

(7) HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

(a) Compared to the No Action alternative, would the Proposed Action and reasonable alternatives (if any) violate applicable Federal, state, tribal or local laws or regulations regarding hazardous materials and/or solid waste management?

Explain:

The Proposed Project is not expected to violate applicable federal, state, tribal or local laws or regulations regarding hazardous materials or solid waste management.

All hazardous substances at ZPH are managed in accordance with federal and state of Florida hazardous material management regulations. Hazardous materials are used and stored onsite at ZPH and hazardous wastes are generated in support of airport management and aircraft operation and maintenance. Such substances include petroleum, oils, and lubricants and other materials used for aircraft and ground vehicle maintenance. Chemical de-icing systems are not operated at ZPH. Potential hazardous materials associated with construction activities may include various oils, lubricants, solvents, sealants, and paints.

Hazardous material use and hazardous waste generation will occur in support of the Proposed Project. Induced aircraft operations and future airport maintenance activities could potentially require increased use of hazardous materials at a rate commensurate with the rate of operations increase and could generate increased volumes of hazardous wastes as a result. Hazardous materials and pollution prevention would be addressed in the contractor's plans and specifications for the Proposed Project, and the contractor would be required to develop and follow the specific plans they prepare. During construction activities, handling of all hazardous materials used and hazardous waste generated would be the responsibility of the construction contractor and stored, used, and disposed according to the contractor's material handling and management plans and other federal and state of Florida hazardous material management protocols. Although some hazardous materials would be stored onsite, no equipment maintenance activities would be conducted near surface water resources. The construction contractor will be required to implement pollution prevention, spill prevention, and response plans documenting the measures that will be taken to prevent accidental releases to the environment and, should they occur, the actions that will be undertaken to minimize the environmental impact. Due to the small increase of hazardous materials used and hazardous waste generated in association with the Proposed Project and adherence to established regulations, policies, guidelines, and

[37] U.S. Department of Agriculture Natural Resources Conservation Service, *Web Soil Survey*. Accessed in May, 2019 at: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

management plans by airport personnel and construction contractors, it is not anticipated that there would be increased risks associated with hazardous materials management or generation of hazardous waste.

A negligible increase of solid waste generation at ZPH may result from the use forecasted with implementation of the Proposed Project. This waste generation would be managed in accordance with ongoing solid waste procedures. Solid waste associated with the construction phase of the Proposed Project would include generation of typical construction debris, such as approximately 27,000 square feet of asphalt pavement to be removed as 6th Avenue is relocated; however, much of the existing asphalt may be recycled and used as a base layer for the construction of the new road pavement. Land clearing and grubbing activities over 71 acres and ongoing maintenance of object free areas would also generate landscape debris. Solid waste that is not recycled would be transported to the East Pasco County landfill or West Pasco County landfill or waste to energy incinerator. Depending on the volume generated, the County landfill facilities may not accept construction-related debris (e.g., concrete, asphalt, or landscape debris), and the material would be required to be disposed of at a private waste management business (e.g., Angelo's Recycled Materials Landfill).

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. Source reduction includes practices that reduce hazardous and other substances from being released into the environment prior to recycling, treatment, or disposal. Although at this time no specific pollution prevention measures are in place at ZPH, the City is committed to sustainable environmental stewardship and is dedicated to the ongoing pursuit of waste reduction and reuse as well as other pollution prevention activities that may be relevant to airport management and aircraft operations.[38]

(b) Compared to the No Action alternative, would the Proposed Action and retained alternatives (if any) involve a contaminated site (including but not limited to a site listed on the National Priorities List)? Describe how the Proposed Action site was evaluated for hazardous substance contamination. Reference electronic database searches and attach in an appendix any record of consultation with appropriate expertise agencies (e.g., US Environmental Protection Agency (EPA), Florida DEP).

Explain:

A search of the following databases was conducted to evaluate the Proposed Project site and adjacent properties for hazardous materials and related environmental concerns:

- Florida Department of Environmental Protection online "*Contamination Locator Map*"[39]
- U.S. Environmental Protection Agency "*NEPAssist*" website[40]
- U.S. Environmental Protection Agency "*My Environment*" website[41]
- U.S. Environmental Protection Agency "*Envirofacts*" website[42]

Based on the database search, review of other relevant airport documents, and site assessments, it is not anticipated that the Proposed Project will affect National Priorities List (NPL) sites, Resource Conservation and Recovery Act (RCRA) sites, or fuel storage locations. No known NPL or hazardous waste disposal or contaminated areas are located within the project footprint or Study Area. One active petroleum cleanup site at ZPH is located on the southwest portion of the airport outside of the Proposed Project area. Three

[38] City of Zephyrhills, 2012 *Sustainable Zephyrhills, Community Action Plan*. 11 June.
[39] FDEP *Contamination Locator Map*, accessed in May 2019 at: http://prodenv.dep.state.fl.us/DepClnup/address.do
[40] U.S EPA *NEPA Assist Website*, accessed in May 2019 at: https://www.epa.gov/nepa/nepassist
[41] U.S EPA *My Environment Website*, accessed in May 2019 at: https://www3.epa.gov/myem/envmap/find.html
[42] U.S EPA *Envirofacts Website*, accessed in May 2019 at https://www3.epa.gov/enviro/index.html

conditionally-exempt small quantity generators are identified within the Study Area adjacent to ZPH, none of which have had any violations within the previous 12 months or any enforcement actions (formal or informal) within the past five years.

(c) Compared to the No Action alternative would the Proposed Action and retained alternatives (if any) produce an appreciably different quantity or type of hazardous waste?
Explain:

As the airport would continue to serve general aviation aircraft, the Proposed Project would not produce a change in the types of hazardous materials used and hazardous wastes generated at ZPH. Induced operations and future airport maintenance activities could potentially require increased use of hazardous materials at a rate commensurate with the rate of operations increase and could generate increased volumes of hazardous wastes as a result; however, this increase is anticipated to be negligible and would not exceed the capacity of current hazardous material and waste management protocols.

(d) Compared to the No Action alternative, would the Proposed Action and retained alternatives (if any) generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity? If **YES**, are local disposal facilities capable of handling the additional volumes of solid waste resulting from the Action? A letter from the local waste management handling facility may be necessary.
Explain:

It is not anticipated that the Proposed Project would generate an appreciable quantity or type of solid waste, use a different method of collection or disposal, or exceed the capacity of a local disposal authority. Induced operations would confer a negligible, incremental increase in solid waste produced by airport users and management activities. While construction would generate wastes associated with land clearing, earthwork, and paving, no substantial construction waste impacts are anticipated. Construction waste not diverted or recycled by the contractor would be handled in accordance with applicable state and local requirements and disposed of in permitted facilities.

(e) Compared to the No Action alternative, would the Proposed Action and retained alternatives (if any) adversely affect human health and the environment with regards to hazardous materials or solid waste?

Explain:

The Proposed Project would not adversely affect human health and the environment with regards to the management of hazardous materials or solid waste.

(f) Is there a sanitary landfill containing municipal solid waste (MSW) located within 10,000 feet of a runway serving turbo-powered aircraft, or 5,000 feet of a runway serving piston-powered aircraft? **Note:** *A sanitary landfill containing municipal solid waste (MSW) is incompatible with airport operations if the landfill is located within 10,000 feet of a runway serving turbo-powered aircraft, or 5,000 feet of a runway serving piston-powered aircraft. Refer to FAA Advisory Circular 150/5200.33 " Hazardous Wildlife Attractants on or Near Airports," and FAA Order 5200.5B, "Guidance Concerning Sanitary Landfills on or Near Airports."*

Explain:

The Proposed Project is in compliance with FAA's 10,000-foot and 5,000-foot thresholds for safe distances to sanitary landfills containing municipal solid waste. The nearest landfill to the Proposed Project is the East Pasco County Landfill, located approximately 9 miles (47,520 feet) northwest of ZPH. Based on FAA threshold criteria, operations at this facility would not have an effect on the aircraft operations associated with the Proposed Project.

(8) HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

(a) Describe and identify on an attached figure any *known* sites listed-in or eligible for listing on the National Register of Historic Places (NRHP) within the Proposed Action's and retained alternatives (if any) Area of Potential Effect (APE), which is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties". The APE includes the direct impact area (limits of ground disturbance) and as applicable the indirect impact area encompassed by the composite DNL 65 dBA noise contour of the Proposed Action, No Action, and retained alternatives (if any). Protected resources include historic sites, districts, objects, archaeological remains, historic structures, public parks, publicly-owned recreation areas, and wildlife or waterfowl refuges. Accomplish this review through searching the NRHP database, consultation with the Florida State Historic Preservation Officer (SHPO), local historic groups, local jurisdictions, federally recognized tribes in the State of Florida, and airport staff. Historic airport facilities (50 years or older) must be included. **Note:** *If any known listed or eligible NRHP sites are identified within the Proposed Action's APE (direct or indirect), you must immediately contact the ORL/ADO Environmental Specialist for further instruction regarding Section 106 of the National Historic Preservation Act (NHPA).*

Describe and identify on attached figure (as applicable) any known sites in the direct and indirect impacts APE:

The Area of Potential Effect (APE) for this investigation consists of: 1) the area of Direct Effect, including the Proposed Project footprint where ground-disturbing activities such as construction, clearing, and excavation would have direct and adverse effects on any cultural resources present, and 2) the surrounding area where Indirect Effects to cultural resources may occur in the form of noise pollution, dust, and vibration during construction or aircraft operations. A Phase I Cultural Resources Assessment Survey (CRAS) was performed over 109.3 acres of airport property within the APE (**Appendix F**).

There are no sites listed, or eligible for listing in the NRHP within the APE designated for the Proposed Project. However, based on a Florida Master Site File review, 42 archaeological sites, 448 historic structures, one historic cemetery, one historic bridge, and three resource groups have been recorded within one mile of the APE.[43] Two cultural resources, including the Captain Howard B. Jeffries House and the Zephyrhills Downtown Historic District, are listed in the NRHP; three structures and one site are eligible for listing in the NRHP; one site is potentially eligible; 76 structures, 22 sites, one resource group, and one bridge are ineligible; 369 structures, 13 sites, and one cemetery have been identified but have not been evaluated; and four sites and one resource group have insufficient data to be evaluated by the SHPO. Additionally, 40 prehistoric sites have been documented within one mile of the APE (concentrated to the south and east of the Proposed Project area correlating with the route of the Hillsborough River). The closest of the prehistoric sites is approximately 2,132 feet east of the southern section of the APE.

[43] Florida Department of State, Department of Historic Research *Florida Master Site File*, 2019.

Fieldwork associated with the CRAS consisted of pedestrian inspection of the entire APE and systematic subsurface testing in areas that exhibited moderate to high probability, with shovel tests in low probability areas performed judgmentally. Per the *Florida Division of Historical Resources guidelines for Historic Preservation Professionals, Cultural Resources Management Standards & Operations Manual, Module Three (2002)*, areas exhibiting high or moderate probability for encountering cultural resources were excavated at 25- and 50-meter intervals respectively, while judgmental shovel tests were excavated within low probability areas that exhibited elevated landforms or ephemeral elevation changes.

In total, 175 shovel test pits were excavated and 22 pits produced cultural material. As a result, six new cultural resource sites were documented within the proposed Project APE. The CRAS identified four archaeological sites (former, pre-1940's historic homestead and areas of lithic scatter), two linear resources (World War 2 [pre-1950] ZPH stormwater drainage canal and historic road segment), and two archaeological occurrences (silicified coral flakes); however, these cultural resources do not meet the eligibility criteria required to be considered for inclusion on the NRHP and are therefore recommended as not eligible for inclusion in the NRHP.

(b) Consultation with the SHPO and tribes should be conducted early in the process and prior to submittal of the preliminary Draft EA to the ORL/ADO EPS. Discuss Florida SHPO and tribal consultation responses below. **Records of consultation with the Florida SHPO and federally recognized tribes and their responses must be included in an appendix to the EA**. All public out-reach efforts should apply to these groups as well. **Note:** *Letters to the Florida SHPO and federally recognized tribes must come from the FAA. Draft letters for FAA signature. Discuss the proposed action and attach a figure identifying the area of potential effect (APE) on a recent aerial. Include in the discussion whether a cultural resource assessment study (CRAS) has been done for the APE. Provide a written effects determination along with supporting documentation to the SHPO/THPO and the consulting parties (see 36 CFR § 800.5). Make one of the following conclusions: (1) no historic properties present in the APE; (2) no adverse effect on historic properties; or (3) adverse effect on historic properties. You must review* http://www.dot.state.fl.us *for a list of federally recognized tribes, contacts and addresses. If any known listed or eligible NRHP sites are identified within the Proposed Action's APE, you must immediately contact the ORL/ADO Environmental Specialist for further instruction regarding Section 106 of the National Historic Preservation Act (NHPA).*

Discuss Florida SHPO and tribal consultation responses.

In accordance with Section 106 of the *National Historic Preservation Act* of 1966, the FAA provided consultation letters and links to the Draft EA and CRAS to the Florida Department of State, Division of Historical Resources on October 30, 2019, and potentially interested tribal nations, including Muscogee (Creek) Nation, Miccosukee Tribe of Indians of Florida, Seminole Nation of Oklahoma, Seminole Tribe of Florida, and Poarch Band of Creek Indians on November 1, 2019. A revised CRAS was provided to the Florida SHPO on July 15, 2020. The FL SHPO concurred with the CRAS survey results and recommendations described in the July 15, 2020, CRAS and determined that the Proposed Project will likely have no effect on historic properties listed, or eligible for listing, on the NRHP, or otherwise of historical, architectural, or archaeological value (August 11, 2020; **Appendix H**). The Muscogee (Creek) Nation replied on December 4, 2019, that they are unaware of sacred sites in the Proposed Project area and concur that impacts to historic properties are unlikely. No additional comments have been received from other tribal entities as of the date of this Final EA.

(c) Compared to the No Action alternative, would the Proposed Action or retained alternatives (if any) result in *direct effects* (physical disturbance or destruction, damage, alteration,

isolation of the property from its surroundings, or moving a property from its historic location), or *indirect effects* (introduction of visual, auditory, or atmospheric elements that are out of character with the property or that would diminish the integrity of the property's setting), on any NRHP property or NHRP-eligible property? Cross reference your response with other applicable impact categories such as noise and compatible land use, air quality and Section 4(f)/6(f) resources.

Discuss direct or indirect effects on NRHP or NHRP-eligible properties.

As there are no NRHP-listed properties within the APE established for the Proposed Project, it is anticipated that the Proposed Project would not directly or indirectly affect any NRHP-listed or-eligible properties. Likewise, it is not anticipated that undiscovered artifacts are present or are at risk from further site clearing and grading activities. However, in the event an unanticipated discovery of previously unidentified archaeological resources is made during construction of the proposed undertaking, construction activities in the vicinity of the discovery will stop, and all reasonable measures will be taken to avoid or minimize harm to the property until the FAA and the City conclude consultation with the SHPO (**Appendix H**).

(9) LAND USE

(a) Compared to the No Action Alternative, would the Proposed Action and retained alternatives (if any) result in any impacts to off-airport land uses and/or require a change to the local comprehensive plan and zoning map?

Discuss any impacts to off-airport land uses or changes to a local comprehensive plan or zoning.

Land acquisition is required to accommodate the Proposed Project as described in Section 4.2 (**Appendix A, Exhibit 2** and **Table 4-1**). Approximately 4.2 acres of land designated as "Open Land" are in the process of being acquired from 3 private landowners; the remaining 64.7 acres are already City-owned property that would be transferred to ZPH. The Proposed Project would not require a change to local Comprehensive Plans, substantially depart from ongoing planning initiatives, or impact the Zephyrhills Basin of Special Concern; however, acquired parcels would be reclassified from "light industrial" to "airport" zoning designations (**Appendix A, Exhibit 12**).[44] Additionally, potential changes to the stormwater management system (OSW1) may impact the "conservation / wetlands" designation of the affected segments currently proposed in the Zephyrhills Future Land Use Map.[45]

As described in Section 5.1.2, ongoing community planning initiatives have repeatedly identified ZPH as an asset to support economic growth in the area.[46] Master planning for the airport and airport corridor identifies ways to develop the ZPH airport corridor and industrial area as an economic generator and regional industrial hub.

(b) Compared to the No Action alternative, would the Proposed Action and retained alternatives (if any) be located near or create a potential wildlife hazard as defined in FAA Advisory Circular 150/5200-33, "Wildlife Hazards on and Near Airports"?

[44] City of Zephyrhills *Zoning Map*, April 2019.
[45] City of Zephyrhills, *Future Land Use Map*, April 2019
[46] *Zephyrhills Community Redevelopment Agency Master Plan*, Zephyrhills Community Redevelopment Agency, 2015; *Clearly Zephyrhills* (brochure), Greater Zephyrhills Chamber of Commerce, 2016. Accessed in November 2018 at: https://www.zephyrhillschamber.org/economic-development ; *Five-Year Strategic Action Plan Airport Industrial Corridor,* City of Zephyrhills, June 2018; and *Comprehensive Plan Update 2032*, City of Zephyrhills, 2018.

Discuss potential wildlife hazards.

The Proposed Project would not create new wildlife hazards and is expected to reduce the potential for wildlife hazards. As vegetation is removed from the existing stormwater management feature (OSW 1) exposed areas will be culverted, and OSW 2 will be filled/removed, thereby eliminating open water habitat in this area. OSW 3 will be filled and reconfigured in order to improve stormwater capacity, move stormwater rapidly from the airfield, and reduce wildlife utilization within and adjacent to the Airport Operations Area in accordance with FAA and other hazardous wildlife guidance. The Swoop Pond (OSW 5) will likewise be modified in accordance with FAA and other hazardous wildlife guidance.

(c) If the Airport Sponsor is filing a Federal Airport Improvement Program (AIP) grant application for construction of the Proposed Action, an *executed* letter from the Airport Sponsor to the FAA with the land use assurance language noted below must be attached as an appendix to this EA.

> "Per 49 USC Section 47107(a)(10), that appropriate action, including adopting zoning laws, has been or will be taken to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including the landing and takeoff of aircraft."

Note: *The Sponsor's assurance letter must be related to existing and future planned land uses in the airport vicinity.*

Identify Draft EA Appendix that contains the Airport Sponsor's land use assurance letter or explain why one is not required.

ZPH is not requesting a Federal Airport Improvement Program (AIP) grant for construction of the Proposed Project.

(10) NATURAL RESOURCES AND ENERGY SUPPLY

(a) Identify suppliers of energy resources found in the area such as power plants, water utilities, sewage disposal utilities, and suppliers of natural gas and petroleum, as applicable. Identify the approximate amount of other resources such as water, asphalt, aggregate, and wood a project would use in the construction, operation, and maintenance of a project and identify where the suppliers are located.

Discuss:

Airport water and sewer utilities are provided by the City of Zephyrhills. The water system includes 9 groundwater wells, and the wastewater treatment facility treats 1.7 million gallons of waste per day (located adjacent to the Proposed Project location to the west on Alston Avenue). Electricity is provided by Duke Energy. In general, Duke Energy uses a variety of electricity sources such as nuclear, coal-fired, oil- and natural gas-fired, and hydroelectric power plants; however, in 2017 coal was only 33 percent of the total generation, and over 38 percent of the total power produced was from zero carbon sources.[47] The plant likely powering the Zephyrhills area utilizes natural gas and steam powered turbines.[48]

As detailed in Section 4.2, the Proposed Project would require the construction of approximately 260,100 square feet of pavement, security fencing, pavement marking (paint), and lighting systems. Additional

[47] Duke Energy Operations, *On the Path to a Lower-Carbon Future*. Accessed in January 2019 at: https://sustainabilityreport.duke-energy.com/operations/on-the-path-to-a-lower-carbon-future/

[48] *Duke Energy Regulated Plant Locations,* accessed in May 2019 at: https://www.duke-energy.com/our-company/about-us/power-plants

identification of construction materials and other resources needed to implement the Proposed Project will occur as the design and permitting phase is progressed. The provision of petroleum and other construction equipment and vehicle maintenance materials would be the responsibility of the construction contractor. Although the volume of construction and related materials required and the suppliers are unknown at this time, the type of construction is common and would likely involve contractors and suppliers located in Pasco or adjoining counties, the scale of the project is relatively small, and the Proposed Project would use materials that are not unusual in nature and are not in short supply.

(b) Compared to the No Action alternative, what effect would the Proposed Action and retained alternatives (if any) have on energy supplies or other natural resource consumption? Would demand exceed supply?

Explain:

Implementation of the Proposed Project would not cause a substantial increase in utility (water, energy) or fuel consumption over the existing demand and would not overwhelm existing or future supply. The Proposed Project is anticipated to induce a 2.7 percent increase in ZPH aircraft operations over 2026 baseline conditions, for a forecasted total of 57,239 annual operations. In general, increased operations would result in a modest increase in the use of aviation gasoline and Jet A fuel (i.e., AvGas100LL and Jet A) at ZPH. When compared to the No-Action Alternative, it is anticipated that the Proposed Project would increase aviation fuel use at ZPH by 57,900 additional gallons in 2026 (see **Table 8-6**).

TABLE 8-6
ANNUAL AIRCRAFT FUEL CONSUMPTION AT ZPH

Scenario	Gallons of AvGas 100LL per year	Gallons of Jet A per year
2018 Baseline	63,702	256,116
2021		
2021 Proposed Project	66,305	285,914
2021 No Action	66,305	266,575
2021 Proposed Project - 2021 No Action	0[1]	+19,339
2026		
2026 Proposed Project	70,891	342,864
2026 No Action	70,891	284,964
2026 Proposed Project - 2026 No Action	0[1]	+57,900

SOURCE: Environmental Science Associates, 2019 - AEDT, 2d.
NOTE: Fuel burned is calculated for aircraft operations only. As with GHG calculations, per Appendix C of the *FAA Order 1050.1F Desk Reference (2015*), estimates are based on fuel consumption calculated by AEDT through the full extents of modeled aircraft flights (flight track information is available in **Appendix C)**.
[1] 2021 and 2026 Proposed Project induced operations are estimated to be comprised entirely of jet operations, resulting in a negligible increase in estimated AvGas consumption.

It is not anticipated that the temporary construction phase or future aircraft fueling requirements associated with the Proposed Project would impact the supply of or demand for natural resources in the area.

(c) Identify whether the Proposed Action and retained alternatives (if any) would incorporate sustainable design features such as conservation of resources, use of pollution prevention measures, minimization of aesthetic effects, and address public (both local and traveling) sensitivity to these concerns.

Explain:

Pollution prevention and conservation in relation to the use of hazardous material and the generation of hazardous and solid waste is discussed in Section 7. Although it is anticipated that the construction contractor would proceed with judicious and efficient use of natural resources, specific design criteria have not been identified for the Proposed Project. The Proposed Project chiefly focuses on the extension of Runway 1-19, but could include reuse of fill materials and recycling of pavement millings as elements of the contractor's cost management strategy and in accordance with the Zephyrhills Sustainability Plan.[49]

(11) NOISE AND COMPATIBLE LAND USE

(a) Determine if a noise analysis should be conducted per FAA Order 1050.1F, Appendix B. Airport operations must not exceed the threshold for both existing and forecast years (with and without the Proposed Action). If operations exceed the threshold, coordinate with the ORL/ADO EPS prior to conducting a noise analysis. **Note:** *No noise analysis is needed for projects involving Design Group I and II airplanes (wingspan less than 79 feet) in Approach Categories A through D (landing speed less than 166 knots) operating at airports whose forecast operations in the period covered by the NEPA document do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 annual jet operations (2 average daily operations). These numbers of propeller and jet operations result in DNL 60 dB contours of less than 1.1 square miles that extend no more than 12,500 feet from start of takeoff roll. The DNL 65 dB contour areas would be 0.5 square mile or less and extend no more than 10,000 feet from start of takeoff roll. Also, no noise analysis is needed for projects involving existing heliports or airports whose forecast helicopter operations in the period covered by the NEPA document do not exceed 10 annual daily average operations with hover times not exceeding 2 minutes. These numbers of helicopter operations result in DNL 60 dB contours of less than 0.1 square mile that extend no more than 1,000 feet from the pad. Note that this rule applies to the Sikorsky S-70 with a maximum gross takeoff weight of 20,224 pounds and any other helicopter weighing less or producing equal or less noise levels. Airport forecasts must be consistent with the most recent FAA Terminal Area Forecast (TAF).*

Document the most recent TAF for the airport, the existing and forecast annual operations in the EA study years for the No Action alternative, the Proposed Action and any retained alternatives. Discuss whether the thresholds described above would be exceeded or not and whether a quantitative or qualitative noise analysis is appropriate for the Proposed Action.

A quantitative noise analysis was prepared to evaluate the change in aircraft noise exposure at and in the vicinity of ZPH that may occur with the implementation of the Proposed Project. The noise analysis was prepared using the latest version of the FAA AEDT, Version 2d. **Table 4-2** provides information pertaining to the number of existing and forecast annual aircraft operations, both with and without the Proposed Project.

(b) Aircraft noise screening may rule out the need for more detailed noise analysis if screening shows no potential for significant noise impacts. The Area Equivalent Method (AEM) can be used in evaluating proposed actions and alternative(s) at an airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there

[49] City of Zephyrhills, 2012 *Sustainable Zephyrhills, Community Action Plan*. 11 June.

are no changes in ground tracks or flight profiles. If the AEM calculations indicate that the action would result in less than a 17 percent (approximately a DNL 1 dB) increase in the DNL 65 dB contour area, there would be no significant impact over noise sensitive areas and no further noise analysis would be required. If the AEM calculations indicate an increase of 17 percent or more, or if the action is such that use of the AEM is not appropriate, then the noise analysis must be performed using the Aviation Environmental Design Tool (AEDT) to determine if significant noise impacts would result. See the Area Equivalent Method (AEM) Version 7.0c User's Guide, October 2012 for further information on conducting an AEM screening procedure. **Note:** *If more detailed noise analysis is required, the model must be used to determine if significant noise impacts would result from implementation of the Proposed Action. Information regarding the FAA's AEDT 2b can be found in the 1050.1F Desk Reference and at* https://aedt.faa.gov/ .

Explain the results of the AEM analysis if used.

The Area Equivalent Method was not used in this analysis.

(c) Describe the affected environment for noise and noise compatible land use. Refer to the 1050.1F Desk Reference section 11.2, Affected Environment, for necessary information. The steps generally required to describe the affected environment for noise and noise compatible land are as follows:

• *Determine the study area for noise analysis*. An airport environs study area must be large enough to include the area within the DNL 65 dB contour, and may be larger.
• *Identify noise sensitive areas in the study area and pertinent land use information*; A noise sensitive area is defined in Paragraph 11-5.b (8) of FAA Order 1050.1F.
• *Describe **current** noise conditions in the study area*. Noise exposure contours must include DNL 65, 70, and 75 dB levels. Identify the number of residences or people residing within each noise contour where aircraft noise exposure is at or above DNL 65 dB. Identify the location and number of noise sensitive uses in addition to residences (e.g., schools, hospitals, nursing homes, parks, recreation areas, historic structures) that could be significantly impacted by noise. Use recent aerial photographs, GIS mapping and other resources to depict land uses within the noise study area.

The 2018 existing condition DNL 65 dBA and higher noise contours are located entirely on ZPH property. There are no noise sensitive land uses or sites within the area exposed to aircraft noise levels of DNL 65 dBA or higher. However, approximately 3.74 acres of the Zephyrhills Municipal Golf Course were exposed to aircraft noise levels of DNL 65 dBA or higher in 2018, which is considered a compatible use. The 2018 existing condition noise contours are depicted in **Appendix A, Exhibit 6**. The area of the contours in acres is shown in **Table 8-7.** Each contour area is inclusive of the subsequent contour areas; therefore, the cumulative footprint of all three contours is approximately 146 acres.

TABLE 8-7
2018 DNL NOISE CONTOUR AREA

DNL (dBA)	Contour Area (acres)
65 and greater	146.0
70 and greater	57.5
75 and greater	16.4

SOURCES: AEDT 2d; Environmental Science Associates, 2019

(d) Describe the potential noise impacts of the proposed action and alternative(s), if any, for each timeframe evaluated. Use the AEDT to provide noise exposure contours for DNL 5 dB increments for the DNL 65, 70, and 75 dB levels. For all comparisons analyzed, the analysis needs to identify noise increases of DNL 1.5 dB or more over noise sensitive areas that are exposed to noise at or above the DNL 65 dB noise exposure level, ***or*** that would be exposed at or above the DNL 65 dB level due to a 1.5 dB or greater increase, when compared to the No Action alternative for the same timeframe. For each modeling scenario analyzed, disclose, quantify and discuss:

- number of residences or people residing within each noise contour interval where aircraft noise exposure is at or above DNL 65 dB,
- the net increase or decrease in the number of people or residences exposed to each increment of noise
- location and number of noise sensitive land uses in addition to residences (e.g., schools, hospitals, nursing homes, parks, recreation areas, historic structures) exposed to DNL 65 dB or greater
- when DNL 1.5 dB increases to noise sensitive land uses are documented within the DNL 65 dB contour, also identify the location and number of noise sensitive land uses within the DNL 60 dB contour that are exposed to aircraft noise levels at or above DNL 60 dB but below DNL 65 dB and are projected to experience a noise increase of DNL 3 dB or more
- noise impact on noise sensitive areas within the DNL 65 dB contour.

Use multiple graphics to depict the noise contours and land uses and noise sensitive resources within the noise contours for all alternatives. Include arrival, departure and touch and go flight tracks. Graphics should be scaled and sufficiently large and clear to be readily understood.

2021 No Action Alternative

The 2021 No Action Alternative DNL 65 dBA and greater noise contours would be contained entirely on ZPH property and do not include or encroach upon any noise sensitive land uses or receptors. There would be no housing units or people residing in the DNL 65 dBA or greater contours under the 2021 No Action Alternative. The area of contours in acres is presented in **Table 8-8**. Each contour area is inclusive of the subsequent contour areas; therefore, the cumulative footprint of all three contours is approximately 150.5 acres. The 2021 No Action Alternative noise contours are depicted in **Appendix A, Exhibit 13**. Approximately 4.01 acres of the on-airport Zephyrhills Municipal Golf Course would be located in the DNL 65 dBA contour, which is an increase of 0.27 acres over the 2018 existing condition.

2021 Proposed Project

The 2021 DNL 65 dBA and greater noise contours that would be anticipated with implementation of the Proposed Project would be contained entirely on ZPH property and would not include or encroach upon any noise sensitive land uses or receptors. The area of the contours in acres is presented in **Table 8-8**. Each contour area is inclusive of the subsequent contour areas; therefore, the cumulative footprint of all three contours is approximately 153.4 acres. The 2021 Proposed Project noise contours are depicted in **Appendix A, Exhibit 13**.

It is anticipated that ZPH would experience incremental growth in operations, and as 2021 is anticipated as the first year of the Proposed Project implementation, relatively few (500) additional aircraft operations would be expected in the first year of operation. However, runway use would change as a result of the Proposed Project and the size and shape of the contours will change as a result of the extension. This results in an increase in overall area of the DNL 65, 70 and 75 dBA contours for the Proposed Project relative to the No Action Alternative. No housing units or people would reside within the DNL 65 dBA or greater contours

associated with the Proposed Project, and there would be no noise sensitive sites (e.g., churches or schools) within the 2021 DNL 65 dBA or greater noise contours for either the No Action Alternative or Proposed Project. As with the 2021 No Action Alternative, approximately 4.01 acres of the on-airport Zephyrhills Municipal Golf Course would be located in the DNL 65 dBA contour, an increase of 0.27 acres over the 2018 existing condition.

2026 No Action Alternative

The 2026 No Action Alternative DNL 65 dBA and greater noise contours would be contained entirely on ZPH property and do not include any noise sensitive land uses or receptors. There would be no housing units or people residing in the DNL 65 dBA or greater contours under the 2026 No Action Alternative. The area of the contours in acres is shown in **Table 8-9**. Each contour area is inclusive of the subsequent contour areas; therefore, the cumulative footprint of all three contours is approximately 158.3 acres. The 2026 No Action Alternative noise contours are depicted in **Appendix A, Exhibit 14**. Approximately 4.47 acres of the on-airport Zephyrhills Municipal Golf Course would be located in the DNL 65 dBA contour, which is an increase of 0.73 acres over the 2018 existing condition.

2026 Proposed Project

The 2026 DNL 65 dBA and greater noise contours with the Proposed Project would be contained within the proposed ZPH property boundary and would not include any noise sensitive land uses or receptors (**Table 8-9**). Each contour area is inclusive of the subsequent contour areas; therefore, the cumulative footprint of all three contours is approximately 167.6 acres. The 2026 Proposed Project noise contours are depicted in **Appendix A, Exhibit 14**.

As shown in **Table 4-2**, it is expected that the Proposed Project will result in approximately 1,500 additional jet operations by 2026. As with the 2021 condition, runway use would change as a result of the Proposed Action and the size and shape of the contours will change as a result of the extension. There would be no housing units or people residing in the DNL 65 dBA or greater contours associated with the Proposed Project, and there would be no noise sensitive sites (e.g., churches or schools) within the 2026 DNL 65 dBA or greater noise contours for either the No Action Alternative or Proposed Project. Approximately 4.52 acres of the on-airport Zephyrhills Municipal Golf Course would be located in the DNL 65 dBA contour, which is an increase of 0.78 acres over the 2018 existing condition.

TABLE 8-8
2021 DNL NOISE CONTOUR AREA COMPARISON

DNL (dBA)	Proposed Project Contour Area (acres)	No Action Project Contour Area (acres)	Difference
65 and greater	153.4[1]	150.5[2]	+2.9
70 and greater	61.3	59.6	+1.7
75 and greater	18.2	17.0	+1.2

SOURCES: AEDT 2d; Environmental Science Associates, 2019

[1] Includes approximately 4.01 acres of the Zephyrhills Municipal Golf Course, located on airport property.
[2] Includes approximately 4.01 acres of the Zephyrhills Municipal Golf Course, located on airport property.

TABLE 8-9
2026 DNL NOISE CONTOUR AREA COMPARISON

DNL (dBA)	Proposed Project Contour Area (acres)	No Action Project Contour Area (acres)	Difference
65 and greater	167.6[1]	158.3[2]	+9.3
70 and greater	67.0	63.4	+3.6
75 and greater	20.6	18.4	+2.2

SOURCES: AEDT 2d; Environmental Science Associates, 2019

[1] Includes approximately 4.52 acres of the Zephyrhills Municipal Golf Course, located on airport property.
[2] Includes approximately 4.47 acres of the Zephyrhills Municipal Golf Course, located on airport property

Summary

In 2021 and 2026, negligible changes in aircraft noise exposure would result from the Proposed Project. There would be no residences or people living within the DNL 65 dBA or greater noise contours under any scenario; therefore, no land use compatibility impacts would occur if the Proposed Project was implemented. Potential impacts to the Golf Course as a DOT Section 4(f) resource are further discussed in Section 8.5.

(e) Discuss whether there is a significant noise impact for the Proposed Action and retained alternatives (if any) compared to the No Action alternative. FAA Order 1050.1F Exhibit 4-1 provides the FAA's significance threshold for noise i.e. *The action would increase noise by DNL6 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level,* ***or*** *that will be exposed at or above the DNL 65dB level due to a DNL 1.5dB or greater increase, when compared to the no action alternative for the same timeframe.* For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB. The determination of significance must be obtained through the use of noise contours and/or grid point analysis along with local land use information and general guidance contained in Appendix "A", Table 1 of 14 CFR part 150. If there is a potential significant noise impact for the Proposed Action, **do not** complete this EA and contact the ORL ADO/EPS for further guidance.
Explain:

The increased number of annual aircraft operations and change in airfield configuration associated with the Proposed Project in 2021 and 2026 would not expose noise sensitive areas to noise levels of DNL 65 dBA or greater. Although there would be a slight increase in the acreage of the Zephyrhills Municipal Golf Course that is exposed to the DNL 65 dBA, golf recreation is determined to be a compatible use per 14 CFR Part 150, Appendix A Table 1. Accordingly, there would be no noise sensitive areas that would experience an increase in aircraft noise of DNL 1.5 dBA or more in areas exposed to DNL 65 dBA or greater as a result of the Proposed Project when compared to the No Action Alternative. Therefore, no significant noise impact would occur in 2021 or 2026 if the Proposed Project is implemented.

(e) For some noise analyses, it may be necessary to include noise sources other than aircraft departures and arrivals in the noise analysis. This can be determined by examining the action and determining the potential impacts caused by noise other than aircraft departures and arrivals. Some examples are engine run-ups, aircraft taxiing, construction noise, and noise from related roadway work and roadway noise. The inclusion of these sources should be considered on a case-by-case basis, as appropriate. Discuss whether the Proposed Action and retained alternatives (if any) have the potential to cause noise other than aircraft related noise. See 1050.1F Desk Reference, Section 11.5 for additional information.

Discuss if analysis of other noise sources is warranted. If it is, conduct the analysis and describe the results here.

Despite the distance to the nearest noise-sensitive site (1,554 feet), temporary and intermittent noise from vegetation removal, site grading, and pavement construction may be noticeable in the vicinity of construction activities. In particular, there are several residential areas established in the vicinity of ZPH (Majestic Oaks Community and Meadowood Estates are located approximately 1,554 feet from the nearest edge of the Proposed Project) that may perceive noise that is produced during site clearing, grading, and paving activities in these areas; however, construction activities would be limited to working, daylight hours to the extent possible and would follow City protocols to reduce the potential nuisance that may be experienced.

(f) Discuss any mitigation measures that are in effect at the time of the proposal or are proposed to be taken to mitigate significant impacts resulting from the Proposed Action and/or the retained alternatives. See 1050.1F Desk Reference, Section 11.6 for common operational measures to mitigate noise, common mitigation measures related to noise and noise-compatible land use, and common construction mitigation measures. Local land use actions are within the purview of local governments. The FAA encourages local governments to take actions to reduce and prevent land uses around airports that are not compatible with airport operations and aircraft noise. Airports receiving Federal grant funding have a compatible land use obligation, as described in 1050.1F Desk Reference, Section 11.5.3 Airport Actions. Discuss what is being done regarding compatible land use by the local jurisdiction(s) with land use control authority.

Because there would be no significant noise impacts, mitigation is not required.

(12) SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

(a) When compared to the No Action alternative, would the Proposed Project and retained alternatives (if any) change business and economic activity in the community; impact public service demands; induce shifts in population movement and growth, or other factors identified by the public, etc.? If **YES**, describe how these impacts would be minimized or mitigated.

Explain:

ZPH employs 629 people and is responsible for an estimated $106 Million in total economic output, related to direct, on-airport uses; visitor spending; and other, indirect economic influences that originate from access to airport facilities.[50]

It is not anticipated that the Proposed Project would have any affect to public service demands or induce shifts in population movement and growth. The Proposed Project is intended to provide positive economic benefits to local businesses and the City, by improving the accessibility of ZPH for a greater spectrum of modern business jet aircraft, and to the airport, which is expected to see a 2.7 percent increase in utilization by 2026.

(b) When compared to the No Action alternative, would the Proposed Project and retained alternatives (if any) result in the need to relocate any homes or businesses? If **YES**, **do not** complete this EA and contact the ORL/ADO EPS for further guidance.

[50] Florida Department of Transportation, Aviation and Spaceports Office, 2019. *Statewide Aviation Economic Impact Study: The Economic Impact of Zephyrhills Municipal Airport.* March.

Explain:

No residences or businesses would be relocated.

(c) Cause an alteration in surface traffic patterns, or cause a noticeable increase in surface traffic congestion or a decrease in Level of Service (LOS) on local roadways?

Explain:

ZPH is accessed along South Avenue east to Chancey Road, which experienced 4,800 average annual daily trips (AADT) in 2018.[51] This road segment includes the portion of 6th Avenue that would be re-routed as part of the Proposed Project. Chancey Road, along the eastern boundary of ZPH to the southern edge of the Proposed Project area, experienced 7,200 AADT in 2018, and Chancey Road north around the Zephyrhills Bottled Water Plant experienced 10,800 AADT.

A negligible increase in traffic on area roads would result from the forecasted increase in aviation utilization, and this increase is not anticipated to alter surface traffic patterns and would not degrade the Level-of-Service on existing roads or at nearby intersections. Due to the relatively low volume of traffic in experienced on these roads, it is not anticipated that temporary construction vehicle trips would contribute to surface traffic congestion. It is not anticipated that egress along 6th Avenue would be impacted during construction activities as the new segment would be installed prior to removal of the old section; although, temporary slow-down may occur as the intersections are aligned.

(d) Would the Proposed Action and retained alternatives (if any) have the potential to lead to a disproportionately high and adverse impact to an environmental justice population, i.e., a low-income or minority population? Consider impacts in other environmental impact categories (noise, air); or impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA would determine are unique to the environmental justice population and significant to that population. *See 1050.1F Desk Reference, Chapter 12 for guidance*. If **YES**, **do not** complete this EA and contact the ORL/ADO EPS for further guidance.

Explain:

The Proposed Project would not directly impact (acquire and/or displace) any residences. No residences or noise sensitive land uses are located within the DNL 65 dBA noise exposure contour, and there would be little to no other indirect impacts associated with the Proposed Project. This analysis considers impacts within the census tracts that overlap the indirect impacts Study Area (**Appendix A, Exhibit 15**).

In accordance with the FAA Order 1050.1, the term “minority” refers to individuals who are members of one or more of the following population groups: Black, Hispanic or Latino, Asian American, American Indian and Alaskan Native, or Native Hawaiian and Other Pacific Islander. A “minority population” is “any readily identifiable group” of such individuals living in geographic proximity, and is identified where 1) the percentage of the population identifying as a member of one of these groups is greater than 50 percent or 2) where this percentage is meaningfully greater than the percentage in the reference population.[52, 53] No census tract in the Study Area has a minority population percentage greater than 50 percent, and Pasco County as a whole has a minority population percentage of 23.6 percent. Therefore, for the purposes of this analysis, the

[51] FDOT, 2018. *Florida Traffic Online Web Application,* accessed in May 2019 at: https://tdaappsprod.dot.state.fl.us/fto/
[52] FAA Order 1050.1 (2015), *Desk Reference* Chapter 12, Exhibit 12-4.
[53] U.S. Executive Office of the President, Council on Environmental Quality 1997. *Environmental Justice: Guidance Under the National Environmental Policy Act*. December 10.

"meaningfully greater" approach is used to identify minority populations. Neither CEQ nor DOT guidance defines the term "meaningfully greater;" however, the Federal Interagency Working Group on Environmental Justice NEPA Committee suggests that "The Meaningfully Greater analysis requires use of a reasonable, subjective threshold (e.g., ten or twenty percent greater than the reference community)." [54]

ZPH is located within census tract 331.01, and census tracts 330.10, 330.13, and 331.02 are adjacent to the airport. Census Tracts 331.01, 330.10, and 331.02 have minority population percentages that are lower than that of the County as a whole.[55] Census Tract 330.13, located west of ZPH, has a minority population percentage of 25.9 percent of people; nearly 10 percent greater than the County percentage, which could be considered meaningfully greater.[56] Therefore, this tract is identified as a minority population.

In accordance with the FAA Order 1050.1, the term "low-income" refers to people whose household or family income is at or below annual federal statistical poverty guidelines. A "low-income population" is "any readily identifiable group" of such individuals living in geographic proximity; however, neither CEQ nor DOT guidance provides a quantitative definition of what size group defines a low-income population. In Pasco County, about 13.6 percent of people have incomes below poverty guidelines. Each of the four census tracts in the Study Area has a poverty rate nearly twenty or more percent greater than that of the County as a whole, with the lowest being 331.02 with 16.2 percent of people and the highest being 330.12 with 38.2 percent of people.[57] Consistent with the Desk Reference definition, these tracts are considered to be a readily identifiable group of low-income people when compared to the County population.

Although census tracts representing minority and low-income populations were identified within the Study Area, no direct or indirect impacts have been identified that could affect people living within these census tracts. Therefore, there is no potential for the Project to have a disproportionately high and adverse impact on a minority or low-income population.

(e) Would the Proposed Action and retained alternatives (if any) result in any environmental health risks and/or safety risks that may disproportionately affect children? Environmental health risks and safety risks include risks to health or to safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to. It may be beneficial to determine the number of schools, daycares, parks, and children's health clinics in the study area. Consider impacts to children's health and safety in the context of other impact categories (air, noise, water quality).

Explain:

The Proposed Project would not result in disproportionate or adverse health or safety risks to children. Because there are no residences, schools, daycare centers, or other similar facilities within the Study Area, the Proposed Project would not increase the likelihood of a child coming into contact with or be exposed to substances that would adversely affect their health. The Proposed Project would not result in the acquisition or relocation of any schools, child care centers, or other similar facilities, and no schools or child care facilities are within the DNL 65 dBA noise contour (**Appendix A, Exhibits 1, 9, and 10**). The Proposed Project would be constructed on ZPH property, which is fenced, and most environmental effects would be constrained to the property.

[54] Federal Interagency Working Group on Environmental Justice NEPA Committee, 2016. *Promising Practices for EJ Methodologies*
[55] Percentages are 13.9, 22.1, and 21.2 percent, respectively.
[56] U.S. Census Bureau, 2017. *2013-2017 American Community Survey 5-Year Estimates*. Form DP05: ACS Demographic and Housing Estimates. Selected Geographies.
[57] U.S. Census Bureau, 2017. *2013-2017 American Community Survey 5-Year Estimates*. Form S1701: Poverty Status in the Past 12 Months. Selected Geographies.

(13) VISUAL EFFECTS INCLUDING LIGHT EMISSIONS

(a) Compared to the No Action alternative, describe any new lighting systems associated with the Proposed Action and retained alternatives (if any). Describe the new types of lighting, their intensity, height and direction of emissions that would be constructed and operational.

Explain:

The Proposed Project would install new medium-intensity runway edge lights and medium-intensity taxiway edge lights along the new sections of runway and taxiway pavement and relocate the existing runway threshold lights and the Precision Approach Path Indicator Lights on each runway end (see Section 4.2). The additional 1,506 feet of runway would require 16 additional lights (one light spaced at 200-foot intervals per edge), and the additional 1,700 feet of taxiway would require an additional 34 lights (one light every 100 feet per edge).[58] This lighting is the same equipment that currently exists on Runway 1-19 and would be part of the pilot-controlled lighting system, which is activated after dark by an incoming pilot for the duration of the landing operation and is otherwise not illuminated. All lights will be installed in accordance to FAA specifications, which seeks to maximize visibility to and safety of aircraft operating at ZPH, but minimize impacts to wildlife, residents, and other receptors in proximity to the lighting source.

(b) Would the Proposed Action and retained alternatives (if any) have the potential to create annoyance or interfere with normal activities for nearby residential areas or other light-sensitive resources or affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources? If appropriate, provide a graphic depicting the location of residential areas or other light-sensitive resources in the airport vicinity in relation to the Proposed Action's and retained alternatives (if any) new lighting system.

Explain:

It is not anticipated that the proposed additions to the lighting system would create annoyance or interference with or affect the visual character of the area. ZPH is located on the outskirts of the City in a comparatively rural/industrial area, and new lighting sources may be more prominent in this location than if the airport was located in a more urban setting. However, although Majestic Oaks Community and Meadowood Estates are located approximately 1,800 feet from the nearest edge of the Proposed Project, and Woodland Acres and Zephyr Estates East Condos are located to the southwest of Runway 5-23, a vegetated buffer lies between these residences and airfield activities. To most viewers, the addition of new runway and taxiway lighting along the 1,506- and 1,700-foot extensions would be nearly indistinguishable against the lighting system currently supporting the existing 4,694-foot runway and taxiway. Furthermore, the lights would continue to only be activated by an incoming pilot and would be shut off after the landing is complete.

(c) Identify whether a local community, government or jurisdictional agency would consider visual effects from the Proposed Action's (and retained alternatives) lighting objectionable to people's properties and people's use of resources covered by DOT Section 4(f), LWCF Section 6(f), and the National Historic Preservation Act (NHPA) Section 106. Consider the potential extent the proposed action would have to: affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources; contrast with the visual resources and/or visual character in the study area; and block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

[58] Per FAA Advisory Circular 150/5340-30J *Design and Installation details for Airport Visual Aids* (2018).

Explain:

The Proposed Project would have minimal impact on the visual character and scenic quality of the area as extending the runway is not out of character with the existing airport and runway development and thus would maintain the surrounding visual setting. It is not anticipated that sensitive viewers would be affected by the Proposed Project as nearby residential areas are generally located outside of the Proposed Project's viewshed.

After the PROFA/PRSA, PRPZ, and OSW 1 are cleared of existing vegetation that may be acting as a visual buffer from airport activities, travelers along Chancey Road would have increased view of the airport and intermittent nighttime lighting.

(14) WATER RESOURCES - WETLANDS, FLOODPLAINS SURFACE WATERS, GROUNDWATER, AND WILD AND SCENIC RIVERS

WETLANDS

(a) Compared to the No Action alternative, would the Proposed Action and retained alternatives (if any) impact Federal or state jurisdictional and non-jurisdictional wetlands? If **YES**, provide an assessment of the Proposed Action and retained alternatives (if any) wetland impacts. **Quantify** *both* acreage and Functional Loss in accordance with U.S. Army Corps of Engineers (USACE) and state agency (water management district (WMD)) or Florida Department of Environmental Protection (FDEP) requirements. If protected species or habitat resources are affected, USFWS and FWC must be consulted and consultation must be attached as an appendix to this EA. Cross-reference with Category (2) Biotic Resources, as applicable.

Provide assessment of wetland impacts:

ZPH requested U.S. Army Corps of Engineers concurrence on the Jurisdictional Determination that no wetlands will be impacted by the Proposed Project (May 13, 2019; **Appendix H**). Consultation is ongoing concurrent with this Final EA. The Proposed Project impacts are limited to upland-cut OSW features that originated as a result of the construction of runways and taxiways. In review of historical aerials, none of these OSW features or any identifiable wetland features existed prior to the construction of the airport in the 1940s. Within the last 20 years, 2 borrow ponds have been excavated on the property to the south. A total of 17.9 acres across 4 upland-cut OSW features will be impacted as a result of the Proposed Project (**Appendix A, Exhibit 6**), and these potential impacts are described in Section 8.2(a).

(b) If the Proposed Action would unavoidably impact a wetland, explain why the wetland is the only practicable location for the Proposed Action. Consider the purpose and need, FAA design standards, engineering, environmental, economic, technical feasibility or any other applicable factor. FAA will consider this information in its independent evaluation of alternatives (see 40 CFR 1506.5.) **Note:** *Federal regulations require "that no discharge shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact to the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences" (per Memorandum of Agreement between The Department of the Army and Environmental Protection Agency, The Determination of Mitigation under the Clean Water Act Section 404 (b)(1) Guidelines, February 1990*.

Discuss:

The Proposed Project is not anticipated to impact jurisdictional wetlands.

(c) If the Proposed Action would affect Federal and/or state jurisdictional wetlands, discuss all practicable means to avoid and minimize wetland impacts through modifications or permit conditions. FAA will consider this information in its independent evaluation of measures that will be used to minimize harm to wetlands (see 40 CFR 1506.5).

Discuss avoidance and minimization measures evaluated and unavoidable wetland impacts:

The Proposed Project is not anticipated to impact jurisdictional wetlands.

(d) Discuss appropriate and practicable compensatory mitigation for unavoidable adverse impacts which remain after all appropriate and practicable minimization has been provided. Identify the location of proposed compensatory mitigation, including acreage, Functional Gain, and estimated cost. USACE and WMD or FDEP consultation must be attached in an appendix to this EA that includes acknowledgement of required permits and proposed mitigation.

Discuss compensatory mitigation and attach record of jurisdictional agency consultation:

The Proposed Project is not anticipated to impact jurisdictional wetlands; therefore, compensatory mitigation is not expected.

(e) List all required permits that will be obtained for wetland impacts (USACE Section 404, WMD, FDEP or local). *USACE Standard Individual Permits require public notice*. For NEPA purposes, this is conducted during public and agency review of the Draft EA. ***Note:*** *Nationwide General Permits authorize a category of activities throughout the U.S., Puerto Rico, and U.S. Virgin Islands that are similar in nature and cause only minimal individual and cumulative environmental impacts. Nationwide General Permits may authorize minor filling, roads, utility lines, maintenance of existing structures and other minor activities; they may require mitigation. Standard Individual Permits are required for activities which may cause more than minimal adverse effects to the aquatic environment and exceed the terms and conditions of a general permit; they require public notice and review by state and Federal resource agencies; most require mitigation.*

List all wetland permits:

The Proposed Project is not anticipated to impact jurisdictional wetlands; therefore, a Section 404 permit is not expected.

(f) Attach a statement from the Airport Sponsor committing to the implementation of a mitigation plan developed to the satisfaction of the USACE in consultation with state and local agencies having an interest in the affected wetland.

The Proposed Project is not anticipated to impact jurisdictional wetlands; therefore, further consultation with wetland resource agencies and a mitigation plan is not expected.

FLOODPLAINS

(a) Compared to the No Action alternative, would the Proposed Action and retained alternatives (if any) be located in, or encroach upon, any base/100-year floodplains, as designated by the Federal Emergency Management Agency (FEMA)? If **YES**, you must quantify the encroachment and attach the corresponding FEMA Flood Insurance Rate Map (FIRM) and proceed to (b) and (c).

Explain and quantify the floodplain encroachment and attach FEMA FIRM Map, if applicable:

Several stormwater features and low-lying areas identified as Flood Zone AE are located within ZPH and within the Proposed Project footprint (**Appendix G**).[59] The areas identified as AE are classified as Special Flood Hazard Areas, defined by the Federal Emergency Management Agency (FEMA) as "areas subject to inundation by the 1-percent-annual-chance flood event. As AE areas are considered as being within the 100-year floodplain, federal floodplain management regulations and mandatory flood insurance purchase requirements apply in these zones.

Although the Proposed Project occurs in AE-designated areas, it is anticipated that the Proposed Project will not cause a net loss of floodplain capacity in the base/100-year floodplain. The ZPH stormwater management system will be modified as project design and permitting progresses, and adequate capacity will be maintained to accommodate stormwater runoff and floodwaters produced from airport pavements, clearing/grading, and other alterations to the existing topography of the Proposed Project area. Most of the floodplain that may be impacted by the Proposed Project include the 17.9 acres of designated OSW features associated with existing ZPH stormwater management infrastructure (see Section 8.2(a)). Although OSW 1, 3, and 5 are likely to be modified, water storage capacity as appropriate for the built location will be maintained or expanded as necessary. It is anticipated that the 7.2 acres of OSW 2 will be filled, and lost capacity at this location is intended to be compensated by modifications to OSW 3 or other areas.

(b) In accordance with Executive Order 11988, explain why the Proposed Action and retained alternatives (if any) must be located in or affect the base/100-year floodplain. Include (1) a description of significant facts considered in making the decision to locate the Proposed Action in or to affect the floodplain, including alternative sites and actions; (2) a statement indicating whether the Proposed Action (and retained alternatives if any) conforms to applicable state or local floodplain protection standards; (3) a description of the design steps taken to modify the Proposed Action to minimize potential harm to or within the floodplain; and (4) a statement indicating how the Proposed Action affects the natural or beneficial values of the floodplain.

Explain:

The determinations below follow the floodplain analysis protocol given in FAA Order 1050.1F, Section 14.2.3:

1) Due to operational and logistical requirements, there is no practicable alternative to siting the Proposed Project in its recommended location as it is not feasible to relocate existing ZPH airport infrastructure (see Section 6.1). Floodplain storage capacity will not be reduced by the Proposed Project, and no permanent structures beyond the new runway and taxiway pavements will be constructed.

2) The Proposed Project will conform to applicable state or local floodplain protection standards. Design considerations will minimize the risk to human life, facilities, and infrastructure, and floodplain values will not be degraded. Ongoing stormwater management planning and permitting will ensure that the proposed improvements meet state and local drainage and floodplain regulatory requirements.

3) The Proposed Project will not create or worsen existing flood hazard conditions or increase flood risk to people or structures within or downstream of the Study Area. Project design and permitting will include coordination with the SWFWMD and local authorities to address any potential floodplain impacts and obtain approvals to modify the existing stormwater management system at ZPH to

[59] Federal Emergency Management Agency *Flood Insurance Rate Maps for Pasco County*, 2014. Map Panel Numbers: 12101C0456F, 12101C0457F, and 12101C0459F

attenuate stormwater discharge from the Proposed Project site and the airport, and all potential impacts will be mitigated within the floodplain's basin. With the exception of lights, fencing, and other equipment, the Proposed Project will be constructed at-grade, which minimizes the Proposed Project's effects on storage capacity and impeding floodwaters. The Proposed Project seeks to prepare ZPH stormwater features in a way that would not decrease floodplain capacity or change floodwater flow such that would affect offsite properties. It is not anticipated that the construction of runway and taxiway pavement or grading in associated safety areas would impact the floodplain capacity of the Hillsborough River watershed, and no measurable impacts to adjacent land uses would be expected from floodwater displacement within the Proposed Project footprint.

4) Potential impacts will be minimized to the greatest extent practicable. As most of the impacted floodplains in the Project area are manmade OSW features, it is not anticipated that the Proposed Project would have any impacts to the natural and beneficial values of the floodplain in the Proposed Project area (including agricultural or aquacultural activities as none occur in this area). Resident terrestrial and aquatic organisms are likely to be temporarily or permanently displaced as alterations to OSWs, clearing, grubbing, and grading occurs (potential impacts to wildlife are detailed in Section 8.2).

As detailed in items 1-5, the floodplain encroachment associated with the Proposed Project would not be significant as there is 1) no high probability of loss of life; 2) no substantial cost or damage, including interruption of aircraft service or loss of a vital transportation facility; and/or, 3) would not cause adverse impacts on natural and beneficial floodplain values.

(c) If the Proposed Action or retained alternative would cause an encroachment of a base/100-year floodplain, the Airport Sponsor must provide an opportunity for early public review during the EA process, in accordance with Section 2(a)(4) of Executive Order 11988 and Paragraph 7 of DOT Order 5650.2. For NEPA purposes, this is conducted during public and agency review of the Draft EA.

Discuss what actions were taken to make the Draft EA available for early public review and what notification of floodplain impacts was made.

It is intended that the Proposed Project will cause no net encroachment to the base/100-year floodplain. The NEPA public notice, the opportunity to review the Draft EA, and the public hearing will also satisfy the requirements for public notice under the Executive Order 11988 and DOT Order 5650.2.

(15) SURFACE WATERS AND GROUND WATERS

(a) When compared to the No Action alternative, will the Proposed Action and retained alternatives (if any) require a Section 401 water quality certificate (WQC) for construction activities or impacts to navigable waters, including jurisdictional wetlands? Explain the status of and/or any issues associated with obtaining this certificate. Attach any correspondence from the issuing agency. Cross reference your response with Wetlands, as applicable.

Explain:

The Proposed Project will not impact navigable waters or jurisdictional wetlands; therefore a Section 401 Water Quality Certificate is not required.

(b) Is a National Pollutant Discharge Elimination System (NPDES) permit required for the Proposed Action and retained alternatives (if any)? If **YES**, explain the status and attach any comments received from the issuing agency or a copy of the permit.

Explain:

The project will require Notice of Intent (NOI) to use the generic permit under the National Pollutant Discharge Elimination System (NPDES). The NOI will be coordinated prior to construction.

(c) Would the Proposed Action and retained alternatives (if any) affect a public drinking water supply, a sole source aquifer, or a Comprehensive State Groundwater Protection Program (CSGWPP)? If **YES**, attach records of consultation with EPA and state, local or tribal water quality agencies responsible for protection programs.

Explain:

The Proposed Project will not affect a sole source aquifer, public drinking water supplies, or a Comprehensive State Groundwater Protection Program. Although the Hillsbourough River segment south of ZPH is listed on the State Clean Water Act Section 303(d) list as impaired for chlorophyll-A, dissolved oxygen, and mercury in fish tissue,[60] the Proposed Project will not contribute these contaminants to the watershed and will not further decrease water quality or ongoing recovery actions. Therefore, further consultation with water protection agencies is not required.

(d) Provide sufficient description of the mitigation measures the Airport Sponsor will carry out for the Proposed Action to: meet WQC terms or the conditions of any applicable NPDES permits; protect public drinking water supplies or comply with applicable CSGWPPs; develop response plans to contain any potential spills of oil or oil-based products associated with the Proposed Action; meet any other substantial water quality concerns that water quality agencies identify; or, use best management practices (BMPs) or best available technologies (BATs).

The risk of and procedures to avoid or minimize potential damage from accidental spills of oil or oil-based products are discussed in Section 8.7.

The Proposed Project (runway paving, clearing/ grubbing and grading of the PROFA/PRSA and PRPZ, and modification of existing OSW features) has the potential to result in erosion and sedimentation that may impact water quality. Due to the minimal slope in this area, minimal impervious surfaces in the RSA and RPZ, and existing drainage system, it is not anticipated that the Proposed Project would result in extensive risk to water quality from erosion and sedimentation. However, such negative impacts to water quality and stormwater management will be avoided and minimized to the extent possible through the application of best management practices and adherence to water quality permit requirements.

Stormwater Treatment and Discharge

The Proposed Project would construct drainage improvements for the new airfield pavements and graded areas, and all stormwater would be managed on airport property. Further engineering of stormwater management features will be the result of ongoing site planning and permitting processes; however, the EA analyzes potential effects across airport property, to include conceptual stormwater management activities and other actions supporting the full extent of the future runway and its associated safety areas.

[60] USEPA *My Environment, Zephyrhills, Florida Website*, accessed May 2019 at: https://www3.epa.gov/myem/envmap/myenv.html?minx=-82.22409&miny=28.19237&maxx=-82.14009&maxy=28.27637&ve=11,28.23437,-82.18209&pText=Zephyrhills%2C%20Florida&pTheme=

Minimization of Construction-Related Water Quality Impacts

An NPDES General Permit for construction is required for projects at ZPH that disturb more than 0.5 acre, and the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) is required as part of this permit. The SWPPP details erosion control, sediment control, waste management, and other general best management practices to be implemented onsite to protect water quality. Additionally, ZPH is required to obtain an ERP from the SWFWMD prior to construction. This permit authorizes new development or construction activities to occur in a manner that will prevent adverse flooding, manage surface water, and protect water quality, wetlands (as applicable), and other surface waters. Land development and construction guidance provided in FAA Advisory Circular 150/5370.10H, *Standards for Specifying the Construction of Airports*, would also be incorporated into Project plans and specifications to reduce potential for erosion and minimize construction-related impacts. ZPH requires best management practices to protect water resources during construction, some of which may include, but are not limited to, the following measures and practices:

- *Stormwater Pollution Prevention Plan* – as discussed above, the SWPPP identifies equipment storage, cleaning, and maintenance areas/activities; points of ingress and egress to the construction site; material loading, unloading, and storage practices and areas, including construction materials, building materials and waste materials; and materials, equipment, or vehicles that may come in contact with stormwater.
- *Construction Sequencing and Erosion Control Measures* – Construction sequencing and phasing would be specified in individual project plans and specifications. Construction sequencing is an effective method to minimize erosion by reducing the amount of exposed land at any one time. In addition to construction sequencing, erosion control measures further reduce the potential to exceed water quality standards. These measures consist of reducing erosive effects of rain on exposed soils through the use of temporary and permanent soil stabilization measures, stabilizing slopes, and re-establishing vegetation to stabilize disturbed areas and reduce stormwater flow velocities. Common erosion control measures that may be used during construction include mulching, sodding, and/or seeding to stabilize exposed soils and establish ground cover.
- *Structural Controls to Minimize Sediment Transport* – The use of structural controls during construction to minimize erosion and sediment transport would be further detailed in project plans and specifications. Structural controls may include, but not necessarily be limited to: staked hay bales, silt fences, and floating baffles in adjacent water bodies.
- *Pollution Prevention and Control* – Pollution prevention and waste management plans provide an effective means to address the storage, handling, and disposal of fuels, lubricants, and other materials used during construction (see Section 8.7). Pollution prevention planning may include, but not be limited to, implementing a construction-phase SWPPP, Solid Waste Management Plan, and spill prevention and response plans documenting the measures that will be taken to prevent accidental releases to the environment and, should they occur, the actions that will be undertaken to minimize the environmental impact. In addition, the contractor would be required to comply with federal, state, and local hazardous materials/waste management regulations to assure proper management of hazardous and other special waste streams for the Proposed Project

It is not anticipated that construction activities will contribute pollutants to the watershed.

(16) WILD AND SCENIC RIVERS

(a) Is the Proposed Action's project study area within any Wild and Scenic Rivers System (WSRS), study rivers, National Rivers Inventory (NRI), or otherwise eligible rivers or river segments under Section 5(d)? If no Wild and Scenic Rivers, study rivers, NRI, or Section 5(d) rivers are found within the study area, no further analysis is needed. If **YES**, contact an FAA ORL/ADO EPS for further guidance. **Note:** *The study area should be defined as the entire geographic area with the potential to be either directly or indirectly impacted by the proposed action and alternative(s). For example, if construction of a new facility is part of the proposed action or alternative(s), the study area should include any areas directly impacted through any visual, audible, or other type of intrusion that is out of character with the river or alters the outstanding features of the river's setting. The study area should also include any area indirectly impacted by the proposed action and alternative(s), such as rivers or river segments many miles downstream from the construction footprint of a project which may experience changes in water quality or quantity due to the proposed action and alternative(s). In addition, the default boundaries of Wild and Scenic Rivers as defined in the Wild and Scenic Rivers Act extend to a maximum of one-quarter mile from the ordinary high water mark on each side of the river (an average of not more than 320 acres per mile). As a result, be sure to consider any area within this boundary as part of the study area. Florida has two rivers designated as wild and scenic in accordance with the Wild and Scenic Rivers Act; the Loxahatchee River in southeast Florida, and the Wekiva River in central Florida. The NPS's NRI website at:* http://www.nps.gov/ncrc/programs/rtca/nri/ *provides a map which can assist in determining if any rivers in the study area are included on the NRI; and the National Wild and Scenic River's Designated Wild and Scenic Rivers website at:* http://www.rivers.gov/map.php *provides a list of all designated Wild and Scenic Rivers in the National System as well as all study rivers.*

Explain:

The Proposed Project Study Area is not within any Wild and Scenic River System, study rivers, National Rivers Inventory, or otherwise eligible rivers or river segments as described under Section 5(d) of the Wild and Scenic Rivers Act.

9. CUMULATIVE IMPACTS

Cumulative impacts are impacts that a proposed action and retained alternatives (if any) would have on a particular resource when added to impacts on that resource from past, present, and reasonably foreseeable future actions undertaken or proposed by the Airport Sponsor, the FAA, other Federal, state or local agencies, or a private entity. **Note:** *List all sources of information including projects shown on an airport's ALP or identified in an airport's master plan, on airport projects approved by the FAA, the airport's 5 year CIP, the local jurisdiction's approved land use map and long range transportation plan, and substantial locally approved development projects. Identify off-airport projects that are within the same political jurisdiction or within approximately 5 miles of the airport, and the existing and future 65 DNL noise contour. For wetland and biotic resource impacts consider water management district basin boundaries.*

(a) In order to determine whether the Proposed Action and retained alternatives (if any) would have a cumulative effect on any of the environmental impact categories discussed above, identify any on-airport projects that may have common timing and/or location; and any off-airport projects in the airport's vicinity outside of the Airport Sponsor or FAA's jurisdiction. Generally, use 3 years for past projects and 5 years for future foreseeable projects. For each past, present, and future project, you must discuss environmental impacts and any required permits.

Explain:

On-Airport Development Projects

A list of past, current, and future airport projects is given below. Some of these projects were originally described in the ZPH Joint Airport Capital Improvement Program but have been updated to capture the evolution of specific decisions as airport planning and development progresses.

Airport Projects Completed within Last Three Years

- Runway 5-23 Rehabilitation (lighting, signage, drainage)
- Taxiway A (lighting, signage, pavement) and B (lighting) Rehabilitation
- Runway 1-19 Rehabilitation (stripping, rejuvenation, lighting)
- Hangar Rehabilitation (shade hangar, T-hangar)
- Perimeter Fencing and Security Upgrades – Phase 1
- Fuel Pad Rehabilitation (cracked concrete, containment, SPCC Plan)

Current Airport Projects

- None

Airport Projects Anticipated Within the Next Five Years:

- Taxiway A3 Construction
- Parallel Taxiway Construction (to Runway 5-23 from Runway 4 to Taxiway B)
- South Avenue Realignment
- Design and Construct: 4 T-hangars, Fixed-Base Operator terminal and parking lot, iterant aircraft parking area, service access road, and infrastructure for new hangar development south of Taxiway B
- Golf Course Reconfiguration
- Airport Road Extension
- Perimeter Fencing and Security Upgrades

As most of the past airport projects are maintenance or rehabilitation activities, it is not likely that impacts from past projects will overlap in time, space, or otherwise contribute a pronounced incremental or cumulative effect to any particular resource. However, anticipated airport projects will result in the construction of new pavements or structures that may result in impacts to resources similarly affected by the Proposed Project.

Off-Airport Development Projects

It is anticipated that Pasco County will continue to experience increased population growth and continued private development/redevelopment of land for residential, commercial, and industrial uses off of airport property. In particular, the City promotes 442 acres adjacent to the Proposed Project area north of the 6th Avenue road relocation (bounded by Chancey Road, 6th Avenue, and County Road 54) as a Zephyrhills Industrial Park development (**Appendix A, Exhibit 12**).[61] One early conceptual plan accommodates the construction of 7,250,000 square feet of building space over three large buildings supported by 2,417 parking spaces and various stormwater management features. A second early conceptual plan accommodates 5,100,000 square feet of building space over 23 separate buildings supported by 5,100 parking spaces and various stormwater management features. Intense industrial development in this area may interact with resources potentially impacted by the Proposed Project.

[61] McCallum Sweeny / Duke Energy Site Readiness Program. 2015. *Presentation: Attracting Investment and Employment: Prepared Communities Win, Pasco County, Florida.* 22 June.

(b) Considering the impacts of the Proposed Action (and retained alternatives if any) together with the environmental impacts of past, present, and future projects discussed in 12(a) above, discuss whether cumulative impacts would exceed a significant impact threshold where one is provided. If no threshold is provided, discuss whether potential cumulative impacts would be considered substantial by any Federal, state, or local agency, or the public. *Significant impact thresholds are provided in Exhibit 4-1 of FAA Order 1050.1F and in 5050.4B Table 7-1 for each resource category.*

Explain:

The Proposed Project will not result in significant environmental impacts for any environmental resource. As discussed in this EA, the Proposed Project would not result in direct or indirect effects on the following resources and thus they have been eliminated from further cumulative effects analysis associated with this Proposed Project: coastal barriers; Department of Transportation Act, Section 4(f) resources; farmlands; hazardous material, hazardous waste, and contaminated sites; wild and scenic rivers; historic, architectural, archaeological, and cultural resources; socioeconomics, environmental justice, and children's environmental health and safety risks; coastal zone management; wetlands; ground water; and transportation. The Proposed Project is anticipated to account for negligible incremental impacts to resources that may be affected by other stressors in the greater landscape, including air quality (including GHG); biological resources; energy supplies, natural resources, and sustainable design; floodplains; land use; solid waste and pollution prevention; noise; surface and ground water; and visual resources.

9.1 Air Quality and GHG

Construction and operation of all projects listed in Section 9(a), including the construction, operation, and induced aircraft use associated with Proposed Project, would result in negligible but incremental impacts to air quality in the vicinity of the Study Area. Most of these impacts would be temporary in nature.

Air emissions are closely monitored, managed, improved, and otherwise regulated by EPA and FDEP. Construction air emissions can be minimized, to some extent, through the use of commonly-accepted environmental controls (i.e., BMPs) that are required in accordance with EPA, FDEP, and Pasco County construction air quality guidelines. Emissions from new and existing sources are regulated by the FDEP Division of Air Resources Management, which monitors air quality, licenses or permits facilities, and enforces compliance of new and existing emission sources. Furthermore, efficiencies and sustainable technologies are often incorporated into the design, construction, and operation of facilities that are continually evolving to reduce and offset increased additional impacts to air quality.

Due to the existing attainment status of the Proposed Project Area, the temporary nature of construction activities, and oversight of ongoing emissions throughout the state the cumulative effect of all past actions, present uses, and future projects, including the Proposed Project, is unlikely to become significant in the region.

9.2 Biological Resources

The Proposed Project does not affect quality habitat availability or cause direct impacts to most wildlife species or vegetation in the region, including sensitive or protected species. However, the Proposed Project and other reasonably foreseeable projects may displace some common resident, migrant, and special status species, including the relocation of gopher tortoises and their commensals as they are discovered in each project footprint. Considering the abundance of open agriculture, green space, and conservation areas in the vicinity of ZPH (including the large, contiguous area of quality habitat available in the Hillsborough Preserve, Green Swamp, and Hillsborough River Corridor adjacent to the Proposed Project location), it is

not anticipated that the negligible impacts to wildlife associated with the Proposed Project will become cumulatively significant when added to other past, present, or reasonably foreseeable future projects.

9.3 Natural Resources, Energy and Water Demand, and Solid Waste Management

Although the Proposed Project is anticipated to result in the production of solid waste, an irretrievable commitment of natural resources, and increased demand on existing water and energy supplies, these potential impacts are largely negligible, temporary, and isolated. The potential impacts are not alone anticipated to overwhelm existing utility infrastructure (i.e., landfill capacity) or natural resource supply (energy, water, etc.). In order to ensure that the cumulative demand of existing and future land uses in the City of Zephyrhills and Pasco County do not exceed their ability to provide these resources, City, County, and other utility providers will continue to act as stakeholders in the development process of all regional planning initiatives. Furthermore, it is anticipated that the Proposed Project, airport improvement projects, and regional projects listed above will continue to incorporate sustainable decisions, technologies, and practices into the design, construction, and operation of new projects into the future - and that these efficiencies may evolve to continually offset the increased additional impact of each development.

9.4 Land Use

The Proposed Project would acquire private property and transfer City-owned parcels to be reclassified from “light industrial” to “airport” zoning designations (**Appendix A, Exhibit 12**), and this reclassification is in line with the Zephyrhills Comprehensive Plan to encourage the development and concentration of compatible adjacent land uses and confer a perceptible beneficial incremental impact on land use in the City. Master planning for the airport identifies ways to develop the ZPH airport corridor and industrial area as an economic generator and regional industrial hub (i.e., the proposed Zephyrhills Industrial Park). Although this concentration may convert otherwise agricultural or open land to industrial uses, it is intended to maintain these developments as clustered in an efficient manner that would also ultimately protect larger areas of open or unused land elsewhere in the City from further fragmentation. Therefore, the Proposed Project, reasonably foreseeable on-airport projects, and the proposed Zephyrhills Industrial Park development intended to have a cumulative net benefit to land use in the surrounding area and the greater City landscape.

9.5 Noise

The noise produced by continuing ZPH operations and anticipated from the Proposed Project are generally intermittent, but may intermingle with existing ambient noise sources, such as transportation and other industrial land uses. Although industrial areas generally experience elevated intermittent noise due to increased human presence and activities, continued regional growth and implementation of projects listed in Section 9.a are not expected to cumulatively elevate ambient environmental noise in the landscape over the existing condition.

