February 2021 | Final Environmental Assessment

Key West International Airport

Final Environmental Assessment for Taxiway A Extension, Apron Expansion, and Security Fencing Improvements

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

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Responsible FAA Official

March 19, 2021

Date

U.S. Department
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
Taxiway Extension, Apron Expansion, and Security Fencing Improvements at the
Key West International Airport

Key West, Florida

March 19, 2021

BACKGROUND: The Key West International Airport (EYW) is owned and operated by Monroe County (also referred to in this document as the "County" or "Airport Sponsor"). The airport is a public-use, non-hub primary airport that accommodates scheduled passenger service, air charter, air taxi, air cargo, and general aviation activities. Located approximately 160 miles southwest of Miami via State Road A1A, the airport supports local tourism and businesses and is a critical component of the local transportation network.

The County is proposing to make taxiway, aircraft parking apron, and airfield perimeter fence improvements to enhance operational efficiency and safety at the airport. The proposed improvements include extending Taxiway A to the end of Runway 9-27, expanding the commercial and general aviation aircraft parking aprons, and relocating and improving a section of the airfield security fence. Because the proposed improvements require federal actions by the Federal Aviation Administration[1], an Environmental Assessment (EA) was prepared by the County for the FAA's use in complying with the requirements of the *National Environmental Policy Act of 1969* (NEPA), Council on Environmental Quality (CEQ) regulations implementing NEPA[2], FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*.

This Finding of No Significant Impact (FONSI) and Record of Decision (ROD) provides the FAA's environmental determination, approval, and conditions for agency actions necessary to implement the Proposed Action. This FONSI/ROD is based on information and analyses contained in the attached *Environmental Assessment for Runway and Taxiway Separation 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 PROJECT: Based on the needs described in the EA, the Airport Sponsor has proposed the following airfield development projects at EYW:

- Extend parallel Taxiway A approximately 274 feet to connect with and provide direct access to the west end of Runway 9-27. This project would also reconfigure and remove excess pavement at connector Taxiway B, the current west terminus of Taxiway A.

[1] Section 163 of the *FAA Reauthorization Act of 2018* limits the FAA's statutory authority over certain airport development projects. In this case, FAA reviewed the proposed airfield development projects and determined that each project element is subject to FAA's decision and approval authority, including approval of the Airport Layout Plan under 49 U.S.C. § 47107(a)(16).

[2] The Council on Environmental Quality (CEQ) amended its regulations implementing NEPA effective September 14, 2020. Agencies have discretion to apply the amended regulations to NEPA processes that were begun before September 14, 2020 (40 CFR § 1506.13 (2020)). FAA initiated its NEPA process for this action in September 2019 and has decided to apply the regulations in effect at that time.

- Expand the commercial aircraft parking apron at the passenger terminal and reconfigure the parking layout plan so that all taxilanes and commercial aircraft parking positions meet FAA design standards for Airport Design Group III aircraft. The proposed project would expand the existing apron to the east and provide approximately 13,200 square yards of additional apron pavement.
- Expand the general aviation (GA) aircraft parking apron located west of connector Taxiway C to provide additional parking spaces at EYW during peak periods. Construction would expand the existing apron by approximately 5,400 square yards. This project also includes relocating a section of the airport's vehicle service road out of the Taxiway A Object Free Area.
- Relocate a 1,500-foot section of non-standard airfield perimeter security fence out of the Runway 9-27 Object Free Area. The project would install approximately 2,700 feet of new fence along a section of the airport's north boundary line. Approximately 860 feet of the new fence would be a floating barrier installed across an area of open water (salt pond).

REQUESTED FEDERAL ACTION:

The requested federal actions associated with the proposed development projects include the following:

1. Unconditional approval of the portions of the EYW Airport Layout Plan (ALP) depicting the Proposed Action and its individual elements, pursuant to 49 U.S.C. §§ 40103(b), 44718, and 47107(a)(16); 14 CFR Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace; and 14 CFR Part 157, Notice of Construction, Alteration, Activation, and Deactivation; and 14 CFR Part 139.
2. Determinations under 49 U.S.C. §§ 47106 and 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP) and under 49 U.S.C. § 40117, as implemented by 14 CFR 158.25, to impose and use passenger facility charges (PFCs) collected at the Airport for the Proposed Action to assist with construction of potentially eligible development items shown on the ALP.
3. Determination of eligibility for federal assistance and further processing of applications for federal assistance for the eligible components of the Proposed Action under the federal grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (49 U.S.C. § 47101, et. seq.).

PURPOSE AND NEED: The purpose of and need for each major component of the Proposed Action is described below and discussed in more detail in Section 1.4 of the EA.

Extend Parallel Taxiway A to Runway 9 End – Runway 9-25, the airport's only runway, operates in east-flow conditions nearly 90 percent of the time due to prevailing winds. For east-flow departures, aircraft use connector Taxiway B to access the runway; however,

Taxiway B does not connect directly to the end of the runway (Runway 9). Departing aircraft that need the full length of the runway must taxi onto the runway, back-taxi approximately to the end of the runway, then turn around on the runway for departure. This requires additional communications from the Airport Traffic Control Tower, results in aircraft taxiing on the runway opposite to the flow of traffic, and introduces inefficiencies and delay. For larger aircraft, back-taxiing to the end of the runway and turning around often does not allow the full use of available runway pavement. The proposed extension of parallel Taxiway A to the western end of the runway (Runway 9) would make the entire length of the runway available for departures, without the need to back-taxi on the runway. Eliminating back-taxi operations on Runway 9-27 would improve the efficiency of aircraft operations at EYW, enhance safety at EYW, and allow full use of the available runway length.

Expand Commercial Aircraft Parking Apron to the East – The current aircraft parking apron layout plan at the passenger terminal building was designed to accommodate four narrow-body commercial aircraft (ADG III), five regional commercial aircraft (AGD II), and one parking position at the U.S. Customs and Border Protection (CBP) facility. In addition to the commercial aircraft and CBP parking positions, the southeast area of the apron is also used by air cargo aircraft, unanticipated commercial aircraft parking, and periodic overflow general aviation aircraft parking. At EYW, commercial passengers are escorted onto the apron and walk to their parked aircraft for boarding.

Due to limited space and the layout of the apron, the increasing number of commercial aircraft operations during peak periods and the increasing use of ADG III aircraft at EYW results in regular congestion on the commercial apron and Taxiway A. Because all of the apron's taxilanes and parking positions do not meet ADG III design standards, aircraft moving to and from parking positions are dependent on whether adjacent positions are occupied and, when occupied, require the use of wing walkers to confirm the area around the wing tips is clear of any hazards. When several commercial aircraft land consecutively, aircraft traffic routinely must hold on Taxiway A and wait to access a parking position. It is common for all nine commercial aircraft positions to be occupied during peak periods. Other factors that contribute to congestion on the apron include airline schedule delays (i.e., weather) or the need to also park general aviation aircraft on the east edge of the apron during peak tourism periods and special events.

There is a need to improve access to and from aircraft parking positions on the commercial apron to improve efficiency of ramp operations, and enhance safety.[3] Expanding the commercial apron would provide the space necessary to reconfigure the taxilanes and commercial aircraft parking spaces to meet ADG III design standards. The proposed project would reduce congestion, improve efficiency of ramp operations, and enhance safety.

[3] FAA design criteria in FAA Advisory Circular 150/5300-13A, *Airport Design*, notes that the primary design consideration for apron layout is "to provide adequate wingtip clearances for the aircraft positions and the associated taxilanes."

Expand GA Aircraft Parking to the West – General aviation aircraft parking at EYW is limited. The main GA apron, which is located adjacent to the commercial apron, can accommodate 21 to 29 aircraft, depending on aircraft size. Additional GA aircraft parking is provided along the south side of Taxiway A. This linear aircraft parking area can accommodate approximately 52 aircraft.

Key West and the Lower Florida Keys attracts visitors and tourist throughout the year. During peak periods, the GA aircraft parking areas become fully occupied and insufficient to meet demand. This requires using a portion of the commercial apron for overflow GA aircraft parking, which contributes to congestion on the commercial apron. Expanding the GA parking apron would accommodate the demand for aircraft parking during peak periods and help reduce congestion on the commercial apron.

Relocate Section of Airfield Security Fence – Access to the EYW airfield and Air Operations Area (AOA) is restricted by a security fence. However, approximately 1,500 feet of fence on the north side of the airfield is located within the Runway Object Free Area (ROFA). This section of fence, which does not meet FAA airport design standards, was previously installed to avoid an area of open water adjacent to the runway. Although No Trespassing/Restricted Area signs were placed in the open water area, the County has documented incidents of recreational kayakers and canoers within the ROFA and waters adjacent to the runway. The proposed relocation of security fence would meet FAA airport design standards and enhance safety at EYW.

ESTIMATED TIMEFRAME: The Airport Sponsor's proposed timeframe for the Proposed Action and its individual elements is discussed in Section 1.7 of the EA. The timeframe estimates construction activities beginning in 2021 and being completed in 2023.

ALTERNATIVES: Alternatives to the Proposed Project were evaluated in Section 2 of the EA. The alternatives considered are described below.

Taxiway A Extension Alternatives – Alternatives to the proposed extension of parallel Taxiway A to the Runway 9 end of pavement were considered. The alternatives analysis evaluated construction and use of a full-length parallel taxiway on the north side of the runway. This alternative would require aircraft to cross active Runway 9-27 to access the north-side parallel taxiway and the Runway 9 end, which would increase the safety risk of runway incursions. This alternative would not avoid or reduce impacts to mangrove swamps and saltwater marsh, when compared to the Proposed Action. Given the airport's constrained location and lack of suitable land, this alternative was found to be not reasonable or practical. The alternative was eliminated from further consideration in the EA.

Commercial Apron Expansion Alternatives – The commercial aircraft parking apron is bounded by Taxiway A and Runway 27 to the north and the passenger terminal building to the south. The Proposed Action would expand the commercial apron to the east. Due to these site and operational considerations, the alternatives analysis evaluated

expanding the commercial apron to the west. This alternative would substantially encroach upon the GA aircraft parking apron and displace most of a GA aircraft parking positions used by the airport's Fixed Base Operators (FBOs). Suitable land is not available at the airport to construct a replacements apron without affecting mangrove wetlands, saltwater marsh, and salt ponds. A potential site was identified, but was not reasonably close to the aviation support facilities and would substantially encroach into mangroves and a salt pond. In addition, displacing the main GA apron would have a substantial adverse effect on the FBOs and aviation support businesses operating at the airport. This alternative was eliminated from further consideration in the EA.

General Aviation Apron Expansion Alternatives – The airport's main GA aircraft apron is bounded by Taxiway A and Runway 9-27 to the north, FBO and commercial aviation buildings and hangars to the south, aircraft storage hangars to the west, and the commercial apron to the east. A smaller GA overflow apron is located approximately 1,600 feet west of the main GA apron.

Expanding the main GA apron was considered, but this would displace and require relocation of hangars and/or aviation support businesses at the airport. Constructing a new GA apron on the north side of the runway was also considered. However, this would require construction of a parallel taxiway, increase runway crossings, and have substantial environmental impacts and operating inefficiencies. These potential alternatives were not considered to be reasonable and were eliminated from further consideration.

Expanding a section of existing GA parking apron located to the west of the main apron was evaluated. This alternative would expand that GA apron to the south. When compared to the Proposed Action, this alternative would result in more impacts to mangroves. This alternative was eliminated from further consideration.

No-Action Alternative – Under this alternative, the Proposed Action would not be implemented. The County would continue to maintain and operate the airport in its present state and the environmental effects associated with the Proposed Action would not occur. Although this alternative would not satisfy the purpose of and need for the Proposed Action, it was retained for further detailed evaluation in the EA in accordance with NEPA and CEQ regulations.

ENVIRONMENTAL IMPACTS: 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 3 and 4, respectively) provide a description of existing conditions and an analysis of direct, indirect, and cumulative impacts.

Under the No-Action Alternative, the proposed taxiway, aircraft parking aprons, and security fence improvements would not be implemented and there would be no environmental impacts. Airport design standards related to runway and taxiway separation distance would continue to not be met.

The Proposed Action would increase the size and improve the layout and efficiency of the airport's commercial and general aviation aircraft parking aprons. The EA provides an estimate of the potential additional aircraft operations and enplaned passengers at EYW, if the Proposed Action was implemented. When compared to the No-Action Alternative, the forecast estimated that the Proposed Action could generate an additional 1,700 aircraft operations at the airport in both 2024 and 2029. Similarly, the forecast estimated an additional 78,589 enplaned passengers in 2024 and an additional 78,592 enplaned passengers in 2029, when compared to the No-Action Alternative. Impacts associated with the Proposed Action are discussed below.

Air Quality – Monroe County is located in an attainment area for all National Ambient Air Quality Standards (NAAQS) for criteria air pollutants and is not subject to the requirements of a State Implementation Plan. Construction activities would generate temporary air emissions at EYW, including exhaust from equipment and vehicles, as well as, fugitive dust during excavation and grading activities. These emissions, inventoried and evaluated in Section 4.1.3, would be well below de minimis thresholds for each year during the construction period and would not cause pollutant concentrations to exceed any of the NAAQS. The EA also notes measures that can be taken to minimize air emissions during construction.

Under the Proposed Action, air emissions at EYW would increase as a result of the projected increase in aircraft operations and passengers. The operational aircraft emissions inventory Section 4.1.4 shows only an incremental change in aircraft air emissions. The evaluation of the change in vehicle trips associated with the Proposed Action and the change in vehicle emissions would be minor. The operational air emissions would be below *de minimis* thresholds in each study year and the emissions not cause pollutant concentrations to exceed any of the NAAQS. The Proposed Action would not have a significant impact on air quality.

Biological Resources – The Proposed Action would fill approximately 3.14 acres of mangrove swamp, 4.03 acres of saltwater marsh, 0.09 acre of salt ponds/embayment, 0.07 acre of upland Brazilian pepper, and 0.25 acre of exotic wetland hardwoods (wetland Brazilian pepper). An additional 0.20 acres of mangrove swamp would be cleared of vegetation, but not filled. The affected areas, impacts, and potential mitigation measures were discussed with regulatory agencies during the preparation of the EA.[4]

The County proposed a conceptual mitigation plan in the EA and Biological Assessment. Compensatory wetland mitigation opportunities were identified both on-site and off-site

[4] Information related to the Proposed Action, project construction areas and anticipated impacts were initially presented at an Agency Scoping Meeting held on September 19, 2019. Regulatory agencies invited to participate included the US Environmental Protection Agency, US Army Corps of Engineers, US Fish and Wildlife Service, National Marine Fisheries Service, Florida Fish and Wildlife Conservation Commission, and the South Florida Water Management District. Follow-up web-based meetings specific to biological resource impacts and conceptual mitigation were conducted on April 27, 2020, and September 18, 2020.

and include wetland restoration/creation, enhancement, and preservation. The conceptual on-site mitigation would restore both saltwater marsh and mangrove communities along the periphery of the degraded salt ponds and enhance tidal flow through the salt ponds.[5] Off-site mitigation would be provided at selected sites in the Lower Florida Keys. The County will prepare a final mitigation plan during the Proposed Action's permitting phase.

Essential Fish Habitat – The Proposed Action will affect 7.71 acres of Essential Fish Habitat (EFH). Subject to the provisions of the Magnuson-Stevens Fishery Conservation and Management Act, the FAA consulted with the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) in regard to the Proposed Action's effect on EFH. To offset unavoidable impacts to EFH, the County's conceptual mitigation plan proposed 8.57 acres of onsite and offsite wetland creation, restoration, and enhancement. During consultation, NMFS provided, and FAA agreed to, the following EFH Conservation Recommendations: 1) develop a complete compensatory mitigation plan based on functional assessments, including supporting information, that demonstrates all adverse impacts to EFH are fully offset and 2) use of Best Management Practices, including use of staked silt fences around work areas, to prevent sediment-laden runoff during construction and minimize impacts to adjacent mangrove wetlands. Although the FAA would make its environmental determination under NEPA, it was agreed that EFH consultation with NMFS would be ongoing until the draft and final mitigation plan is approved.

The environmental approval provided in this Finding of No Significant Impact and Record of Decision is contingent on the conclusion of FAA's consultation with the NMFS on EFH. This requires Monroe County to develop a complete and final mitigation plan(s) that is coordinated with FAA and NMFS. The County will also be required to include appropriate BMPs in project plans and specifications to prevent sediment-laden runoff during construction. Until such time that consultation is concluded, Monroe County shall not alter or affect any EFH at the Key West International Airport.

Federally-Listed Species / Section 7 Consultation – No designated or proposed critical habitat for any protected species is located on Airport property or would be affected by the Proposed Action. Through consultation with the U.S. Fish and Wildlife Service (USFWS), it was determined the Proposed Action would have no effect on the Florida semiphore cactus, Garber's Spurge, Cape Sable Thoroughwort, Eastern indigo snake, piping plover, red knot, and roseate tern. The USFWS concurred that the Proposed Action may affect, but not likely to adversely affect the West Indian manatee. The County will be required to implement the USFWS's Standard Manatee Construction Conditions for Inwater Work during construction. Protected species consultation was also initiated with NMFS. NMFS

[5] The Sponsor's on-site compensatory mitigation plans will require FAA review and approval during the project's design and permitting phase to ensure safety and compliance with applicable airport certification requirements.

concluded that the Proposed Action is not likely to adversely affect listed species under the agency's purview.

State-Listed Species – No effects on state-listed plant and animal species are anticipated.

The Proposed Action would not jeopardize the continued existence of a Federally-listed threatened or endangered species and would not result in the destruction or adverse modification of federally-designated critical habitat. Mitigation and conservation measures would be implemented to offset impacts on habitat and protected species. The Proposed Action would not result in significant impacts on biological resources.

Climate – Greenhouse gas (GHG) emissions associated with the construction of the proposed airfield improvements are expected to be minor and temporary. The increase aircraft operations and vehicle trips at EYW would result in a minor increase in GHG emissions at the airport. The Proposed Action would not result in significant climate or climate change impacts.

Coastal Resources – Monroe County is located within a coastal zone and federal actions must be consistent with the Florida Coastal Management Program (FCMP). The airport is not located within a designated Coastal Barrier Resources System (CBRS). The Draft EA was submitted to the Florida State Clearinghouse, which coordinates coastal consistency review among state agencies. Through this review, the state had no objection to the Proposed Action and found it to be consistent with the FCMP. The state's final consistency determination will be made during the project's environmental permitting process. Based on the analyses contained in the EA and the State of Florida's consistency review, the Proposed Action would not have a significant coastal resource.

DOT Act, Section 4(f) Resources – No publicly-owned parks, recreation areas, or wildlife and waterfowl refuge of national, state, or local significance would be directly affected by the Proposed Action. Seven Section 4(f) recreation resources and one property listed on the National Register of Historic Places were identified in the EA's Indirect Effects Study Area. The Fran Ford White-crown Pigeon Preserve at Little Hamaca Park and Little Hamaca Park are adjacent are adjacent to the north side of the airfield.

The Proposed Action would not result in air quality or water quality impacts that could affect potential Section 4(f) properties, nor would it affect access to Section 4(f) properties. The Proposed Action would cause a modest increase in aircraft noise in the vicinity of the airport and the noise exposure contours would shift slightly to the west. This shift would increase the amount of land exposed to DNL 65 noise and higher within the Fran Ford White-crowned Pigeon Preserve by 1.23 acres and the 11th Street Public Boat Ramp by 0.02 acres by 2029. Approximately 65.8 additional linear feet of the Florida Keys Overseas Heritage Trail would be exposed to noise levels of DNL 65 and higher in 2029. These resources are not managed for quiet setting. The area exposed to noise levels DNL 65 and higher would be reduced by 0.5 acre at the Little Hamaca Park. No historic resource listed on the National Register would be within the area exposed to aircraft noise levels of

DNL 65 dB and higher. Due to its proximity to west end of Runway 9-27, a small portion of the Fran Ford White-crowned Pigeon Preserve is presently exposed to aircraft noise levels above DNL 70. When compared to the No-Action Alternative, approximately 0.09 acre of land in the southeast corner of the preserve would be exposed to DNL 75.7 in 2024 and 0.12 acre exposed to 75.9 in 2029. The increase in noise in this area, when compared to the No-Action Alternative would be approximately DNL 1.2 dB in 2024 and 2029. Land-use compatibility guidelines in 14 CFR Part 150 indicate that parks are compatible with noise levels up to DNL 75 dB, therefore, the small portion of the Fran Ford White-crowned Pigeon Preserve exposed to DNL 75 dB with implementation of the Proposed Action would be considered incompatible. However, the attributes, setting, and use of this resource are not managed for a quiet setting and they would not be substantially diminished by the Proposed Project and would not result in a constructive use of the Fran Ford White-crowned Pigeon Preserve.

Noise levels associated with the Proposed Action would result in relatively small increases at some Section 4(f) resources, but would also slightly reduce noise levels at others. Overall, the effects associated with the Proposed Action would not be significant and would not result in a constructive use of any Section 4(f) resources.

Farmlands – The Proposed Action would not affect any farmland or prime, unique, or statewide and locally important farmland soils.

Hazardous Materials, Solid Waste, and Pollution Prevention – An environmental database search and site reconnaissance revealed no known sites or areas with environmental concerns within the areas where construction would occur. Although a slight increase in the use of hazardous materials and waste generation may occur during construction, the Proposed Action would have minimal effect on hazardous waste generation, storage, or transport practices at the airport. The Proposed Action will not substantially increase solid waste generation at the airport. 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 and field surveys showed no previously recorded historic, archaeological, or cultural resources within the Area of Potential Effect (APE) subject to disturbance during construction. No structures are located within the areas where construction would occur. Eleven structures and features over 50 years old were identified in the Indirect Effects portion of the APE, but all were determined to be ineligible by FAA for listing in the National Register.