9.6 Surface Water and Floodplains

Floodplains are largely undeveloped and remain in a natural environment to the north, east, and south of the Study Area, which results in an overall existing condition that is not significantly vulnerable to catastrophic flooding in extreme storm events. Furthermore, the Proposed Project seeks to isolate and mitigate its impact onsite, i.e., not decrease or encroach upon floodplain capacity or change floodwater or surface water flows such that the impacts would exacerbate the cumulative effect of floodplain development elsewhere. Therefore, it is not anticipated that the impacts from the Proposed Project will interact with potential past, present, or reasonably foreseeable impacts to the greater floodplain basin or have incrementally significant impacts to surface waters in the greater landscape.

9.8 Visual Resources

Visual impacts associated with the Proposed Project may combine with or further enable additional, reasonably foreseeable airport development projects and development of the Industrial Park, and thus may incrementally contribute to the alteration of the natural viewshed of properties adjacent to airport property. While this change would not exceed any significance threshold established for visual resources, increased industrial-type development at and adjacent to the airport may incrementally affect the rural and natural character of the existing viewscape.

10. MITIGATION MEASURES

(a) As defined in the CEQ Regulations at 40 CFR § 1508.20, mitigation includes avoiding the impact; minimizing the impact; rectifying the impact by repairing, rehabilitating, or restoring the environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources.

Summarize all mitigation measures discussed in the Environmental Impact Categories of this EA that will be taken to avoid creation of significant impacts to a particular resource as a result of the Proposed Action. Discuss any impacts that cannot be mitigated, or that cannot be mitigated below the threshold of significance. *Significant impact thresholds are provided in Exhibit 4-1 of FAA Order 1050.1F for each resource impact category and in 5050.4B Table 7-1.*

Because the Proposed Project does not have any impacts that would exceed thresholds indicating a significant impact (**Table 8-1**), no mitigation is required. The City will implement conservation measures and best management practices during construction to minimize potential impacts to state and federally listed species, air quality, cultural resources, and floodplains and surface water. Additionally, the ongoing SWFWMD permitting process will ensure that all pertinent floodwater mitigations will be constructed in order to manage floodwaters onsite and guarantee that no net encroachment in the floodplain will occur.

11. PERMITS

List all required permits for the Proposed Action, including the lead agency, status, and responsible entity. Discuss coordination with appropriate agencies and the expected time frame for receiving identified permits. Indicate whether any difficulties are anticipated in obtaining required permits. ***Note:*** *Even though the Airport Sponsor has/shall obtain one or more permits from the appropriate Federal, state, and local agencies for the Proposed Action, initiation of any construction activities shall* ***NOT*** *begin until the FAA has issued its environmental determination based on the information in this EA.*

Permits that may be required to implement the Proposed Project are listed **Table 11-1**.

TABLE 11-1
SUMMARY OF REQUIRED PERMITS AND APPROVALS

Permit	Lead Agency	Status	Responsible Entity	Permit Process Timeframe
State				
National Pollutant Discharge Elimination System (NPDES)	Florida Department of Environmental Protection	Permit required prior to construction.	City of Zephyrhills	30-60 days
Gopher Tortoise Relocation Permit	Florida Fish and Wildlife Conservation Commission	Permit required if individual tortoises are discovered in pre-construction survey.	ZPH	90 days
Environmental Resource Permit (ERP)	Southwest Florida Water Management District	Permit required prior to construction.	ZPH	30-60 days
Local				
Tree Removal Permit	City of Zephyrhills / Pasco County	Permit may be required prior to construction.	ZPH	30-60 days
Local Construction Permits	City of Zephyrhills	Permit required prior to construction.	Construction Contractor	N/A

Source: Environmental Science Associates, 2019.

12. CONSISTENCY WITH APPROVED PLANS OR LAWS

(a) Is the Proposed Action consistent with existing environmental plans, laws, and administrative determinations of Federal, state, regional, or local agencies?

Explain:

The Proposed Project would be consistent with federal, state, and local laws and regulations. Select federal and state agencies, local governments, Native American Indian tribes, and regional planning organizations were notified of the project and preparation of this EA. No objections or concerns have been received from these agencies.

(b) Are there any other Federal approvals or permits required?

Explain:

No federal approvals or permits are required. (Permits are listed in **Table 11-1**).

(c) Is the Proposed Action consistent with plans, goals, policies, or controls that have been adopted for the area in which the airport is located?

Explain:

The Proposed Project is consistent with local plans, goals, policies, and controls. Local governments and agencies were notified of the project and preparation of this EA. No objections or concerns were received.

13. PUBLIC AVAILABILITY

(a) Discuss whether any public meetings were held during development of the Draft EA. Provide a list of all agencies and persons consulted in the preparation of this EA. Discuss any input from local officials or public groups regarding the Proposed Action. Discuss whether a public hearing is warranted i.e. there is substantial environmental controversy concerning the Proposed Action or there is substantial interest in holding a hearing or another agency with jurisdiction over the action requests a public hearing.

For the purpose of soliciting input for the development of the EA, the following governments, organizations, and agencies were provided written notification of the preparation of the EA and information describing the Proposed Project: Department of the Army Corps of Engineers (January 5 and 9, 2019); USFWS (January 9, 2019); Florida State Clearinghouse (January 11, 2019). Initial responses from these agencies are described in the relevant sections of this EA.

Public or agency controversy was not anticipated and has not occurred as of the publication of this Final EA. A public hearing was determined to be not warranted as there was not substantial environmental controversy or interest from the public or agencies with jurisdiction over the Proposed Project. The Notices of Availability stated that a public hearing would be made available upon reviewing a specific request for such, but none was requested (**Appendix H**).

(b) After review by the FAA ORL/ADO EPS, the EA must be issued by the Airport Sponsor as a Draft EA for a 30-day public and agency review period. Concurrent with the 30-day public review period, the Airport Sponsor must submit the Draft EA to the Florida State Clearinghouse and to Federal, state and local agencies (as determined by the ORL/ADO EPS). The Airport Sponsor must publish a notice of availability of the Draft EA for public review in the local newspaper and airport sponsor's website, if available. ***Note:*** *Certain special purpose environmental laws, regulations, or executive orders require public notice, and must be included as part of the Draft EA notice of availability. These include but are not limited to section 2(1)(4) of E.O. 11988, Floodplain Management, section 2(b) of E.O. 11990, Protection of Wetlands, Section 7 of the Endangered Species Act, Section 106 of the National Historic Preservation Act, and Order DOT 5610.2, Environmental Justice.*

The Draft EA was available for review by the public, government agencies, and interested parties for 30 days. A Notice of Availability of the Draft EA was published in the Tampa Bay Times newspaper on October 27, 2019, and in the Zephyrhills News newspaper on October 24 and 31, 2019 (**Appendix H**).

Copies of the Draft EA were made available for public review during regular business hours at the locations listed below.

- ZPH Administrative Office – 39450 South Avenue, Zephyrhills, FL 33542
- City of Zephyrhills, City Hall – 5335 8th Street, Zephyrhills, FL 33542
- Zephyrhills Public Library – 5347 8th Street, Zephyrhills, FL 33542

The following agencies and officials were provided a copy of the Draft EA and CRAS:

- U.S. Army Corps of Engineers
- USFWS
- Florida State Clearinghouse
- Muscogee (Creek) Nation
- Miccosukee Tribe of Indians of Florida

- Poarch Band of Creek Indians
- Seminole Nation of Oklahoma
- Seminole Tribe of Florida
- Greater Zephyrhills Chamber of Commerce Economic Development Coalition
- Tampa Bay Regional Planning Council
- Pasco County Administrator

(c) Comments on the Draft EA received from the Florida State Clearinghouse, Federal and state agencies, and the public must be attached to the Final EA. The Airport Sponsor must provide draft responses for FAA review by the ORL/ADO EPS.

Summarize comments received and identify an appendix to the EA within which the comments and responses are found.

No comments on the Draft EA were received as of the publication of this Final EA.

14. LIST ALL ATTACHMENTS TO THIS EA

Appendix A Figures

Exhibit 1.	Airport Location
Exhibit 2.	Proposed Project
Exhibit 2a.	Proposed Project: Runway Extension to the South
Exhibit 2b.	Proposed Project: 6th Avenue Relocation to the North
Exhibit 3.	Alternative 3a
Exhibit 4.	Alternative 3b
Exhibit 5.	Alternative 4
Exhibit 6.	2018 Baseline DNL Contours and Land Use Within the Study Area
Exhibit 7.	Existing Land Use and Vegetative Communities in the Proposed Project Study Area
Exhibit 8	Vegetative Communities in the Proposed Project Footprint
Exhibit 9.	Other Surface Waters within Proposed Project Footprint
Exhibit 10.	Wood Stork Foraging Areas within Proposed Project Footprint
Exhibit 11.	Wood Stork Colonies
Exhibit 12.	City of Zephyrhills Future Land Use
Exhibit 13.	2021 No Action Alternative and 2021 Proposed Project DNL Contours
Exhibit 14.	2026 No Action Alternative and 2026 Proposed Project DNL Contours
Exhibit 15.	Census Tracts in the Vicinity of ZPH

Appendix B Runway Length Analysis

Appendix C Conditional ZPH Airport Layout Plan (with Proposed Project)

Appendix D	**Noise Technical Report**
Appendix E	**Special Status Species**
	Pasco County, Florida, Natural Areas Inventory Tracking List for Special Status Species
	Special Status Species Occurrence in the Proposed Project Study Area
	The Corps of Engineers, Jacksonville District; U. S. Fish and Wildlife Service, Jacksonville Ecological Services Field Office; and State of Florida (2008) *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida*
	The Corps of Engineers, Jacksonville District; U. S. Fish and Wildlife Service, North and South Florida Ecological Services Field Offices; and State of Florida (2010*) Eastern Indigo Snake Programmatic Effects Determination Key and Update Addendum*
Appendix F	**Cultural Resources Assessment Survey**
Appendix G	**Federal Emergency Management Agency Flood Insurance Rate Maps for Pasco County** (Map Panel Numbers: 12101C0456F, 12101C0457F, and 12101C0459F)
Appendix H	**Agency Coordination and Public Participation**
	USFWS Concurrence with Affect Determinations for Special Status Species for the Zephyrhils Municipal Airport Runway 1-19 Extension Project
	USFWS Early Coordination Letter
	State Clearance for the Zephyrhills Municipal Airport Runway 1-19 Extension Project
	FWC Comments and Recommendations for Special Status Species for the Zephyrhills Municipal Airport Runway 1-19 Extension Project
	State Clearinghouse Early Coordination Letter
	U.S. Army Corps of Engineers Request for Corps Jurisdictional Determination
	FL Department of State, Division of Historical Resources Project File: 2019-0490-E, Phase I Cultural Resource Assessment Survey
	Tampa Bay Times Affidavit: Notice of Availability of the Draft EA
	Zephyrhills News Affidavit: Notice of Availability of the Draft EA
Appendix I	**Acronyms and Abbreviations**

15. PREPARER CERTIFICATION

I certify that the information I have provided above is, to the best of my knowledge, true and correct.

Signature:	19 August 2020
Name, Title:	Mohsen Mohammadi, PhD, PE
Affiliation:	American Infrastructure Development, Inc.
Date:	21 October 2019
Phone Number:	813-374-2200
Email:	mohsen@aidinc.us

Signature:	19 August 2020
Name, Title:	Amy Paulson
Affiliation:	Environmental Science Associates
Date:	21 October 2019
Phone Number:	(251) 210-6757
Email:	apaulson@esassoc.com

16. AIRPORT SPONSOR CERTIFICATION

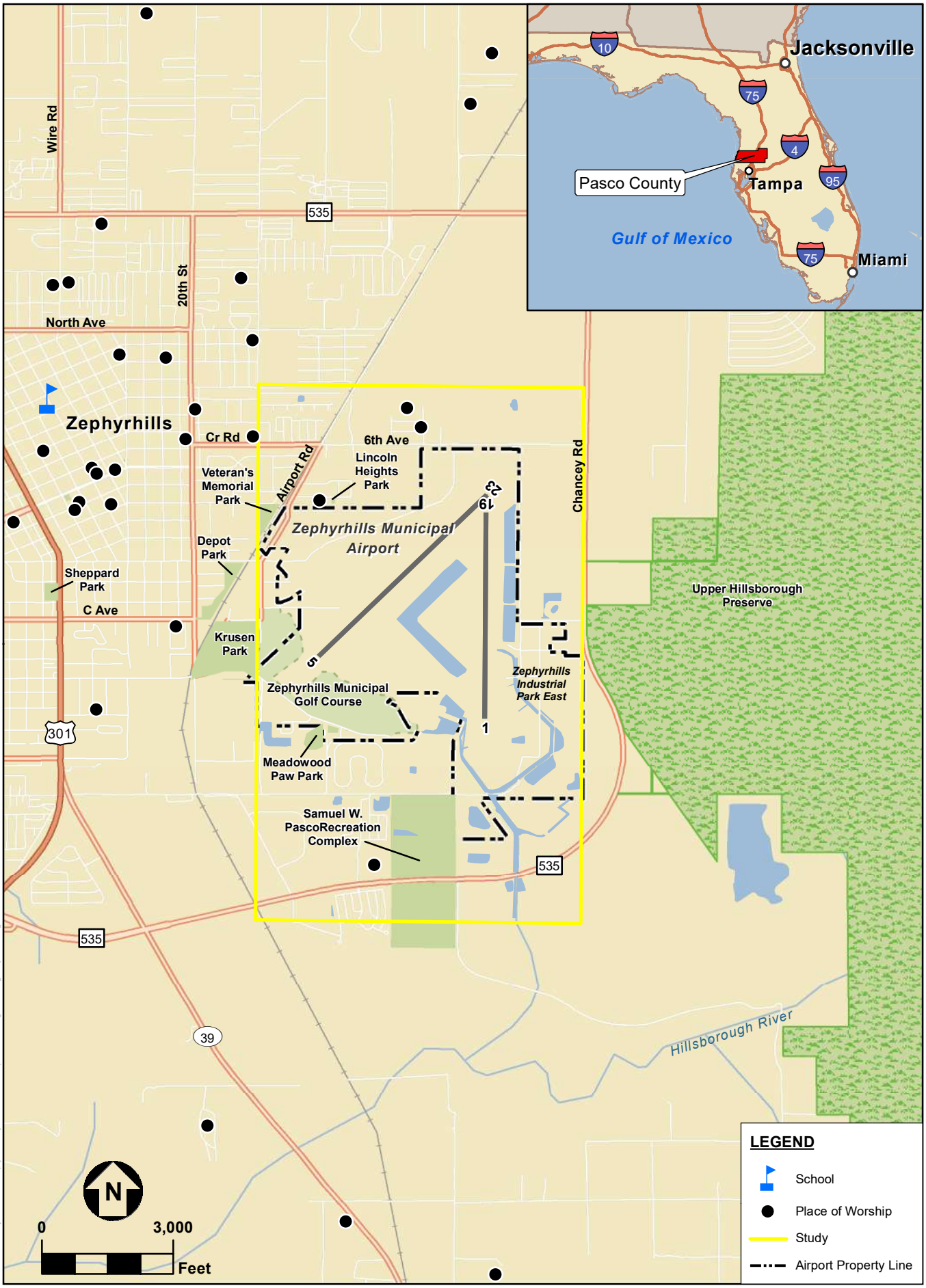
I certify that the information I have provided above is, to the best of my knowledge, true and correct. I also recognize and agree that no construction activity, including but not limited to site preparation, demolition, or land disturbance, shall proceed for the above proposed action(s) until FAA issues a final environmental decision for the proposed action(s), and until compliance with all other applicable FAA approval actions (e.g., ALP approval, airspace approval, grant approval) has occurred and all appropriate Federal, state and local permits and certifications have been obtained.

Signature:	19 August 2020
Name, Title:	William Poe, City Manager
Affiliation:	City of Zephyrhills
Date:	21 October 2019
Phone Number:	813-780-0011
Email:	WPoe@ci.zephyrhills.fl.us

END NOTES: None.

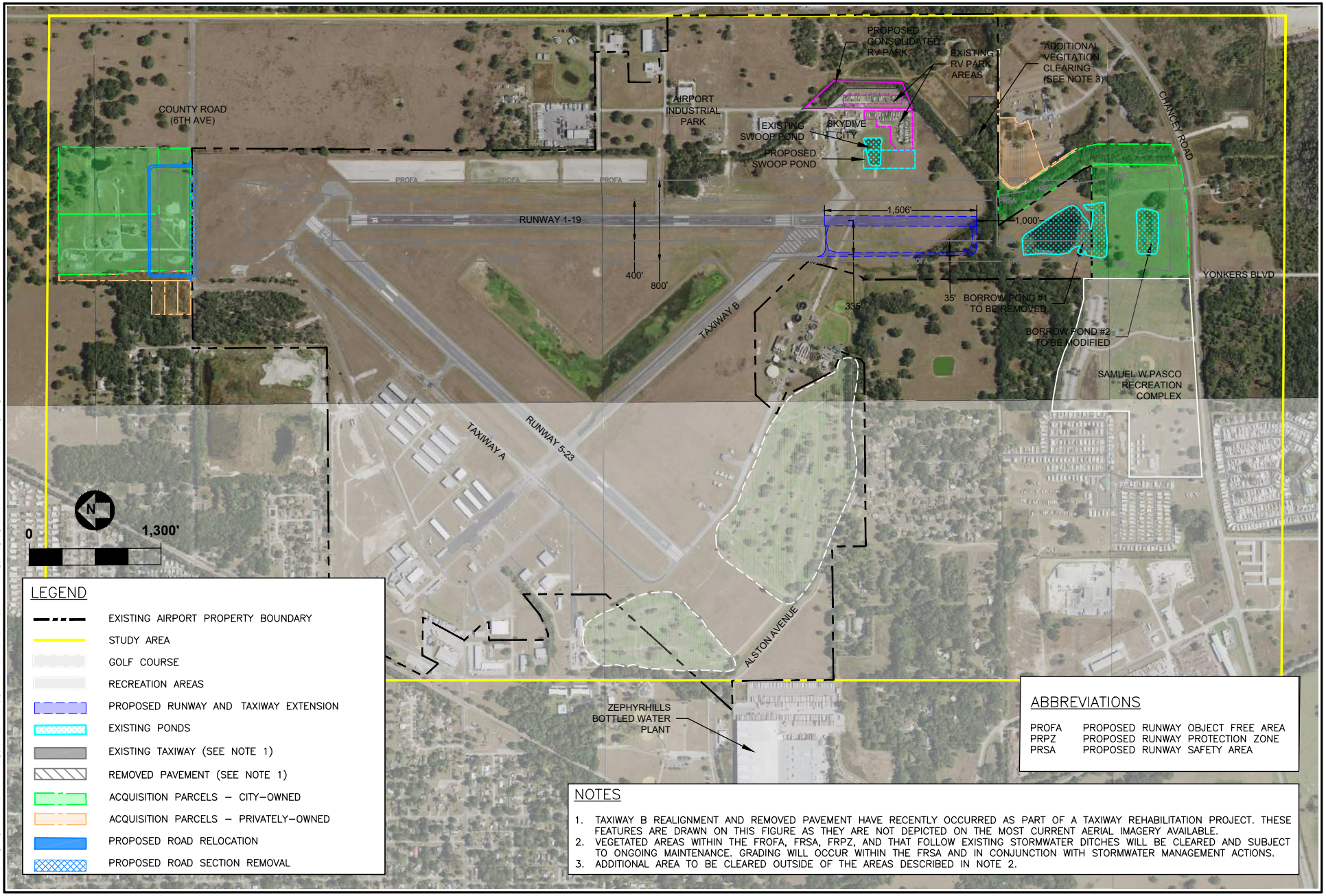
Appendix A
Figures

ESA



SOURCE: Esri; ESA, 2019

Zephyrhills Municipal Airport
EXHIBIT 1
AIRPORT LOCATION MAP



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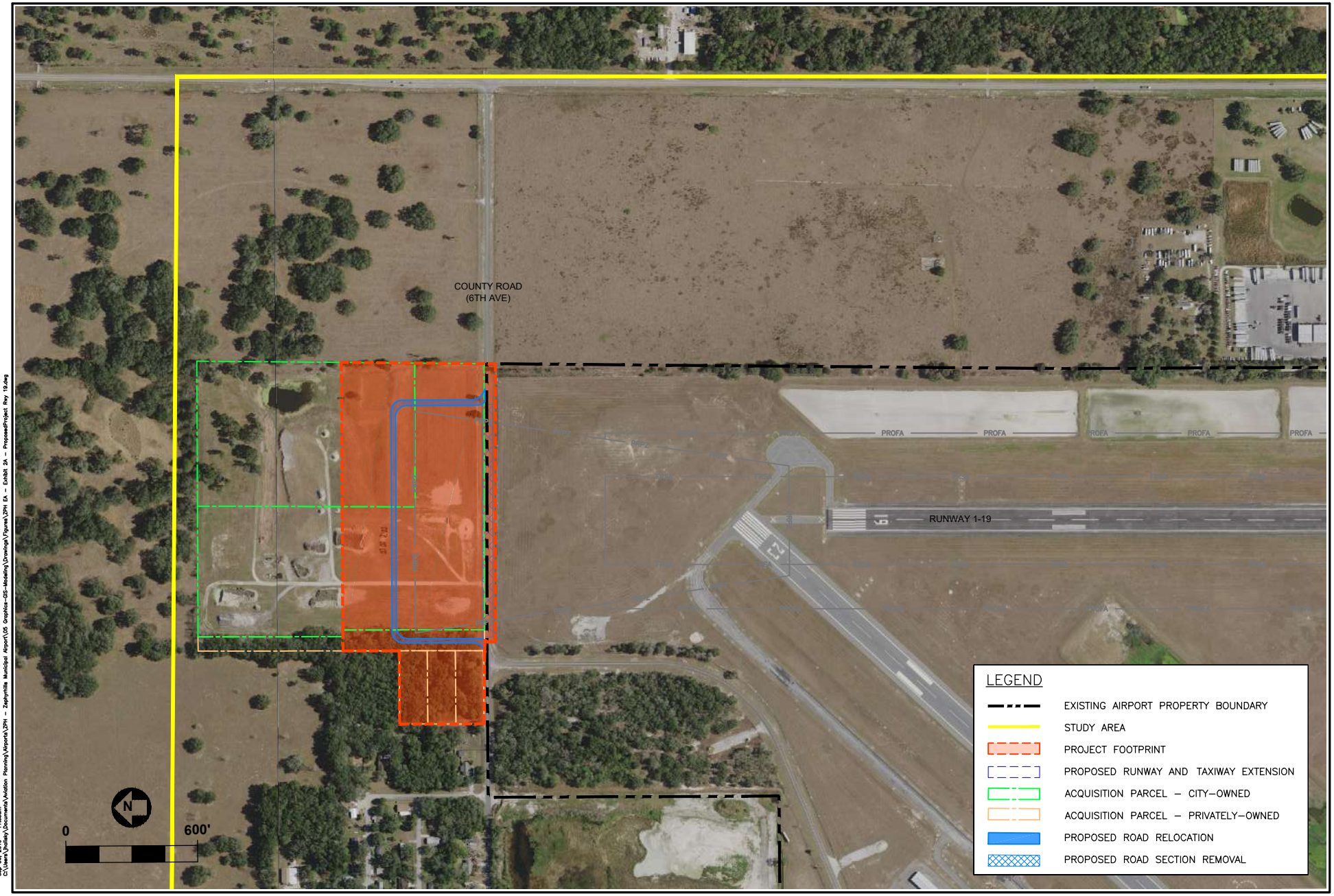
Source: AID, 2018; ESA, 2018

Zephyrhills Municipal Airport

EXHIBIT 2
PROPOSED PROJECT



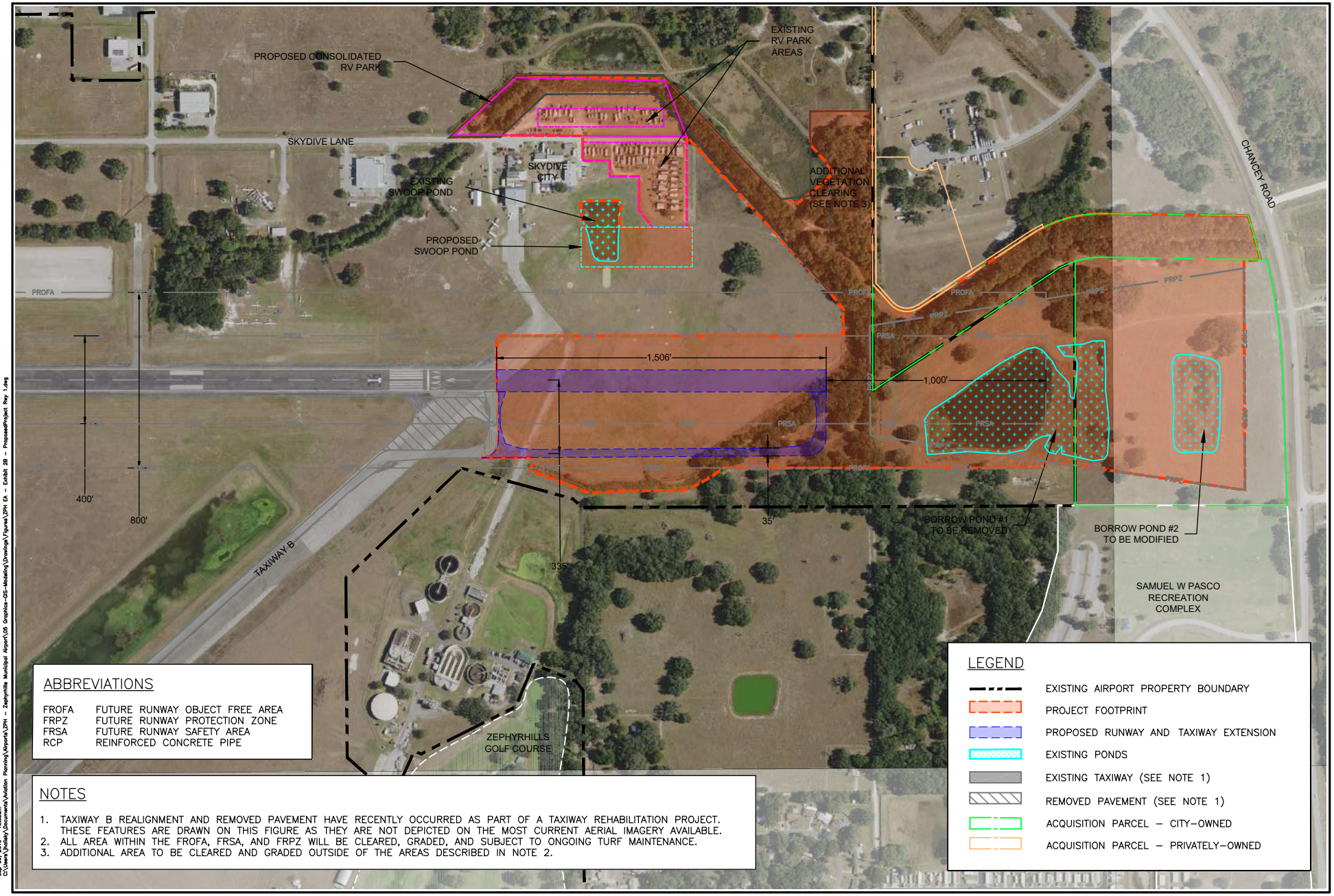
Sep 06, 2019 – 11:53am
C:\Users\jhalley\Documents\Aviation Planning\Airports\ZPH – Zephyrhills Municipal Airport\05 Graphics–GIS–Modeling\Drawings\Figures\ZPH EA – Exhibit 2A – ProposedProject Rev 19.dwg

Source: AID, 2019; ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT 2A

PROPOSED PROJECT - RUNWAY 19



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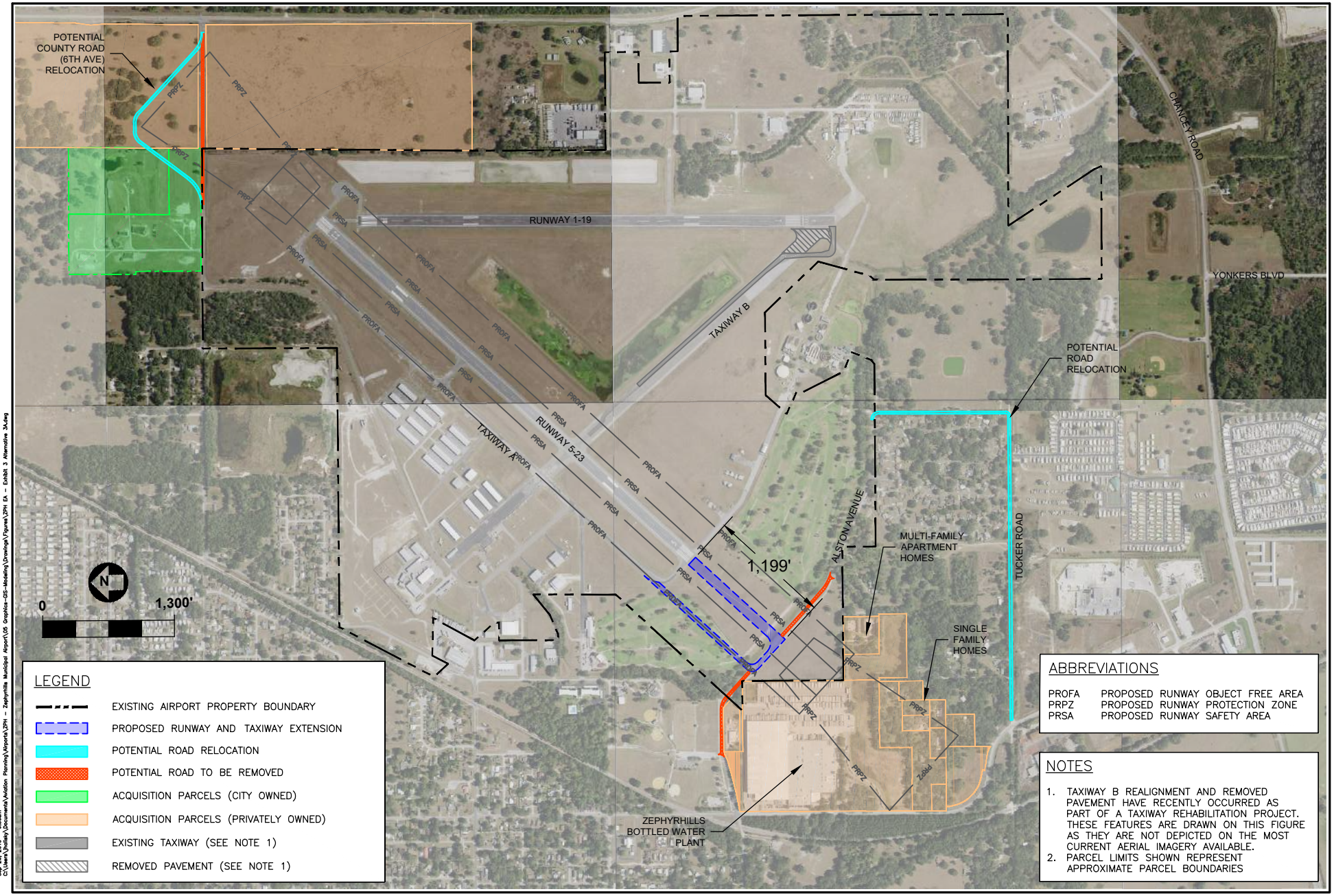
C:\Users\jhollery\Documents\Aviation Planning\Airports\ZPH – Zephyrhills Municipal Airport\05 Graphics–GIS–Modeling\Drawings\Figures\ZPH EA – Exhibit 2B – ProposedProject Rev 1.dwg

Source: AID, 2019; ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT 2B

PROPOSED PROJECT - RUNWAY 1



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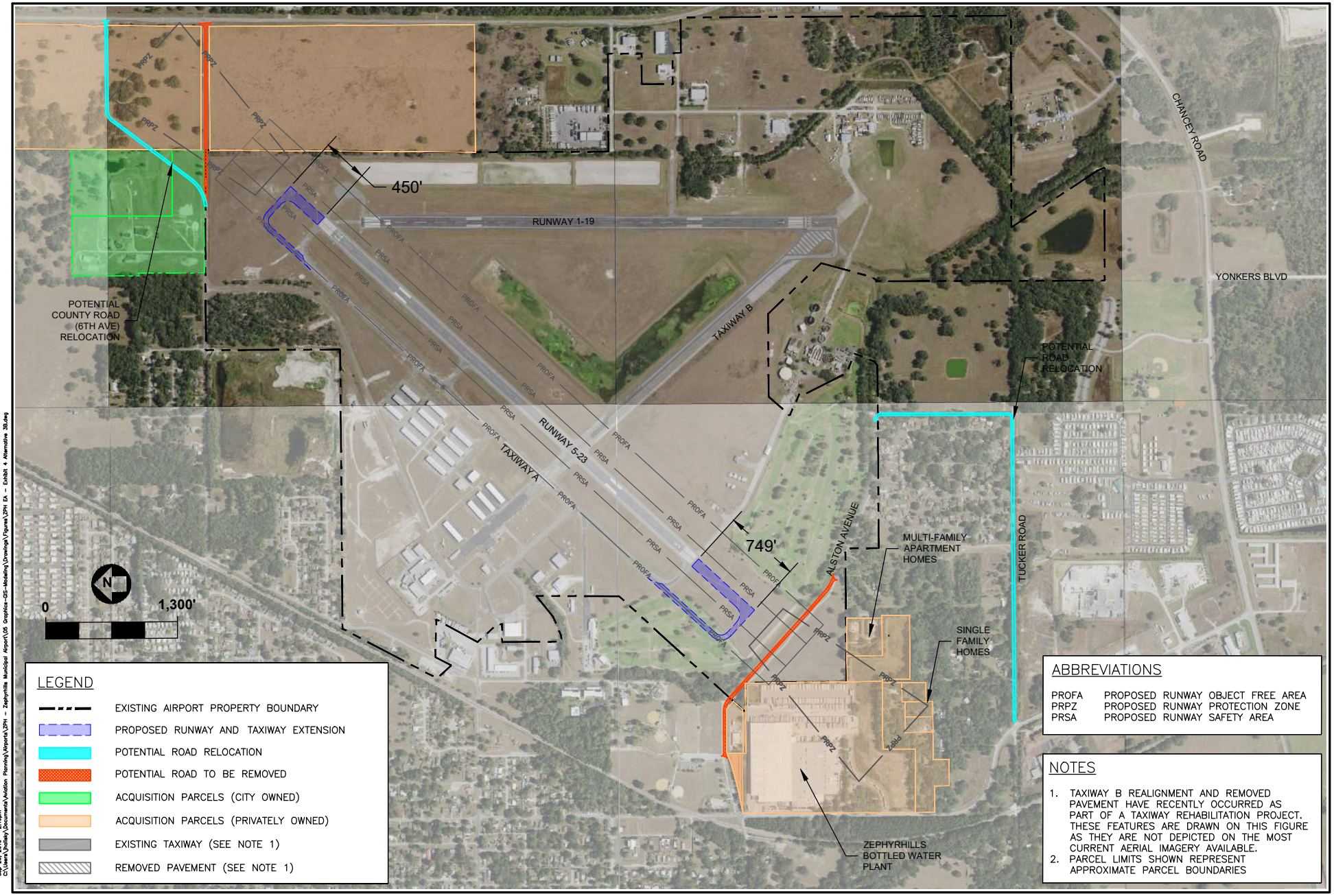
Source: ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT 3

ALTERNATIVE 3A RUNWAY 5 EXTENSION SOUTHWEST



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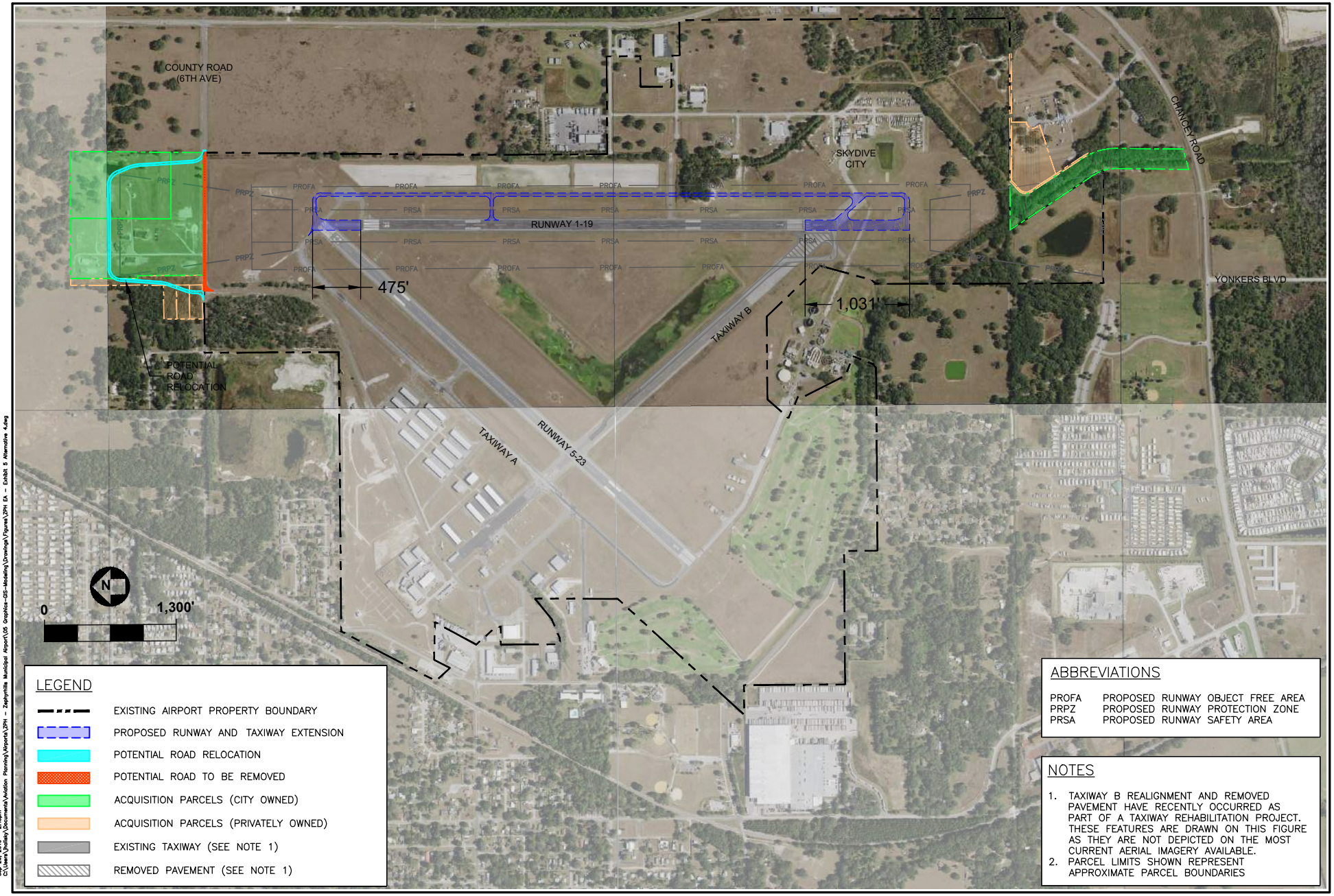
Source: ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT 4

ALTERNATIVE 3B RUNWAY 5-23 SPLIT EXTENSION



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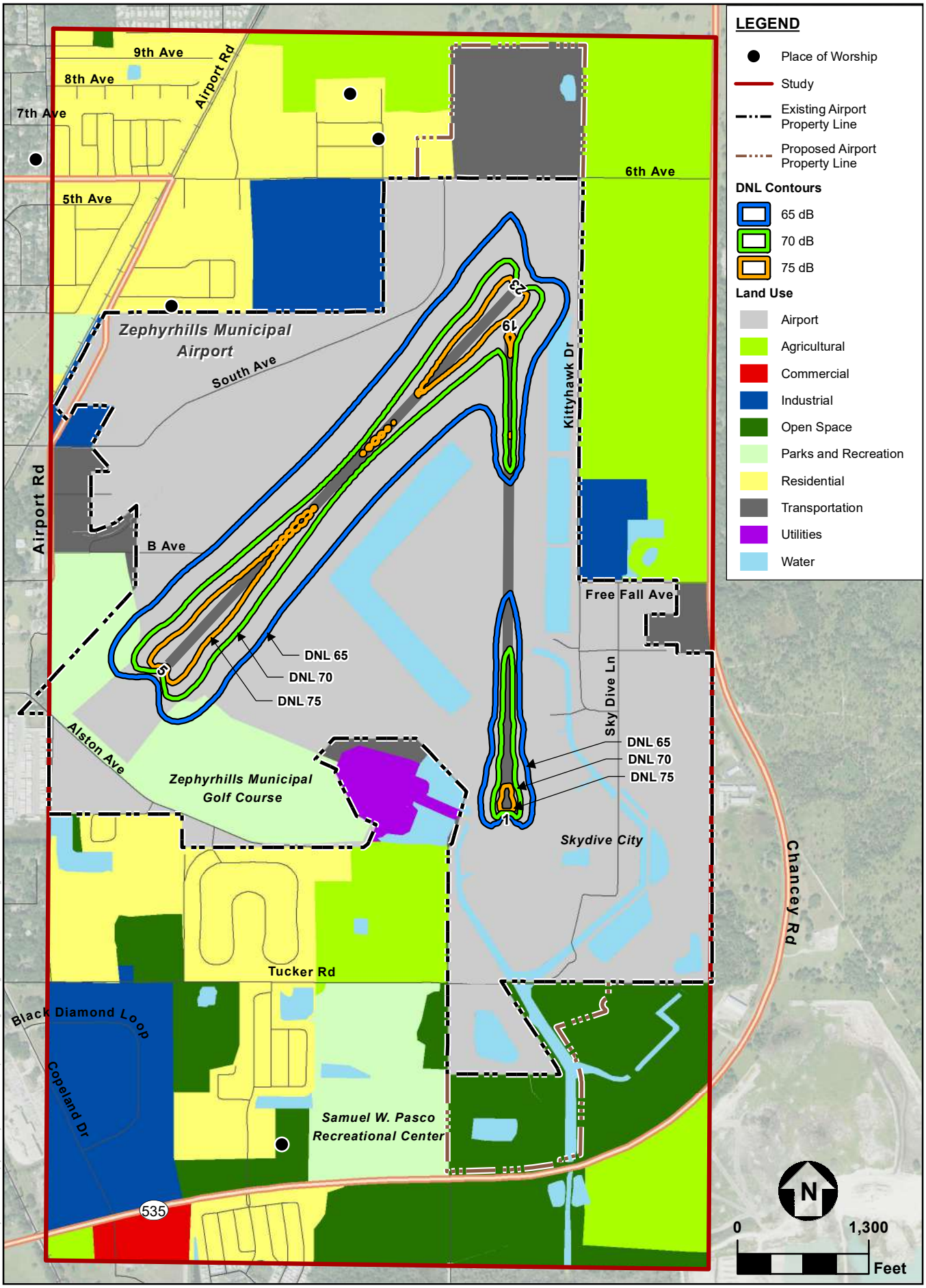
Source: ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT 5

ALTERNATIVE 4 RUNWAY 1-19 SPLIT EXTENSION

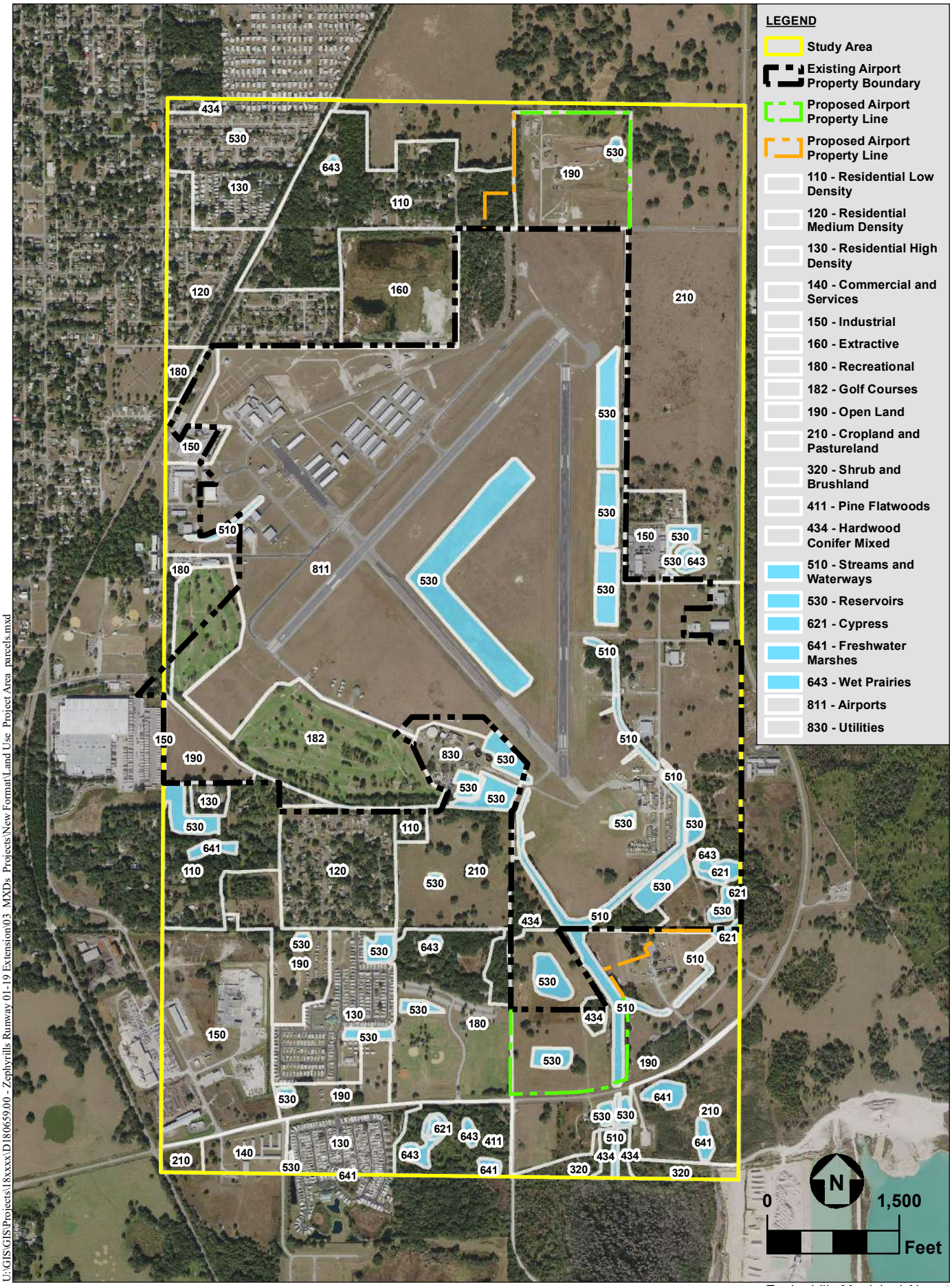


SOURCE: AEDT 2d; SWFWMD, 2011; Pasco County GIS, 2018; Adapted by ESA, 2019; USDA NAIP (Aerial)

Zephyrhills Municipal Airport

EXHIBIT 6

2018 BASELINE DNL CONTOURS AND LAND USE WITHIN THE STUDY AREA



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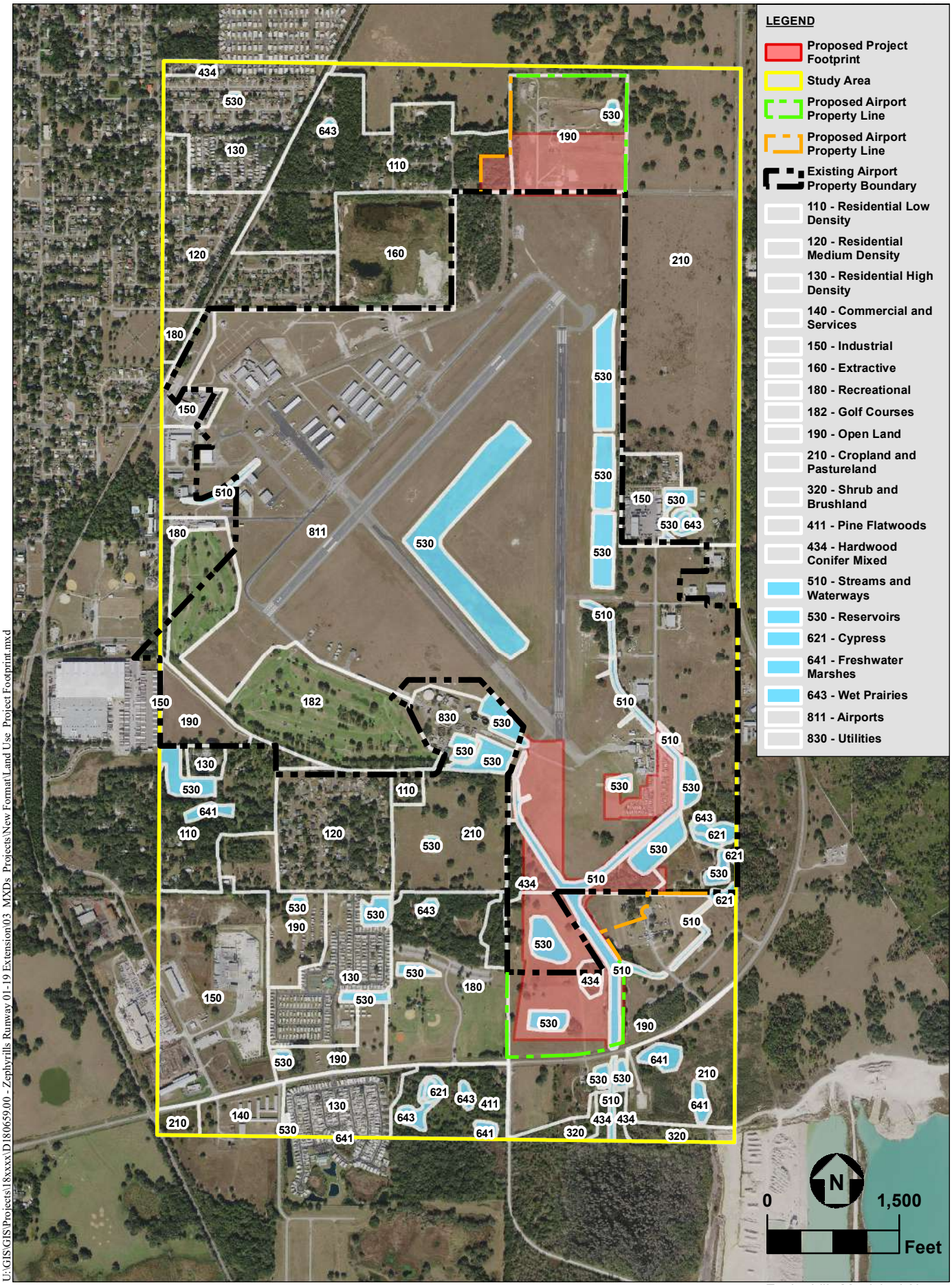
Source: FDOT 1999, Adapted by ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 7

Existing Vegetative Communities in the Proposed Project Study Area



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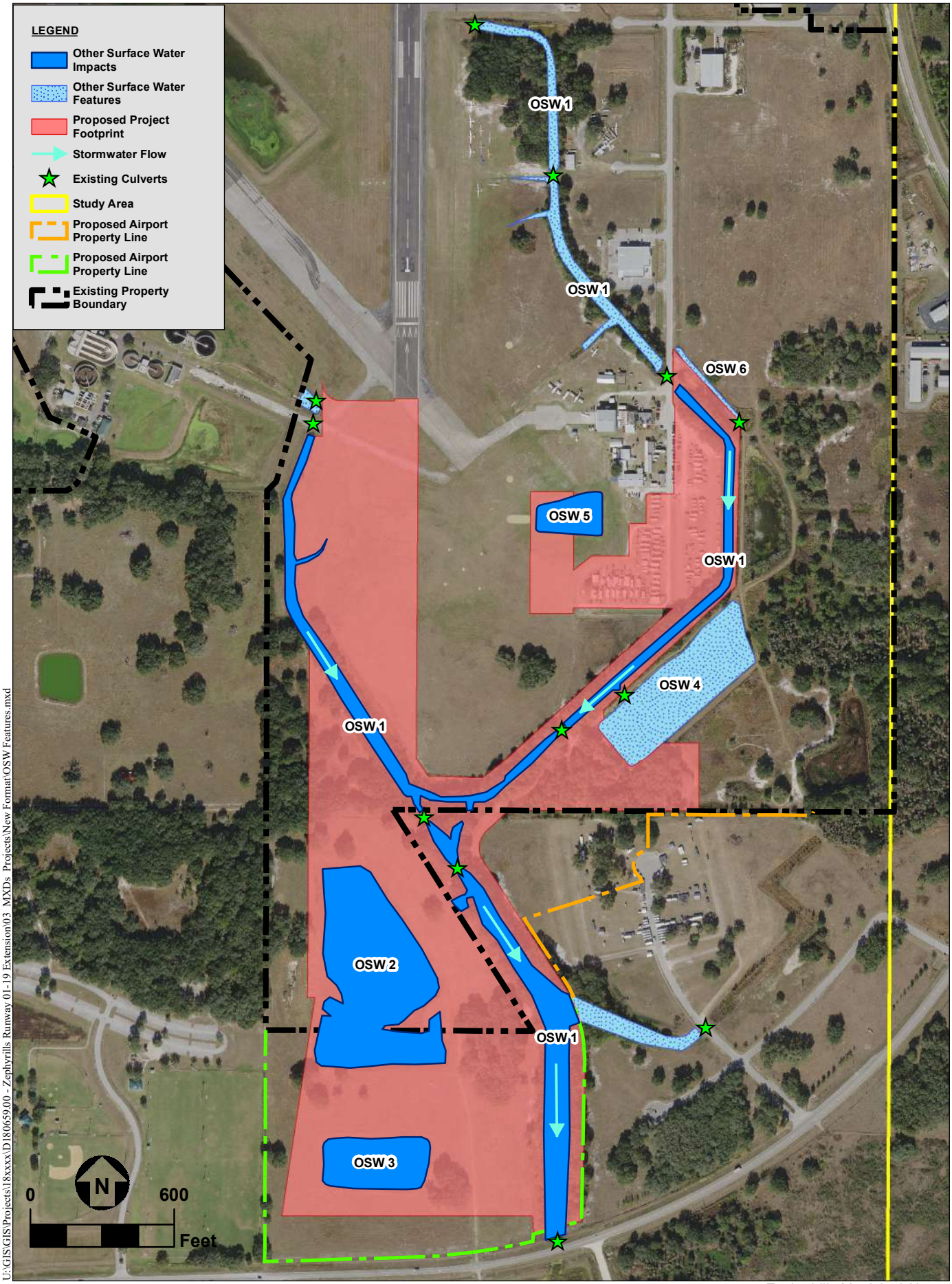
Source: FDOT 1999, Adapted by ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 8

Vegetative Communities in Proposed Project Footprint



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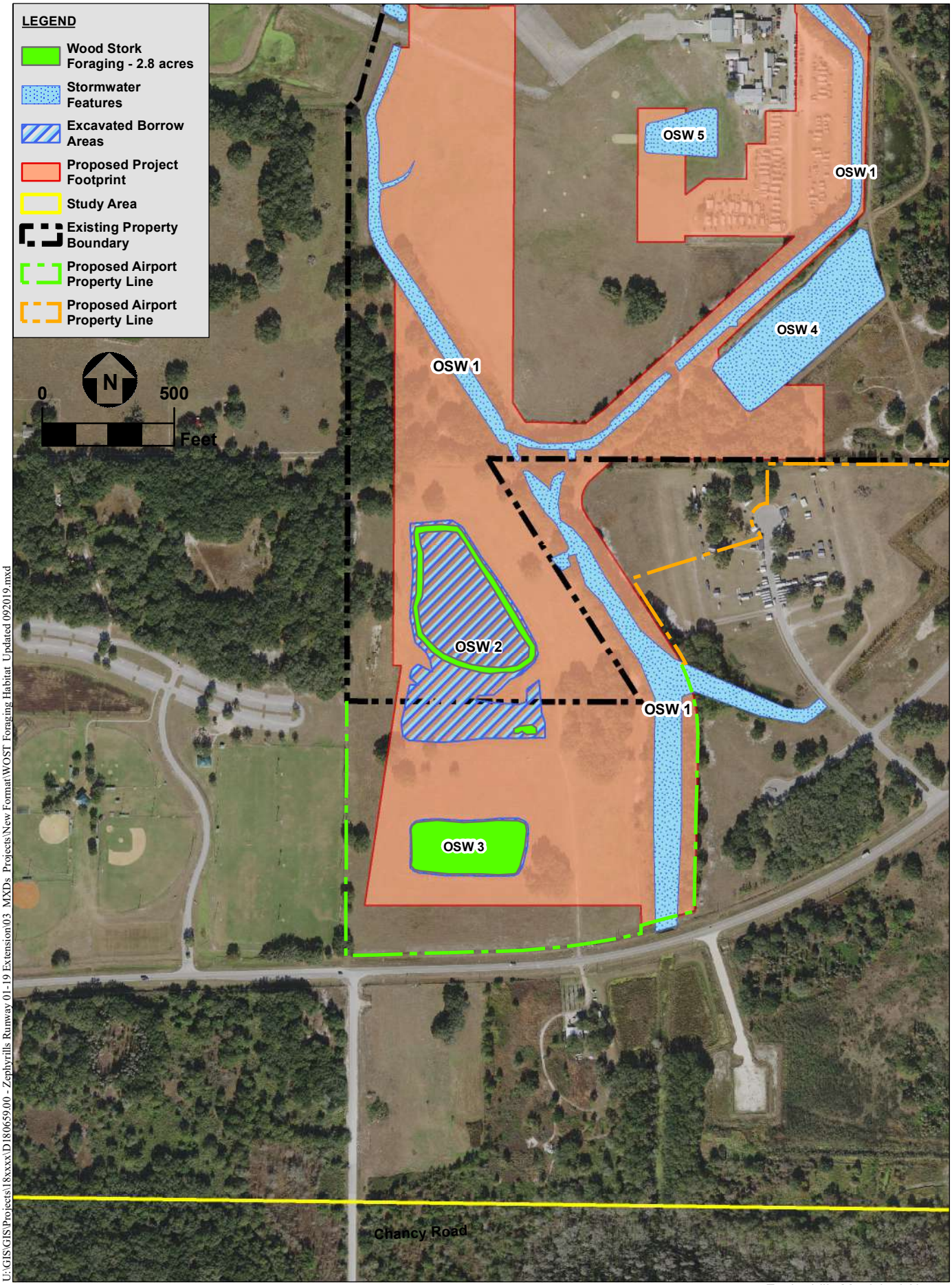
Source: ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 9

Other Surface Waters (OSW) within Proposed Project Footprint



Date: 9/6/2019
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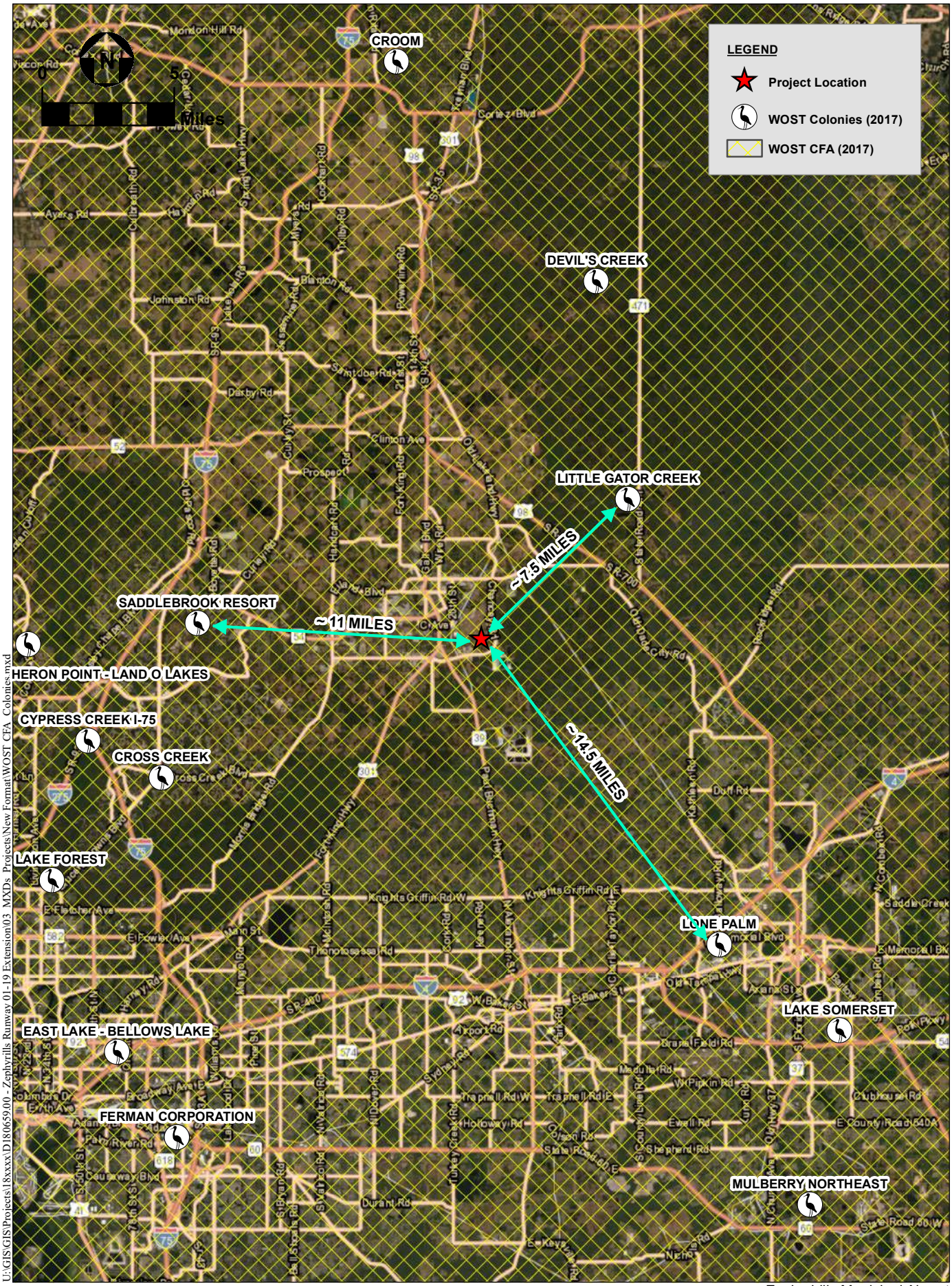
Source: ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 10

Wood Stork Foraging Habitat within Proposed Project Footprint



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Source: USFWS 2017, Adapted by ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 11

Wood Stork (WOST) Colonies and Core Foraging Area (CFA)

Legend

- City Limits
- City Parcels

Future Land Use Classifications

- Residential Estate
- Residential Suburban
- Residential Urban
- Mobile Home/Recreational Vehicle
- Mixed Use
- Industrial
- Recreation and Open Space
- Public/Semi-Public
- Conservation/Wetlands
- Agricultural
- Village Center Overlay

0 0.5 1 2 Miles

City of Zephyrhills
Future Land Use
April 2019

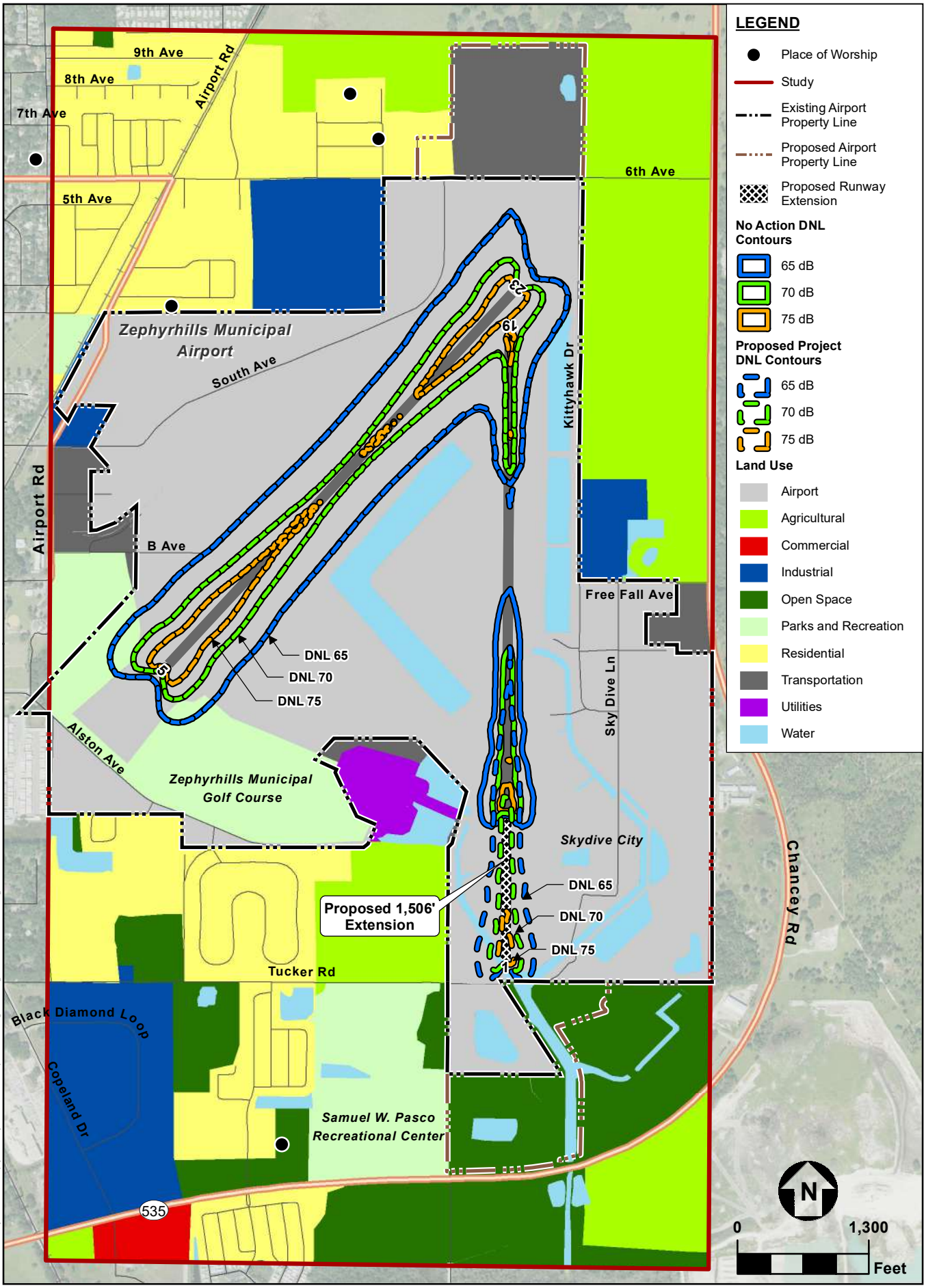
NOTE: For Planning Purposes Only And Updated FLU Changes In Process For Annexed Properties

N

Source: Pasco County GIS, Property Appr.

Updated 4/10/19 by R.Corriveau & K. Defranc

Document Path: K:\(ZH) PLANNING DEPT_GIS\2019\ArcMap\Base FLU Map_Created April 2019.mxd

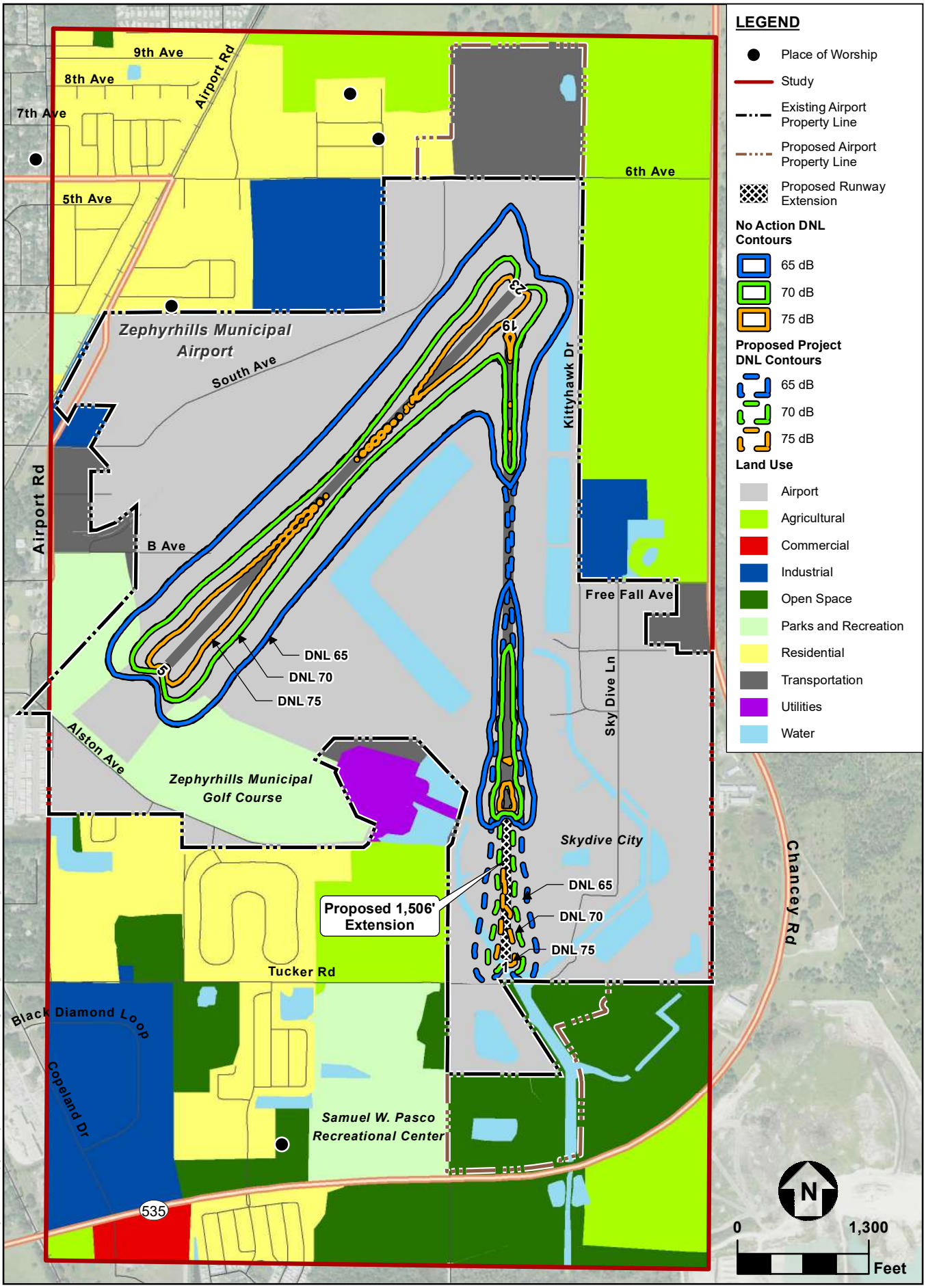


SOURCE: AEDT 2d; SWFWMD, 2011; Pasco County GIS, 2018; Adapted by ESA, 2019; USDA NAIP (Aerial)

Zephyrhills Municipal Airport

EXHIBIT 13

2021 NO ACTION ALTERNATIVE AND 2021 PROPOSED PROJECT DNL CONTOURS

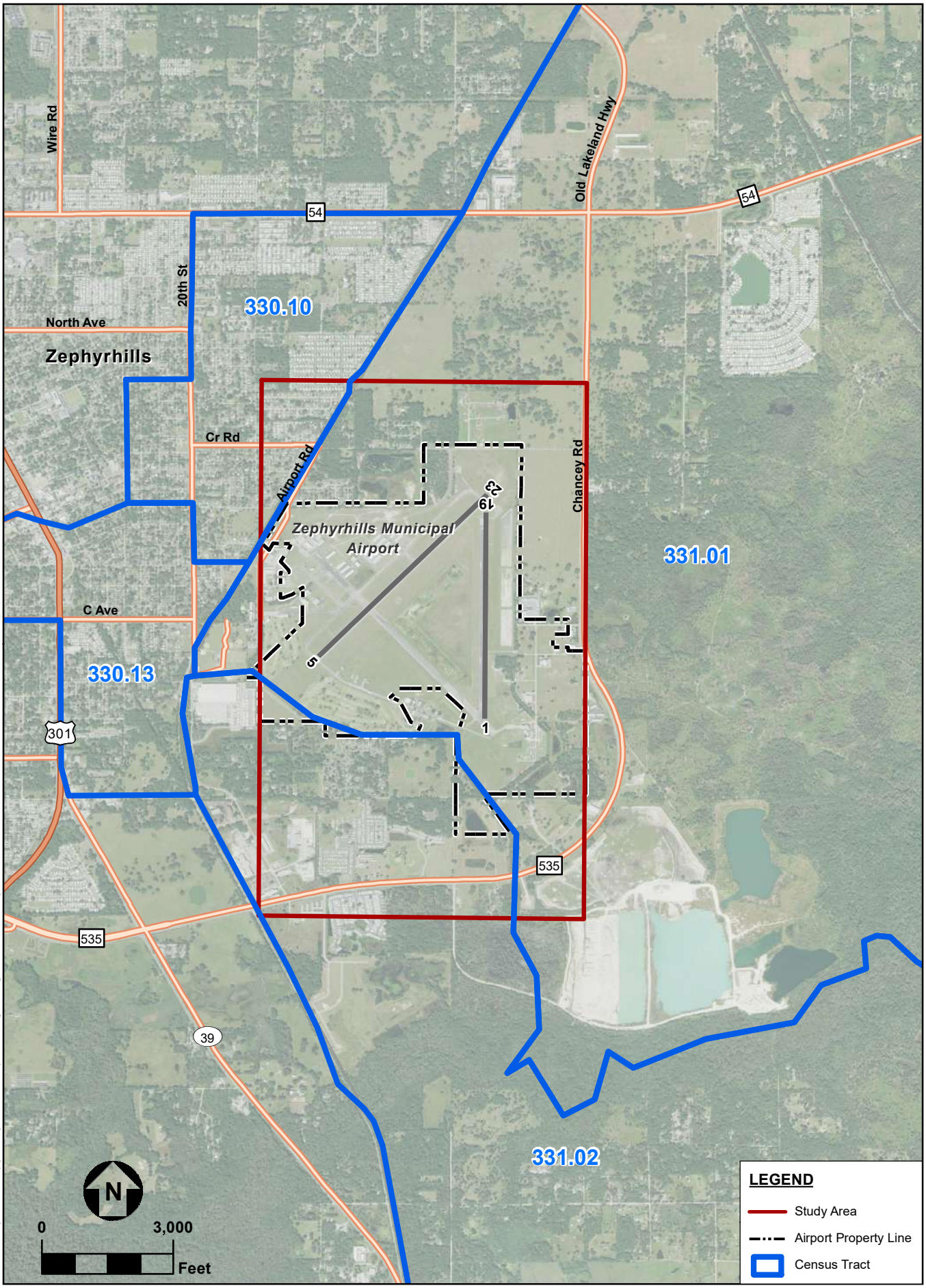


SOURCE: AEDT 2d; SWFWMD, 2011; Pasco County GIS, 2018; Adapted by ESA, 2019; USDA NAIP (Aerial)

Zephyrhills Municipal Airport

EXHIBIT 14

2026 NO ACTION ALTERNATIVE AND 2026 PROPOSED PROJECT DNL CONTOURS



SOURCE: U.S. Census Bureau, 2010; ESA, 2019; USDA NAIP (Aerial)

Zephyrhills Municipal Airport

EXHIBIT 15

CENSUS TRACTS IN THE VICINITY OF ZPH

Appendix B
Runway Length Analysis

ESA

APPENDIX B
Runway Length Analysis

B.1 Introduction

As the primary airfield component, a runway must have the proper length, width, and strength to safely accommodate the critical design aircraft. In addition to the physical characteristics of a runway, there are a number of other safety-related design standards that must be met, including the Runway Safety Area (RSA), Runway Object Free Area (ROFA), Runway Protection Zones (RPZ), and Obstacle Free Zones. This appendix provides an analysis of the runway length required at the Zephyrhills Municipal Airport (ZPH) based on the current conditions. While this appendix does not evaluate the other physical characteristics or safety-related surfaces, an overview of the basic runway design standards has been provided as a reference for the runway length analysis.

B.2 Airport Design Standards

The airport planning criteria and design standards for various airfield elements are based on the critical design aircraft. The critical design aircraft are used to classify airport facilities based on Approach Reference Codes (APRC), Departure Reference Codes (DPRC), Runway Design Codes (RDC), and Taxiway Design Groups defined in Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-13A, Change 1, *Airport Design*.

B.2.1 Runway Reference and Design Codes

Approach and departure codes identify the current operational capabilities for each runway with a parallel taxiway, where no special procedures are required for landing or takeoff operations. As such, runways can have more than one APRC or DPRC code for different aircraft groups and these codes may change as airfield improvements are made. Conversely, while the APRC and DPRC designations identify existing operational limitations for each runway, the RDC is utilized to plan future runway requirements.

For all three codes, the first component is the Aircraft Approach Category (AAC), which is depicted by a letter and relates to the aircraft's landing approach speed (operational characteristic). The second component is the Airplane Design Group (ADG), which uses Roman numerals to identify the critical aircraft wingspan or tail height (physical characteristics). For APRC and RDC, a third component relates to the visibility minimums associated with the runway, or group of runways, expressed in the Runway Visual Range (RVR) values. For runways with only existing and future visual approaches, the third component should be "VIS" in lieu of the visibility minimums. The ranges for these three components are included in **Table B-1**. An Airport Reference Code (ARC) is the overall airport designation, signifying the highest RDC for the facility, minus the third (visibility) code.

TABLE B-1
RUNWAY REFERENCE AND DESIGN CODE COMPONENTS

Aircraft Approach Categories

Category	Approach Speeds
A	Less the 91 Knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more

Airplane Design Groups

Group	Tail Height (feet)	Wingspan (feet)
I	<20	<49
II	20 – 30	49 < 79
III	30 – 45	79 < 118
IV	45 – 60	118 < 171
V	60 – 66	171 < 214
VI	66 - <80	214 - <262

Visibility Minimums

Runway Visual Range (feet)	Instrument Flight Visibility Category (statute mile)
5000	Not lower than 1 mile
4000	Lower than 1 mile but not lower than ¾ mile
2400	Lower than 3/4 mile but not lower than 1/2 mile
1600	Lower than 1/2 mile but not lower than 1/4 mile
1200	Lower than 1/4 mile
VIS	Visual

SOURCE: FAA Advisory Circular 150/5300-13A, Change 1, *Airport Design*

B.2.2 ZPH Critical Design Aircraft

Given their similar physical characteristics, both Runway 5-23 and Runway 1-19 have the DeHavilland DHC-6 Twin Otter (with a design code of A-II) listed as the current critical aircraft. However, both runways have the physical characteristics and proper design standards to support aircraft in the B-II aircraft group.

Currently, Runway 5-23 provides an overall length of 5,000 feet and Runway 1-19 slightly less at 4,694 feet. These lengths are capable of supporting the smaller end of the general aviation (GA) jet fleet. However, the City and ZPH have identified the need to attract a wider range of GA jets, to include larger GA jets, which the runways cannot currently serve. The next larger group or family of GA jets have the design codes of C-II and D-II, and include current models from the Beechcraft Hawker, Bombardier Challenger, Bombardier Learjet, Cessna Citation, and Grumman Gulfstream

series of aircraft. The most recent Airport Layout Plan shows the Gulfstream G450 with an ARC of D-II is as the representative future critical aircraft from this group for ZPH.

B.3 Runway Length Analysis

FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, provides the current FAA standards and methods for computing recommended runway lengths. Use of this AC is required when a runway extension project is intended to request or receive federal funding. Different methods for calculating runway length are categorized by the maximum certificated takeoff weight (MTOW) groups of 12,500 pounds or less; over 12,500 pounds, but less than 60,000 pounds; and 60,000 pounds or more. It should be noted that depending on the aircraft manufacturer, MTOW may also be referred to as the maximum takeoff weight, maximum allowable takeoff weight, or maximum design takeoff weight.

While the procedures and design rational vary depending on the weight category, each still requires some basic airfield data. These data are used in adjusting how an aircraft's takeoff and landing performance might be influenced by the unique characteristics of a specific airport. For ZPH, these relevant airfield data include the established airfield elevation of 90 feet above mean sea level (AMSL) and the mean daily maximum temperature of the hottest month, which is 91 degrees Fahrenheit.

B.3.1 Length Required for Small Aircraft

Small aircraft are defined as those that have a MTOW of 12,500 pounds or less. The small aircraft group includes almost all single- and multi-engine (piston and turboprop) aircraft. The charts in FAA AC 150/5325-4B for determining the length required for small aircraft were not utilized in this study. While ZPH certainly serves small aircraft operations, this group of aircraft is not critical with respect to the runway length analysis.

B.3.2 Requirements for Large Aircraft up to 60,000 Pounds

Using approved aircraft flight manuals, FAA AC 150/5325-4B provides performance curves to determine the runway length required for large aircraft weighing between 12,500 and 60,000 pounds. In addition to the airfield elevation and mean daily maximum temperature, information on the useful load factor, effective runway gradient, and typical weather conditions are required.

Useful load refers to the difference between an aircraft's MTOW and the empty weight. As such, the useful load factor provides an indication of the amount of passengers, cargo, and fuel carried by an aircraft. In the FAA's charts there is an option to select either a 60 or 90 percent useful load factor. Essentially, the heavier the aircraft (higher useful load percentage) the more runway length required. Because of the airport's southeastern location within the nation, flights of 1,000 miles, 1,500 miles, or even longer (to get to the west coast) are common and occur on a regular basis. Due to the high fuel load, these aircraft are heavier on departure. As a result, both the 60 and 90 percent useful loads were calculated.

The FAA performance curves for jet aircraft weighing 12,500 to 60,000 pounds are also split into the categories of 75 and 100 percent of the fleet. FAA AC 150/5325-4B provides lists of the GA jet aircraft that represent 75 percent of the fleet flying in the United States. This list combined with a second list represents 100 percent of the GA jet fleet in this weight range. According to general statements in the AC, aircraft in the 75 percent group require 5,000 feet or less of runway, while the remaining 25 percent require at least 5,000 feet under standard atmospheric conditions (59 degrees Fahrenheit at sea level). The FAA's 100 percent of the fleet table includes the larger Beechcraft Hawker, Bombardier Challenger, Bombardier Learjet, Cessna Citation, and Dassault Falcon series business jets. Aircraft within both of these groups have conducted operations at ZPH; therefore, both the 75 and 100 percent of the fleet categories were calculated.

Applying local conditions to these performance curves yields an initial runway length requirement based on no wind, a dry runway surface, and zero effective runway gradient. Adjustments are then made to the initial runway lengths for either takeoff or landing operations, but not for both, as the increases are not cumulative. Takeoff adjustments are based on the maximum difference in centerline elevation of the runway being considered, while landing adjustments are only made for runways serving jet aircraft operations. For takeoffs, since the initial lengths are adjusted for a specific runway's effective gradient, the centerline elevation difference for the most critical runway was applied as both runways accommodate aircraft in this weight range. At ZPH, Runway 1-19 has the greatest difference in centerline elevation with 11 feet between the high and low points of the runway. For landings, the initial length is increased by 15 percent (up to a specified limit) to account for the decrease in landing performance under wet and slippery conditions. After both takeoff and landing adjustments are considered, the final recommended lengths for large aircraft weighing between 12,500 and 60,000 pounds are determined. The results are reflected in **Table B-2**.

TABLE B-2
RUNWAY LENGTH REQUIRED FOR LARGE AIRCRAFT UP TO 60,000 POUNDS

Useful Load	75 Percent of the Fleet	100 Percent of the Fleet
60 Percent	5,376'	5,510'
90 Percent	7,000'	8,510'

SOURCE: FAA Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design.

B.3.3 Lengths for Aircraft Greater than 60,000 Pounds

FAA AC 150/5325-4B specifies that the Airport Planning Manuals (APMs) provided by the aircraft manufacturers be utilized for calculating specific takeoff and landing lengths of large aircraft over 60,000 pounds. Unfortunately, APMs are not published for most GA jets, including the Gulfstream G450 critical aircraft, which has a MTOW of 74,600 pounds.

B.3.4 Runway Length Analysis Using Balanced Field Length

Since most GA jets over 60,000 pounds do not have an APM, performance data from the aircraft manufacturers was used to analyze the runway lengths required for these aircraft. A number of the

more common and modern GA business jets that ZPH currently serves and may attract in the future are listed in **Table B-3** based on their MTOW, from lightest to the heaviest, along with the corresponding runway length requirements.

TABLE B-3
SPECIFIC RUNWAY LENGTHS FOR GA JETS WEIGHING MORE THAN 12,500 POUNDS

Aircraft Type	Aircraft Reference Code	Maximum Takeoff Weight (pounds)	Balanced Field Takeoff Length	Required Takeoff Length at ZPH
Citation CJ3	B-II	13,870	3,450’	4,137’
Citation II	B-II	14,100	3,450’	4,137’
Citation Bravo	B-II	14,800	3,600’	4,312’
Citation Encore	B-II	16,630	3,490’	4,184’
Phenom 300	B-II	17,968	3,138’	3,773’
Citation Excel	B-II	18,700	3,415’	4,096’
Citation XLS	B-II	20,200	3,560’	4,266’
Learjet 70	C-II	21,500	4,440’	5,294’
Learjet 75	C-II	21,500	4,440’	5,294’
Citation III	C-II	22,000	5,030’	5,983’
Citation VII	C-II	23,000	4,850’	5,772’
Sabreliner 80	C-II	23,300	4,550’	5,422’
Sabreliner 65	B-II	24,000	5,895’	6,993’
1125 Astra SP	C-II	24,650	5,395’	6,409’
Gulfstream 150	C-II	26,100	5,499’	6,530’
Hawker 800	C-II	28,000	5,032’	5,985’
Gulfstream 200	C-II	35,450	6,083’	7,212’
1125 Astra Galaxy	C-II	35,650	5,500’	6,532’
Gulfstream I	B-II	36,000	4,725’	5,626’
Citation X	C-II	36,600	5,250’	6,240’
Falcon 50	B-II	38,800	4,700’	5,597’
Challenger 300	C-II	38,850	4,810’	5,726’
Gulfstream 280	C-II	39,600	4,750’	5,656’
Challenger 350	C-II	40,600	4,835’	5,755’
Falcon 2000S	B-II	41,000	4,325’	5,159’
Challenger 600	C-II	41,100	5,700’	6,765’
Falcon 2000LXS	B-II	42,800	4,675’	5,568’
Challenger 601	C-II	45,100	6,050’	7,174’
Challenger 605	C-II	48,200	5,840’	6,929’
Challenger 650	C-II	48,200	5,640’	6,695’
Falcon 900	B-II	49,000	5,360’	6,368’
Challenger 800	C-II	53,000	6,305’	7,472’
Gulfstream II	C-II	65,500	5,700’	6,765’
Gulfstream III	C-II	69,700	5,100’	6,064’
Gulfstream 350	D-II	70,900	5,050’	6,006’

TABLE B-3
SPECIFIC RUNWAY LENGTHS FOR GA JETS WEIGHING MORE THAN 12,500 POUNDS

Aircraft Type	Aircraft Reference Code	Maximum Takeoff Weight (pounds)	Balanced Field Takeoff Length	Required Takeoff Length at ZPH
Gulfstream IV	C-II	74,600	5,450'	6,473'
Gulfstream 450	D-II	74,600	5,600'	6,648'

SOURCE: Aircraft manufacturers, industry databases, aircraft performance manuals, and ESA analysis, 2018.

Two different runway lengths have been shown for each aircraft. The first is the Balanced Field Takeoff Length. This indicator is published by the aircraft manufacturers as the length required for takeoffs on a flat and dry runway, with the aircraft at MTOW and operating under standard atmospheric conditions (59 degrees Fahrenheit at sea level). Because the elevation at ZPH is 90 feet AMSL these values are applicable, but they are considered a best case scenario for the aircraft at MTOW, as temperatures are seldom around 59 degrees Fahrenheit. In fact, while ZPH certainly experiences 59 degrees Fahrenheit and lower temperatures, these temperatures typically only occur at night during a few months of the year.

The second number is the Required Takeoff Length at ZPH, which is calculated using the Balanced Field Takeoff Length for each aircraft with local conditions (airfield elevation, mean daily maximum temperature of the hottest month, and maximum difference in runway centerline elevation) per the accepted FAA methodology. In all cases these lengths are longer due to the climate of the local area. This is an important consideration as these figures represent the upper range of runway lengths required for each aircraft to be able to depart ZPH at MTOW (without weight restrictions).

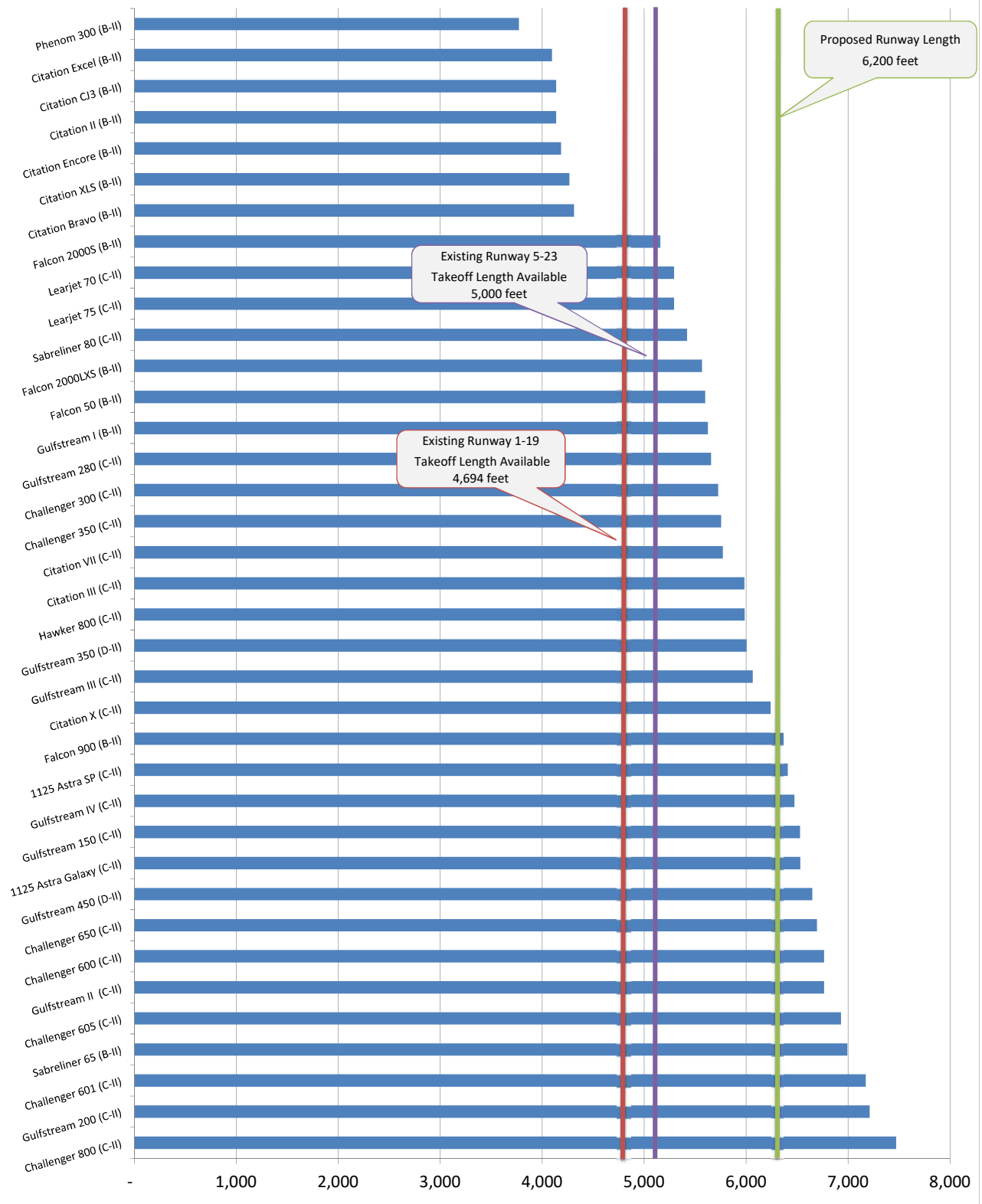
B.4 Recommended Runway Length

The current runway lengths at ZPH are 5,000 feet for Runway 5-23 and 4,694 feet for Runway 1-19. One of the runways needs to be able to accommodate the takeoff and landing lengths required for the future C-II and D-II critical aircraft group, with the Gulfstream G450 as the representative critical design aircraft.

Using the FAA's methodology, the final recommended length at ZPH for large aircraft weighing between 12,500 and 60,000 pounds averages 6,188 feet for 75 percent of the fleet and 7,010 feet for 100 percent of the fleet (based on the figures in **Table B-2**). For aircraft over 60,000 pounds, the FAA methodology could not be applied since very few (only the largest) GA jets have an APM. Therefore, it is essential to consider the analysis summarized in **Table B-3** where the runway lengths were based on the individual published Balanced Field Takeoff Lengths. The resulting lengths required for each aircraft in **Table B-3** to operate at ZPH are depicted graphically (from shortest to longest) in **Figure B-1**. The figure also includes reference lines for the current runway lengths at ZPH.

Unlike the FAA methodology, which considers either a 60 or 90 percent useful load, the specific lengths for each GA jet under the Balanced Field Takeoff Length methodology incorporates a 100 percent useful load (MTOW). Regardless, from a runway length requirement, the most demanding aircraft analyzed was the Challenger 800, which requires nearly 7,500 feet to operate unrestricted at ZPH. This requirement is 1,000 feet less than the FAA recommended length for this category of aircraft (100 percent of the fleet) at a 90 percent useful load.

Figure A-1: Takeoff Runway Length Requirements for Aircraft at ZPH



NOTES:

1. Based on published Balanced Field Takeoff Lengths for individual aircraft at Maximum Allowable Takeoff Weight, adjusted for mean maximum temperature, airfield elevation, and Runway 1-19 elevation change (most critical) at ZPH.
2. Aircraft shown requiring more than 6,200 feet of runway length will still be able to utilize the proposed runway with an operational weight limit.

SOURCE: ESA analysis, 2018.

Equally important to note with respect to the operational requirements of the GA jets utilizing and expected to utilize ZPH is the temperature being considered. As per the FAA methodology, all of the runway lengths calculated for the local conditions utilize the 91 degrees Fahrenheit mean daily maximum temperature of the hottest month (July). While the historic weather data for Zephyrhills also documents that the months of June and August have average maximum temperatures just under the 91 degrees Fahrenheit, the other nine months of the year are lower. In fact, between November and March, the average maximum temperatures are below 80 degrees.

For the recommended runway length requirement at ZPH, two key assumptions must be considered:

- Not all of the critical GA jet operations will be conducted during the three hottest months of the year. In other words, it is not anticipated for 500 annual operations to be conducted when the temperature is around the mean daily maximum temperature used to adjust the different runway length calculations under the FAA methodology.

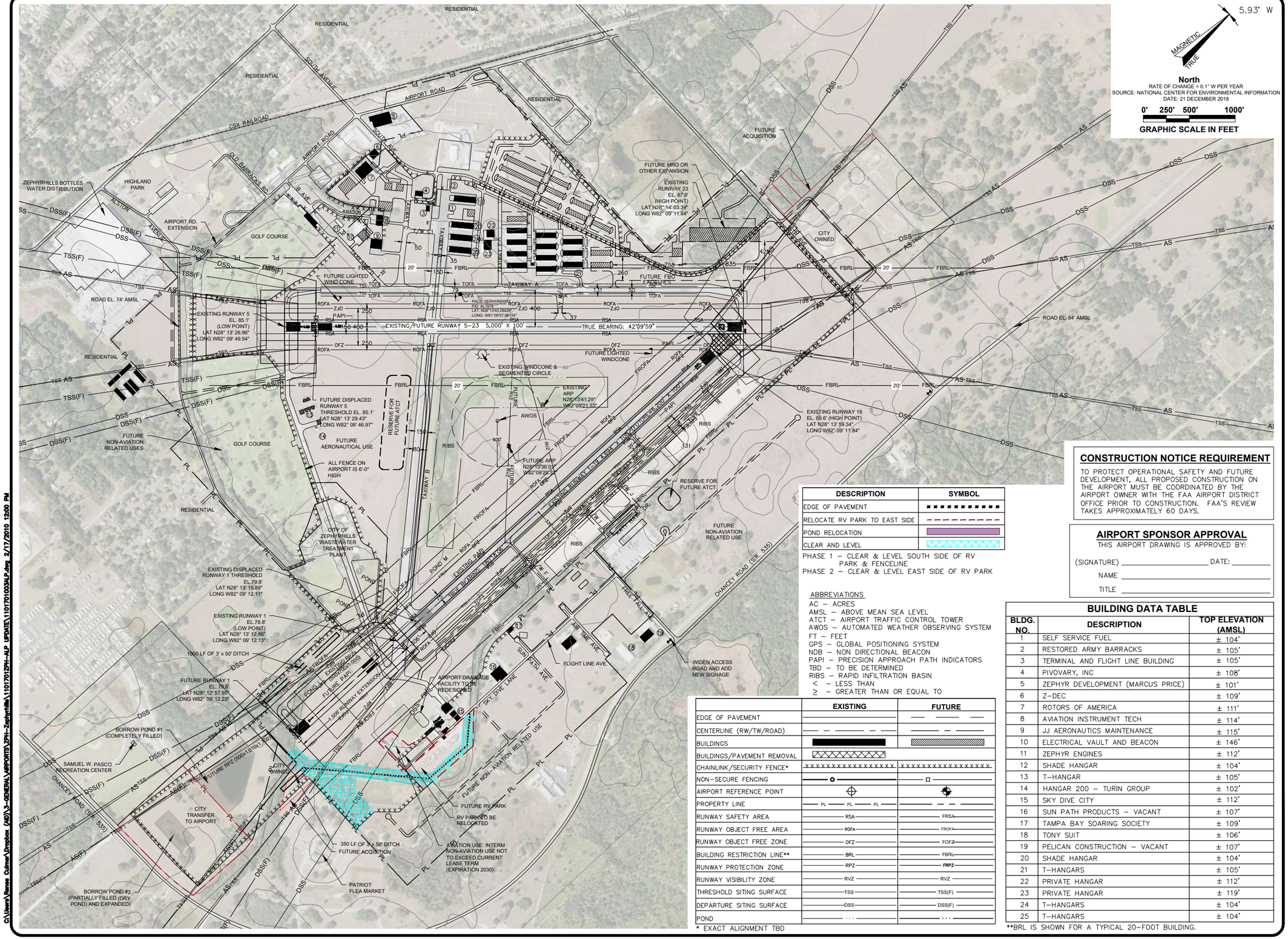
- Not all of the critical GA jet operations will be conducted at the MTOW for the aircraft. The FAA methodology for calculating the length requirements for larger aircraft up to 60,000 pounds included both a 60 and 90 percent useful load factor. However, even with a 100 percent useful load (MTOW), the length analysis using the Balanced Field Takeoff Lengths resulted in shorter runway lengths.

Taking these assumptions and the various analyses into consideration, an overall runway length of 6,200 feet is recommended for ZPH. This length represents the average length of the FAA's 60 and 90 percent useful loads needed to accommodate 75 percent of the aircraft fleet weighing between 12,500 and 60,000 pounds. It also provides the length needed for the specific GA jets evaluated under the Balanced Field Takeoff Length methodology to operate at ZPH with only minor weight restrictions required on the hottest of days and at the aircraft's MTOW. This scenario includes the future Gulfstream G450 critical aircraft, which had a runway length requirement that ranged from 5,600 feet on a 59 degree Fahrenheit day to 6,648 feet on a 91degree day (at MTOW).

Appendix C

Conditional ZPH Airport Layout Plan (with Proposed Project)

ESA



DESCRIPTION	SYMBOL
EDGE OF PAVEMENT	
RELOCATE RV PARK TO EAST SIDE	
POND RELOCATION	
CLEAR AND LEVEL	

PHASE 1 – CLEAR & LEVEL SOUTH SIDE OF RV PARK & FENCELINE
PHASE 2 – CLEAR & LEVEL EAST SIDE OF RV PARK

ABBREVIATIONS

AC – ACRES
AMSL – ABOVE MEAN SEA LEVEL
ATCT – AIRPORT TRAFFIC CONTROL TOWER
AWOS – AUTOMATED WEATHER OBSERVING SYSTEM
FT – FEET
GPS – GLOBAL POSITIONING SYSTEM
NDB – NON DIRECTIONAL BEACON
PAPI – PRECISION APPROACH PATH INDICATORS
TBD – TO BE DETERMINED
RIBS – RAPID INFILTRATION BASIN
< – LESS THAN
≥ – GREATER THAN OR EQUAL TO

	EXISTING	FUTURE
EDGE OF PAVEMENT		
CENTERLINE (RW/TW/ROAD)		
BUILDINGS		
BUILDINGS/PAVEMENT REMOVAL		
CHAINLINK/SECURITY FENCE*		
NON-SECURE FENCING		
AIRPORT REFERENCE POINT		
PROPERTY LINE	PL PL PL	
RUNWAY SAFETY AREA	RSA	FRSA
RUNWAY OBJECT FREE AREA	ROFA	FROFA
RUNWAY OBJECT FREE ZONE	OFZ	FOFZ
BUILDING RESTRICTION LINE**	BRL	FBRL
RUNWAY PROTECTION ZONE	RPZ	FRPZ
RUNWAY VISIBILITY ZONE	RVZ	RVZ
THRESHOLD SITING SURFACE	TSS	TSS(F)
DEPARTURE SITING SURFACE	DSS	DSS(F)
POND		

* EXACT ALIGNMENT TBD

CONSTRUCTION NOTICE REQUIREMENT

TO PROTECT OPERATIONAL SAFETY AND FUTURE DEVELOPMENT, ALL PROPOSED CONSTRUCTION ON THE AIRPORT MUST BE COORDINATED BY THE AIRPORT OWNER WITH THE FAA AIRPORT DISTRICT OFFICE PRIOR TO CONSTRUCTION. FAA'S REVIEW TAKES APPROXIMATELY 60 DAYS.

AIRPORT SPONSOR APPROVAL

THIS AIRPORT DRAWING IS APPROVED BY:

(SIGNATURE) _____ DATE: _____

NAME _____

TITLE _____

BUILDING DATA TABLE

BLDG. NO.	DESCRIPTION	TOP ELEVATION (AMSL)
1	SELF SERVICE FUEL	± 104'
2	RESTORED ARMY BARRACKS	± 105'
3	TERMINAL AND FLIGHT LINE BUILDING	± 105'
4	PIVOVARY, INC	± 108'
5	ZEPHYR DEVELOPMENT (MARCUS PRICE)	± 101'
6	Z-DEC	± 109'
7	ROTORS OF AMERICA	± 111'
8	AVIATION INSTRUMENT TECH	± 114'
9	JJ AERONAUTICS MAINTENANCE	± 115'
10	ELECTRICAL VAULT AND BEACON	± 146'
11	ZEPHYR ENGINES	± 112'
12	SHADE HANGAR	± 104'
13	T-HANGAR	± 105'
14	HANGAR 200 – TURIN GROUP	± 102'
15	SKY DIVE CITY	± 112'
16	SUN PATH PRODUCTS – VACANT	± 107'
17	TAMPA BAY SOARING SOCIETY	± 109'
18	TONY SUIT	± 106'
19	PELICAN CONSTRUCTION – VACANT	± 107'
20	SHADE HANGAR	± 104'
21	T-HANGARS	± 105'
22	PRIVATE HANGAR	± 112'
23	PRIVATE HANGAR	± 119'
24	T-HANGARS	± 104'
25	T-HANGARS	± 104'

**BRL IS SHOWN FOR A TYPICAL 20-FOOT BUILDING.

ZEPHYRHILLS
CITY OF PURE WATER
FLORIDA

AMERICAN INFRASTRUCTURE DEVELOPMENT, INC.
3810 NORTHDALE BLVD., SUITE 170 ■ TAMPA, FLORIDA 33624
OFFICE: (813) 374-2200

ZEPHYRHILLS MUNICIPAL AIRPORT

INTERIM AIRPORT LAYOUT PLAN UPDATE

AIRPORT LAYOUT PLAN

SCALE: GRAPHIC

REVISIONS:

NO.	DATE	BY	DESCRIPTION
1	12/31/2018	AID	RUNWAY UPDATE

DESIGNED BY:
DRAWN BY:
CHECKED BY:
APPROVED BY:
DATE: JANUARY 2019

FDOT FM NO. 443359-1-94-01
AID PROJECT NO. ZPH18005

DRAWING
3

SHEET NO. 3 OF 11

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Appendix D
Noise Technical Report

ESA

APPENDIX D

Aircraft Noise Assessment Technical Report

Supporting the Environmental Assessment for the Extension of Runway 01-19 and Associated Improvements at Zephyrhills Municipal Airport, July 2019

D.1 Aircraft Noise Metrics

The following metrics were employed or referenced in the noise analysis prepared for the Environmental Assessment (EA) of the proposed runway extension at Zephyrhills Municipal Airport (ZPH).

Decibel (dB) – Sound is a complex physical phenomenon consisting of many minute vibrations traveling through a medium, such as air. The human ear senses these vibrations as sound pressure. Because of the vast range of sound pressure or intensity detectable by the human ear, sound pressure level (SPL) is represented on a logarithmic scale known as decibels (dB). An SPL of 0 dB is the approximate threshold of human hearing and is barely audible under extremely quiet (laboratory-type) listening conditions. A person begins to feel a SPL of 120 dB inside the ear as discomfort, and pain begins at approximately 140 dB. Most environmental sounds have SPLs ranging from 30 to 100 dB.

Because decibels are logarithmic, they cannot be added or subtracted directly like other (linear) numbers. For example, if two sound sources each produce 100 dB, when they are operated together they will produce 103 dB, not 200 dB. Four 100 dB sources operating together double the sound energy again, resulting in a total SPL of 106 dB, and so on. In addition, if one source is much louder than another, the two sources operating together will produce the same SPL as if the louder source were operating alone. For example, a 100 dB source plus an 80 dB source produces 100 dB when operating together. The louder source masks the quieter one.

Two useful rules to remember when comparing SPLs are: (1) most people perceive a 6 to 10 dB increase in SPL between two noise events to be a doubling of loudness, and (2) a change in SPL of less than 3 dB between two events is not easily detected outside of a laboratory.

A-Weighted Decibel (dBA) – Frequency, or pitch, is a basic physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 15,000 Hz. Because the human ear is more sensitive to middle and high frequencies (i.e., 1,000 to 4,000 Hz), a frequency weighting called “A” weighting is applied to the measurement of sound. The internationally standardized "A" filter approximates the sensitivity of the human ear and helps in assessing the perceived loudness of various sounds. For

this EA, all sound levels are A-weighted sound levels and the text typically omits the adjective "A-weighted".

Day-Night Average Sound Level (DNL) – Time-average sound levels are measurements of sound averaged over a specified length of time. These levels provide a measure of the average sound energy during the measurement period. For the evaluation of community noise effects, and particularly aircraft noise effects, the Day-Night Average Sound Level (DNL) is used. DNL logarithmically averages aircraft sound levels at a location over a complete 24-hour period, with a 10-decibel adjustment added to those noise events occurring between 10:00 p.m. and 6:59 a.m. (local time) the following morning. The FAA defines the 10:00 p.m. to 6:59 a.m. period as nighttime (or night) and the 7:00 a.m. to 9:59 p.m. period as daytime (or day). Because of the increased sensitivity to noise during normal sleeping hours and because ambient (without aircraft) sound levels during nighttime are typically about 10 dB lower than during daytime hours, the 10-decibel adjustment, or "penalty," represents the added intrusiveness of sounds occurring during nighttime hours.

DNL accounts for the noise levels (in terms of Sound Exposure Level [SEL]) of all individual aircraft events, the number of times those events occur and the period of day/night in which they occur. Values of DNL can be measured with standard monitoring equipment or predicted with computer models such as the Aviation Environmental Design Tool (AEDT).

Due to the DNL descriptor's close correlation with the degree of community annoyance from aircraft noise when aircraft noise was being researched in the 1970s, most federal agencies have formally adopted DNL for measuring and evaluating aircraft noise for land use planning and noise impact assessment. Federal committees such as the Federal Interagency Committee on Urban Noise (FICUN) and the Federal Interagency Committee on Noise (FICON), which include the U.S. Environmental Protection Agency (EPA), the Federal Aviation Administration (FAA), Department of Defense, Department of Housing and Urban Development, and the Veterans Administration, found DNL to be the best metric for land use planning. They also found no new cumulative sound descriptors or metrics of sufficient scientific standing to substitute for DNL. Other cumulative metrics are used only to supplement, not replace, DNL. Furthermore, FAA Order 1050.1E, *Policies and Procedures for Considering Environmental Impacts*, requires DNL be used in describing cumulative noise exposure and in identifying aircraft noise/land use compatibility issues (USEPA, 1974; FICUN, 1980; FICON, 1992; 14 CFR part 150, 2004; FAA, 2006).

The accuracy and validity of DNL calculations depend on the basic information used in the calculations. At airports, the reliability of DNL calculations is affected by a number of uncertainties:

- The noise descriptions used in the DNL procedure represent the typical human response to aircraft noise. Since people vary in their response to noise and because the physical measure of noise accounts for only a portion of an individual's reaction to that noise, the DNL scale can show only an average response to aircraft noise that may be expected from a community.

- Future aviation activity levels such as the forecast number of operations, the operational fleet mix, the times of operation (day versus night) and flight tracks are estimates. Achievement of forecasted levels of activity cannot be assured.
- Aircraft acoustical and performance characteristics for new aircraft designs are estimates.

D.2 FAA Methods for Evaluating Aircraft Noise

The evaluation of the ZPH noise environment was completed using the methods and standards specified in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*[1], and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*[2]. These documents, and supplemental FAA guidance, require that the cumulative noise energy exposure of individuals to noise resulting from aviation activities be established in terms of yearly average DNL. The DNL is the FAA's primary noise metric.

D.2.1 Aviation Environmental Design Tool

The noise analysis was conducted using the most current version of the FAA's AEDT, which was Version 2d as of March 1, 2019 when the noise modeling commenced. The AEDT is the FAA's standard model for evaluating aircraft noise, fuel burn/consumption, and emissions at airports. For this analysis, AEDT was used to model aircraft noise exposure at ZPH for the 2018 baseline condition and the two future year (2021 and 2026) scenarios, with and without the Proposed Project.

The AEDT produces noise exposure contours that are used for land use compatibility maps. The program includes a built-in Geographic Information System (GIS) platform and tools for comparing contours and utilities that facilitate easy export to other GIS software suites. The model can also calculate predicted noise at specific sites such as hospitals, schools, or other noise-sensitive locations. For these discrete locations, the AEDT has the capability to report noise exposure levels at the specific location.

During an average 24-hour period, the AEDT accounts for each aircraft flight along flight tracks leading to or from the airport, or aircraft overflying the airport. Flight track definitions are coupled with information in the model's databases relating to noise levels at varying distances and flight performance data for each distinct type of aircraft selected. In general, the model computes noise levels at regularly-spaced grid receptors at ground level around the airport. The distance to each aircraft in flight is computed (slant distance), and the associated noise exposure of each aircraft flying along each flight track within the vicinity of the grid receptor is determined. The logarithmic acoustical energy levels for each individual aircraft single-event are then summed for each grid receptor. The AEDT can create contours of specific noise levels based on the acoustical energy summed at each of the grid receptors for the selected metric. The cumulative

1 https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf
2 https://www.faa.gov/airports/resources/publications/orders/environmental_5050_4/media/5050-4B_complete.pdf

values of noise exposure at each grid receptor are used to interpolate contours of equal noise exposure. The AEDT can also compute noise levels at user-defined points on the ground.

Information required to run the AEDT includes:

- A physical description of the airport layout, including location, length and orientation of all runways, and airport elevation;
- The aircraft fleet mix for the average day;
- The number of daytime flight and run-up operations (7:00 a.m. to 9:59 p.m.);
- The number of nighttime flight and run-up operations (10:00 p.m. to 6:59 a.m.);
- Runway utilization rates;
- Primary departure and arrival flight tracks; and
- Flight track utilization rates.

D.2.1.1 Aircraft Operations and Fleet Mix

Table D2-1 provides the number of annual aircraft operations that are expected to occur at ZPH if the Proposed Project was implemented.

TABLE D2-1
ZPH ESTIMATE OF INDUCED ACTIVITY

Study Year	Alternatives	Annual Aircraft Operations	Induced Aircraft Operations
2018	Existing Condition	50,088	--
2021	No Action Alternative	52,133	**500**
	Proposed Project (year of runway extension open)	52,633	
2026	No Action Alternative	55,739	**1,500**
	Proposed Project (runway extension in operation for five years)	57,239	

Sources: 2018 FAA Terminal Area Forecast, issued February 2019; ESA, 2019.

Table D2-2 shows the general distribution of the aircraft operations by operation type.

TABLE D2-2
ZPH ANNUAL AIRCRAFT OPERATIONS

Year	Alternatives	General Aviation		
		Itinerant	Local	Total
2018	Baseline Condition	33,442	16,646	50,088
2021	No Action Alternative	34,807	17,326	52,133
	Proposed Project	35,307	17,326	52,633
2026	No Action Alternative	37,215	18,524	55,739
	Proposed Project	38,715	18,524	57,239

Sources: 2018 FAA Terminal Area Forecast, issued February 2019; ESA, 2019

Fleet mix defines the various types of aircraft and allows development of very specific input data, such as engine type, title 14 CFR Part 36 Noise Stage Certification, gross weight, and departure stage length. The AEDT aircraft database contains actual noise and performance data for 305 different standard types of aircraft and helicopters. Although the AEDT aircraft database provides a large selection of aircraft to model, it does not contain every known aircraft. For this reason, the FAA has developed an approved aircraft substitution list, containing 270 types of aircraft, which allows the modeler to substitute similar aircraft when necessary for modeling purposes. These substitutions represent a very close estimate of the noise produced by the actual aircraft. AEDT also has the functionality to allow the modeler to combine different airframes and engine types, resulting in a database of approximately 3,000 different individually custom tailored aircraft. All modeled aircraft in this study are either a true representative of an aircraft type or an FAA-approved substitution.

Tables D2-3 through **D2-7** detail the fleet mix used to model noise exposure at ZPH for the 2018 baseline condition, 2021 No Action Alternative and Proposed Project, and 2026 No Action Alternative. **Table D2-7** details the fleet mix for the 2026 Proposed Project. The tables also provide the number of annual aircraft operations and the number of average annual day (AAD) aircraft operations[3] for each aircraft type. The ZPH fleet mix and the level of aviation activity at the airport were derived from several sources, including:

- FAA's *Airport Master Record* (FAA Form 5010) for ZPH
- 12-months of FlightAware™ data, ranging from February 2018 through February 2019
- Reasonably available current fleet mix information (as provided by ZPH Fixed Base Operators and major tenants and users, including Skydive City)
- Based aircraft fleet information

[3] An operation is either an aircraft landing or aircraft departure.

- Reasonably foreseeable future types of aircraft anticipated to use the proposed runway extension and the number of annual operations by these aircraft (as provided by ZPH Management and tenants)

The following assumptions were made for the noise analysis:

- The 2018 base year operational fleet mix was primarily derived from the 2018 FAA Terminal Area Forecast (TAF) issued February 2019, a review of 12-months of FlightAware™ data (February 2018 through February 2019), and information obtained from airport management.

- The 2021 operational fleet mix initially applied the 2018 base year splits to the 2021 forecast from the 2018 TAF. An additional 500 jet operations were then added to reflect the expected induced activity to occur as a result of the proposed runway extension. These additional jet operations were prorated to the eight different jet aircraft documented in the ZPH FlightAware data, each of which required more than 5,000 feet of runway length. These aircraft are either directly included in the model or represented by FAA-approved substitutions in AEDT; therefore, no additional AEDT aircraft were required.

- The 2026 operational fleet mix initially applied the 2021 fleet mix to the 2026 forecasts from the 2018 TAF. In 2026, the Proposed Project is expected to generate an additional 1,500 jet aircraft operations. The jet aircraft conducting the operations in 2026 included those from the 2021 fleet mix as well as seven additional jet aircraft models, each of which require more than 5,000 feet of runway length. The allocation of operations to the 15 (eight in 2021 and seven in 2026) jet aircraft types was based on general aviation jet aircraft industry assumptions. Because most aircraft types are already represented by FAA-approved substitutions in AEDT, only the Cessna Citation III needed to be added to the 2026 AEDT fleet mix in order to represent the induced jet activity.

TABLE D2-3
ZPH FLEET MIX AND OPERATIONS – 2018 BASELINE CONDITION

Airframe	Engine Code	Engine Modification Code	Annual Operations*		Annual-Average Day Operations*	
			Day	Night	Day	Night
1985 1-ENG COMP	TIO540	NONE	887	4	2.4289	0.0122
Aerospatiale SA-350D	TPE3	NONE	9	0	0.0247	0.0000
Bell 206 JetRanger	250B17	NONE	81	0	0.2219	0.0000
Bell 407	250B17	NONE	15	3	0.0419	0.0074
Bombardier Challenger 300	6AL006	NONE	90	0	0.2466	0.0000
Bombardier Learjet 35	1AS001	NONE	396	0	1.0849	0.0000
Cessna 150 Series	O200	NONE	9,057	434	24.8133	1.1895
Cessna 172 Skyhawk	IO360	NONE	3,950	171	10.8220	0.4684
Cessna 182	IO360	NONE	1,790	27	4.9034	0.0747

TABLE D2-3
ZPH FLEET MIX AND OPERATIONS – 2018 BASELINE CONDITION

Airframe	Engine Code	Engine Modification Code	Annual Operations*		Annual-Average Day Operations*	
Cessna 208 Caravan	PT6A14	NONE	1,464	30	4.0113	0.0819
Cessna 441 Conquest II	TPE8	NONE	146	16	0.3995	0.0444
Cessna 500 Citation I	1PW035	NONE	360	0	0.9863	0.0000
Cessna 550 Citation II	1PW036	NONE	368	28	1.0090	0.0759
Cessna 560 Citation Excel	1PW037	NONE	135	9	0.3708	0.0237
Cessna 680 Citation Sovereign	7PW080	NONE	54	0	0.1479	0.0000
Cessna 750 Citation X	6AL021	NONE	65	7	0.1775	0.0197
Cessna Citation 510	PW615F	NONE	144	0	0.3945	0.0000
DeHavilland DHC-6-100 Twin Otter	PT6A20	NONE	13,113	264	35.9273	0.7220
Eclipse 500	PW610F-A	NONE	108	0	0.2959	0.0000
Eurocopter EC-130	TPE3	NONE	31	5	0.0838	0.0148
Gulfstream IV	6RR042	NONE	18	0	0.0493	0.0000
Israel IAI-1125 Astra	1AS002	NONE	54	0	0.1479	0.0000
Mitsubishi MU-300 Diamond	1PW037	NONE	90	0	0.2466	0.0000
Piper PA-24 Comanche	TIO540	NONE	12,819	496	35.1213	1.3582
Piper PA-28 Cherokee Series	IO320	NONE	1,024	37	2.8051	0.1017
Piper PA-30 Twin Comanche	IO320	NONE	251	1	0.6870	0.0035
Piper PA-42 Cheyenne Series	PT6A41	NONE	45	0	0.1227	0.0006
Raytheon Beech Baron 58	TIO540	NONE	1,829	63	5.0122	0.1714
Robinson R44 Raven	TIO540	NONE	81	0	0.2219	0.0000
Sikorsky S-76 Spirit	T70070	NONE	18	0	0.0493	0.0000
		Total	**48,492**	**1,595**	**132.8548**	**4.3699**

Sources: 2018 FAA Terminal Area Forecast, issued February 2019; ESA, 2019.
*Numbers may not add due to rounding.

TABLE D2-4
ZPH FLEET MIX AND OPERATIONS – 2021 NO ACTION ALTERNATIVE

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
			Day	Night	Day	Night
1985 1-ENG COMP	TIO540	NONE	922	5	2.5270	0.0127
Aerospatiale SA-350D	TPE3	NONE	9	0	0.0247	0.0000
Bell 206 JetRanger	250B17	NONE	84	0	0.2301	0.0000
Bell 407	250B17	NONE	16	3	0.0442	0.0078
Bombardier Challenger 300	6AL006	NONE	94	0	0.2575	0.0000
Bombardier Learjet 35	1AS001	NONE	412	0	1.1288	0.0000
Cessna 150 Series	O200	NONE	9,426	452	25.8251	1.2379
Cessna 172 Skyhawk	IO360	NONE	4,112	178	11.2658	0.4876
Cessna 182	IO360	NONE	1,864	28	5.1058	0.0778
Cessna 208 Caravan	PT6A14	NONE	1,523	31	4.1724	0.0852
Cessna 441 Conquest II	TPE8	NONE	152	17	0.4167	0.0463
Cessna 500 Citation I	1PW035	NONE	375	0	1.0274	0.0000
Cessna 550 Citation II	1PW036	NONE	383	29	1.0498	0.0790
Cessna 560 Citation Excel	1PW037	NONE	141	9	0.3863	0.0247
Cessna 680 Citation Sovereign	7PW080	NONE	56	0	0.1534	0.0000
Cessna 750 Citation X	6AL021	NONE	68	8	0.1849	0.0205
Cessna Citation 510	PW615F	NONE	150	0	0.4110	0.0000
DeHavilland DHC-6-100 Twin Otter	PT6A20	NONE	13,648	274	37.3910	0.7514
Eclipse 500	PW610F-A	NONE	112	0	0.3068	0.0000
Eurocopter EC-130	TPE3	NONE	31	6	0.0862	0.0152
Gulfstream IV	6RR042	NONE	19	0	0.0521	0.0000
Israel IAI-1125 Astra	1AS002	NONE	56	0	0.1534	0.0000
Mitsubishi MU-300 Diamond	1PW037	NONE	94	0	0.2575	0.0000
Piper PA-24 Comanche	TIO540	NONE	13,344	516	36.5589	1.4137
Piper PA-28 Cherokee Series	IO320	NONE	1,066	39	2.9214	0.1060
Piper PA-30 Twin Comanche	IO320	NONE	261	1	0.7142	0.0036

TABLE D2-4
ZPH FLEET MIX AND OPERATIONS – 2021 NO ACTION ALTERNATIVE

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
Piper PA-42 Cheyenne Series	PT6A41	NONE	47	0	0.1281	0.0006
Raytheon Beech Baron 58	TIO540	NONE	1,904	65	5.2162	0.1784
Robinson R44 Raven	TIO540	NONE	84	0	0.2301	0.0000
Sikorsky S-76 Spirit	T70070	NONE	19	0	0.0521	0.0000
		Total	**50,472**	**1,660**	**138.2790**	**4.5484**

Sources: 2018 FAA Terminal Area Forecast, issued February 2019; ESA, 2019.
*Numbers may not add due to rounding.

TABLE D2-5
ZPH FLEET MIX AND OPERATIONS – 2021 PROPOSED PROJECT[1]

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
			Day	Night	Day	Night
1985 1-ENG COMP	TIO540	NONE	922	5	2.5270	0.0127
Aerospatiale SA-350D	TPE3	NONE	9	0	0.0247	0.0000
Bell 206 JetRanger	250B17	NONE	84	0	0.2301	0.0000
Bell 407	250B17	NONE	16	3	0.0442	0.0078
Bombardier Challenger 300	6AL006	NONE	236	0	0.6466	0.0000
Bombardier Learjet 35	1AS001	NONE	541	0	1.4822	0.0000
Cessna 150 Series	O200	NONE	9,427	452	25.8277	1.2381
Cessna 172 Skyhawk	IO360	NONE	4,112	178	11.2658	0.4876
Cessna 182	IO360	NONE	1,864	28	5.1058	0.0778
Cessna 208 Caravan	PT6A14	NONE	1,523	31	4.1724	0.0852
Cessna 441 Conquest II	TPE8	NONE	152	17	0.4167	0.0463
Cessna 500 Citation I	1PW035	NONE	375	0	1.0274	0.0000
Cessna 550 Citation II	1PW036	NONE	383	29	1.0498	0.0790
Cessna 560 Citation Excel	1PW037	NONE	141	9	0.3863	0.0247

TABLE D2-5
ZPH FLEET MIX AND OPERATIONS – 2021 PROPOSED PROJECT[1]

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
Cessna 680 Citation Sovereign	7PW080	NONE	56	0	0.1534	0.0000
Cessna 750 Citation X	6AL021	NONE	170	19	0.4660	0.0518
Cessna Citation 510	PW615F	NONE	150	0	0.4110	0.0000
DeHavilland DHC-6-100 Twin Otter	PT6A20	NONE	13,648	274	37.3910	0.7514
Eclipse 500	PW610F-A	NONE	112	0	0.3068	0.0000
Eurocopter EC-130	TPE3	NONE	31	6	0.0862	0.0152
Gulfstream IV	6RR042	NONE	48	0	0.1315	0.0000
Israel IAI-1125 Astra	1AS002	NONE	142	0	0.3890	0.0000
Mitsubishi MU-300 Diamond	1PW037	NONE	94	0	0.2575	0.0000
Piper PA-24 Comanche	TIO540	NONE	13,344	516	36.5589	1.4137
Piper PA-28 Cherokee Series	IO320	NONE	1,066	39	2.9214	0.1060
Piper PA-30 Twin Comanche	IO320	NONE	261	1	0.7142	0.0036
Piper PA-42 Cheyenne Series	PT6A41	NONE	47	0	0.1281	0.0006
Raytheon Beech Baron 58	TIO540	NONE	1,904	65	5.2162	0.1784
Robinson R44 Raven	TIO540	NONE	84	0	0.2301	0.0000
Sikorsky S-76 Spirit	T70070	NONE	19	0	0.0521	0.0000
		Total	**50,961**	**1,672**	**139.6202**	**4.5798**

Sources: 2018 FAA Terminal Area Forecast, issued February 2019; ESA, 2019.
*Numbers may not add due to rounding.
[1]Includes the anticipated 500 jet operations induced by the operation of the Proposed Project.

TABLE D2-6
ZPH FLEET MIX AND OPERATIONS – 2026 NO ACTION ALTERNATIVE

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
			Day	Night	Day	Night
1985 1-ENG COMP	TIO540	NONE	986	5	2.7015	0.0136

TABLE D2-6
ZPH FLEET MIX AND OPERATIONS – 2026 NO ACTION ALTERNATIVE

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
Aerospatiale SA-350D	TPE3	NONE	10	0	0.0274	0.0000
Bell 206 JetRanger	250B17	NONE	90	0	0.2466	0.0000
Bell 407	250B17	NONE	17	3	0.0466	0.0082
Bombardier Challenger 300	6AL006	NONE	100	0	0.2740	0.0000
Bombardier Learjet 35	1AS001	NONE	441	0	1.2082	0.0000
Cessna 150 Series	O200	NONE	10,078	483	27.6107	1.3236
Cessna 172 Skyhawk	IO360	NONE	4,396	190	12.0431	0.5213
Cessna 182	IO360	NONE	1,992	30	5.4566	0.0831
Cessna 208 Caravan	PT6A14	NONE	1,629	33	4.4624	0.0911
Cessna 441 Conquest II	TPE8	NONE	162	18	0.4438	0.0493
Cessna 500 Citation I	1PW035	NONE	400	0	1.0959	0.0000
Cessna 550 Citation II	1PW036	NONE	410	31	1.1236	0.0846
Cessna 560 Citation Excel	1PW037	NONE	150	10	0.4121	0.0263
Cessna 680 Citation Sovereign	7PW080	NONE	60	0	0.1644	0.0000
Cessna 750 Citation X	6AL021	NONE	72	8	0.1973	0.0219
Cessna Citation 510	PW615F	NONE	160	0	0.4384	0.0000
DeHavilland DHC-6-100 Twin Otter	PT6A20	NONE	14,593	293	39.9801	0.8034
Eclipse 500	PW610F-A	NONE	120	0	0.3288	0.0000
Eurocopter EC-130	TPE3	NONE	34	6	0.0932	0.0164
Gulfstream IV	6RR042	NONE	20	0	0.0548	0.0000
Israel IAI-1125 Astra	1AS002	NONE	60	0	0.1644	0.0000
Mitsubishi MU-300 Diamond	1PW037	NONE	100	0	0.2740	0.0000
Piper PA-24 Comanche	TIO540	NONE	14,269	552	39.0938	1.5116
Piper PA-28 Cherokee Series	IO320	NONE	1,140	41	3.1224	0.1132
Piper PA-30 Twin Comanche	IO320	NONE	279	1	0.7633	0.0038
Piper PA-42 Cheyenne Series	PT6A41	NONE	50	0	0.1363	0.0007

TABLE D2-6
ZPH FLEET MIX AND OPERATIONS – 2026 NO ACTION ALTERNATIVE

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
Raytheon Beech Baron 58	TIO540	NONE	2,036	70	5.5791	0.1907
Robinson R44 Raven	TIO540	NONE	90	0	0.2466	0.0000
Sikorsky S-76 Spirit	T70070	NONE	20	0	0.0548	0.0000
		Total	**53,963**	**1,775**	**147.8440**	**4.8629**

Sources: 2018 FAA Terminal Area Forecast, issued February 2019; ESA, 2019.
*Numbers may not add due to rounding.

TABLE D2-7
ZPH FLEET MIX AND OPERATIONS – 2026 PROPOSED PROJECT[1]

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
			Day	Night	Day	Night
1985 1-ENG COMP	TIO540	NONE	986	5	2.7015	0.0136
Aerospatiale SA-350D	TPE3	NONE	10	0	0.0274	0.0000
Bell 206 JetRanger	250B17	NONE	90	0	0.2466	0.0000
Bell 407	250B17	NONE	17	3	0.0466	0.0082
Bombardier Challenger 300	6AL006	NONE	535	0	1.4658	0.0000
Bombardier Learjet 35	1AS001	NONE	636	0	1.7425	0.0000
Cessna 150 Series	O200	NONE	10,078	483	27.6107	1.3236
Cessna 172 Skyhawk	IO360	NONE	4,396	190	12.0431	0.5213
Cessna 182	IO360	NONE	1,992	30	5.4566	0.0831
Cessna 208 Caravan	PT6A14	NONE	1,629	33	4.4624	0.0911
Cessna 441 Conquest II	TPE8	NONE	162	18	0.4438	0.0493
Cessna 500 Citation I	1PW035	NONE	400	0	1.0959	0.0000
Cessna 550 Citation II	1PW036	NONE	410	31	1.1236	0.0846
Cessna 560 Citation Excel	1PW037	NONE	150	10	0.4121	0.0263
Cessna 650 Citation III	1AS001	NONE	90	0	0.2466	0.0000
Cessna 680 Citation Sovereign	7PW080	NONE	60	0	0.1644	0.0000

TABLE D2-7
ZPH FLEET MIX AND OPERATIONS – 2026 PROPOSED PROJECT[1]

Airframe	Engine Code	Engine Mod	Annual Operations*		Annual-Average Day Operations*	
Cessna 750 Citation X	6AL021	NONE	396	44	1.0849	0.1205
Cessna Citation 510	PW615F	NONE	160	0	0.4384	0.0000
DeHavilland DHC-6-100 Twin Otter	PT6A20	NONE	14,593	293	39.9801	0.8034
Eclipse 500	PW610F-A	NONE	120	0	0.3288	0.0000
Eurocopter EC-130	TPE3	NONE	34	6	0.0932	0.0164
Gulfstream IV	6RR042	NONE	110	0	0.3014	0.0000
Israel IAI-1125 Astra	1AS002	NONE	390	0	1.0685	0.0000
Mitsubishi MU-300 Diamond	1PW037	NONE	100	0	0.2740	0.0000
Piper PA-24 Comanche	TIO540	NONE	14,269	552	39.0938	1.5116
Piper PA-28 Cherokee Series	IO320	NONE	1,140	41	3.1224	0.1132
Piper PA-30 Twin Comanche	IO320	NONE	279	1	0.7633	0.0038
Piper PA-42 Cheyenne Series	PT6A41	NONE	50	0	0.1363	0.0007
Raytheon Beech Baron 58	TIO540	NONE	2,036	70	5.5791	0.1907
Robinson R44 Raven	TIO540	NONE	90	0	0.2466	0.0000
Sikorsky S-76 Spirit	T70070	NONE	20	0	0.0548	0.0000
		Total	**55,427**	**1,811**	**151.8549**	**4.9615**

Sources: 2018 FAA Terminal Area Forecast, issued February 2019; ESA, 2019.
*Numbers may not add due to rounding.
[1]Includes the anticipated 1,500 jet operations induced by the operation of the Proposed Project.

D.2.1.2 Time of Day

The time of day that aircraft operations occur is an important factor in the calculation of cumulative noise exposure as the DNL treats nighttime noise differently from daytime noise and multiplies each nighttime operation by a factor of 10. This weighting of the operations effectively adds 10 dB to the A-weighted levels of each nighttime operation to account for people's greater sensitivity to nighttime noise.

The approximate split between daytime and nighttime aircraft operations was derived from analyzing the FlightAware™ data, discussions with ZPH management, and a review of other reasonably available information.

D.2.1.3 Runway Utilization

Runway use refers to the frequency with which aircraft utilize each runway end during the course of a year for departures and arrivals. Runway use is often dictated by wind patterns. The more often a runway is used throughout the year, the more noise is created in areas located off each end of that runway. Runway utilization data was derived from the FlightAware™ data analysis, discussions with ZPH management, and a review of other reasonably available information. During discussions with ZPH management, it was determined that the Skydive City local skydiving operations utilize the runway differently than the other operations occurring at ZPH. Local skydiving operations predominantly depart to the north from Runway 01 and return arriving to the south on Runway 19. Skydiving operations account for approximately 25-26% of total operations across the Existing (2018), No Action, and Proposed Project scenarios. **Table D2-8** depicts the runway utilization for the base operations for all the scenarios modeled for the environmental assessment. Table D2-8 does not apply to the induced operations resulting from the proposed project in 2021 and 2026 (500 and 1,500 annual operations, respectively). Induced operations are expected to utilize Runway 01-19 more frequently as the extended runway will facilitate jet aircraft that may require the extended length of Runway 01-19. Expected induced jet aircraft runway utilization distribution is presented in **Tables D2-9 and D2-10**. This distribution is based on discussions with airport management about support facility locations, the airfield taxiway configuration, and the existing runway operational flow**.**

TABLE D2-8
ZPH RUNWAY UTILIZATION – ALL MODELED SCENARIOS EXCLUDING INDUCED OPERATIONS RESULTING FROM THE PROPOSED PROJECT

Aircraft Type	Departures (%)						Arrivals (%)						Touch-and-Go (%)			
	01	19	05	23	H05	H23	01	19	05	23	H05	H23	01	19	05	23
Fixed-Wing[1]	1	1	59	39	-	-	1	1	59	39	-	-	1	1	59	39
Helicopter	-	-	-	-	60	40	-	-	-	-	60	40	-	-	-	-
DHC6 Local Skydiving Operations[1]	98	2	-	-	-	-	2	98	-	-	-	-	-	-	-	-

Sources: ZPH Management, 2019; FlightAware™ Data, 2019; ESA, 2019.
[1]This includes jet aircraft operations that are not a result of the proposed runway extension.

TABLE D2-9
ZPH RUNWAY UTILIZATION – 2021 PROPOSED PROJECT
INDUCED ACTIVITY (500 ANNUAL OPERATIONS)

Aircraft Type	Departures (%)				Arrivals (%)			
	01	19	05	23	01	19	05	23
Jet	80	20	0	0	21	21	35	23

Source: ESA, 2019.

TABLE D2-10
ZPH RUNWAY UTILIZATION – 2026 PROPOSED PROJECT
INDUCED ACTIVITY (1,500 ANNUAL OPERATIONS)

Aircraft Type	Departures (%)				Arrivals (%)			
	01	19	05	23	01	19	05	23
Jet	64	8	17	11	21	21	35	23

Source: ESA, 2019.

D.2.1.4 Flight Tracks and Flight Track Utilization

Flight tracks depict the path of aircraft over the ground for aircraft arrival, departure, closed pattern (touch-and-go), and overflight operations. In order to calculate the annual average noise exposure, it is necessary to identify the predominant arrival, departure and pattern flight tracks for each runway, and the number of aircraft that used each runway and flight track. The use of individual flight tracks is dependent on a variety of factors such as standard procedures, the aircraft's origin or destination, aircraft performance, and weather conditions.

AEDT representative flight tracks at ZPH were based on discussions with ZPH Management and tenants, as well as a review of other reasonably available information. Modeled flight tracks do not represent the precise paths flown by all aircraft utilizing ZPH. Instead, they represent the primary flight corridors for the aircraft using ZPH. Flight tracks remain unchanged for all conditions assessed in this report, with the exception of the 2021 and 2026 Proposed Project. These flight tracks were modified for the Proposed Project conditions in order to facilitate the proposed runway extension. Baseline (2018), No Action Alternative, Proposed Project, and Helicopter flight tracks are depicted in **Exhibits D1** through **D5,** which are attached to the end of this appendix. Flight track utilization percentages by aircraft type are detailed in **Tables D2-11** through D**2-13**.

TABLE D2-11
ZPH JET FLIGHT TRACK UTILIZATION – ALL MODELED SCENARIOS

Runway	Departures		Arrivals	
	Track ID	Flight Track Use %	Track ID	Flight Track Use %
01	01D1	100	01A1	100
19	19D1	100	19A1	100
05	05D1	100	05A1	100
23	23D1	100	23A1	100

Sources: ZPH Management, 2019; FlightAware™ Data, 2019; ESA, 2019.

TABLE D2-12
ZPH NON-JET AIRCRAFT FLIGHT TRACK UTILIZATION – ALL MODELED SCENARIOS

Runway/Helipad	Departures		Arrivals		Touch-and-Go	
	Track ID	Flight Track Use %	Track ID	Flight Track Use %	Track ID	Flight Track Use %
1	01D1	80	01A1	80	01TG1	100
	01D2	10	01A2	10	-	-
	01D3	10	01A3	10	-	-
19	19D1	80	19A1	80	19TG1	100
	19D2	10	19A2	10	-	-
	19D3	10	19A3	10	-	-
05	05D1	80	05A1	80	05TG1	100
	05D2	10	05A2	10	-	-
	05D3	10	05A3	10	-	-
23	23D1	80	23A1	80	23TG1	100
	23D2	10	23A2	10	-	-
	23D3	10	23A3	10	-	-
H05	H05D1	100	H05A1	100	-	-
H23	H23D1	100	H23A1	100	-	-

Sources: ZPH Management, 2019; FlightAware™ Data, 2019; ESA, 2019.

TABLE D2-13
ZPH DHC6 SKY DIVING FLIGHT TRACK UTILIZATION – ALL MODELED SCENARIOS

Runway	Departures		Arrivals	
	Track ID	Flight Track Use %	Track ID	Flight Track Use %
1	01D1	2	01A1	2
	01D2	2	01A2	2
	01D3	96	01A3	96
19	19D1	2	19A1	2
	19D2	2	19A2	96
	19D3	96	19A3	2

Sources: ZPH Management, 2019; FlightAware™ Data, 2019; ESA, 2019.

D.2.1.5 Departure Stage Length

The AEDT database contains several departure profiles for each fixed-wing aircraft type representing the varying performance characteristics for that aircraft at a particular take-off weight. Use of appropriate departure profiles is an important component of calculating DNL noise exposure contours. Historically, it has been easier to obtain trip length data than average weight data, so the AEDT uses "departure stage length" to best represent typical aircraft take-off weight.

Departure stage length is the distance between the departure airport and the destination airport. As the departure stage length increases, the aircraft's required fuel load and take-off weight also increase. The increase in take-off weight equates to a decrease in aircraft take-off and climb performance. A decrease in aircraft performance results in a longer takeoff departure roll and decreased climb rates. These performance characteristics produce increased noise exposure impacts. The aircraft's noise impacts are greater because the aircraft is producing noise closer to the ground longer. The FAA's AEDT, Version 2d departure stage lengths are defined in **Table D2-14**.

The ZPH fleet mix is comprised of only general aviation aircraft. The only stage length option included in the AEDT for the aircraft that make up the fleet is stage length 1, which correlates to maximum takeoff weight. Consequently, all departure operations were assigned a stage length of 1.

TABLE D2-14
AEDT STAGE LENGTH DISTANCES

Stage Number	Distance (nm)
1	0 - 500
2	501 - 1,000
3	1,001 - 1,500
4	1,501 - 2,500
5	2,501 - 3,500
6	3,501 - 4,500
7	4,501 - 5,500
8	5,501 - 6,500
9	6,501 - 7,500
10	7,501 - 8,500
11	> 8,500

Source: FAA AEDT Version 2d Technical Manual, 2017

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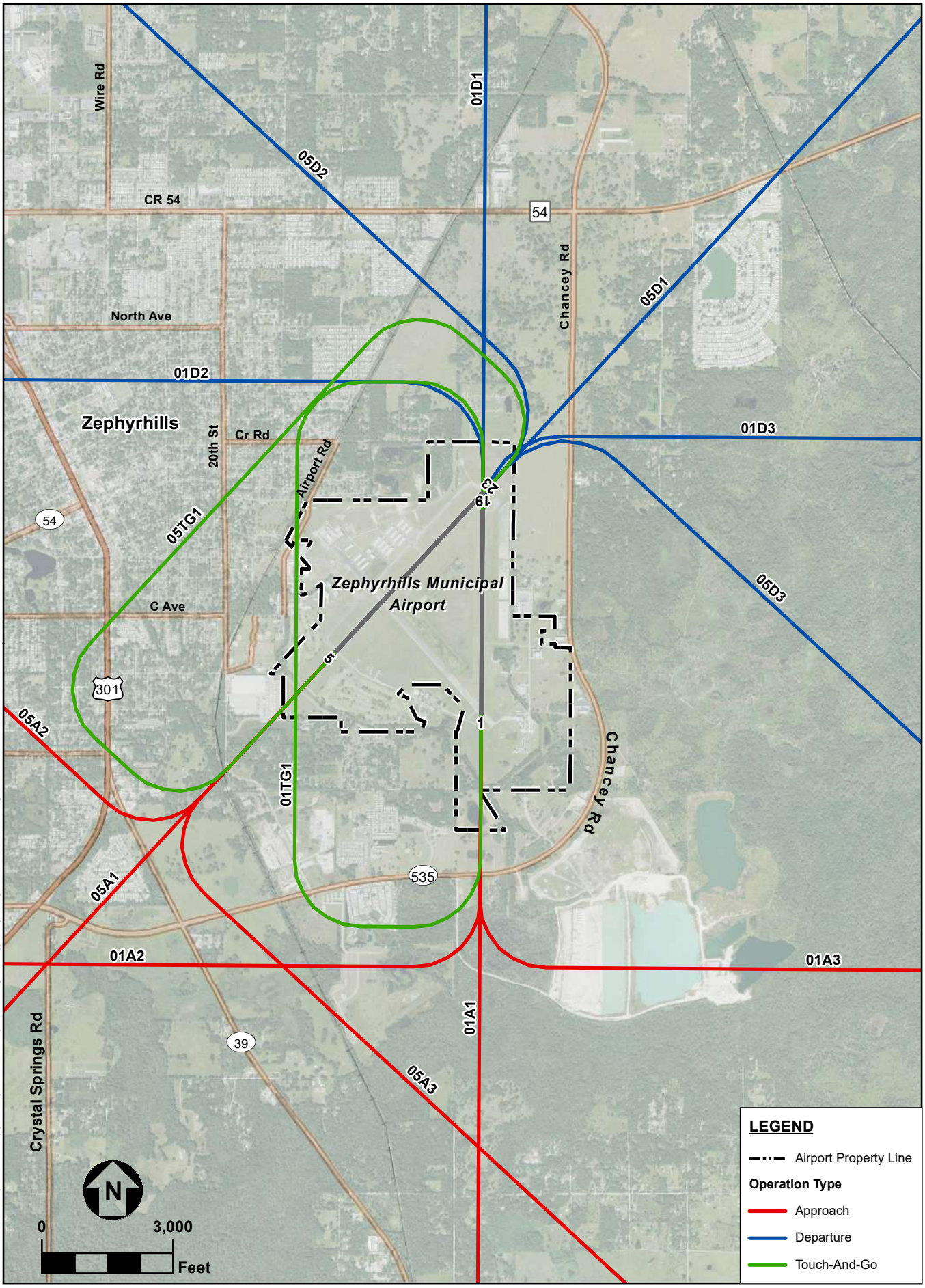
D.2.1.6 Noise Model Outputs

AEDT has many output capabilities. Charts, graphics, and tables can be viewed, exported, or printed. The most common outputs are the noise contours that AEDT produces. Additionally, there are many other outputs, such as aircraft performance characteristics, receptor point analyses for several noise metrics, and input characteristics such as runways and flight tracks. A complete description of model outputs can be found in the AEDT 2d Users Guide (FAA, 2017).