Consultation was initiated with the Florida State Historic Preservation Officer (SHPO) and five Native American Indian tribes. The Seminole Tribe of Florida confirmed that the Proposed Action falls within their area of interest and stated the tribe has no objection to the Proposed Action, but requested to be notified if any archaeological, historical, or burial resources are inadvertently discovered during construction. The SHPO concurred with FAA's finding that the Proposed Action would have no effect on historic properties.

Based on the research and consultation conducted, the Proposed Action would not affect historic architectural, archaeological, and cultural resources.

Land Use – The Proposed Action would not conflict with or affect existing or planned off-airport land uses or zoning. The Proposed Action would not cause significant off-airport impacts, divide or disrupt the community, or otherwise influence land use patterns or development near the Airport.

The Proposed Action is consistent with the aviation-related policies and objectives in Monroe County's Comprehensive Plan. However, the EA notes that impacts to mangrove wetlands and salt ponds (county-wide) are not currently allowed under Monroe County's Comprehensive Plan. The EA further notes that amendments to the Comprehensive Plan are being considered that would allow airport improvements that affect impact wetland areas, when the improvements are consistent with the approved Airport Master Plan and ALP, no other viable alternative available, and mitigation is provided.

Amendments to the Comprehensive Plan necessary to implement the Proposed Action require local approval. The need to amend the Comprehensive Plan could be a substantial issue locally, but would not necessarily result in a significant impact under NEPA. Based on the information considered, the Proposed Action would not have a significant impact on land use or land use controls if the Proposed Action is approved locally and mitigation is provided.

> **The environmental approval provided in this Finding of No Significant Impact and Record of Decision is contingent on the Airport Sponsor demonstrating the Proposed Action's consistency with the Monroe County Comprehensive Plan and obtaining necessary approvals. Until such time that consistency is demonstrated and approvals are obtained, Monroe County shall not alter or affect the mangrove wetlands, salt marsh, and salt ponds/embayments identified in the EA.**

Natural Resources – Construction of the Proposed Action would use common materials that are not unusual or in short supply. Given the location of the airport, these materials may be hauled from mainland south Florida locations. The Proposed Action would have a minor effect on energy and fuel consumption at EYW. No significant natural resource or energy supply impacts would occur.

Noise – Construction-related noise would be temporary and the effects would not be significant. The Proposed Action would result in a modest increase aircraft operations at the airport. In addition, the extension of Taxiway A to the end of Runway 9 would allow all east-flow departures to begin take-offs from the end of Runway 9 pavement.

When compared to the No-Action Alternative in study year 2024, the Proposed Action would increase the number of dwelling units (+18) and persons (+35) exposed to noise levels greater than DNL 65 dB; however, fewer dwelling units (-3) and persons would be exposed to noise levels greater than DNL 70 dB (-8). Similarly in 2029, the Proposed

Action would slightly increase the number of dwelling units (+20) and persons (+40) exposed to noise levels greater than DNL 65 dB; however, fewer dwelling units (-2) and persons would be exposed to noise levels greater than DNL 70 dB (-4). A majority of the residential units within the DNL 65 and higher noise contours have participated in the County's ongoing Part 150 Noise Insulation Program and these residential land uses are considered to be compatible with existing and projected aircraft noise levels.

In both study years, none of the residences located within, or newly within, the DNL 65 contour would experience a noise increase of DNL 1.5 dB or greater. Based on FAA's guidance for preparing NEPA impact evaluations, significant noise impacts would not occur if the Proposed Action was implemented. Therefore, mitigation is not required for the purpose of reducing the impact below the threshold indicating a significant impact. Although mitigation is not required for this project under FAA's NEPA guidelines, the County will continue to evaluate ongoing programs to address land use compatibility issues that result from operation of the airport.

Socioeconomics, Environmental Justice, And Children's Environmental Health and Safety Risks – Construction would generate temporary construction employment. The Proposed Action would not affect public service demands and would not require the acquisition of land nor would it displace any residences or businesses. No significant socioeconomic impacts would occur. The additional passengers that could be realized under the Proposed Action would increase the number of vehicle trips at the airport. However, the increase is not expected to be substantial and would not disrupt local traffic patterns or reduce the Level of Service on roads serving the airport.

Because the project would not have significant impacts, disproportionately high and adverse environmental effects on minority and low-income populations would not occur. The project site would not affect any schools, daycare facilities, parks, or children's health clinics. No significant socioeconomic, Environmental Justice, and children's health and safety risk impacts would occur.

Visual Effects Including Light Emissions – Construction activities would mostly take place during normal daytime hours. However, construction of the taxiway extension is expected to occur routinely at night during the first year of construction to minimize impact to airfield operations during the day. Apron construction would require less nighttime construction. Common equipment and measures are available to minimize light emissions at night. Existing vegetation between the airfield and residential areas would further reduce the potential effects of construction lighting. No significant impacts related to construction light emissions would occur.

The Proposed Action includes installation of additional pavement edge lighting, airfield signage, and apron lighting. The lighting systems would be similar to those currently used at the airport and would not substantially increase the amount or intensity of airfield lighting. The Proposed Action would not alter the visual characteristics of the airfield. Significant impacts related to visual effects and lighting are not anticipated.

Water Resources

Wetlands – The Proposed Action would affect 7.71 acres of jurisdictional waters, including mangrove swamp, saltwater marsh, salt ponds/embayment, and exotic wetland hardwoods. Measures to avoid wetland impacts are not available and measures to minimize impacts were considered. The Proposed Action's unavoidable wetland impacts require federal and state permit authorization. The compensatory mitigation plan described in the EA would offset the loss of functional value of the affected wetlands. The final and complete mitigation plan would be developed during the project's permitting and design phase.

The Airport Sponsor is required to obtain all necessary environmental permits and authorizations prior to starting any construction activities that would affect federal and state jurisdictional waters, including wetlands. Based on early agency coordination and mitigation measures discussed in the EA, options to provide compensatory mitigation are available to offset the wetland impacts. Significant wetland impacts are not anticipated.

Floodplains – The proposed action is located entirely within a 100-year floodplain and would involve the placement of fill in 7.71 acres of wetland and salt pond habitat. No substantial aboveground structures would be constructed as part of the Proposed Action. There would be no increase in flood elevations as the flood elevations are based coastal storm surges. The Proposed Action is not expected to result in notable adverse impacts on natural and beneficial floodplain values. In accordance with Executive Order 11988, *Floodplain Management*, there is no practicable alternative to the Proposed Action. Design of the proposed project's elements require state and local approvals, including construction in floodplains. The Proposed Action would not result in a significant impact to floodplains.

Surface Waters and Groundwater – As noted above, the Proposed Action would affect surface waters and wetlands. Construction of the Proposed Action would create a net increase of impervious surface at EYW (3.9 acres). Stormwater discharges from the new taxiway and apron pavements would be collected and treated through a combination of improvements to the airport's existing stormwater management system (e.g., exfiltration trenches) and, for certain discharges, overland flow. The engineering design and permitting process would identify the specific requirements and stormwater system improvements.

Commonly-accepted measures to minimize erosion and sedimentation to maintain water quality during construction are available and would be required 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 incorporated into the plans to minimize the potential for water quality impacts. 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 stormwater discharges from construction activities. Given the measures available to prevent pollutants

in stormwater runoff, the construction and operation of the proposed airfield improvements is not anticipated to have a significant impact on surface waters or groundwater.

Drinking Water Supplies – The Proposed Action may increase the number of passengers at EYW; however, the increase would be modest and would not have a significant impact on 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 National Rivers Inventory.

Cumulative Impacts – The past, present, and future cumulative projects identified in Section 4.14 of the EA have generated, or are anticipated to generate, low levels or no environmental impacts. The projects are subject to different environmental regulatory programs, some of which may require mitigation to reduce impacts below levels considered significant. The impacts associated with the Proposed Action, when considered in addition to other cumulative projects, are not expected to exceed thresholds that would indicate a significant impact.

OTHER FEDERAL, STATE AND LOCAL ACTIONS AND PERMITS:

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

- U.S. Army Corps of Engineers – Section 404 permit for unavoidable impacts to Waters of the United States, including wetlands.
- South Florida Water Management District – Environmental Resource Permit (ERP)
- Florida Department of Environmental Protection – NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities and NPDES Stormwater Program and Multi-Sector General Permit
- Monroe County – Comprehensive plan consistency and land development approvals
- Local building and construction permits

CONSISTENCY WITH APPROVED PLANS OR LAWS: The Proposed Action is consistent with the current Airport Layout Plan and with environmental plans, laws, and administrative environmental determinations of federal, state, and regional agencies. As discussed in Section 4.8.3.2 of the EA, amendments to Monroe County's Comprehensive Plan and Land Development Code and issuance of local approvals related to mangrove and wetland impacts are required before the project can be implemented.

MITIGATION MEASURES: Mitigation for the Proposed Action is summarized in this section and is described more fully in the EA (Section 4.13.5 and Appendix C). The Airport Sponsor has proposed conceptual plans to provide compensatory mitigation for

unavoidable impacts to Waters of the U.S., including wetlands. The conceptual mitigation plans are based on site-specific functional assessments using the Uniform Mitigation Assessment Method (UMAM). The mitigation measures identified in the EA are expected to reduce environmental impacts to levels below thresholds indicating a significant impact in the following categories: Biological Resources (Essential Fish Habitat), Coastal Resources, and Water Resources (wetlands). Mitigation is also required for the Sponsor's application for federal Section 404 permit and state Environmental Resource Permit authorizations to implement the Proposed Action. Final and complete mitigation plans will be developed during the permit application review process.

Proposed Mitigation Plan – The Proposed Action would require the placement of fill in 7.51 acres of wetlands and the clearing of 0.20 acres of wetland. Based on the Uniform Mitigation Assessment Method (UMAM), the proposed impacts would result in a functional loss of approximately 3.83 UMAM credits (final UMAM scores would be determined during the permitting process).

Both on-site and off-site mitigation is proposed. The conceptual plan includes a combination of wetland restoration and creation, enhancement, and preservation that would provide a total functional gain of 3.84 UMAM credits. The proposed on-site mitigation would restore and create saltwater marsh and mangrove communities along the periphery of salt ponds and enhance tidal flow through the ponds. This would primarily be accomplished through the removal of remnant fill (approximately 3.4 acres) and use of remaining available on-site mitigation credits. Due to the limited availability of suitable land for mitigation in Key West, off-site mitigation would be provided on publicly-owned land located in the Lower Florida Keys (Cudjoe Key and Summerland Key). Other opportunities to offset the impacts at off-site locations may be identified during permitting process. If necessary, additional credits would be provided through the purchase and restoration of wetlands located on private property. The proposed mitigation plan was presented to and discussed with federal and state regulatory agencies during the preparation of the EA.

The development of on-site mitigation plans during the project's design and permitting phase will require FAA review to ensure the continued safe operation of the airport. For any on-site mitigation, Monroe County will be obligated to take immediate action to alleviate wildlife hazards whenever they are detected (14 CFR 139.337, Wildlife Hazard Management). Actions taken by the County to address potential wildlife hazards would be consistent with FAA Advisory Circular 150/5200.33C, *Hazardous Wildlife Attractants on or Near Airports*, and the 2003 Memorandum of Agreement (MOA) Between the Federal Aviation Administration, the U.S. Air Force, the U.S. Army, the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service, and the U.S. Department of Agriculture to Address Aircraft-Wildlife Strikes. In accordance with FAA guidance and the MOA, Monroe County would coordinate with the appropriate agencies prior to implementing measures within these mitigation areas to resolve any wildlife hazards, should they be warranted.

PUBLIC INVOLVEMENT: At the outset of the environmental study, letters were sent to 35 federal, state, and local agencies to inform them of the proposed airport improvements and preparation of the EA. A virtual Agency Scoping meeting and in-person Public Scoping meeting were conducted to gather information and help identify key issues to be addressed in the EA.

The Draft EA was made available for review by the public, government agencies, and interested parties. A Notice of Availability of the Draft EA was published on the airport's website and in the *Key West Citizen* newspaper on November 13, 2020. A Public Information Workshop on the Draft EA was held on Tuesday, December 15, 2020. The comment period on the Draft EA began on November 13, 2020, and closed on December 22, 2020.

Five comment letters were received on the Draft EA. Two commenters expressed concerns about aircraft noise; one commenter expressed support for the Proposed Action; a representative of the USEPA provided comments on the topics of air quality, climate change, contaminated sites, and stormwater management; and a representative from the Florida State Clearinghouse provided information on coastal resources and permit requirements. Several of the comments resulted in clarifications to the EA, but no substantive issues affecting the conclusions documented in the EA were raised. The County and the FAA reviewed and considered all comments in the preparation of the Final EA. The comment letters and responses to these comments are provided in Appendix H of the EA.

FUNDING: The EA indicates that the Proposed Action would be implemented using a combination of FAA Airport Improvement Program grants, Passenger Facility Charge collections, Florida Department of Transportation grants, and County funds.

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 project. A funding commitment can only be made if, and when, Monroe County 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: 2021.03.19 14:05:46 -04'00'

Bart Vernace, Manager, Orlando Airports District Office

DATE: March 19, 2021

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: 2021.03.19 14:06:24 -04'00'

Bart Vernace, Manager, Orlando Airports District Office

DATE: March 19, 2021

DISAPPROVED: _____

DATE: _____

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LIST OF ACRONYMS

A

ACEIT—Airport Construction Emissions Inventory Tool

ACSC—Area of Critical State Concern

ADG—Airplane Design Group

AEDT—Aviation Environmental Design Tool

AFE—Above Field Elevation

AGL—Above Ground Level

AIP—Airport Improvement Program

ALP—Airport Layout Plan

AOA—Air Operations Area

APE—Area of Potential Effects

ATC—Air Traffic Control

B

BA—Biological Assessment

BMPs—Best Management Practices

BOCC—Board of County Commissioners

C

C&D—Construction and Demolition

CAA—Clean Air Act

CAAA—Clean Air Act Amendment

CAGR—Compound Annual Growth Rate

CBP—Customs and Boarder Protection

CBRA—Coastal Barrier Resources Act

CBRS—Coastal Barrier Resources System

CEQ—Council on Environmental Quality

CERCLA—Comprehensive Environmental Response, Compensation, and Liability Act

CFA—Core Foraging Area

CFR—Code of Federal Regulations

CH_4—Methane

CO—Carbon Monoxide

CO_2—Carbon Dioxide

CRAS—Cultural Resources Assessment Survey

CWA—Clean Water Act

CO_2e—Carbon Dioxide Equivalent

CZMA—Coastal Zone Management Act

D

dB—Decibel

dBA—A-Weighted Decibels

DOT—US Department of Transportation

DNL—Day-Night Average Sound Level

E

EA—Environmental Assessment

EDR—Environmental Data Resources

EFH—Essential Fish Habitat

EIS—Environmental Impact Statement

EMAS—Engineered Materials Arresting System

EPCRA—Emergency Planning and Community Right to Know Act

ERP—Environmental Resources Permit

ESA—Endangered Species Act

EYW—Key West International Airport

F

FAA—Federal Aviation Administration

FAC—Florida Administrative Code

FBO—Fixed Base Operator

FCMP—Florida Coastal Management Program

FDEP—Florida Department of Environmental Protection

FDOT—Florida Department of Transportation

FEMA—Federal Emergency Management Agency

FFWCC—Florida Fish and Wildlife Conservation Commission

FHWA—Federal Highway Administration

FIRM—Flood Insurance Rate Map

FKOHT—Florida Keys Overseas Heritage Trail

FKOPT—Florida Keys Overseas Paddling Trail

FLUCFCS—Florida Land Use, Covers and Form Classification System

FMSF—Florida Master Site File

FNAI—Florida Natural Areas Inventory

FONSI—Finding of No Significant Impact

G

GA—General Aviation

GHG—Greenhouse Gas

H

I

ILF—In Lieu Fee

IMA—Important Manatee Area

IPaC—Information for Planning and Consultation

J

K

L

L_{eq}—Equivalent Sound Level

LOS—Level of Service

M

MBTA—Migratory Bird Treaty Act

MT—Metric Tons

MT CO_2e—Metric Tons of Carbon Dioxide Equivalent

N

N_2O—Nitrous Oxide

NAAQS—National Ambient Air Quality Standards

NCP—Noise Compatibility Program

NEM—Noise Exposure Map

NEPA—National Environmental Policy Act of 1969

NHPA—National Historic Preservation Act

NIP—Noise Insulation Program

NMFS—National Marine Fisheries Service

NMSA—National Marine Sanctuaries Act

NO_2—Nitrogen dioxide

NOA—Notice of Availability

NOAA—National Oceanic and Atmospheric Administration

NO_X— Oxides of Nitrogen

NPDES—National Pollutant Discharge Elimination System

NRHP—National Register of Historic Places

O

O_3—Ozone

OFA—Object Free Area

OFW—Outstanding Florida Water

P

Pb—Lead

PFC—Passenger Facility Charge

PM_{10}—Particulate Matter

$PM_{2.5}$—Fine Particulate Matter

PVC—Polyvinylchloride

Q

R

RCNM—Roadway Construction Noise Model

RCRA—Resource Conservation and Recovery Act

ROFA—Runway Object Free Area

RSA—Runway Safety Area

S

SAV—Submerged Aquatic Vegetation

SDWA—Safe Drinking Water Act

SFWMD—South Florida Water Management District

SHPO—State Historic Preservation Officer

SIP—State Implementation Plan

SO_2—Sulfur Dioxide

SO_X—Oxides of Sulfur

SPCC—Spill Prevention, Control, and Countermeasure Plan

SR—State Route

SWPPP—Stormwater Pollution Prevention Plan

T

THPO—Tribal Historic Preservation Officer

TOFA—Taxiway Object Free Area

TSA—Transportation Security Administration

U

UMAM—Uniform Mitigation Assessment Method

U.S.C.—United States Code

USACE—US Army Corps of Engineers

US CBP—US Customs and Border Protection

USEPA—US Environmental Protection Agency

USFWS—US Fish and Wildlife Service

V

VOC—Volatile Organic Compounds

W

X

Y

Z

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1. PURPOSE AND NEED

1.1 INTRODUCTION

Key West International Airport (EYW or the Airport) is the southernmost airport in the state of Florida and the continental United States. The Airport is 160 miles southwest of Miami via State Road (SR) A1A, and it is the primary commercial service airport for the Florida Keys. **Exhibit 1-1** depicts the general location and vicinity of EYW. The Airport is owned and operated by Monroe County (the County) under a County enterprise fund. The Director of Airports reports to the County Administrator and manages the day-to-day operations of EYW.

The County, in its capacity as the Airport Sponsor, is proposing to improve the airfield layout of existing taxiway and apron facilities within the physical boundary of the Airport to enhance operational safety and efficiency. Proposed improvements include extending Taxiway A, expanding the commercial and general aviation (GA) aprons, improving the security fencing along the north Airport perimeter, and connected actions (the Proposed Action). These improvement projects are the subject of this Environmental Assessment (EA).

The proposed improvements require federal action by the Federal Aviation Administration (FAA), as identified in Section 1.6. The FAA is required to review its actions under the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] §§ 4321-4335) and the Council on Environmental Quality (CEQ) implementing regulations for NEPA (Title 40 Code of Federal Regulations [CFR] Parts 1500-1508). This EA is prepared in accordance with NEPA and CEQ, following guidance established by the FAA 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] When the EA is completed, the FAA will make a decision to either prepare an Environmental Impact Statement (EIS) or issue a Finding of No Significant Impact (FONSI).

The EA describes the Proposed Action; why it is being proposed; alternatives to the Proposed Action; the existing environment that could be affected by the alternatives; potential impacts associated with each alternative; and environmental impact avoidance, minimization, and/or mitigation measures.

The objectives of the Purpose and Need chapter are to define the Purpose and Need for the Proposed Action, where "Need" is defined as the problem at the Airport, and "Purpose" is defined as the Airport Sponsor's proposed solution to the problem; describe the Proposed Action; identify the actions requested of the FAA; and define the estimated timeframe for Proposed Action construction and initiation of operations.

[1] US Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 16, 2015.

[2] US Department of Transportation, Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 28, 2006.

SOURCES: Ricondo & Associates, Inc., based on: ESRI 2010 Data, 2010 (airports, roads, parks, water, counties); US Census, Geography Division, TIGER/Line Shapefile, 2018 (counties, roads); US Department of Transportation, Federal Aviation Administration, AIS Open Data, 2018 (airports).

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EXHIBIT 1-1

AIRPORT LOCATION

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1.2 DESCRIPTION OF EXISTING FACILITIES

The Airport is located on 334 acres of land in the southeast corner of the island of Key West. The Airport's single east–west oriented runway, Runway 9-27, is bordered to the north, west, and southwest by the Airport property line and salt ponds.[3] Passenger, GA, and cargo facilities are located along the south side of the runway and its parallel taxiway, primarily concentrated in the southeast quadrant of Airport property. A parcel of land between the east end of Runway 9-27 and Roosevelt Boulevard is primarily wetland and mangrove habitat with 1 acre of upland habitat. The parcel was purchased in 2013 for use as mitigation for future development and to ensure the upland acre would not be developed in a manner inconsistent with Airport use. Similarly, a parcel of land north of the Runway 27 end is a mangrove habitat, a portion of which was restored as mitigation for a previous Airport development project.