APPENDIX D EXHIBITS

ZPH FLIGHT TRACKS

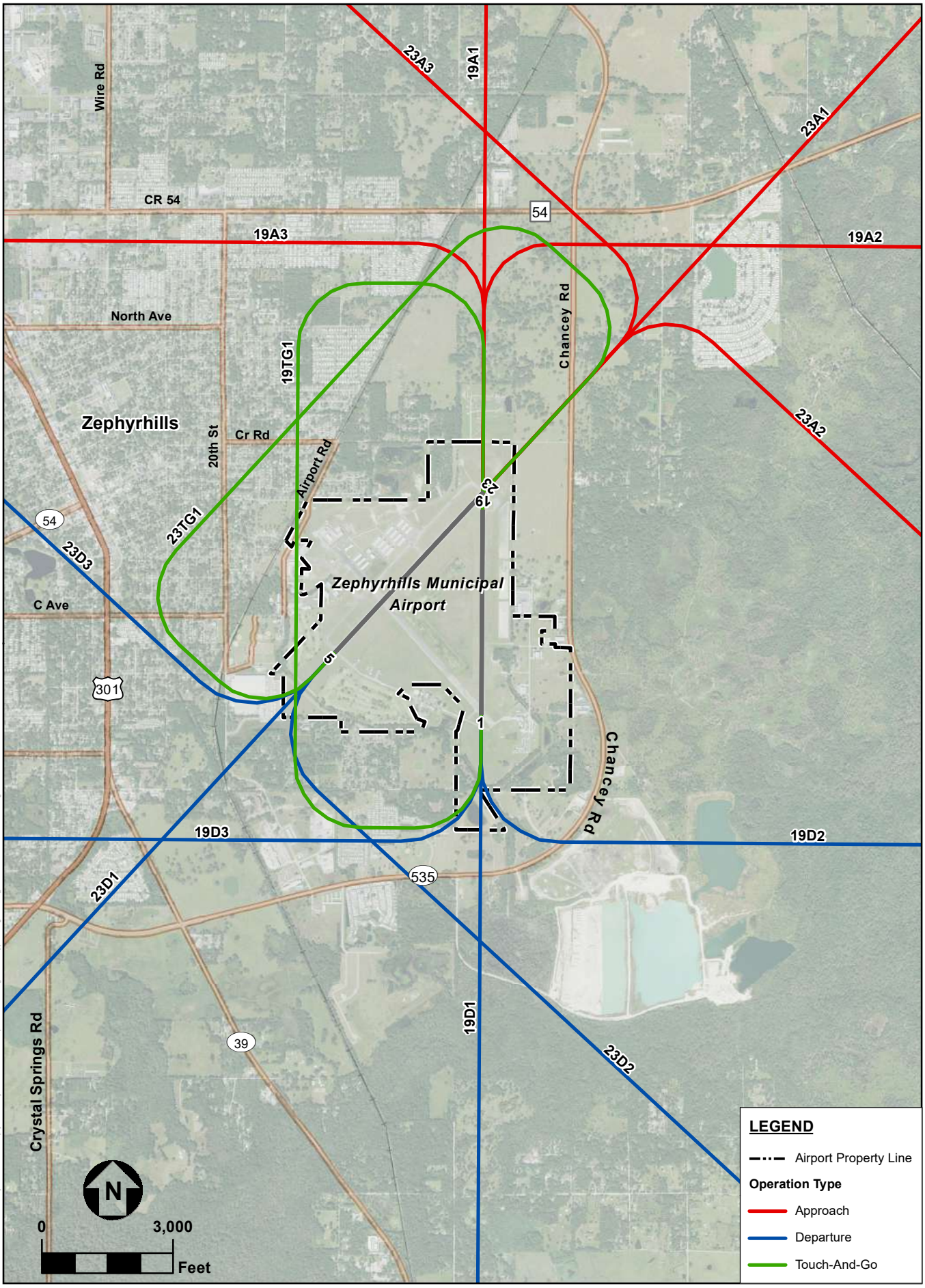


SOURCE: AEDT 2d; Esri; USDA NAIP (Aerial); ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT D1

2018 BASELINE AND NO ACTION ALTERNATIVE MODELED FLIGHT TRACKS - NORTH FLOW

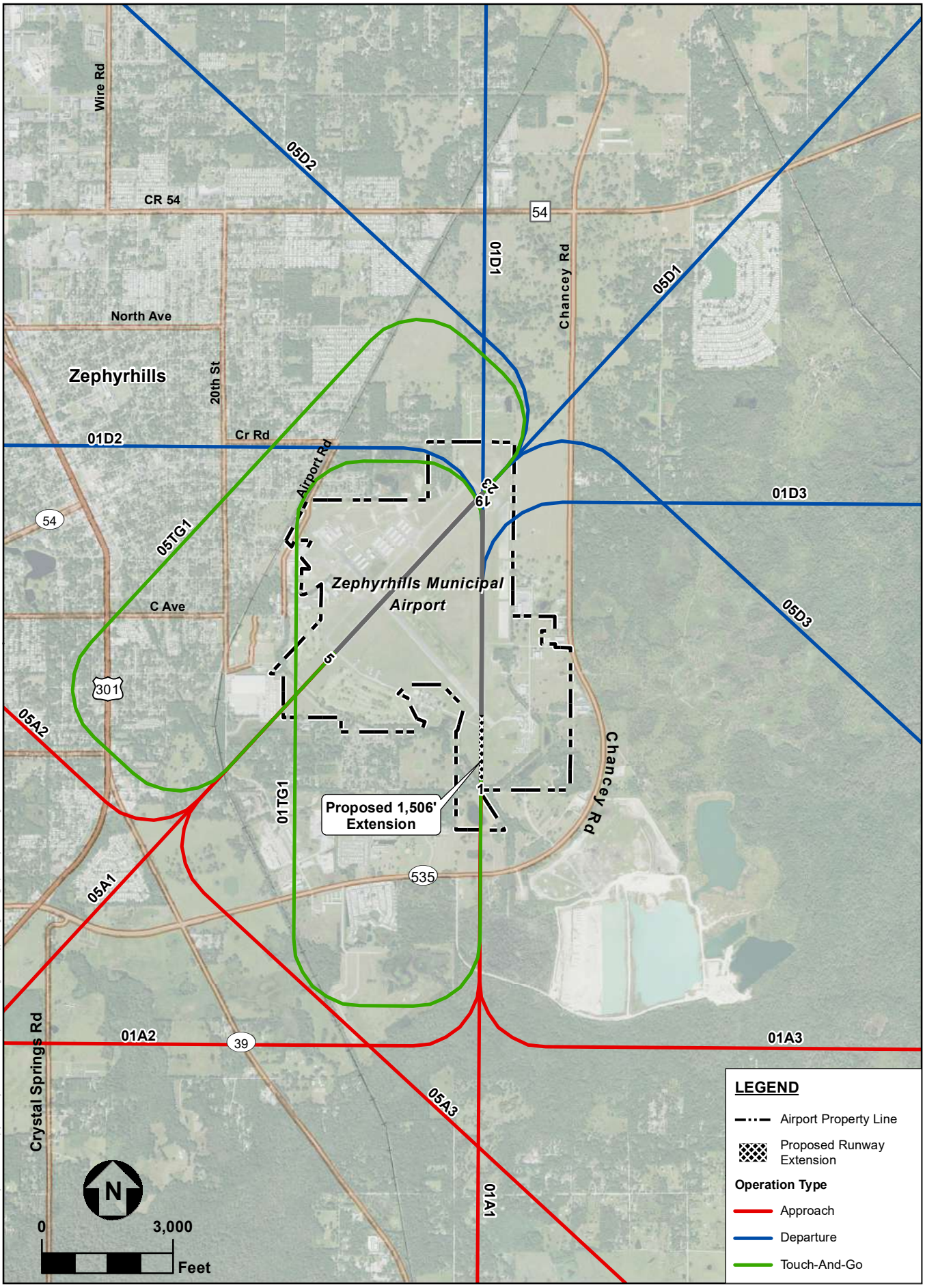


SOURCE: AEDT 2d; Esri; USDA NAIP (Aerial); ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT D2

2018 BASELINE AND NO ACTION ALTERNATIVE MODELED FLIGHT TRACKS - SOUTH FLOW

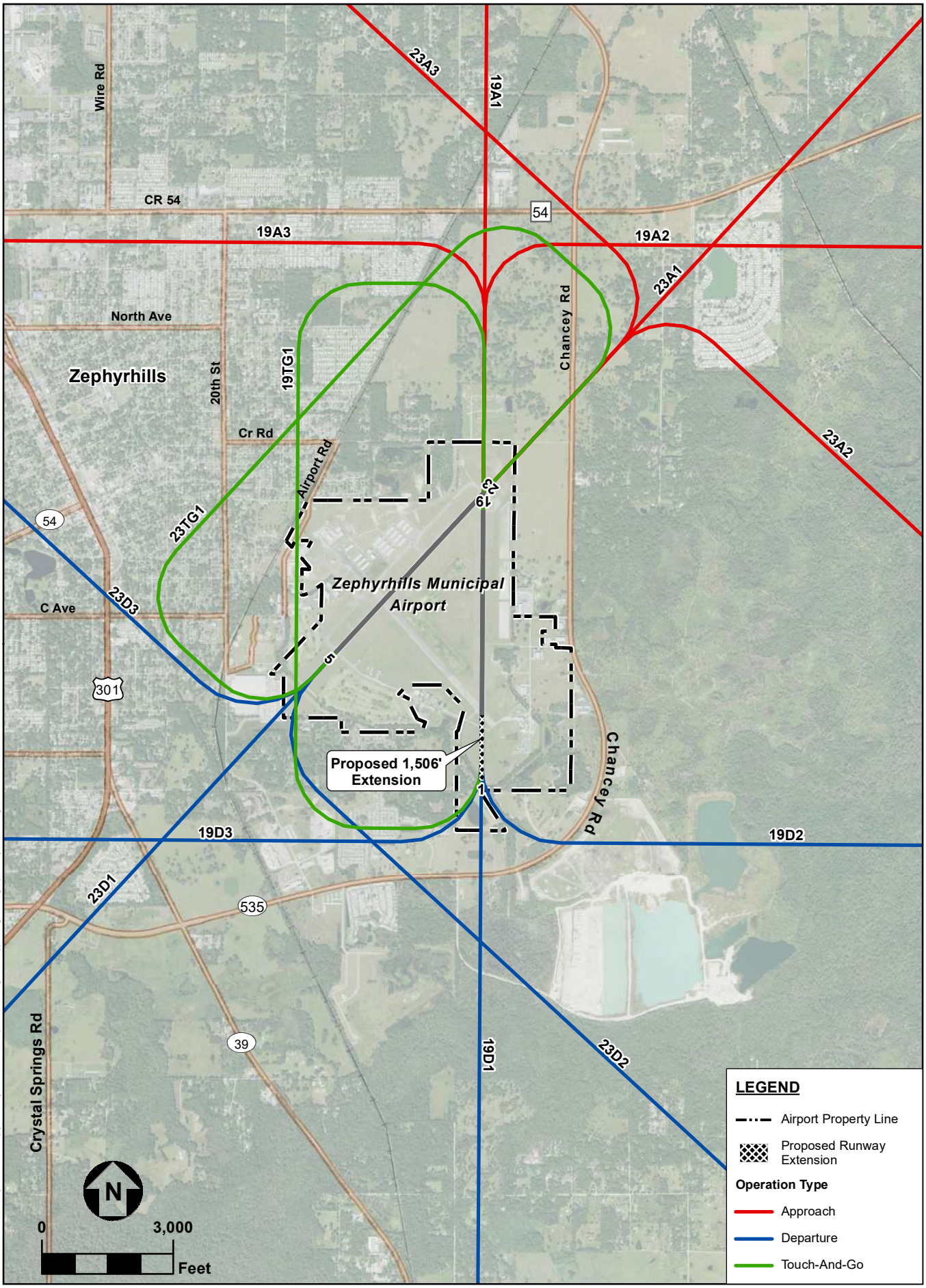


SOURCE: AEDT 2d; Esri; USDA NAIP (Aerial); ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT D3

PROPOSED PROJECT MODELED FLIGHT TRACKS - NORTH FLOW

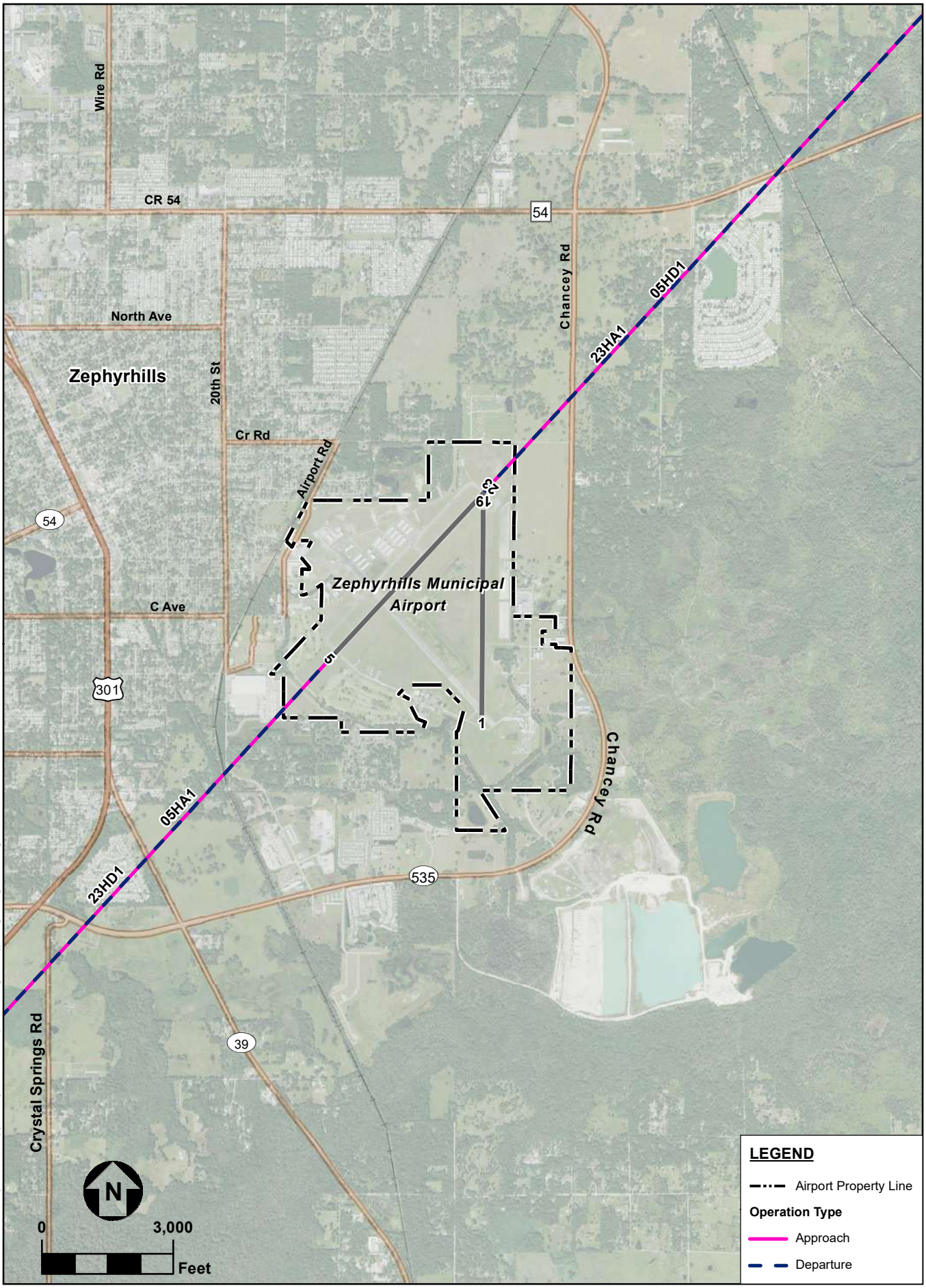


SOURCE: AEDT 2d; Esri; USDA NAIP (Aerial); ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT D4

PROPOSED PROJECT MODELED FLIGHT TRACKS - SOUTH FLOW



SOURCE: AEDT 2d; Esri; USDA NAIP (Aerial); ESA, 2019

Zephyrhills Municipal Airport

EXHIBIT D5

MODELED HELICOPTER FLIGHT TRACKS

Appendix E
Special Status Species

ESA

FNAI Tracking List

PASCO COUNTY
88 Total Elements Found
Last Updated: January 2019

Scientific Name is linked to the FNAI Online Field Guides when available.

- links to NatureServe Explorer, an online encyclopedia of more than 55,000 plants, animals, and natural communities in North America, compiled by the NatureServe network of natural heritage programs, of which the Florida Natural Areas Inventory is a member.

- links to a species distribution map (Adobe SVG viewer required). If your browser does not support Adobe SVG, try this link

SEARCH RESULTS

NOTE: This is not a comprehensive list of all species and natural communities occurring in the location searched. Only elements documented in the FNAI database are included and occurrences of natural communities are excluded. Please see FNAI Land Cover information or Reference Natural Community map for more information on communities.

Plants and Lichens | EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Asplenium erosum	auricled spleenwort	G5	S2		E
Blechnum occidentale var. minor	hammock fern	G5TNR	S1		E
Centrosema arenicola	sand butterfly pea	G2Q	S2		E
Coelorachis tuberculosa	Piedmont jointgrass	G3	S3		T
Glandularia tampensis	Tampa vervain	G2	S2		E
Gymnopogon chapmanianus	Chapman's skeletongrass	G3	S3		N
Litsea aestivalis	pondspice	G3?	S2		E
Monotropsis reynoldsiae	pygmy pipes	G1	S1		E
Myriophyllum laxum	Piedmont water milfoil	G3	S3		N
Najas filifolia	narrowleaf naiad	G3	S3		T
Nemastylis floridana	celestial lily	G2	S2		E

Nolina brittoniana	Britton's beargrass	G3	S3	E	E
Ophioglossum palmatum	hand fern	G4	S2		E
Pecluma plumula	plume polypody	G5	S2		E
Pecluma ptilota var. bourgeauana	comb polypody	G5?TNR	S2		E
Pteroglossaspis ecristata	giant orchid	G2G3	S2		T

Clams and Mussels EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Utterbackia peninsularis	Peninsular Floater	G2G3	S2S3		N

Spiders EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Phidippus workmani	Workman's Jumping Spider	G2G3	S2S3		N

Amphipods EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Crangonyx grandimanus	Florida Cave Amphipod	G2G3	S2S3		N
Crangonyx hobbsi	Hobbs's Cave Amphipod	G2G3	S2S3		N

Crabs, Crayfishes, and Shrimps EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Procambarus leitheuseri	Coastal Lowland Cave Crayfish	G1G2	S1S2		N

Mayflies EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Stenacron floridense	A Mayfly	G3G4	S3S4		N

Dragonflies and Damselflies EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Hetaerina americana	American Rubyspot	G5	S2		N

Grasshoppers and Allies

EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Typhloceuthophilus floridanus	Blind Pocket Gopher Cave Cricket	G2	S2		N

Beetles

EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Aphodius aegrotus	Small Pocket Gopher Aphodius Beetle	G3G4	S3?		N
Aphodius laevigatus	Large Pocket Gopher Aphodius Beetle	G3G4	S3?		N
Aphodius troglodytes	Gopher Tortoise Aphodius Beetle	G2G3	S2		N
Chelyoxenus xerobatis	Gopher Tortoise Hister Beetle	G2G3	S2		N
Desmopachria cenchramis	Fig Seed Diving Beetle	G2?	S1S2		N
Geomysaprinus floridae	Equal-clawed Gopher Tortoise Hister Beetle	G1G2	S1S2		N
Hypotrichia spissipes	Florida Hypotrichia Scarab Beetle	G3G4	S3S4		N
Onthophagus aciculatulus	Sandyland Onthophagus Beetle	G2	S2		N
Onthophagus polyphemi polyphemi	Punctate Gopher Tortoise Onthophagus Beetle	G2G3T2T3	S2		N
Peltotrupes profundus	Florida Deepdigger Scarab Beetle	G3	S3		N
Philonthus gopheri	Gopher Tortoise Rove Beetle	G1	S1		N
Phyllophaga elongata	Elongate June Beetle	G3	S3		N
Selonodon mandibularis	Large-Jawed Cebrionid Beetle	G2G4	S2S4		N
Typocerus fulvocinctus	Yellow-banded Typocerus Long-horned Beetle	G2G3	S2S3		N

Caddisflies

EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Cernotina truncona	Florida Cernotinan Caddisfly	G4	S3		N
Oxyethira pescadori	Pescador's Bottle-Cased Caddisfly	G3G4	S3		N
Triaenodes furcellus	Little-fork Triaenode Caddisfly	G3	S3		N

Butterflies and Moths

EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Ceratophaga vicinella	Gopher Tortoise Shell Moth	G1G3	S1S2		N
Euphyes dukesi calhouni	Calhoun's Skipper	G3T1	S1		N
Idia gopheri	Gopher Tortoise Noctuid Moth	G2G3	S2S3		N
Ministrymon azia	Gray Ministreak	G5	S1		N
Satyrodes appalachia	Appalachian Brown	G4	S2S3		N

Flies

EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Eutrichota gopheri	Gopher Tortoise Burrow Fly	G2G3	S2S3		N

Fishes

EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Enneacanthus chaetodon	Blackbanded Sunfish	G3G4	S1S3		N

Amphibians

EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Lithobates capito	Gopher Frog	G3	S3		N

Reptiles

EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Alligator mississippiensis	American Alligator	G5	S4	SAT	FT(S/A)
Caretta caretta	Loggerhead Sea Turtle	G3	S3	T	FT
Chelonia mydas	Green Sea Turtle	G3	S2S3	T	FT
Crotalus adamanteus	Eastern Diamondback Rattlesnake	G4	S3		N
Dermochelys coriacea	Leatherback Sea Turtle	G2	S2	E	FE
Drymarchon couperi	Eastern Indigo Snake	G3	S3	T	FT
Gopherus polyphemus	Gopher Tortoise	G3	S3	C	ST

Heterodon simus		Southern Hognose Snake	G2	S2S3		N
Lampropeltis extenuata		Short-tailed Snake	G3	S3		ST
Lampropeltis getula		Common Kingsnake	G5	S2S3		N
Pituophis melanoleucus		Pine Snake	G4	S3		ST
Pseudemys concinna suwanniensis		Suwannee Cooter	G5T3	S3		N

Birds EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status
Ammospiza maritima peninsulae	Scott's Seaside Sparrow	G4T3Q	S3		ST
Antigone canadensis pratensis	Florida Sandhill Crane	G5T2	S2		ST
Aphelocoma coerulescens	Florida Scrub-Jay	G2?	S2	T	FT
Aramus guarauna	Limpkin	G5	S3		N
Athene cunicularia floridana	Florida Burrowing Owl	G4T3	S3		ST
Charadrius melodus	Piping Plover	G3	S2	T	FT
Egretta caerulea	Little Blue Heron	G5	S4		ST
Egretta thula	Snowy Egret	G5	S3		N
Egretta tricolor	Tricolored Heron	G5	S4		ST
Elanoides forficatus	Swallow-tailed Kite	G5	S2		N
Eudocimus albus	White Ibis	G5	S4		N
Falco sparverius paulus	Southeastern American Kestrel	G5T4	S3		ST
Haematopus palliatus	American Oystercatcher	G5	S2		ST
Haliaeetus leucocephalus	Bald Eagle	G5	S3		N
Laterallus jamaicensis	Black Rail	G3G4	S2		N
Mycteria americana	Wood Stork	G4	S2	T	FT
Nycticorax nycticorax	Black-crowned Night-heron	G5	S3		N
Pandion haliaetus	Osprey	G5	S3S4		N
Peucaea aestivalis	Bachman's Sparrow	G3	S3		N
Setophaga discolor paludicola	Florida Prairie Warbler	G5T3	S3		N
Sternula antillarum	Least Tern	G4	S3	N	ST

Mammals EXPLANATION

Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status

Mustela frenata peninsulae		Florida Long-tailed Weasel	G5T3?	S3		N
Neofiber alleni		Round-tailed Muskrat	G3	S3		N
Sciurus niger shermani		Sherman's Fox Squirrel	G5T3	S3		SSC
Trichechus manatus		West Indian Manatee	G2	S2	T	FT
Ursus americanus floridanus		Florida Black Bear	G5T4	S4		N

Other Elements — **EXPLANATION**

Scientific Name		Common Name	Global Rank	State Rank	Federal Status	State Status
Bird Rookery			G5	SNR		N

FNAI GLOBAL ELEMENT RANK

G1 = Critically imperiled globally because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

G2 = Imperiled globally because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

G3 = Either very rare and local throughout its range (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

G4 = Apparently secure globally (may be rare in parts of range).

G5 = Demonstrably secure globally.

GH = Of historical occurrence throughout its range, may be rediscovered (e.g., ivory-billed woodpecker).

GX = Believed to be extinct throughout range.

GXC = Extirpated from the wild but still known from captivity or cultivation.

G#? = Tentative rank (e.g., G2?).

G#G# = Range of rank; insufficient data to assign specific global rank (e.g., G2G3).

G#T# = Rank of a taxonomic subgroup such as a subspecies or variety; the G portion of the rank refers to the entire species and the T portion refers to the specific subgroup; numbers have same definition as above (e.g., G3T1).

G#Q = Rank of questionable species - ranked as species but questionable whether it is species or subspecies; numbers have same definition as above (e.g., G2Q).

G#T#Q = Same as above, but validity as subspecies or variety is questioned.

GU = Unrankable; due to a lack of information no rank or range can be assigned (e.g., GUT2).

GNA = Ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).

GNR = Element not yet ranked (temporary).

GNRTNR = Neither the element nor the taxonomic subgroup has yet been ranked.

FNAI STATE ELEMENT RANK

S1 = Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals) or because of extreme vulnerability to extinction due to some natural or man-made factor.

S2 = Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals) or because of vulnerability to extinction due to some natural or man-made factor.

S3 = Either very rare and local in Florida (21-100 occurrences or less than 10,000 individuals) or found locally in a restricted range or vulnerable to extinction from other factors.

S4 = Apparently secure in Florida (may be rare in parts of range).

S5 = Demonstrably secure in Florida.

SH = Of historical occurrence in Florida, possibly extirpated, but may be rediscovered (e.g., ivory-billed woodpecker).

SX = Believed to be extirpated throughout Florida.

SU = Unrankable; due to a lack of information no rank or range can be assigned.

SNA = State ranking is not applicable because the element is not a suitable target for conservation (e.g. a hybrid species).

SNR = Element not yet ranked (temporary).

FEDERAL LEGAL STATUS

Legal status information provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant federal agency.

Definitions derived from U.S. Endangered Species Act of 1973, Sec. 3. Note that the federal status given by FNAI refers only to Florida populations and that federal status may differ elsewhere.

C = Candidate species for which federal listing agencies have sufficient information on biological vulnerability and threats to support proposing to list the species as Endangered or Threatened.

E = Endangered: species in danger of extinction throughout all or a significant portion of its range.

E, T = Species currently listed endangered in a portion of its range but only listed as threatened in other areas

E, PDL = Species currently listed endangered but has been proposed for delisting.

E, PT = Species currently listed endangered but has been proposed for listing as threatened.

E, XN = Species currently listed endangered but tracked population is a non-essential experimental population.

T = Threatened: species likely to become Endangered within the foreseeable future throughout all or a significant portion of its range.

PE = Species proposed for listing as endangered

PS = Partial status: some but not all of the species' infraspecific taxa have federal status

PT = Species proposed for listing as threatened

SAT = Treated as threatened due to similarity of appearance to a species which is federally listed such that enforcement personnel have difficulty in attempting to differentiate between the listed and unlisted species.

SC = Not currently listed, but considered a "species of concern" to USFWS.

STATE LEGAL STATUS

Provided by FNAI for information only. For official definitions and lists of protected species, consult the relevant state agency.

Animals: Definitions derived from "Florida's Endangered Species and Species of Special Concern, Official Lists" published by Florida Fish and Wildlife Conservation Commission, 1 August 1997, and subsequent updates.

C = Candidate for listing at the Federal level by the U. S. Fish and Wildlife Service

FE = Listed as Endangered Species at the Federal level by the U. S. Fish and Wildlife Service

FT = Listed as Threatened Species at the Federal level by the U. S. Fish and Wildlife Service

FXN = Federal listed as an experimental population in Florida

FT(S/A) = Federal Threatened due to similarity of appearance

ST = State population listed as Threatened by the FFWCC. Defined as a species, subspecies, or isolated population which is acutely vulnerable to environmental alteration, declining in number at a rapid rate, or whose range or habitat is decreasing in area at a rapid rate and as a consequence is destined or very likely to become an endangered species within the foreseeable future.

SSC = Listed as Species of Special Concern by the FFWCC. Defined as a population which warrants special protection, recognition, or consideration because it has an inherent significant vulnerability to habitat modification, environmental alteration, human disturbance, or substantial human exploitation which, in the foreseeable future, may result in its becoming a threatened species. (SSC* for Pandion haliaetus (Osprey) indicates that this status applies in Monroe county only.)

N = Not currently listed, nor currently being considered for listing.

Plants: Definitions derived from Sections 581.011 and 581.185(2), Florida Statutes, and the Preservation of Native Flora of Florida Act, 5B-40.001. FNAI does not track all state-regulated plant species; for a complete list of state-regulated plant species, call Florida Division of Plant Industry, 352-372-3505 or see: **http://www.doacs.state.fl.us/pi/**.

E = Endangered: species of plants native to Florida that are in imminent danger of extinction within the state, the survival of which is unlikely if the causes of a decline in the number of plants continue; includes all species determined to be endangered or threatened pursuant to the U.S. Endangered Species Act.

T = Threatened: species native to the state that are in rapid decline in the number of plants within the state, but which have not so decreased in number as to cause them to be Endangered.

N = Not currently listed, nor currently being considered for listing.

Element Occurrence Ranking

FNAI ranks of quality of the element occurrence in terms of its viability (EORANK). Viability is estimated using a combination of factors that contribute to continued survival of the element at the location. Among these are the size of the EO, general condition of the EO at the site, and the conditions of the landscape surrounding the EO (e.g. an immediate threat to an EO by local development pressure could lower an EO rank).

A = Excellent estimated viability

A? = Possibly excellent estimated viability

AB = Excellent or good estimated viability

AC = Excellent, good, or fair estimated viability

B = Good estimated viability

B? = Possibly good estimated viability

BC = Good or fair estimated viability

BD = Good, fair, or poor estimated viability

C = Fair estimated viability

C? = Possibly fair estimated viability

CD = Fair or poor estimated viability

D = Poor estimated viability

D? = Possibly poor estimated viability

E = Verified extant (viability not assessed)

F = Failed to find

H = Historical

NR = Not ranked, a placeholder when an EO is not (yet) ranked.

U = Unrankable

X = Extirpated

*For additional detail on the above ranks see: **http://www.natureserve.org/explorer/eorankguide.htm**

FNAI also uses the following EO ranks:

H? = Possibly historical

F? = Possibly failed to find

X? = Possibly extirpated

PROTECTED SPECIES WITH LIKELIHOOD OF OCCURRENCE WITHIN THE PROJECT AREA

Scientific Name	Common Name	Listing Status		Likelihood of Occurrence	Habitat Preference
		Federal	State		
Birds					
Aphelocoma coerulescens	Florida scrub jay	T	T	Low/None	Dry, arid, and sandy habitats, such as sand pine, sand live oak, and sandhills, that support a variety of scrub oaks.
Athene cunicularia	Burrowing owl	NL	T	Low	Dry prairie and sandhill Ruderal areas such as pastures, airports, ball fields, parks, schools, road right-of-ways, and vacant spaces in residential areas.
Egretta caerulea	Little blue heron	NL	T	Likely	Freshwater, brackish, and saltwater wetlands.
Egretta tricolor	Tricolored heron	NL	T	Likely	Freshwater and estuarine wetlands.
Falco sparverius paulus	Southeastern American kestrel	NL	ST	Low	Open pine savannahs, sandhills, prairies, and pastures in Florida and the southeastern United States.
Grus canadensis pratensis	Florida sandhill crane	NL	T	Likely	Various open grassy areas and marshes.
Haliaeetus leucocephalus	Bald eagle*	NL	NL	Low	Forested uplands and wetlands in close proximity to open water.
Mycteria americana	Wood stork	T	T	Likely	Shallow freshwater and brackish wetlands; roadside ditches.
Mammals					
Sciurus niger shermani	Sherman's fox squirrel	NL	SSC	Low/None	Open, fire-maintained longleaf pine, turkey oak, sandhills, and flatwooods.
Ursus americanus floridanus	Florida black bear	NL	NL**	Low	A wide variety of forested to sparsely forested upland/wetland communities.
Plants					
Asplenium erosum	Auricled spleenwort	NL	E	None	Dense, low lying hammocks.
Blechnum occidentale var. minor	Hammock fern	NL	E	None	Rocky and clayey places near seasonally dry streams, shady hammocks or open woods, over limestone.
Centrosema arenicola	Sand butterfly-pea	NL	E	None	Open areas in slash pine-turkey oak sandhills and scrubby flatwoods.
Coelorachis tuberculosa	Piedmont jointgrass	NL	T	None	Confined to karst areas in Florida and Alabama, and may be abundant locally on the margins or shallow zones of lakes and ponds or in wet savanna swales. Its shallow roots are in sandy peat or sandy peat-muck, a substratum that is usually at least moist, generally saturated.
Glandularia tampensis	Tampa vervain	NL	E	None	Sandy coastal hammocks and dunes, clearings, well-drained live oak-slash or longleaf pine-saw palmetto flats, and disturbed areas.
Litsea aestivalis	Pondspice	NL	E	None	Found on margins of swamps, limesink ponds, bay heads, small ponds, pitcher plant savannas, natural doline ponds and in low wet woodlands. This species occurs on wet, sandy or peaty, and quite acidic soils.
Monotropsis reynoldsiae	Pygmy pipes	NL	E	None	Found usually in rich woods of oak hammocks and flowering dogwoods.
Najas filifolia	Narrowleaf naiad	NL	T	Low/None	Freshwater lakes and river reaches that are darkwater habitats, i.e., the waters are tea-colored or darker due to high levels of leached organic acids.
Nemastylis floridana	Celestial lily	NL	E	None	Low sunny areas in wet flatwoods, swamp, and marsh borders.
Nolina brittoniana	Britton's beargrass	E	E	None	Deep, fine-textured, well-drained sands of sand pine-evergreen oak scrub or longleaf pine-turkey

Scientific Name	Common Name	Listing Status		Likelihood of Occurrence	Habitat Preference
		Federal	State		
					oak sandhill..
Ophioglossum palmatum	Hand fern	NL	E	None	Epiphytic on persistent leaf bases of Sabal palmetto in moist hammocks.
Pecluma plumula	Plume polypody	NL	E	None	Rockland hammocks, strand swamps, and wet woods; often on tree bases and fallen logs.
Pecluma ptilota var. bourgeauana	Comb polypody	NL	E	None	Shaded cliffs, rocky wooded bluffs, shaded sandstone ravines, mossy boulders, and rocky ledges along streams.
Pteroglossaspis ecristata	Giant orchid	NL	E	Low	Sandhill, scrub, pine flatwoods, pine rocklands, and occasionally in old fields.
Reptiles					
Alligator mississippiensis	American alligator	T(S/A)	SSC	Possible	Typically found in most open water bodies in Florida.
Drymarchon corais couperi	Eastern indigo snake	T	T	Possible	Utilizes variety of habitats including wet flatwoods, mesic hammocks, tidal swamps, sandhills, scrub, and upland forests.
Gopherus polyphemus	Gopher tortoise	C	T	Burrows Observed	Xeric, flatwoods, disturbed/spoil areas, and coastal habitats with loose, well-drained, sandy soil with herbaceous vegetation
Lampropeltis extenuate	Short-tailed snake	NL	T	Low	Sandy soils, particularly longleaf pine and xeric oak sandhills. May also be found in scrub and xeric hammock habitats.
Pituophis melanoleucus mugitus	Florida pine snake	NL	T	Low	Open canopies with dry sandy soils; sandhill or former sandhill (oldfields, pastures), sand pine scrub, and scrubby flatwoods.

NOTES: E = Endangered; T = Threatened; T(S/A) = Similarity of appearance; SSC = Species of Special Concern; NL= Not Listed; C = Candidate for Listing;
* = Protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act
** = Protected by Florida Black Bear Conservation Rule 68A-4.009, F.A.C.

THE CORPS OF ENGINEERS, JACKSONVILLE DISTRICT, U. S. FISH AND WILDLIFE SERVICE, JACKSONVILLE ECOLOGICAL SERVICES FIELD OFFICE AND STATE OF FLORIDA EFFECT DETERMINATION KEY FOR THE WOOD STORK IN CENTRAL AND NORTH PENINSULAR FLORIDA
September 2008

Purpose and Background

The purpose of this document is to provide a tool to improve the timing and consistency of review of Federal and State permit applications and Federal civil works projects, for potential effects of these projects on the endangered wood stork (*Mycteria americana*) within the Jacksonville Ecological Services Field Office (JAFL) geographic area of responsibility (GAR see below). The key is designed primarily for Corps Project Managers in the Regulatory and Planning Divisions and the Florida Department of Environmental Protection or its authorized designee, or Water Management Districts. The tool consists of the following dichotomous key and reference material. The key is intended to be used to evaluate permit applications and Corps' civil works projects for impacts potentially affecting wood storks or their wetland habitats. At certain steps in the key, the user is referred to graphics depicting known wood stork nesting colonies and their core foraging areas (CFA), footnotes, and other support documents. The graphics and supporting documents may be downloaded from the Corps' web page at http://www.saj.usace.army.mil/permit or at the JAFL web site at http://www.fws.gov/northflorida/WoodStorks. We intend to utilize the most recent information for both the graphics and supporting information; so should this information be updated, we will modify it accordingly. **Note: This information is provided as an aid to project review and analysis, and is not intended to substitute for a comprehensive biological assessment of potential project impacts. Such assessments are site-specific and usually generated by the project applicant or, in the case of civil works projects, by the Corps or project co-sponsor.**

Explanatory footnotes provided in the key must be closely followed whenever encountered.

Scope of the key

This key should only be used in the review of permit applications for effects determinations on wood storks within the JAFL GAR, and not for other listed species. Counties within the JAFL GAR include Alachua, Baker, Bradford, Brevard, Citrus, Clay, Columbia, Dixie, Duval, Flagler, Gilchrist, Hamilton, Hernando, Hillsborough, Lafayette, Lake, Levy, Madison, Manatee, Marion, Nassau, Orange, Pasco, Pinellas, Putnam, St. Johns, Seminole, Sumter, Suwannee, Taylor, Union, and Volusia.

The final effect determination will be based on project location and description, the potential effects to wood storks, and any measures (for example project components, special permit conditions) that avoid or minimize direct, indirect, and/or cumulative

impacts to wood storks and/or suitable wood stork foraging habitat. Projects that key to a "no effect" determination do not require additional consultation or coordination with the JAFL. Projects that key to "NLAA" also do not need further consultation; however, the JAFL staff will assist the Corps if requested, to answer questions regarding the appropriateness of mitigation options. Projects that key to a "may affect" determination equate to "likely to adversely affect" situations, and those projects should not be processed under the SPGP or any other programmatic general permit. For all "may affect" determinations, Corps Project Managers should request the JAFL to initiate formal consultation on the Wood stork.

Summary of General Wood Stork Nesting and Foraging Habitat Information

The wood stork is primarily associated with freshwater and estuarine habitats that are used for nesting, roosting, and foraging. Wood storks typically nest colonially in medium to tall trees that occur in stands located either in swamps or on islands surrounded by relatively broad expanses of open water (Ogden 1991; Rodgers et al. 1996). Successful breeding sites are those that have limited human disturbance and low exposure to land based predators. Nesting sites protected from land-based predators are characterized as those surrounded by large expanses of open water or where the nest trees are inundated at the onset of nesting and remain inundated throughout most of the breeding cycle. These colonies have water depths between 0.9 and 1.5 meters (3 and 5 feet) during the breeding season.

In addition to limited human disturbance and land-based predation, successful nesting depends on the availability of suitable foraging habitat. Such habitat generally results from a combination of average or above-average rainfall during the summer rainy season, and an absence of unusually rainy or cold weather during the winter-spring breeding season (Kahl 1964; Rodgers et al. 1987). This pattern produces widespread and prolonged flooding of summer marshes that tends to maximize production of freshwater fishes, followed by steady drying that concentrate fish during the season when storks nest (Kahl 1964). Successful nesting colonies are those that have a large number of foraging sites. To maintain a wide range of foraging opportunities, a variety of wetland habitats exhibiting short and long hydroperiods should be present. In terms of wood stork foraging, the Service (1999) describes a short hydroperiod as one where a wetland fluctuates between wet and dry in 1 to 5-month cycles, and a long hydroperiod where the wet period is greater than five consecutive months. Wood storks during the wet season generally feed in the shallow water of short-hydroperiod wetlands and in coastal habitats during low tide. During the dry season, foraging shifts to longer hydroperiod interior wetlands as they progressively dry down (though usually retaining some surface water throughout the dry season).

Because of their specialized feeding behavior, wood storks forage most effectively in shallow-water areas with highly concentrated prey. Typical foraging sites for the wood stork include freshwater marshes, depressions in cypress heads, swamp sloughs, managed impoundments, stock ponds, shallow-seasonally flooded roadside or agricultural ditches, and narrow tidal creeks or shallow tidal pools. Good foraging conditions are characterized by water that is relatively calm, open, and having water depths between 5 and 15 inches (5 and 38 cm). Preferred foraging habitat includes wetlands exhibiting a mosaic of submerged and/or emergent aquatic vegetation, and shallow, open-water areas subject to hydrologic

regimes ranging from dry to wet. The vegetative component provides nursery habitat for small fish, frogs, and other aquatic prey, and the shallow, open-water areas provide sites for concentration of the prey during daily or seasonal low water periods.

WOOD STORK KEY

Although designed primarily for use by Corps Project Managers in the Regulatory and Planning Divisions, and State Regulatory agencies or their designees, project permit applicants and co-sponsors of civil works projects may find this key and its supporting documents useful in identifying potential project impacts to wood storks, and planning how best to avoid, minimize, or compensate for any identified adverse effects.

A. Project within 2,500 feet of an active colony site[1]……*May affect*

Project more than 2,500 feet from a colony site……go to B

B. Project does not affect suitable foraging habitat[2] (SFH)…….*no effect*

Project impacts SFH[2]……go to C

C. Project impacts to SFH are less than or equal to 0.5 acre[3]…….....*NLAA*[4]

Project impacts to SFH are greater than or equal to 0.5 acre..……..go to D

D. Project impacts to SFH not within a Core Foraging Area[5] (see attached map) of a colony site, and no wood storks have been documented foraging on site…….....NLAA[4]

Project impacts to SFH are within the CFA of a colony site, or wood storks have been documented foraging on a project site outside the CFA ……..….go to E

E. Project provides SFH compensation within the Service Area of a Service-approved wetland mitigation bank or wood stork conservation bank preferably within the CFA, or consists of SFH compensation within the CFA consisting of enhancement, restoration or creation in a project phased approach that provides an amount of habitat and foraging function equivalent to that of impacted SFH (see *Wood Stork Foraging Habitat Assessment Procedure*[6] for guidance), is not contrary to the Service's *Habitat Management Guidelines For The Wood Stork In The Southeast Region* and in accordance with the CWA section 404(b)(1) guidelines……*NLAA*[4]

Project does not satisfy these elements.……....……...*May affect*

[1] An active nesting site is defined as a site currently supporting breeding pairs of wood storks, or has supported breeding wood storks at least once during the preceding 10-year period.

[2] Suitable foraging habitat (SFH) is described as any area containing patches of relatively open (< 25% aquatic vegetation), calm water, and having a permanent or seasonal water depth between 2 and 15 inches (5 to 38 cm). SFH supports and concentrates, or is capable of supporting and concentrating small fish, frogs, and other aquatic prey. Examples of SFH include, but are not limited to, freshwater marshes and stock ponds, shallow, seasonally flooded roadside or agricultural ditches, narrow tidal creeks or shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs. See above *Summary of General Wood Stork Nesting and Foraging Habitat Information*.

[3] On an individual basis, projects that impact less than 0.5 acre of SFH generally will not have a measurable effect on wood storks, although we request the Corps to require mitigation for these losses when appropriate. Wood Storks are a wide ranging species, and individually, habitat change from impacts to less than 0.5 acre of SFH is not likely to adversely affect wood storks. However, collectively they may have an effect and therefore regular monitoring and reporting of these effects are important.

[4] Upon Corps receipt of a general concurrence issued by the JAFL through the Programmatic Concurrence on this key, "NLAA" determinations for projects made pursuant to this key require no further consultation with the JAFL.

[5] The U.S. Fish and Wildlife Service (Service) has identified core foraging area (CFA) around all known wood stork nesting colonies that is important for reproductive success. In Central Florida, CFAs include suitable foraging habitat (SFH) within a 15-mile radius of the nest colony; CFAs in North Florida include SFH within a 13-mile radius of a colony. The referenced map provides locations of known colonies and their CFAs throughout Florida documented as active within the last 10 years. The Service believes loss of suitable foraging wetlands within these CFAs may reduce foraging opportunities for the wood stork.

[6]This draft document, *Wood Stork Foraging Habitat Assessment Procedure*, by Passarella and Associates, Incorporated, may serve as further guidance in ascertaining wetland foraging value to wood storks and compensating for impacts to wood stork foraging habitat.

Monitoring and Reporting Effects

For the Service to monitor cumulative effects, it is important for the Corps to monitor the number of permits and provide information to the Service regarding the number of permits issued that were determined "may affect, not likely to adversely affect." It is requested that information on date, Corps identification number, project acreage, project wetland acreage, and latitude and longitude in decimal degrees be sent to the Service quarterly.

Literature Cited

Kahl, M.P., Jr. 1964. Food ecology of the wood stork (*Mycteria americana*) in Florida. Ecological Monographs 34:97-117.

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Rodgers, J.A. Jr., A.S. Wenner, and S.T. Schwikert. 1987. Population dynamics of wood storks in northern and central Florida, USA. Colonial Waterbirds 10:151-156.

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U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. Fish and Wildlife Service; Atlanta, Georgia. Available from: http://verobeach.fws.gov/Programs/Recovery/vbms5.html.

United States Department of the Interior
U. S. FISH AND WILDLIFE SERVICE
7915 BAYMEADOWS WAY, SUITE 200
JACKSONVILLE, FLORIDA 32256-7517

IN REPLY REFER TO:
August 13, 2013

Colonel Alan M. Dodd, District Engineer
Department of the Army
Jacksonville District Corps of Engineers
P.O Box 4970
Jacksonville, Florida 32232-0019
(Attn: Mr. David S. Hobbie)

RE: Update Addendum to USFWS Concurrence Letter to U.S. Army Corps of Engineers Regarding Use of the Attached Eastern Indigo Snake Programmatic Effect Determination Key

Dear Colonel Dodd:

This letter is to amend the January 25, 2010, letter to the U.S. Army Corps of Engineers regarding the use of the attached eastern indigo snake programmatic effect determination key (key). It supersedes the update addendum issued January 5, 2012.

We have evaluated the original programmatic concurrence and find it suitable and appropriate to extend its use to the remainder of Florida covered by the Panama City Ecological Services Office.

On Page 2

The following replaces the last paragraph above the signatures:

"Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. Any questions or comments should be directed to Annie Dziergowski (North Florida ESO) at 904-731-3089, Harold Mitchell (Panama City ESO) at 850-769-0552, or Victoria Foster (South Florida ESO) at 772-469-4269."

On Page 3

The following replaces both paragraphs under "Scope of the key":

"This key should be used only in the review of permit applications for effects determinations for the eastern indigo snake within the State of Florida, and not for other listed species or for aquatic resources such as Essential Fish Habitat (EFH)."

On Page 4

The following replaces the first paragraph under Conservation Measures:

"The Service routinely concurs with the Corps' "not likely to adversely affect" (NLAA) determination for individual project effects to the eastern indigo snake when assurances are given that

our *Standard Protection Measures for the Eastern Indigo Snake* (Service 2013) located at: http://www.fws.gov/northflorida/IndigoSnakes/indigo-snakes.htm will be used during project site preparation and project construction. There is no designated critical habitat for the eastern indigo snake."

On Page 4 and Page 5 (Couplet D)

The following replaces D. under Conservation Measures:

D. The project will impact less than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or less than 25 active and inactive gopher tortoise burrows……*go to* E

The project will impact more than 25 acres of xeric habitat (scrub, sandhill, or scrubby flatwoods) or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested[2]……*"may affect"*

On Page 5

The following replaces footnote #3:

"[3]If excavating potentially occupied burrows, active or inactive, individuals must first obtain state authorization via a FWC Authorized Gopher Tortoise Agent permit. The excavation method selected should also minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the most current Gopher Tortoise Permitting Guidelines found at http://myfwc.com/gophertortoise ."

Thank you for making these amendments concerning the Eastern Indigo Snake Key. If you have any questions, please contact Jodie Smithem of my staff at the address on the letterhead, by email at jodie_smithem@fws.gov, or by calling (904)731-3134.

Sincerely,

Dawn Jennings
Acting Field Supervisor

cc:
Panama City Ecological Services Field Office, Panama City, FL
South Florida Ecological Services Field Office, Vero Beach, FL

United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Florida Ecological Services Office
1339 20th Street
Vero Beach, Florida 32960

January 25, 2010

David S. Hobbie
Chief, Regulatory Division
U.S. Army Corps of Engineers
Post Office Box 4970
Jacksonville, Florida 32232-0019

Service Federal Activity Code: 41420-2009-FA-0642
Service Consultation Code: 41420-2009-I-0467
41910-2010-I-0045
Subject: North and South Florida Ecological Services Field Offices Programmatic Concurrence for Use of Original Eastern Indigo Snake Key(s) Until Further Notice

Dear Mr. Hobbie:

The U.S. Fish and Wildlife Service's (Service) South and North Florida Ecological Services Field Offices (FO), through consultation with the U.S. Army Corps of Engineers Jacksonville District (Corps), propose revision to both Programmatic concurrence letters/keys for the federally threatened Eastern Indigo Snake (*Drymarchon corais couperi*), (indigo snake), and now provide one key for both FO's. The original programmatic key was issued by the South Florida FO on November 9, 2007. The North Florida FO issued a revised version of the original key on September 18, 2008. Both keys were similar in content, but reflected differences in geographic work areas between the two Field Offices. The enclosed key satisfies each office's responsibilities under the Endangered Species Act of 1973, as amended (Act) (87 Stat. 884; 16 U.S.C.1531 *et seq.*).

Footnote number 3 in the original keys indicated "A member of the excavation team should be authorized for Incidental Take during excavation through either a section 10(a)(1)(A) permit issued by the Service or an incidental take permit issued by the Florida Fish and Wildlife Conservation Commission (FWC)." We have removed this reference to a Service issued Section 10(a)(1)(A) permit, as one is not necessary for this activity. We also referenced the FWC's revised April 2009 Gopher Tortoise Permitting Guidelines with a link to their website for updated excavation guidance, and have provided a website link to our Standard Protection Measures. All other conditions and criteria apply.

We believe the implementation of the attached key achieves our mutual goal for all users to make consistent effect determinations regarding this species. The use of this key for review of projects

located in all referenced counties in our respective geographic work areas leads the Service to concur with the Corps' determination of "may affect, not likely to adversely affect" (MANLAA) for the Eastern indigo snake. The biological rationale for the determinations is contained within the referenced documents and is submitted in accordance with section 7 of the Act.

Should circumstances change or new information become available regarding the eastern indigo snake or implementation of the key, the determinations may be reconsidered as deemed necessary.

Thank you for your continued cooperation in the effort to conserve fish and wildlife resources. Any questions or comments should be directed to either Allen Webb (Vero Beach) at 772-562-3909, extension 246, or Jay Herrington (Jacksonville) at 904-731-3326.

Sincerely,

Paul Souza
Field Supervisor
South Florida Ecological Services Office

David L. Hankla
Field Supervisor
North Florida Ecological Services Office

Enclosure

cc: electronic only
FWC, Tallahassee, Florida (Dr. Elsa Haubold)
Service, Jacksonville, Florida (Jay Herrington)
Service, Vero Beach, Florida (Sandra Sneckenberger)

Eastern Indigo Snake Programmatic Effect Determination Key

Scope of the key

This key should be used only in the review of permit applications for effects determinations within the North and South Florida Ecological Services Field Offices Geographic Areas of Responsibility (GAR), and not for other listed species or for aquatic resources such as Essential Fish Habitat (EFH). Counties within the **North** Florida GAR include Alachua, Baker, Bradford, Brevard, Citrus, Clay, Columbia, Dixie, Duval, Flagler, Gilchrist, Hamilton, Hernando, Hillsborough, Lafayette, Lake, Levy, Madison, Manatee, Marion, Nassau, Orange, Pasco, Pinellas, Putnam, St. Johns, Seminole, Sumter, Suwannee, Taylor, Union, and Volusia.

Counties in the **South** Florida GAR include Broward, Charlotte, Collier, De Soto, Glades, Hardee, Hendry, Highlands, Lee, Indian River, Martin, Miami-Dade, Monroe, Okeechobee, Osceola, Palm Beach, Polk, Sarasota, St. Lucie.

Habitat

Over most of its range, the eastern indigo snake frequents several habitat types, including pine flatwoods, scrubby flatwoods, high pine, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitats (Service 1999). Eastern indigo snakes appear to need a mosaic of habitats to complete their life cycle. Wherever the eastern indigo snake occurs in xeric habitats, it is closely associated with the gopher tortoise *(Gopherus polyphemus),* the burrows of which provide shelter from winter cold and summer desiccation (Speake et al. 1978; Layne and Steiner 1996). Interspersion of tortoise-inhabited uplands and wetlands improves habitat quality for this species (Landers and Speake 1980; Auffenberg and Franz 1982).

In south Florida, agricultural sites, such as sugar cane fields, created in former wetland areas are occupied by eastern indigo snakes (Enge pers. comm. 2007). Formerly, indigo snakes would have only occupied higher elevation sites within the wetlands. The introduction of agriculture and its associated canal systems has resulted in an increase in rodents and other species of snakes that are prey for eastern indigo snakes. The result is that indigos occur at higher densities in these areas than they did historically.

Even though thermal stress may not be a limiting factor throughout the year in south Florida, indigo snakes still seek and use underground refugia. On the sandy central ridge of central Florida, eastern indigos use gopher tortoise burrows more (62 percent) than other underground refugia (Layne and Steiner 1996). Other underground refugia used include armadillo (*Dasypus novemcinctus*) burrows near citrus groves, cotton rat (*Sigmodon hispidus*) burrows, and land crab (*Cardisoma guanhumi*) burrows in coastal areas (Service 2006). Natural ground holes, hollows at the base of trees or shrubs, ground litter, trash piles, and crevices of rock-lined ditch walls are also used (Layne and Steiner 1996). These refugia are used most frequently where tortoise burrows are not available, principally in low-lying areas off the central and coastal ridges. In extreme south Florida (the Everglades and Florida Keys), indigo snakes are found in tropical

hardwood hammocks, pine rocklands, freshwater marshes, abandoned agricultural land, coastal prairie, mangrove swamps, and human-altered habitats (Steiner et al. 1983). It is suspected that they prefer hammocks and pine forests, because most observations occur in these habitats disproportionately to their presence in the landscape (Steiner et al. 1983). Hammocks may be important breeding areas as juveniles are typically found there. The eastern indigo snake is a snake-eater so the presence of other snake species may be a good indicator of habitat quality.

Conservation Measures

The Service routinely concurs with the Corps' "not likely to adversely affect" (NLAA) determination for individual project effects to the eastern indigo snake when assurances are given that our *Standard Protection Measures for the Eastern Indigo Snake* (Service 2004) located at: http://www.fws.gov/northflorida/IndigoSnakes/indigo-snakes will be used during project site preparation and project construction. There is no designated critical habitat for the eastern indigo snake.

In an effort to reduce correspondence in effect determinations and responses, the Service is providing an Eastern Indigo Snake Effect Determination Key, similar in utility to the West Indian Manatee Effect Determination Key and the Wood Stork Effect Determination Keys presently being utilized by the Corps. If the use of this key results in a Corps' determination of "no effect" for a particular project, the Service supports this determination. If the use of this Key results in a determination of NLAA, the Service concurs with this determination and no additional correspondence will be necessary[1]. This key is subject to revisitation as the Corps and Service deem necessary.

A. Project is not located in open water or salt marsh.....*go to* B

   Project is located solely in open water or salt marsh.....*"no effect"*

B. Permit will be conditioned for use of the Service's *Standard Protection Measures For The Eastern Indigo Snake* during site preparation and project construction.....*go to* C

   Permit will not be conditioned as above for the eastern indigo snake, or it is not known whether an applicant intends to use these measures and consultation with the Service is requested[2] .....*"may affect"*

C. There are gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities .....*go to* D

   There are no gopher tortoise burrows, holes, cavities, or other refugia where a snake could be buried or trapped and injured during project activities .....*"NLAA"*

D. The project will impact less than 25 acres of xeric habitat supporting less than 25 active and inactive gopher tortoise burrows.....*go to* E

The project will impact more than 25 acres of xeric habitat or more than 25 active and inactive gopher tortoise burrows and consultation with the Service is requested[2]..... *"may affect"*

E. Any permit will be conditioned such that all gopher tortoise burrows, active or inactive, will be evacuated prior to site manipulation in the vicinity of the burrow[3]. If an indigo snake is encountered, the snake must be allowed to vacate the area prior to additional site manipulation in the vicinity. Any permit will also be conditioned such that holes, cavities, and snake refugia other than gopher tortoise burrows will be inspected each morning before planned site manipulation of a particular area, and, if occupied by an indigo snake, no work will commence until the snake has vacated the vicinity of proposed work..... *"NLAA"*

Permit will not be conditioned as outlined above and consultation with the Service is requested[2] ..... *"may affect"*

---

[1]With an outcome of "no effect" or "NLAA" as outlined in this key, the requirements of section 7 of the Act are fulfilled for the eastern indigo snake and no further action is required.

[2]Consultation may be concluded informally or formally depending on project impacts.

[3] If burrow excavation is utilized, it should be performed by experienced personnel. The method used should minimize the potential for injury of an indigo snake. Applicants should follow the excavation guidance provided within the Florida Fish and Wildlife Conservation Commission's revised April 2009 Gopher Tortoise Permitting Guidelines located at **http://myfwc.com/License/Permits_ProtectedWildlife.htm#gophertortoise**. A member of the excavation team should be authorized for Incidental Take during excavation through an incidental take permit issued by the Florida Fish and Wildlife Conservation Commission.

Appendix F

Cultural Resources Assessment Survey

ESA

Phase I Cultural Resource Assessment Survey in Support of the Environmental Assessment for the Extension of Runway 1-19 and Associated Improvements at Zephyrhills Municipal Airport, Pasco County, Florida

Zephyrhills Municipal Airport
39450 South Avenue
Zephyrhills, FL 33542

LG²ES Project Number
2019-103

Prepared for:

ESA
5401 South Kirkman Road, Suite 475
Orlando, FL 32819

Prepared by:

LG² Environmental Solutions, Inc.
10475 Fortune Parkway, Suite 201
Jacksonville, Florida 32256
(904) 288-8631
www.lg2es.com

June 2020

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Phase I Cultural Resource Assessment Survey in Support of the Environmental Assessment for the Extension of Runway 1-19 and Associated Improvements at Zephyrhills Municipal Airport, Pasco County, Florida

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TABLE OF CONTENTS

List of Figures

List of Tables

1.0 INTRODUCTION

In April 2019 and May 2020, LG² Environmental Solutions, Inc. (LG²ES), conducted a Phase I Cultural Resources Assessment Survey (Survey) of the proposed project area as defined in the Environmental Assessment (EA) for the Extension of Runway 1-19 and Associated Improvements at Zephyrhills Municipal Airport (ZPH) in Pasco County, Florida. The study area consists of 109.3-acres within portions of Township 26 South, Range 21 East, Sections 12 and 13; and Township 26 South, Range 22 East, Section 7, 18, and 19 (Figure 1.1). This project was undertaken in support of an environmental review pursuant to the National Environmental Policy Act of 1969 (NEPA) and to the assist the Federal Aviation Administration (FAA) in meeting their regulatory obligations under Section 106 of the National Historic Preservation Act of 1996 (NHPA). The initial investigation was scoped as a low probability survey due to past and present ground-disturbing activity within the Study Area, such as grading, filling, and airport/stormwater infrastructure development; however, field conditions during initial fieldwork (April 2019) indicated intact areas in the south and to the north that exhibited moderate probability, so additional fieldwork was conducted in these areas (May 2020) systematically as moderate probability zones.

The Area of Potential Effect (APE) or Proposed Project Study Area for this investigation consists of: 1) the area of Direct Effect and 2) the area of Indirect Effect. The area of Direct Effect includes the proposed project construction footprint such as the proposed runway extension and associated improvements, or where ground-disturbing activities, such as clearing and excavation, would have direct and adverse effects to any cultural resources present within the Project APE. The area of Indirect Effect consists of the surrounding area where indirect effects to cultural resources may occur from noise, vibration, or dust during construction or aircraft operations. Due to the size of the Project APE and to help manage data across three distinct areas, the Project APE was subdivided into the North APE, Central APE, and the South APE (Figure 1).

The Proposed Project improvements include clearing and grading to facilitate construction of an extension of the existing airport Runway 1-19, relocation of 6th Avenue to the north, modifications to Skydive City to the east, and other supporting actions, including upgrades to the stormwater management system. The proposed improvements include modification of the landscape; however, proposed improvements include additions to existing airfield structures and utilities. No large-scale above-ground construction is proposed, so no adverse effects are expected to impact extant viewsheds. Furthermore, although runway use and the size and shape of the noise contours associated with ZPH aircraft operations will experience negligible but incremental changes as a result of the Proposed Project improvements, the DNL 65 dBA and higher noise contours will continue to be located entirely on ZPH property.

Fieldwork consisted of an intensive pedestrian inspection of the entire Project APE and systematic subsurface testing in areas that exhibit moderate to high probability, while shovel tests in low probability areas were tested judgmentally. Shovel tests and spatial data were collected and recorded in the field with standardized field forms and handheld Global Positioning System (GPS) units. Representative photographs were taken of the study area and of documented soil profiles.

The purpose of this Survey was to locate, identify, and provide NRHP-eligibility recommendations for any cultural resources located within the 109.3-acre tract and assess their potential eligibility for listing on the National Register of Historic Places (NRHP). Fieldwork strategies included a pedestrian inspection coupled with subsurface shovel testing to identify any cultural resources and/or historic structural remains within the Project APE. Subsurface testing adhered to the Florida Division of Historical Resources guidelines for Historic Preservation Professionals, *Cultural Resources Management Standards & Operations Manual, Module Three* (2002). Areas exhibiting high or moderate probability for encountering cultural resources were excavated at 25- and 50-meter intervals respectively, while judgmental shovel tests were excavated within low probability areas that exhibited elevated landforms or ephemeral elevation changes.

As a result of this survey, LG²ES documented six new cultural resources, including four archaeological sites (8PA03091, 8PA03142, 8PA03143, and 8PA03144), two linear resources (8PA03090 and 8PA03145) and two archaeological occurrences (AO-19 and AO-21) within the proposed Project APE. Based on the results of this survey, none of the six newly documented cultural resources meet the eligibility requirements to be considered for inclusion in the NRHP. LG²ES recommends all six cultural resources (8PA03091, 8PA03142, 8PA03143, 8PA03144, 8PA03090 and 8PA03145) be considered **not eligible for the NRHP**. No additional archaeological consideration is recommended within the boundaries of the proposed Project APE. Improvements associated with the extension of Runway 1-19 at ZPH will have no adverse effects on cultural resources currently listed or eligible for inclusion in the NRHP.

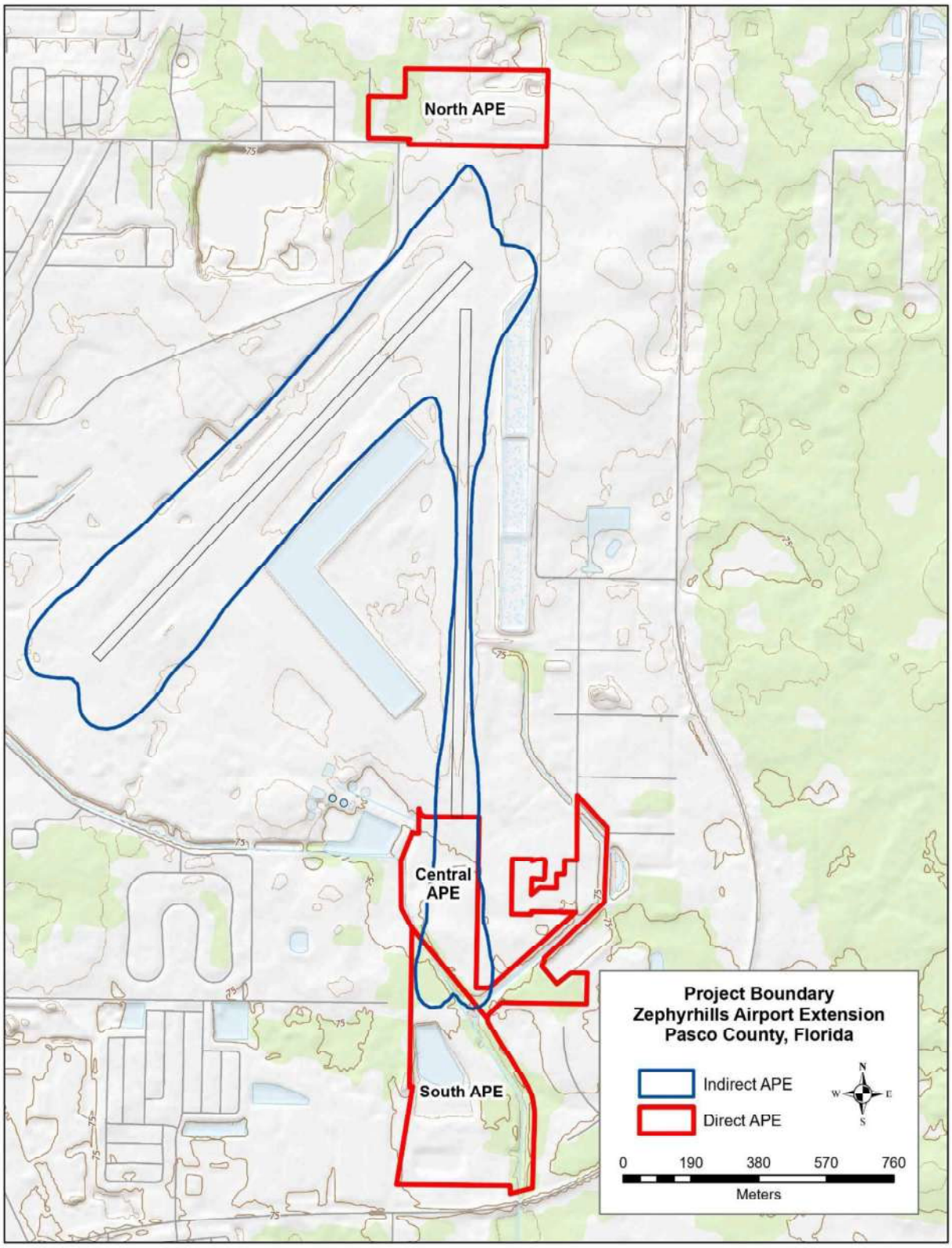

Figure 1. 2018 USGS topographic map showing proposed project location.

2.0 ENVIRONMENTAL OVERVIEW

The Proposed Project Study Area for the Zephyrhills Municipal Airport Runway 1-19 Expansion is located just south of County Road 54, north and west of County Road 535, east of Zephyrhills, and north of the Hillsborough River. This 262.3-acre property consists of urban land, constructed for the airport, and agricultural land used primarily for cattle ranching. Most of the Proposed Project Area is composed of flatwoods and marine terraces, and ranges in elevation from 23 to 30 m (75 to 100 feet) above mean sea level (amsl) as illustrated by the Digital Elevation Model map (Figure 2).

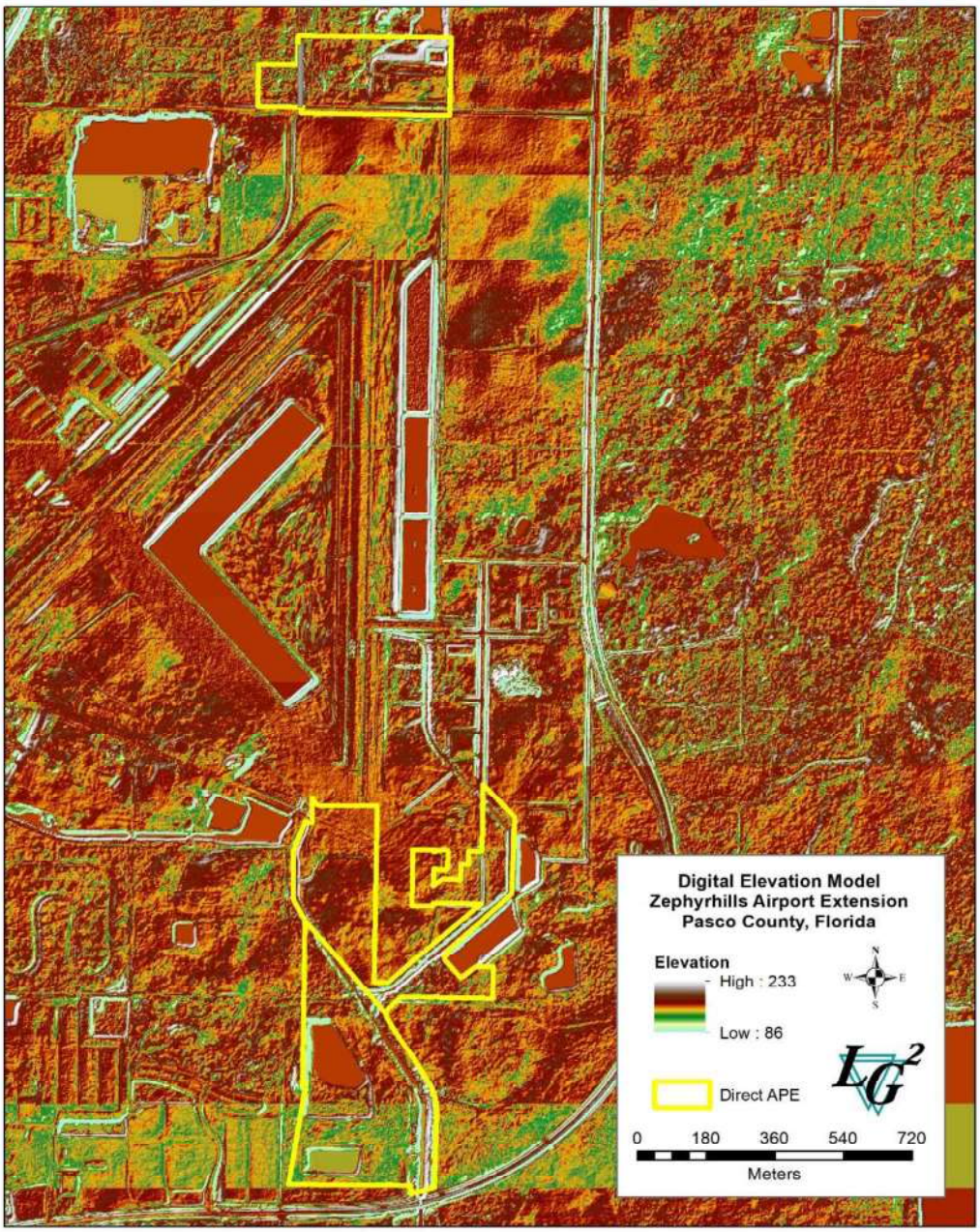

Figure 2. Digital Elevation Model (DEM) map showing the proposed project APE.

The project area is situated within the Ocala Uplift District of the Florida physiographic region. This regional landform contains limestone uplifts from the Middle and Late Tertiary period (Brooks 1981). The closest hydrological feature to the project area is Hillsborough River, which is located approximately 1.2 kilometers south of the project area.

There are twelve soil types found within the APE boundary (Table 1 and Figure 3). The most common soil for the Proposed Project Study Area consists of Tavares sand, with 0 to 5 percent slopes, which encompasses 67.7-acres of the Proposed Project Study Area. The second most common soil type is Adamsville fine sand, with 0 to 2 percent slopes, which incorporates about 39.4-acres of the Proposed Project Study Area. The drainage class of the soil types varies considerably across the Proposed Project Study Area from poorly drained to excessively drained.

Table 1. List of Soil Types Within the Proposed Project Study Area.

Map UnitNo.	Soil Name	Landform/Parent Material	Slope Percentage	Drainage Class
6	Tavares Sand	Marine terraces/shoulder, Marine terraces/backslope, Ridges/shoulder	0-5	Moderately well drained
11	Adamsville fine sand	Rise/summit	0-2	Somewhat poorly drained
12	Astatula fine sand	Ridges/backslope, Marine terraces	0-5	Excessively drained
67	Kanapaha-Kanapaha, wet, fine sand	Marine terrace/footslope, Rises/footslope	0-5	Poorly drained
24	Quartzipsamments, shaped	Marine terraces, Rises	0-5	Well drained
64	Nobleton fine sand	Marine terraces, Rises	0-5	Somewhat poorly drained
7	Sparr fine sand	Rises, Marine terraces	0-5	Somewhat poorly drained
42	Pomello fine sand	Ridges/backslope, Flatwoods, Marine Terraces	0-5	Moderately well drained
2	Pomona fine sand	Flatwoods, Marine terraces	N/A	Poorly drained
60	Palmetto-Zephyr-Seller Complex	Drainageways, Marine terraces	N/A	Poorly drained
10	Wabasso fine sand	Flatwoods, Marine terraces	N/A	Poorly drained
48	Lochloosa fine sand	Marine terraces/shoulder, Marine terraces/backslope, Ridges/shoulder	0-5	Somewhat poorly drained
28	Pits	Marine terraces/Marine deposits	N/A	Not classified

Source: USDA NRCS Soil Survey, Pasco County, FL.

The climate of Pasco County is characterized by long, hot, humid summers with mild winters. The average temperature is 91 degrees Fahrenheit (F) during the summer months and 52 degrees during the winter months. The mean annual precipitation is 135 centimeters (53 inches) with most of the rainfall occurring between June and September (NOAA).

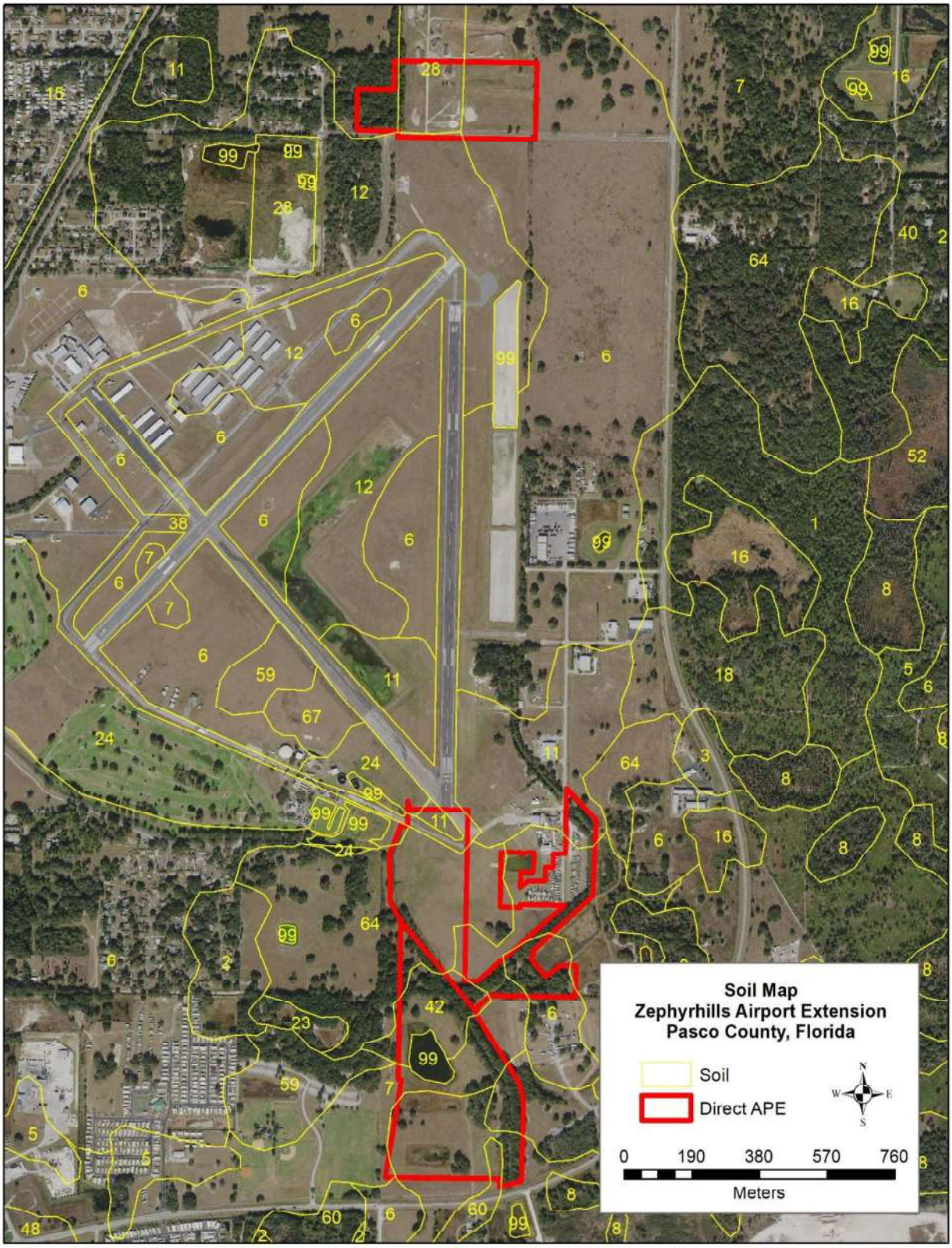

Figure 3. Soil map of the proposed APE.

Vegetation within the Proposed Project Area consists of pastural grasses, woods, and wetlands plants. Most of the area is covered by low-lying grasses including Bahia grass (*Paspalum notatum*) and Bermuda grass (*Cynodon dactylon*). Additionally, various pine and oak varieties are found in the northwestern and central regions of the Proposed Project Study Area. One man-made pond is located in the southern region of the APE and contain various wetlands plants including dollar weed (Hydrocotyle spp.), wire grass (*Eleusine indica*), and sedges (Figure 4).

Regarding archaeological site sensitivity and probability, soil drainage characteristics often provide insights into the nature of site preservation particularly with respect to organic materials and culturally derived features. Typically, soils that are very poorly drained tend to be associated with wet and/or low-lying landforms. These areas would have been less suitable for precolonial and early historic human occupation. General exceptions to this pattern in Florida exist in wet soils containing peat or areas that have become boggy environments where consistently wet conditions have served to preserve organic material at archaeological sites (Holiday 2004). In contrast, well-drained or relatively better-drained soils tend to be associated with elevated landforms that are more ideal for human habitation and activity. Much of the landscape within the APE was previously impacted by the construction of the airport; therefore, although the Proposed Project Study Area exhibits areas of moderate to well drained soils likely to contain cultural remains, the Proposed Project Study Area is considered to have low probability for encountering cultural resources due to extensive disturbance.