Airport property, shown on **Exhibit 1-2**, is surrounded by Roosevelt Boulevard/SR A1A and the Atlantic Ocean to the south; condominium, apartment, single-family residential, and hotel developments to the east and west; and park and recreational areas to the north. Little Hamaca City Park is located north of the Airport, immediately east of a residential neighborhood. The park offers a nature trail through native habitats including mangrove, transitional area, and hardwood hammock.[4] The K.W. White Crown Pigeon Park is located immediately north and west of the airfield; this area is protected as habitat and bird watching area for the white-crowned pigeon. Public lands, located east of Little Hamaca City Park and north of the Airport, accommodate an abandoned Hawk Missile Site that includes access roads, several abandoned structures (a portion of which previously accommodated a paintball field), and the salt pond that extends onto the north side of Airport property. Canoers and kayakers can access the salt pond from this site, as well as via mangrove creeks from Riviera Canal to the north.

1.2.1 RUNWAY AND TAXIWAY SYSTEM

The airfield facilities are shown on Exhibit 1-2. Runway 9-27 is 5,075 feet long and 100 feet wide. It is an asphalt runway capable of accommodating commercial jets, turboprops, military aircraft, and large GA aircraft (such as business jets). As part of the Runway Safety Area (RSA) Improvement Project, the County installed an Engineered Material Arresting System (EMAS) at the departure end of Runway 9 in 2011 and at the Runway 27 departure end in 2015. The EMAS is a crushable material placed at the end of a runway to stop an aircraft that overruns the runway; it is installed to improve safety where sufficient land is not available to support aircraft overruns.[5] In 2017, Monroe County requested reclassification of 274 feet of pavement between the EMAS (and a required 35-foot setback from the EMAS) and the Runway 9 threshold as runway pavement for use by aircraft departing on Runway 9, which increased the available Runway 9 takeoff length from 4,801 feet to the current 5,075 feet. Because taxiway access is not provided to the westernmost 274-foot section of pavement, aircraft must back-taxi[6] to the runway end to use the full 5,075-foot departure runway length.

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[3] The salt ponds in the immediate vicinity of EYW are shallow-water, high salinity, unvegetated ponds that are not directly connected to surrounding ocean waters but may have some tidal influence with salinity fluctuation dependent upon rainfall.

[4] City of Key West, Little Hamaca Park, https://www.cityofkeywest-fl.gov/egov/apps/locations/facilities.egov?view=detail&id=14 (accessed July 23, 2019).

[5] US Department of Transportation, Federal Aviation Administration, Fact Sheet – Engineered Material Arresting System (EMAS), https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=13754 (accessed July 26, 2019).

[6] Back-taxi is the act of taxiing on a runway in the opposite direction of the flow of runway operations. At EWY, aircraft back-taxi to the Runway 9 end and then turn around for departure on the full length of Runway 9.

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Building Number	Building/Facility
1	Aircraft Storage Hangars
2	Department of Motor Vehicles
3	Vacant
4	Signature Office
5	Signature Maintenance Hangar
6	Airport Passenger Terminal
7	Terminal Annex
8	US Customs and Border Protection
9	FedEx Cargo Terminal
10	Fort East Martello Gallery and Museum
11	Avis Rental Car
12	Dollar Rental Car
13	Department of Public Works
14	Air Traffic Control Tower
15	Maintenance/Storage Building
16	Storage Building
17	Aircraft Rescue and Fire Fighting Station
18	Airport Storage (To Be Demolished)
19	Aviation Fuel Farm
20	US Customs and Border Protection Apron

SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Florida Department of Environmental Protection, Office of Greenways & Trails, June 2018 (trail); Ricondo & Associates, Inc., January 2020 (Airport facilities, property line, runway, ROFA, TOFA, fence).

EXHIBIT 1-2

EXISTING AIRPORT FACILITIES

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The taxiway system at the Airport provides access between the runway and the apron areas on the south side of the airfield. Taxilanes are designated within and adjacent to the aprons to support movement of aircraft between taxiways and aircraft parking positions on the aprons and in adjacent hangars. Taxiway A, which runs parallel to Runway 9-27, is 4,801 feet long, extending between Taxiways B and E. Taxiways B and E, two of the four taxiways that connect Taxiway A to Runway 9-27, provide access to the Runway 9 and Runway 27 ends, respectively. Both taxiways include excess pavement, which can be used to hold one aircraft while allowing another aircraft to pass by and access the runway end (that is, the excess pavement provides bypass capability). Taxiway E provides direct access to the end of pavement at the Runway 27 end; however, Taxiway B does not connect to the end of pavement at the Runway 9 end. An additional 11 taxiways (A1 through A11) connect Taxiway A to apron areas.[7]

To maintain a safe airfield operating environment, FAA airport design standards[8] define areas centered on runways and taxiways that should be clear of aboveground objects, except those essential for air navigation and ground maneuvering purposes. These areas are referred to as object-free areas (OFAs); the runway OFA (ROFA) and taxiway OFA (TOFA) are shown on Exhibit 1-2.

1.2.2 APRON AREAS

Aircraft aprons, also referred to as ramp areas, provide space for aircraft parking and circulation for aircraft transitioning between the apron and other facilities at the Airport. EYW has two main apron areas, the commercial apron and the main GA apron, as well as additional apron areas designated for GA parking and overflow parking during peak seasonal periods and highly attended Key West events.

The 41,000-square-yard commercial apron is located along the south side of Taxiway A and east of Taxiway D. It is adjacent to the passenger terminal building, the Customs and Border Protection (CBP) facility, and the FedEx facility. The commercial apron accommodates nine parked commercial aircraft and one aircraft position for CBP inspections. In addition, the commercial apron provides area for the parking of cargo aircraft; this area is also used to accommodate aircraft parking during irregular operations[9] and overflow GA aircraft parking. Commercial aircraft are ground-loaded, which means that passengers are required to walk across the apron to board and deplane aircraft. **Exhibit 1-3** presents the existing aircraft parking configuration on the commercial apron.

[7] Taxiway names reflect conditions as of September 2020. Along with the planned rehabilitation of Taxiway A in 2020, the taxiways will be renamed in late 2020 as follows: existing Taxiways B through E will be renamed Taxiways A1 through A4, respectively, and Taxiways A1 through A11 will be renamed Taxiways B1 through B11, respectively. The segment of Taxiway E between Taxiway A and the Commercial Apron will be realigned to be perpendicular to the Commercial Apron and renamed to Taxiway B12.

[8] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, Change 1, *Airport Design*, February 26, 2014.

[9] Irregular operations occur when flights do not operate as scheduled or are canceled for reasons such as weather or equipment issues.

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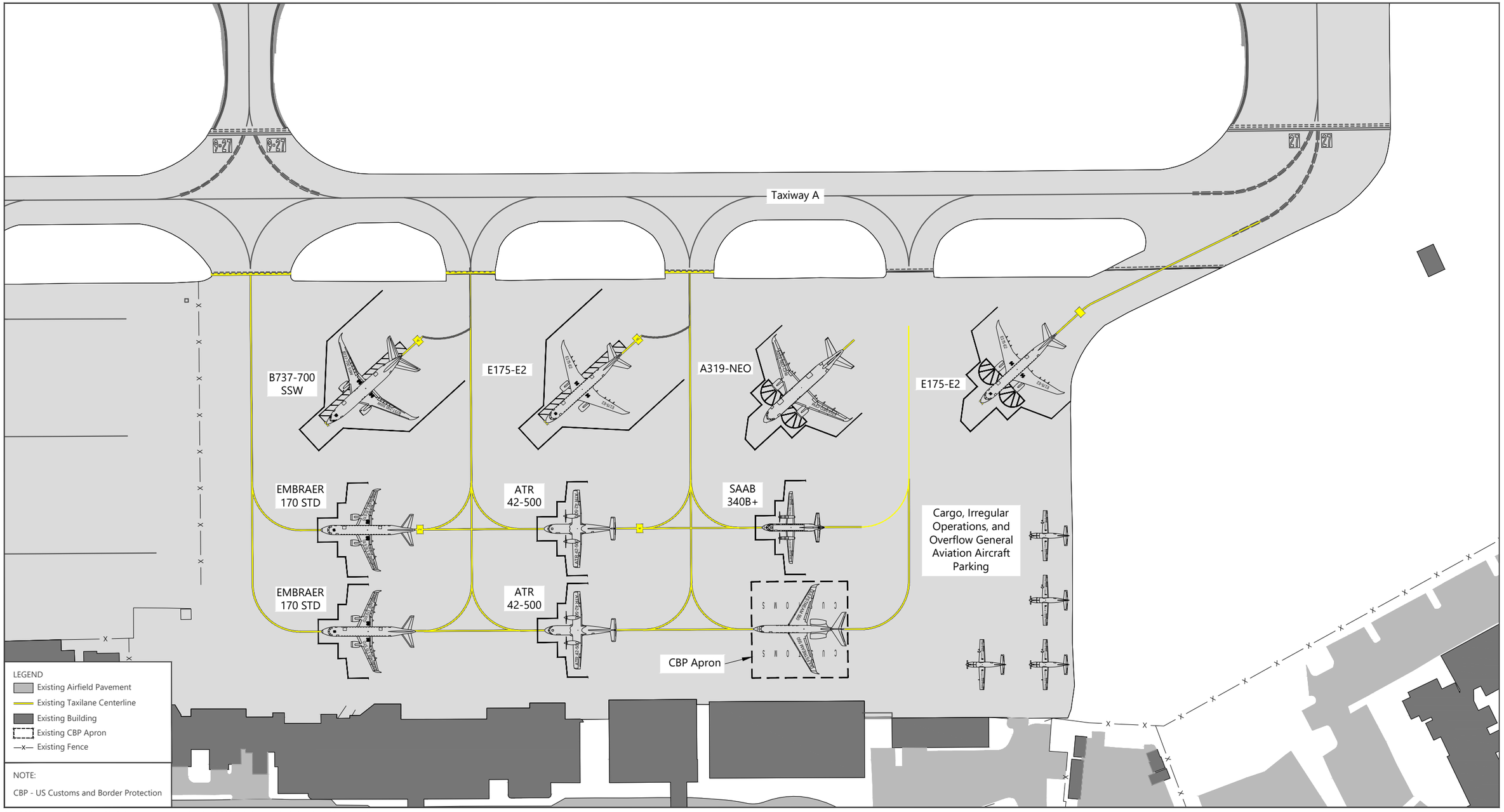

SOURCES: Jacobs, September 2015 (basemap); Jacobs, October 2018 (existing terminal aircraft parking layout).

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EXHIBIT 1-3

EXISTING AIRCRAFT PARKING CONFIGURATION – COMMERCIAL APRON

Drawing: P:\Project-Orlando\Monroe County\Task 200 - EYW Master Plan\206 - Alternatives\CAD\EA Final Exhibits\Exhibit 1-3 EYW_Commercial Apron_Existing Conditions - Copy.dwgLayout: 11x17L Plotted: Oct 28, 2020, 04:09PM

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Based on the fleet currently operating at EYW, FAA airport design standards for Airplane Design Group (ADG) III[10] apply. ADGs classify aircraft by wingspan and tail height to define operational needs, such as the OFA around a taxilane centerline, to allow safe movement of aircraft. Examples of ADG-III aircraft operating at the Airport include the Boeing B737-700 and the Embraer E175. The taxilanes on the commercial apron provide between 49 and 68 feet of clearance from the centerline to adjacent parked aircraft, meeting FAA airport design standards for the number of ADG-II and III aircraft types for which the apron was designed to accommodate. However, to accommodate the increased number of ADG-III commercial aircraft using the airport, the ADG-II parking spaces must now be able to accommodate ADG-III aircraft. FAA airport design standards for the ADG-III aircraft currently operating at the Airport define the need for 82 feet of clearance from the centerline of a taxiway to adjacent fixed or moveable objects. Because the separation currently provided between aircraft parking positions on the commercial apron does not meet current FAA airport design standards for the fleet operating at EYW, sufficient space for maneuvering aircraft unassisted during peak times into and out of parking positions is not provided. Therefore, when adjacent parking spaces are occupied, the use of ground personnel, referred to as wing walkers, is required. Wing walkers direct aircraft to and from parked positions by confirming the area around the wing tips is clear of any hazards. As of 2019, all nine commercial aircraft positions are occupied during peak periods, creating congested conditions on the apron. The apron also becomes congested when it accommodates GA aircraft overflow parking during peak periods, including highly attended Key West events and irregular operations.

GA apron areas are located west of the commercial apron along Taxiway A. The main GA apron spans approximately 26,500 square yards and is located immediately west of the commercial apron, south of Taxiway A, between Taxiways A6 and D. The apron includes tiedown areas (that is, areas for parking of non-hangared aircraft with restraints to minimize movement of aircraft during high winds) and provides access to hangars along the apron. Tiedown areas can accommodate either 29 small aircraft or 16 small aircraft and 5 larger aircraft.

Additional GA apron extends west of the main GA apron between Taxiways A1 and A6. The apron comprises approximately 17,700 square yards of pavement and provides areas for aircraft tiedowns and access to hangars. Approximately 52 aircraft can be accommodated on the GA apron between Taxiways A1 and A6. During peak periods, the GA apron is fully occupied, and overflow parking for GA aircraft is accommodated on a portion of the commercial apron, contributing to congestion on the commercial apron.

1.2.3 SECURITY FENCING

EYW's airfield facilities are located within an area referred to as the Air Operations Area (AOA). Access to the AOA is restricted by an Airport security fence. Along the north perimeter of the Airport, approximately 1,500 feet of fencing penetrates the ROFA to avoid the salt pond north of the airfield. This segment is a nonstandard section of perimeter fence, approximately 3 to 4 feet in height.[11] In addition to the fencing, the County installed seven "no trespassing/restricted area" signs, spaced 70 feet apart, across the salt pond along the northern property line, because the salt pond is used for recreational kayaking and canoeing. The aluminum signs are mounted on polyvinyl chloride (PVC) pipes secured to circular concrete bases resting on the salt pond bottom. The signs and nonstandard fencing were installed to advise boaters in the salt pond against entering restricted-access Airport property.

[10] Airplane Design Group (ADG) III comprises aircraft such as Embraer 175, Boeing 737-700, and Airbus A319. The taxilane design standard for ADG-III aircraft is defined in the following document: US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13A, Change 1, *Airport Design*, Table 4-1, "Design standards based on Airplane Design Group," February 26, 2014.

[11] The use of the non-standard section of security fence in this location resulted from the environmental review and permitting process associated with the 2009 Runway Safety Area (RSA) Improvement project.

1.3 FORECAST AVIATION ACTIVITY

The aviation activity forecast is based on the FAA's 2019 Terminal Area Forecast. Enplaned passengers were forecasted to grow at a compound annual growth rate (CAGR) of 3.4 percent through 2029, as shown in **Table 1-1**. Air carrier operations, which include the largest commercial aircraft operating at the Airport (ADG-III aircraft such as the Boeing 737 and Airbus A319) were forecasted to grow fastest through 2029, as shown in Table 1-1, at a CAGR of 3.3 percent. Total aircraft operations were forecasted to grow at a 1.2 percent CAGR through 2029.

The analysis in this NEPA document uses an aviation forecast prepared before the COVID-19 public health emergency began. This forecast is included to provide a conservative estimate of potential environmental impacts of the Proposed Action. FAA forecast approval was based on the methodology, data, and conclusions at the time the document was initiated. However, it is necessary to acknowledge the impacts of the COVID-19 public health emergency on aviation activity, including reduced confidence in growth projections using currently available data.

TABLE 1-1 FORECAST OF ANNUAL ENPLANED PASSENGERS AND AIRCRAFT OPERATIONS

FISCAL YEAR [1]	ENPLANED PASSENGERS			AIRCRAFT OPERATIONS				
	AIR CARRIER	COMMUTER	TOTAL	AIR CARRIER	AIR TAXI	GA	MILITARY	TOTAL
Historical								
2015	113,493	240,759	354,252	14,547	10,973	28,300	595	54,415
2016	122,316	248,754	371,070	14,297	4,852	32,209	798	52,156
2017	131,979	271,713	403,692	15,123	4,888	30,777	750	51,538
2018	115,149	306,852	422,001	16,322	4,334	31,023	459	52,138
2019 [2]	153,593	330,660	484,253	15,282	4,831	32,419	520	53,052
Forecast								
2020	197,108	396,460	593,568	18,468	4,268	31,971	520	55,227
2021	200,561	403,184	603,745	18,794	4,320	32,096	520	55,730
2022	203,720	409,262	612,982	19,089	4,368	32,222	520	56,199
2023	206,705	415,023	621,728	19,369	4,413	32,348	520	56,650
2024	209,564	420,507	630,071	19,636	4,456	32,475	520	57,087
2025	212,492	426,135	638,627	19,909	4,501	32,602	520	57,532
2026	215,545	431,963	647,508	20,192	4,547	32,730	520	57,989
2027	218,905	438,372	657,277	20,504	4,598	32,859	520	58,481
2028	222,470	445,191	667,661	20,835	4,652	32,988	520	58,995
2029	226,159	452,327	678,486	21,181	4,708	33,118	520	59,527
Compound Annual Growth Rate								
2015–2019	7.9%	8.3%	8.1%	1.2%	-18.5%	3.5%	-3.3%	-0.6%
2019–2029	3.9%	3.2%	3.4%	3.3%	-0.3%	0.2%	0.0%	1.2%

NOTES:
GA – General Aviation
1 All data are presented in federal fiscal year (October through September).
2 2019 values in the Terminal Area Forecast are forecast.
SOURCE: US Department of Transportation, Federal Aviation Administration, *2019 Terminal Area Forecast*, January 2020.

1.4 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to improve the layout of the airfield to enhance operational safety and efficiency of the Airport by:

- providing taxiway access to the full Runway 9 departure length;
- constructing additional apron for commercial and GA aircraft; and
- improving security fencing along the Airport's north perimeter.

To resolve operational inefficiencies resulting from the layout of existing taxiways and aprons and to improve airfield safety, the County proposes to:

- eliminate the need for departing aircraft to back-taxi to the Runway 9 end to use the full Runway 9 departure length, while maintaining taxiway bypass capabilities;
- reduce commercial apron congestion and effects on operational efficiency during peak periods and irregular operations;
- provide additional GA apron for overflow aircraft parking; and
- remove the nonstandard section of perimeter fence within the Runway 9-27 OFA.

The following subsections discuss each of these needs in more detail.

1.4.1 NEED TO ELIMINATE BACK-TAXI OPERATIONS

Runway 9 is used nearly 90 percent of the time at EYW due to the direction of prevailing winds. Currently, Taxiway B serves as the single point of access to the Runway 9 end for departures. Given the location of Taxiway B, aircraft using the full departure length of Runway 9 must back-taxi the final 274 feet to the runway end on the runway itself, which means that aircraft taxi on a segment of the runway in the opposite direction of the departure operation. Back-taxiing involves the issuance of additional communications from FAA Airport Traffic Control (ATC) and results in aircraft taxing in a direction opposite to the flow of departures and landings on that runway.

Under back-taxi conditions on Runway 9, two aircraft operating at EYW (the Embraer 190 and Embraer 175) are subject to weight restrictions because they are not able to account for the full 5,075 feet of runway length. The weight restrictions limit the number of passengers able to board the aircraft, thereby reducing the efficiency of these operations. See **Appendix A** for additional information.

There is a need to extend Taxiway A to the physical end of Runway 9. This would: (1) eliminate back-taxi operations on the Airport's only runway; (2) eliminate weight restrictions for departing aircraft; and (3) reduce communications between pilots and ATC. Eliminating back-taxi operations would improve efficiency of aircraft operations on Runway 9-27.

1.4.2 NEED TO REDUCE CONGESTION ON THE COMMERCIAL APRON

Congestion on the commercial apron results from the number of commercial aircraft operations at EYW during peak periods, as well as a trend towards larger aircraft serving EYW. The commercial apron layout was not designed to support the level and type of activity currently occurring and forecast for EYW. Therefore, movements to and from the commercial aircraft parking positions are dependent on whether adjacent positions are occupied and, when occupied, require the use of wing walkers to confirm the area around the wing tips is clear of any hazards. When several commercial aircraft land consecutively, aircraft traffic backs up on Taxiway A while waiting to access a parking position due to the operational inefficiencies of accessing parking positions. This congestion on Taxiway A occurs almost weekly.

To support the fleet currently operating at EYW (ADG-III aircraft), a taxilane OFA of 81 feet from the taxilane centerline to adjacent fixed or moveable objects, such as parked aircraft, should be provided, per FAA design standards; however, in some areas the current apron layout, which was designed to serve a smaller fleet, does not achieve these standards. To maintain safe aircraft operations on the congested apron, dependencies among parking positions result, which limit the ability to efficiently use the commercial apron, especially during peak periods. These congested conditions are exacerbated when the commercial apron accommodates overflow GA aircraft parking and during irregular operations.