Figure 4. Artificial Pond in the Southern Region of the Proposed Project Area Facing South.

Generally, the Proposed Project Study Area is well positioned for precolonial and historic natural resource exploitation. Game including white-tailed deer (*Odocoileus virginianus*), squirrels (*Sciurus spp*.), turkey (*Meleagris gallopavo*), bobwhite quail (*Colinus virginianus*), and waterfowl would have been abundant. Wetland resources associated with the Hillsborough River and its tributaries would have included various shellfish, reptiles, fish, and aquatic birds (Miller 1998). However, due to the area's distance from primary water sources, any precolonial or early historic utilization would be limited and likely restricted to short-term camps and/or discrete resource exploitation activities such as hunting wild game or harvesting timber and/or turpentine manufacturing.

3.0 CULTURAL CONTEXT

The interpretation and discussion of archaeological sites is achieved by categorizing sites by cultural regions, temporal periods, and functional site types. Interactions between humans, the environment, and different human groups, dictates behavioral patterns which is interpreted from the material left in the archaeological record. These dynamic patterns can reflect the sociocultural developments, interactions, and behaviors of different human groups. The Proposed Project Study Area is situated in the transitional zone between the Central Peninsular Gulf Coast and the Northern Peninsular Gulf Coast regions (Milanich and Fairbanks 1980).

3.1 Precolonial Overview

Within Florida, archaeologists have defined a general chronology of culture periods based on similarities in material culture traits. They are defined as the Paleoindian period, the Archaic period (Early, Middle, and Late), and post-500 BC regional cultures (Milanich 1994:33-35). After about 500 BC, the emergence of distinct, regional cultures can be discerned in the archaeological record. The survey area lies within the Belle Glades cultural region as defined by Milanich and Fairbanks (1980) and Milanich (1994).

3.1.1 Paleoindian Period (13,000-7,900 BC)

Human occupation of the Florida peninsula began during the Pleistocene epoch after the end of the Wisconsin Glacial Episode. The date of initial occupation of people in Florida has been a point of debate between archaeologists for many years. Researchers have had very little archaeological evidence to work with as most of the cultural resources from this period are submerged. The ancient Florida environment was much drier than it is today, with approximately 320 to 380 feet more shoreline exposed. After the glaciers melted, the sea levels rose, covering the land previously occupied by Paleoindian humans (Faught 2002, 2004; Faught and Gusick 2011).

It is generally believed that the last glacial period allowed a great land bridge between north America and Asia to be created around 12,000 BC, facilitating the migration of peoples across the Bering Strait (Handley 2015). An alternative theory is that early peoples followed the Northwest Pacific coast in sea-going vessels. It is likely that several migration episodes occurred over the millennia via different routes (Smith 2012).

One of the few sites in Florida dating to this period is the Page-Ladson site. The site (8JE591A) is a sinkhole located on the Aucilla River in the Big Bend region of Florida. Here, archaeologists recently discovered stone tools and mastodon bones in an undisturbed geological context. Radiocarbon dates the site to 12,600 BC, the earliest archaeological evidence of human occupation in Florida (Halligan et al. 2016).

Fauna of this period include many now-extinct species: mammoth (*Mammuthus imperator*), mastodon (Mammut americium), saber-toothed tiger (*Similodon populator*), giant ground sloth (*Megatherium americanum*), giant beaver (*Castoroides leiseyorum*), giant armadillo (*Priodontes maximus*), and giant tortoise (*Caronemys confrinii)*. Many of these species were used as food sources and settlement patterns would have followed the migration of these animals (Wayne and Dickinson 2010). Other animals used for subsistence likely included deer (*Odocoileus virginianus*), gopher tortoise (*Gopherus polyphemus*), opossum (*Didelphis virginiana*), rabbit (*Sylvilagus* sp.), raccoon (*Procyon lotor*), and various fish and shellfish species (Janus Research 2008b). The scarcity of potable water also dictated human settlement patterns. Fresh water would have been found in rain-fed waters holes, lakes, prairies, and spring-fed sinkholes (Wayne and Dickinson 2010).

The archaeological assemblage from this period consists largely of lithic artifacts that are relatively uniform throughout Florida. Many of the tools found are unifacial, making them useful for multiple applications. Clovis, Suwannee, and Simpson points are the common bifacial point types from the Paleoindian Period. They are all characterized as long, fluted points with basal ears and basal grinding. Other artifacts recovered from Paleoindian

sites include oval ground stones (dimpled egg stones), double-pointed bone points, bone and shell tools for spear-throwers, antler points, carved wood mortar, and the non-returnable boomerang (Milanich 1994).

3.1.2 Archaic Period (8,000-1,000 BC)

Early Archaic (8,000-6,000 BC) The environment at the onset of the Early Archaic period mirrored that of the Paleoindian but, as the Early Archaic progressed, the rising sea levels created more wetland habitats (Janus Research 2008b). As the climate changed to less arid conditions, the Pleistocene megafauna of the Paleoindian period became extinct. Rising sea levels and changing environments resulted in a much more widespread range of sites from this period versus the Paleoindian, as potable water become more available (Smith 2012). Like the Paleoindian period, Early Archaic people settled around water sources but, due to the increase in size and number of these resources, larger and longer occupied sites became more common (Milanich 1994).

Lanceolate and unifacial tools of the Paleoindian period transition to smaller, notched points and bifaces in the Early Archaic. Many Early Archaic sites contain both cultural markers indicating that the transition to Early Archaic lifeways was gradual (Milanich 1994). Stratigraphically, artifacts from the onset of the Early Archaic are well defined to 9,500-7,000 B.C. These include Greenbriar, Bolen, and Kirk Corner-Notched projectile points, as well as Edgefield scrapers, end scrapers, spokeshaves with graver spurs, side scrapers, and Waller knives. Diagnostic artifacts of latter part of the Early Archaic (7,000-6,000 BC) are represented by Kirk Stemmed points (Janus Research 2008b). Other artifacts contemporaneous with Kirk Stemmed points consist of a variety of choppers, scrapers, knives, and other composite tools made of bone, antler, and wood (Smith 2012).

What is known about Early Archaic subsistence strategies derives from research at the Windover Pond site in Brevard county. Analysis of the data recovered there indicates a strong reliance on aquatic resources, both freshwater and estuarine, while supplementing with terrestrial animals (Tuross, et al. 1994). Alternately, drier interior areas of the Florida peninsula would not have had access to rich aquatic resources and it is hypothesized that terrestrial game would have been the primary resource for subsistence in these areas. As very few Early Archaic sites have been found in these areas, concrete evidence for this hypothesis is unavailable (Janus Research 2008b).

Middle Archaic (6,000-3,000 BC). A wetter and more stable climate during the Middle Archaic allowed human populations to develop distinct regional adaptations and cultures across Florida (Janus Research 2008b). Rising sea levels and climate change resulted in artesian springs appearing along the St. Johns River and the creation of estuarine environments along the coast (Dickinson and Wayne 2004). By the end of the Middle Archaic, sea levels began to reach modern-day levels. Large shell middens dating from this period are found along the southwest coast indicating an increased dependence on estuarian resources for subsistence (Milanich 1994).

The Middle Archaic period is characterized by varieties of stemmed, broad-blade projectile points. The most distinctive artifacts of this temporal period are the Florida Archaic Stemmed (FAS) or “Christmas tree” points, so called due to their iconic shape. Newman and Thonotosassa points are also characteristic of the Middle Archaic although some overlap with Late Archaic sites occurs. The archaeological record also shows a decrease of shaped tool other than bifaces and an increased use of flake tools. Wooden stakes, tools, and dugout canoes have also been recovered from Middle Archaic sites. A variety of shell tools were used but the predominate version is the Strombus celt (Janus Research 2008b).

Changes in settlement patterns are indicated by the large number of small, special-use sites from the Middle Archaic although larger sites have also been found. These special-use sites are characterized by scatterings of lithic artifacts and were likely used for hunting and gathering, possibly on a seasonal basis. Larger sites are believed to be central-

base settlements occupied by larger groups of people. These sites may cover acres of land and contain tens of thousands of chert debitage and tools (Milanich 1994).

Pre-Ceramic Late Archaic (4,000/3,000-2,000 BC). By the time of the Late Archaic period, sea levels reached historic levels and the climate stabilized. However, analysis of current climatological data suggests an average warming trend in the early twenty first century that will far surpass the rate of change experienced during the Archaic period upsetting the climatological stasis experienced since the Archaic. Predictive modeling indicates that the rate of sea level rise projected to occur before the end of this century (2m) will occur up to three times as quickly as it did in the Archaic (Allison et al. 2009). Relatedly, sea level rise of just 1m will result in the inundation of over >13,000 known historic and prehistoric archaeological sites, as well as over 1000 locations currently eligible for inclusion on the National Register of Historic Places (NRHP) (Anderson et al. 2017), greatly limiting the evidence through which archaeologists may continue to study the distant human past.

Human adaptations to wetlands continued, as utilization of the Indian and St. Johns Rivers and coastal marshes increased during the Late Archaic. Elaborate regional lifeways developed as human populations adapted to unique environments (Milanich 1994). Sufficient food resources from the increase in rich estuarine environments created a population boom. Reliance on aquatic food sources was characteristic in coastal regions, evidenced in the archaeological record by large shell middens and mounds. Interior populations expanded hunting, fishing, and plant collection (Smith 2012).

Diagnostic artifacts from this period include Archaic stemmed points, steatite bannerstones, various lithic tools and debitage, bone and shell tools, bone awls, bone points, and utilized antler. Burials within shell middens were also common during the Late Archaic, as well as mass burials (Dickinson and Wayne 2004).

Archaic Orange Period (2,000-1,500 BC). At the end of the Archaic, different techniques for the manufacturing of pottery emerged either through innovation or by cultural diffusion. Fiber-tempered pottery is recognized as the earliest form of ceramic in Florida being tempered with vegetal fiber and occasionally sand, and denoting manufacture during the Orange Period. Sassaman (2003) was able to refine these dates in the middle St. Johns region to 2000-1500 BC. Orange period Archaic sites have few differences from earlier Archaic sites in size, location, or artifact assemblages except for the presence of fiber-tempered pottery (Smith 2012).

Terminal Archaic/Transitional Period (1,200-500 BC). The Terminal Archaic period, (traditionally known as the Transitional Period), is regarded as the end of the hunting/gathering lifeways that most prehistoric Floridians followed. Fiber-tempered wares dominate the beginning of the period but manufacturing transitioned to sand and limestone tempered wares towards the end of the period. Regional varieties of ceramic decorations increased and the development of large middens suggest a more sedentary lifestyle. Evidence has shown that population growth and contact with other groups resulted in the exchange ideas and products with the more northern neighbors (Smith 2012).

3.1.3 Belle Glade (500 BC- AD 1715)

The Okeechobee Basin was the center for the Belle Glade Culture from as early as 500 BC. This culture was named after excavations by Sears at the Belle Glade site in Palm Beach County (Dickinson and Wayne 2004). This area includes the Glades, Hendry, Palm Beach, and Martin Counties, as well as the Hardee, Okeechobee, Osceola, and Polk Counties. Participation in the culture is marked by the emergence of Belle Glade Plain pottery around AD 500 within this region (Widmer 1988). Another distinctive trait of Belle Glade sites are the significant earthworks created there, such as canals, circles, mounds, and linear embankments, constructed into geometric patterns. Examples of these constructs are located at Fort Center (8Gl13), Barley Barber (8Mt19), Big Mound City (8PB46), and Belle Glade Mounds (8PB45) (Carr 2012a).

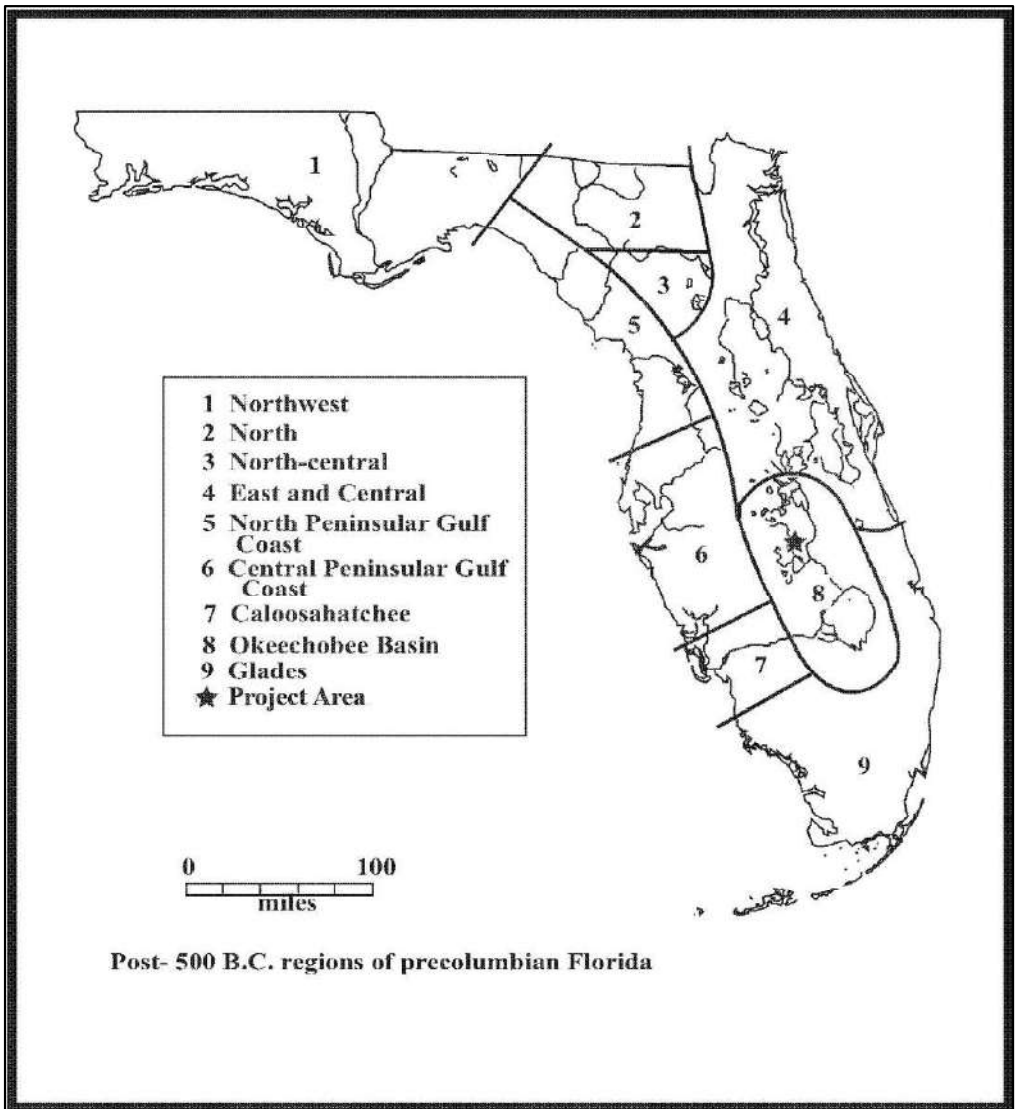

Figure 5. Map of Post-500 BC Regions of Pre-Columbian Florida (Milanich 1994).

The construction of drainage ditches and canals suggest that the Mississippian Okeechobee Basin was a hub of political, economic, and social activity. Travel by canoe allowed exchanges of ideas and goods along the major water routes (Carr 2012a). These connections are evidenced by similarities between sites in the Okeechobee Basin and the Caloosahatchee region. Pottery made by the Late Pre-Columbian ancestors of the Calusa is very similar to those found at sites in the Okeechobee Basin from the same period (Smith 2012). It is also suggested that the Belle Glade chronology has greater similarities to the Caloosahatchee area than the Circum-Glades area indicating close ties to the west coast (Widmer 1988).

Belle Glade I (1,000 BC-AD 200). Belle Glade I is marked by small groups of people (100 or fewer) that constructed mounds, ditches, and other earthworks near creeks. Mounds, constructed of shell middens, were the center places for housing and ceremonies (Wayne and Dickinson 2010). Subsistence heavily relied upon aquatic resources, especially turtles and fish, but there is also evidence of horticulture being conducted as early as 450 B.C (Milanich 1994). Some archaeologists theorize that specialized adaptation to the inland savannahs and hammocks indicates horticulture provided the Belle Glade populations enough subsistence to reside so far from the coast (Wayne and Dickinson 2010). Carr (2012) disagrees, and postulates that the environmental conditions were

unsuitable for maize cultivation and the area's expansive water resources would have provided the required subsistence opportunities instead. Exotic materials, such as chert and volcanic rock found at Belle Glade sites also suggest that trade was an important part of their economy and possibly subsistence activities (Milanich 1994).

The tool assemblage for this period consists of chipped chert tools that reflect three main styles: small triangular projectile points; Hernando-like basally notched; and triangular-bladed, stemmed Archaic-like points. Other lithic tools include knives, abraders, sharpening stones, and food grinders. Shell tools were also utilized, including celts, adzes, gouges, picks, and hammers. Pottery was dominated by plain fiber-tempered wares in the early part of the period, which were replaced by quartz tempering and sponge spicule pastes, similar to those in the St. Johns sequence (Wayne and Dickinson 2010).

Belle Glade II (AD 200-800). Subsistence strategies appear to have changed little in Belle Glade II from the previous period. Maize was still being grown in circular ditches and may have increased slightly (Milanich 1994). This is evidenced by the burning of lime for making dried, stored corn more palatable (Wayne and Dickinson 2010). Changes to the construction of charnel houses and ceramics are the defining characteristics of the Belle Glade II Period. Charnel houses were constructed for the preparation of the deceased for burial. They consisted of a low platform mound, a human-made pond, a dense midden across the pond from the mound, and a surrounding earthwork (Wayne and Dickinson 2010). The low mound was the base for the charnel-house structure (Milanich 1994). A wooden platform was built on the edge of a pond with the platform posts carved with a variety of animal effigies (Wayne and Dickinson 2010).

Ceramics of this period are typified by the complete absence of fiber-tempered wares and a subsequent appearance of Belle Glade Plain pottery. This ceramic type is distinguished by a smoothed or tooled surface, which was achieved by running a wooden tool over the surface and creating characteristic drag marks from the quartz granules (Milanich 1994).

Belle Glade III (AD 800-1400). The Belle Glade III Period is defined by a transition from use of the charnel house system and a change from circular earthworks to linear earthworks terminated by house mounds (Wayne and Dickinson 2010). The ceramic assemblage manufactured during this time period remained unchanged with Belle Glade Plain being the dominant ware (Milanich 1994). The appearance of St. Johns Check Stamped wares is noted after A.D. 800-1000. No change in settlement patterns or subsistence is evident (Wayne and Dickinson 2010).

Belle Glade IV (AD 1400-1700). This period is marked by an increase in earthwork construction and house mounds. Circular ditches were no longer being constructed or used as they were in the previous periods. Earthwork construction during Belle Glade IV now consisted of linear, raised earthen embankments, ranging from 55 m to more than 177 m (180 feet to more than 580 feet) long with a circular house mound at the terminus. The linear embankments may have been utilized for continued maize production but evidence for this is modest (Milanich 1994).

The artifact assemblage for this period is markedly different from those of the previous Belle Glade periods. Although the main pottery ware produced was still Belle Glade Plain, the new type of vessel rims made in expanded flat or comma shapes are notably different from the earlier versions of this ware (Wayne and Dickinson 2010). Established chronology is based upon radiocarbon dates from Fort Center but is also supported by the presence of Spanish items and reworked Spanish metal, as well as glass beads and Spanish majolica ceramics (Wayne and Dickinson 2010).

3.2 Historic Overview

3.2.1 Contact Period

It is unknown when Europeans first made contact with Florida's natives. The Spanish almost certainly conducted slaving raids on the Florida coast in the early 1500s, but Juan Ponce de León made the first recorded landfall in Florida in 1513, somewhere north of St. Augustine (Griffin 1983:18). After Ponce de León, the Spanish sent several expeditions to Florida, with the expedition having the most local impact being that of Hernando de Soto in 1539-1540. DeSoto's expedition landed at present-day Tampa and marched north into Georgia, apparently passing just to the east of present-day Pasco County.

Initial attempts by Europeans to colonize Florida proved unsuccessful due to the climate and hostile reaction of the Native groups indigenous to the area. In spite of the failure of early colonization efforts, the Spanish expeditions did succeed in disrupting indigenous culture and society through warfare and introduction of Old World diseases that natives had no immunity to.

3.2.2 Colonization Period

The Spanish were the first to attempt to colonize Florida starting with the establishment of St. Augustine in 1565. The Spanish soon began sending out Catholic missionaries north into present-day Georgia and west into the Florida interior to convert the Indians to Christianity. The missionaries organized Indians around mission villages and village churches located on a trail known as El Camino Real (more commonly known now as the Old Spanish Trail). This trail went from St. Augustine west into the panhandle. The closest mission to the project area, San Francisco de Potano, in present-day Alachua County, was about 150 km north of present-day Pasco County (Gannon 2005). With the exception of St. Augustine and the missions, Spanish colonization efforts and the economy of Florida languished, particularly after repeated English invasions staged from the Carolinas, and later, Georgia in the early 1700s and early 1740s (Arnade 1959:59; Goggin 1952:74).

In 1670 the British established the Carolinas colony just north of Florida. The newly arrived British and their Indian allies drove Spanish missions out of Georgia and proceeded to invade Florida in 1702. Moore's campaign essentially destroyed the Spanish mission system in Florida and destabilized the Spanish colony's settlement and economy for decades to come (Arnade 1959).

At the end of the Seven Year's War in 1763, under the terms of the Treaty of Paris, Spain ceded its Florida holdings to England in exchange for Cuba. England gained the Florida territory and divided it into two separate colonies in order to better control it. East Florida stretched from the Atlantic coast westward inland to the Apalachicola River, and West Florida continued west from the Apalachicola River to the Mississippi River in present day Louisiana. The established city of St. Augustine was chosen as East Florida's capital, and West Florida was governed from Pensacola. During their 20-year occupation of East Florida, the British encouraged settlement and development in Florida, in an attempt to revive the colony's moribund economy. The British instituted generous settlement and development policies, which gave away large tracts of land to the social elite in exchange for bankrolling commercial and agricultural enterprises (WPA 1939 [1956]:54). During the English period of control the Pasco County area remained uncolonized.

When the American Revolution ended in 1783, Florida reverted to Spanish rule (Meide 2010). In 1790 the Spanish crown opened East Florida to English-speaking settlers, and Americans began moving over the border to take advantage of Spanish land grants. The decision to allow these settlers into their colony would eventually come back to haunt the Spanish authorities, setting the stage for unrest, conflict, and eventual American possession of Florida. Also by this time a combination of remnants of original Florida Indians, Creeks migrating south into Florida, and escaped slaves coalesced to form an Indian cultural group known as the Seminoles, and their off-and-on conflict

with settlers after American acquisition of Florida would last well into the 1850s (Cusick 2000; Owsley and Smith 1997).

In the early 1800s the border between Georgia and Spanish Florida proved violent and unstable. Florida, with its Seminole Indians and escaped slaves, was also a source of concern as a potential springboard for English invasion of the southern US, particularly during the War of 1812 (Landers 1996:180-181; Owsley and Smith 1997; Patrick and Morris 1967:27-28). US troops occupied Amelia Island twice, in 1812-1813 and 1817, while further west, an American force under General Andrew Jackson repeatedly crossed the border in pursuit of Creek Indians. Spanish authorities could not effectively defend their territories against American incursion and in 1821, Spain ceded Florida to the United States (Owsley and Smith 1997).

3.2.3 American Territorial Period

General Jackson became the first governor of the Florida Territory upon establishment of American authority in 1821. He divided the state into Escambia and St. Johns counties. At this time, St. Johns county encompassed all of Florida east of the Suwannee River including present day Pasco County (The Newberry Library 2019). In 1823, the Seminole leadership and the US Government signed a treaty which removed the Indians to a massive reservation bounded by Big Swamp to the north and Charlottes River to the south (Knetsch 2003). The eastern portion of present-day Pasco County was located in this Reservation, with the Zephyrhills Airport property just east of the Reservation's boundary line (Newberry Library 2019). In 1824 the area became part of Alachua County, while Fort Brooke was established on the southern edge of the mouth of the Hillsborough River to oversee the settlement of the Seminole Indians on the reservation. The settling of Tampa Bay began around this time (Knetsch 2003; Newberry Library 2019). In 1828 the Territory's government clarified the Reservation boundary lines and placed most of what is now Pasco County in the Seminole Reservation (Newberry Library 2019).

In 1832, representatives of the Seminoles signed the Treaty of Payne's Landing, which would require the Seminoles to move to reservations west of the Mississippi River within the space of three years. However, the Seminole leaders who signed the treaty did not have the actual authority under Seminole custom to do so, and other chiefs and the Tribe itself did not feel the Treaty was binding because they had not agreed to it. Tensions between whites and Indians rose as the three-year deadline neared (Knetsch 2003).

In 1834 present-day Pasco County became part of newly formed Hillsborough County. Just a year later war broke out with the Seminoles, inaugurated by the killing of the US Indian agent at Fort King, in present-day Ocala, and the massacre of 108 soldiers under Major Francis Dade that same day, about 20 miles north of the project area (Knetsch 2003).

In the opening phase of the war, the Seminoles attacked white troops in large war parties and raided individual plantations and settlements. Panicked whites fled northwards, or south to the Keys. The Army and militia began constructing forts at settlements and strategic locations along trails and waterways, to protect settlers and constrain Seminole movements. By 1837, the American forces began pushing Seminole resistance further south into the peninsula. In 1842, the government shipped hundreds of surrendered Seminoles west, ending the Second Seminole War (Knetsch 2003).

During this violent time in the late 1830s and early 1840s the first few, isolated pioneers attempted settlement in what is now Hernando and Pasco Counties (Hendley 1943). To assist settlement Congress passed the Armed Occupation Act, designed to stimulate white immigration into Florida and pressure the remaining Seminoles to leave the territory. The law provided men willing to settle on the Florida frontier with 160 acres of land. This enactment indeed stimulated settlement below the Withlacoochee River (Leaming 1936). That same year Jacob Wells established a farmstead which became the community of Prospect, about five miles northeast of the project area, while James Gibbons was granted 160 acres in what came to be known as Dade City, now the Pasco County seat (Miller 2018).

3.2.4 Early Statehood Period

With the close of the Second Seminole War the Tampa area shifted from a military to the prime commercial center for the Gulf Coast of Florida and south Florida settlements. Tampa in the 1840s, located just south of present-day Pasco County was the economic center of settlements of south Florida. Hernando County was established in 1843 from portions of Alachua and Hillsborough counties. Hernando county encompassed present day Hernando, Pasco, and Citrus counties (Newberry Library 2019).

Florida was admitted to the Union in 1845 as a southern slave state, with Tallahassee as capital. The coming of statehood and the end of the Second Seminole War coincided with each other. Although Florida became relatively prosperous during the remainder of the Antebellum period, the Pasco County interior remained a backwater, apparently consisting mostly of isolated settlers. In 1856 in one last spasm of violence, Seminoles attacked Captain Robert Bradley's homestead, killing two of his children. By 1859 there were three post offices in the area at Cedar Tree, Fort Dade, and Fort Taylor (Miller 2018).

3.2.5 Civil War and Reconstruction

On January 10, 1861, Florida seceded from the Union, following South Carolina and Mississippi into the Confederacy. Hostilities began not long after. Union forces occupied and controlled the coast during the war, taking Fernandina and St. Augustine on the east coast, Tampa, Charlotte Harbor, Cedar Key, and Pensacola on the west coast, Ft. Myers on the southwest coast, and holding on to Key West for the duration of the war. In the interior, the Confederates maintained control. The period of progress and growth in Florida came to a standstill at the start of the Civil War. Farms were left untended, and business growth grew stagnant as men left to join local militia units (Smith and Healey 2012).

The Civil War ended in defeat for the Confederacy in April 1865. The war devastated the Florida economy. As in the rest of the South, Reconstruction and the final decades of the nineteenth century in Florida would be marred by pervasive racial prejudice. But unlike its neighbors, Florida had few physical scars from the Civil War and adopted a laissez-faire approach to governance. As a result, it experienced significant economic growth and financial investment before the turn of the century (Gannon 2003). As in the rest of the South, tenant farming and sharecropping replaced slavery in the rural areas of the state.

The Florida Southern Railway Company arrived in Hernando county in 1885. The railway extended from just east of present-day Zephyrhills to Lakeland. This line later became a component of the Seaboard Air Line Railway (Miller 2017). Pasco County was formed on June 2, 1887 when Hernando County was divided into Hernando, Pasco, and Citrus Counties (Newberry Library 2019). Pasco County was named for a United States Senator from Florida, Judge Samuel Pasco. Dade City became the county seat because it was the largest city at the time. The citrus and naval stores industries flourished in central Florida and they influenced the development of the area (Jensen and Garrison 1987; Miller 2019).

3.2.6 Twentieth Century

In 1910, Captain H.F. Jeffries, a Union Army officer, and his son-in-law purchased 3,500 acres of Pasco County for a home for Civil War Union veterans. The established community of Abbott's Station was included in the purchase, and the community became known as Zephyrhills. The city of Zephyrhills was incorporated in 1915 (Miller 2017).

The advent of widespread automobile ownership in the 1920s fueled further development in the Sunshine State. Primarily, this growth occurred in central and south Florida, although all of Florida benefited from the influx of wealth and new residents. By the mid-1920s, 2.5 million tourists visited the state, many using cars. Between 1920

and 1930, the length of paved roadway in Florida quadrupled from 1,000 miles of roadway to 4,000 paved miles (Rogers 1996:292-293). US 301 was constructed during this period of expansion and it extended from Folkston, Georgia 260 miles into Florida. The portion connecting Zephyrhills to Tampa was constructed in 1936 (Bohren 1989).

By the late 1920s, the Florida land boom had turned into bust, financially ruining thousands who had speculated in various land schemes within the state. The Florida land bust foreshadowed the nation-wide Great Depression, which began with the 1929 stock market crash. The 1930s proved to be a lost decade economically speaking for Florida and the rest of the nation. Florida recovered from the Great Depression by preparing for World War II. Servicemen and women brought new growth to the economy, and the construction of roads, airfields, and other defense efforts brought people and growth to Pasco County. In 1942, Zephyrhills was chosen to receive an Army Air Corps Base. It was located at the airfield that had been built in 1939 and would facilitate the training of the 10th Fighter Squadron. The base eventually became the city's municipal airport in 1947 (Bohren 1989; Miller 2017).

In the decade after the war Florida experienced a nearly 50% population growth as ex-servicemen stationed down in the Sunshine State returned to live there for good. This massive influx of new residents shifted the state from a rural, mostly under populated state to one characterized by large urban centers, a network of paved highways, and sprawling suburban development by the 1950s and 1960s. This development primarily impacted the northeastern and southern parts of the state in the late 1940s through the mid-1950s. Zephyrhills began bottling water as one of their big industries, and it became one of the biggest employers in the area (Miller 2017).

Completion of Interstate 4, Interstate 275, and Interstate 75 provided access to Pasco County and Zephyrhills. Pasco county experienced a population boom, and the housing opportunities drastically increased. Today, Pasco County is designated as part of the Tampa-St. Petersburg-Clearwater Metropolitan Area.

4.0 RESEARCH DESIGN

The purpose of this CRAS was to identify and document cultural resources within the APE and to assess their potential for listing in the NRHP based on their historical, archaeological, or architectural value. Survey methods generally included the following tasks: 1) background research: 2) field survey: and 3) analysis and documentation. Because the Proposed Project is anticipated to induce a negligible change in noise over the existing condition and the DNL 65 dB noise contour will continue to be fully located within airport property, and because the Proposed Project is limited to additions to existing pavements and does not involve construction that would impact viewsheds, the Survey did not include a review of potential viewshed impacts to any known or potential historic buildings or structures in the vicinity of the Proposed Project.

4.1 Background Research

Archival research began with a search of the Florida Master Site File (FMSF) database maintained by the Department of Historic Research (DHR) of the Florida Department of State. The records included in the FMSF provide relevant data regarding previous surveys, recorded archaeological sites, cemeteries, bridges, structures, and resource groups in the Zephyrhills area. LG²ES also utilized historic aerial photos (1943 to present), topographic maps, and historic maps to analyze the environmental character of the Proposed Project Study Area and to search for potential historic sites, non-standing historic structures, and historic roads. According to historical aerial photographs, development of this area occurred prior to 1969. This indicated that historic era cultural material could be present in the study area.

The search of the FMSF indicated that no previous cultural resource surveys have been conducted within the APE; however, 22 previous archaeological and/or historical surveys have been conducted within one mile of the Proposed Project Study Area (Table 2). As a result of these surveys, 42 archaeological sites, 448 historic structures, one historic cemetery, one historic bridge, and three resource groups have been recorded (See Tables 2, 3, 4, and 5 below). Of these, three structures and one site are eligible for the NRHP; one site is potentially eligible for the NRHP; 76 structures, 22 sites, one resource group, and one bridge are not eligible for the NRHP; 369 structures, 13 sites, and one cemetery have not yet been evaluated; and four sites and one resource group have insufficient data to be evaluated by SHPO. Additionally, two cultural resources including the Captain Howard B. Jeffries House (8PA00385) and the Zephyrhills Downtown Historic District (8PA01357) are listed in the NRHP. There are no previously recorded cultural resources located within the survey area.

Table 2. Previous Surveys Within One Mile of the Proposed Project Area.

Survey Number	Title	Date	Author	Sponsor
252	An Archaeological Assessment Survey of the Construction Impact Areas of the Upper Hillsborough Flood Detention Area, Southeastern Pasco County	1979	Wharton, Barry R.	SW FL Water Management
1456	Proposed improvement of US 301 from SR 39 south of Zephyr Hills to CR 54 East, north of Zephyr Hills, in Pasco County, Florida.	1987	Ballo, George R.; Wiedenfeld, Melissa G.	Fla. Dept. of Transportation
1905	Archaeological Resources of the Upper Hillsborough Flood Detention area, Pasco and Polk counties, Florida	1984	Wharton, Barry R.	Hillsborough River Basin Board
2810	Cultural Resource Assessment Survey of the Proposed Alignment Corridors for State Road 54, Cypress Creek to the Zephyrhills Bypass (U.S. 301), Pasco County, Florida.	1991	Dethlefsen, Edwin S. * Estabrook,	FL Depart. of Transportation

Survey Number	Title	Date	Author	Sponsor
			Richard W. * Greiner, Inc.	
3618	A Cultural Resources Survey of State Road 39 from I-4 to US 301 in Hillsborough and Pasco Counties	1992	Almy, Marion M. Deming, Joan G. Fiore, Francesca Moran	FL. Dept. of Transportation
5480	Cultural Resource Assessment Survey of the Zephyrhills Mine Expansion Tract, Pasco County, Florida	1998	Deming, Joan	Plaza Materials Corporation
5603	City of Zephyrhills Historic Preservation Survey Grant No. F9802	1999	Quatrefoil Consulting	City of Zephyrhills
5840	Cultural Resources Assessment Survey of the Proposed Buccaneer Gas Pipeline, Florida [Volume 1: Final Report of Findings; Volume 2: Appendices]	2000	Estabrook, Richard W.	Williams Gas Pipelines-Transco
6060	Cultural Resource Assessment Survey update Technical Memorandum S.R. 39 from I-4 to U.S. 301 Project Development and Environment (PD&E) Study Hillsborough and Pasco Counties, Florida	1999	Deming, Joan Hinder, Kim Hutchinson-Neff, Lee	Florida Dept Of Transportation
6800	Cultural Resource Follow-up Surveys for Lines 500 and 600 (Supplemental Report 5)	2002	Janus Research	GULFSTREAM
10809	Cultural Resource Assessment Survey, Rucks Parcels, Pasco County, Florida	2003	Archaeological Consultants, Inc.	Heidt and Associates, Inc.
11053	Phase 1 Cultural Resource Survey of the Feliciano Property, Pasco County, Florida	2005	Stokes, Anne V.	Mr. Jeff Ballantine
11798	Historic Resources Survey of East Pasco County	2005	Streelman, Amy	Pasco County Growth Management/Zoning Department
12725	Cultural Resource Assessment Survey of the Hidden River Parcel Pasco County, Florida	2004	Archaeological Consultants, Inc.	Metro Development Group, LLC
13778	A Cultural Resource Assessment Survey of the U.S. 301/Zephyrhills Project Development and Environment (PD&E) Study form S.R. 39 to C.R. 54 Pasco County, Florida	2000	Deming, Joan	Florida Department of Transportation, District 7
14551	Phase I CRS of the Zephyrhills Mine Expansion Project, Pasco County, Florida	2007	White, Matthew	Creative Environmental Solutions, Inc.
18014	Final Cultural Resource Assessment Survey Update Technical Memorandum US 301 (SR 41) from SR 39 to South of CR 54, Pasco County, Florida	2010	Archaeological Consultants, Inc.	Florida Dept. of Transportation, District 7
19020	Cultural Resource Assessment Survey, Kathleen-Zephyrhills North 230kV Transmission Line Project, Polk and Pasco Counties, Florida	2012	ACI	Progress Energy Florida, Inc.
21416	Cultural Resource Assessment Survey, Technical Memorandum, Selected Pond Sites, US 301 (Gall Boulevard) from SR 39 to South of CR 54, Pasco County, Florida	2014	ACI	Florida Department of Transportation

Survey Number	Title	Date	Author	Sponsor
21932	Cultural Resources Survey and Assessment, Crystal Springs Substation, Pasco County, Florida	2015	Dickinson, Martin F. Wayne, Lucy B.	Coastal Engineering Associates, Inc.
22381	Cultural Resource Assessment Survey, PD&E Study US 301 (Gall Blvd) from SR 56 (Proposed) to SR 39 (Paul Buchman Highway), Pasco County, Florida; FPID No. 416564-1-22-01	2015	ACI	Florida Department of Transportation, D7
24019	CRAS, Technical Memorandum Proposed Stormwater Management Facilities and Floodplain Compensation Sites, US 301 (Gall Blvd) from S. of SR 56 (Proposed) to S. of Proposed SR 39 (Paul Buchman Highway) Realignment, Pasco County, Florida; WPIS No.: 416564-1	2017	ACI	Pasco County

Table 3. Previously Recorded Archaeological Sites Within One Mile of the Proposed Project Area.

Site ID	Site Name	Site Description	SHPO Evaluation
PA00125G	Up Hills Fld Det Area 9 G	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00125H	Up Hills Fld Det Area 9 H	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00125I	Up Hills Fld Det Area 9 I	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00125J	Up Hills Fld Det Area 9 J	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00130	Up Hills Fld Det Area 14	Ceramic scatter	Not Evaluated by SHPO
PA00131	Up Hills Fld Det Area 15	Ceramic scatter	Not Evaluated by SHPO
PA00055	Upper Hillsborough 10	Lithic scatter/quarry (prehistoric: no ceramics)	Insufficient Information
PA00125A	Up Hills Fld Det Area 9 A	Lithic scatter/quarry (prehistoric: no ceramics)	Ineligible for NRHP
PA00125B	Up Hills Fld Det Area 9 B	Lithic scatter/quarry (prehistoric: no ceramics)	Ineligible for NRHP
PA00125C	Up Hills Fld Det Area 9 C	Lithic scatter/quarry (prehistoric: no ceramics)	Insufficient Information
PA00125D	Up Hills Fld Det Area 9 D	Lithic scatter/quarry (prehistoric: no ceramics)	Insufficient Information
PA00125E	Up Hills Fld Det Area 9 E	Lithic scatter/quarry (prehistoric: no ceramics)	Insufficient Information
PA00125F	Up Hills Fld Det Area 9 F	Lithic scatter/quarry (prehistoric: no ceramics)	Ineligible for NRHP
PA00127A	Up Hills Fld Det Area 11 A	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00127B	Up Hills Fld Det Area 11 B	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00127C	Up Hills Fld Det Area 11 C	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00128A	Up Hills Fld Det Area 12 A	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO

Site ID	Site Name	Site Description	SHPO Evaluation
PA00128B	Up Hills Fld Det Area 12 B	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00128C	Up Hills Fld Det Area 12 C	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA00129	Up Hills Fld Det Area 13	Lithic scatter/quarry (prehistoric: no ceramics)	Not Evaluated by SHPO
PA01142	Billy	Homestead	Ineligible for NRHP
PA01143	Carrie	Land-terrestrial	Ineligible for NRHP
PA01144	Danny	Prehistoric quarry	Ineligible for NRHP
PA01145	Erin	Land-terrestrial	Ineligible for NRHP
PA01146	Wise #1	Prehistoric quarry	Ineligible for NRHP
PA01147	Wise #2	Land-terrestrial	Potentially Eligible for NRHP
PA01206	Sheperd Park Site	Land-terrestrial	Ineligible for NRHP
PA02055	North Sink Site	Land-terrestrial	Ineligible for NRHP
PA02056	South Sink Site	Land-terrestrial	Ineligible for NRHP
PA02121	Hidden River	Campsite (prehistoric)	Ineligible for NRHP
PA02122	Emerald Pointe	Campsite (prehistoric)	Ineligible for NRHP
PA02123	Hidden River 2	Campsite (prehistoric)	Ineligible for NRHP
PA02146	Feliciano 1	Prehistoric lithics only, but not quarry	Ineligible for NRHP
PA02147	Feliciano 2	Prehistoric lithics only, but not quarry	Ineligible for NRHP
PA02148	Feliciano 3	Prehistoric lithics only, but not quarry	Ineligible for NRHP
PA02463	Orange Site	Historic refuse / dump, Ceramic scatter, Prehistoric lithics only, but not quarry	Ineligible for NRHP
PA02464	North Pasture	Prehistoric lithics only, but not quarry	Ineligible for NRHP
PA02465	South Pasture	Prehistoric lithics only, but not quarry	Ineligible for NRHP
PA02466	LV Site	Prehistoric lithics only, but not quarry	Ineligible for NRHP
PA02467	Plaza Site	Prehistoric lithics only, but not quarry	Ineligible for NRHP
PA02468	Hillsborough Hand Mine	Building remains and Historic mine, phosphate or other	Eligible for NRHP

Table 4. Previously Recorded Cemeteries Within One Mile of the Proposed Project Area.

Site ID	Site Name	Site Description	Established	SHPO Evaluation
PA02321	Crystal Springs Cemetery	Community Cemetery	1917	Not Evaluated by SHPO

Table 5. Previously Recorded Bridge Within One Mile of the Proposed Project Area.

Site ID	Site Name	Site Description	Established	SHPO Evaluation
PA01158	140007	Concrete Slab bridge	1947	Ineligible for NRHP

Table 6. Previously Recorded Resource Groups Within One Mile of the Proposed Study Area.

Site ID	Site Name	Site Description	SHPO Evaluation
PA01357	Zephyrhills Downtown Historic District	FMSF Building Complex	Eligible for NRHP
PA02472	State Road 54	Linear Resource	Ineligible for NRHP
PA02802	Richloam RR	Linear Resource	Insufficient Information

Three previously recorded historic structures are located within 130-300 meters (426-984 feet) west of the northwestern Proposed Project Study Area boundary. These structures are characterized as single-family private residences. Florida site 8PA01107, Bell St, was constructed circa 1925 and is documented 130-meters (426 feet) due west of the Proposed Project Study Area boundary, while 8PA01109, 39824 Riley Ave, and 8PA01108, 5548 Brown Ave, were constructed in 1935 and circa 1940 respectively. These structures are located in a small community which can be seen on the 1975 Topographic map (Figure 9). These structures have not been evaluated by SHPO for inclusion in the NRHP. While 8PA01108 and 8PA01109 are extant structures, 8PA01107 has been listed as destroyed.

Additionally, 40 prehistoric sites have been documented within one mile of the Project APE (see Table 3). These sites are concentrated to the south and east of the South APE. The spatial arrangement of these sites roughly correlates with the route of the Hillsborough River. The closest of these sites is approximately 650-meters (2,132 feet) east of the south end of the South APE.

4.2 Historic Map and Aerial Photograph Review

A review of historic USGS topographic maps and USDA aerials was conducted to analyze historic development within and around the proposed project APE. Zephyr Hills USGS topographic maps from 1947 and 1975, and USDA aerials from 1941 and 1951 were consulted. This review indicated a north-south oriented road is barely visible in the North APE, located north of County Road, but that much of the area was relatively undeveloped (Figure 6). During World War II the airfield was constructed and by 1947 (USGS) a drainage canal first appears on maps, likely excavated prior to the construction of the airfield to facilitate drainage (Figure 7).

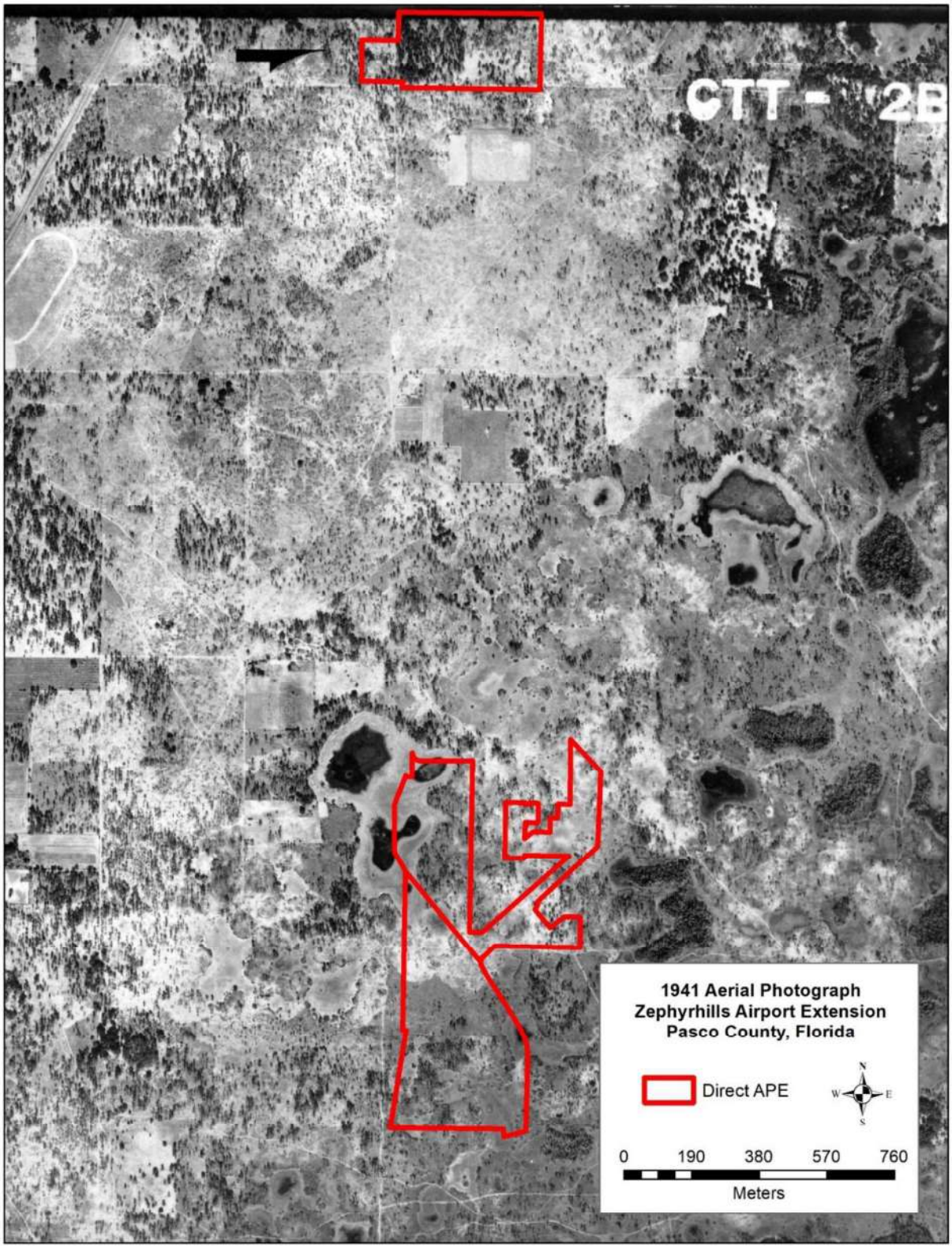

Figure 6. 1941 aerial showing proposed project location of the Zephyrhills Airport Runway 1-19 Extension (USDA 1941).

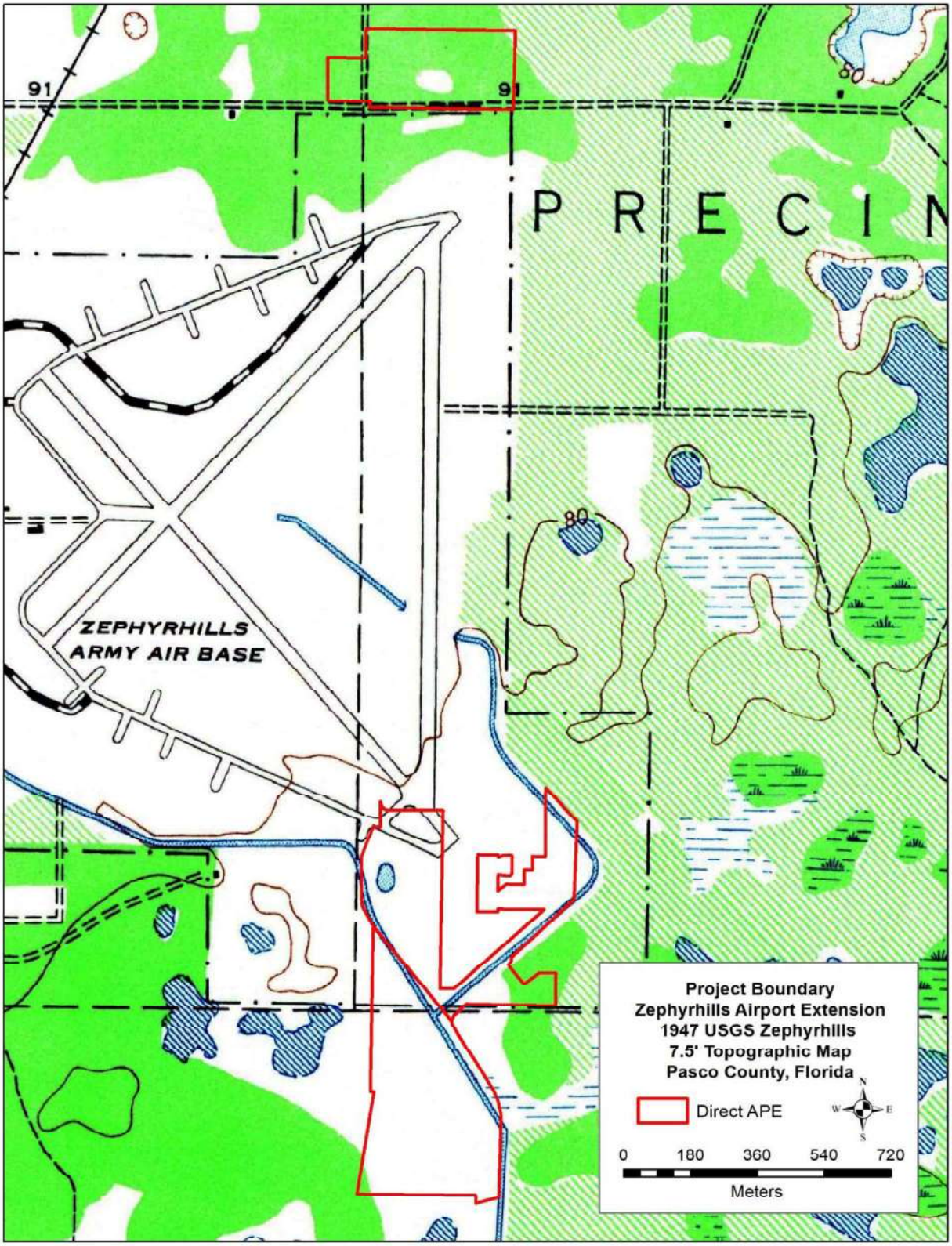

Figure 7. 1947 USGS topographic map showing proposed project location of the Zephyrhills Airport Runway 1-19 Extension (USGS 1947).

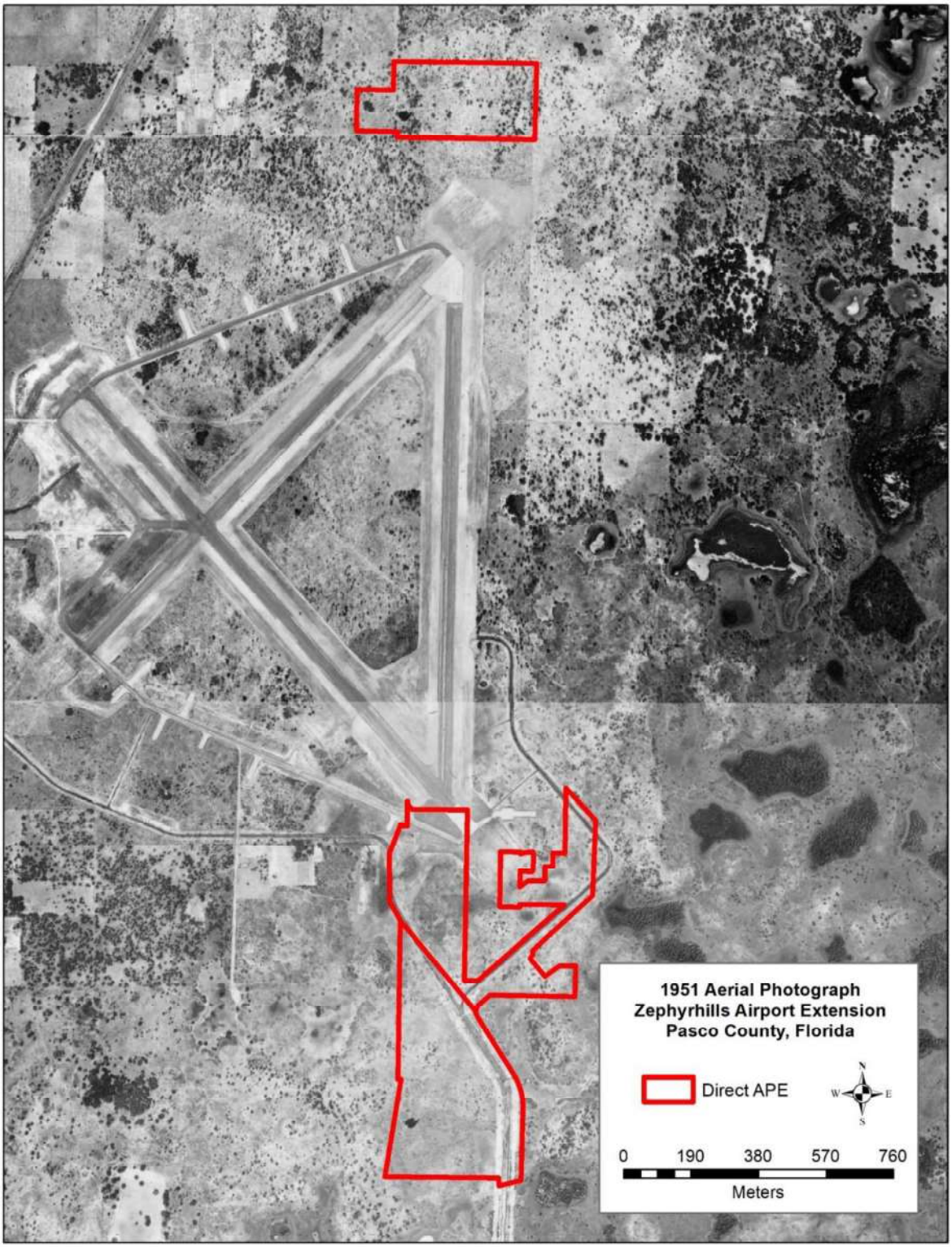

Figure 8. 1951 aerial showing the proposed project location of the Zephyrhills Airport Runway 1-19 Extension (USDA 1951).

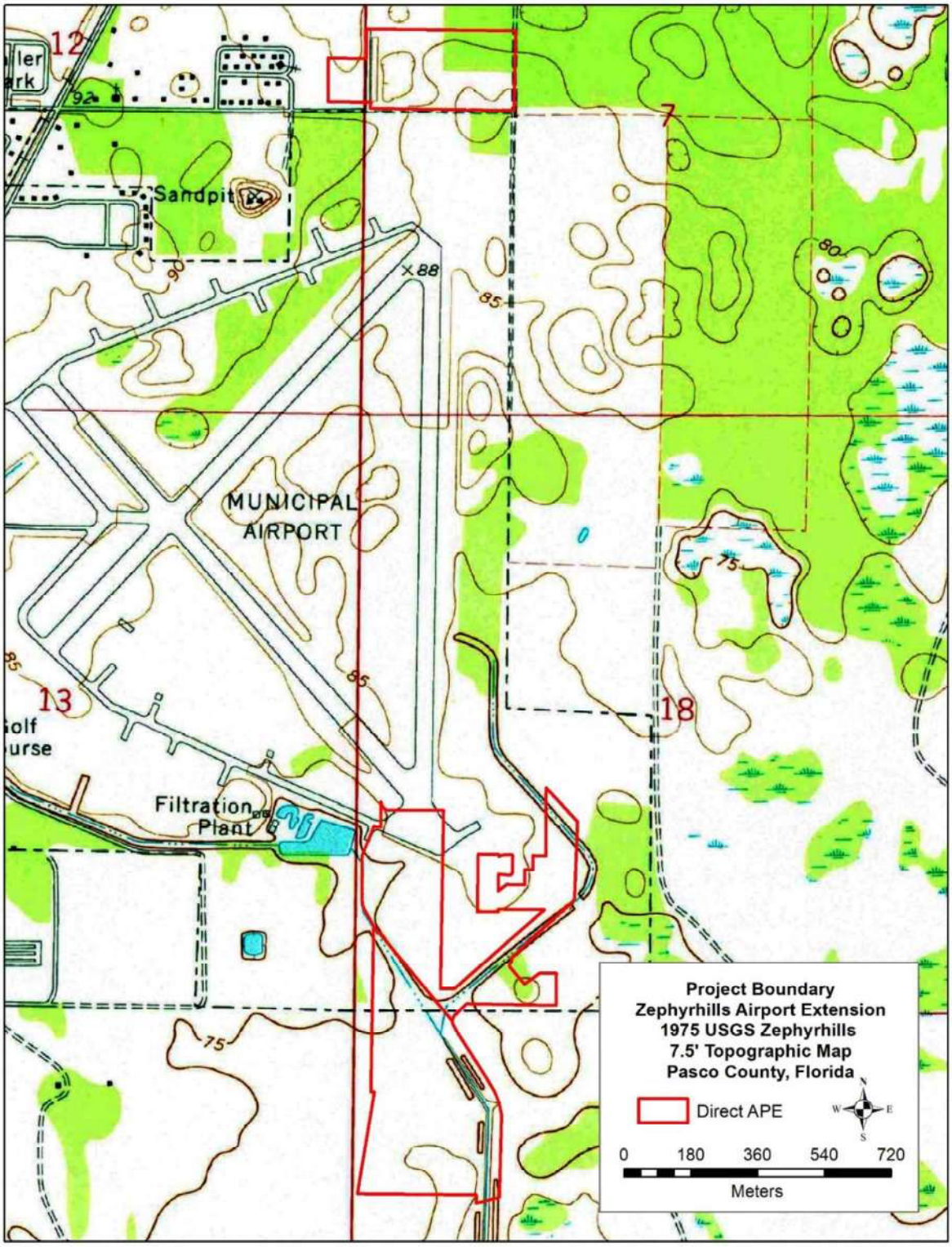

Figure 9. 1975 USGS Topographic Map Showing Proposed Project Location of the Zephyrhills Airport Runway 1-19 Extension (USGS 1975).

4.3 Expected Results

For this survey, a review of the FMSF data was performed in conjunction with probability modelling based on proximity to natural, prehistoric, and historic resources. To make the project areas more manageable from a data perspective, the Project APE was subdivided into three distinct areas based on access. The North APE is non-contiguous with the larger proposed project area to the south, which was subdivided into the Central APE and the South APE. Overall, the North APE exhibited low probability for encountering intact cultural deposits due to the high degree of subsurface disturbance evident from modern aerials; however, the western portion of the North APE exhibited a forested portion with a documented historic road suggesting this area had a moderate probability for encountering cultural resources. The Central APE consisted predominantly of existing ZPH infrastructure, such as a parking lot and campground, and the maintained grass field south of the active runway. Much of the Central APE was considered to have a low probability for encountering intact cultural resources due to the modern and historic disturbances associated with the construction of ZPH. The South APE consisted predominantly of open cow pasture with man-made ponds and a small oak hammock. Despite the modern disturbance documented by the excavation of two large ponds, the South APE was considered to exhibit a moderate probability for encountering cultural resources.

4.4 Field Survey

The archaeological survey included a systematic inspection of the Proposed Project Study Area in a manner consistent with The Historic Preservation Compliance Review Program of the Florida Department of State, Division of Historic Resources. All work was performed in compliance with the requirements set forth in the updated Cultural Resources Management Standards Operational Manual (2002) published by the Florida Division of Historical Resources (FLDHR).

The Phase I survey was conducted from April 2-17, 2019 and between May 10-15, 2020. Work was completed by Megan Bebee, Blue Nelson, Rhianna Bennett, Elizabeth Zieschang, Jordan Nelson, and Monica Murray. Blue Nelson served as Principal Investigator. The archaeological survey consisted of surface inspection and systematic subsurface testing based on probability zone guidelines established in *Module 3* of the *Cultural Resources Management Standards Operational Manual* (FLDHR 2002).

Survey areas were pre-determined and located with the use of geospatial information system (GIS) background files depicting the Project APE boundary overlain with a north/south oriented transect grid. These files were uploaded onto a handheld Trimble Nomad device for reference during fieldwork. Shovel tests were excavated to a minimum width of 50-centimeters and a minimum depth of one meter (100 cm) unless water was reached prior to the planned complete depth. All excavated soil was screened through 1/4-inch mesh for standardized collection of any artifacts present. Shovel test logs were maintained and provide information on the size, depth, soil conditions, and contents of all excavation units. The Munsell Soil Color Chart was used to describe the color of all soil layers. During the shovel test survey, no cultural features or phenomena were identified within the shovel test walls or floors. All shovel test excavations were backfilled after documentation, and all areas were restored to their previous condition to the greatest extent possible.

Areas of low probability were tested judgmentally in adherence with state guidelines, which require testing at least 10 percent of low probability zones (FL DHR 2002). Judgmental shovel tests were placed in areas that exhibited ephemeral landforms or slight elevation changes. Shovel tests within high probability zones were excavated at 25-meter intervals, while shovel tests within moderate probability areas were excavated at 50-meter intervals. Site boundaries were established by delineating positive shovel tests in cardinal directions at 12.5-meter intervals until two consecutive negative shovel tests are achieved or the Project APE boundaries are encountered. Shovel test unit locations excavated were documented using a hand-held GPS unit with a minimum accuracy of three meters.

4.5 Laboratory Analysis

All artifacts recovered during survey were collected for further analysis in the laboratory. This analysis included type and frequency counts, as well as the condition and stability of the materials present. All cultural materials collected were systematically identified and analyzed using procedures or processes appropriate to the type or class of artifact under consideration. The cultural materials collected during this study were prehistoric, historic, and modern in nature and include lithic debitage, historic ceramics, glass, metal, and plastic. Artifact analysis is presented by site in Section 5.0 (Survey Results). A catalog/inventory of all artifacts by specific provenience number is presented in Appendix C. Collected artifacts will be returned to a representative of the ZPH municipal airport after completion of the analysis and report.

4.6 Procedures to Address Unexpected Discoveries

Although the Proposed Project Area has received a complete cultural resource assessment survey, it is impossible to ensure that all cultural resources have been discovered. This section of the report has been developed as a mechanism for Clients and agencies to treat archaeological finds that were not identified and assessed for eligibility for listing in the NRHP during survey on the property.

Unexpected discoveries consist of types of archaeological remains not typically encountered during a project. Examples of such discoveries include human skeletal remains and associated funerary objects (AFOs). As Chapter 872.05 of the Florida Statutes (Offenses Concerning Dead Bodies and Graves) states, if a human burial is discovered during any project, all work in the immediate area must cease and all reasonable efforts must be made to avoid and minimize the impacts. If unexpected cultural resources or suspected cultural resources are discovered, the following steps should be taken:

1. All work in the immediate area of the discovery should cease and reasonable efforts should be made to avoid and minimize impacts.
2. The County Medical Examiner should be notified immediately as to the findings. If the remains are human, and are less than 75 years old, the Medical Examiner and local law enforcement officials will assume jurisdiction. If the remains are found to be human and older than 75 years old, the State Archaeologist should be notified and may assume jurisdiction of the remains.
3. If jurisdiction is assumed by the State Archaeologist, he/she will: a) determine whether the human remains represent a significant archaeological resource; and, b) make a reasonable effort to identify and locate persons who can establish direct kinship, tribal community, or ethnic relationship with the remains. If such a relationship cannot be established, the State Archaeologist may consult with a committee of four to determine the proper disposition of the remains. This committee shall consist of a human skeletal analyst, two Native American members of current state tribes recommended by the Governor's Council on Indian Affairs, and "an individual who has special knowledge or expertise regarding the particular type of the unmarked human burial."
4. A plan for the avoidance of any further impact to the human remains and/or mitigative excavation, reinternment, or a combination of these treatments will be developed in consultation with the State Archaeologist, the SHPO, and if applicable, appropriate Indian tribes or closest lineal descendants. All parties will be expected to respond with advice and guidance in an efficient time frame. Once the plan is agreed to by all parties, the plan will be implemented.

If unexpected finds are encountered at any point in construction, the points of contact for Florida are:

Timothy A. Parsons, Ph.D. – State Historic Preservation Officer
850 245 6300 / timothy.parsons@dos.myflorida.com

Mary Glowacki, Ph.D. – State Archaeologist
850 245 6444 / mary.glowacki@dos.myflorida.com
Florida Department of the State, Division of Historical Resources
R.A. Gray Building
500 South Bronough Street
Tallahassee, FL 32399-0250

4.7 NRHP Site Evaluation Criteria

The archaeological significance of a site is determined using criteria defined in 36 CFR 60.4, in coordination with the State Historic Preservation Office (SHPO). The significance of a site, as established by 36 CFR 60.4, may be in history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects may be eligible for listing in the NRHP if they possess "integrity of location, design, setting, materials, workmanship, feeling, or association" and meet one of the following criteria (from http://www.gpo.gov):

A. Be associated with events that have made a significant contribution to the broad patterns of our history, or;

B. Be associated with the lives of persons significant in our past, or;

C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values or that represent a significant and distinguishable entity whose components may lack individual distinction, or;

D. Have yielded or may be likely to yield, information important in prehistory or history.

Under criterion D, "importance" is based on the likelihood that a site possesses configurations of artifacts, soil strata, structural remains, or other features that allow it to: 1) test a hypothesis about events, groups or processes in the past; 2) support or strengthen currently available information suggesting that a hypothesis is true or false; or, 3) reconstruct the known archaeological sequence for an area (National Register Bulletin 1995: 21). While the evaluation of archaeological sites usually fall under criterion D, historic buildings and structures are typically evaluated for significance under criteria A, B, and C.

NRHP-eligible districts must possess a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. NRHP - eligible districts and buildings must also possess historical significance, historical integrity, and historical context.

5.0 SURVEY RESULTS

The Phase I CRAS of the Zephyrhills Municipal Airport Runway 1-19 Extension proposed project area consisted of archaeological survey of approximately 109.3 acres that was conducted in April 2019 and May 2020 by LG²ES. A total of 175 shovel tests were excavated, of which 22 were positive for cultural material (Figures 10 and 11). The initial fieldwork was conducted in April 2019 as a low probability survey; however, intact soils were identified in two areas (North APE and South APE) exhibiting characteristics suggesting moderate probability for encountering cultural resources. Therefore, a moderate probability systematic survey was conducted in the North APE and South APE, with supplemental fieldwork occurring in May of 2020. As a result, four archaeological sites (8PA03091, 8PA03142, 8PA03143, and 8PA03144), two resource groups (8PA03090 and 8PA03145), and two archaeological occurrences (AO-19 and AO-21) were documented within the ZPH Runway 1-19 Extension APE. Site boundaries were established by delineating positive shovel tests at 12.5-meter intervals in cardinal directions until two consecutive negative shovel tests or the project boundaries were encountered. The initial positive shovel test in each site was assigned an arbitrary N500 E500 grid coordinate, with subsequent delineation tests corresponding with the initial grid point. An archaeological survey form is included as Appendix A, a complete catalog of artifacts recovered during this survey is included as Appendix B, and FMSF forms are included as Appendix C.

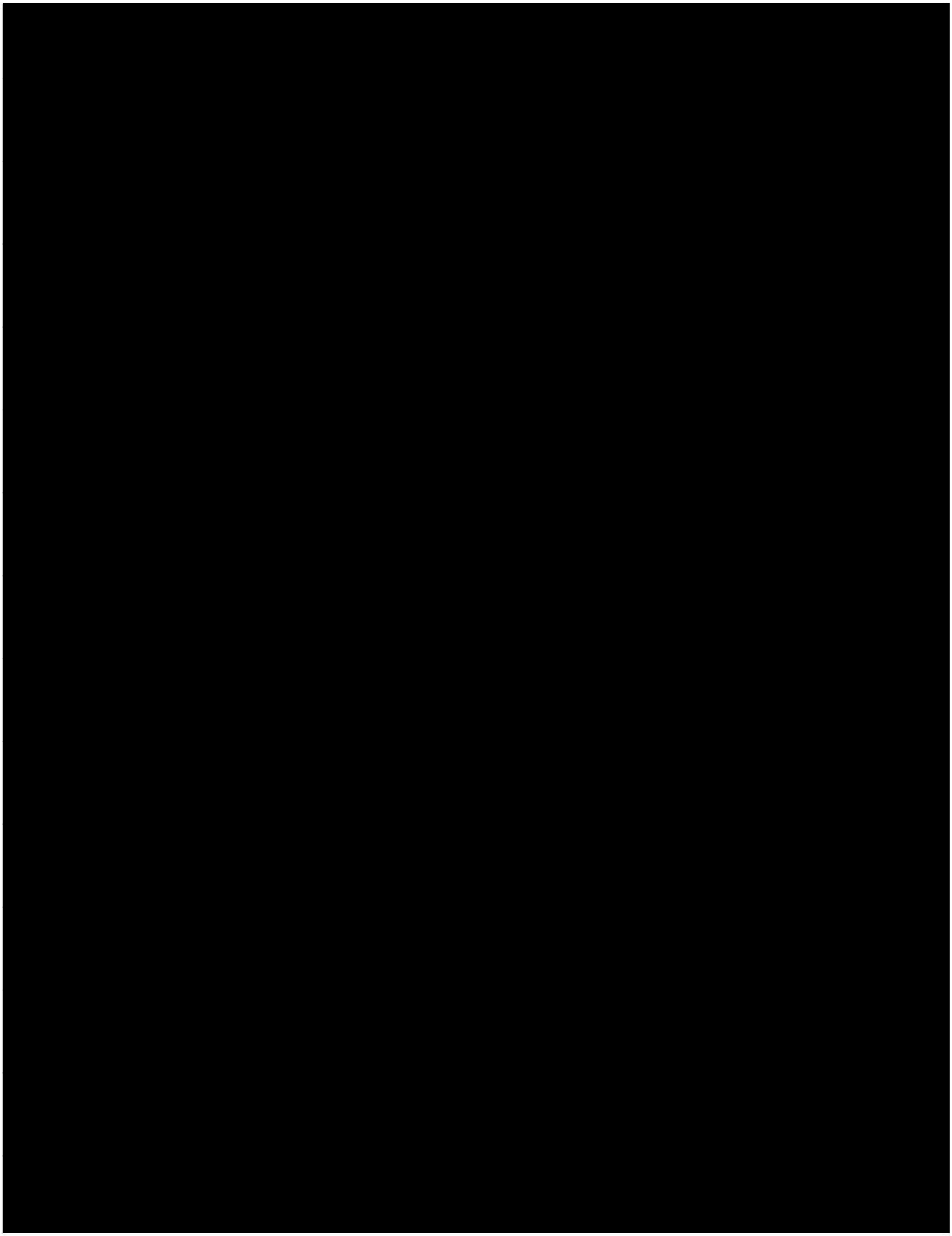

Figure 10. Results of subsurface shovel tests excavated within the North APE.

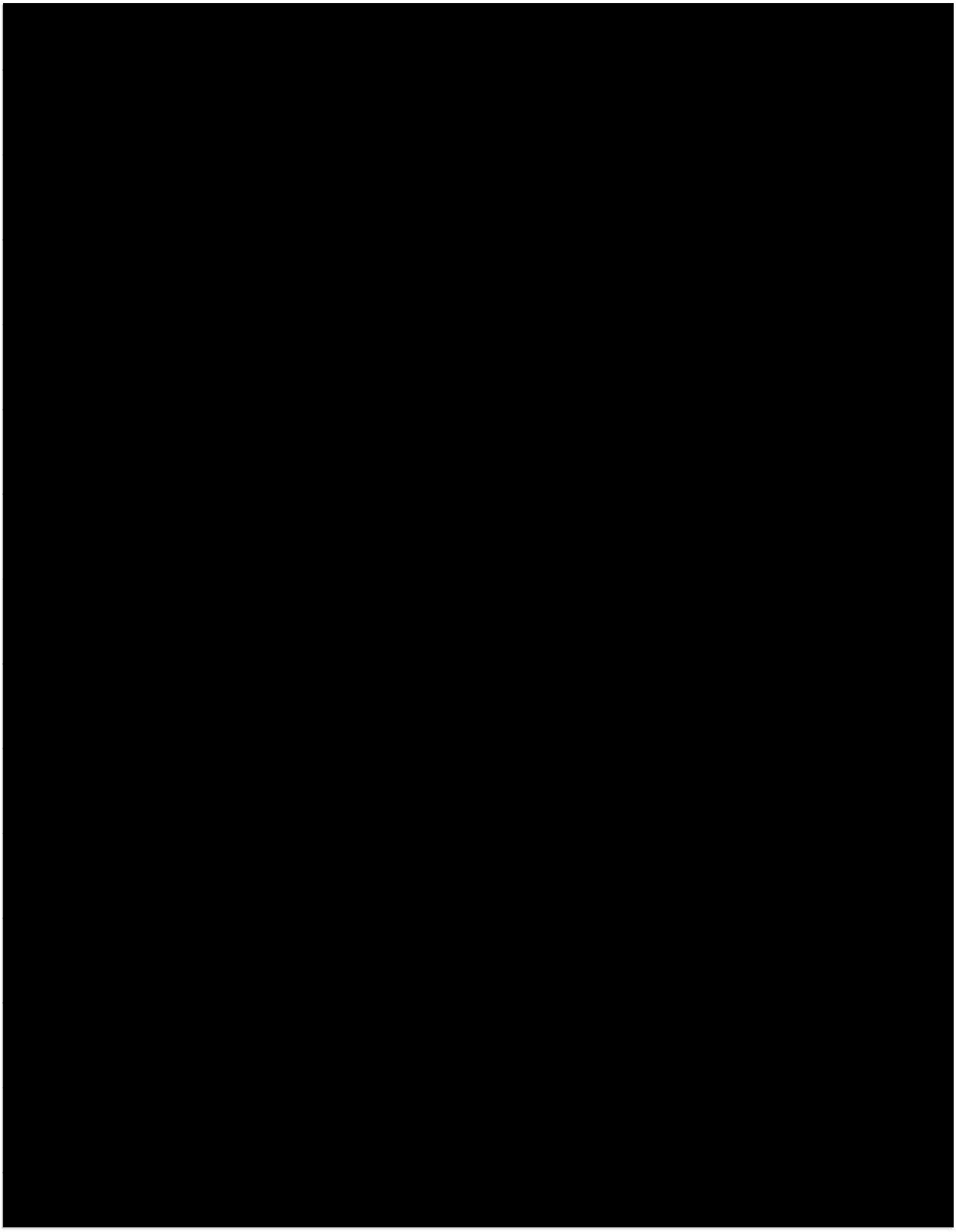

Figure 11. Results of subsurface shovel tests excavated within the Central APE and South APE.