Anticipated changes to the aircraft fleet mix are expected to contribute further to the congestion of the commercial apron. As discussed in Appendix A, additional aircraft parking apron is needed to minimize existing congestion and meet current and future demand for aircraft parking spaces. The average size of the passenger aircraft fleet is expected to gradually increase over the forecast period as large regional jet and narrowbody aircraft activity grows at a faster rate than turboprop and small regional jet activity. Airlines serving EYW are changing their aircraft fleets to larger aircrafts types (with larger wingspans) than those operating today, a process referred to as upgauging, to accommodate the forecast growth in passengers. For example, one airline serving EYW is expected to upgauge its turboprop aircraft fleet from the 34-seat Saab 340 aircraft to the 47-seat ATR 42 aircraft; jet service provided on the 50-seat Embraer ERJ-45 and 76-seat Embraer 175 aircraft is expected to be upgauged to the 126-seat Boeing 737-700 and 128-seat Airbus A319 aircraft; and additional flights are expected to be served by a combination of large regional jets and small narrowbody aircraft, including the Airbus A220-100/300 and A319-NEO aircraft. The anticipated upgauged aircraft fleet at the Airport comprises ADG-III aircraft.

Commercial aircraft are ground-loaded, which means that passengers are required to walk across the apron to board and deplane aircraft, presenting two concerns. First, passengers must walk in proximity to other aircraft. Second, ground-loading on the apron requires additional Airport and airline staff to manage passengers during congested conditions.

Therefore, the County needs to reduce the congested conditions of the commercial apron by meeting FAA airport design standards for the fleet currently operating at EYW to maintain safe conditions while improving the efficiency of aircraft operations on the apron. Reduced congestion on the apron will improve conditions for passengers on the apron during ground-loading and deplaning. Finally, additional parking positions on the commercial apron are needed to accommodate the forecast.

1.4.3 NEED TO PROVIDE ADDITIONAL AIRCRAFT OVERFLOW PARKING

During peak periods that occur throughout a typical year, space for GA aircraft handling and parking on the existing GA apron and GA overflow apron is insufficient. In these instances, additional overflow parking for GA aircraft is accommodated on the commercial apron, which contributes to the congested conditions of the commercial apron. The mixture of GA and commercial activity on the same apron is not a preferred practice due to access and security concerns. Additional GA aircraft parking spaces that would accommodate GA aircraft handling and parking during peak periods is needed to maintain separation of GA aircraft parking from commercial aircraft parking and avoid operational conflicts. The County desires to eliminate these operational conflicts resulting from the mix of GA and commercial aircraft parking on the same apron.

1.4.4 NEED TO REMOVE NONSTANDARD PERIMETER FENCING

Transportation Security Administration (TSA) Airport Security regulations require airport operators to establish and carry out measures for controlling entry to secured areas of an airport and post signs at secured area access points

and on the perimeter that provide warning of the prohibition against unauthorized entry.[12] The County provides security fencing and signage around the perimeter of the AOA.

The Airport property line crosses a salt pond north of the airfield, which is used for recreational canoeing and kayaking. To avoid the salt pond, approximately 1,500 feet of nonstandard perimeter fencing follows the south side of the salt pond and penetrates the ROFA. To discourage canoers and kayakers from entering the ROFA, the County installed seven "no trespassing/restricted area" signs, spaced 70 feet apart, across the salt pond along the Airport property line; however, this signage is insufficient to keep canoers and kayakers from entering the ROFA via the salt pond. The Airport has documented incidents of kayakers boating up to the perimeter fencing to view the airfield[13] at which point the kayakers are within the ROFA, which, per FAA airport design standards, is an area that should be clear of aboveground objects. Furthermore, the nonstandard perimeter fencing is insufficient to keep canoers and kayakers that reach the shoreline from entering the AOA.

To enhance airfield security, the ROFA should be clear of aboveground objects. The 1,500-foot length of nonstandard fencing in the ROFA is not consistent with FAA airport design standards and needs to be removed. Furthermore, replacement fencing needs to be done in such a manner as to preclude canoers and kayakers on the salt pond north of the airfield from entering the ROFA and the AOA.

1.5 DESCRIPTION OF THE PROPOSED ACTION

The Proposed Action, as shown on **Exhibit 1-4**, would include several components to address the Purpose and Need of the project, including:

- **Taxiway A Extension:** Taxiway A would be extended to provide access to the Runway 9 end of pavement for departing aircraft. The proposed 274-foot taxiway extension would add approximately 3,300 square yards of asphalt, require the placement of approximately 600 cubic yards of fill, and include new taxiway lighting and signage.
- **Commercial Apron Expansion:** The proposed expansion of the commercial apron, including signage, marking, and lighting, would add approximately 13,200 square yards of concrete.[14] With the expanded apron, the aircraft parking plan on the commercial apron would provide eight ADG-III parking spaces that meet FAA airport design standards, as shown on **Exhibit 1-5**. The portion of the apron accommodating CBP inspections, cargo operations, and irregular operations would accommodate six aircraft parking spaces, two of which would meet FAA airport design standards for ADG-III aircraft and four would meet FAA airport design standards for ADG-II aircraft. Stormwater runoff from the new impervious apron surface would be treated through exfiltration trenches constructed under the apron footprint, and a swale would be constructed along the fenceline. A vegetative buffer would be maintained between the apron and the fenceline. Approximately 2,000 cubic yards of fill material would be placed to allow the new apron pavement to meet the grade of the existing apron and to regrade surrounding land to match existing grades.

[12] Title 49 Code of Federal Regulations Part 1542, *Airport Security*.

[13] Incidence reports document kayakers, paddle boarders, and an abandoned kayak in the salt pond north of the airfield beyond the no trespassing signs (Key West International Airport, Salt Pond Intrusion Report, August 23, 2019; Key West International Airport, Salt Pond Intrusion Report, February 11, 2020; and Key West International Airport, Salt Pond Intrusion Report, April 25, 2020).

[14] A small Airport storage structure is located within the project disturbance footprint (area to be graded) of the commercial apron. This structure is the former National Weather Service balloon launch facility, which is identified on the Airport Layout Plan for demolition. The Federal Aviation Administration previously determined under the National Environmental Policy Act that demolition of this facility would not have a significant or cumulative effect on the quality of the human environment. This facility is planned to be demolished in 2020 and is not considered an enabling action for the Proposed Action.

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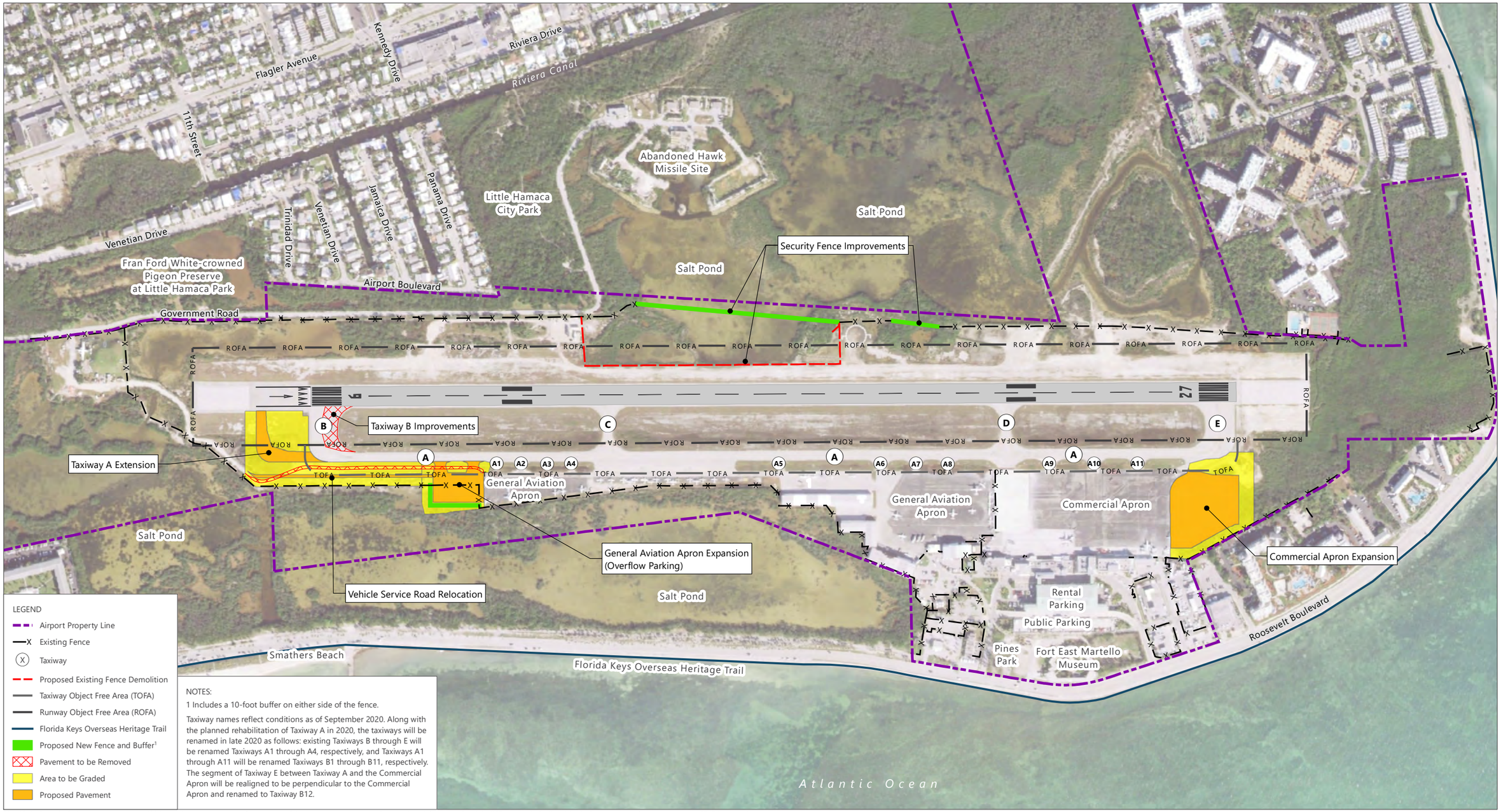

SOURCES: Ricondo & Associates, Inc., June 2020 based on: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Florida Department of Environmental Protection, Office of Greenways & Trails, June 2018 (trail); Ricondo & Associates, Inc., January 2020 (proposed action components, property line, runway, ROFA, TOFA, fence).

EXHIBIT 1-4

PROPOSED ACTION

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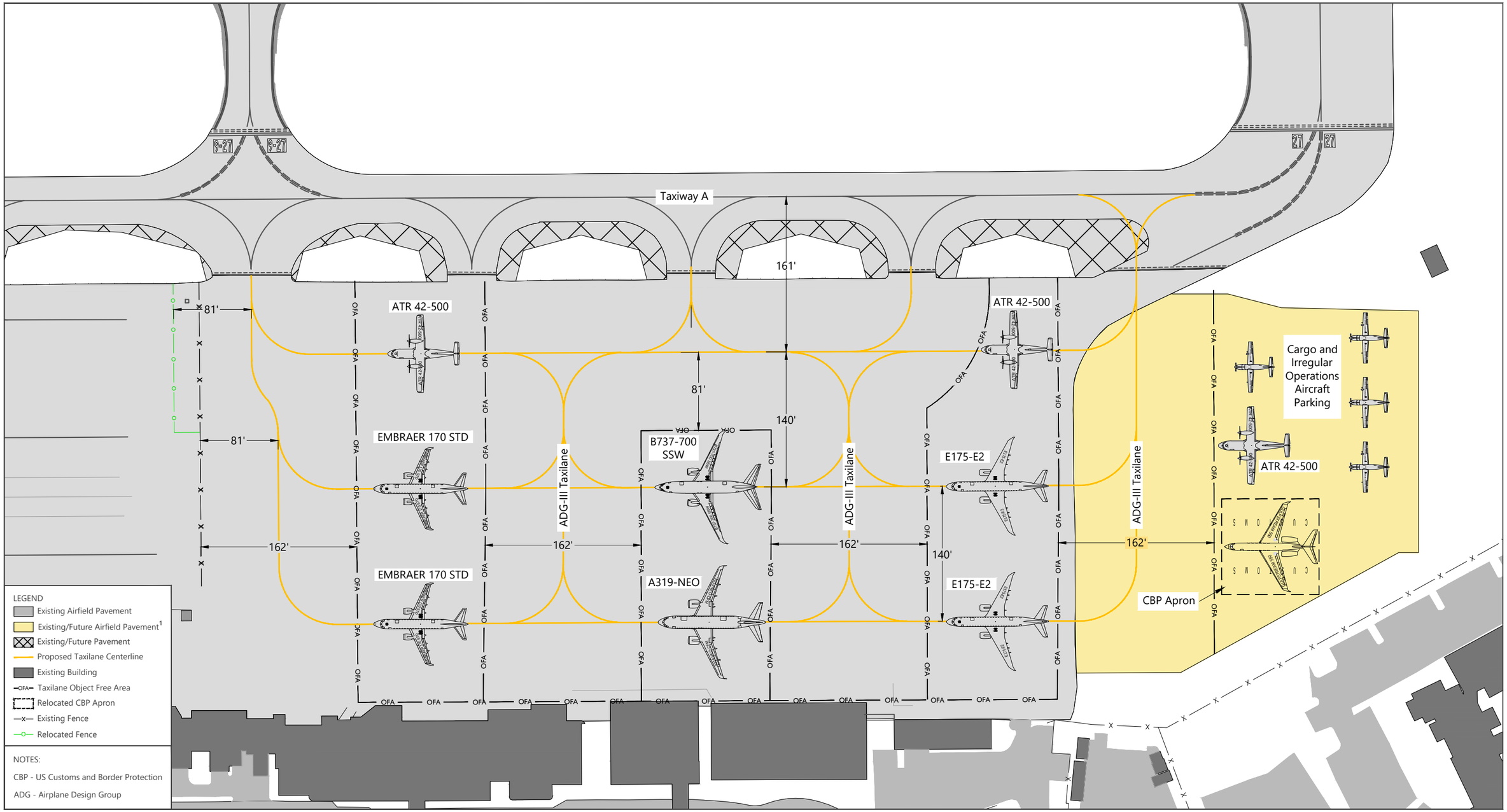

SOURCES: Jacobs, September 2015 (basemap); Jacobs, October 2018 (existing terminal aircraft parking layout).

NORTH 0 100 ft

EXHIBIT 1-5

FUTURE AIRCRAFT PARKING PLAN – EXPANDED COMMERCIAL APRON

Drawing: P:\Project-Orlando\Monroe County\Task 200 - EYW Master Plan\206 - Alternatives\CAD\EA Final Exhibits\Exhibit 1-5 EYW_Commercial Apron_Expansion - Copy.dwgLayout: 11x17L Plotted: Oct 28, 2020, 04:09PM

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- **GA Apron Expansion for Overflow Parking:** The proposed 5,400-square-yard GA apron expansion, including access, signage, marking, and lighting, is needed to accommodate overflow parking for GA aircraft. The proposed apron would include two connector taxiways to Taxiway A. **Exhibit 1-6** shows an aircraft parking plan for the expanded apron. Stormwater runoff from the new impervious surface apron would be treated through exfiltration trenches constructed under the apron footprint. Approximately 1,800 cubic yards of fill material would be placed to allow the apron expansion to meet the grade of the existing apron and to regrade surrounding land to match existing grades.
- **Security Fence:** Two new sections of security fence would be installed along the north boundary of the Airport to replace the 1,500 linear feet of nonstandard fencing in the ROFA and close gaps in the existing fenceline. The security fencing would comprise an approximate 860-linear foot floating barrier across the open water of the salt pond north of Runway 9-27 to deter kayakers and canoers from entering the AOA and approximately 450-linear feet of new security fence on land to close the gaps between existing sections of fence along the northern perimeter of the airfield. A 10-foot buffer of cleared vegetation would be maintained on both sides of the new on-land segments of security fence. Signage would be posted on the proposed fencing to warn of the prohibition against unauthorized entry. Additionally, 360 linear feet of security fencing would be replaced as a result of the proposed GA apron expansion for overflow parking.

The following are connected and enabling actions to the Proposed Action:

- **Taxiway B Improvements:** Approximately 2,300 square yards of excess Taxiway B bypass pavement would be removed. Approximately 1,100 cubic yards of fill material would be placed to regrade the land to match existing grades.
- **Vehicle Service Road Relocation:** A portion of the existing vehicle service road providing access between the GA apron and the west airfield would be located within the TOFA of the extended Taxiway A. Along with relocating the portion of the vehicle service road out of the extended TOFA, the remaining vehicle service road alignment to the east within the existing Taxiway A TOFA would also be shifted out of the TOFA. Approximately 1,900 square yards of existing roadway pavement would be removed, and 1,600 square yards of new roadway pavement would be constructed outside the Taxiway A TOFA. Approximately 500 cubic yards of fill material would be placed to allow the new roadway pavement to meet the grade of the existing taxiway and apron and to regrade surrounding land to match existing grades.

All project components would be constructed on Airport property. The airfield layout improvements would not affect aircraft use of the Runway 9 and 27 ends for takeoffs and landings (which is determined by prevailing winds), would not introduce new aircraft takeoff or landing locations on Runway 9-27, and would not alter flight tracks in the vicinity of the Airport. The Proposed Action, specifically the expanded aircraft parking aprons, may accommodate increased passenger and aircraft activity at EYW in numbers greater than those forecast through 2029 (presented in Table 1-1). Assumptions regarding induced activity are summarized as follows and discussed in more detail in Appendix A:

- The commercial apron expansion could potentially accommodate an additional 1,460 annual commercial aircraft operations and approximately 60,000 annual enplaned passengers because an expanded, more operationally efficient apron could improve the air service marketability of EYW and attract new/expanded air service.
- With the ability to account for the full 5,075-foot length of Runway 9-27, aircraft that are affected by weight penalties during takeoff are estimated to be able to accommodate an additional 50 enplaned passengers per day, or 18,250 annual enplaned passengers.
- Based on peak period characteristics, the expanded GA apron is estimated to be able to accommodate an additional 240 annual GA operations and 342 additional enplaned GA passengers per year.

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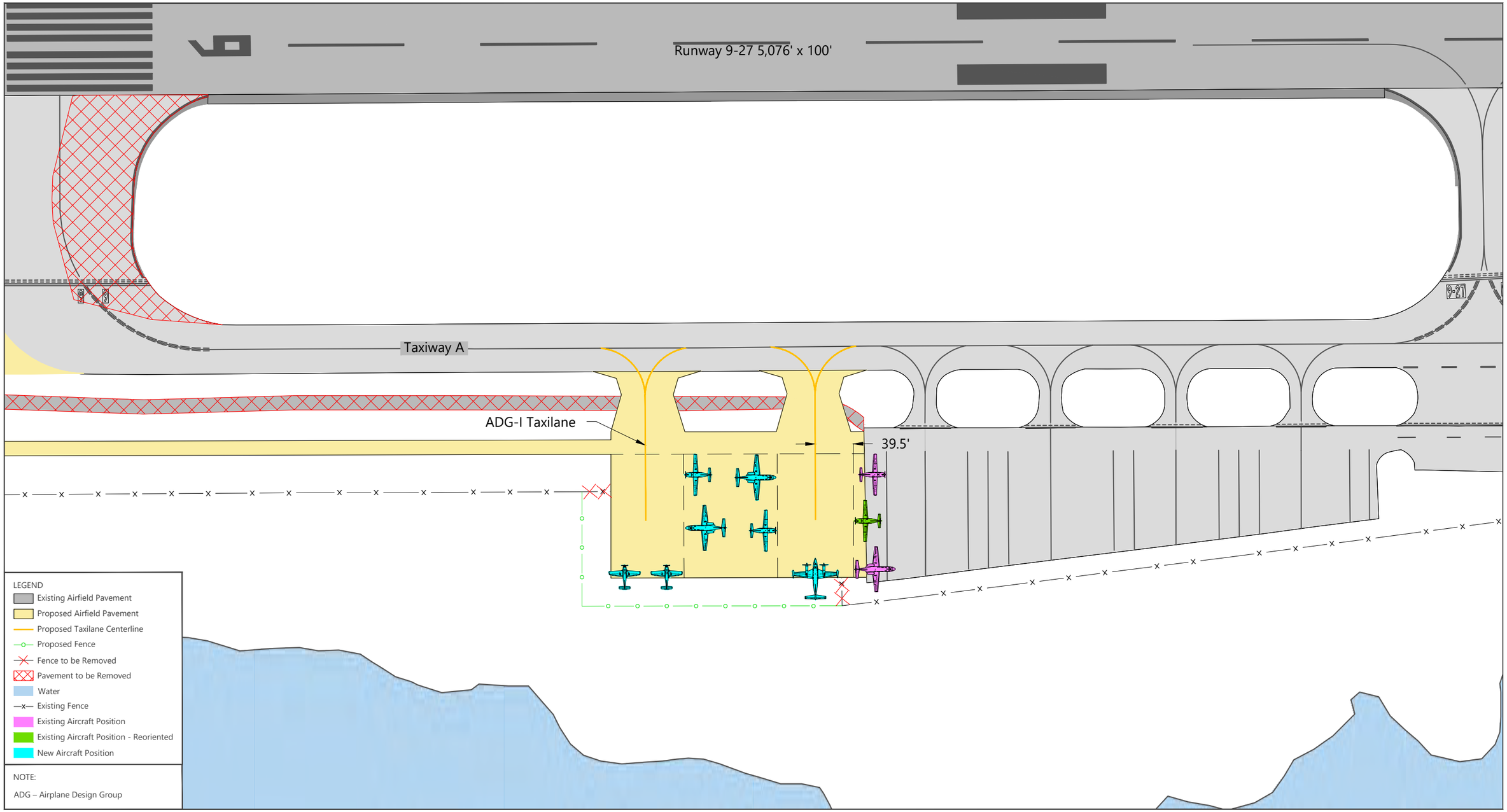

SOURCES: Jacobs, September 2015 (basemap); Jacobs, October 2018 (existing terminal aircraft parking layout).

NORTH 0 100 ft

EXHIBIT 1-6

FUTURE AIRCRAFT PARKING PLAN – OVERFLOW GENERAL AVIATION APRON

Drawing: P:\Project-Orlando\Monroe County\Task 200 - EYW Master Plan\206 - Alternatives\CAD\EA Final Exhibits\Exhibit 1-6 EYW_West GA Apron_Expansion_Layout - Copy.dwgLayout: 11x17L Plotted: Oct 28, 2020, 04:10PM

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Table 1-2 compares the passenger and aircraft operations forecasts with and without the Proposed Action, which is based on the proposed schedule to implement the Proposed Action, as discussed in Section 1.7. The comparison summary presents forecast passenger and aircraft operations for existing conditions (2019) and two future years: 2024, the first full year when all proposed project elements would be operational, and 2029, a 5-year look ahead. The future "without the Proposed Action" scenario represents conditions with the current forecast of future activity (see Table 1-1); this scenario is referred to as the No Action Alternative in subsequent chapters of this EA. The "with Proposed Action" scenario represents conditions under which the Proposed Action could accommodate activity greater than the current forecast.

TABLE 1-2 PASSENGER AIRCRAFT OPERATIONS FORECAST—EXISTING CONDITIONS, PROPOSED ACTION, AND NO ACTION ALTERNATIVE

FISCAL YEAR [1]	SCENARIO	ANNUAL ENPLANED PASSENGERS			ANNUAL AIRCRAFT OPERATIONS	
		COMMERCIAL [2]	INDUCED GA [3]	DIFFERENCE [4]	TOTAL	DIFFERENCE [4]
2019	Existing Conditions	484,253	N/A	N/A	53,052	N/A
2024	No Action Alternative [5]	630,071	N/A	N/A	57,087	N/A
	Proposed Action	708,321	339	**+78,589**	58,787	**+1,700**
2029	No Action Alternative [5]	678,486	N/A	N/A	59,527	N/A
	Proposed Action	756,736	342	**+78,592**	61,227	**+1,700**

NOTES:
N/A – Not Applicable
GA – General Aviation
1 All data are presented in federal fiscal year (October through September).
2 Commercial passengers include air carrier and commuter passengers.
3 The Terminal Area Forecast does not quantify annual GA passengers, so for purposes of this analysis, only the change in GA passengers with implementation of the Proposed Action is quantified.
4 This refers to the difference in numbers of annual enplaned passengers and aircraft operations with the Proposed Action compared to without the Proposed Action for the same fiscal year.
5 The "No Action Alternative" scenario represents conditions with forecast activity presented in Table 1-1 and without implementation of the Proposed Action.
SOURCE: Ricondo & Associates, Inc., February 2020.

1.6 REQUESTED FEDERAL ACTIONS

The federal actions being requested of the FAA by the County include:

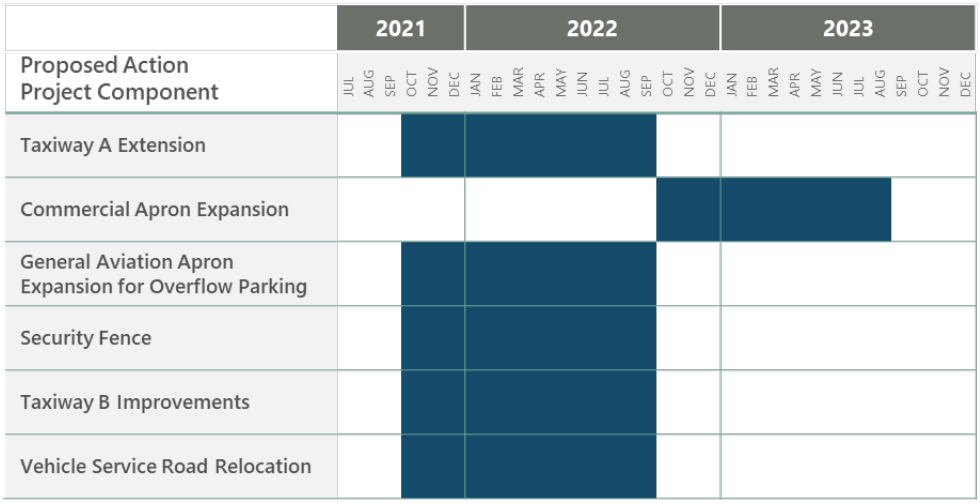
- Unconditional approval of the portions of the Airport Layout Plan (ALP) depicting the Proposed Action and it individual elements, pursuant to 49 U.S.C. §§ 40103(b), 44718, and 47107(a)(16); 14 CFR Part 77, *Safe, Efficient Use and Preservation of the Navigable Airspace*; and 14 CFR Part 157, *Notice of Construction, Alteration, Activation, and Deactivation*; and 14 CFR Part 139.
- Determinations under 49 U.S.C. §§ 47106 and 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP) and/or under 49 U.S.C. § 40117, as implemented by 14 CFR 158.25, to impose and use passenger facility charges (PFCs) collected at the Airport for the Proposed Action to assist with design and construction of potentially eligible development items shown on the ALP.
- Determination of eligibility for federal assistance and further processing of applications for federal assistance for the eligible components of the Proposed Project under the federal grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (49 U.S.C. § 47101, et. seq.).

The Monroe County Board of County Commissioners (BOCC) acknowledges that an environmental finding by the FAA does not constitute funding approval. The BOCC will apply for a funding grant for eligible portions of the Proposed Action subsequent to a favorable environmental finding.

1.7 TIMEFRAME OF THE PROPOSED ACTION

Construction of the Proposed Action is estimated to begin in October 2021 and be complete by August 2023, as shown on **Exhibit 1-7**.

EXHIBIT 1-7 ESTIMATED CONSTRUCTION PHASING



NOTE: As discussed in Section 1.3, the analysis in this NEPA document uses an aviation forecast prepared before the COVID-19 public health emergency began. This forecast is included to provide a conservative estimate of potential environmental impacts of the Proposed Action. FAA forecast approval was based on the methodology, data, and conclusions at the time the document was initiated. However, it is necessary to acknowledge the impacts of the COVID-19 public health emergency on aviation activity, including reduced confidence in growth projections using currently available data.

SOURCE: Monroe County, Key West International Airport, November 2019.

2. ALTERNATIVES

This chapter summarizes the screening process that was used to identify, compare, and evaluate alternatives to the Proposed Action. In accordance with FAA Orders 5050.4B and 1050.1F, alternatives can be eliminated from further consideration if they do not fulfill the Purpose and Need for the Proposed Action or cannot be reasonably implemented.

The following sections describe the process for identifying alternatives and determining which alternatives would reasonably satisfy the purpose of, and need for, the Proposed Action. Alternatives that satisfy the evaluation criteria are then carried forward for analysis of environmental consequences.

2.1 IDENTIFICATION OF POTENTIAL ALTERNATIVES

The Airport Sponsor considered the alternatives shown on **Exhibit 2-1**. Alternatives were considered for each of the four key needs for the Proposed Action: taxiway, commercial apron, GA apron, and security fencing. The No Action Alternative is included pursuant to NEPA and for purposes of evaluating and comparing potential environmental consequences of alternatives.

2.1.1 TAXIWAY ALTERNATIVES

Taxiway access to the Runway 9 end could be provided on either the north or south side of Runway 9-27:

- **Extend Taxiway A 274 Feet to the End of Runway 9 (Proposed Action):** Extend Taxiway A 274 feet to the west to connect to the Runway 9 end of pavement. Extending Taxiway A would not result in a significant change in aircraft movements on the airfield.
- **Taxiway Alternative – Construct Full-Length Parallel Taxiway on North Side of Runway:** Construct a full-length parallel taxiway north of Runway 9-27 to provide access to the Runway 9 end of pavement. Aircraft accessing the Runway 9 end via the new parallel taxiway would need to cross Runway 9-27 to access the new taxiway.

2.1.2 COMMERCIAL APRON EXPANSION ALTERNATIVES

Proximity between the expanded commercial apron and the passenger terminal must be maintained, so viable alternatives are limited to locations adjacent to the existing passenger terminal building. Therefore, the commercial apron could be expanded to either the east or west side of the existing apron. Expansion to the north is constrained by the Airport's runway and taxiway facilities, and expansion to the south is constrained by the passenger terminal facilities. The commercial apron could be expanded to the east or west:

- **Expand Commercial Apron to East (Proposed Action):** Expand the commercial apron to the east by constructing new apron pavement connected to the existing commercial apron, thereby retaining proximity to the passenger terminal. The expanded commercial apron would provide eight ADG III parking positions for commercial aircraft as well as apron area to accommodate CBP inspections, cargo operations, and irregular operations. Eastern expansion of the commercial apron would not result in a significant change in aircraft movements on the airfield.

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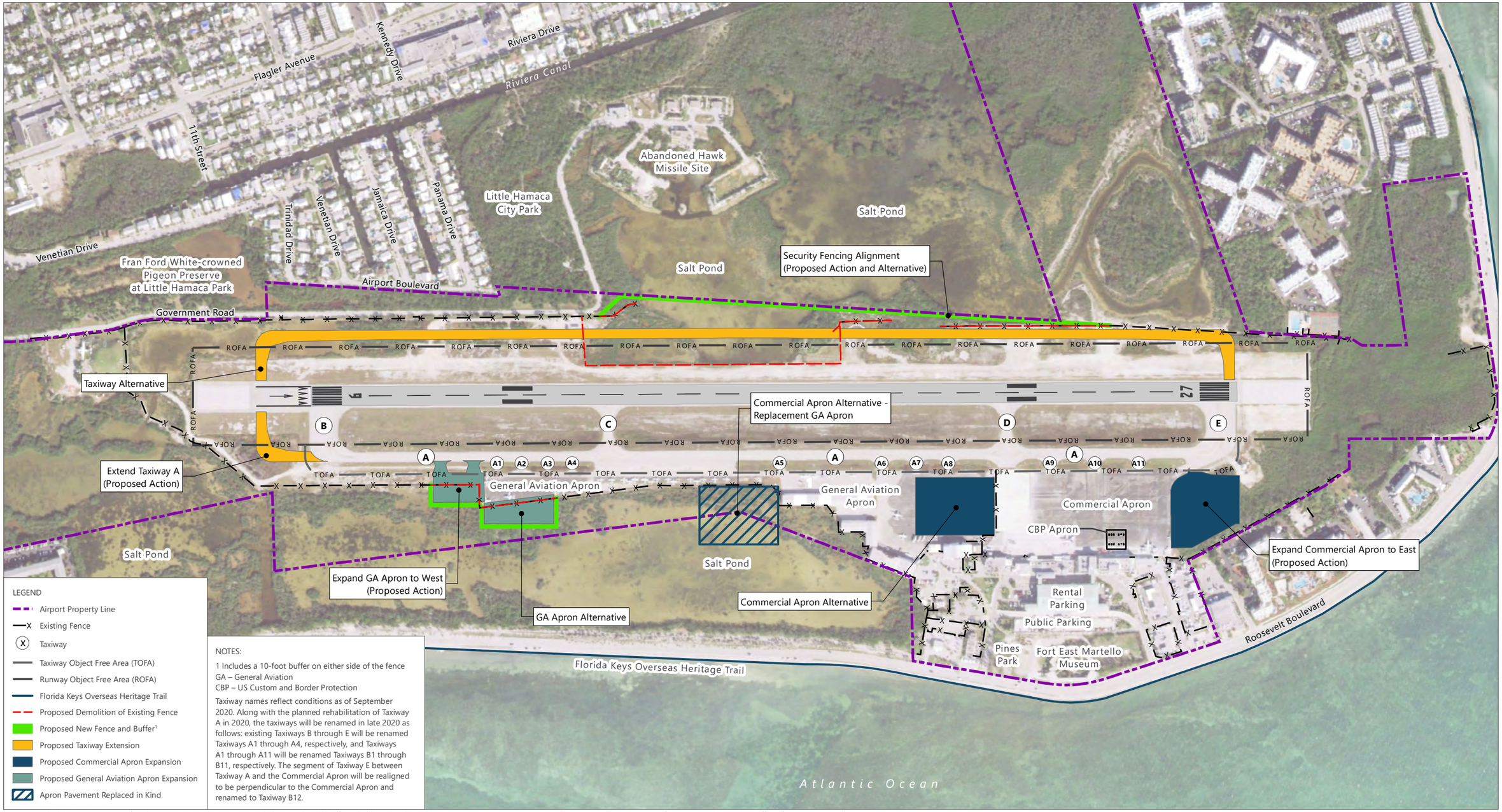

SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Florida Department of Environmental Protection, Office of Greenways & Trails, June 2018 (trail); Ricondo & Associates, Inc., January 2020 (alternatives, property line, runway, ROFA, TOFA, fence).

EXHIBIT 2-1

ALTERNATIVES

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- **Commercial Apron Alternative – Expand Commercial Apron to West:** Expand the commercial apron to the west by converting existing GA apron pavement to commercial apron. Similar to the Proposed Action, this alternative could accommodate eight ADG-III parking positions on the existing commercial apron pavement[1] with the converted commercial apron pavement to the west accommodating a CBP position, cargo aircraft, and irregular operations. This alternative requires replacement of the GA apron, which would occur on the south side of Runway 9-27 adjacent to existing GA apron facilities. Additionally, although not included in the replacement GA apron footprint shown on Exhibit 2-1, this alternative would also require the relocation of the Airport's fixed base operator (FBO) maintenance hangar and office adjacent to the replacement apron and possibly relocation of a portion of private GA hangars west of the FBO. Given the lack of developable land adjacent to existing GA apron area, this alternative would involve the placement of fill in wetlands and the salt pond, as illustrated by the replacement GA apron footprint shown on Exhibit 2-1. Western expansion of the commercial apron and relocation of GA apron and the FBO maintenance hangar, FBO offices, and private hangars would affect aircraft operations on the airfield, and facility relocations would affect GA businesses operating at EYW.

2.1.3 GENERAL AVIATION APRON EXPANSION ALTERNATIVES

GA apron locations must have taxiway access to the runway ends. The existing GA apron is constrained by the commercial apron to the east (which must be located adjacent to the passenger terminal) and the runway and taxiway facilities to the north, so the apron cannot be expanded either north or east. No taxiways are located on the north side of Runway 9-27 to serve a north side GA apron. Furthermore, a full-length parallel taxiway north of Runway 9-27 was considered as part of this analysis (see Taxiway Alternative 2). Insufficient area on Airport property would be available north of a new parallel taxiway to accommodate a GA apron, with the exception of area north of the Runway 27 end. This area, however, is a mangrove wetland mitigation site and was not considered a viable alternative for apron development. Options to expand the GA apron to the west or south are discussed below.

- **Expand GA Apron to West (Proposed Action):** Expand the GA apron to the west by constructing new apron pavement and connector taxiways to Taxiway A. The parking configuration shown on Exhibit 1-6 illustrates the ability to accommodate seven new GA aircraft parking positions on the expanded ramp. West expansion of the GA apron would not result in a significant change in aircraft movements on the airfield.
- **GA Apron Alternative – Expand GA Apron to South:** Expand the GA apron to the south by constructing new apron pavement connected to the existing GA apron (using the existing connector taxiways to Taxiway A). Although a parking plan was not developed for this alternative, it provides the same square footage of apron as the Proposed Action and can be configured to accommodate approximately seven GA parking positions, which would be defined in consideration with aircraft parking positions on the adjacent existing apron. This alternative would not result in a significant change in aircraft movements on the airfield.

2.1.4 SECURITY FENCING ALTERNATIVES

Security fencing alignments outside the ROFA and within the northern perimeter of Airport property require the placement of fencing in mangrove wetlands and in the salt pond north of the Airport. No fencing alternatives that avoided on-land mangrove habitats were identified, however, alternatives that would minimize habitat impacts by closing gaps along the existing fenceline while maintaining existing water flow, rather than constructing a new

[1] The aircraft parking plan defined for the Proposed Action on Exhibit 1-5 would be shifted west to accommodate an ADG-III taxilane on the east side of the existing apron pavement.

fenceline along the Airport's northern perimeter were considered reasonable. Options to provide the required security fencing are discussed below:

- **Security Fencing Alternative – Install Fencing though Salt Pond:** Install approximately 860 linear feet of barrier across open water of the salt pond north of Runway 9-27, from the bottom of the salt pond to the necessary height above the waterline. Fencing systems such as stainless steel chain link fabric can be installed below the surface of water to the salt pond bottom. This type of system would allow water to flow through the fencing barrier; however, it would present a barrier to some aquatic species in the salt pond and impact bottom habitat. Additionally, under water barriers tend to collect debris that requires routine maintenance.
- **Install Floating Fencing System across Salt Pond (Proposed Action):** Install approximately 860 linear feet of barrier across the open water of the salt pond north of Runway 9-27, floating above the water line with support elements to the bottom of the salt pond as needed. Fencing at and above the waterline would minimize impacts to the salt pond bottom habitat, as well as to the flow of water and aquatic species in the salt pond.

2.1.5 NO ACTION ALTERNATIVE

None of the improvements would be implemented to eliminate back-taxiing to the Runway 9 end, reduce apron congestion, or improve Airport security under this alternative.

2.2 SCREENING PROCESS AND EVALUATION CRITERIA

A three-step screening process was used to evaluate the Proposed Action and alternatives against the following criteria.

STEP 1: Purpose and Need – The alternative must meet the Purpose and Need described in Section 1.4 of this EA to be considered further. If the alternative did not meet this criterion, it was eliminated from further consideration. To meet the Purpose and Need, the alternative would need to address one of the following factors:

- provide taxiway access to the full Runway 9 departure length (applicable to taxiway alternatives)
- provide additional commercial apron (applicable to commercial apron expansion alternatives)
- provide additional GA apron (applicable to GA apron expansion alternatives)
- improve security fencing along the north perimeter of the airfield (applicable to security fencing alternatives)

STEP 2: Practicable to Construct and Operate – To be considered practicable, the alternative must be available and capable of being constructed and operated after taking into consideration cost, existing technology, and logistics.[2] In other words, the alternative must be reasonable to construct and operate given the logistics associated with the existing operational setting and physical constraints of the Airport, and construction costs must be reasonable in comparison to other similar actions. For example, the alternative should avoid displacing existing Airport operations or introducing new runway crossings.

STEP 3: Unavoidable Impacts to Waters of the United States – The majority of undeveloped Airport land is designated as Waters of the United States (that is, surface waters and wetlands). Therefore, the alternative must demonstrate that impacts to Waters of the United States are minimized in accordance with Executive Order 11990, *Protection of Wetlands*, and US Department of Transportation Order 5660.1A, *Preservation of the Nation's Wetlands*.

[2] 40 CFR 230.10(a)(2).

Under the three-step process, each alternative was evaluated first under the Step 1 criteria. Those alternatives meeting the Step 1 evaluation of Purpose and Need were then evaluated under Step 2 to determine whether the alternative would be practicable to construct and operate and under Step 3 to determine whether the alternative would avoid and/or minimize impacts to Waters of the United States. Alternatives eliminated under Steps 1, 2, or 3 were not subject to detailed evaluation as part of this EA, with the exception of the No Action Alternative, which was evaluated pursuant to NEPA, as implemented by CEQ regulations (40 CFR 1502.14).

2.3 EVALUATION RESULTS

The Proposed Action and its alternatives were first screened to evaluate whether they met the Purpose and Need screening criteria. Those that did were carried forward to Step 2 and Step 3 evaluations. **Table 2-1** presents the results of the three-step evaluation process, including discussions of why alternatives passed or failed the criteria defined for screening the alternatives. As shown in the table, only the elements of the Proposed Action (that is, extending Taxiway A 274 feet to the end of Runway 9, expanding the commercial apron to the east, expanding the GA apron to the west, and installing a floating fencing system across the salt pond) passed the screening criteria.

2.4 ALTERNATIVES CARRIED FORWARD FOR DETAILED EVALUATION

2.4.1 NO-ACTION ALTERNATIVE

As previously noted, CEQ regulations and FAA Orders 1050.1F and 5050.4B require analysis of a no action alternative in assessing environmental consequences. Under the No Action Alternative, the Proposed Action would not be implemented. The County would continue to maintain and operate the airport in its present state. The environmental impacts associated with the Proposed Action would not occur if the No-Action Alternative was implemented. Although this alternative would not satisfy the purpose of and need for the Proposed Action, it was retained for further detailed evaluation in this EA in accordance with NEPA requirements and 40 CFR 1502.14(d).