5.1 Phase I Survey

For this archaeological survey, the Project APE was subdivided into three distinct areas, the North, Central, and South APE, together which comprise the overall Project APE. These arbitrary designations (north, central, and south) were assigned to the three individual areas based on access to each area. The North, Central, and South APEs were distinct areas with established boundaries, each of which required a specific access point. The North APE is not contiguous with the rest of the Project APE and is situated almost entirely north of Sixth Avenue/County Road. While the Central APE and the South APE are contiguous, they are divided by a manmade drainage canal (see Figures 10 and 11).

NORTH APE

The North APE is located north of Sixth Avenue/County Road and is characterized by two distinct areas. The western portion is characterized as an oak and pine forest that encompasses approximately four acres, while the rest of the North APE was predominantly confined to an extant municipal utility yard that exhibits a high degree of modern disturbance across much of the Direct APE. Based on the level of disturbance documented across most of the North APE, the probability for encountering intact cultural resources was considered low, except for in the forested western portion, which exhibited high probability for encountering intact historic cultural deposits. Shovel tests were excavated systematically at 25-meter intervals within the undisturbed forested western portion of the North APE, while judgmental shovel tests were excavated within the extant municipal utility yard due to the high degree of modern disturbance documented in historic aerial photographs and observed in the field (USGS 1994, 1999, 2002, 2006, 2008, and 2018). Between 1994 and 2018, this portion of the North APE was subjected to multiple episodes of subsurface disturbance (Figure 12).

Figure 12. Modern disturbances to the North Area APE (red outlined boundary) as documented between 1994-2018 (USGS 1994, 1999, 2002, 2006, 2008, and 2018).

Figure 13. Representative soil profile documented within the municipal utility yard (North APE) that exhibits disturbed soil to over a meter in depth.

Shovel test profiles within the forested portion of the North APE generally exhibit three strata, and are discussed in detail below under the site description for 8PA03090, while shovel test profiles documented within the municipal utility yard displayed variable profiles exhibiting disturbed soils to a depth of 100+ cmbs (Figure 13).

A total of 29 shovel tests were excavated in the North APE. In conjunction with observed historic artifact scatters and structural remains, a total of six positive shovel tests were documented in the forested western portion of the North APE. As a result, one historic homesite, 8PA03090, and one linear resource, 8PA03145, both of which were observed within the forested portion of the North APE.

CENTRAL APE

The Central APE is located within the current airport boundaries and covers approximately 40 acres of moderate and low probability zones. The Central APE is comprised of three distinct areas all of which exhibit some degree of modern or historic disturbance. The western portion of the Central APE includes the maintained airfield south of the extant South runway to the fenced property boundary. The northeastern portion exhibits the RV campground, the parking lot, and a small portion of maintained green space in the airfield south of the manmade pond at the sky diving school. The southeastern portion of the Central APE includes a portion of the ZPH Canal (8PA03091) and a heavily forested area that exhibits a very large storm water retention pond. Due to the extant airport infrastructure, the high degree of modern disturbance, and high-density foot traffic observed of pedestrians coming and going from the busy sky diving school, no shovel tests were excavated within the northeast portion of the Central APE. Due to the drainage canal and large stormwater retention pond observed in the southeastern portion of the Central APE, only five shovel tests were excavated, all of which were negative for cultural material. The western portion of the Central APE exhibited the best probability for encountering cultural resources based on soil drainage, therefore, a total of 45 shovel tests were excavated systematically at 25- and 50-meter intervals with subsequent positive shovel tests being bound at 12.5-meters. A total of 50 shovel tests, of which 11 were positive for cultural material, were excavated in the Central APE (see Figure Results). As a result, one prehistoric archaeological site, 8PA03144, was documented.

Soil profiles for the Central APE are discussed in more detail below, under the site discussion for 8PA03144.

SOUTH APE

The arbitrary northern and eastern boundaries for the South APE is the drainage ditch (ZPH Canal, 8PA03091), oriented northwest-southeast and then trending south across this portion of the project APE. The South APE consists of two distinct areas consisting of a sandy oak hammock situated between the ZPH Canal (8PA03091) and a large fenced cow pasture that encompasses two large modern manmade ponds. The sandy oak hammock is comprised of approximately four acres situated between the airfield fence line and an unused road (Tucker Road), which is now utilized as a bicycle path, while the cow pasture comprises approximately 34 acres of grass pasture with patches of oak trees from the bicycle path south to approximately 50-meters south of the southern-most manmade pond. Based on soil drainage and limited modern/historic disturbances the South APE was determined to have a moderate probability for encountering cultural resources, so a 50-meter grid was excavated across the entire southern APE.

Figure 14. One of the observable limestone outcropping of silicified coral observed in north end of the cow pasture.

During a pedestrian inspection of the ground surface a limestone outcrop of silicified coral was documented at the north end of the cow pasture under a large oak tree. This outcrop included four large limestone fragments that exhibited the fossilized limestone structure of the fossilized coral (Figure 13). Silicified coral is a local raw material that represents the calcified remains of large colonies of corals that lived in the Oligocene and Miocene seas that once covered the state (Austin 2019).

A total of 82 shovel tests were excavated in the South APE, of which eight were positive for cultural material. As a result, two archaeological sites (8PA03142 and 8PA03143), two archaeological occurrences (AO-19 and AO-21), and one resource group (8PA03091) were documented.

Figure 15. Stratum I disturbance documented across the South APE is associated with several clay soils re-deposited during the construction of 8-acre manmade pond.

Representative soil profiles observed in the South APE generally exhibited three strata, which included a 20-40 cm stratum (I), which consisted of mottled clays redeposited atop of the natural ground surface (Figure 15) during the construction of the large 8-acre manmade pond that comprises much of the northern half of the cow pasture. Soil profiles for the South APE are discussed in more detail below, under the site discussions for 8PA03142 and 8PA03143.

Figure 16. Environmental photographs of 8PA03091.

5.2 Cultural Resources

5.2.1 Site 8PA03091, The Mathis Homestead

Site Number	8PA03091	**UTM (NAD 83):**	[redacted]
USGS Quadrangle:	Zephyrhills	**Site Type:**	Historic homestead
Cultural Period(s):	American	**Cultural Phase(s):**	Mid-Late Twentieth century
Vegetation:	Pine, oak, orange, holly	**Elevation (amsl):**	38
Length (m):	102	**Width (m):**	68
Area (m^2):	5259	**NRHP Recommendation:**	Not eligible
Positive STs:	6	**Negative STs:**	18

Description

Site 8PA03091, the Mathis Homestead, is a mid-late-twentieth century historic homestead associated with a domestic occupation and house site. This site is in the western (forested) portion of the North APE, east of a historic road (documented this survey as 8PA03145) (Figure 17). The site was identified by extant structural remains, in-situ and fallen fenceposts, and a large historic artifact surface scatter contained within the observable fencepost boundaries. Shovel tests were excavated at 25-meter intervals across the center of the observed fence line boundaries, indicating a shallow subsurface historic artifact scatter in the immediate vicinity of the structural remains, while shovel tests excavated west of the house site were negative for subsurface cultural material, but considered positive due to proximity to observed artifact scatters on the ground surface.

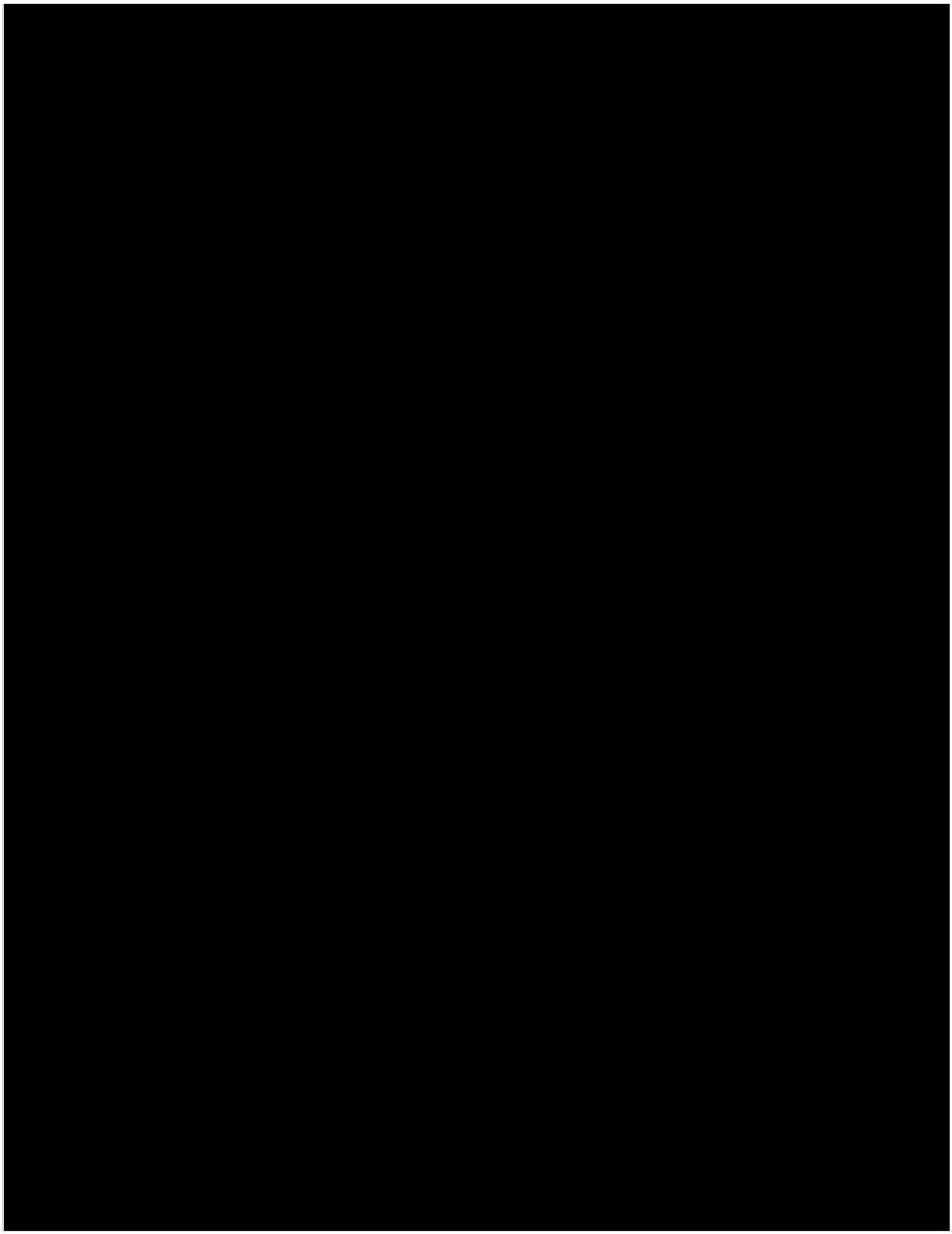

Figure 17. Site map of 8PA03091

The site's extent was initially identified by visual inspection, which documented in-situ and fallen fenceposts along perceived property boundaries (Figure 18). Furthermore, in-situ cast concrete piers, a well pump pipe, a possible privy, agricultural animal areas, and two sets of concrete vernacular exterior stairs were documented, indicating the size of the site, the size and orientation of the house, and the nature of the occupation. Shovel tests along the central portion of the property (east-west) confirmed that the surface scatters were contained within an area believed to be the backyard.

Figure 18. In-situ fence posts and agricultural fencing encountered during the pedestrian survey.

Cast concrete piers, or footers, were observed in situ indicating the location and dimensions of the historic structure that was once associated with this site (Figure 19). The distance between in situ piers was measured, suggesting the structure was approximately 4 meters (13 feet) wide by 10.5 meters (34 feet) long and was oriented east to west. Homemade concrete and block stairs, also oriented east to west, were observed on either side of the intact footers (Figure 18). A review of historic maps indicates an unnamed north-south oriented road (8PA03145) was located east of the structure and ran through the proposed project study area (USGS 1947). This suggests that the east side of the structure represented the front of the house, while the west side of the structure represented the back of the house. Based on the 2-meter (approximately 6 feet) distance between the eastern-most in situ cast concrete pier and the front steps suggests there was a front porch associated with the structure. Due to vegetation on the ground's surface, measurements for the steps' height were somewhat variable. The front porch steps were measured to be 25-30 cm above the ground surface (cmas), while the back-porch steps west of the piers, measured 50-55 cmas. The difference in elevation is likely because the front porch was set at a lower elevation than the floor of the structure, requiring a step up into the structure. Based on window/porch screen observed and documented during the pedestrian survey, this structure utilized metal wire mesh screen (Figure 19).

Figure 19. Structural remains associated with the residential structure at 8PA03091. (Left-Right) In-situ footer, backdoor steps, front porch steps, and window/porch screen.

A water pump or well point was located approximately 3-meters north-northwest of the extant block steps, west of the footers (Figure 20). A possible privy was identified by a noticeable depression, approximately 1.2 meters (north-south) by 1.2 meters (east-west), approximately 28-meters west of the footers. During the investigation of this

feature a thick metal plate was encountered variably between 3-10 cmbs. The corner of the thick metal plate indicated it covers an extant hole. A cursory investigation of this feature reveal that the feature fill includes brick fragments, concrete block fragments, metal pipes, and a toilet seat fragment. The investigation of this feature was abandoned due to safety concerns over encountering relatively modern hazardous waste.

Furthermore, additional structural remains were documented west of the footers, indicating at least two agricultural activity areas that were utilized for raising livestock. The first area, located approximately 40-45 meters west-southwest of the extant footers, consists of fence posts, agricultural fencing, and a tin-enameled sign with a length measurement (Figure 21). Based on the size of the area inferred by the extant remains, this area was likely utilized for cultivating chickens. Nails observed in the fence posts are wire nails, which indicate a twentieth century construction date for the chicken coop.

Figure 21. Structural remains of agricultural structure, likely a chicken coop. (right) close-up of tin-enameled measuring sign.

The second area that exhibited extant structural remains associated with agricultural activity is located approximately 80 meters west of the extant footers. Structural remains in this area consist of fence posts, variegated tin roof fragments, agricultural fencing, cinder blocks, and an orange tree (Figure 22). This structure encompassed a larger area than that observed at the "chicken coop", and likely represents the remains of a pole barn structure associated with larger livestock such as horses or cows. Nails observed in the fence posts are wire nails, which indicate a twentieth century construction date for the chicken coop. This activity area was co-located with a large historic artifact scatter that consisted of cinder blocks, glass bottles (most dating to the 1950s), tin-enameled wares, barbed wire, and a 1950s metal gas can, suggesting this structure may have been most intensively utilized in the mid-twentieth century.

Figure 22. Structural remains under an orange tree at the second agricultural area identified at 8PA03091.

A total of 24 shovel tests were excavated across the site to document and establish boundaries for 8PA03091 (see Figure 17). Six shovel tests were documented as positive for cultural material although shovel tests west of N500 E500 were negative; however, artifact scatters documented on the surface near the tests provided the evidence of past occupation and land use. One shovel test, in the vicinity of the concrete house footers, encountered subsurface cultural material in Stratum I to a depth of 70 cmbs. Subsurface deposits associated with the site appear to be concentrated in the immediate area of the extant footers to a distance approximately 7-meters west of the structural remains, suggesting there may have been a boundary or fence line dividing the homestead from the agricultural area documented at the west end of the site. A sample of surface artifacts were collected from across the site to help establish general temporal boundaries for the site. In total, 154 historic artifacts were collected during the current Phase I survey. Of these, 37 were collected from the ground surface, while 117 artifacts were collected from subsurface context. The Field Specimen (FS) Log for 8PA03091 is included with Appendix C.

Cultural material consisted of wire nails, cut nails, unidentifiable (UID) metal fragments, various twentieth century refined earthenware fragments, including glazed stoneware crocks, whiteware with floral designs, and porcelain, glass fragments, including clear, cobalt, amber, light green, and amethyst, UID faunal bone fragments, plastic fragments, and intact bottles. Alkaline glazed stoneware is a common ceramic type in the Southeast as early as 1840 and was produced commercially well into the twentieth century (Burrison 1983). Whiteware manufacture began in England in the 1820s and by the 1830s became the most popular earthenware in the United States. Whiteware is still currently produced and remains a common earthenware in American households (Brown 1982). Ironstone was commercially available beginning in the 1840s and continues to be manufactured to the present-day (Brown 1982). Amethyst (solarized) glass was produced commercially during the last quarter of the nineteenth century and production continued until the outbreak of World War I (Jones and Sullivan 1985). Although some artifacts recovered suggest a late-nineteenth to early-twentieth century occupation of the site, based on the prevalence of these artifacts and because all cultural material was found in association with the overall modern site surface scatter, it is likely these artifacts represent heirlooms rather than indicating an earlier occupation.

Identified structural elements associated with 8PA03091 consist of twentieth century building materials. Wire nails were commonly available in the rural south beginning around 1890, replacing cut nails as the primary nail type, and have been manufactured continuously since that time (Elliott 2010). Although some cut nails were identified at 3PA03091, based on the number encountered and the fact that they were recovered in context with primarily mid- to late-twentieth century cultural material, it is likely the cut nails were reused rather than representing an earlier occupational component. The structural remains observed, as well as most of the cultural material documented at site 8PA03091 indicate evidence of domestic occupation ranging from the mid-late twentieth century. Precast concrete piers or footers came into use in the early twentieth century and continue to the present; however, became widely used in the post-WWII housing boom. Artifacts recovered from the survey are historic and largely associated with the mid- to late-twentieth century.

Temporally diagnostic objects less than 50 years old were documented in field notes but not collected. Artifact scatters were photographed and documented in field notes and geospatially recorded with a GPS. A sample of artifacts from the surface were collected for lab analysis to help refine the occupational range of this site. Three distinct artifact scatters were documented within the site. Three distinct historic/modern surface scatter areas, including Scatter No.1, Scatter No.2, and Scatter No.3, were documented across the site during the survey.

Figure 23. Scatter No.1 A, bottle dump and architectural remains north of the block steps.

Scatter No.1, the main surface scatter, encompasses much of the area around the extant structural remains, and is primarily concentrated in three loci, Scatter No.1 A, Scatter No.1 B, Scatter No.1 C (see Figure 17). Scatter No.1 A was initially observed as a bottle dump approximately 2-meters (north-south) by 3 meters (east-west), located 3-meters northwest of the large extant concrete block steps, and consists primarily of glass bottles and jars, although a several cinder block and brick fragments were also noted (Figure 23). Scatter No.1 B, approximately 3-meters (north-south) by 2-meters (east-west) was identified among the extant footers, under what would have been the northwest corner of the house, and consisted of glass, nails, and ceramics. Scatter No.1 C is located along the central portion of the southern site boundary and consisted of glass bottles and jars similar to those documented at Scatter No.1 A.

Scatter No. 2 is located in the southwest corner of the site. The scatter is primarily concentrated in an area approximately 7-meters (north-south) by 4-meters (east-west) and is located approximately 3-meters west of structural remains associated with an agricultural structure identified as a pole barn. Cultural material consists of glass bottles, tin-enameled wares, glass jars, cinder blocks, barbed wire, a metal pale with a reinforced base, and a metal gas can (Figure 24). Two glass bottles and a bric-a-brac figure fragment were collected for lab analysis, while the rest were photographed and documented in field notes. Many of the glass bottles included diagnostic markers on the bottle bases that indicate they are from the 1950s. Morphologically the metal gas can resembles similar 1950s 5-gallon cannisters. Based on the cultural material observed during the archaeological survey, it is likely Scatter No.2 is associated with a deposition event post-1950s.

Figure 24. General overview of Scatter No. 2 (larger pictures on left) and representative bottle dating to the 1950s (top right) and 1950s metal gas can (bottom right).

Scatter No.3 is located approximately 5 meters north of Scatter No.2 and consists of cinder blocks similar to those documented at Scatter No.2 and a wire grill grate (Figure 25). Scatter No.3 was concentrated in an area approximately 2-meters (north-south) by 2-meters (east-west). Concrete cinder blocks were introduced in the early twentieth century and are still used to present and do not help to refine the temporal boundaries of the site.

Figure 25. Scatter No.3.

Diagnostic material associated with Scatter No.2 suggest a 1950s deposition and may be associated with a pole barn documented in the area of the scatter. These artifacts and the remains of the pole barn may be associated with an earlier mid-twentieth century occupation of the site, which suggests a mid-twentieth century construction and occupation. Most of the diagnostic cultural material associated with Scatter No.1 suggests a late 1970s-early 1980s deposition and is likely associated with the abandoning of the site. Observed modern cultural material included pull-tab beer cans, a Mattel Hot Wheels car dating to the early 1980s, plastic fragments, and a glass Gatorade bottle, were documented in field notes but left in the field. Scatter No.2 and associated remains of a pole barn may be associated with early activities at the site, while Scatter No.1 suggests the site was abandoned or destroyed in the late 1970s or early 1980s.

Property Research for 8PA03091

In 1951, B. Wilson and Clara Wilson sold the subject property to Sol Williams and Joice Williams of Zephyrhills, Florida. The property is described as ten acres, "Being the South One Half (S ½) of the East One Half (E ½) of the Southeast Quarter (SE ¼) of the Northeast Quarter (NE ¼) of Section Twelve (12), Township Twenty Six (26) South, Range Twenty One (21) East, in the County of Pasco State of Florida." (Pasco County Deed Book [PCDB] 164:435).

In 1971, this property, identified as a portion of the Sol Williams estate, was subdivided into ten lots, with Lot 4 sold to George Mathis and Lot 5 to Henry Mathis. The balance of the property was owned at the time by Pearlie Mae Williams, residing in Fort Pierce, Florida (Figure 26). At some point, Williams conveyed Lots 2 and 3 to other parties. For most of the 1970s and into the 1980s, the property on which the site is located consisted of Lots 1, 6, 7, 8, 9, and 10 owned by Pearlie Mae Williams.

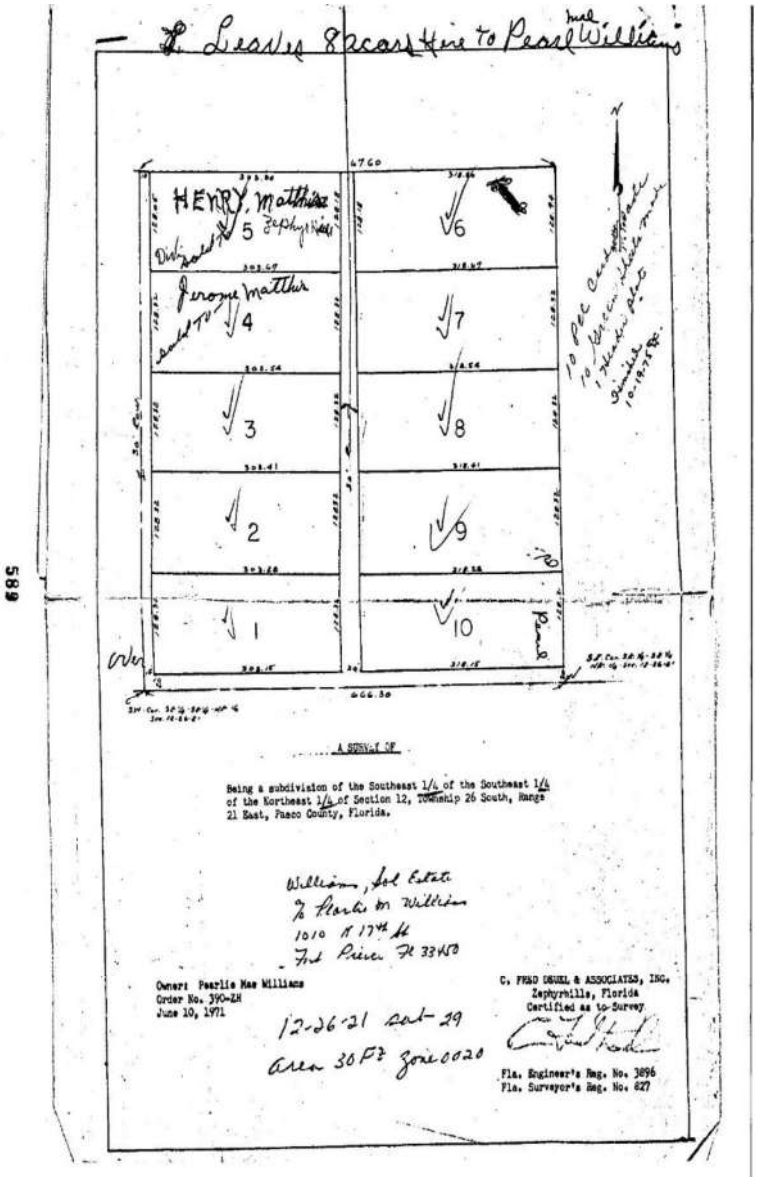

Figure 26. Plat Showing 1971 Subdivision of the Property (Pasco County Courthouse Records).

Pasco County records indicate Williams maintained the property through several mortgages and likely experienced financial difficulty in keeping ownership of the tract. In 1985, judgement was awarded in a case against Williams by one Samuel Hair; the result of which was the sale of the property to Norman Leach of Zephyrhills (PCDB 1400:274). Leach immediately sold the property in April of that year to Jerome and Rhodene Mathis (PCDB 1411:960). Other documents indicate the Mathis's were also party to the lawsuit against Pearlie Mae Williams (PCDB 1741:1160). In 1989, Jerome and Rhodene are recorded as conveying Lot 1 of the subdivision to Herman Heinlein, identified in the document as a "Trustee" (PCDB 1804:1528). It is likely the balance of the tract (Lots 6 -10) was also conveyed at about the same time to Heinlein. Heinlein, again mentioned as a Trustee, sold Lots 6-10 to 4 Rail, LLC in 2005, along with four other tracts in Pasco County. The deed mentions specifically that none of the tracts are Heinlein's homestead (PCDB 6674:1698).

Based on the legal record, it is unclear whether any of these individuals permanently resided on this property, or for what exact use it was kept. The tract may have been a rental property. No structure is indicated on the site for the 1947 map, the 1975 map, or the most current topographic map of the area.

The site is not illustrated on historic topographic maps of the region, the earliest of which dates to 1947. None of the artifacts demonstrate significant archaeological or historic research potential. Additionally, research of land deeds does not suggest that this site is associated with significant events or people. Furthermore, the site's structures have been torn down and removed so no distinctive characteristics could be observed to associate with a particular craftsman, period, or style.

Recommendation: A historic site must generally exhibit integrity and meet at least one of the four eligibility criteria described in National Register Bulletin 15 (1995) and outlined in Chapter 4.6 of this report. Historic sites are generally considered for eligibility under Criteria A, B, or C. These three criteria must establish an association between the site and with important events (A), people (B), or embody distinct characteristics of a particular period or master craftsman (C); however, they can also be considered under Criterion D, which considers whether a site has the likelihood of generating significant data important to the prehistoric or historic culture history of an area or region. The Mathis Homestead, 8PA03091, represents the ephemeral remains of a mid-twentieth century homestead that was likely abandoned in the early 1980s and subsequently destroyed and removed from the property. Shovel testing across the site indicates a 30 cmbs disturbance that is likely associated with clearing the property initially and during the structure's removal. Cultural deposits are largely encountered on the ground surface as a scatter of domestic refuse. A large scatter in proximity to the structural remains suggests the home was abandoned in the 1980s, while an artifact scatter on the west side of the property suggests a 1950s occupational component. A few artifacts encountered during the initial documentation of the site suggested the potential for a late-nineteenth to early-twentieth century component, but due to the low incidence of pre-1950s cultural material and because this material was encountered in context with artifact scatters that indicate a mid- to late-twentieth century cultural material, it is likely older material represents heirlooms or technological lag, such as in the case of using older concrete footers during the initial construction of the home. LG²ES recommends that 8PA03091 be considered not eligible for the NRHP. No additional archaeological consideration is recommended.

5.2.2 Site 8PA03142 - ZPH-1

Site Number	8PA03142	**UTM (NAD 83):**	[redacted]
USGS Quadrangle:	Zephyrhills	**Site Type:**	Prehistoric lithic scatter
Cultural Period(s):	Prehistoric	**Cultural Phase(s):**	Unknown
Vegetation:	Oak, pine, palmetto	**Elevation (amsl):**	77-79 ft
Length (m):	10	**Width (m):**	10
Area (m^2):	100	**NRHP Recommendation:**	Not eligible
Positive STs:	1	**Negative STs:**	7

Discussion: 8PA03142, ZPH-1, is a low-density lithic scatter that is located south of the ZPH airfield in an oak hammock (Figure 27), approximately 25 meters west of the ZPH Canal, 8PA03090, (see below). A total of eight shovel tests were excavated to document the site and establish site boundaries. Site boundaries were established by two consecutive negative shovel tests to the north, east, and south of ST 85, while the western boundary was established with one negative shovel test at 12.5 meters and the project boundary approximately two to three meters west of that. A total of five artifacts were recovered from Strata I/II in one positive shovel test (ST 85) between 0-25 cmbs (Table 7). Artifacts include two silicified coral secondary decortication flakes and three limestone cortex fragments.

Figure 27. Representative environmental photograph of 8PA03142, facing north.

Table 7. Cultural Material Recovered at 8PA03142.

STP No.	DEPTH (cmbs)	STRAT	ARTIFACT TYPE	COUNT	WEIGHT (g)
STP 85	0-25	I/II	Silicified coral secondary decortication flake	2	1.5
			Limestone cortex fragment	3	3.5

A representative soil profile documented for 8PA03142 exhibits four strata (Figure 28). Stratum I consists a dark gray (10YR 4/1) fine sand with moderate, documented to 60 cmbs. Stratum II consists of a gray (10YR 6/1) fine sand documented to 80 cmbs. Stratum III consists of a thin black (10YR 2/1) compact spodic layer documented from to 80-85 cmbs. Stratum IV consists of a light grayish-brown (10YR 6/2) compact fine sand observed to 100 cmbs.

Figure 28. Soil profile at 8PA03142.

Interpretation: ZPH-1, 8PA03142, is a small, low-density lithic scatter situated west of the extant ZPH Canal (8PA03090), south of the current airfield. No temporally diagnostic artifacts were encountered, so there is no known cultural horizon associated with 8PA03142. The assemblage consists of lithic flakes rendered from locally sourced silicified coral (see Figure 14). Silicified coral was often utilized for tool production (Austin 2019). Regionally, silicified coral outcrops are associated with the Upper Withlacoochee Quarry Cluster and due to the fossiliferous structure of the coral it is difficult to flake

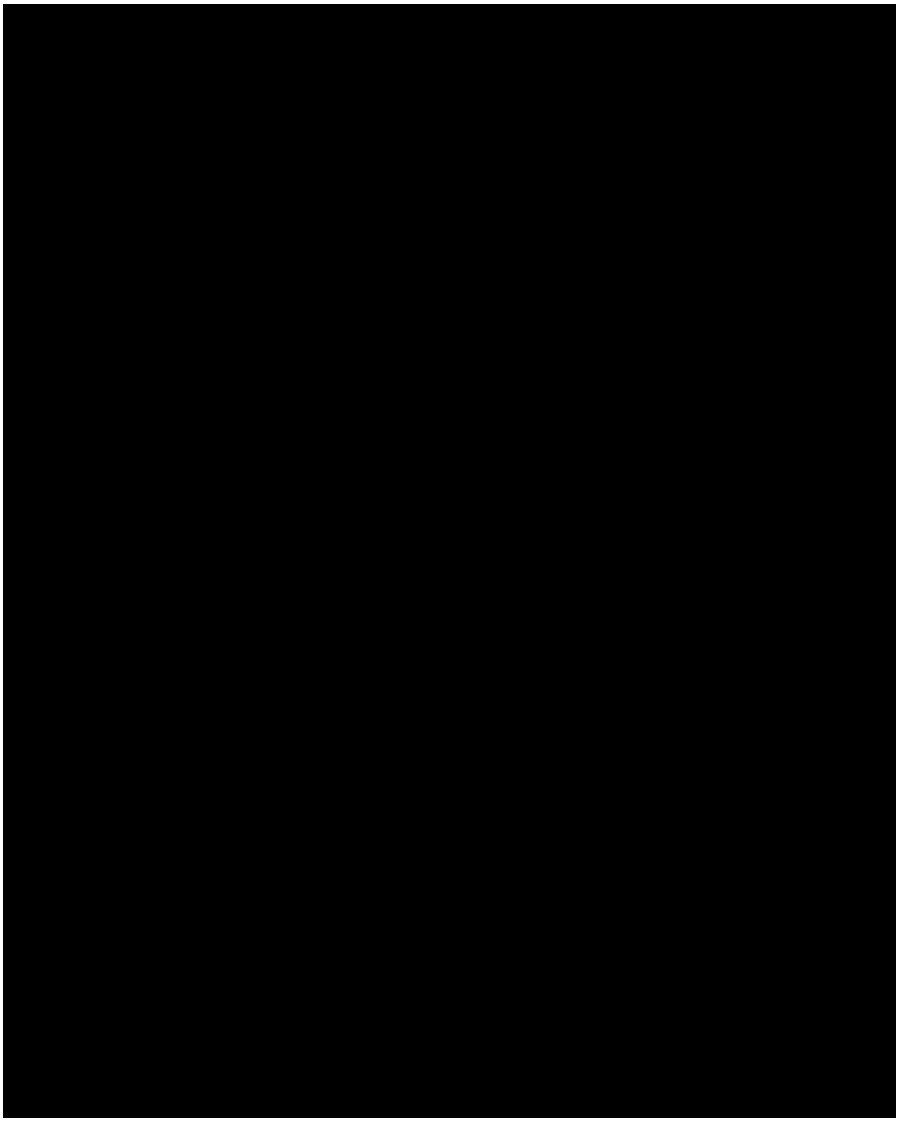

Figure 29. Site map of 8PA03142.

without prior thermal altercation of the raw material (Austin 2019). Current research indicates a correlation between an increase in the use of thermal alteration and an increase in the use of silicified coral during the Middle Archaic (Ste. Claire 1987; Austin 2006: 178; Austin 2019). Both flakes exhibit some cortex which indicates early stage lithic reduction. Based on proximity to raw material and distinguishing characteristics of early stage lithic reduction, 8PA03142 likely represents a temporary campsite utilized during seasonal resource extraction.

Recommendation: Based on the low-density of the lithic scatter and the lack of temporally diagnostic cultural material ZPH-1**,** 8PA03142, is unlikely to produce data capable of yielding significant information relative to the prehistory of the area. Furthermore, the artifact assemblage collected from 8PA03142 was recovered from Strata I/II. Cultural material recovered from Stratum I are considered out of context due to the documented disturbance. Based on the limited research potential of this site and the high degree of subsurface disturbance documented during the current Phase I survey, LG²ES recommends 8PA03142 not eligible for inclusion in the NRHP. No additional archaeological consideration is recommended.

5.2.3 Site 8PA03143 - ZPH-2

Site Number	8PA03143	**UTM (NAD 83):**	[redacted]
USGS Quadrangle:	Zephyrhills	**Site Type:**	Prehistoric lithic scatter
Cultural Period(s):	Prehistoric	**Cultural Phase(s):**	Unknown
Vegetation:	Oak and grass	**Elevation (amsl):**	79-80 ft
Length (m):	25	**Width (m):**	25
Area (m^2):	130	**NRHP Recommendation:**	Not eligible
Positive STs:	3	**Negative STs:**	11

Discussion: 8PA03143, ZPH-2, is a low-density lithic scatter that is located south of the ZPH airfield at the south end of the cow pasture within a small oak hammock. A total of 14 shovel tests were excavated to document and establish site boundaries for 8PA03143 (Figure 30). Site boundaries were established to the west, north, and east with two consecutive negative shovel tests, while only one negative shovel test could be excavated at 12.5 meters along the southern portion of the site due to the proximity of the project boundary approximately two to three meters south. A total of five prehistoric lithics, including five silicified coral secondary decortication flakes were recovered from Strata II-IV in three positive shovel tests between 50-100 cmbs (Table 8).

Table 8. Cultural Material Recovered at 8PA03143.

STP No.	N/E	DEPTH (cmbs)	STRAT	ARTIFACT TYPE	COUNT	WEIGHT (g)
3	N500/E500	90-100	III	Silicified coral secondary decortication flake	3	2.0
3a	N512.5/E500	90-100	IV	Silicified coral secondary decortication flake	1	0.9
3b	N500/E487.5	50-60	II	Silicified coral secondary decortication flake	1	0.7

Figure 30. Site map for 8PA03143.

A representative soil profile documented for 8PA03143 exhibits four strata (Figure 31). Stratum I consists a very dark grayish-brown (10YR 3/2) fine sand with moderate root systems, documented variably to 25-45 cmbs. Stratum II consists of a pale brown (10YR 6/3) documented variably between 25-60. Stratum III consists of an approximate 15 cm lens of brown (10YR 4/3) fine sand encountered variably between 45-70 cmbs. Stratum IV consists of a gray (10YR 6/1) observed to 115 cmbs.

Figure 31. Representative soil profile documented at 8PA03143.

Interpretation: ZPH-2, 8PA03143, is a small, low-density lithic scatter located at the south end of the project APE in small oak hammock situated in a cow pasture (see Figure 17). No temporally diagnostic artifacts were encountered, so there is no known cultural horizon associated with 8PA03143. The assemblage consists of lithic flakes rendered from locally sourced silicified coral (see Figure 14). Silicified coral was often utilized for tool production (Austin 2019). Regionally, silicified coral outcrops are associated with the Upper Withlacoochee Quarry Cluster and due to the fossiliferous structure of the coral it is difficult to flake without prior thermal altercation of the raw material (Austin 2019). Current

research indicates a correlation between an increase in the use of thermal alteration and an increase in the use of silicified coral during the Middle Archaic (Ste. Claire 1987; Austin 2006: 178; Austin 2019). All five flakes exhibit some cortex which indicates early stage lithic reduction. Based on proximity to raw material and distinguishing characteristics of early stage lithic reduction, 8PA03143 likely represents a temporary campsite utilized during seasonal resource extraction.

Recommendation: Based on the low-density of the lithic scatter and the lack of temporally diagnostic cultural material ZPH-2**,** 8PA03143, is unlikely to produce data capable of yielding significant information relative to the prehistory of the area. Based on the limited research potential of this site LG²ES recommends 8PA03143 not eligible for inclusion in the NRHP. No additional archaeological consideration is recommended.

5.2.4 Site 8PA03144 - ZPH-3

Site Number	8PA03144	**UTM (NAD 83):**	[redacted]
USGS Quadrangle:	Zephyrhills	**Site Type:**	Prehistoric lithic scatter
Cultural Period(s):	Prehistoric	**Cultural Phase(s):**	Unknown
Vegetation:	Open field with grass	**Elevation (amsl):**	75-80 ft
Length (m):	125	**Width (m):**	93
Area (m^2):	11625	**NRHP Recommendation:**	Not eligible
Positive STs:	11	**Negative STs:**	32

Discussion: 8PA03144, ZPH-3, is a low-density lithic scatter that is located in the western portion of the Central APE within the airfield south of the active runway. A total of 33 shovel tests were excavated to document and establish site boundaries for 8PA03144 within the project APE (Figure 32). Site boundaries were established to the north, south, west, and much of the east with two consecutive negative shovel tests in each cardinal direction; however, the southeastern corner of the site extends to the project APE boundary, and no shovel tests were excavated east of this boundary. During fieldwork, a slightly elevated landform was observed along the western boundary of the project APE, trending south along the fence-line and then southeast and east in the southern portion of the Central APE. This landform appears to correspond with documented site boundaries, suggesting the entire landform

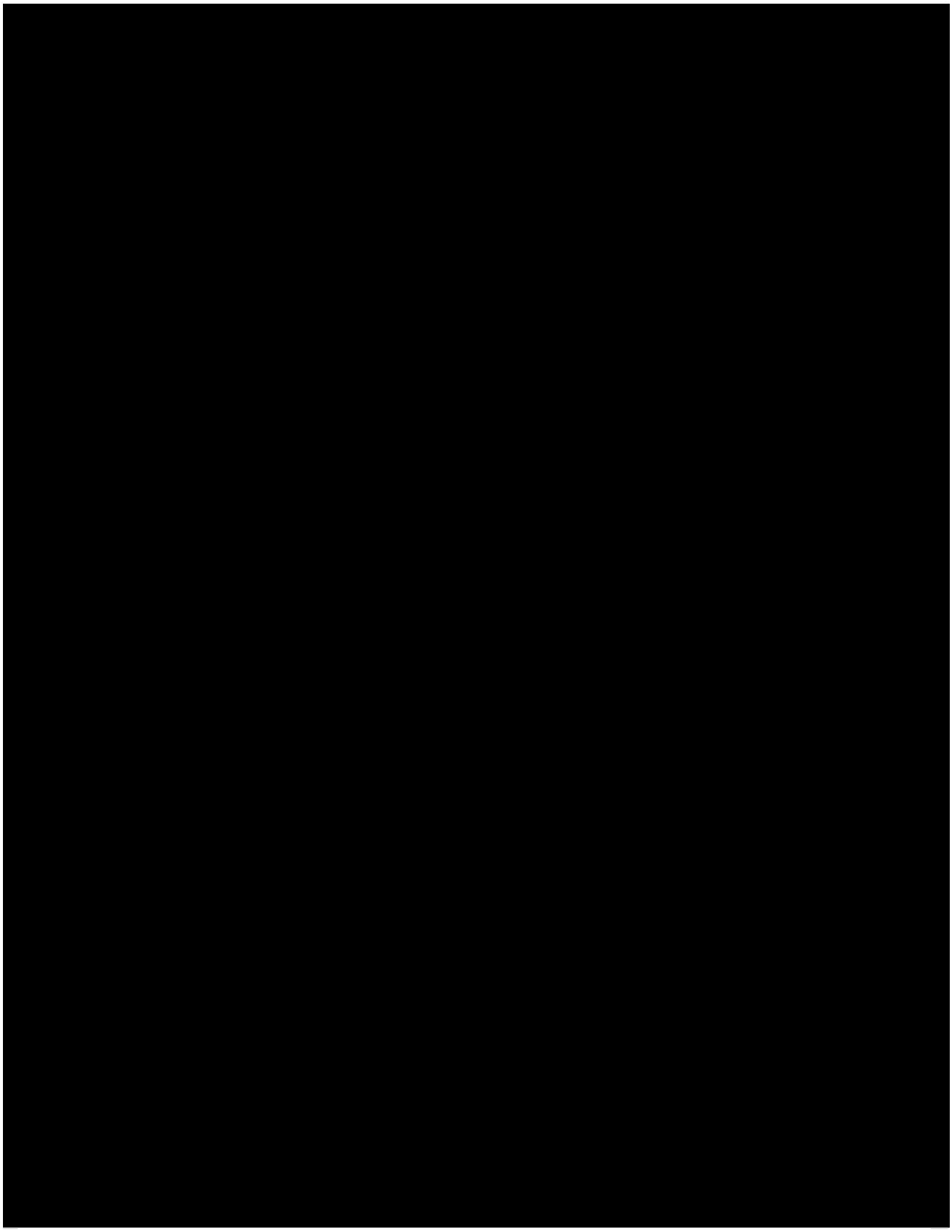

Figure 32. Site map for 8PA03144.

may be a lithic scatter. A total of 30 prehistoric lithics were recovered predominantly from Strata II-III in 11 positive shovel tests between 0-70 cmbs (Table 9). Cultural material consisted entirely of lithic debitage rendered from locally sourced silicified coral. Cultural material consisted of one limestone cortex fragment, two silicified coral secondary decortication debitage fragments, six silicified coral tertiary flakes, two of which are heat-treated, 20 silicified coral tertiary flakes, 16 of which were heat-treated, and one unifacial silicified coral flake.

Table 9. Cultural Material Recovered at 8PA03144.

N/E	DEPTH (cmbs)	STRAT	ARTIFACT TYPE	COUNT	WEIGHT (g)
N500/E500 (ST 92)	50-60	II	Silicified coral secondary decortication debitage fragment	1	14.4
			Silicified coral secondary decortication flake	1	0.2
N500/E500 (ST82)	50-60	III	Silicified coral secondary decortication flake; heat-treated	2	2
			Unifacial silicified coral flake	1	1.3
N512.5/E500	50-60	II	Silicified coral secondary decortication flake	1	1.3
			Silicified coral tertiary flake	1	0.2
N525/E500	50-60	III	Silicified coral secondary decortication flake	1	0.3
			Limestone cortex fragment	1	4
N500/E487.5	30-40	II	Silicified coral secondary decortication debitage fragment	1	11.3
N500/E525	30-40	II	Silicified coral tertiary flake	1	0.6
N475/E525	60-70	II	Silicified coral secondary decortication flake	1	0.7
N450/E525	60-70	II	Silicified coral tertiary flake	1	1.1
N437.5/E500	30-40	II	Silicified coral tertiary flake; heat-treated	3	1
N550/E500	0-70	I/II	Silicified coral tertiary flake; heat-treated	13	6.7
N437.5/537.5	40-50	III	Silicified coral tertiary flake	1	0.8

A representative soil profile documented for 8PA03144 exhibits four strata. Stratum I consists of a gray (10YR 5/1) fine sand documented variably to 25-40 cmbs. Stratum II consists of a light gray (10YR 7/1) fine sand documented variably between 25-75 cmbs. Stratum III consists of a very dark brown (10YR 2/2) compact spodic documented variably between 70-90 cmbs. Stratum IV consists of a brown (10YR 5/3) compact fine sand documented to 110 cmbs in a sample of tests. Stratum I represents the subsurface disturbance.

Interpretation: ZPH-3, 8PA03144, is a low-density lithic scatter that is located in the western portion of the Central APE within the airfield south of the active runway (see Figure 16). No temporally diagnostic artifacts were encountered, so there is no known cultural horizon associated with 8PA03144. The assemblage consists entirely of lithic debitage rendered from silicified coral, which is found locally. Approximately 30 percent of the total assemblage consists of cortex (n=1) or exhibits some cortex (n=8), while 70 percent consists of tertiary flakes,

which indicates middle to late stage tool production. Furthermore, 60 percent of the assemblage exhibited characteristics of thermal alteration (heat-treating). Many flakes exhibited some cortex which indicates early stage lithic reduction. Based on proximity to raw material and distinguishing characteristics of middle to late stage lithic reduction, 8PA03144 likely represents a temporary campsite utilized during seasonal resource extraction.

Recommendation: Based on the low-density of the lithic scatter and the lack of temporally diagnostic cultural material ZPH-3**,** 8PA03144, is unlikely to produce data capable of yielding significant information relative to the prehistory of the area. Based on the limited research potential of this site LG²ES recommends 8PA03144 not eligible for inclusion in the NRHP. No additional archaeological consideration is recommended.

5.2.5 Linear Resource 8PA03090 – ZPH Canal

Resource Group Name	ZPH Canal	**Resource Group Type**	Linear resource
USGS Quadrangle:	Zephyrhills	**Resource Type:**	Canal
Cultural Period(s):	American	**Cultural Phase(s):**	Twentieth century
Construction Date:	Circa World War II	**Disturbance**	Unknown
Environmental Zone	Ocala Uplift District	**Landform:**	Flats on marine terrace
Length (m):	1523	**NRHP Recommendation:**	Not eligible

Discussion: Linear resource 8PA03090 is an historic canal segment located in the central portion of the proposed Zephyrhills Airport Runway 1-19 Extension project area and due south of the Zephyrhills Airport runways. The canal has two northern forks which run roughly north to south and flank the runways. These segments combine into a single southern canal which leads to the Hillsborough River to the south. It can be seen clearly on the 1947 topographic map. Debris was witnessed along the route of this canal. One artifact was recovered (FS 9) from the banks of this resource. It consisted of a Pepsi Bottle impressed with the trademarked "wave" design (Des. Pat. 120.277), which began production April 30, 1940 (USPTO).

During this survey 8PA03090 was assessed for significance and association with the construction of the airport. The Zephyrhills Municipal Airport was originally conceived of as an airfield in the 1930s. In 1942 the US Army Air Forces took over and operated the field until 1944. By 1947, the military had relinquished the airfield to the City of Zephyrhills, and the installation remains the city's Municipal Airport. Because the canal is adjacent and just to the south of the runways as built out by the military in the early 1940s, the canal is likely a product of the airfield's World War II development (Coles 2004; Miller 2018). Evidence of the canal can be seen on the aerial photograph of the area from 1951; however, the 1941 aerial photograph does not show evidence of a canal present, indicating that the drainage canal was constructed between 1941-1951 (Figure 35).

Recommendation: To be considered eligible for the NRHP, a site must exhibit integrity and meet at least one of the four eligibility criteria described in National Register Bulletin 15 (1995) and outlined in Chapter 4.6 of this report. While 8PA03090, ZPH Canal does maintain its integrity, it does not have an association with important events, people, or periods, and is therefore not eligible for consideration under Criteria A, B, or C. Additionally, it is unlikely to yield further information significant to regional history, therefore it is not eligible for consideration under Criterion D. LG²ES recommends that 8PA03090 is not eligible for the NRHP. No additional archaeological consideration is recommended.

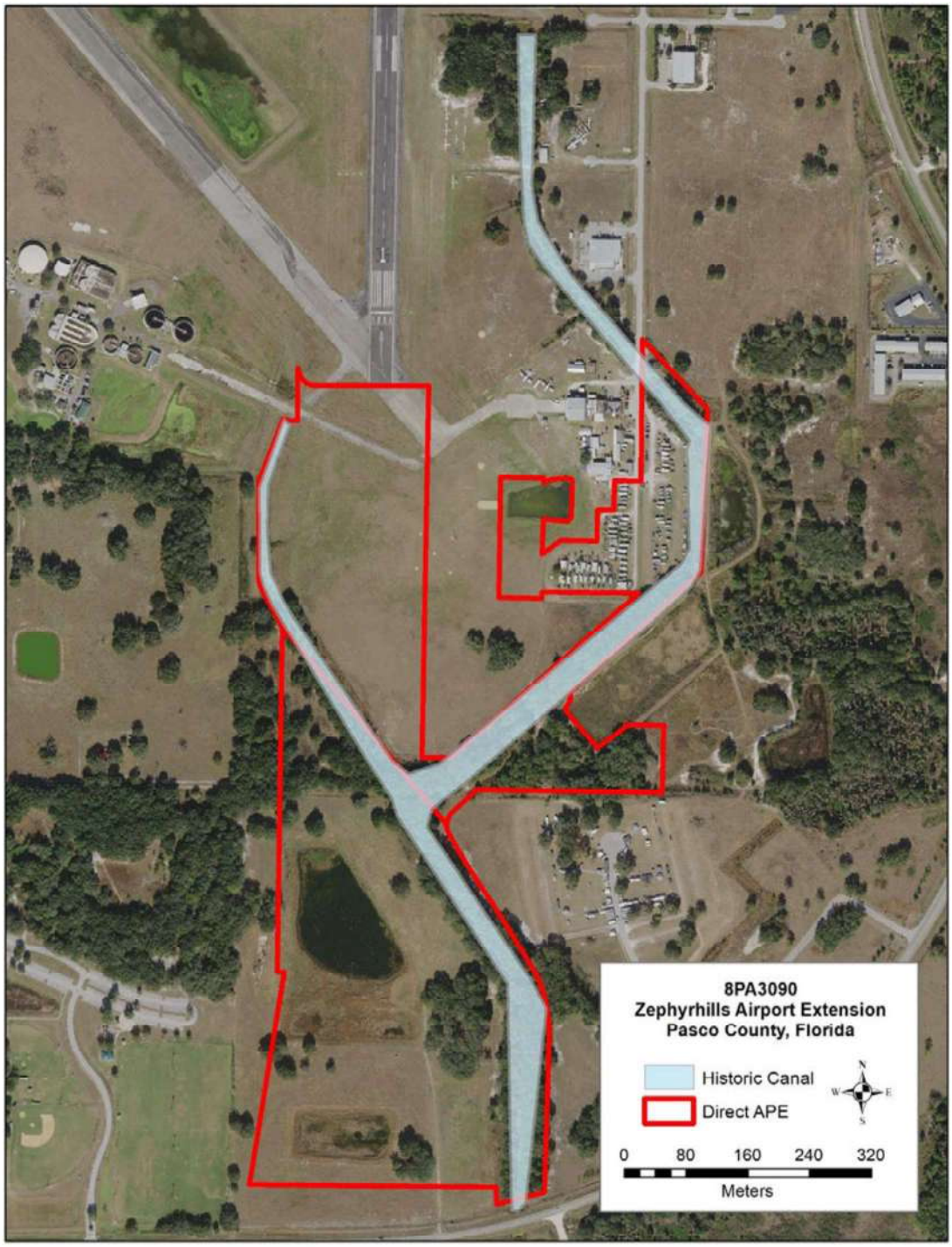

Figure 33. Map of 8PA03090, the ZPH Canal.

Figure 34. North and South Facing Photographs of 8PA03090.

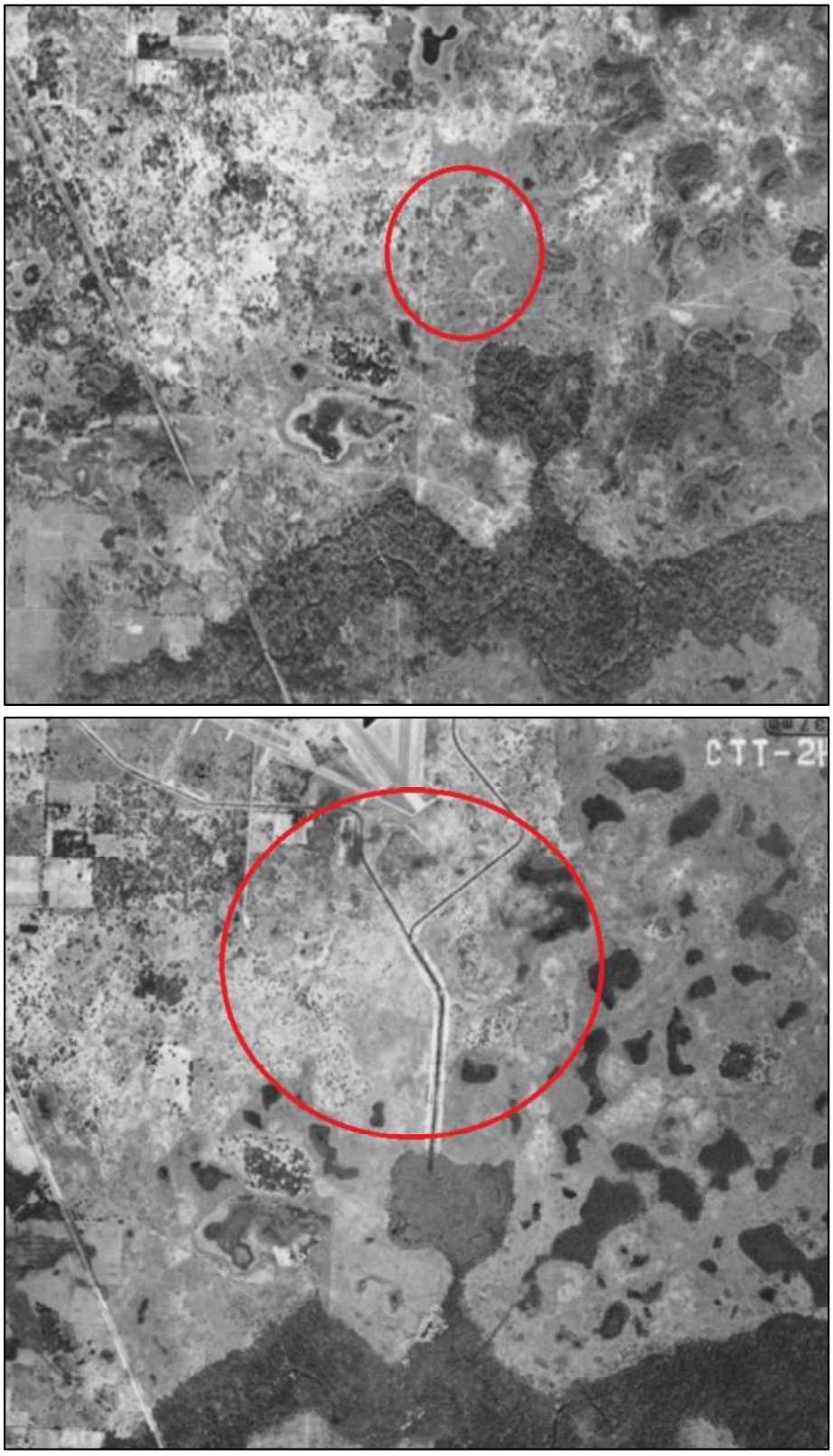

Figure 35. (Top) 1941 Aerial Photograph of Zephyrhills Municipal Airport Area. (Bottom) 1951 Aerial Photograph of Zephyrhills Municipal Airport.

5.2.6 Linear Resource 8PA03145 – Old South Road N

Resource Group Name	Old South Road N	**Resource Group Type**	Linear resource
USGS Quadrangle:	Zephyrhills	**Resource Type:**	Road segment
Cultural Period(s):	American	**Cultural Phase(s):**	Twentieth century
Construction Date:	Prior to WWII	**Disturbance**	Moderate/unused/overgrown
Environmental Zone	Ocala Uplift District	**Landform:**	Flats on marine terrace
Length (m):	200	**NRHP Recommendation:**	Not eligible

Discussion: Linear resource 8PA03145, Old South Road N, is a historic road segment located along the eastern edge of the forested portion (west end) of the North APE. This unnamed road, which was oriented north-south, once began on the north side of 6th Avenue/County Road, opposite the intersection of South Road, running north, crossing the railroad tracks approximately 1.5 miles north of the Project APE, continuing (north) along the present-day alignment of Forbes Road another 1.5 miles to Otis Allen Road. From the railroad tracks south to Sixth Avenue/County Road this resource is no longer in use and is overgrown, with the large trees that once lined the road forming the current property boundaries. Within the North APE, the road, which measures approximately 200 meters through the APE, is no longer utilized and is currently overgrown with hardwood trees. Ground visibility is 0-10 percent due to fallen branches and leaf litter; however, the edges of the road are still visible, and the road appears to be sunk in relative to the surrounding ground elevation. Furthermore, the road is still lined with several large oak trees on both sides of the road, while some large oaks located along the west side of the road still exhibit intact rows of barbed wire fencing, indicating historic property (8PA03090) boundaries were placed a meter or so from the road (8PA03145).

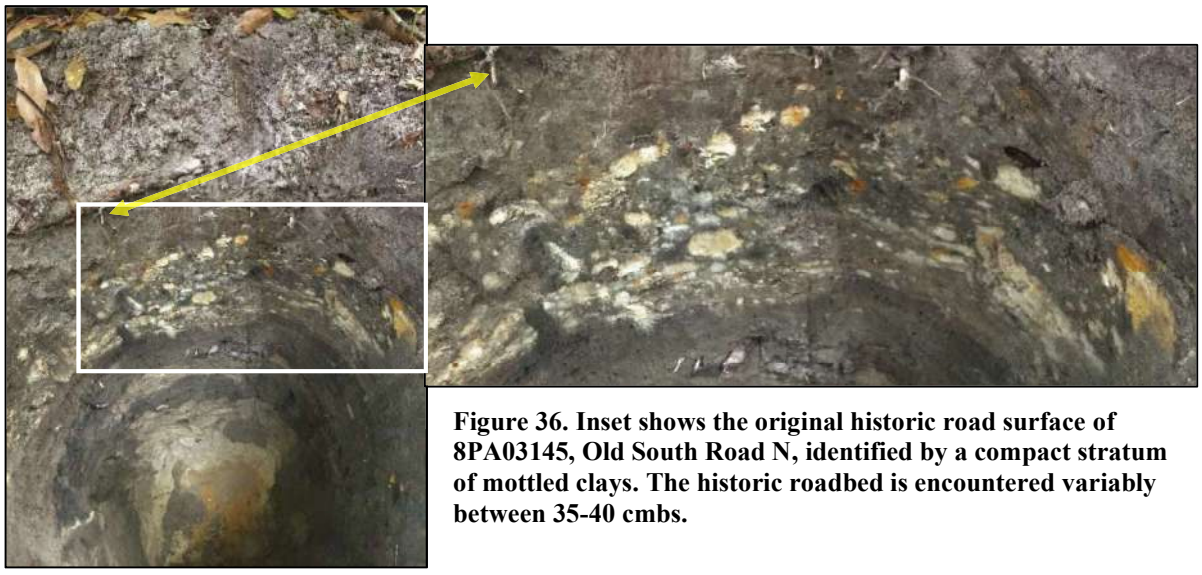

Figure 36. Inset shows the original historic road surface of 8PA03145, Old South Road N, identified by a compact stratum of mottled clays. The historic roadbed is encountered variably between 35-40 cmbs.

Two shovel tests were excavated within the road to document the roadbed in profile. Both shovel tests exhibit very compact soils throughout. A representative soil profile includes five strata (Figure 36). Stratum I consists of a (10YR 3/1) compact loamy sand with some roots was documented to 40 cmbs. Stratum II consists of a 20 cm of a (10YR 3/1) very compact, dense sandy clay with moderate clay inclusions consisting of approximately 70

percent light gray (10YR 7/1), 20 percent white (10YR 8/1) clay, 8 percent strong brown (7.5YR 5/8) clay, and 2 percent yellow (2.5YR 8/4) clay.

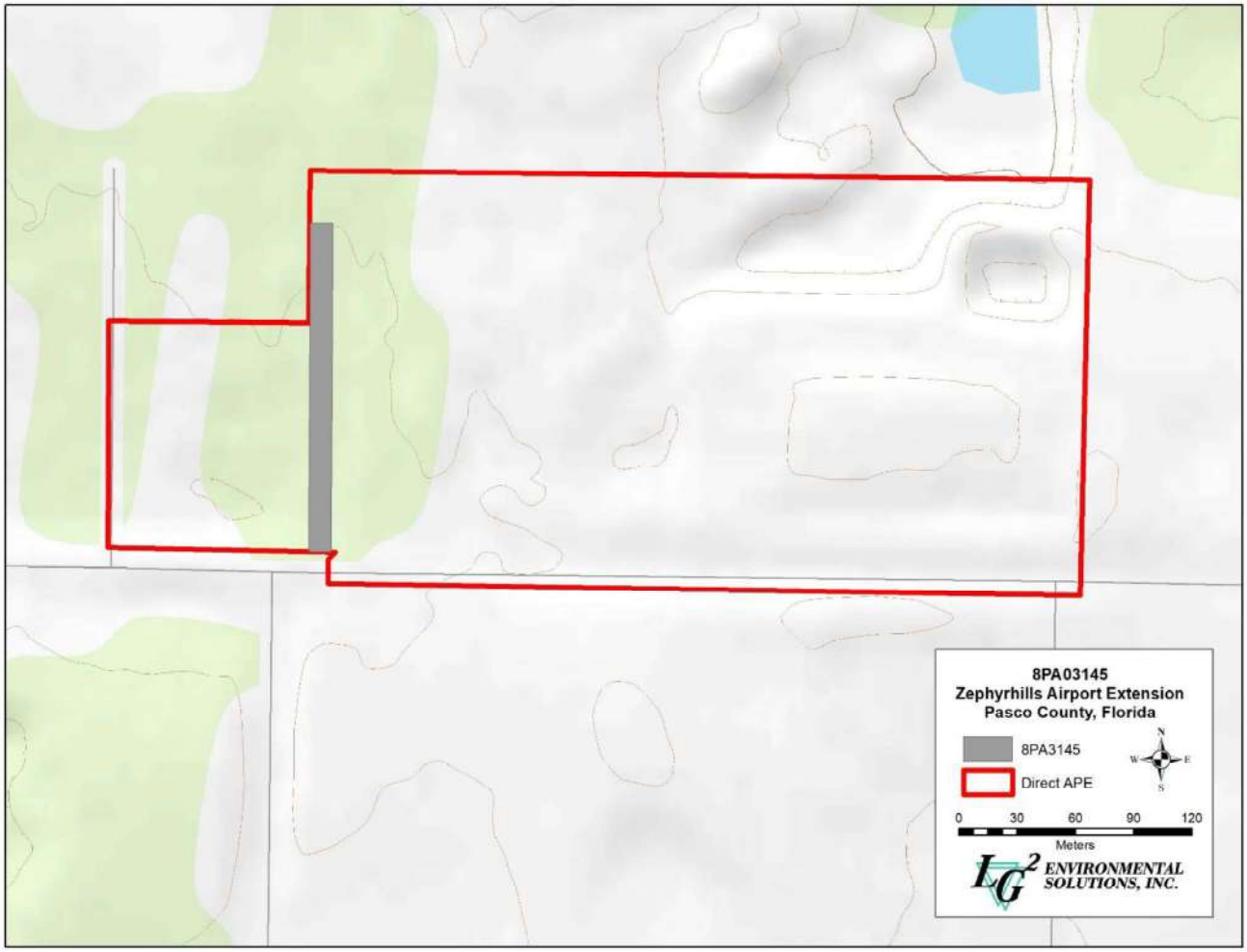

Figure 37. Site map for linear resource 8PA03145, Old South Road N.

Recommendation: To be considered eligible for the NRHP, a site must exhibit integrity and meet at least one of the four eligibility criteria described in National Register Bulletin 15 (1995) and outlined in Chapter 4.6 of this report. The Old South Road N, 8PA03145, does not exhibit integrity and it is no longer utilized. Furthermore, it does not have an association with important events, people, or periods, therefore it is not eligible for consideration under Criteria A, B, or C. Additionally, it is unlikely to yield further information significant to regional history, therefore it is not eligible for consideration under Criterion D. LG²ES recommends that 8PA03145 is not eligible for the NRHP. No additional archaeological consideration is recommended.

5.3. Archaeological Occurrences

An archaeological occurrence is defined as "one or two nondiagnostic artifacts, not known to be distant from their original context, which fit within a hypothetical cylinder of 30 m diameter, regardless of depth below surface" (FDHR 2002). By definition, archaeological occurrences are not eligible for inclusion in the NRHP.

5.3.1 AO-19

AO-19 is in the central portion of the southern proposed project area (Figure 5.3). This Archaeological occurrence is located on a natural ridge in a region of open pasture, surrounded by stands of oak, palm, and palmetto (Figure 5.4). AO-19 is comprised of two silicified tertiary flakes recovered from STP 19 at 45-50 cmbs within Stratum III (10YR 4/2 fine sand) and from STP 19-02 at 30-60 cmbs within Stratum II (10YR 7/2 fine sand). All other delineation shovel tests were negative for additional cultural resources.

Table 10. Cultural Material Recovered at AO-19.

STP No.	DEPTH (cmbs)	STRAT	ARTIFACT TYPE	COUNT	WEIGHT (g)
STP 19	45-50	III	Silicified Coral Tertiary flake	1	0.5
STP 19-02	30-60	II	Silicified Coral Tertiary flake	1	0.6

5.3.2 AO-21

AO-21 is in the central portion of the southern proposed project study area (Figure 5.5). This archaeological occurrence is located on a natural ridge, adjacent to a small pond in a region of open pasture, surrounded by stands of oak and palm (Figure 5.6). AO-21 is comprised of one silicified coral secondary decortication flake, recovered from STP 21 at 60-65 cmbs within Stratum III (10YR 8/1 fine sand) and one silicified coral tertiary flake from STP 21-06 at 40-50 cmbs within stratum III (10YR 6/1 fine sand). All other delineation shovel tests were negative.

Table 11. Cultural Material Recovered from AO-21.

STP No.	DEPTH (cmbs)	STRAT	ARTIFACT TYPE	COUNT	WEIGHT (g)
STP 21	60-65	III	Silicified Coral Secondary flake	1	9.6
STP 21-06	40-50	III	Silicified Coral Tertiary flake	1	0.5

6.0 CONCLUSION AND RECOMMENDATIONS

In April 2019 and May 2020, LG² Environmental Solutions, Inc. (LG²ES), conducted a Phase I Cultural Resources Assessment Survey in advance of proposed improvements associated with the Extension of Runway 1-19 at Zephyrhills Municipal Airport (ZPH) in Pasco County, Florida. This project was undertaken in support of an environmental review pursuant to the National Environmental Policy Act of 1969 (NEPA) and to the assist the Federal Aviation Administration (FAA) in meeting their regulatory obligations under Section 106 of the National Historic Preservation Act of 1996 (NHPA). The purpose of this survey was to identify cultural resources within the project corridor and to assess the resource's potential for inclusion in the NRHP.

During this survey, a total of 175 shovel tests were excavated, of which 22 were positive for cultural material. As a result, four archaeological sites (8PA03091, 8PA03142, 8PA03143, and 8PA03144), two resource groups (8PA03090 and 8PA03145), and two archaeological occurrences (AO-19 and AO-21) were documented within the ZPH Runway 1-19 Extension APE. (Table 12). None of the newly recorded sites meet the requirements to be considered for inclusion in the NRHP. FMSF forms for all six resources are included as Appendix B.

Table 12. Recommendations.

FMSF Site No.	Resource Type	Cultural Affiliation	NRHP Eligibility Recommendation
8PA03090	Historic Drainage Canal	Mid-20th Century American	Ineligible for NRHP
8PA03091	Historic Homestead	Mid- to Late-20th Century American	Ineligible for NRHP
8PA03142	Prehistoric Lithic Scatter	Unknown Prehistoric	Ineligible for NRHP
8PA03143	Prehistoric Lithic Scatter	Unknown Prehistoric	Ineligible for NRHP
8PA03144	Prehistoric Lithic Scatter	Unknown Prehistoric	Ineligible for NRHP
8PA03145	Historic Road	Early- to Mid-20th Century American	Ineligible for NRHP

Site 8PA03090, ZPH Canal, is a mid-twentieth century drainage ditch, excavated around the southern end of the active runway. This canal was constructed to facilitate drainage in the area to construct the extant airport infrastructure. This resource does not meet the eligibility requirements to be considered for inclusion in the NRHP under Criteria A, B, C, or D. LG²ES recommends 8PA03090 be considered not eligible for inclusion in the NRHP. Nor further work is recommended.

Site 8PA03091, the Mathis Homestead, represents the remains of a mid- to late-twentieth century home that was located along an early- to mid-twentieth century road (8PA03145) that is currently overgrown. Most of the structural remains have been removed, leaving only several precast concrete footers, a large artifact scatter, and two areas that were used for keeping agricultural animals. This site was likely occupied between the late-1950s and the early-1980s based on cultural material. This resource does not meet the eligibility requirements to be considered for inclusion in the NRHP under Criteria A, B, C, or D. LG²ES recommends 8PA03091 be considered not eligible for inclusion in the NRHP. Nor further work is recommended.

Site 8PA03142, is a small low-density lithic scatter documented in a small oak hammock south of the active runway. Cultural material consisted entirely of early to middle stage lithic debitage. Lithic material is rendered from locally sourced silicified coral; however, no temporally diagnostic cultural material was recovered during the current archaeological survey. This site represents a temporary prehistoric campsite that was likely used during resource extraction. This resource does not meet the eligibility requirements to be considered for inclusion in the NRHP under Criteria A, B, C, or D. LG²ES recommends 8PA03142 be considered not eligible for inclusion in the NRHP. Nor further work is recommended.

Site 8PA03143, is a small low-density lithic scatter documented in a small oak hammock at the south end of a large cow pasture. Cultural material consisted entirely of early to middle stage lithic debitage. Lithic material is rendered from locally sourced silicified coral; however, no temporally diagnostic cultural material was recovered during the current archaeological survey. This site represents a temporary prehistoric campsite that was likely used during resource extraction. This resource does not meet the eligibility requirements to be considered for inclusion in the NRHP under Criteria A, B, C, or D. LG²ES recommends 8PA03143 be considered not eligible for inclusion in the NRHP. Nor further work is recommended.

Site 8PA03144, is a large low- to moderate-density lithic scatter documented within the fenced airfield southwest of the active runway. Cultural material consisted entirely of early to middle stage lithic debitage. Lithic material is rendered from locally sourced silicified coral; however, no temporally diagnostic cultural material was recovered during the current archaeological survey. This site represents a temporary prehistoric campsite that was likely used during resource extraction. This resource does not meet the eligibility requirements to be considered for inclusion in the NRHP under Criteria A, B, C, or D. LG²ES recommends 8PA03144 be considered not eligible for inclusion in the NRHP. Nor further work is recommended.

Site 8PA03145, Old South Road N, is a historic road constructed prior to the early 1940s and was no longer in use by the 1980s. 8PA03145 is oriented north-south and begins on the north side of 6th Avenue/County Road, opposite the intersection of South Road. The road is no longer utilized and lacks integrity because it has become overgrown with hardwood trees. This resource does not meet the eligibility requirements to be considered for inclusion in the NRHP under Criteria A, B, C, or D. LG²ES recommends 8PA03145 be considered not eligible for inclusion in the NRHP. Nor further work is recommended.

AO-19 and AO-21 do not meet the requirements for documentation as archaeological sites and are considered not eligible for inclusion in the NRHP by definition.

Based on the results of this survey, LG²ES recommends all six newly recorded sites be considered not eligible for inclusion in the NRHP. **No further archaeological consideration is recommended**.

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Appendix G

FEMA FIRM for Pasco County

Map Panel Numbers: 12101C0456F, 12101C0457F, and 12101C0459F

ESA

Exhibit G-1

FEMA FIRM 2014 – Floodplains

Panel Numbers: 12101C0456F, 12101C0457F, and 12101C0459F

NOTES TO USERS

in administering the National Flood Insurance Program. It does not all areas subject to flooding, particularly from local drainage sources of **mmunity map repository** should be consulted for possible updated or ard information.

ded information in areas where **Base Flood Elevations** (BFEs) and/or en determined, users are encouraged to consult the Flood Profiles and /or Summary of Stillwater Elevations tables contained within the Flood IS) report that accompanies this FIRM. Users should be aware that FIRM represent rounded whole foot elevations. BFEs in detailed nded to tenth-foot elevations, see Watershed Table below. These BFEs od insurance rating purposes only and should not be used as the sole ation information. Accordingly, flood elevation data presented in the FIS lized in conjunction with the FIRM for purposes of construction and/or ent.

d Elevations (BFEs) shown on this map apply only landward of 0.0' tical Datum of 1988 (NAVD 88). Users of this FIRM should be aware vations are also provided in the Summary of Stillwater Elevations table ce Study report for this jurisdiction. Elevations shown in the Summary ns table should be used for construction and/or floodplain management are higher than the elevations shown on this FIRM.

loodways were computed at cross sections and interpolated between e floodways were based on hydraulic considerations with regard to National Flood Insurance Program. Floodway widths and other data are provided in the Flood Insurance Study report for this

n Special Flood Hazard Areas may be protected by **flood control** to Section 2.4 "Flood Protection Measures" of the Flood Insurance mation on flood control structures for this jurisdiction.

on shown on this FIRM was provided in digital format by the Southwest agement District. The original orthophotographic base imagery was ith a one-foot pixel resolution at a scale of 1" = 1' from photography

more detailed and up-to-date **stream channel configurations** than previous FIRM for this jurisdiction. The floodplains and floodways that n the previous FIRM may have been adjusted to conform to these new figurations. As a result, the Flood Profiles and Floodway Data tables in Study report (which contains authoritative hydraulic data) may reflect ances that differ from what is shown on this map.

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separately printed **Map Index** for an overview map of the county of map panels; community map repository addresses; and a Listing of containing National Flood Insurance Program dates for each community f the panels on which each community is located.

Map Service Center at 1-800-358-9616 for information on available d with this FIRM. Available products may include Letters of Map surance Study report, and/or digital versions of this map. The FEMA r may also be reached by Fax at 1-800-358-9620 and its website at a.gov/. A FIRMETTE (full scale section of a FIRM) is also available at

ions about this map or questions concerning the National Flood in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the p://www.fema.gov/business/nfip/.

DATUM INFORMATION

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ion (BFEs) on this map are referenced to the North American Vertical These flood elevations must be compared to structure and ground d to the same **vertical datum**. For information regarding conversion al Geodetic Vertical Datum of 1929 and the North American Vertical the National Geodetic Survey website at http://www.ngs.noaa.gov/ or Geodetic Survey at the following address:

ystem Division
urvey, NOAA
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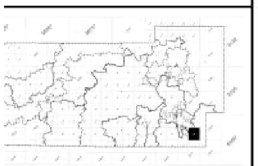
and 20910

Example Datum Offset Calculation
using datum offset table below
NAVD88 = NGVD29 + (datum offset value)

vation, description, and/or location information for **benchmarks** shown e contact the Information Services Branch of the National Geodetic **-3242** or visit its website at http://www.ngs.noaa.gov/.



Boundary

nstruction Control Line

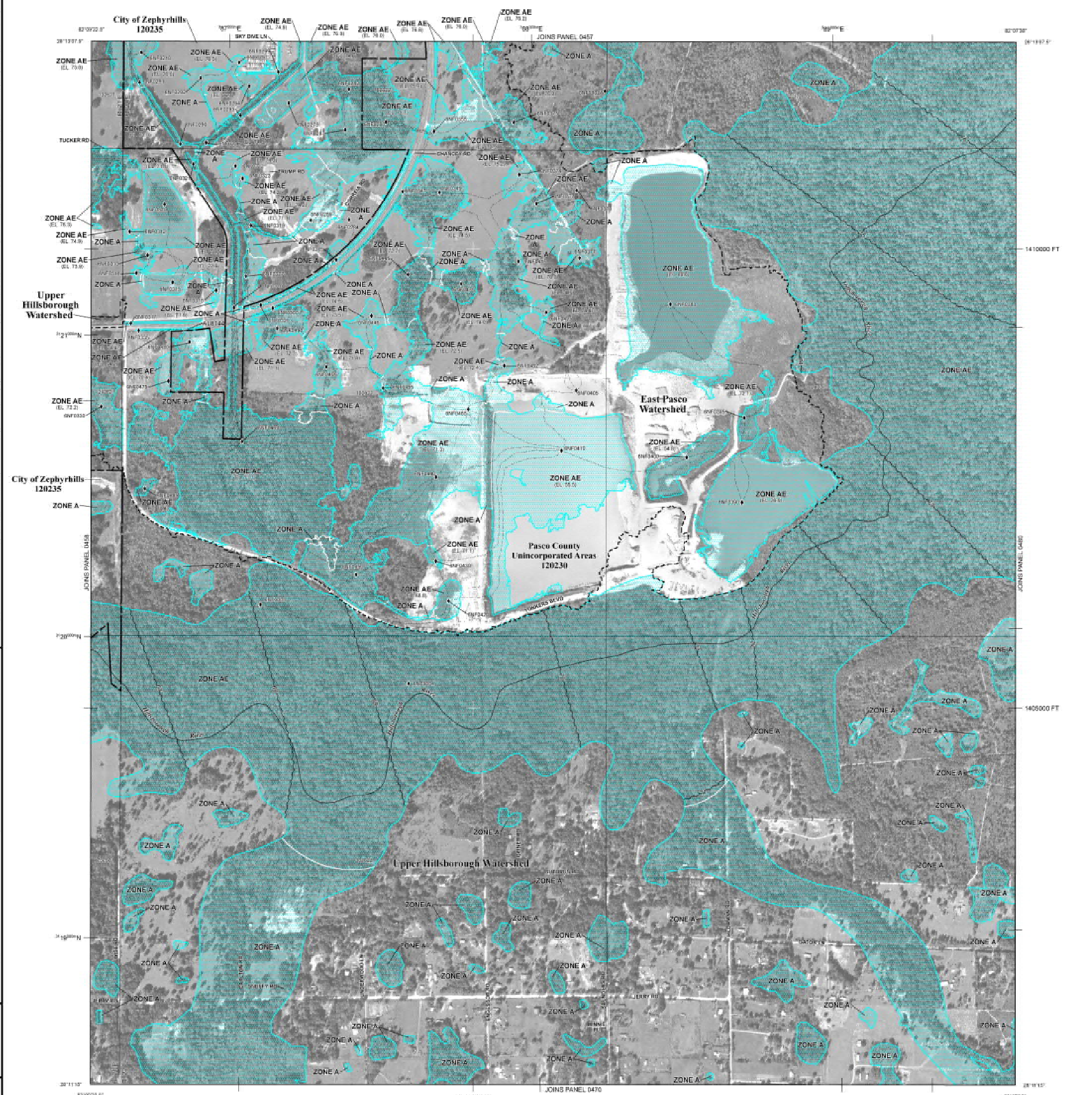
Watershed Table

	Datum Offset (ft)	Study Type	Total Rainfall Volumes (in) 1 Day 100yr	Multi-Day Rainfall Used[1]	Date of Model
	-0.84	Effective Transfer†	12.0	NO	09/30/92
	-0.84	Effective Transfer	11.0	NO	09/30/92
	-0.84	Detailed	12.4	YES	04/27/10
reek	-0.84	Effective Transfer†	12.0	NO	09/30/92
	-0.84	Effective Transfer	11.8	NO	09/30/92
	-0.84	Detailed	12.0	YES	02/23/10
e	-0.84	Detailed	12.0	NO	04/25/11
	-0.84	Effective Transfer†	12.0	NO	09/30/92
	-0.84	Effective Transfer†	12.1	NO	09/30/92
	-0.84	Effective Transfer	11.1	NO	09/30/92
	-0.84	Effective Transfer	N/A	NO	09/30/92
	-0.84	Effective Transfer†	12.0	NO	09/30/92
	-0.84	Detailed	12.4	YES	06/29/10
	-0.84	Effective Transfer	11.8	NO	05/01/79
ee	-0.84	Effective Transfer	12.0	NO	09/30/92
s	-0.84	Effective Transfer	10.9	NO	05/01/79
e	-0.84	Effective Transfer	12.0	NO	09/30/92

d for coastal flood zones
nly in specific sub-basins; refer to the FIS report.

annual chance floodplain is delineated only in watersheds where the Study Type is l. The 0.2% annual chance floodplain is not delineated in watersheds where the Refer to the Watershed Table for Study Type.

Rate Map (FIRM) was produced through a cooperative partnership between the Southwest District (SWFWMD), Pasco County, Federal Emergency Management Agency (FEMA), and the Pasco County.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INU
1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, i 1% chance of being equaled or exceeded in any given year. The Special Floo area subject to flooding by the 1% annual chance flood. Areas of Special Flood A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-su 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); E determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping ter determined. For areas of alluvial fan flooding, velocities also
ZONE AR	Special Flood Hazard Area formerly protected from the 1% a a flood control system that was subsequently decertified. Z the former flood control system is being restored to provid 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood ever protection system under construction; no Base Flood Elevatio
ZONE V	Coastal flood zone with velocity hazard (wave action); no I determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); B determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas tha encroachment so that the 1% annual chance flood can be carried without su flood heights.

OTHER FLOOD AREAS

ZONE X[1] Areas of 0.2% annual chance flood; areas of 1% annual chan depths of less than 1 foot; and areas protected by levees fr flood. See additional note in Watershed Table on left collar.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floo
ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) A

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood H

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Haza boundary dividing Special Flood Hazard A Flood Elevations, flood depths, or flood vel

~~ 513 ~~~	Base Flood Elevation line and value; elevati
(EL 987)	Base Flood Elevation value where uniform in feet*

* Referenced to the North American Vertical Datum of 1988

(A)——(A)	Cross section line
(23)- - - -(23)	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to Datum of 1983 (NAD 83), Western Hemisp
4275000mE	1000-meter Universal Transverse Mercator
6000000 FT	5000-foot grid values: Florida State Plan West Zone (FIPSZONE = 0902), Transverse
DX5510	Bench mark (see explanation in Notes to FIRM panel)
• M1.5	River Mile
222210	Section - Township - Range
7NX1000	Junction – Points defining locations of hydraulic connectivity. The first two chara name represents the specific watershed (collar locator map) in which the Junction boundary Junctions, without an associate shown).
	Hydraulic Connectivity - Flow pathway betw

MAP REPOSITORIES
Refer to Map Repositories List on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2014
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your in the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET
150 0 150 300

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 045

FIRM

FLOOD INSURANCE

PASCO COUNT

FLORIDA

AND INCORPORAT

PANEL 459 OF 500

(SEE MAP INDEX FOR FIRM

CONTAINS:

COMMUNITY	NUMBE
PASCO COUNTY	12023
ZEPHYRHILLS, CITY OF	12023

Notice to User: The **Map Number** shown when placing map orders; the **Community** should be used on insurance applic community.

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NOTES TO USERS

in administering the National Flood Insurance Program. It does not all areas subject to flooding, particularly from local drainage sources of ommunity map repository should be consulted for possible updated or nt information.

ded information in areas where Base Flood Elevations (BFEs) and/or en determined, users are encouraged to consult the Flood Profiles and for Summary of Stillwater Elevations tables contained within the Flood S) report that accompanies this FIRM. Users should be aware that FIRM represent rounded whole foot elevations. BFEs in detailed ed to tenth-foot elevations, see Watershed Table below. These BFEs d insurance rating purposes only and should not be used as the sole tion information. Accordingly, flood elevation data presented in the FIS ized in conjunction with the FIRM for purposes of construction and/or ent.

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n Special Flood Hazard Areas may be protected by flood control to Section 2.4 "Flood Protection Measures" of the Flood Insurance rmation on flood control structures for this jurisdiction.

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DATUM INFORMATION

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Example: Datum Offset Calculation
using datum offset table below
NAVD88 = NGVD29 + (datum offset value)

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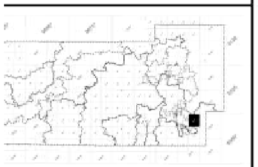


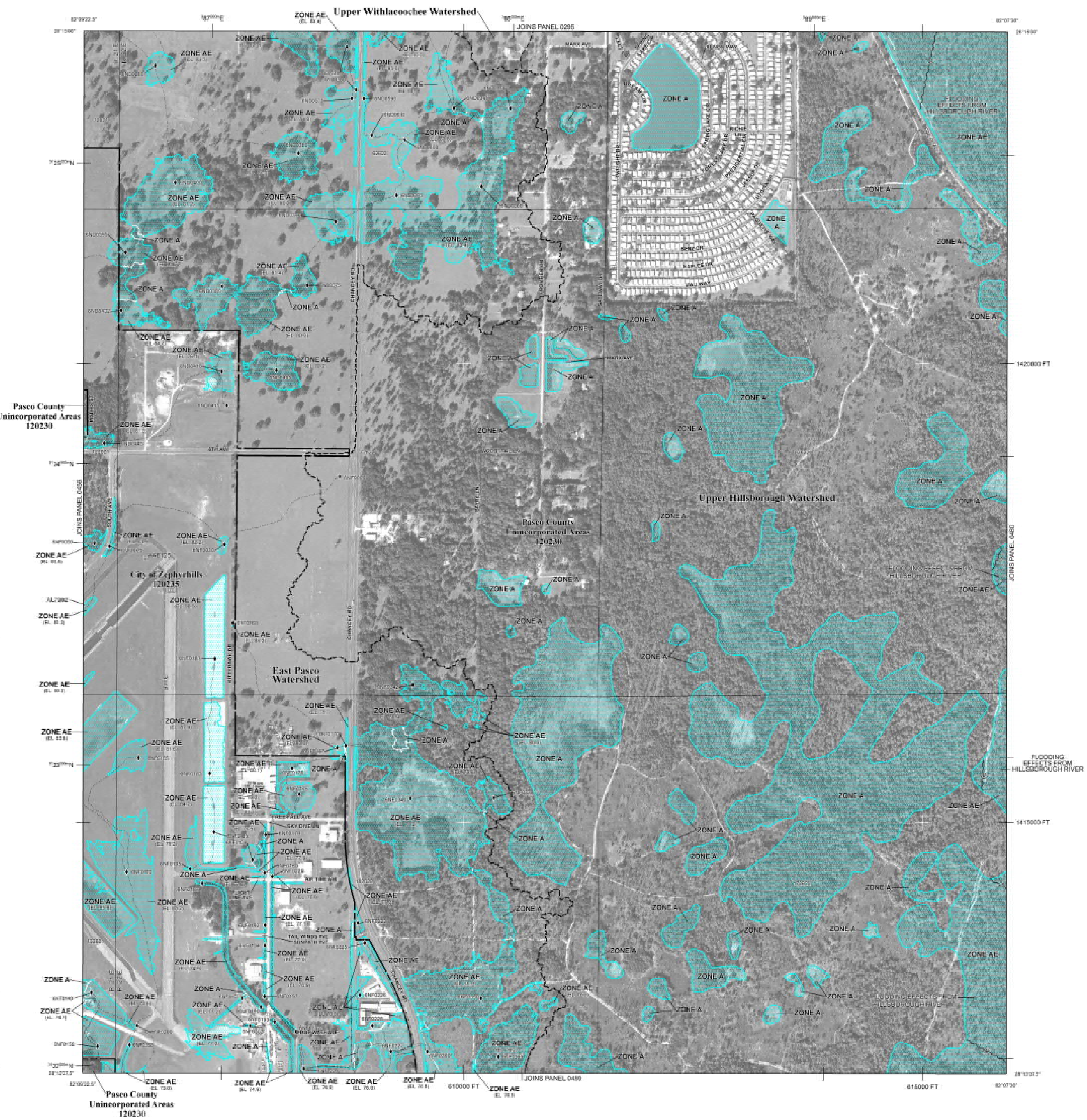
Boundary
nstruction Control Line

Watershed Table

[Watershed Table cropped at left edge; Datum Offset (ft) -0.84 for all rows; Study Types: Effective Transfer / Detailed; 1 Day 100yr values 12.0, 11.0, 12.4, 11.5, 11.1, N/A, 10.9 etc.; Multi-Day Rainfall Used: NO/YES; Dates of Model 09/30/92 and others]

d for coastal flood zones
nly in specific sub-basins; refer to the FIS report.
annual chance floodplain is delineated only in watersheds where the Study Type is al. The 0.2% annual chance floodplain is not delineated in watersheds where the Refer to the Watershed Table for Study Type.