2.4.2 SPONSOR'S PREFERRED ALTERNATIVE

The Proposed Action, the Airport Sponsor's preferred alternative, met the Step 1, 2, and 3 screening criteria and will be carried forward for detailed environmental analysis in Section 4. The following components of the Proposed Action will be evaluated as a single project in this EA:

- Extend Taxiway A 274 feet to the end of Runway 9
- Expand Commercial Apron to East
- Expand GA Apron to West
- Install Security Fencing including Floating Fencing System across Salt Pond

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TABLE 2-1 (1 OF 2) ALTERNATIVES EVALUATION

EVALUATION STEP:	1 – PURPOSE AND NEED		2 – PRACTICABLE TO CONSTRUCT AND OPERATE		3 – UNAVOIDABLE IMPACTS TO WATERS OF THE UNITED STATES			RETAINED FOR FURTHER ANALYSIS IN THE EA
SCREENING CRITERIA:	Does the alternative satisfy Purpose and Need criteria?		Is the alternative practical to construct and operate?		Alternative must demonstrate that impacts to Waters of the United States are minimized in comparison to The Proposed Action and other reasonable alternatives			
PROPOSED ACTION AND ALTERNATIVE	EVALUATION	PASS / FAIL	EVALUATION	PASS / FAIL	EVALUATION [1]	DOES ALTERNATIVE MINIMIZE EFFECTS COMPARED TO OTHER ALTERNATIVES?	PASS / FAIL	
Taxiway	Provides taxiway access to the end of Runway 9?							
Extend Taxiway A 274 feet to the End of Runway 9 (Proposed Action)	Yes	Pass	▪ Reasonable to construct and operate	Pass	0.46 acres of Waters of the United States impacted, comprising: ▪ 0.16 acres of mangrove swamp ▪ 0.30 acres of saltwater marsh	Yes	Pass	YES
Taxiway Alternative – Construct Full-Length Parallel Taxiway on North Side of Runway	Yes	Pass	Not practical due to logistics and cost considerations: ▪ Requires a runway crossing to access taxiway, which is not operationally desirable as FAA practice is to minimize runway crossings to the extent possible ▪ At over 5,000 feet in length, alternative provides an excessive amount of pavement to achieve 274-foot gap in taxiway length and is not considered reasonable from a cost standpoint	Fail	3.69 acres of Waters of the United States impacted, comprising: ▪ 0.56 acres of saltwater marsh ▪ 1.40 acres of mangrove swamp ▪ 1.73 acres of salt pond/embayments	No	Fail	No
Commercial Apron Expansion	Provides additional commercial apron?							
Expand Commercial Apron to East (Proposed Action)	Yes	Pass	▪ Reasonable to construct and operate	Pass	2.28 acres of Waters of the United States impacted, comprising: ▪ 0.55 acres of saltwater marsh ▪ 1.65 acres of mangrove swamp ▪ 0.08 acres of exotic wetland hardwoods	Yes	Pass	YES
Commercial Apron Alternative – Expand Commercial Apron to West	Yes	Pass	Not practical due to logistics and cost considerations: ▪ GA apron operations would be relocated to a new site that would be disruptive to GA operations ▪ Construction costs associated with replacing existing GA FBO maintenance hangar and office and potentially replacing existing private GA hangars would not be reasonable in comparison to the Proposed Action	Fail	2.81 acres of Waters of the United States impacted, comprising: ▪ 2.20 acres of salt ponds/embayments ▪ 0.60 acres of mangrove swamp	No	Fail	No
GA Apron Expansion	Provides additional GA apron?							
Expand GA Apron to West (Proposed Action)	Yes	Pass	▪ Reasonable to construct and operate	Pass	0.91 acres of Waters of the United States impacted, comprising: ▪ 0.31 acres of mangrove swamp ▪ 0.60 acres of saltwater marsh	Yes	Pass	YES
GA Apron Alternative – Expand GA Apron to South	Yes	Pass	▪ Reasonable to construct and operate	Pass	0.99 acres of Waters of the United States impacted, comprising: ▪ 0.85 acres of mangrove swamp ▪ 0.14 acres of saltwater marsh	No	Fail	No
Security Fencing	Improves security fencing along the north perimeter of the airfield?							
Security Fencing Alternative – Install Fencing through Salt Pond	Yes	Pass	▪ Reasonable to construct and operate	Pass	▪ Maintains salt pond water flow connectivity at Airport property line ▪ Limits connectivity for aquatic species in salt pond waters ▪ Affects the benthic habitat along the full length of the fenceline	No	Fail	No
Install Floating Fencing System across Salt Pond (Proposed Action)	Yes	Pass	▪ Reasonable to construct and operate	Pass	▪ Maintains salt pond water flow connectivity at the Airport property line ▪ Maintains connectivity for aquatic species in salt pond waters ▪ Affects benthic habitat at support elements along the length of the fenceline	Yes	Pass	YES

TABLE 2-1 (2 OF 2) ALTERNATIVES EVALUATION

EVALUATION STEP:	1 – PURPOSE AND NEED		2 – PRACTICABLE TO CONSTRUCT AND OPERATE		3 – UNAVOIDABLE IMPACTS TO WATERS OF THE UNITED STATES			RETAINED FOR FURTHER ANALYSIS IN THE EA
SCREENING CRITERIA:	Does the alternative satisfy Purpose and Need criteria?		Is the alternative practical to construct and operate?		Alternative must demonstrate that impacts to Waters of the United States are minimized in comparison to The Proposed Action and other reasonable alternatives			
PROPOSED ACTION AND ALTERNATIVE	EVALUATION	PASS / FAIL	EVALUATION	PASS / FAIL	EVALUATION [1]	DOES ALTERNATIVE MINIMIZE EFFECTS COMPARED TO OTHER ALTERNATIVES?	PASS / FAIL	
No-Action Alternative	Meet Purpose and Need for project?							
Proposed Action would not be implemented	No	N/A[2]	▪ No construction and associated construction costs required to implement alternative ▪ Operational inefficiencies would remain related to inefficient access to Runway 9 end, continued congestion and operational challenges on the commercial apron, and nonstandard fencing along the north perimeter of the airfield	N/A[2]	▪ Would not impact surface waters or wetlands	Yes	**Pass**	**YES** [2]

NOTES:
GA – General Aviation
EA – Environmental Assessment
FAA – Federal Aviation Administration
FBO – Fixed Base Operator
1 Wetland impact areas are approximate, and totals may not add due to rounding. The areas are based on direct project footprint impacts; they do not include areas to be graded and connected actions that would be consistent across alternatives.
2 Although the No Action Alternative does not meet the Step 1 and Step 2 screening criteria, the alternative was retained for consideration of environmental consequences pursuant to Title 40 Code of Federal Regulations 1502.14(d).
SOURCES: Ricondo & Associates, Inc., October 2019 (overall analysis); Birkitt Environmental Services, Inc., November 4, 2019 (wetland impacts); Birkitt Environmental Services, Inc., January 13, 2020 (wetland impacts); Birkitt Environmental Services, Inc., March 23, 2020 (wetland impacts).

3. AFFECTED ENVIRONMENT

In accordance with FAA Orders 1050.1F and 5050.4B, the affected environment encompasses those areas that could be directly, indirectly, or cumulatively affected by implementation of the Proposed Action. Direct effects are those that occur at the same time and place as the action, such as impacts caused by construction or ground disturbance. Indirect effects are those that are caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable. Cumulative impacts result from incremental effects of an action, when viewed in combination with past, present, and reasonably foreseeable future federal and non-federal projects (40 CFR Part 1508). This chapter identifies the geographic areas potentially affected by the Proposed Action, the environmental resources that do not have the potential to be affected by the Proposed Action, and the existing conditions for potentially affected resources.

3.1 IDENTIFICATION AND DESCRIPTION OF STUDY AREAS

A Direct Study Area and an Indirect Study Area, shown on **Exhibit 3-1**, were identified to assess potential effects of the Proposed Action and No Action Alternative on most environmental resource categories. The Direct Study Area encompasses areas of direct, physical impact, such as ground disturbance and fence removal associated with construction of the Proposed Action. The Direct Study Area is completely within the Airport property boundary. An Indirect Study Area was defined to identify areas that may be affected due to changes in aircraft operations. The Indirect Study Area extends beyond Airport property to encompass areas affected by aircraft noise (see Section 3.13 for a discussion of aircraft noise). For some resource categories, different study areas were required to capture and assess the full effects of the Proposed Action. For example, Monroe County was the study area used for the air quality analysis. Finally, two environmental categories have specific study areas: biological and wetland resources (discussed in Sections 3.5 and 3.16.1); and historical, architectural, archeological, and cultural resources (discussed in Section 3.10). These specific study areas are presented in their respective sections of this chapter.

3.2 ENVIRONMENTAL RESOURCES NOT PRESENT

Two environmental resource categories were eliminated from further consideration because they do not exist within the Direct and Indirect Study Areas:

- Farmlands – No prime or unique farmlands are present in Monroe County.
- Wild and Scenic Rivers – No Wild and Scenic Rivers are present in Monroe County. The nearest designated Wild and Scenic River is the Loxahatchee River in Jupiter, Florida, located approximately 195 miles northeast of the Direct and Indirect Study Areas.

3.3 REGULATORY SETTING

Federal activities affecting the environment are governed by various statutes, regulations, and executive orders. **Appendix B** provides an overview, by resource category, of the major federal, state, and local statutes, regulations, and orders, and the agencies responsible for overseeing their implementation, that may be applicable to the Proposed Taxiway A Extension, Apron Expansion, and Security Fencing Improvements at EYW.

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SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); Ricondo & Associates, Inc., January 2020 (study areas).

NORTH 0 1,100 ft

EXHIBIT 3-1

STUDY AREAS

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3.4 AIR QUALITY

Under the federal Clean Air Act (CAA), as amended, the US Environmental Protection Agency (USEPA) developed National Ambient Air Quality Standards (NAAQS) for the following air pollutants, referred to as criteria air pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), lead (Pb), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Air quality regions that meet the NAAQS for a criteria pollutant are designated as being in attainment. Areas that do not meet the NAAQS for one or more criteria pollutant are designated by the USEPA as nonattainment areas. The State of Florida established state ambient air quality standards in 1996; however, these standards were appealed in February 2012.[1] Therefore, no state ambient air quality standards are applicable to actions at the Airport. See Table B-1 in Appendix B for additional information on the regulatory setting for air quality.

Based on the USEPA Criteria Pollutant Nonattainment Summary Report, as of May 31, 2020, Monroe County, the study area for air quality, is in an area of attainment for all NAAQS air pollutants.[2]

The Florida Department of Environmental Protection (FDEP) Office of Air Monitoring is responsible for coordinating the ambient air quality monitoring program in Florida and for making sure the monitors meet federal requirements. The FDEP network does not include any ambient air monitoring sites in Monroe County.[3]

3.5 BIOLOGICAL RESOURCES

This section is organized to present a discussion of species and habitats in the Biological Study Area, encompassing areas of project development and interconnected habitats, and the Focused Biological Study Area, encompassing areas of ground disturbance associated with the Proposed Action. The discussion of biological resources focuses on those identified as endangered or threatened by federal or state statutes. See Table B-2 in Appendix B for additional information on the regulatory setting for biological resources.

A Biological Assessment (BA) of federal and state protected species was prepared for the Proposed Action and is provided in **Appendix C**. The assessment was accomplished by identifying protected species with the potential to occur within the Biological Study Area, shown on **Exhibit 3-2**, that was defined to capture areas of interconnected habitat. The Biological Study Area represents the "Action Area" to be considered for direct and indirect effects on biological resources per 50 CFR 402.02 The assessment included a literature review of the Biological Study Area and a field survey of the Focused Biological Study Area, shown on **Exhibit 3-3**. Based on further analysis of the Proposed Action, a Focused Biological Study Area was defined to encompass areas of ground disturbance where direct and indirect impacts on biological resources are expected to occur. The Focused Biological Study Area was defined to support field surveys before the security fence alignment was confirmed along the northern perimeter of Airport property, and, therefore, included area between the existing fence alignment and the Airport property line long the northern perimeter of the Airport. The field survey was conducted between September 17 and September 19, 2019,

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[1] Florida Department of State, Florida Administrative Code & Florida Administrative Register, https://www.flrules.org/gateway/RuleNo.asp?title=AIR%20POLLUTION%20CONTROL%20-%20GENERAL%20PROVISIONS&ID=62-204.240 (accessed September 17, 2019).

[2] US Environmental Protection Agency, *Criteria Pollutant Nonattainment Summary Report*, https://www3.epa.gov/airquality/greenbook/ancl3.html (accessed June 25, 2020).

[3] Florida Department of Environmental Protection, *2019 Annual Ambient Air Monitoring Network Plan*, Figure 1.1, "2019 Site Locations for Florida's Ambient Air Monitoring Network," June 2019.

SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); South Florida Water Management District, 2016 (Florida land use, covers, and form classification system areas); Ricondo & Associates, Inc., January 2020 (study area).

NORTH 0 1,100 ft

EXHIBIT 3-2

GENERALIZED LAND USES AND HABITATS WITHIN BIOLOGICAL STUDY AREA

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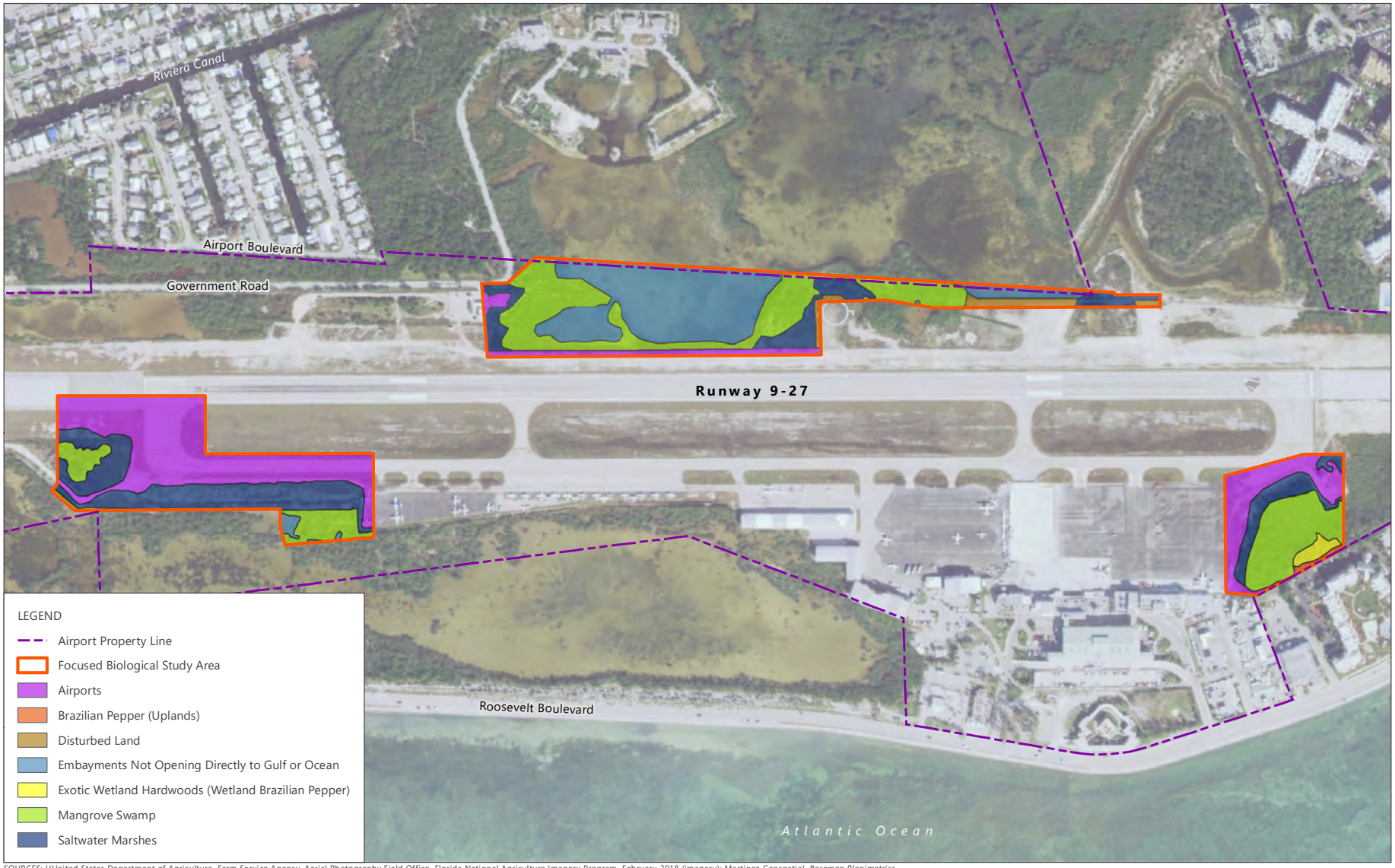

SOURCES: UUnited States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); Birkitt Environmental Services, Inc., Pedestrian Qualitative Survey, September 17–19, 2010 (habitats, focused biological study area).

NORTH 0 600 ft

EXHIBIT 3-3

GENERALIZED LAND USES AND HABITATS WITHIN FOCUSED BIOLOGICAL STUDY AREA

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to generally confirm biological and/or natural resources within the Biological Study Area and the identify the specific resources within the Focused Biological Study Area. The BA determined whether protected species habitats were present within the Biological Study Area, and any use of such habitat, for example, for foraging or nesting.

3.5.1 LAND USE AND VEGETATIVE COVER

Exhibit 3-2 and Exhibit 3-3 show the generalized land uses and habitats within the Biological Study Areas. Land uses include Airport facilities, single- and multi-family residential housing, commercial, institutional, roads and highways, and disturbed land. Much of the urban and built-up areas surrounding the Airport are residential to the north with several hotels and apartment buildings to the east.

All habitats within the Biological Study Area were assigned a Florida Land Use, Covers and Form Classification System (FLUCFCS) code based on data obtained from the South Florida Water Management District (SFWMD). The resulting information was used to describe existing land use, vegetative cover, and landforms in the Biological Study Area. Land use and vegetative cover within the Focused Biological Study Area were refined during field surveys conducted September 17 through 19, 2019. Habitats were mapped and assigned a FLUCFCS code. As a result of this refinement, some portions of the area designated by SFWMD as Airports (FLUCFCS Code 811) were mapped as Saltwater Marsh (FLUCFCS Code 642). This refinement resulted in an increase in the acreage of saltwater marsh habitat in the Focused Biological Study Area in comparison to what FLUCFCS data from SFWMD identified for the larger Biological Study Area, which was not updated, as the entire Biological Study Area was not field surveyed. **Table 3-1** lists the acres of land uses by FLUCFCS code for the Biological Study Areas.

Several salt ponds are located within and adjacent to the northern, southern, and western portions of the Biological Study Area. These shallow, high salinity, un-vegetated ponds are not directly connected to surrounding ocean waters but may have some tidal influence with salinity fluctuation dependent upon rainfall. The interior of the tidally connected or influenced ponds contains sparsely distributed seagrasses, primarily turtle grass (*Thalassia testudinum*), along with several species of macroalgae.

Mangrove swamps are coastal wetlands characterized by one or more of three tropical species of mangroves: red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), and white mangrove (*Laguncularia racemose*). Mangroves are found along the coastline of south Florida and the Keys. In Florida, it is estimated that the four southern counties (Lee, Collier, Miami-Dade, and Monroe) contain 90 percent of the mangroves in the state. Mangrove ecosystems provide valuable natural environment for a wide variety of amphibians, birds, fish, invertebrates, mammals, and reptiles.[4] Mangrove swamps are present along salt pond peripheries in the Biological Study Area and surround the Airport to the north, south, east, and west. These mangrove swamps contain a mix of red and black mangroves within the deeper portion of the wetlands and both white mangroves and buttonwood at higher elevations. Because of the dense canopy of mangroves in these areas, there is little to no understory species. The outer portions of mangrove communities adjacent to the Airport terminal contain significant coverage of Brazilian pepper, which is a Category I invasive exotic species per the Florida Exotic Pest Plant Council 2019 Invasive Plant List. Open waters and mangrove swamp habitat north of the airfield is tidally connected via a canal and culvert located west of the runway.

[4] Odum, W. E. and C. C. McIvor, "Mangroves," In R. L. Myers and J. J. Ewel (Eds.), in *Ecosystems of Florida*, Orlando: University of Central Florida Press, 1990, pp. 517–548.

TABLE 3-1 FLORIDA LAND USE, COVERS AND FORM CLASSIFICATION SYSTEM CODES WITHIN THE BIOLOGICAL STUDY AREAS

FLUCFCS CODES	DESCRIPTION	ACRES WITHIN BSA	ACRES WITHIN FOCUSED BSA
Uplands			
811	Airports	124.0	8.8
740	Disturbed Land	20.6	0.6
422	Brazilian Pepper (upland)	0.0	0.1
170	Institutional	12.4	
420	Upland Hardwood Forests	7.7	
814	Roads and Highways	4.9	
185	Parks and Zoos	4.6	
134	Multiple Dwelling Units, High Rise	2.4	
320	Upland Shrub and Brushland	1.5	
181	Swimming Beach	1.1	
330	Mixed Rangeland	0.5	
140	Commercial and Services	0.3	
121	Fixed Single-Family Units	0.2	
Wetlands			
612 – Mangrove Swamp	E2FO3N – Estuarine, Intertidal, Forested, Broad-leaved Evergreen, Regularly Flooded	114.0	8.3
542 – Salt Ponds/Embayments Not Opening Directly to Gulf or Ocean	E1UB2 – Estuarine, Subtidal, Unconsolidated Bottom, Sand	93.5	6.3
642 – Saltwater Marshes	E2EM1 – Estuarine, Intertidal, Emergent, Persistent	2.9	6.5
619 – Exotic Wetland Hardwoods (Wetland Brazilian Pepper)	E2FO3P – Estuarine, Intertidal, Forested, Broad-leaved Evergreen, Irregularly Flooded	0.0	0.3
541 – Embayments Opening Directly to Gulf or Ocean	E1UB2 – Estuarine, Subtidal, Unconsolidated Bottom, Sand	1.1	
512 – Channelized Waterways, Canals	E1UB2 – Estuarine, Subtidal, Unconsolidated Bottom, Sand	0.3	
Total Acres		**392.0**	**30.9**

NOTES:
BSA – Biological Study Area
FLUCFCS – Florida Land Use, Covers and Forms Classification System
SOURCES: South Florida Water Management District, 2016; Birkitt Environmental Services, Inc., September 2019.

Saltwater marsh habitat is found directly adjacent to the periphery of the on-Airport mangrove swamps, extending from the mangrove border to adjacent upland areas. This habitat is dominated by saltwater marsh grasses with moderate coverage of cattails (*Typha spp*.) directly west of the runway. Much of the saltwater marsh habitat present within the Focused Biological Study Area is maintained via mowing.

Wetlands and open water within the Focused Biological Study Area are connected to adjacent tidal waters via culverts except for the minimal area of clearing for the security fence, which has a natural connection through limited tidal channels within a mangrove system.

3.5.2 PROTECTED PLANT SPECIES

A desktop assessment for federal and state protected plant species was conducted to determine the potential for protected plant species inhabiting the Biological Study Area. The analysis was performed using data from the US Fish and Wildlife Services (USFWS) online Information for Planning and Consultation (IPaC) system, a site-specific report from the Florida Natural Areas Inventory (FNAI), and National Marine Fisheries Service (NMFS) Areas of Critical Habitat and protected species listings, data, and maps. Federal and state protected plant species with the potential to occur within the Biological Study Area are listed in **Table 3-2** and **Table 3-3**, respectively. All federal special status plant species listed in Table 3-2 are also considered protected by the State of Florida. A total of 11 federal and state protected plant species, along with an additional 5 state-only protected species, were identified with the potential to occur within the Biological Study Area. The results of the assessment were further refined based on habitats identified during the field survey. As identified in Tables 3-2 and 3-3, three federal and state protected plant species and two additional state-only protected species have habitat within the Focused Biological Study Area. None of these listed plant species were observed in the Focused Biological Study Area during the field survey.

3.5.3 WILDLIFE SPECIES AND HABITAT

The forested and herbaceous upland and wetland areas within the Biological Study Area provide suitable habitat for various species of snakes, wading birds, birds of prey, songbirds, and mammals (for example, mice and raccoons). The existing mangrove swamps, saltwater marsh habitats, open water ponds, and tropical hardwood hammock located within the Biological Study Area provide moderate quality habitat for wildlife species. A conservation area, the Fran Ford White-crowned Pigeon Preserve at Little Hamaca Park is within the Biological Study Area, about 400 feet north of the active airfield. Connections to other adjoining habitats are fragmented and disrupted by roads, adjacent development, and security fencing along the perimeter of the Airport, which affect the quality of habitat in the Biological Study Area. Additionally, portions of the Biological Study Area are within and adjacent to the AOA, within which wildlife management techniques are employed consistent with the Airports' Wildlife Hazard Management Plan to support safe aircraft operations. The habitat fragmentation and wildlife deterrent activities further affect the on-Airport portions of habitats in the Biological Study Area.

Mammals were not encountered during the field surveys of the Biological Study Area; however, there is the potential that these habitats are utilized by small mammals, including raccoons and rodents. Tidally inundated portions of the on-site saltwater marsh and mangrove swamp habitats may also be utilized by federal or state listed wading birds. The on-site salt ponds are also likely used by federal or state listed wading bird species. According to a review of Florida Fish and Wildlife Conservation Commission- (FFWCC-) documented wading bird rookery data, no rookeries have been identified within the Biological Study Area, with the nearest rookery located approximately 4.1 miles to the northeast. In addition, based on wood stork active colonies and Core Foraging Area (CFA) data obtained from the USFWS, the Biological Study Area is not located in a CFA; the nearest documented nesting colony is over 75 miles to the northeast.

Special Status Species and Critical Habitat

The Biological Study Areas were evaluated for the occurrence of critical habitat designated in 17 CFR 35.1532 for federal species and critical habitat proposed by the USFWS. No designated or proposed critical habitat for any federally listed species occurs within the Biological Study Area. Critical habitat for elkhorn and staghorn coral (*Acropora spp.*) and the loggerhead sea turtle (*Caretta caretta*) is near the Airport in water south of Roosevelt Boulevard. The Biological Study Area is within the USFWS consultation area for the American crocodile (*Crocodylus acutus*) and piping plover (*Charadrius melodus*).

TABLE 3-2 FEDERAL PROTECTED PLANT SPECIES POTENTIALLY OCCURRING IN THE BIOLOGICAL STUDY AREA

COMMON NAME (SCIENTIFIC NAME) [1]	FEDERAL STATUS	HABITAT	HABITAT PRESENT IN FOCUSED BIOLOGICAL STUDY AREA	SPECIES OBSERVED DURING FIELD SURVEY [2]
Blodgett's wild mercury (*Argythamnia blodgettii*)	T	Pine barrens, wet margins of hammocks	No	No
Florida semaphore cactus (*Opuntia corallicola*)	E	Rocky hammocks, coastal barrens	Yes	No
Garber's spurge (*Chamaesyce garberi*)	T	Pine rocklands, coastal berm, coastal grasslands	Yes	No
Key tree cactus (*Pilosocereus robinii*)	E	Openings in tropical hardwood hammocks	No	No
Big Pine partridge pea (*Chamaecrista lineata keyensis*)	E	Pine rocklands	No	No
Cape Sable thoroughwort (*Chromoiaena frustrata*)	E	Coastal rock barrens/berms, sunny edges of rockland hammock	Yes	No
Everglades bully (*Sideroxulon reclinatum ssp. austrofloridense*)	T	Pine rocklands	No	No
Florida pineland crabgrass (*Digitaria pauciflora*)	T	Pine rocklands and marl prairie	No	No
Florida prairie-clover (*Dalea carthagenesis floridana*)	E	Pine rocklands, edges of rockland hammocks, coastal uplands, marl prairie	No	No
Sand flax (*Linum arenicola*)	E	Pine rocklands and marl prairie	No	No
Wedge spurge (*Chamaesyce deltoidea serpulrlum*)	E	Pine rocklands	No	No

NOTES:
T – Threatened
E – Endangered
1 Potential species obtained from US Fish and Wildlife Service online Information for Planning and Consultation system and critical habitat data.
2 Identifies whether the species was observed during the field survey conducted September 17 through 19, 2019.
SOURCE: Birkitt Environmental Services, Inc., *EYW Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment*, July 2020.

TABLE 3-3 ADDITIONAL STATE PROTECTED PLANT SPECIES POTENTIALLY OCCURRING IN THE BIOLOGICAL STUDY AREA

COMMON NAME (SCIENTIFIC NAME) [1]	STATE STATUS [2]	HABITAT	HABITAT PRESENT IN FOCUSED BIOLOGICAL STUDY AREA	SPECIES OBSERVED DURING FIELD SURVEY [3]
Rough strongback (*Bourreria radula*)	E	Pinelands, tropical hardwood hammock	No	No
Porter's broad-leaved spurge (*Chamaesyce porteriana*)	E	Coastal grasslands, coastal strand	Yes	No
Maidenberry (*Crossopetalum rhacoma*)	T	Pine rocklands, hammocks	No	No
West Indies mahogany (*Swietenia mahagoni*)	T	Maritime and rockland hammocks	No	No
Florida thatch palm (*Thrinax radiata*)	E	Hammocks, coastal strands, and shores	Yes	No

NOTES:
T – Threatened
E – Endangered
1 Potential species obtained from Florida Natural Areas Inventory.
2 All federal special status plant species listed in Table 3-2 are also considered protected by the State of Florida.
3 Identifies whether the species was observed during the field survey conducted September 17 through 19, 2019.
SOURCE: Birkitt Environmental Services, Inc., *EYW Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment*, July 2020.

For a species to potentially occur within the limits of the Biological Study Area, there must be appropriate habitat within the species range, and there must be enough habitat area for individual species to carry out reproduction, nesting, foraging, or resting activities. Based on the habitats present within the Biological Study Area and a review of the habitat requirements of federal and state special status wildlife species, along with the USFWS IPaC system and a site-specific report from FNAI (Appendix C), 16 federal threatened or endangered species have the potential to occur within the Biological Study Area. These species include 5 reptiles, 3 invertebrates, 4 birds, and 4 mammals. FAA consultation with NMFS for a prior project at EYW identified a concern that construction in mangrove swamps and adjoining waters may affect juvenile smalltooth sawfish (*Pristis pectinate*). Therefore, this fish species was included in this EA, increasing the total of potential federal threatened or endangered species with the potential to occur in the Biological Study Area to 17 species. Additional information on each species is provided in Appendix C.

Pursuant to the State Wildlife Code, federally listed species are considered protected by the State of Florida. In addition to the 16 federal threatened or endangered species, eight state special status species have the potential to occur within the Biological Study Area. Federal and state special status wildlife species (reptile, bird, fish, and invertebrate) with the potential to occur within the Biological Study Area are listed in **Table 3-4** and **Table 3-5**, respectively. Federal special status wildlife species are not repeated in Table 3-5 under the state listings. For additional details regarding listed species, refer to the BA in Appendix C.

The results of the protected wildlife species assessment were further refined based on habitats identified during field survey within the Focused Biological Study Area. This analysis excluded species reliant on habitats that are not present in the Focused Biological Study Area, including tropical hardwood hammock and pine rockland. As identified in Tables 3-4 and 3-5, a total of 10 federal special status wildlife species were determined to have the potential to inhabit the Focused Biological Study Area. In addition to the 10 federal special status species, six state-only listed wildlife species were identified to have the potential to inhabit the Focused Biological Study Area. Appendix C provides additional information on each of these species, none of which were observed during field surveys of the Focused Biological Study Area.

Migratory Birds

Ten bird species potentially occurring in the Biological Study Area are protected under the Migratory Bird Treaty Act (MBTA). They include the piping plover, red knot, roseate tern, wood stork, reddish egret, Florida burrowing owl, roseate spoonbill, tricolored heron, osprey, and white-crowned pigeon.

Essential Fish Habitat

Environmental scientists with knowledge of Essential Fish Habitat (EFH) requirements examined habitats within the Biological Study Areas during the field surveys conducted on September 17 through 19, 2019. Based on this assessment, three habitat types present within the Biological Study Area have the potential to provide EFH, including mangrove swamps, saltwater marshes, and salt ponds/embayments.

Pursuant to the South Atlantic Fishery Management Council and Gulf of Mexico Fishery Management Council, mangrove-dominated wetlands are considered EFH for several managed species, including adult white grunt (*Haemulon plumieri*), juvenile and adult gray snapper (*Lutjanus griseus*), and juvenile mutton snapper (*Lutjanus analis*). Mangroves play an important role as habitat to juvenile fish species as mangrove roots and the shallow water of mangrove wetlands provide a refuge from predators. The mangrove swamps present in the Biological Study Areas are dominated by a mix of red and black mangroves at lower elevations, along with lesser coverage of white mangroves and buttonwood at higher elevations bordering adjacent saltwater marsh.

TABLE 3-4 FEDERAL SPECIAL STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING IN THE BIOLOGICAL STUDY AREA

COMMON NAME (SCIENTIFIC NAME) [1]	FEDERAL STATUS	HABITAT	HABITAT PRESENT IN FOCUSED BIOLOGICAL STUDY AREA	SPECIES OBSERVED DURING FIELD SURVEY [2]
Reptiles				
American crocodile (*Crocodylus acutus*)	T	Brackish or saltwater areas such as ponds, coves, and creeks within mangrove swamps	Yes	No
Eastern indigo snake (*Drymarchon corais couperi*)	T	Scrub, sandhill, wet prairie, mangrove swamp	Yes	No
Hawksbill sea turtle (*Eretmochelys imbricata*)	E	Marine coastal/oceanic waters, nests on coastal sand beaches	No	No
Leatherback sea turtle (*Dermochelys coriacea*)	E	Oceanic waters; nests on coastal sand beaches	No	No
Loggerhead sea turtle (*Caretta caretta*)	T	Marine coastal/oceanic waters; nests on coastal sand beaches	No	No
Invertebrates				
Bartram's hairstreak butterfly (*Strymon acis bartrami*)	E	Pine rocklands	No	No
Stock Island tree snail (*Orthalicus reses*)	E	Tropical hardwood hammocks	No	No
Miami blue butterfly (*Cyciargus thomasi bethunebakeri*)	E	Tropical hardwood hammocks and pine rocklands	No	No
Birds				
Piping plover (*Charadrius melodus*)	T	Open, sandy beaches and tidal mudflats	Yes	No
Red knot (*Calidris canutus rufa*)	T	Tidal flats and coastlines	Yes	No
Roseate tern (*Sterna dougallii dougallii*)	T	Nests over bare limestone and shell-sand beaches; forages in open water over sandbars, reefs, and tidal channels	Yes	No
Wood stork (*Mycteria americana*)	T	Nests in forested wetlands; forages in marshes, swamps, and tidal creeks	Yes	No
Mammals				
Key Largo woodrat (*Neotoma floridana smalli*)	E	Tropical hammock	No	No
Silver rice rat (*Oryzomys palustris natator*)	E	Transition from upland to marine communities, including mangrove swamps and saltgrass flats	Yes	No
West Indian manatee (*Trichechus manatus*)	T	Coastal waters, bays, and rivers	Yes	No
Lower Keys Marsh Rabbit (*Sylvilagus palustris herneri*)	E	Saltwater marsh and freshwater marsh bordered by hammocks and flatwoods	Yes	No
Fish				
Smalltooth sawfish (*Pristis pectinate*)	E	Shallow estuarine waters, rivers, and mangrove swamp	Yes	No

NOTES:
E – Endangered
T – Threatened
1 Potential species obtained from US Fish and Wildlife Service online Information for Planning and Consultation system and critical habitat data, and Monroe County Board of County Commissioners, Final Environmental Assessment for Proposed Runway Safety Area Improvements, Key West International Airport, Key West, Florida, July 23, 2007.
2 Identifies whether the species was observed during the field survey conducted September 17 through 19, 2019.
SOURCE: Birkitt Environmental Services, Inc., EYW *Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment*, July 2020.

TABLE 3-5 ADDITIONAL STATE SPECIAL STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING IN THE BIOLOGICAL STUDY AREA

COMMON NAME (SCIENTIFIC NAME) [1]	STATE STATUS [2]	HABITAT	HABITAT PRESENT IN FOCUSED BIOLOGICAL STUDY AREA	SPECIES OBSERVED DURING FIELD SURVEY [3]
Reptiles				
Florida Keys mole skink (*Plestiodon egregius egregius*)	T	Variety of habitats that have stones, debris, and driftwood	Yes	No
Striped mud turtle, Lower Keys population (*Kinosternon baurii*)	T	Freshwater to slightly brackish ponds and ditches	No	No
Birds				
Florida burrowing owl (*Athene cunicularia floridana*)	T	Sparsely vegetated sand soils, ball fields, airports, pastures, vacant properties	Yes	No
Reddish egret (*Egretta rufescens*)	T	Broad open tidal shorelines and flats, mangrove islands	Yes	No
Roseate spoonbill (*Ajaia ajaja*)	T	Mangrove wetlands, freshwater wetlands	Yes	No
Tricolored heron (*Egretta tricolor*)	T	Mangrove swamps, tidal creeks, tidal ditches, edges of ponds and lakes	Yes	No
White-crowned pigeon (*Patafioenas leucocephala*)	T	Low lying forest habitats with ample fruiting trees	No [4]	No
Fish				
Key silverside (*Menidia conchorum*)	T	Shallow pools surrounded by mangroves	Yes	No

NOTES:
E – Endangered
T – Threatened
1 Potential species obtained from Florida Natural Areas Inventory.
2 All federal special status wildlife species listed in Table 3-4 are also considered protected by the State of Florida.
3 Identifies whether the species was observed during the field survey conducted September 17 through 19, 2019.
4 Habitat is present in the Fran Ford White-crowned Pigeon Preserve within the Biological Study Area and about 400 feet north of the active airfield.
SOURCES: Birkitt Environmental Services, Inc., *EYW Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment*, July 2020.

Saltwater marshes also serve as EFH for several managed fish species, including snook (*Centopomus undecimalis*), red drum (*Sciaenops ocellatus*), and seatrout (*Cyonscion nebulosus*), all of which rely on this habitat for part of their lifecycle. Saltwater marshes also provide foraging habitat for larger crustaceans, insects, and smaller fish that form the food chain for managed fish species. Marshes within the Biological Study Areas are dominated by grasses, including seashore paspalum, seashore dropseed, and saltmeadow cordgrass (*Spartina patens*). They are generally located landward of the mangrove swamps, and only the saltwater marsh habitats at lower elevations, in the intertidal zone, provide significant EFH.

Finally, the Biological Study Areas contain several salt ponds/embayments that provide EFH for managed fish species. These habitats contain soft subtidal sediments that are inhabited by macroinvertebrates that serve as prey to managed fish species. The salt ponds/embayments also contain submerged aquatic vegetation (SAV) consisting of intermittent coverage of seagrasses and attached macroalgae. Federally managed fish and many other species, including red drum, white grunt, gag grouper, shrimp, and spiny lobster, are dependent on SAV for at least part of their lifecycles. SAV also provides habitat for invertebrates, attached bryozoans and tunicates, and smaller fish that provide feeding grounds for managed species.

3.6 CLIMATE

The regulatory setting for climate considerations is presented in Table B-3 of Appendix B. The Intergovernmental Panel on Climate Change estimates that aviation accounts for 4.1 percent of global transportation greenhouse gas (GHG) emissions. Scientific research is ongoing to better understand climate change, including incremental atmospheric impacts that may be caused by aviation. Uncertainties are too large to accurately predict the timing, magnitude, and location of aviation's climate impacts; however, it is clear minimizing GHG emissions and identifying potential future impacts of climate change are important for a sustainable national airspace system.

Increasing concentrations of GHGs in the atmosphere affect global climate.[5] GHG emissions result from anthropogenic sources (emissions resulting from human activity), including the combustion of fossil fuels. GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases.[6] CO_2 is the most important anthropogenic GHG, because it is a long-lived gas that remains in the atmosphere for up to 100 years. Scientific measurements show that Earth's climate is warming, with concurrent impacts including warmer air temperatures, increased sea level rise, increased storm activity, and an increased intensity in precipitation events. Research has shown there is a direct correlation between fuel combustion and GHG emissions.

Climate change is a global phenomenon that can have local impacts.[7] In response to climate change threats, the County developed the Monroe County Climate Change Action Plan in 2013.[8] The plan calls for concerted action in reducing GHG emissions and anticipating and adapting to local impacts of a changing climate. An action item in this action plan was the development of a Sustainability Action Plan, which resulted in the formation of the 2016

[5] Intergovernmental Panel on Climate Change, *Climate Change 2014 Synthesis Report* (Fifth Assessment Report), 2015.

[6] US Environmental Protection Agency, Overview of Greenhouse Gases, https://www.epa.gov/ghgemissions/overview-greenhouse-gases (accessed May 6, 2020).

[7] As explained by the USEPA, "greenhouse gases, once emitted, become well mixed in the atmosphere, meaning US emissions can affect not only the US population and environment but other regions of the world as well. Likewise, emissions in other countries can affect the United States." (US Environmental Protection Agency, *Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act*, Final Rule, December 7, 2009 [Federal Register, vol. 74, no. 239]).

[8] Monroe County, *Monroe County Climate Action Plan*, November 2013.

Greenkeys! Sustainability Action Plan.[9] This plan set goals for the achievement of the following GHG emission targets: establish an interim GHG target for 2030 consistent with the time frame of the County's latest Comprehensive Plan;[10] reduce GHG emissions 40 percent by 2030 as compared to the 2012 baseline; and inventory GHG emissions for County and community-wide sectors every 3 years beginning in 2016. These targets followed a previous GHG inventory update for Monroe County that was conducted in 2012. The results of the 2012 inventory noted that the County has demonstrated significant progress toward achieving its previous GHG goals set forth as part of the County's 2011 Energy Efficiency and Conservation Strategy,[11] which set a 20 percent emissions reduction target by 2020, when compared to a 2005 baseline. Additionally, Monroe County joined three other Florida counties—Miami-Dade, Broward, and Palm Beach—as part of the Southeast Florida Regional Climate Action Plan that has set forth goals on a regional level mirroring those previously presented under Monroe County. In 2011, the Southeast Florida Regional Climate Change Compact defined low and high sea level rise scenarios, predicting a 3-inch sea level rise by 2030 compared to 2010 conditions under the low scenario and a 7-inch sea level rise under the high scenario. These scenarios reflect a gradual acceleration of sea level rise over historic local sea level rise trends of approximately 0.09 inches per year based on the Key West tide gauge record. Using these sea level rise scenarios, Monroe County completed a Sea Level Rise Vulnerability Assessment in 2016, which assessed flood risks to public buildings and critical infrastructure, utilities, roads, and habitat. Possible tidal flood risks to several Airport buildings were identified based on ground elevations (not finished floor elevations) under the low and high sea level rise scenarios by the year 2030. [12]At EYW, sources of air emissions are typical of those associated with airfield and airport facilities and operations (vehicle and aircraft operation, fueling, washing, and light maintenance), as well as commercial and residential structures and roadways. The primary contributor of air emissions stems from vehicle and aircraft operation and idling, with additional off-Airport contributions from solid waste disposal and electric and natural gas consumption.

3.7 COASTAL RESOURCES

The regulatory setting for coastal resources is presented in Table B-4 of Appendix B. The entire state of Florida is included within a coastal zone, and Monroe County is designated as a Florida Coastal County, which means that any federal activity within the Direct Study Area affecting the coastal zone must be consistent with the Florida Coastal Management Program (FCMP). The Direct Study Area is not located within the lands designated as part of the John H. Chafee Coastal Barrier Resources System (CBRS). The nearest CBRS unit, shown on **Exhibit 3-4**, is approximately 1,200 feet east of the Direct Study Area (the Cow Key CBRS Unit FL-57).[13] The Florida Keys, including the Direct Study Area, are designated as Areas of Critical State Concern (ACSC), signifying that the area has statewide and regional importance.