e Rate Map (FIRM) was produced through a cooperative partnership between the Southwest District (SWFWMD), Pasco County, Federal Emergency Management Agency (FEMA), and the he Pasco County.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X* — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot and areas protected by levees from 1% annual chance flood. *See additional note in Watershed Table on left collar.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
~~~ 513 ~~~ Base Flood Elevation line and value; elevation in feet*
(EL 987) Base Flood Elevation value where uniform within zone; elevation in feet*
* Referenced to the North American Vertical Datum of 1988
Ⓐ—Ⓐ Cross section line
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DX5510 Bench mark (see explanation in Notes to Users section of this FIRM panel)
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MAP REPOSITORIES
Refer to Map Repositories List on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2014
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 045

FIRM
FLOOD INSURANCE RATE MAP
PASCO COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 457 OF 500

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER
PASCO COUNTY	12023
ZEPHYRHILLS, CITY OF	12023

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

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Federal Emergency Management Agency
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NOTES TO USERS

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Example Datum Offset Calculation
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NAVD88 = NGVD29 + (datum offset value)

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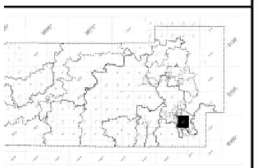


Boundary

nstruction Control Line

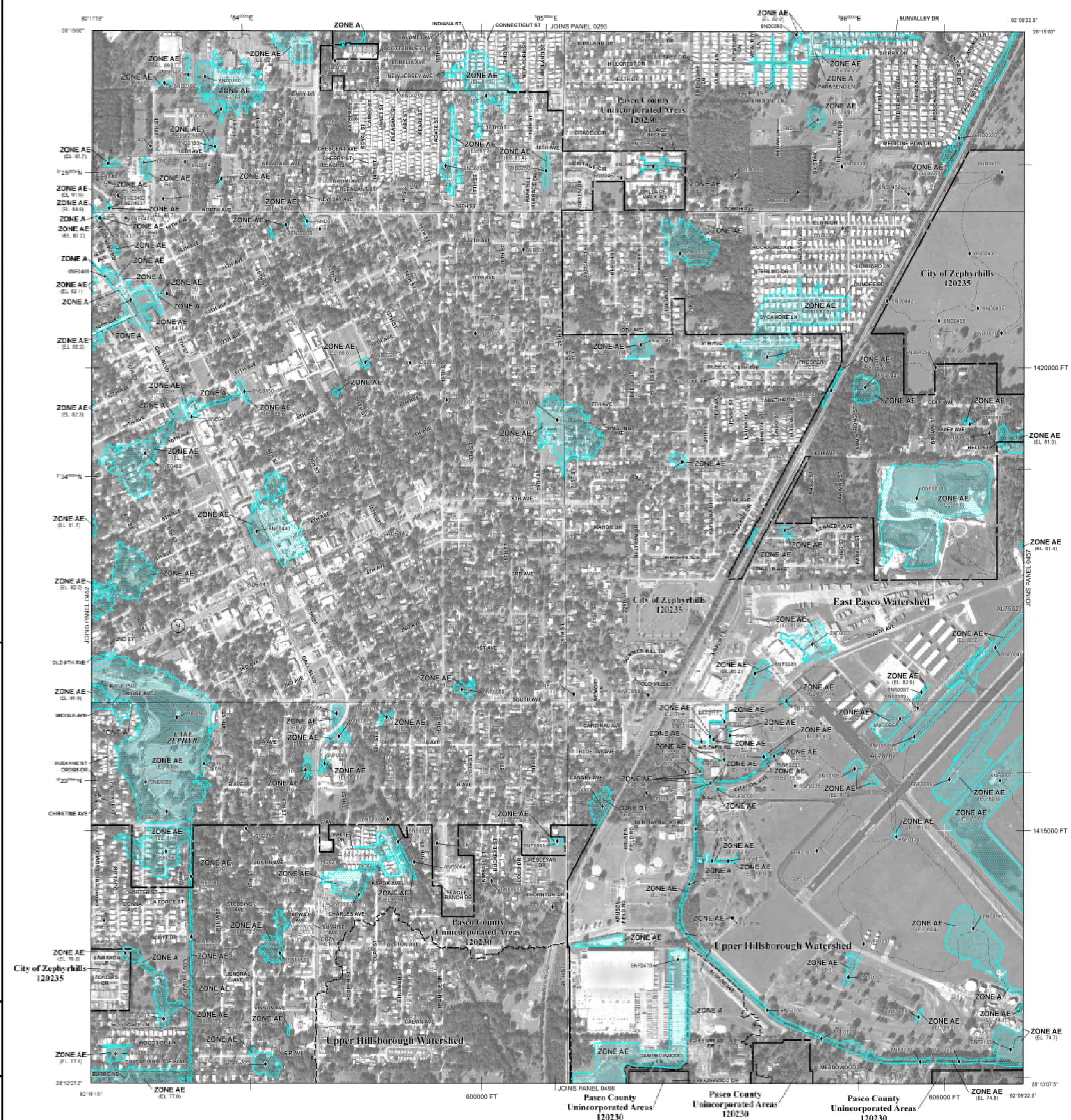
Watershed Table

	Datum Offset (ft)	Study Type	Total Rainfall Volumes (in) 1 Day 100yr	Multi-Day Rainfall Used¹	Date of Model
	-0.84	Effective Transfer†	12.0	NO	09/30/92
	-0.84	Effective Transfer	11.8	NO	09/30/92
	-0.84	Detailed	12.4	YES	04/27/10
reek	-0.84	Effective Transfer†	12.0	NO	09/30/92
	-0.84	Effective Transfer	11.8	NO	09/30/92
	-0.84	Detailed	12.0	YES	02/23/10
e	-0.84	Detailed	12.0	NO	04/25/11
	-0.84	Effective Transfer†	12.0	NO	09/30/92
	-0.84	Effective Transfer†	12.1	NO	09/30/92
	-0.84	Effective Transfer	11.1	NO	09/30/92
	-0.84	Effective Transfer	N/A	NO	09/30/92
	-0.84	Effective Transfer†	12.0	NO	09/30/92
	-0.84	Detailed	12.4	YES	06/29/10
	-0.84	Effective Transfer	11.8	NO	05/01/79
ee	-0.84	Effective Transfer	12.0	NO	09/30/92
s	-0.84	Effective Transfer	10.9	NO	05/01/79
e	-0.84	Effective Transfer	12.0	NO	09/30/92

d for coastal flood zones
nly in specific sub-basins, refer to the FIS report.

annual chance floodplain is delineated only in watersheds where the Study Type is l. The 0.2% annual chance floodplain is not delineated in watersheds where the Refer to the Watershed Table for Study Type.

Rate Map (FIRM) was produced through a cooperative partnership between the Southwest District (SWFWMD), Pasco County, Federal Emergency Management Agency (FEMA), and the e Pasco County.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INU 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, i 1% chance of being equaled or exceeded in any given year. The Special Floo area subject to flooding by the 1% annual chance flood. Areas of Special Flood A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-su 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping ter determined. For areas of alluvial fan flooding, velocities also
ZONE AR	Special Flood Hazard Area formerly protected from the 1% a a flood control system that was subsequently decertified. the former flood control system is being restored to provid 1% annual chance or greater flood.
ZONE A99	Areas to be protected from 1% annual chance flood ever protection system under construction; no Base Flood Elevatio
ZONE V	Coastal flood zone with velocity hazard (wave action); no determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas tha encroachment so that the 1% annual chance flood can be carried without su flood heights.

OTHER FLOOD AREAS

ZONE X¹ — Areas of 0.2% annual chance flood; areas of 1% annual chan depths of less than 1 foot; and areas protected by levees fro flood. ¹See additional note in Watershed Table on left collar.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floo
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) A

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood H

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Haza boundary dividing Special Flood Hazard A Flood Elevations, flood depths, or flood vel

~~ 513 ~~~	Base Flood Elevation line and value; elevati
(EL 987)	Base Flood Elevation value where uniform in feet*

* Referenced to the North American Vertical Datum of 1988

(A)——(A)	Cross section line
(23)- - - -(23)	Transect line
97°07'30", 32°22'30"	Geographic coordinates referenced to Datum of 1983 (NAD 83), Western Hemisp
⁴275⁰⁰⁰ᵐE	1000-meter Universal Transverse Mercator
6000000 FT	5000-foot grid values: Florida State Plan West Zone (FIPSZONE = 0902), Transverse
DX5510 x	Bench mark (see explanation in Notes to FIRM panel)
• M1.5	River Mile
222210	Section - Township - Range
7NX1000	Junction - Points defining locations of hydraulic connectivity. The first two chara name represents the specific watershed (collar locator map) in which the Junction boundary Junctions, without an associate shown).
	Hydraulic Connectivity - Flow pathway betw

MAP REPOSITORIES
Refer to Map Repositories List on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
September 26, 2014
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your in the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 250 500 750 1,000 FEET
150 0 150 300

NFIP

PANEL 045

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE

PASCO COUNT

FLORIDA

AND INCORPORAT

PANEL 456 OF 500

(SEE MAP INDEX FOR FIRM

CONTAINS:

COMMUNITY	NUMB
PASCO COUNTY	1202
ZEPHYRHILLS, CITY OF	1202

Notice to User: The **Map Number** shown when placing map orders; the **Community** should be used on insurance applic community.

MA
1

EFFE
SEPTEMB

Federal Emergency Mana

Appendix H

Agency Involvement and Public Participation

ESA

Amy Paulson

From: Erin Gawera <erin_gawera@fws.gov>
Sent: Thursday, March 7, 2019 3:13 PM
To: Amy Paulson
Cc: Michael Arnold; Julie Sullivan
Subject: RE: [EXTERNAL] Zephyrhills Airport EA: Listed Species Concurrence Letter

Hi Amy,

The Service agrees with your determinations found within the Zephyrhills Airport EA dated January 9, 2019 provided that the standard protection measures for the eastern indigo snake are incorporated into the project plan. Thank you for coordinating with the Service, and please let me know if you have any questions.

Erin

****

Erin M. Gawera, Fish and Wildlife Biologist
US Fish and Wildlife Service
Email: erin_gawera@fws.gov
http://www.fws.gov/northflorida
7915 Baymeadows Way, Suite 200
Jacksonville, FL 32256-7517
904/731-3121 (direct)
904/731-3336 (main)
Fax: 904/731-3045 or 3048

From: Amy Paulson <APaulson@esassoc.com>
Sent: Wednesday, January 9, 2019 12:17 PM
To: erin_gawera@fws.gov
Cc: Michael Arnold <MArnold@ESASSOC.com>; Julie Sullivan <JSullivan@esassoc.com>
Subject: [EXTERNAL] Zephyrhills Airport EA: Listed Species Concurrence Letter

Hello Ms. Gawera,

The City of Zephyrhills is preparing an Environmental Assessment for the proposed extension of Runway 1-19 at the Zephyrhills Municipal Airport (ZPH), which is further detailed in the attached Coordination Letter/Package. We appreciate any information or comments that you may have at this time.

If you have any questions about the Proposed Project, please feel free to contact me at any time.

Thank You!
Amy

Amy Paulson
Senior Managing Associate

ESA | Environmental Science Associates
Mobile, Alabama
251.210.6757 direct | 251.654.7401 cell
apaulson@esassoc.com | www.esassoc.com

Follow us on Facebook | Twitter | LinkedIn

ESA

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Orlando, FL 33819
407.403.6300 phone
813.207.7201 fax

www.esassoc.com

January 9, 2019

Ms. Erin Gawera
U.S. Fish and Wildlife Service
North Florida Ecological Services Office
7915 Baymeadows Way, Suite 200
Jacksonville, FL 32256-7517

RE: LISTED SPECIES CONCURRENCE LETTER FOR THE PREPARATION OF AN ENVIRONMENTAL ASSESSMENT FOR THE EXTENSION OF RUNWAY 1-19 AT ZEPHYRHILLS MUNICIPAL AIRPORT (ZPH)ZEPHYRHILLS, FLORIDA

Dear Ms. Gawera,

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the City of Zephyrhills (City) is preparing an Environmental Assessment (EA) for submittal to the Federal Aviation Administration (FAA). The proposed project includes extension of Runway 1-19 at the Zephyrhills Municipal Airport (ZPH), located at 39450 South Avenue, Zephyrhills, Florida 33542 (**Exhibit 1**). After review of the EA, and consideration of comments from the public and federal, state, and local agencies, the FAA will make an environmental determination on the Proposed Project.

On behalf of ZPH, we are sending you this letter for the following reasons:

- To obtain concurrence for listed species in the Proposed Project area:
- To advise you of the preparation of the EA
- To obtain an understanding of any issues, concerns, or policies and regulations that your agency may have regarding the Proposed Project and its potential impacts that may not be addressed within this concurrence letter.

Description of the Proposed Project

The Proposed Project would extend the runway to the south by 1,506 feet to provide an overall runway length of 6,200 feet and would construct a 35-foot-wide, 1,700 linear foot partial parallel taxiway on the west side of the runway extension (**Exhibit 2**). The Proposed Project also includes the establishment of infrastructure associated with the extension of the runway and construction of the taxiway (e.g., lighting, grading, security fencing, and conceptual stormwater management improvements). Additionally, approximately 4.3 acres of privately-owned land to the east of the existing property line will be acquired to maintain an adequate vegetation-free zone in the Runway Object Free Area (ROFA), Runway Safety Area (RSA), and Runway Protection Zone (RPZ).[1] With the extension of the

[1] ROFA, RSA, and RPZ are areas of ground capable of supporting aircraft and emergency equipment that are generally maintained free of incompatible objects, obstacles, and activities.

runway, the ROFA, RSA, and RPZs will also be extended, which will require vegetation removal within those areas and modification of two borrow ponds to the south of the existing Runway End. It is anticipated that the first borrow pond will be filled/removed and the second reconfigured in its existing location.

The City proposes the extension of Runway 1-19 to improve the accessibility of the airport for a greater spectrum of modern business jet aircraft that currently serve, and may attract, local industries. The need for a longer runway is a part of ZPH and City planning initiatives and was identified in the ZPH 2003 Airport Master Plan Update.

Project Site Information

The proposed runway extension, taxiway, and associated improvements will be constructed on airport property (*Project Area* given in **Exhibit 3, *Land Use*** is approximately 130 acres). A portion of the Proposed Project site has previously been disturbed by the construction of the existing runway and its associated ROFA, RSA, and RPZs.

Land Use

In November 2018, Environmental Science Associates (ESA) conducted field reviews and completed both biological and wetland surveys within a general study area that incorporated the Proposed Project footprint south of the existing runway airport to just north of Chancey Road (**Exhibit 2**). During the field reviews, pedestrian surveys were conducted and the vegetation and habitat types within the study area were identified utilizing the Florida Department of Transportation *Florida Land Use, Cover, and Forms Classification System* (FLUCFCS). No jurisdictional wetlands were identified within the study area, though excavated (upland-cut) reservoirs and other surface waters (OSWs) were observed (**Exhibit 3**). The following paragraphs identify the existing land use classifications identified within the Proposed Project footprint.

Open Land (FLUCFCS 190): This classification includes undeveloped land within an urban landscape. Most areas identified as Open Land are inactive and typically in a transitional state to be developed in congruence with surrounding land use. Currently this portion (36.9 acres) of the study area is utilized for cattle grazing and harvesting operations. Typical vegetation within the area is identified as: bahia grass (*Paspalum notatum*), sand blackberry (*Rubus cuneifolius*), saw palmetto (*Serenoa repens*), and a variety of forb species.

Picture 1 Typical Open Area

Picture 2 Typical Open Area Pasture

Hardwood-Conifer Mixed (FLUCFCS 434): A majority of the forested habitat existing within the Study Area is identified as Hardwood-Conifer Mixed (FLUCFCS 434) systems that were heavily associated with the upland-cut stormwater ditch features that transverse a large portion of the southern section of the airport property. This cover classification contained vegetative species such as: slash pines (*Pinus elliottii*), southern live oaks (*Quercus virginiana*), saw palmetto, sand blackberry, summer grapevine (*Vitus rotundifolia*) and long leaf pines (*Pinus palustris*). This habitat accounts for 11.7 acres within the study area.

Picture 3 Typical Hardwood – Conifer Mixed Area

Picture 4 Typical Hardwood – Conifer Mixed Area

Reservoirs (FLUCFCS 530): Field delineations of potential wetlands and Other Surface Waters (OSWs) were conducted pursuant to the *U.S. Army Corps of Engineers Wetland Delineation Manual* (1987) and Regional Supplement, as well as Florida's Chapter 62-340, Florida Administrative Code (F.A.C.). While no jurisdictional wetlands were documented, six upland-cut ponds (OSW 2, 3, 5 ,6, 7, and 8) and an upland cut ditch system (OSW 1 and 4), totaling 8.2 acres, were identified within the study area (**Exhibit 4**). Four of the upland-cut pond features (OSW 5, 6, 7, and 8) and the ditch system (OSW 1 and 4) are associated with the airfield stormwater drainage system, which was constructed between 1941 and 1951 and traverses in a north / south direction across the airport

property (**Exhibit 4A and 4B**). The remaining two upland-cut isolated ponds (OSW 2 and 3) are located south of the existing Runway terminus. While the ponds associated with the airport stormwater system are actively managed to control and minimize wildlife hazards, the two ponds located directly south of the airport property contain the following vegetative species: pickerel weed (*Pontederia cordata*), maidencane (*Panicum hemitomon*), tickseed (*Coreopsis* spp.), sedge (*Cyperus* spp.), cupscale grass (*Sacciolepis striata*), spatterdock (*Nuphar advena*), smartweed (*Polygonum* spp.), clubrush (*Eleocharis* spp.), and torpedo grass (*Panicum repens*).

Pictures 5, 6 and 7 OSW 1 and 4, Detailing Water Depth, Side Slopes, and Vegetation Compensation

Picture 8 Typical Stormwater OSW Features (OSW 5, 6, 7, and 8)

Picture 9 OSW 2, Excavated Borrow Pit (pond)

Picture 10 OSW 3, Excavated Borrow Pit (pond)

Airports (FLUCFCS 811): The majority of the study area (73.7 acres) is classified as ZPH Airport Use, which includes airport related structures, navigational devices, signage, runways, taxiways, and the active airfield. Existing vegetation is heavily managed (mowed) and kept to FAA-regulated heights in order to control / minimize wildlife hazards and includes mixed non-native grass species such as bahia grass, crabgrass (*Digitaria* sp.), Bermuda grass (*Cynodon dactylon*), and various forb species.

Picture 9 ZPH Typical Infield Vegetative Cover

Utilities (FLUCFCS 830): This classification includes 0.3 acres of the entrance road to the Zephyrhills' Wastewater Treatment Plant, located east of the airport and on the eastern side of the study area.

Potential Species Utilization

Prior to the site reviews, comprehensive desktop (Geographic Information Systems [GIS]) analyses and database searches (Florida Natural Areas Inventory [FNAI] and the Florida Fish and Wildlife Conservation Commission [FWC] Bald Eagle Nest Locator) were conducted for the study area and vicinity. The database research identified five species with potential for occurrence based upon habitat, species distribution, survey protocols, soils mapping, and a variety of other characteristics. These species include:

- Federally Listed – Threatened, wood stork (*Mycteria americana*)
- Federally Listed – Threatened, Eastern indigo snake (*Drymarchon couperi*)
- State Listed – Threatened, gopher tortoise (*Gopherus polyphemus*)
- State Listed – Threatened, pine snake (*Pituophis melanoleucus mugitus*)
- State Listed – Species of Special Concern, Sherman's fox squirrel (*Sciurus niger shermani*)

The database was also utilized to review the current land use cover and soil characterizations within the action area. This information was ground-truthed during the onsite evaluations to determine the accuracy and extent of coverage of mapped soils and suitable habitats. Based upon this comprehensive analysis, the following paragraphs outline the determination for the likelihood of occurrence of the above listed species within the action area.

Wood stork (Federally Listed – Threatened)

During the site assessments, ESA delineated the surface water features within and surrounding the Proposed Project action area (**Exhibit 4**). While there are no wetlands identified as jurisdictional pursuant to state and federal delineation criteria, the two isolated upland-cut borrow features (OSW 2

and 3) located south of the existing Runway 1-19 contain areas that could support minimally Suitable Foraging Habitat (SFH) for wood storks. These areas include the littoral edges of the steep sided OSW 2 and a majority of OSW 3, for a total of approximately 2.8 acres of SFH (**Exhibit 5**).

The FAA requires airport sponsors to maintain a safe operating environment, which includes minimizing attractants to wildlife that could become hazardous to aircraft operations. In accordance with this requirement, onsite stormwater ponds and ditch systems are typically constructed to move stormwater rapidly from the airfield, and the vegetation is managed and mowed on a regular basis to prevent foraging habitat from establishing. ZPH actively manages onsite features to deter wildlife, particularly avian activity, and all stormwater management features associated with the Proposed Project will be designed to reduce wildlife attractants in accordance with FAA Advisory Circular 150/5200-33B *Hazardous Wildlife Attractants on or Near Airports* (2007).

No wood storks were observed in the vicinity of the proposed action area during the field evaluations; however, ZPH is located within the 15-mile Core Foraging Areas (CFA) of three active wood stork rookeries; approximately 7.5 miles from the Little Gator Creek rookery, approximately 11 miles from the Saddlebrook Resort rookery, and approximately 14.5 miles from the Lone Palm rookery (**Exhibit 6**). As SFH within active CFAs would be impacted, the Corps of Engineers, Jacksonville District; U. S. Fish and Wildlife Service, Jacksonville Ecological Services Field Office; and State of Florida (2008) *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida* was consulted to arrive at an appropriate effect determination for this species.

The Proposed Project is anticipated to impact up to 2.8 acres of littoral and shallow areas of two OSW features of potential foraging habitat. OSW 2 will be completely impacted (removed/filled) due to safety zone requirements associated with construction of the Proposed Project. OSW 3 will also be impacted (modified/reconfigured), although the specific nature of these changes are undetermined at this time. It is anticipated that a combination of in-kind, onsite replacement (through development of the new stormwater management system) and off-site mitigation at an USFWS-approved Wood Stork Mitigation Bank will be proposed as part of the development and permitting plan for the Project. In-kind and off-site SFH compensation will occur within the same CFA as the impact, and habitat compensation will replace foraging value, providing SFH matching the type and hydroperiod of SFH affected, providing foraging value similar or higher than that of impacted SFH. Per the *Effect Determination Key for the Wood Stork in Central and North Peninsular Florida*, a "***May Affect, Not Likely to Adversely Affect***" determination is appropriate. With an outcome of either "No Effect" or "Not Likely to Adversely Affect" as outlined in the Key, the requirements of section 7 of the Endangered Species Act are fulfilled for wood stork, and no further actions are required.

<u>Eastern Indigo Snake (Federally Listed – Threatened) / Gopher Tortoise (State Listed – Threatened) / Pine Snake (State Listed – Threatened)</u>
These species are often found together in a broad range of habitats, from scrub and sandhill to wet prairies and mangrove swamps, often wintering in gopher tortoise burrows but foraging in more hydric

habitats. Wetland and upland areas may be used as foraging habitat by the Eastern indigo snake. The Project Area contains no xeric habitat; however, gopher tortoise burrows were observed throughout the Proposed Project area. No Eastern indigo snakes or pine snakes were observed during the field reviews.

As several gopher tortoise burrows were identified throughout the site, ZPH will conduct a 100 percent gopher tortoise burrow survey within the Proposed Project footprint, at least 90 days prior to the commencement of construction activities, allowing enough time to permit and excavate each burrow identified during the survey. As specified by the permit conditions, any individuals removed from burrows, including Eastern indigo snakes and pine snakes, will be properly relocated to a permitted bank. In addition, ZPH intends to implement the U. S. Fish and Wildlife Service *Standard Protection Measures for Eastern Indigo Snakes* during construction as additional assurance that activities will not impact this species. This assurance includes the inspection of holes, or other refugia where a snake could reside, prior to the initiation of construction activities. Per the *Eastern Indigo Snake Programmatic Effects Determination Key*, a "***May Affect, Not Likely to Adversely Affect***" determination is appropriate. With an outcome of either "No Effect" or "May Affect, Not Likely to Adversely Affect" as outlined in the Key, the requirements of section 7 of the Endangered Species Act are fulfilled for the Eastern indigo snake, and no further actions are required.

Sherman's Fox Squirrel (State Listed – Species of Special Concern)

Sherman's fox squirrels are found throughout much of Central and North Central Florida in relatively open, mature, mixed pine-oak forests. They are also noted for using agricultural lands and more urban areas, where they nest in a variety of canopy species including longleaf pines (*Pinus palustris*), laurel oaks (*Quercus hemisphaerica)*, and turkey oaks (*Quercus laevis*). Nests are typically made of Spanish moss, pine needles, twigs, and leaves. While no turkey oak or sandhill habitat was observed within the study area, the Proposed Project footprint does contain smaller areas of mixed hardwood with scattered longleaf pines that could support Sherman fox squirrel foraging and nesting habitat (**Exhibit 5**). Prior to and in coordination with the permitting and final site development plan, a survey following FWC-approved protocol will be conducted to determine if Sherman fox squirrels are present within the Proposed Project area. Should the surveys reveal that Sherman fox squirrels are utilizing the site, FWC coordination will be conducted prior to construction activities.

Conclusion

We are requesting FWS concurrence with the following determinations based on the existing conditions of the Proposed Project Study Area and adherence to established protocols and conservation measures (**Table 1**).

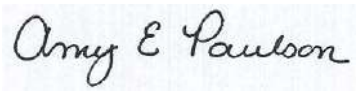
TABLE 1. PROPOSED PROJECT SPECIES DETERMINATION

Common Name	Protected Status	Habitat or Indicators of Presence	Effect Summary
Eastern Indigo Snake	Federal	No xeric habitat; however, more than 25 gopher tortoise burrows were observed within the Proposed Project footprint	***May Affect, Not Likely to Adversely Affect*** Conservation Measures: FWC 100 percent gopher tortoise survey. Gopher tortoise burrows found within 25 feet of the Proposed Project footprint will be excavated, and all species found within the burrows will be relocated as per the permit specifications. Permitting and relocation for all species found within the burrow will occur prior to construction activities.
Wood Stork	Federal	Approximately 2.8 acre impact to SFH	***May Affect, Not Likely to Adversely Affect*** Combination of in-kind SFH replacement and off-site purchase of suitable SFH at a USFWS-approved mitigation bank within the CFA.
Gopher Tortoise	State	More than 25 gopher tortoise burrows observed on-site	**N/A** Conservation Measure: same for Eastern indigo snake
Pine Snake	State	Presence of pine flatwoods and hardwood habitats / presence of gopher tortoise burrows	**N/A** Conservation Measure: same for Eastern indigo snake
Sherman's Fox Squirrel	State	Minimal presence of pine flatwoods and hardwood habitats with open land features	**N/A** Conservation Measure: provide species surveys to determine utilization prior to construction activities.

SOURCE: Environmental Science Associates, 2018.

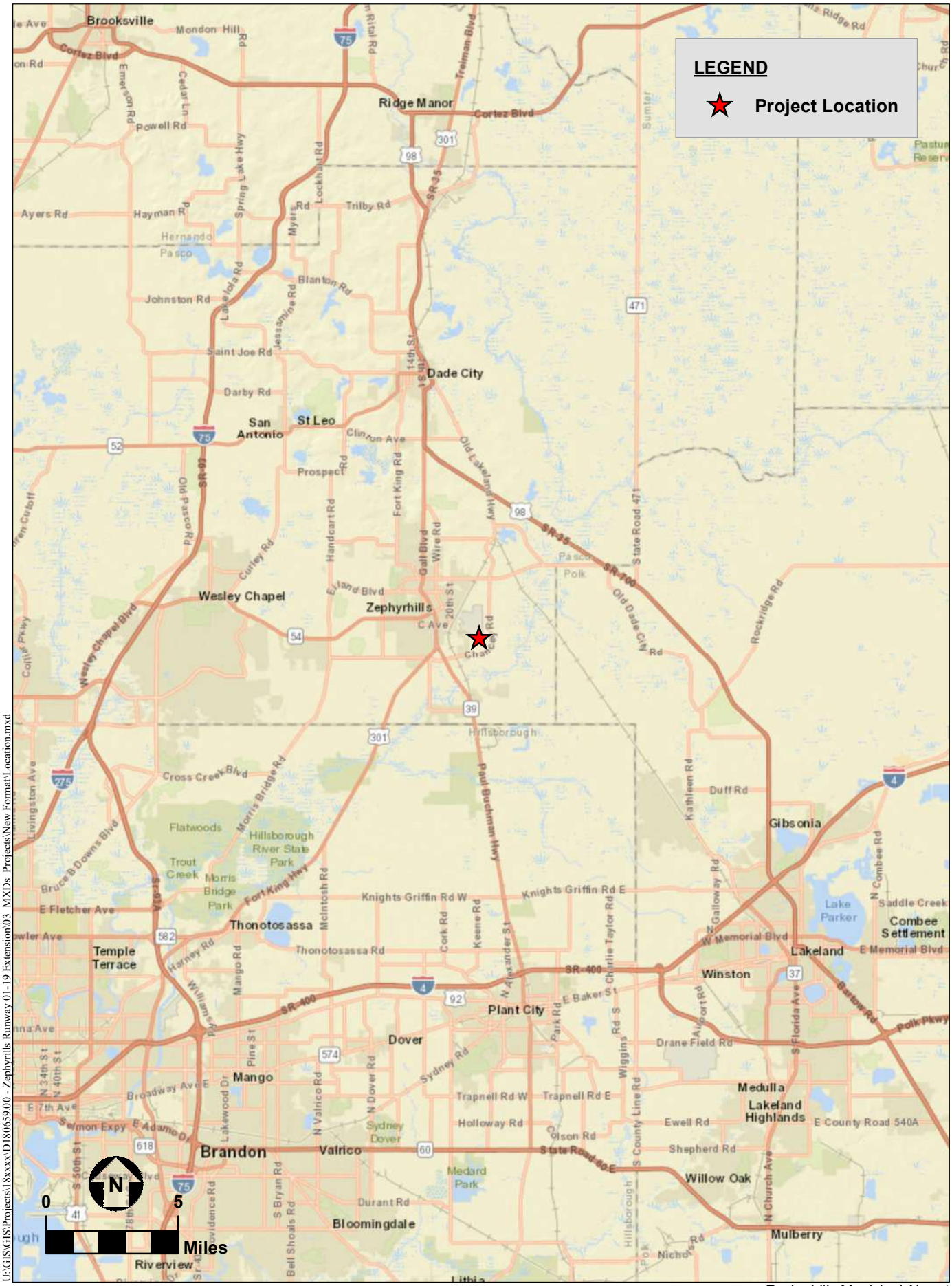
We appreciate the expeditious review of the determinations given above. If you have any questions about the Proposed Project or need additional information, please feel free to call me at 251-210-6757 or email me at apaulson@esassoc.com.

Sincerely,



Amy Paulson
Senior Managing Associate, ESA

Enclosures: Exhibits 1 – 6
Copy: Mike Arnold, ESA



Date: 1/4/2019
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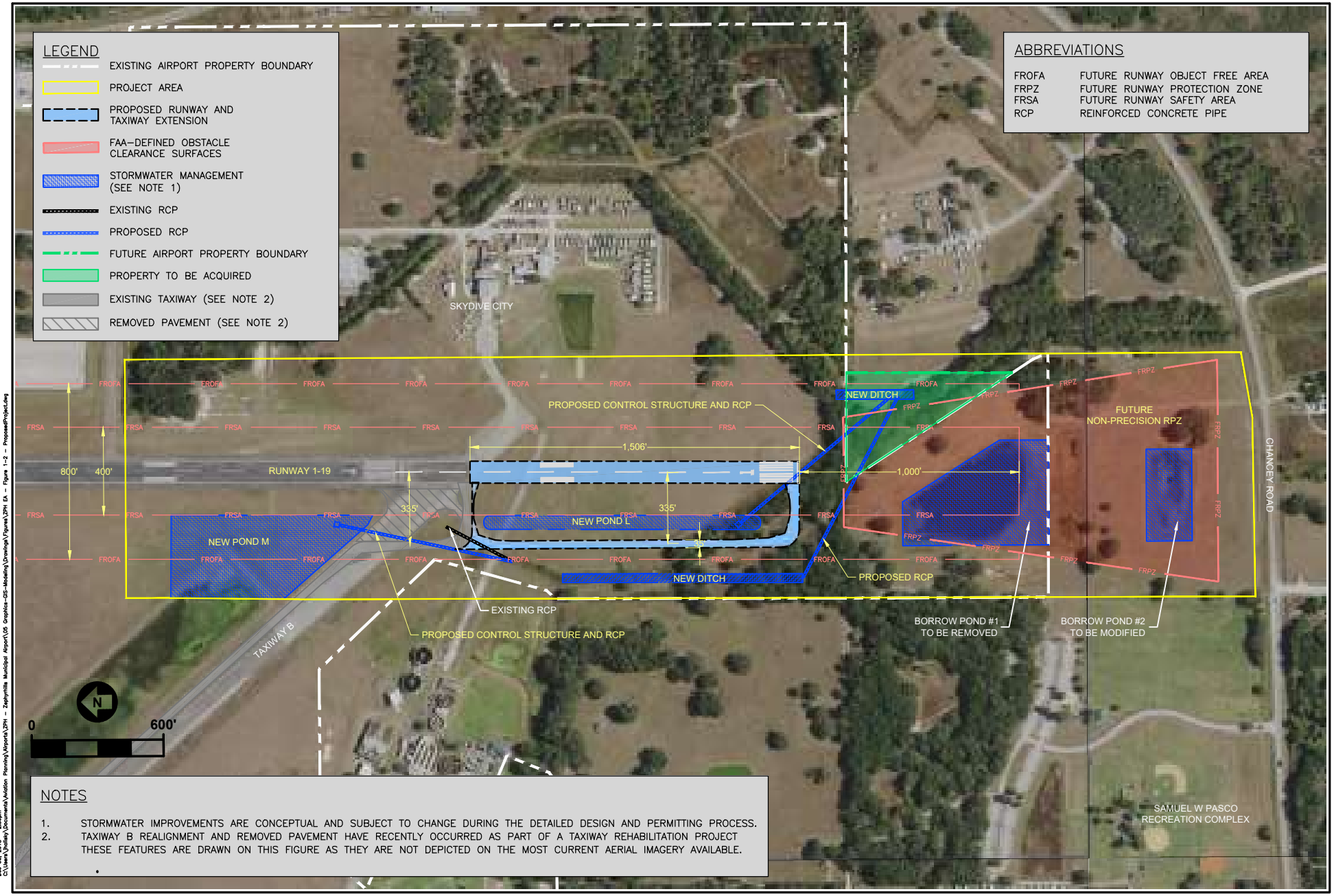
Source: ESA, 2018

Zephyrhills Municipal Airport

EXHIBIT 1

PROJECT LOCATION

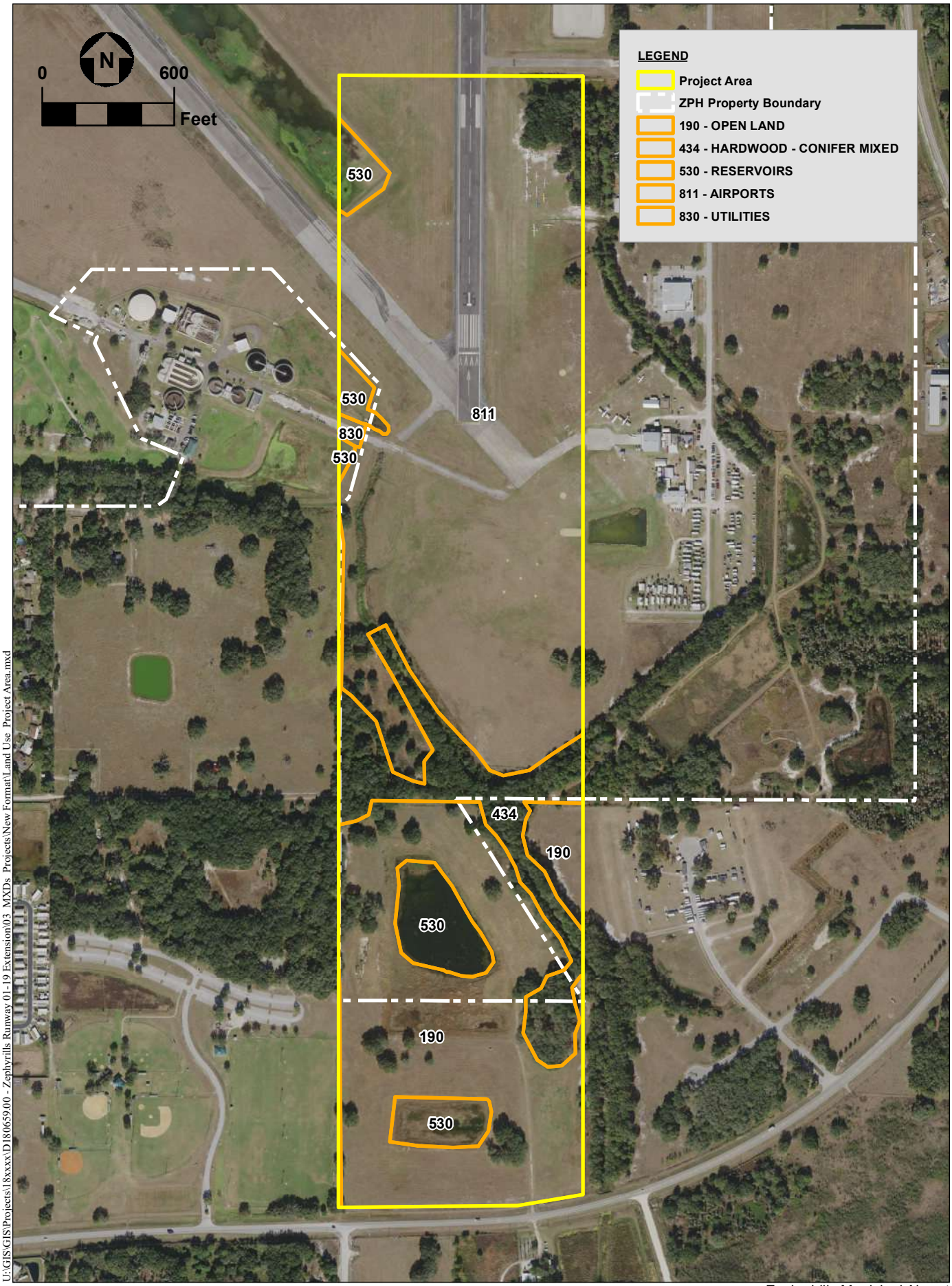


Dec 06, 2018 – 2:36pm
C:\Users\jhollery\Documents\Aviation Planning\Airports\ZPH – Zephyrhills Municipal Airport\05 Graphics–GIS–Modeling\Drawings\Figures\ZPH EA – Figure 1-2 – ProposedProject.dwg

Source: AID, 2018; ESA, 2018

Zephyrhills Municipal Airport

FIGURE 2
PROPOSED PROJECT LAYOUT



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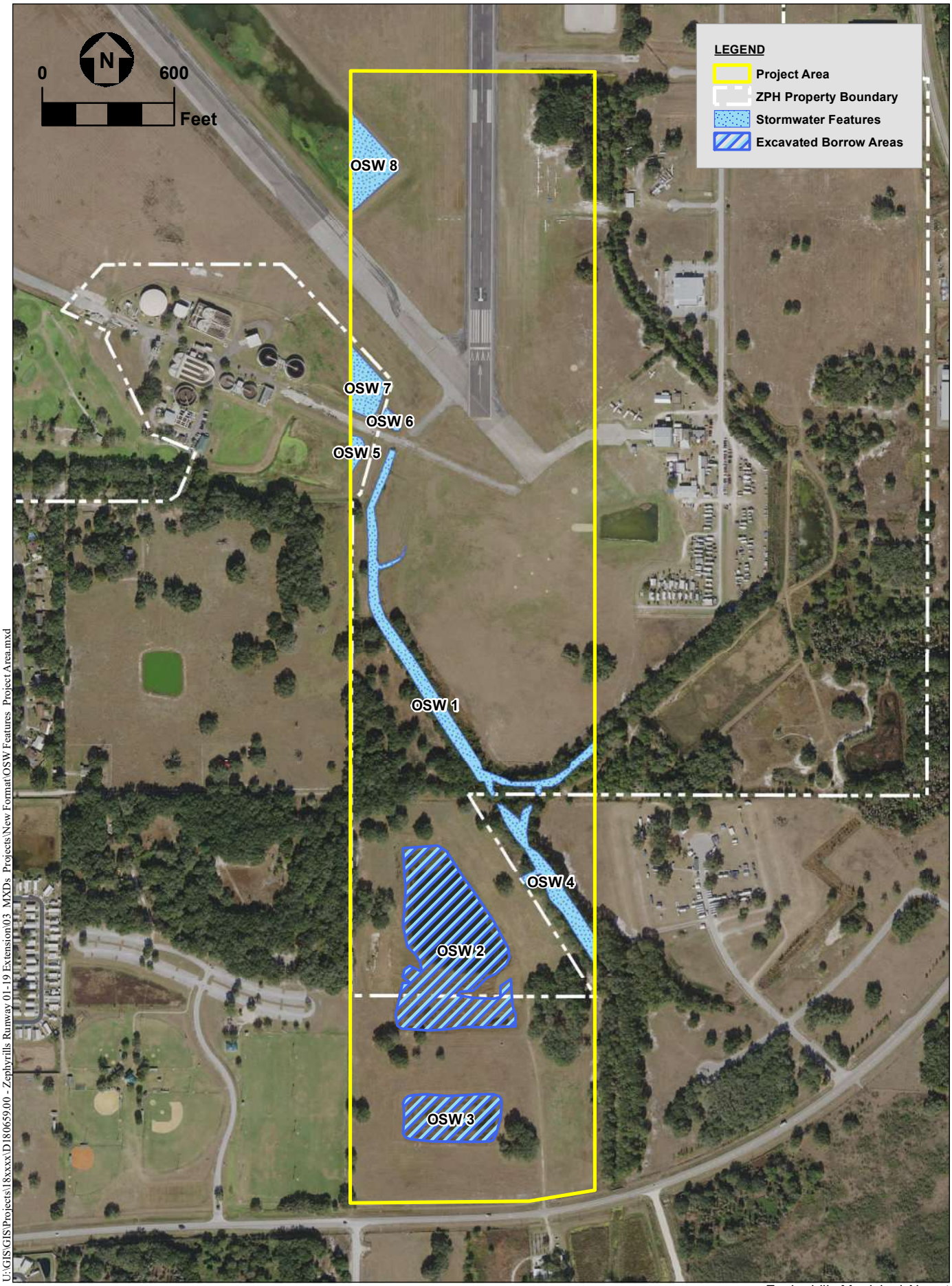
Source: FDOT 1999, Adapted by ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 3

LAND USE MAP



Date: 1/7/2019
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Source: ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 4

OTHER SURFACE WATER (OSW) FEATURES MAP

---------- Zephyrhills Municipal Airport

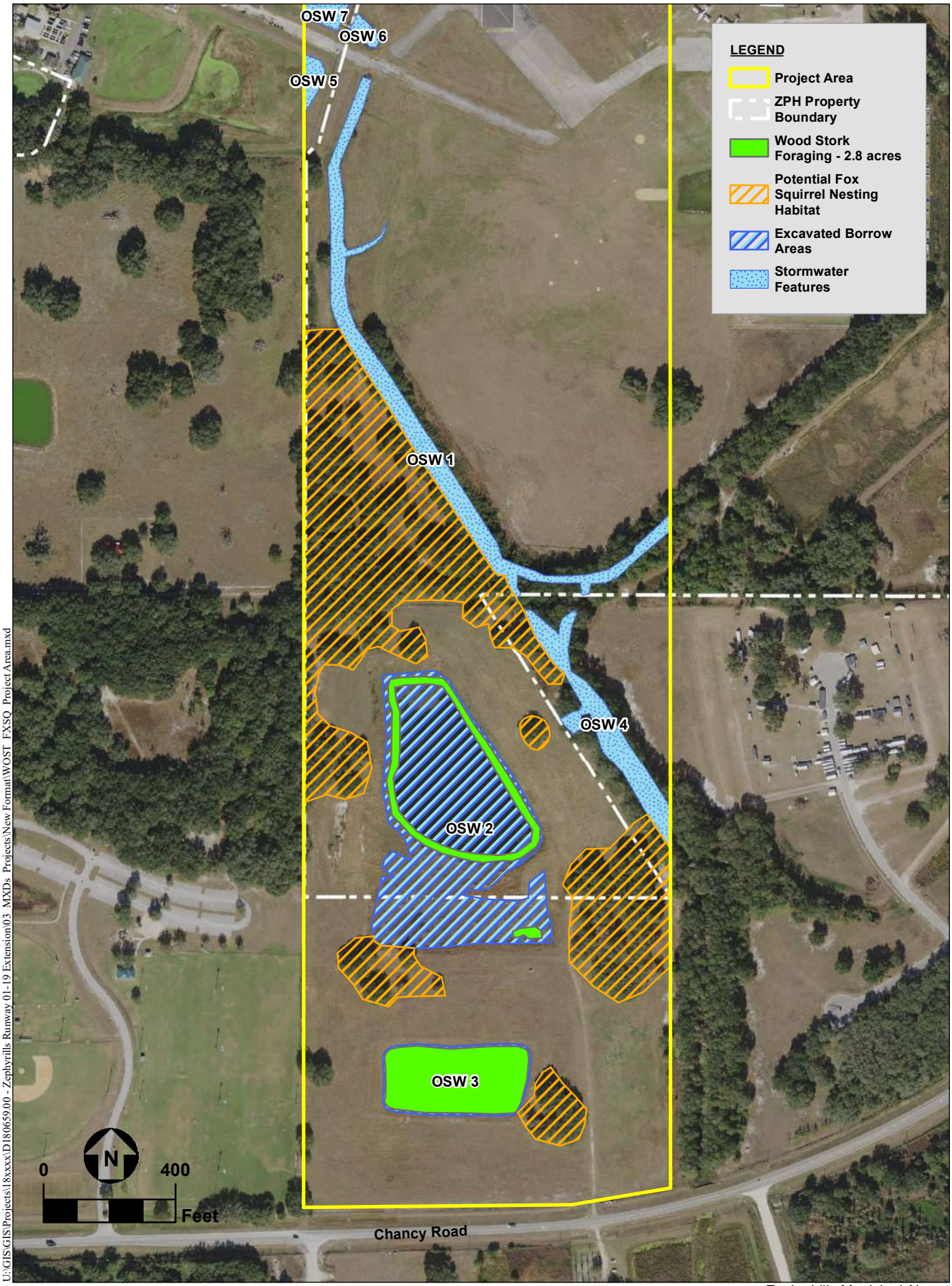
Source: *http://ufdc.ufl.edu/aerial*

EXHIBIT 4A
1941 AERIAL OF THE PROPOSED
PROJECT LOCATION

---------- Zephyrhills Municipal Airport

Source: *http://ufdc.ufl.edu/aerial*

EXHIBIT 4B
1951 AERIAL OF THE PROPOSED
PROJECT LOCATION



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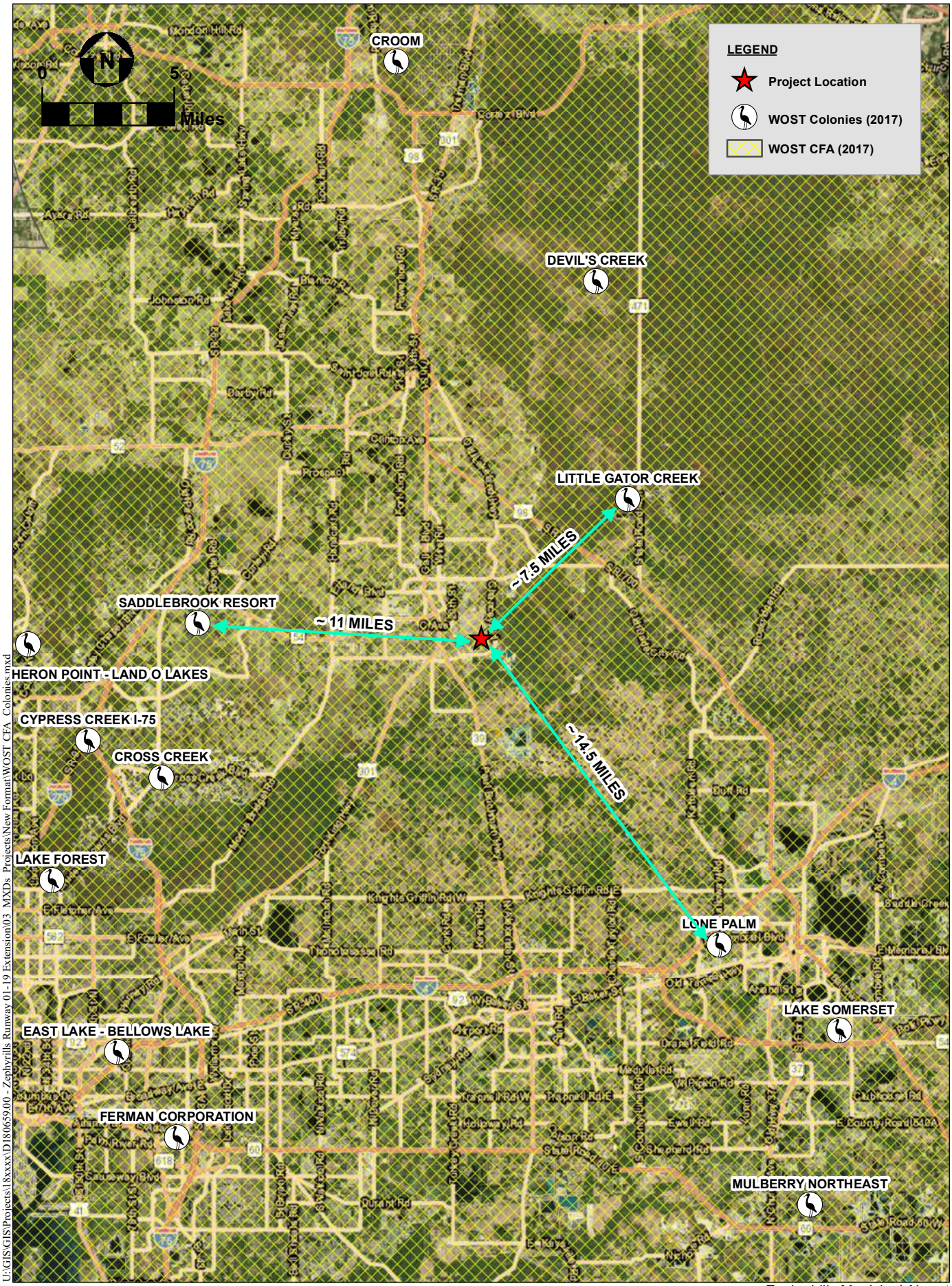
Source: ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 5

POTENTIAL WOOD STORK FORAGING AND FOX SQUIRREL NESTING HABITAT MAP



Date: 1/7/2019
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Source: USFWS 2017, Adapted by ESA 2018

Zephyrhills Municipal Airport

EXHIBIT 6

WOOD STORK (WOST) COLONIES AND CORE FORAGING AREA (CFA) MAP

Amy Paulson

From: Stahl, Chris <Chris.Stahl@dep.state.fl.us>
Sent: Tuesday, March 12, 2019 2:57 PM
To: Amy Paulson
Cc: State_Clearinghouse
Subject: State_Clearance_Letter_For_FL201901188517C_Environmental Assessment for the Extension of Runway 1-19 at Zephyrhills Municipal Airport (ZPH), Pasco County
Attachments: Zephyrhills Municipal Airport Runway 1-19 Extension_38029_013019.pdf

March 12, 2019

Amy Paulson
ESA - Environmental Science Associates
5401 South Kirkman Road
Suite 405
Orlando, Florida 33819

RE: Department of Transportation, Federal Aviation Administration - Environmental Assessment for the Extension of Runway 1-19 at Zephyrhills Municipal Airport (ZPH), Pasco County, Florida
SAI # FL201901188517C

Dear Amyl:

Florida State Clearinghouse staff has reviewed the proposal under the following authorities: Presidential Executive Order 12372; § 403.061(42), Florida Statutes; the Coastal Zone Management Act, 16 U.S.C. §§ 1451-1464, as amended; and the National Environmental Policy Act, 42 U.S.C. §§ 4321-4347, as amended.

Early Coordination with the Southwest Florida Water Management District's Environmental Resource Permit (ERP) staff is encouraged prior to any site work. For assistance or additional information concerning the District's ERP program, please contact Robin McGill, senior professional engineer, at (813) 985-7481, extension 2072, or robin.mcgill@watermatters.org.

The Florida Fish and Wildlife Conservation Commission has reviewed the proposed project and provided a comment letter which is attached and incorporated hereto.

If prehistoric or historic artifacts, such as pottery or ceramics, projectile points, dugout canoes, metal implements, historic building materials, or any other physical remains that could be associated with Native American, early European, or American settlement are encountered at any time within the project site area, the permitted project shall cease all activities involving subsurface disturbance in the vicinity of the discovery. The applicant shall contact the Florida Department of State, Division of Historical Resources, Compliance Review Section at (850)-245-6333. Project activities shall not resume without verbal and/or written authorization. In the event that unmarked human remains are encountered during permitted activities, all work shall stop immediately and the proper authorities notified in accordance with Section 872.05, Florida Statutes. If you have any questions, please contact Alyssa Costas, Historic Sites Specialist, by email at Alyssa.Costas@dos.myflorida.com, or by telephone at 850.245.6333 or 800.847.7278.

Based on the information submitted and minimal project impacts, the state has no objections to allocation of federal funds for the subject project and, therefore, the funding award is consistent with the Florida Coastal Management

Program (FCMP). The state's final concurrence of the project's consistency with the FCMP will be determined during any environmental permitting processes, in accordance with Section 373.428, Florida Statutes, if applicable.

Thank you for the opportunity to review the proposed plan. If you have any questions or need further assistance, please don't hesitate to contact me.

Sincerely,

Chris Stahl

Chris Stahl, Coordinator
Florida State Clearinghouse
Florida Department of Environmental Protection
3800 Commonwealth Blvd., M.S. 47
Tallahassee, FL 32399-2400
ph. (850) 717-9076
State.Clearinghouse@floridadep.gov

Florida Fish and Wildlife Conservation Commission

Commissioners
Robert A. Spottswood
Chairman
Key West

Michael W. Sole
Vice Chairman
Tequesta

Joshua Kellam
Palm Beach Gardens

Gary Lester
Oxford

Gary Nicklaus
Jupiter

Sonya Rood
St. Augustine

Office of the Executive Director
Eric Sutton
Executive Director

Thomas H. Eason, Ph.D.
Assistant Executive Director

Jennifer Fitzwater
Chief of Staff

850-487-3796
850-921-5786 FAX

Managing fish and wildlife resources for their long-term well-being and the benefit of people.

620 South Meridian Street
Tallahassee, Florida
32399-1600
Voice: 850-488-4676

Hearing/speech-impaired:
800-955-8771 (T)
800 955-8770 (V)

MyFWC.com

January 30, 2019

Chris Stahl, Coordinator
Florida State Clearinghouse
Florida Department of Environmental Protection
3800 Commonwealth Blvd., M.S. 47
Tallahassee, FL 32399-2400
State.Clearinghouse@floridadep.gov

RE: SAI # FL201901188517C, Department of Transportation, Federal Aviation Administration - Environmental Assessment for the Extension of Runway 1-19 at Zephyrhills Municipal Airport, Pasco County

Dear Mr. Stahl:

Florida Fish and Wildlife Conservation Commission (FWC) staff has reviewed the Notice of Preparation of Environmental Assessment for the above-referenced project and provides the following comments and recommendations for your consideration in accordance with Chapter 379, Florida Statutes, and pursuant to the federal National Environmental Policy Act (NEPA), the federal Coastal Zone Management Act, and the State of Florida Coastal Management Program.

Project Description

The proposed project would extend the runway to the south by 1,506 feet to provide an overall runway length of 6,200 feet and would construct a 35-foot-wide, 1,700 linear foot partial parallel taxiway on the west side of the runway extension. The project also includes the establishment of infrastructure associated with the extension of the runway and construction of the taxiway (e.g., lighting, grading/stormwater management improvements, and security fencing). The Zephyrhills Municipal Airport site located in southeastern Pasco County contains a mixture of open fields, drainage ditches, borrow pits with marsh edges, and some mixed hardwoods.

Potentially Affected Resources

The application materials did not include any wildlife assessment information. FWC staff conducted a geographic information system (GIS) analysis of the project area. Our analysis found that this site is located near, within, or adjacent to potential habitat or occurrence locations for:

- U.S. Fish and Wildlife Service (USFWS) Consultation Area for the following federally listed species:
  - Audubon's crested caracara (*Polyborus plancus audubonii*, Federally Threatened [FT])
  - Florida scrub-jay (*Aphelocoma coerulescens*, FT)

- Potential habitat for state- and federally listed species:
  - Florida burrowing owl (*Athene cunicularia floridana*, State Threatened [ST])
  - Eastern indigo snake *(Drymarchon corais couperi*, FT)
  - Florida sandhill crane (*Antigone canadensis pratensis*, ST)
  - Gopher tortoise (*Gopherus polyphemus*, ST)

Comments and Recommendations

Wildlife Surveys

To better identify the potential for impacts, listed species-specific surveys should be completed prior to any clearing or development. Species-specific wildlife surveys are time sensitive and FWC staff recommends that all wildlife surveys follow established survey protocols approved by the U.S. Fish and Wildlife Service and the FWC. Surveys should also be conducted by qualified biologists with recent documented experience for each potential species. Basic guidance for conducting wildlife surveys may be found within the Imperiled Species Management Plan's species-specific Permitting Guidelines (http://myfwc.com/wildlifehabitats/imperiled/plan/) or in the Florida Wildlife Conservation Guide (http://myfwc.com/conservation/value/fwcg/).

Florida Burrowing Owl

Suitable habitat for Florida burrowing owls may be found on the project site. Burrowing owls typically occupy areas with short groundcover and grasses like agricultural fields and prairies. We recommend the applicant survey the property for burrowing owls prior to construction activities to ensure that no burrowing owl burrows occur onsite. If burrowing owls are observed onsite, please coordinate with the FWC staff identified at the close of this letter to discuss avoidance, minimization, and permitting options. Additional information can be found in the species guidelines for the Florida burrowing owl (https://myfwc.com/media/2028/floridaburrowingowlguidelines-2018.pdf).

Florida Sandhill Crane

The project site may provide foraging habitat for Florida sandhill crane and the freshwater emergent marsh near the ponds to be filled may provide potential nesting habitat for this species. FWC staff recommends that surveys for nesting sandhill cranes be conducted prior to construction activities and during the December through August breeding season. If there is evidence of nesting during this period, we recommend that the nest site be buffered by 400 feet to avoid disturbance by human activities. If nesting is discovered after construction has begun or if maintaining the recommended buffer is not possible, we recommend that the applicant contact FWC staff identified below to discuss potential permitting needs. Basic guidance for conducting wildlife surveys may be found in the Sandhill Crane Species Conservation Measures and Permitting Guidelines (https://myfwc.com/media/11565/final-florida-sandhill-crane-species-guidelines-2016.pdf). FWC staff would also like to note that Florida sandhill cranes do not nest in

the same location every year, so if construction occurs over several years it may be necessary to determine if nesting is occurring each year

Gopher Tortoise

The project area has potential habitat for the gopher tortoise. The applicant should refer to the FWC's Gopher Tortoise Permitting Guidelines (Revised January 2017) (http://www.myfwc.com/license/wildlife/gopher-tortoise-permits/) for survey methodology and permitting guidance prior to any development activity. Specifically, the permitting guidelines include methods for avoiding impacts as well as options and state requirements for minimizing, mitigating, and permitting potential impacts of the proposed activities. If you have any questions regarding gopher tortoise permitting, please contact Kelly O'Connor at (863) 648-3200 or Kelly.OConnor@MyFWC.com.

Federal Species

This site may contain habitat suitable for the federally listed species identified above. We recommend the applicant coordinate with USFWS South Florida Ecological Services Office (ESO) as necessary for information regarding potential impacts to these species. The USFWS South Florida ESO can be contacted at (772) 562-3909.

We appreciate the opportunity to review the proposed project and look forward to working with the applicant throughout the permitting process. If you need any further assistance, please do not hesitate to contact our office at FWCConservationPlanningServices@MyFWC.com. If you have specific technical questions regarding the content of this letter, please contact Theodore Hoehn at (850) 488-8792 or ted.hoehn@MyFWC.com.

Sincerely,

Fritz Wettstein

Fritz Wettstein
Land Use Planning Program Administrator
Office of Conservation Planning Services

Zephyrhills Municipal Airport Runway 1-19 Extension_38029_01302019

ESA

5401 S. Kirkman Road
Suite 405
Orlando, FL 33819
407.403.6300 phone
813.207.7201 fax

www.esassoc.com

January 7, 2019

Chris Stahl
Florida Department of Environmental Protection
Office of Intergovernmental Programs
2600 Blair Stone Road, MS 47
Tallahassee, Florida 32399-2400

RE: NOTICE OF PREPARATION OF ENVIRONMENTAL ASSESSMENT
EXTENSION OF RUNWAY 1-19 AT ZEPHYRHILLS MUNICIPAL AIRPORT
ZEPHYRHILLS, FLORIDA

Dear Mr. Stahl:

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the City of Zephyrhills (City) is preparing an Environmental Assessment (EA) for the proposed extension of Runway 1-19 at the Zephyrhills Municipal Airport (ZPH), located at 39450 South Avenue, Zephrhills, Florida 33542. Once completed, the EA will be submitted to the Federal Aviation Administration (FAA). After review of the EA and consideration of comments from the public and federal, state, and local agencies, the FAA will make an environmental determination on the Proposed Project.

On behalf of ZPH, we are sending you this notification package for the following reasons:

- To advise you of the preparation of the EA,
- To request any background information that your agency may have regarding the Proposed Project site and its environs, and
- To obtain an understanding of any issues, concerns, policies, or regulations that your agency may have regarding the Proposed Project and its potential impacts.

Description of the Proposed Project

The Proposed Project would extend the runway to the south by 1,506 feet to provide an overall runway length of 6,200 feet and would construct a 35-foot-wide, 1,700 linear foot partial parallel taxiway on the west side of the runway extension. The Proposed Project also includes the establishment of infrastructure associated with the extension of the runway and construction of the taxiway (e.g., lighting, grading/stormwater management improvements, and security fencing.)

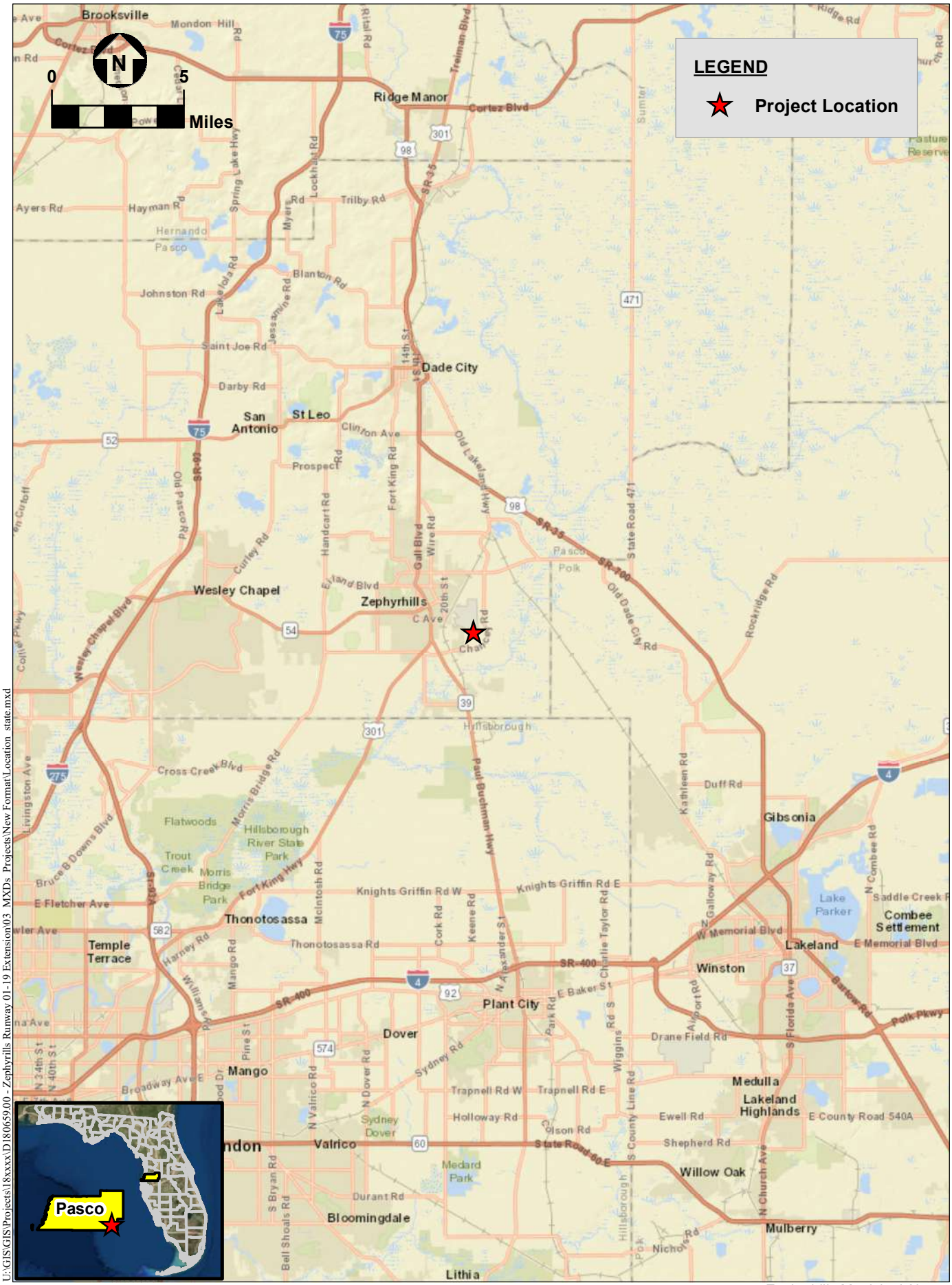
The City proposes the extension of Runway 1-19 to improve the accessibility of the airport for a greater spectrum of modern business jet aircraft that currently serve, and may attract, local industries. The need for a longer runway is a part of ZPH and City planning initiatives and was identified in the ZPH 2003 Airport Master Plan Update. The location of the airport, the layout of the Proposed Project, and further detail regarding the Proposed Project are provided in the enclosed exhibits.

We appreciate any information and input you have at this time, and if possible, a response within 30 days of the date of this letter. If you have any questions, please feel free to call me at (407) 748-2729 or e-mail me at jsullivan@esassoc.com.

Sincerely,

Julie Sullivan

Enclosures: Coordination package



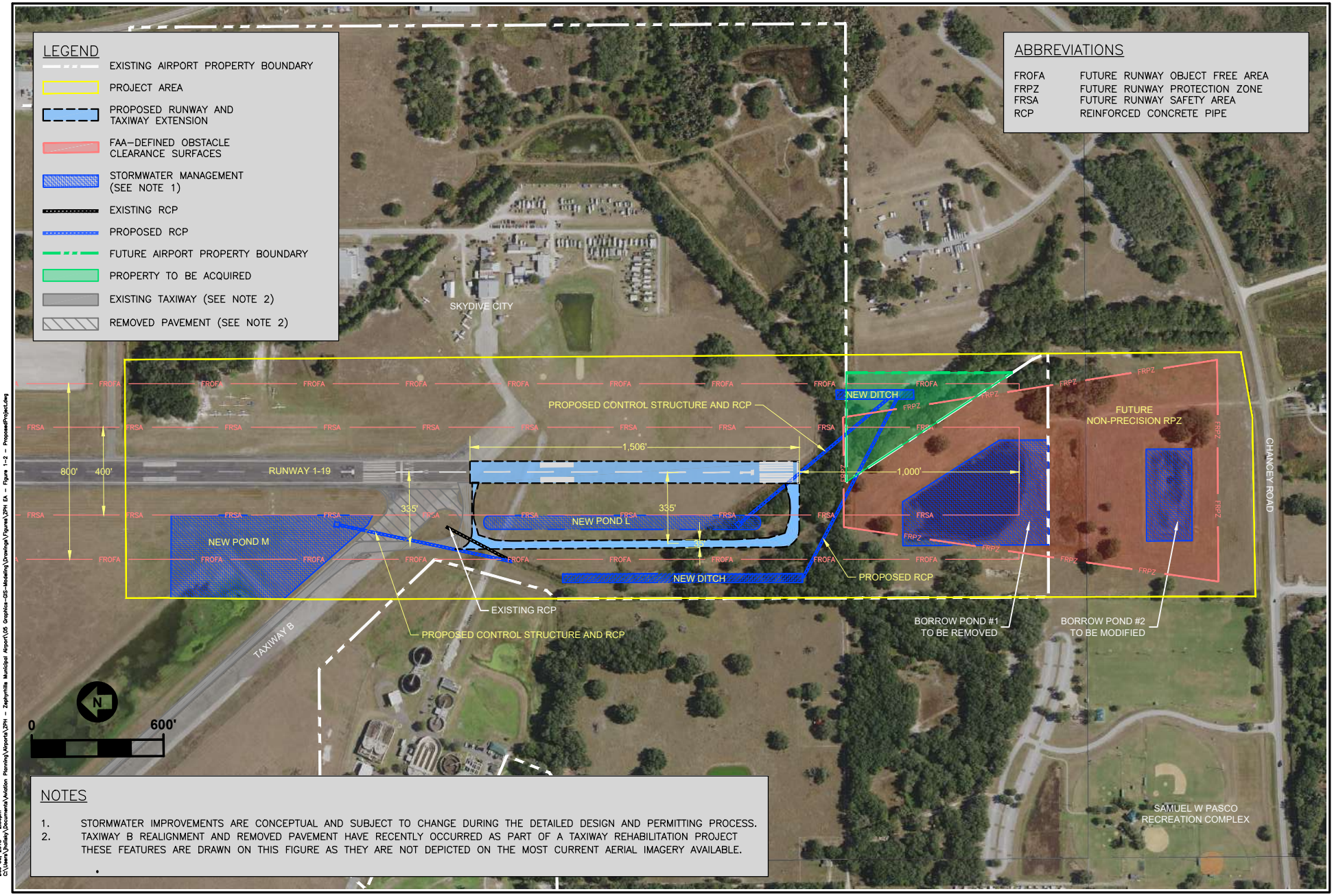
Date: 1/5/2019
U:\GIS\GIS\Projects\18xxxx\D180659.00 - Zephyrills Runway 01-19 Extension\03_MXDs_Projects\New Format\Location_state.mxd

Source: ESA, 2018

Zephyrhills Municipal Airport

EXHIBIT 1

PROJECT LOCATION



Dec 06, 2018 – 2:36pm
C:\Users\jhollery\Documents\Aviation Planning\Airports\ZPH – Zephyrhills Municipal Airport\05 Graphics–GIS–Modeling\Drawings\Figures\ZPH EA – Figure 1-2 – ProposedProject.dwg

Source: AID, 2018; ESA, 2018

Zephyrhills Municipal Airport

EXHIBIT 2
PROPOSED PROJECT

EXHIBIT 3
PROPOSED PROJECT DESCRIPTION

Environmental Assessment for the Extension of Runway 1-19
at the Zephyrhills Municipal Airport (ZPH), Zephyrhills (Pasco County), FL

The Proposed Project would extend ZPH Runway 1-19 to the south by 1,506 feet to provide an overall runway length of 6,200 feet. The Proposed Project also includes the construction of a 35-foot-wide, 1,700 linear foot partial parallel taxiway on the west side of the runway extension to accommodate required taxiway design standards. The location of the airport and the layout of the Proposed Project are depicted on the attached figures.

Specific project elements include:

- Construct approximately 1,506 linear feet by 100-foot-wide runway extension to bring Runway 1-19 to total length of 6,200 feet.
- Construct approximately 1,700 linear feet of 35-foot-wide partial parallel taxiway on the west side of the proposed Runway 1-19 extension. This addition will allow a connection to Taxiway B at the end of the existing Runway 1. The new partial parallel taxiway will have a 335-foot runway to taxiway centerline separation and comply with Taxiway Design Group 2 standards.
- Upgrade Runway 1-19 Safety Areas (RSA), Runway Object Free Areas (ROFA), and Runway Protection Zones (RPZ) to meet Aircraft Approach Category and Airplane Design Group D-II standards. Remove existing obstructions, including all woody vegetation located in the future RSA, ROFA, and RPZ.
- Install new runway and taxiway edge lights; relocate/upgrade Runway 1 threshold lights, Precision Approach Path Indicator Lights, and Runway End Identifier Lights; and re-mark Runway 1-19 pavement surfaces.
- Prepare final site grading and construction of on-site drainage and stormwater management improvements (two new flood compensation ponds, two new ditches, swales, reinforced concrete pipe culverts, etc.) to accommodate the new impervious pavement surface and to meet safety area requirements. Remove/fill existing Borrow Pond 1 and modify existing Borrow Pond 2. Note that at this time proposed stormwater management improvements are conceptual in nature and will be further refined as the project design progresses.
- Acquire 4.3 acres of land 50 feet from the edge of the future ROFA to maintain an adequate vegetation-free zone.
- Install security fencing and gates.
- Publish instrument approach procedures for Runway 1-19. Remove obstructions, as needed.

US Army Corps of Engineers.

U.S. Army Corps of Engineers – Jacksonville District – Regulatory Division
REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)
(For Jurisdictional Status and Identifying Wetlands and Other Aquatic Resources)

I. PROPERTY AND AGENT INFORMATION

A. Site Details/Location:
Site Name: Zephyrhills Municipal Airport Date: 05/09/2019
Property Owner: City of Zephyrhills
Property Owner Address: 39450 South Avenue, Zephyrhills, FL 33542
Phone: 813-780-0030 Email: ncoleman@ci.zephyrhills.fl.us
Property Address (es):
Acreage: City/Parish/Section/Township/Range: Zephyrhills/Sections18 &19/Township 26S/Range 22E
County: Pasco Parcel number(s): 18-26-22-0010-05500-0000
Latitude (decimal degrees): 28.223840 Longitude (decimal degrees): 82.158944

B. Requestor of Jurisdictional Determination: *(if there are multiple property owners please attach additional pages)*
Name: Nathan Coleman
Company Name (*if applicable*): Zephyrhills Municipal Airport
Address: 39450 South Avenue
Phone: 1-813-780-0030 Email: ncoleman@ci.zephyrhills.fl.us
Check one: ☐ I currently own this property
☐ I plan to purchase this property
☑ Other, please explain Airport Manager

C. Agent/Environmental Consultant Acting on Behalf of the Requestor *(if applicable)*:
Consultant/Agent Name: Craig Stout Company Name: ESA
Address: 5401 South Kirkman Road, Suite 475, Orlando FL, 32819
Phone: 407-227-5598 Email: cstout@esassoc.com

II. REASON FOR REQUEST *(check all that apply)*

☐ I intend to construct/develop a project or perform activities on this site which would be designed to avoid all aquatic resources.

☑ I intend to construct/develop a project or perform activities on this site which would be designed to avoid all jurisdictional aquatic resources under Corps authority.

☐ I intend to construct/develop a project or perform activities on this site which may require authorization from the Corps, and the Jurisdictional Determination would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.

☐ I intend to construct/develop a project or perform activities on this site which may require authorization from the Corps; this request is accompanied by my permit application and the jurisdictional determination is to be used in the permitting process.

☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S., which is subject to the ebb and flow of the tide.

☐ A Corps jurisdictional determination is required in order to obtain my local/state authorization.

☐ I intend to contest jurisdiction over a particular aquatic resource and the request the Corps to confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.

☐ I believe that the site may be comprised entirely of dry land.

☐ Other:

III. TYPE OF REQUEST: *(check all that apply)*

- ☐ **Approved[1] Jurisdictional Determination (AJD) Only**
- ☐ **Preliminary[2] Jurisdictional Determination (PJD) Only**
- ☐ **Approved Jurisdictional Determination (AJD)** with submittal of Pre-Construction Notification or Department of the Army permit application
- ☐ **Preliminary Jurisdictional Determination (PJD)** with submittal of Pre-Construction Notification or Department of the Army permit application
- ☐ **Verify Delineation of Wetlands and/or Other Aquatic Resources Only Conducted by Agent/Environmental Consultant** with submittal of Pre-Construction Notification or Department of the Army permit application (No jurisdictional determination requested).
- ☐ **Verify Delineation of Wetlands and/or Other Aquatic Resources Only Conducted by Agent/Environmental Consultant** (No jurisdictional determination requested).
- ☐ I request that the **Corps delineate** the wetlands and/or other aquatic resources that may be present on the property with the attached Pre-Construction Notification or Department of the Army Permit Application.[3]
- ☐ I request that the **Corps delineate** the wetlands and/or other aquatic resources that may be present on my property with an AJD or PJD.[3]
- ☑ **No Permit Required (NPR) Letter** as I believe my proposed activity is not regulated.[4]
- ☐ **Unclear** as to which jurisdictional determination I would like and require additional information to inform my decision.

[1]Approved – An AJD is defined in Corps regulations at 33 CFR 331.2. As explained in further detail in RGL 16-01, an AJD is used to indicate that this office has identified the presence or absence of wetlands and/or other aquatic resources on a site, including their accurate location(s) and boundaries, as well as their jurisdictional status. AJDs are valid for 5 years.

[2]Preliminary – A PJD is defined in Corps regulations at 33 CFR 331.2. As explained in further detail in RGL 16-01, a PJD is used to indicate that this office has identified the approximate location(s) and boundaries of wetlands and/or other aquatic resources on a site that are presumed to be subject to regulatory jurisdiction of the Corps of Engineers. Unlike an AJD, a PJD does not represent a definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a site, and does not have an expiration date.

[3]Corps Delineations-Current workload and staffing limitations may substantially delay the Corps ability to perform a wetland delineation. The availability of the Corps to perform this service will be evaluated on a case by case basis. In general, the Corps will only perform an on-site delineation for non-commercial entities on parcels which total 5 acres or less. To ensure the accuracy of the supporting information and expedite review and processing, aquatic resource delineations should be completed by experienced/knowledgeable professionals in accordance with Corps established procedures and then submitted to the Corps for verification.

[4]"No Permit Required" (NPR) Letter- A NPR letter may be provided by the Corps to notify the requestor that an activity will not require a permit (authorization) from the Corps; this letter can only be used if the proposed activity is not a regulated activity, regardless of where the activity may occur. A NPR letter cannot be used to indicate the presence or absence of wetlands and/or other aquatic resources, nor can it be used to determine their jurisdictional status.

*Please note that delineated boundaries of aquatic resources need to be flagged on-site in order for the Corps to field verify the delineation. This applies to all delineations conducted by an Agent/Environmental Consultant for all types of projects, permit applications, and JD requests. Additionally, the boundaries of the parcel should be clearly marked by staking, fences, cut lines, or other landmarks, and the interior of the property should be readily accessible. Transect cut lines may be required for access and physical reference in densely vegetated areas.

IV. LEGAL RIGHT OF ENTRY

By signing below, I am indicating that I have the authority, or am acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant U.S. Army Corps of Engineers personnel right of entry to legally access the property(ies) subject to this request for the purposes of conducting on-site investigations (e.g., digging and refilling shallow holes) and issuing a jurisdictional determination. I acknowledge that my signature is an affirmation that I possess the requisite property rights to request a jurisdictional determination on the properties subject to this request.

39450 South Avenue, Zephyrhills, FL. 33542	18-26-22-0010-05500-0000
Mailing Address	Property Address/Parcel number(s)
ncoleman@ci.zephyrhills.fl.us	1-813-780-0030
Email Address	Daytime Phone Number
*Signature	Nathan Coleman 05/13/19
	Printed Name and Date

Jacksonville Permits Section P.O. Box 4970 Jacksonville, FL 32232-0019 Corpsjaxreg-nj@usace.army.mil	Cocoa Permits Section 400 High Point Drive, Suite 600 Cocoa, FL 32926-6662 Corpsjaxreg-nc@usace.army.mil	Pensacola Permits Section 41 North Jefferson Street, Suite 301 Pensacola, FL 32502-5664 Corpsjaxreg-NL@usace.army.mil
Panama City Permits Section 1002 West 23rd Street, Suite 350 Panama City, FL 32405-3648 Corpsjaxreg-NP@usace.army.mil	Tampa Permits Section 10117 Princess Palm Avenue, Suite 120 Tampa, FL 33610-8302 tampareg@usace.army.mil	Fort Myers Permits Section 1520 Royal Palm Square Blvd, Suite 310 Fort Myers, FL 33919-1036 SF.New.Applications@usace.army.mil
Palm Beach Gardens Permits Section 4400 PGA Boulevard, Suite 500 Palm Beach Gardens, FL 33410-6557 Application-sp@usace.army.mil	Miami Permits Section 9900 SW 107th Avenue, Suite 203 Miami, FL 33176-2785 SEAPPLS@usace.army.mil	Antilles Permits Section Annex Building Fundacion Angel Ramos 383 F.D. Roosevelt Ave., Suite 202 San Juan, Puerto Rico 00918

*Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

U.S. Army Corps of Engineers (USACE)

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

Form Approved - OMB No. 0710-0003 Expires: 02-28-2022

The public reporting burden for this collection of information, OMB Control Number 0710-0003, is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or burden reduction suggestions to the Department of Defense, Washington Headquarters Services, at whs.mc-alex.esd.mbx.dd-dod-information-collections@mail.mil. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR APPLICATION TO THE ABOVE EMAIL.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned. System of Record Notice (SORN). The information received is entered into our permit tracking database and a SORN has been completed (SORN #A1145b) and may be accessed at the following website: http://dpcld.defense.gov/Privacy/SORNsIndex/DOD-wide-SORN-Article-View/Article/570115/a1145b-ce.aspx

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Nathan Middle - Last - Coleman	First - Craig Middle - S Last - Stout
Company - Zephyrhills Municipal Airport	Company - ESA
E-mail Address - ncoleman@ci.zephyrhills.fl.us	E-mail Address - cstout@esassoc.com
6. APPLICANT'S ADDRESS:	**9. AGENT'S ADDRESS:**
Address- 39450 South Avenue	Address- 5401 South Kirkman Road, Suite 475
City - Zephyrhills State - FL Zip - 33542 Country - USA	City - Orlando State - FL Zip - 32819 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	**10. AGENTS PHONE NOs. w/AREA CODE**
a. Residence b. Business c. Fax	a. Residence b. Business c. Fax
813-780-0030	407-227-5598

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Craig Stout to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT — DATE: 05/13/19

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)
Zephyrhills 01-19 Runway Extension

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Hillsborough River	Address 39450 South Avenue
15. LOCATION OF PROJECT	City - Zephyrhills State- FL Zip- 33542
Latitude: •N 28.223840 Longitude: •W 82.158944	

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID 18-26-22-0010-05500-0000 Municipality Zephyrhills

Section - 18, 19 Township - 26 S Range - 22 E

17. DIRECTIONS TO THE SITE

From Interstate 75 in Tampa, Florida, head north until exit 279 (CR-54/Wesley Chapel Blvd) and head east for approximately 11 miles. Turn right on US-301/SR-39/Gall Blvd and head south for approximately 0.3 miles and then turn left onto South Avenue. Travel on South Avenue for 1.2 miles, the airport (project site) will be on your right.

18. Nature of Activity (Description of project, include all features)

Runway and Taxiway Extension including culverting of upland cut ditch features

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

Runway and Taxiway Extension

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

Acres 17.9 Acres of upland-cut other surface waters

or

Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)

The project does not impact jurisdictional Waters of the United States

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (If more than can be entered here, please attach a supplemental list).

a. Address-

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT — DATE: 05/13/19 — SIGNATURE OF AGENT — DATE: 5/13/2019

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 3/12/2019

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Tampa Permit Section

C. PROJECT LOCATION AND BACKGROUND INFORMATION:
State: Florida County/parish/borough: Pasco City: Zephyrhills
Center coordinates of site (lat/long in degree decimal format): Lat. 28.229956° **N**, Long. 82.163383° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Hillsborough River
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Hillsborough River
Name of watershed or Hydrologic Unit Code (HUC): HUC 8 = 03100205
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: 02/25/2019
☒ Field Determination. Date(s): 6/5/2018

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **1987 Delineation Manual**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: **OSW features within the Zephyrhills Municipal Airport - Runway 01-19 Runway Expansion boundary include: OSW 2 (28.211430 N, 82.153797 W), OSW 3 (28.213998 N, 82.153860 W) and OSW 5 (28.218751 N, 82.151008 W). These features are upland-cut borrow areas that were excavated by past property owners. There are no tributaries to any of the waters of the U.S. and are determined to be isolated. These pond features have no hydrologic**

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

connection or a significant nexus to the closest (less than 1 aerial mile) TNW, which is the Hillsborough River. These pond features have no physical, chemical, and/or biological itegrity of the closest TNW. These OSW features lack any direct hydrologic connection to downstream waters (Supreme Court decision, Solid Waste Agency of Northern Cook County vs. U.S. Army Corp of Engineers, 531 U.S. 159 (2001)). OSW 1 (28.215674 N, 82.152434 W) is an upland-cut ditch that is part of the stormwater management system of the airport, which makes them exempt from the Clean Water Act, Section 404 jurisdiction.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: Hillsborough ~420,037**acres**
Drainage area: **acres**
Average annual rainfall: ~52-53 inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☒ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **2-5** river miles from TNW.
Project waters are **1 (or less)** river miles from RPW.
Project waters are **1-2** aerial (straight) miles from TNW.
Project waters are **1-2** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: Project waters flow south through the area into a drainage canal that ultimately flows in a southwest direction to the Hillsborough River.

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

.

Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☒ Artificial (man-made). Explain: The flow traverses several culverts and drainage structures.
☒ Manipulated (man-altered). Explain: The flow drains through channelized canals .

Tributary properties with respect to top of bank (estimate):
Average width: ~30 feet
Average depth: ~8 feet
Average side slopes: **3:1 .**

Primary tributary substrate composition (check all that apply):

☒ Silts	☒ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☒ Muck
☐ Bedrock	☒ Vegetation. Type/% cover: Forested ~75%	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Stable.
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 3 %

(c) Flow:
Tributary provides for: **Seasonal flow**
Estimate average number of flow events in review area/year: **20 (or greater)**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Confined.** Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☒ Bed and banks
☒ OHWM[6] (check all indicators that apply):

☒ clear, natural line impressed on the bank	☒ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☒ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☒ water staining	☒ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: At mulitple points of visual observation, the water was typically clear.
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☒ Wetland fringe. Characteristics: Herbaceous and forested wetlands.
- ☒ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☒ Other environmentally-sensitive species. Explain findings: amphibian, reptiles, wading birds.
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: N/A acres

Wetland type. Explain: .

Wetland quality. Explain: and storage. .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: NHD designations and fiel assessments confirm that water is conveyed from project wetlands through a slough system, ditches and canals and ultimately into the Hillsborough River (TNW) (Figure 3).

Surface flow is**: Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: Moderate, past land management practices have manipulated the systems. Cut ditches and canals appear to have an adverse effect on hydrology in wetlands.

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)
N/A			

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. Non-RPWs[8] that flow directly or indirectly into TNWs.
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.[9]
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☒ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☒ Other: (explain, if not covered above): **Other than above impacts to isolated OSW features, the remaining impacts are to an upland-cut ditch (OSW 1) that is part of the airport's stormwater management system.**

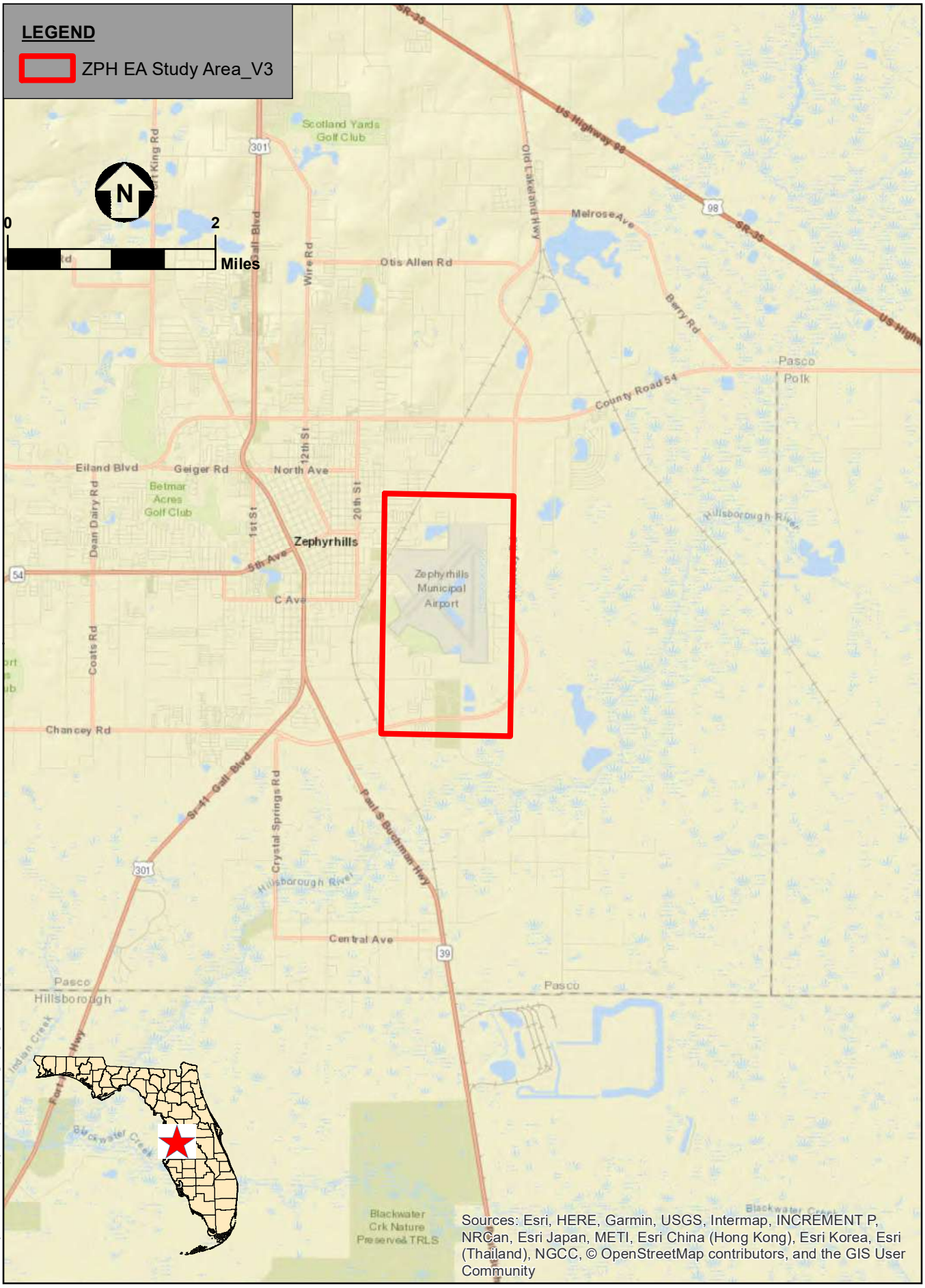
Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☒ Other non-wetland waters: 10.23 acres. List type of aquatic resource: OSW 2 (7.21 acres), OSW 3 (2.08 acres) and OSW 5 (0.94 acres).
☐ Wetlands: N/A acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:Figure 1 and 2.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☒ U.S. Geological Survey Hydrologic Atlas: Exhibit 3.
☒ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Exhibit 4 (1" = 1500 Feet, Zephyrhills).
☒ USDA Natural Resources Conservation Service Soil Survey. Citation:Exhibit 5 (NRCS Web Soil Survey).
☒ National wetlands inventory map(s). Cite name: Exhibit 6 (HUC 8 03100205) .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): ESRI, i-cubed, USDA FSA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGP, February 2016 .
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

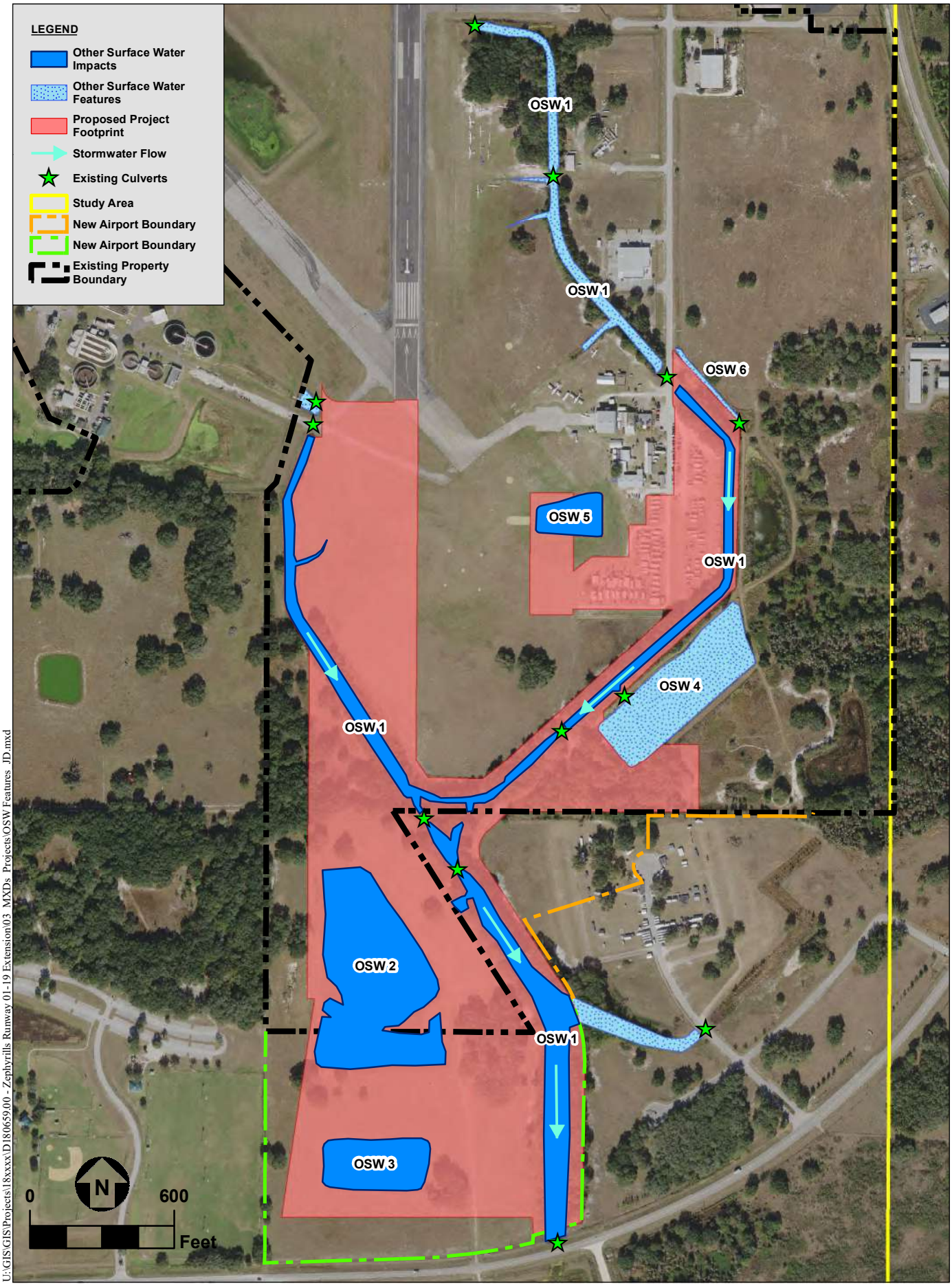
B. ADDITIONAL COMMENTS TO SUPPORT JD: All proposed isolated features displayed no flow to any RPW during heavy rain events. No stormwater structures were observed connecting the isolated ponds to other OSW features and RPW's. The pond features that are listed above as non-jurisdictional, appeared to be isolated and had no chemical, biological or physical nexus after major rain events. OSW 1is an upland-cut ditch that is part of the stormwater conveyance system of the Zephyrhills Municipal Airport. Typically, this type of feature is not regulated by the ACOE..



Source: ESA, 2018

Zephyrhills Municipal Airport
Runway 01-19 Extension Project

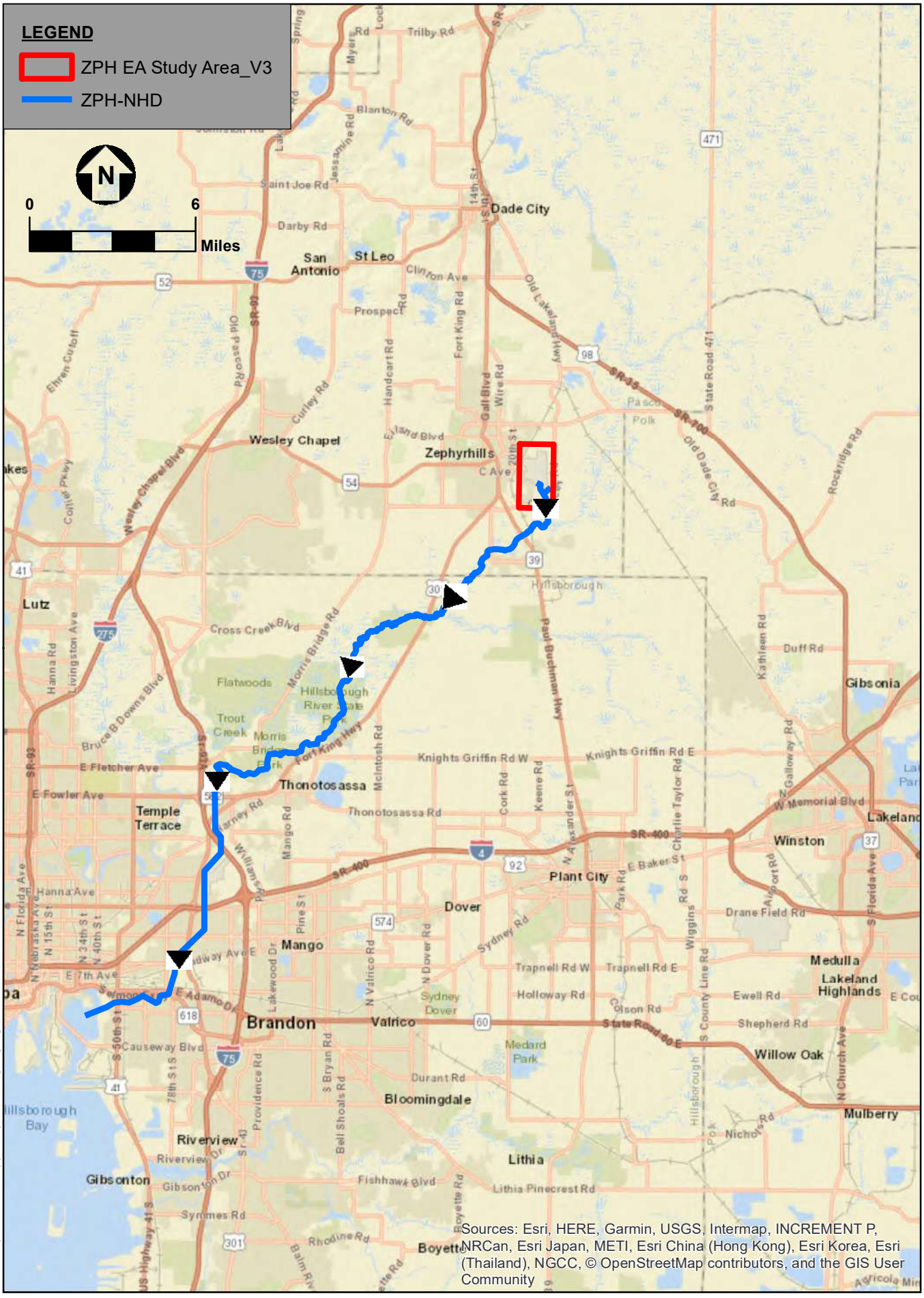
FIGURE 1
LOCATION MAP



Source: ESA 2018

Zephyrhills Municipal Airport
Runway 01-19 Extension Project

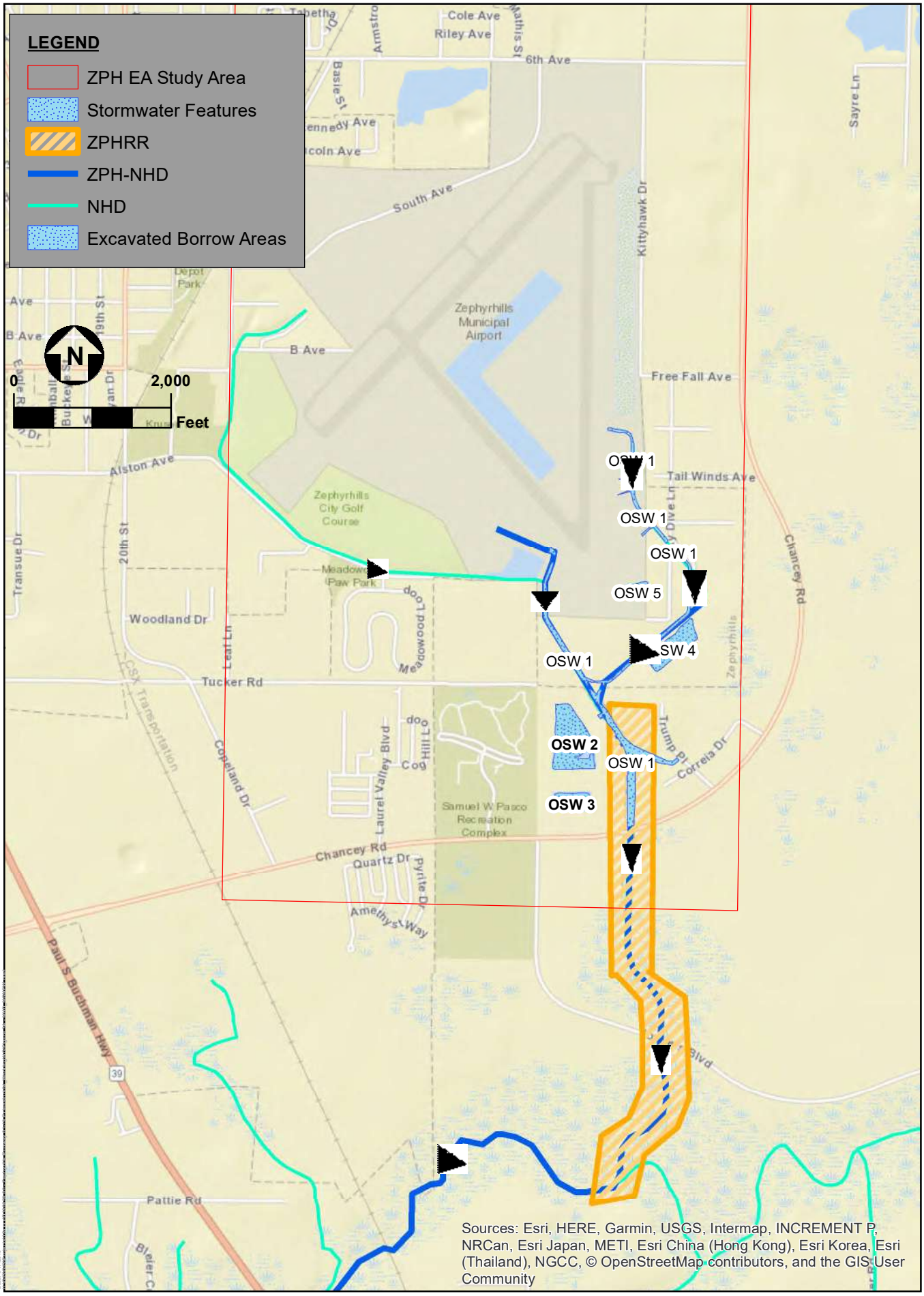
FIGURE 2
OTHER SURFACE WATER (OSW) FEATURES



Source: ESA, 2018

Zephyrhills Municipal Airport
Runway 01-19 Extension Project

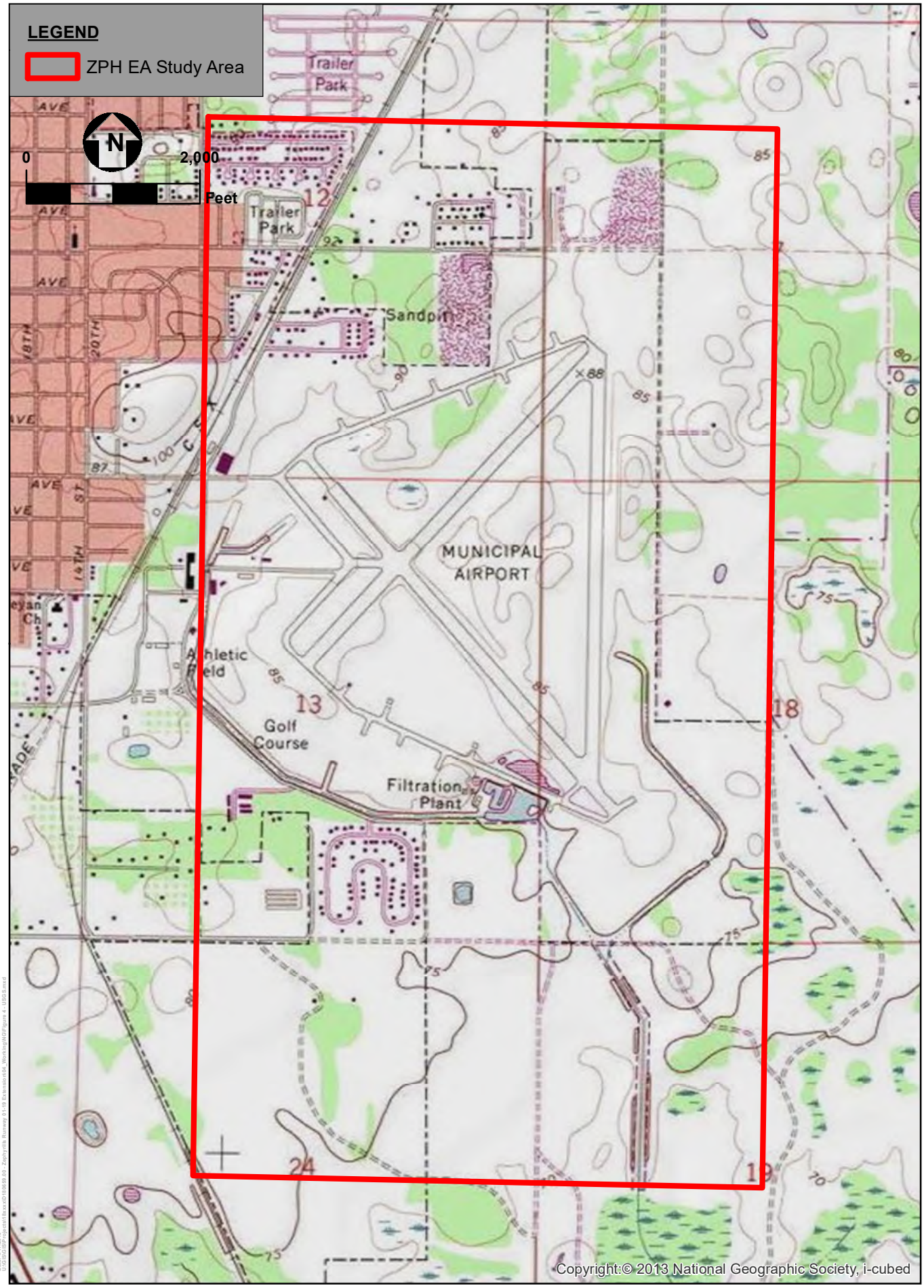
FIGURE 3
NATIONAL HYRDOGRAPHY DATASET (NHD) MAP



Source: ESA, 2018

Zephyrhills Municipal Airport
Runway 01-19 Extension Project

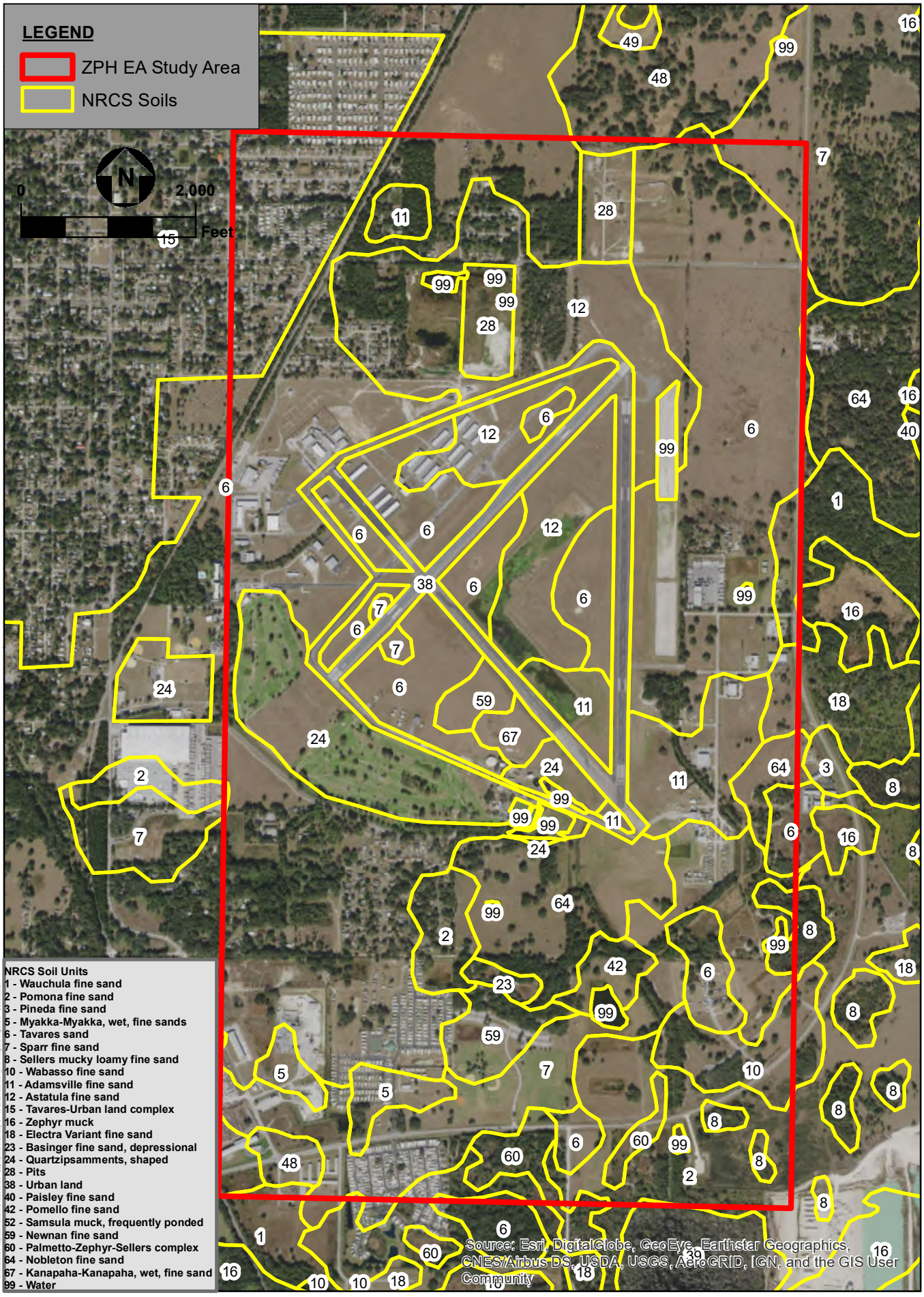
FIGURE 3A
NATIONAL HYRDOGRAPHY DATASET (NHD) AND RELEVANT REACH MAP



Source: ESA, 2018

Zephyrhills Municipal Airport
Runway 01-19 Extension Project

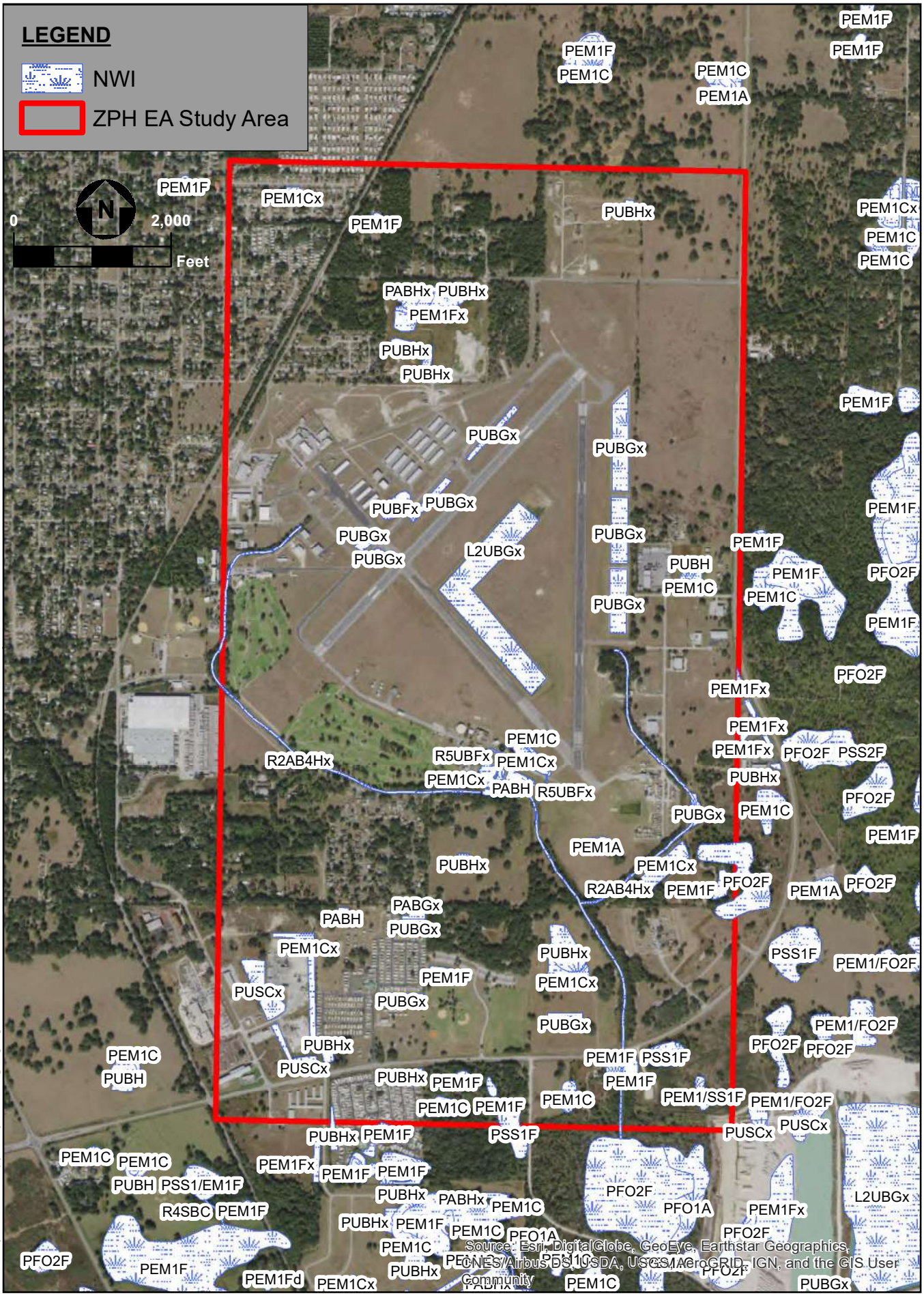
FIGURE 4
USGS TOPOGRAPHIC MAP



Source: ESA, 2018

Zephyrhills Municipal Airport
Runway 01-19 Extension Project

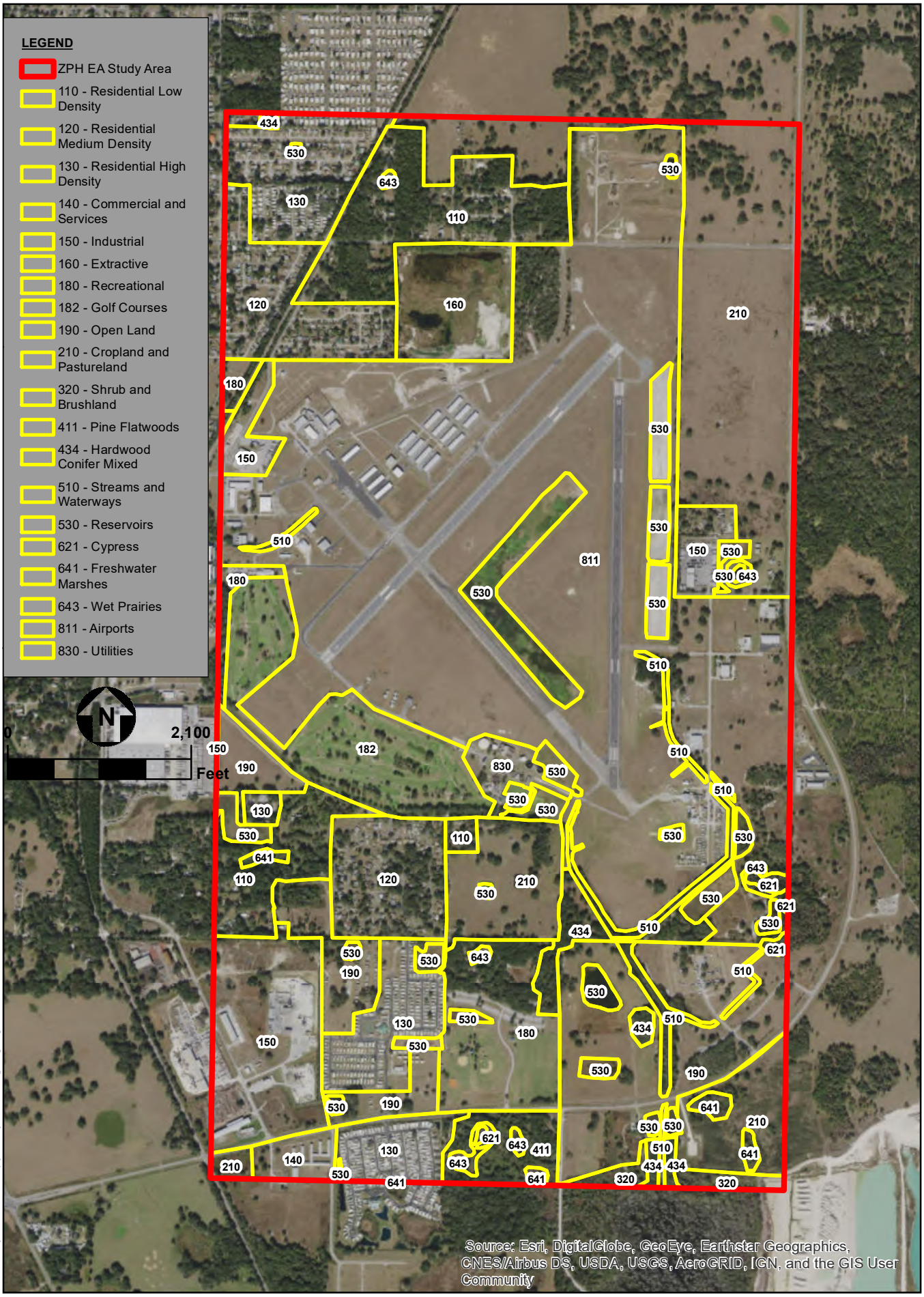
FIGURE 5
NRCS SOILS MAP



Source: ESA, 2018

Zephyrhills Municipal Airport
Runway 01-19 Extension Project

FIGURE 6
NATIONAL WETLAND INVENTORY MAP



Source: ESA, 2018

Zephyrhills Municipal Airport
Runway 01-19 Extension Project

FIGURE 7
LAND USE MAP

FLORIDA DEPARTMENT of STATE

RON DESANTIS
Governor

LAUREL M. LEE
Secretary of State

Blue Nelson
LG^2 Environmental Solutions, Inc.
10475 Old St. Augustine Road, Suite 201
Jacksonville, Florida 32256

August 11, 2020

RE: DHR Project File No.: 2019-0490-E, Received by DHR: July 15, 2020
Phase I Cultural Resource Assessment Survey in Support of the Environmental Assessment for the Extension of Runway 1-19 and Associated Improvements at Zephyrhills Municipal Airport, Pasco County, Florida

Dear Mr. Nelson:

We note that in April 2019 and May of 2020, LG^2 Environmental Solutions, Inc. (LG2) conducted the above referenced survey on behalf of ESA, Inc. The project is subject to compliance with Section 106 of the *National Historic Preservation Act*, as part of the Federal Aviation Administration's (FAA) regulatory obligations associated with proposed improvements to the Zephyrhills Municipal Airport. A report based on the 2019 fieldwork was submitted to DHR December 6, 2019, and report revisions and additional fieldwork were requested by DHR on January 8, 2020 (DHR correspondence 2019-0490-C). The revised report received July 15, 2020 satisfactorily addresses these issues.

During this investigation LG2 recorded four archaeological sites (8PA03091, 8PA03142, 8PA03143, and 8PA03144) and two archaeological occurrences (AOs). The sites include a 20th century home site (8PA03091) and three lithic scatters (8PA03142, 8PA03143, and 8PA03144). These sites lack research potential and are recommended as not NRHP eligible. The AOs are, by definition, are not NRHP eligible. Two resource groups (8PA03090 and 8PA03145) were also recorded. 8PA03090 is a mid-twentieth century drainage ditch, while 8PA03145, Old South Road N, is a historic road constructed prior to the early 1940s. Both lack associations with historic events and are also recommended as not eligible for NRHP inclusion.

Based on the information provided, our office concurs with the presented survey results and recommendations, and determined that the proposed project will likely have no effect on historic properties listed, or eligible for listing, on the NRHP, or otherwise of historical, architectural, or archaeological value. Further, we find the submitted report complete and sufficient in accordance with Chapter 1A-46, *Florida Administrative Code*.

If I can be of any further help, or if you have any questions about this letter, please feel free to contact me at *Cletus.Rooney@dos.myflorida.com*.

Sincerely,

Jason Aldridge
For
Timothy A. Parsons, Ph.D.
Director, Division of Historical Resources
and State Historic Preservation Officer

0000028584-01

Tampa Bay Times
Published Daily

STATE OF FLORIDA
COUNTY OF Pasco } ss

Before the unersigned authority personally appeared **Jean Mitotes** who on oath says that he/she is **Legal Advertising Representative** of the **Tampa Bay Times** a daily newspsper printed in St Petersburg, in Pinellas County, Florida, that the attached copy of adertisment, being a Legal Notice in the matter **RE: ENVIRONMENTAL ASSESSMENT** was published in **Tampa Bay Times: 10/27/19** in said newspaper in the issues of **Baylink Pasco**

Affiant further says the said **Tampa Bay Times** is a newspaper published in Pasco County, Florida and that the said newspaper has heretofore been continuously published in said Pasco County, Florida each day and has been entered as a second class mail mater at the post office in said Pasco County, Florida for a period of one year next preceding the first publication of the attached copy of advertisement, and affiant further says that he/she neither paid not promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL ASSESSMENT

PROJECT: Extension of Runway 1-19 and Associated Improvements at the Zephyrhills Municipal Airport (ZPH)
SPONSOR: City of Zephyrhills (City)

Pursuant to Section 102(2c) of the National Environmental Policy Act (NEPA) of 1969, ZPH is making available for public and agency review and comment the Draft Environmental Assessment (EA) for the extension of Runway 1-19 and associated improvements. After comments from the public, federal, state, and local agencies are considered and responded to in the Final EA, the Final EA will be submitted to the Federal Aviation Administration for the agency's environmental determination.

Project Description: In order to support existing businesses and further attract industries to the area, the City proposes to improve the accessibility of ZPH for a wider range of modern business jet aircraft by extending Runway 1-19 to a total length of 6,200 feet. The Proposed Project includes the extension of Runway 1-19 1,506 feet to the south, construction of an associated 1,700 linear foot partial parallel taxiway, the relocation of 2,000 feet of 6th Avenue to the north and outside of the proposed Runway Protection Zone, modification of the Skydive City layout to maintain proper safety and separation of on-airport recreational activities and other aircraft operations, and associated construction and maintenance actions. The need for a longer runway to promote local and regional economic development is a part of ongoing ZPH and City planning initiatives and was identified in the ZPH 2003 Airport Master Plan Update.

Draft EA Availability: Copies of the Draft EA may be viewed during regular business hours at the following locations:

Zephyrhills Municipal Airport
Administration Office
39450 South Avenue
Zephyrhills, FL 33542
(813) 780-0030

City of Zephyrhills, City Hall
5335 8th Street
Zephyrhills, FL 33542
(813) 780-0000

Zephyrhills Public Library
5347 8th Street
Zephyrhills, FL 33542
(813) 780-0064

Opportunity for Public Hearing: The FAA will afford the public an opportunity to request a Public Hearing. The purpose of the hearing, if one is held, would be to solicit additional comments regarding the Proposed Project. Any person interested will have 15 days from the date of publication of this Notice of Availability to request a Public Hearing (no later than November 11, 2019). In deciding whether a hearing is appropriate, the FAA shall consider whether there is substantial environmental controversy, substantial interest in holding a hearing, or a request for a hearing by an agency with jurisdiction (supported by reasons why the hearing would be helpful). If a hearing is scheduled, the date and location will be announced in a separate notice.

Commenting on the Draft EA: The public comment period on the Draft EA will begin on October 27, 2019 and will close on November 27, 2019. The City encourages all interested parties to review the Draft EA and provide comments regarding the proposed Runway 1-19 extension and its potential environmental, social, and economic impacts. All comments will be considered by the FAA in the preparation of the Final EA. Written comments and/or a request for a Public Hearing should be mailed to: Nathan Coleman, Airport Director, 39450 South Avenue, Zephyrhills, FL 33542. Comments should be received no later than November 27, 2019.
10/27/2019 0000028584

Signature Affiant

Sworn to and subscribed before me this **10/27/2019**

Signature of Notary Public

Personally known X or produced identification

Type of identification produced

JESSICA ATTARD
Commission # GG 308686
Expires March 28, 2023
Bonded Thru Budget Notary Services

Affidavit for Proof of Publication

THE ZEPHYRHILLS NEWS

Published Weekly
Zephyrhills, Pasco County, Florida

STATE OF FLORIDA,
COUNTY OF PASCO:

Before the undersigned authority personally appeared Steve Lee who on oath says he is Editor/News Reporter of The Zephyrhills News, a newspaper published in Zephyrhills in Pasco County, Florida; that the attached copy of advertisement, being a Notice of Availability of Draft Environmental Assessment in the matter of Extension of Runway 1-19 and Associated Improvements at the Zephyrhills Municipal Airport (ZPH) was published in said newspaper in the issues of October 24 and October 31, 2019.

Affiant further says that said Zephyrhills News is a newspaper published at Zephyrhills, in said Pasco County, Florida, and that the said newspaper has heretofore been continuously published in said Pasco County, Florida, each week and has been entered as second class mail matter at the post office in Zephyrhills, in said Pasco County, Florida for a period of the attached copy of advertisement; and affiant further says that he has neither paid not promised any person, firm or corporation any discount, rebate commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Editor / or News Reporter

Sworn to and subscribed before me
This 1st day of November 2019

Constance L Keck

Notary Public

(Seal)

My commission expires

CONSTANCE L. KECK
Notary Public - State of Florida
Commission # GG 301604
My Comm. Expires Feb 24, 2023
Bonded through National Notary Assn.

NOTICE OF SELF STORAGE SALE

Please take notice Hide-Away Storage – Zephyrhills located at 37148 State Road 54, Zephyrhills FL 33542 intends to hold a sale to sell the property stored at the Facility by the below Occupants whom are in default at an Auction. The sale will occur as an on-line auction via www.storagetreasures.com on 11/13/2019 at 10:00AM. Unless stated otherwise the description of the contents are household goods and furnishings. Sherese Parker unit #A09; Elizabeth Stevens unit #A26; Mary Peterman unit #A37; Jose Gallego unit #C235; Samuel Crawford unit #F363. This sale may be withdrawn at any time without notice. Certain terms and conditions apply. See manager for details.

Published: October 24 & 31, 2019

IN THE CIRCUIT COURT FOR PASCO COUNTY, FLORIDA PROBATE DIVISION IN RE: ESTATE OF ROY D. DUMAS a/k/a ROY DEWITT DUMAS, Deceased. FILE NO. 19-CP-001020 ES DIVISION EAST NOTICE TO CREDITORS

The administration of the estate of ROY D. DUMAS a/k/a ROY DEWITT DUMAS, deceased, whose date of death was August 19, 2019, is pending in the Circuit Court for Pasco County, Florida, Probate Division, the address of which is c/o Clerk of Circuit Court, 38053 Live Oak Ave., Dade City, FL 33523-3805. The names and addresses of the personal representative and the personal representative's attorney are set forth below.

All creditors of the decedent and other persons having claims or demands against decedent's estate on whom a copy of this notice is required to be served must file their claims with this court ON OR BEFORE THE LATER OF 3 MONTHS AFTER THE TIME OF THE FIRST PUBLICATION OF THIS NOTICE OR 30 DAYS AFTER THE DATE OF SERVICE OF A COPY OF THIS NOTICE ON THEM.

All other creditors of the decedent and other persons having claims or demands against decedent's estate must file their claims with this court WITHIN 3 MONTHS AFTER THE DATE OF THE FIRST PUBLICATION OF THIS NOTICE.

ALL CLAIMS NOT FILED WITHIN THE TIME PERIODS SET FORTH IN FLORIDA STATUTES SECTION 733.702 WILL BE FOREVER BARRED.

NOTWITHSTANDING THE TIME PERIODS SET FORTH ABOVE, ANY CLAIM FILED TWO (2) YEARS OR MORE AFTER THE DECEDENT'S DATE OF DEATH IS BARRED.

The date of first publication of this notice is October 24, 2019.

Personal Representative:
TRACY L. DUMAS
23810 Forest View Dr.
Land O'Lakes, Florida 34639

Attorney for Personal Representative:
THOMAS E. CONE, JR., Esquire
Florida Bar Number: 0167743
150 Whitaker Rd., Ste A
Lutz, FL 33549-5789
Telephone: (813) 949-9698
Fax: (813) 949-1342
E-Mail: tom.cone.jr@gmail.com
Published: October 24 & 31, 2019

IN THE CIRCUIT COURT OF THE SIXTH JUDICIAL CIRCUIT

IN AND FOR PA... COUNTY, FLORI...
J.T. TUCKER, Plai...
vs. Unknown ... Beneficiaries ... the Estate of ED... VAUGHNS, S...
Deceased, ... Defendants
CASE NO. 2019-... 3301-ES/...
NOTICE OF ACT...

TO: Unknow... eficiaries of the Es... EDDIE VAUGHNS ... deceased, 1013 ... ton Ave., Dade ... 33525

YOU ARE ...FIED that an ac... quiet title to the ... ing real property ... in Pasco County ... da, to wit: Begin... SE corner of the ... of the NE ¼ of th... of Section 32, To... 25 South, Range ... for a Point of Beg... thence run North ... feet, thence We... feet 1.5 inches ... South 417.5 feet ... E. 313 feet 1.5 in... Point of Beginn... been filed and ... required to serv... of your written d... if any, on David ... phy, Plaintiff's ... whose address ... Third Street, Da... Florida 33523, ... fore November ... and file the orig... the Clerk of th... either before se... Plaintiffs' atto... immediately th... otherwise a de... be entered aga... for the relief d... in the Complain...

WITNES...

hand and the ... this Court on Oc... 2019.

NIKKI ... SOWLES, Esqu... Clerk of Circuit ... By: /s/ Gerald S... Deputy Clerk

Published: Oc... 31, November ... 2019

IN THE CI... COURT OF T... JUDICIAL ... IN AND FOR ... COUNTY, F...
CROSSR... SAWMILL & ... YARD, INC., ... Corporation, ... WILLIAMS ... VIRGIL L. W... JR. and JE... SCOTT WH... Plaintiff ... Unknown ... beneficia... STELLA M. ... decea...

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL ASSESSMENT

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SPONSOR: City of Zephyrhills (City)

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Zephyrhills, FL 33542
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Zephyrhills Public Library
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Zephyrhills, FL 33542
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Published: October 24, 2019

Appendix I
Acronyms and Abbreviations

ESA

APPENDIX I

Acronyms and Abbreviations

AADT	Average Annual Daily Trips
AEDT	Aviation Environmental Design Tool
AIP	Airport Improvement Program
ALP	Airport Layout Plan
APE	Area of Potential Effect
CFA	Core Foraging Area
CFR	Code of Federal Regulations
CO_2e	Carbon Dioxide Equivalent
CRAS	Cultural Resources Assessment Survey
dBA	A-weighted Decibel
DNL	Day/Night Average Sound Level
EA	Environmental Assessment
ERP	Environmental Resource Permitting
^0F	Degrees Fahrenheit
FAA	Federal Aviation Administration
FAC	Florida Administrative Code
FDOT	Florida Department of Transportation
FEMA	Federal Emergency Management Agency
FLUCFCS	Florida Land Use, Cover, and Forms Classification System
FROFA	Future Runway Object Free Areas
FRPZ	Future Runway Protection Zone
FRSA	Future Runway Safety Area
FTOFA	Future Taxiway Object Free Areas
FWC	Florida Fish and Wildlife Conservation Commission
GHG	Greenhouse Gas
N/A	Not Applicable
NEPA	National Environmental Policy 0Act
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NPIAS	National Plan of Integrated Airport Systems
NRHP	National Register of Historic Places
OSW	Other Surface Water
RCRA	Resource Conservation and Recovery Act
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
RV	Recreational Vehicle
SFH	Suitable Foraging Habitat
SHPO	State Historic Preservation Officer
SWFWMD	Southwest Florida Water Management District
SWPPP	Storm Water Pollution Prevention Plan
TOFA	Taxiway Object Free Area
USC	United States Code
USFWS	United States Fish and Wildlife Service
ZPH	Zephyrhills Municipal Airport


ESA