[9] Monroe County, *Greenkeys! Sustainability Action Plan*, January 2016.

[10] Monroe County, *Monroe County Year 2030 Comprehensive Plan – Policy Document*, June 2016.

[11] Monroe County, *Energy Efficiency and Conservation Strategy*, November 2011.

[12] Monroe County, *Sea Level Rise Vulnerability Assessment for Monroe County, Florida, Technical Appendix in Support of the GreenKeys! Sustainability and Climate Action Plan*, January 26, 2016.

[13] US Fish and Wildlife Service, Coastal Barrier Resources System, Coastal Barrier Resources System Mapper, https://www.fws.gov/cbra/maps/Mapper.html (accessed October 30, 2019).

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SOURCES: Nearmap, Florida, November 2019 (aerial); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); Ricondo & Associates, Inc., June 2020 (study area).

NORTH 0 1,000 ft

EXHIBIT 3-4

COASTAL BARRIER RESOURCES SYSTEM

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The waters surrounding the Florida Keys are also designated as a National Marine Sanctuary and are protected by the National Marine Sanctuaries Act (NMSA). Administered by the National Oceanic and Atmospheric Administration (NOAA) and jointly managed with the State of Florida, the Florida Keys National Marine Sanctuary protects 2,900 square nautical miles of waters surrounding the Florida Keys. The shoreward boundary of the sanctuary is the mean high-water mark.[14]

Mangrove swamp habitat is present in the Direct Study Area (see Sections 3.5.1 and 3.16.1). This habitat is considered a coastal resource in the State of Florida and protected by the Mangrove Trimming and Preservation Act. FDEP is the primary state agency tasked with regulating and permitting mangrove impacts. However, when mangrove impacts occur from a project that also requires an Environmental Resources Permit (ERP), Florida's Water Management Districts have the delegated authority to review the mangrove impact and provide authorization for the impact as part of the ERP permitting process.

3.8 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

A Section 4(f) property is defined as a publicly owned park, recreational area, or wildlife and waterfowl refuge of national, state, or local significance; or land of a publicly or privately owned historic site of national, state, or local significance. Table B-5 in Appendix B provides information on the regulatory setting for Section 4(f) properties. No Section 4(f) properties are in the Direct Study Area. However, seven potential Section 4(f) properties operated as parks and recreational areas are located within the Indirect Study Area, which are shown on **Exhibit 3-5**. A description of each property, the activities supported, and the general setting of the property is provided in **Table 3-6**.

In addition to the park and recreational properties, 291 previously recorded historic resources were identified within the Indirect Study Area. Of these resources, one is listed on the National Register of Historic Places, the East Martello Tower (8MO211). It is within the boundaries of the Airport but outside the Direct Study Area, as shown on Exhibit 3-5. Additional information about historic resources is presented in **Appendix D**, in the discussion of Historic Resources Survey Results for the Preliminary Indirect Effects Area of Potential Effects.

3.9 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

The regulatory setting for the environmental category of hazardous materials, solid waste, and pollution prevention is provided in Table B-6 of Appendix B.

3.9.1 HAZARDOUS MATERIALS

An Environmental Data Resources, Inc. (EDR) Radius Map Report was generated in January 2020 for the area within and extending 1 mile beyond Airport property. The report consolidates records from federal, state, and local environmental databases to identify environmental issues, such as sites with permits to generate hazardous materials or waste and other sites documented for hazardous materials (that is, leaking storage tanks). The EDR Radius Map Report identified 19 sites on Airport property; however, none of these sites are within the Direct Study Area where ground disturbance activities would occur. The executive summary and map findings sections of the EDR Radius Map Report are provided in **Appendix E**, and key findings are summarized in **Table 3-7** and **Table 3-8**.

[14] US Department of Commerce, National Oceanic and Atmospheric Administration, National Ocean Service, Florida Keys National Marine Sanctuary Revised Management Plan, https://nmsfloridakeys.blob.core.windows.net/floridakeys-prod/media/archive/mgmtplans/2007_man_plan.pdf (accessed October 30, 2019).

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SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); University of Florida GeoPlan Center, 2019 (park and recreation area); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); Florida Department of Environmental Protection, March 2019 (trails); Ricondo & Associates, Inc., January 2020 (indirect study area).

NORTH 0 1,100 ft

EXHIBIT 3-5

SECTION 4(f) PROPERTIES

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TABLE 3-6 PARK AND RECREATIONAL PROPERTIES WITHIN THE INDIRECT STUDY AREA

PROPERTY NAME [1]	DESCRIPTION	ACTIVITIES	SETTING
Florida Keys Overseas Heritage Trail (FKOHT)	FDEP-managed recreational pathway that provides more than 90 miles of paved pathway segments that are part of a planned 106-mile corridor from Key Largo to Key West.	Hiking, running, bicycling, sightseeing, and fishing (within the Indirect Study Area)	In the vicinity of the Airport, the FKOHT runs between Roosevelt Boulevard and the Atlantic Ocean and 2,645 linear feet of the pathway are within the Airport's area of aircraft noise exposure.[2]
Florida Keys Overseas Paddling Trail (FKOPT)	FDEP-managed recreational paddling trail in the Atlantic Ocean that extends approximately 100 miles along the east side of the Florida Keys from Key Largo to Key West. The FKOPT is Segment 15 of the Florida Circumnavigational Saltwater Paddling Trail.	Paddling	In the vicinity of the Airport, the FKOPT is approximately 500 to 900 feet south of the shoreline.
Smathers Beach	City-owned public beach that parallels the ocean side of the FKOHT, south and west of the Airport.	Beach, shower facilities, volleyball courts	Atlantic Ocean beach adjacent to Roosevelt Boulevard and approximately 0.1 mile south of Airport property.
Pines Park	A 0.95-acre County-owned public park located on Airport property along Roosevelt Boulevard at the entrance to the Airport. The park offers several concrete picnic tables and benches, but it does not provide recreational equipment or offer scheduled activities.	Vehicle parking and picnicking (no recreational equipment)	Located on Airport property along Roosevelt Boulevard.
11th Street Public Boat Ramp	A City-owned recreational area (less than 0.2 acres) with a public boat ramp and a paved area for car and trailer parking. The boat ramp provides access to the Riviera Canal.	Boat ramp	Along Riviera Canal at 11th Street and Riviera Drive north of the Airport. The boat ramp is located within the Airport's area of aircraft noise exposure. [2]
Little Hamaca City Park	Part of a former coastal defense missile site located on Government Road north of the Airport. The park is owned by the City of Key West and has boardwalks and mulched trails through mangrove, transitional, and hardwood hammock communities.	Educational and recreational walking path to observe native vegetation, birds, and wildlife	The park abuts the Airport's northern property line and the southern two-thirds of the park (approximately 6.4 acres of the 10.7-acre park) are within the Airport's area of aircraft noise exposure. [2]
Fran Ford White-crowned Pigeon Preserve at Little Hamaca Park	An undeveloped conservation area owned by the City of Key West (associated with Little Hamaca City Park) and established in 2003. Trails are not provided through the property. A paved parking area for two vehicles is available, as well as a pavilion displaying photographs of native species.	Preserve area for bird species and trees, bird watching	The conservation area is adjacent to the Airport but is located about 400 feet north of the active airfield. Of the 9.7-acre conservation area, 4.9 acres are within the Airport's area of aircraft noise exposure. [2]

NOTES:

FDEP – Florida Department of Environmental Protection

1 An additional park land use was identified in the Direct Study Area. The property was formerly operated as a paintball field but is not currently managed as a park resource.

2 See Section 3.13 for information on the area of noise exposure associated with aircraft operations at Key West International Airport.

SOURCES: University of Florida GeoPlan Center, 2019 (park and recreation properties); Florida Department of Environmental Protection, March 2019 (FKOHT and FKOPT)); and Marcus Davila, City of Key West, Director of Community Services, telephone call with Lisa Reznar, Ricondo & Associates, Inc., May 15, 2020 (Fran Ford White-crowned Pigeon Preserve); Florida Keys Audubon Society, https://floridakeysaudubonsociety.tumblr.com/post/98553369941/the-fran-ford-white-crowned-pigeon-preserve-is (accessed February 22, 2021) (Fran Ford White-crowned Pigeon Preserve); Monroe County, *Motion on the Ocean, A Public Health Guide to Physical Activity in Parks Across the Florida Keys*, available at http://monroe.floridahealth.gov/_files/_documents/Motionparks.pdf (accessed February 22, 2021) (Fran Ford White-crowned Pigeon Preserve).

TABLE 3-7 PERMITTED HAZARDOUS WASTE GENERATORS ON AIRPORT PROPERTY

SITE NAME	ADDRESS	RCRA CATEGORY	USEPA ID	STATUS	WITHIN DSA
Transportation Security Administration	3491 South Roosevelt Boulevard	RCRA-VSQG	FLR000174292	No violations found	No
Monroe County Public Works	3583 South Roosevelt Boulevard	RCRA-VSQG	FLR000025585	Violations reported between 1996 and 1997; no violations found during 3-year compliance history from 2017 to 2020	No
Federal Express Corporation	3553 South Roosevelt Boulevard	RCRA NonGen/NLR	FLD984178608	No violations found	No

NOTES:
DSA – Direct Study Area
ID – Identification Number
NLR – No Longer Regulated
NonGen – Non-Generators
RCRA – Resource Conservation and Recovery Act
USEPA – US Environmental Protection Agency
VSQG – Very Small Quantity Generator
SOURCES: Environmental Data Resources, Inc., *The EDR Radius Map™ Report with GeoCheck® Key West, FL 33040, Inquiry Number: 5942961.2s*, January 22, 2020; US Environmental Protection Agency, Enforcement and Compliance History Online, https://echo.epa.gov/detailed-facility-report?fid=110005638907 (accessed January 23, 2020).

TABLE 3-8 LEAKING STORAGE TANKS REPORTED ON AIRPORT PROPERTY

SITE NAME	ADDRESS	STORAGE TANK TYPE	REMEDIATION STATUS	WITHIN DSA
Signature Flight Support	3471 South Roosevelt Boulevard	LUST	Ongoing	No
Island City Flying Service, Inc.	3471 South Roosevelt Boulevard	RGA LUST	N/A	No
Dollar Rent A Car	3495 South Roosevelt Boulevard	LUST	Cleanup not required	No
Monroe County – Key West International Airport	3491 South Roosevelt Boulevard	LUST	Ongoing	No
Avis Rent A Car	3495 South Roosevelt Boulevard	LUST	Complete	No
Monroe County Public Works	3583 South Roosevelt Boulevard	LUST	Ongoing	No

NOTES:
DSA – Direct Study Area
LUST – Leaking Underground Storage Tank
N/A – Not Available
RGA – Recovered Government Archive
SOURCE: Environmental Data Resources, Inc., *The EDR Radius Map™ Report with GeoCheck® Key West, FL 33040, Inquiry Number: 5942961.2s*, January 22, 2020.

Table 3-7 lists sites on Airport property that have active waste generator permits under the Resource Conservation and Recovery Act (RCRA). Table 3-8 lists leaking underground storage tanks tracked on Airport property and the status of remediation (that is, ongoing cleanup or cleanup not required).

The Monroe County Public Works property at 3583 South Roosevelt Boulevard is located approximately 350 feet south of the Direct Study Area associated with the proposed commercial apron expansion. Two documented discharges of petroleum product were released at this site in the 1990s. Soil borings taken in 2010 at the sites of the discharges confirmed that ground water was tidally influenced and levels of contaminants of concern did not exceed state cleanup target levels and that any contamination had attenuated.[15] Monitoring wells were installed to

[15] Julie Michel and Kevin Koenig, Handex Consulting & Remediation, LLC, "Monroe County Public Works Dept Limited Site Assessment Report (LSAR) Proposal, 3583 S. Roosevelt Blvd., Key West, FL, FDEP Facility ID No. 44/8624745," letter to Ed Lowe, Monroe County Public Works, August 18, 2010.

assess two other sites at the Airport in 2020. Both sites did not contain levels of contaminants of concern that exceeded state cleanup target levels.[16] Therefore, given the tidal influence of ground water and results of monitoring in the area, contaminated soils and groundwater are not expected to be present in the Direct Study Area.

The primary types and largest quantities of hazardous materials at EYW include various forms of fuel and lubricants. In addition to fueling, maintenance activities for aircraft, vehicles, equipment, and airfield facilities occur regularly at EYW. Maintenance activities conducted by the County and Airport tenant staff involve the storing and use of various forms and quantities of new and waste oil, greases, hydraulic fluid, break and transmission fluids, bleaches, degreasers and other cleaning products, paint and paint-related products, fertilizers, herbicides, pesticides, and poisons. These materials are used on a regular basis in support of aircraft, motor vehicle, and maintenance activities in order to keep the Airport operational.

3.9.2 SOLID WASTE

No municipal solid waste landfills are located in Monroe County. Instead, three transfer stations operate in the county, at which waste is prepared for transportation and disposal at out-of-county locations. Solid waste, yard waste, and recycling in Key West are collected by Waste Management and transferred to the Key West Transfer Station.[17] Typical waste generated at EYW is comprised of office and commercial products generated by passengers, the administrative station, and tenants. This waste includes food/compostable materials, cardboard, paper, glass, plastic bottles, light bulbs, and aluminum cans. Periodic construction projects generate varying amounts of construction and demolition (C&D) debris. The South Dade Landfill, located in the southeast portion of Miami-Dade County, is the closest landfill. The landfill accepts municipal solid waste, tires, yard waste, and C&D debris and is estimated to have disposal capacity through 2029.[18]

3.9.3 POLLUTION PREVENTION

EYW operates under the terms and conditions of the State of Florida Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity for industrial/commercial activity under the National Pollutant Discharge Elimination System (NPDES) program. Additionally, the Airport implements other best management practices (BMPs) to minimize the effects of Airport construction and operations on water quality.

3.10 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

The regulatory setting for historical, architectural, archeological, and cultural resources is provided in Table B-7 of Appendix B. The Areas of Potential Effects (APE) are defined as the geographic areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. As required by 36 CFR 800.4 (a)(1), the FAA established the Direct and Indirect Effects APE and submitted it to the State Historic Preservation Officer (SHPO) for review and concurrence. The SHPO concurred on the use of the APE for evaluation of the proposed undertaking on March 17, 2020 (Appendix D). The Indirect Effects APE was broadly defined to encompass the potential area of aircraft noise effects and was subsequently refined following completion of the aircraft noise analysis conducted in support of this EA (see Section 4.10). The Final Indirect Effects APE was defined to encompass areas that would be newly exposed to aircraft noise at day-night average sound level (DNL) 65

[16] Tyler Bethel, Key West International Airport, "EYW Draft EA –" email to Lisa Reznar, Ricondo & Associates, Inc., December 30, 2020.

[17] Monroe County, Solid Waste Management, https://www.monroecounty-fl.gov/69/Solid-Waste (accessed October 30, 2019).

[18] Miami-Dade County, Solid Waste Management, https://www.miamidade.gov/global/service.page?Mduid_service=ser1464799833678390 (accessed October 29, 2019).

decibels (dB) or greater (see Section 3.13.1 for more information about aircraft noise metrics) with implementation of the Proposed Action compared to the No Action Alternative, consistent with 14 CFR Part 150.101(d), which states that all land uses are considered to be compatible with noise levels less than DNL 65 dB. Furthermore, as noted in FAA Order 1050.1F, the potential for 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 time frame, was also considered in the refinement of the Indirect Effects APE. The Direct and Final Indirect Effects APE, shown on **Exhibit 3-6**, were documented in the Cultural Resources Assessment Study (CRAS), provided in Appendix D, and submitted to the SHPO for review on July 10, 2020.

In addition, on July 15, 2020, the CRAS was also sent to five federally recognized tribes typically involved in consultation in South Florida: the Seminole Tribe of Florida, Seminole Nation of Oklahoma, Poarch Band of Creek Indians, Miccosukee Tribe of Indians of Florida, and the Muscogee (Creek) Nation. Copies of the letters are provided in Appendix D.

An archeological survey was conducted throughout the Direct Effects APE and did not identify any archeological sites. The historic resources survey identified no historic resources in the Direct Effects APE and 11 features and structures that are over 50 years old within the Final Indirect Effects APE. The one feature and 10 structures were investigated to determine whether they meet the criteria for listing on the National Register.

The Bridle Path (8MO2700), a New Deal–era feature, was constructed as a tourist attraction. This feature is a 1.2-mile path that is no longer continuous and often used for parking by visitors to the nearby beach. Since its construction, the size of the path has been altered several times, resulting in a loss of integrity. The resource no longer conveys its significant associations as a result of these alterations and a change in its use. The SHPO determined the Bridle Path (8MO2700) is National Register–ineligible on November 17, 1998, and the feature is considered ineligible as part of this evaluation.

Of the 10 structures, two were identified in a previous study and considered to be ineligible for listing on the National Register both individually or as part of a historic district by the surveyor. Eight structures were newly recorded as part of the evaluation of the Proposed Action. All 10 structures exhibit architectural styles common to South Florida and the greater Keys. None of the structures have any known historical association, and all of the structures feature modifications that have resulted in a loss of integrity, including non-historic additions and alterations to exterior fabric, windows, and doors. As a result, the 10 structures are considered to be individually ineligible for listing in the National Register. Furthermore, no potential historic districts or known or newly identified historic districts are located within the Final Indirect Effects APE; therefore, none of the identified structures would be considered to be contributing to a historic district. **Table 3-9** summarizes the features and structures over 50 years old evaluated within the Final Indirect Effects APE. Additional detail, including photographs and evaluation of the features and structures, is provided in Appendix D.

SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property boundary); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (contours; Aviation Environmental Design Tool, Version 3b); Birkitt Environmental Services, Inc., June 2020 (Direct Effects APE); Ricondo & Associates, Inc., January 2020 (Final Indirect Effects APE).

NORTH 0 900 ft

EXHIBIT 3-6

AREAS OF POTENTIAL EFFECTS

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TABLE 3-9 IDENTIFIED STRUCTURES AND FEATURES OVER 50 YEARS OF AGE WITHIN THE FINAL INDIRECT EFFECTS AREA OF POTENTIAL EFFECTS

FMSF NO.	RESOURCE NAME/ADDRESS	YEAR BUILT	RESOURCE TYPE/STYLE	NRHP EVALUATION
8MO2700	Bridle Path	c. 1938	Not Applicable	Determined Ineligible
8MO5617	2904 Riviera Drive	c. 1958	Ranch	Considered Ineligible
8MO5619	2908 Riviera Drive	c. 1958	Mid-Century Modern	Considered Ineligible
8MO6667	1536 4th Street	c. 1965	Masonry Vernacular	Considered Ineligible
8MO6668	1542 4th Street	c. 1965	Masonry Vernacular	Considered Ineligible
8MO6669	1547 4th Street	c. 1963	Masonry Vernacular	Considered Ineligible
8MO670	1519 4th Street	c. 1966	Masonry Vernacular	Considered Ineligible
8MO671	2207 Juanita Lane	c. 1967	Masonry Vernacular	Considered Ineligible
8MO672	1524 5th Street	c. 1968	Masonry Vernacular	Considered Ineligible
8MO673	1529 5th Street	c. 1968	Masonry Vernacular	Considered Ineligible
8MO674	2916 Riviera Drive	c. 1958	Masonry Vernacular	Considered Ineligible

NOTES:
FMSF – Florida Master Site File
NRHP – National Register of Historic Places
SOURCE: Janus Research Group, *Cultural Resources Assessment Survey for the Key West International Airport Improvements*, Monroe County, June 2020.

3.11 LAND USE

The regulatory setting relevant to land use considerations is provided in Table B-8 of Appendix B. The Airport is located on the island of Key West, and bordered on the west, north, and east sides by the city of Key West; however, the Airport is owned by Monroe County, so the County maintains land use and environmental permitting control over the Airport.

The Monroe County Comprehensive Plan guides future growth and development through a series of goals, objectives, and policies. Goals and objectives relating to airport and airfield development in the Comprehensive Plan primarily focus on the facilitation and encouragement of compatible land use, maximizing safety and convenience, economic benefit, environmental compatibility, and consistency with other elements of the Comprehensive Plan. Specifically, the Plan includes policies developed to protect the Airport from noise sensitive or otherwise incompatible development, such as structures that could impact flight operations into or out of the Airport. Policy 101.5.19 in the Monroe County Comprehensive Plan creates an airport district land use category to prohibit the development of uses incompatible with Airport operations, and Policy 101.5.30 states there shall be no exceptions to the 35-foot height limit within airport districts. The Plan defines policies supporting Objective 501.1 to promote the preservation of existing airports. Additionally, the Plan recognizes the need to coordinate airport facilities with the Plan's land use, coastal management, and conservation elements, through policies supporting Objective 501.2. Conservation elements of the Plan include policies related to wetland/mangrove wetland open space requirements (Policies 102.1.1, 203.1.1, and 204.2.2) and limitations on structures and fill within wetlands (Policies 204.2.3 and 204.2.4).

Exhibit 3-7 shows the generalized land uses in the Indirect Study Area. Land uses within the Indirect Study Area consist primarily of institutional, public, and semi-public uses with areas of residential uses, retail and office uses, and water surrounding the Airport.

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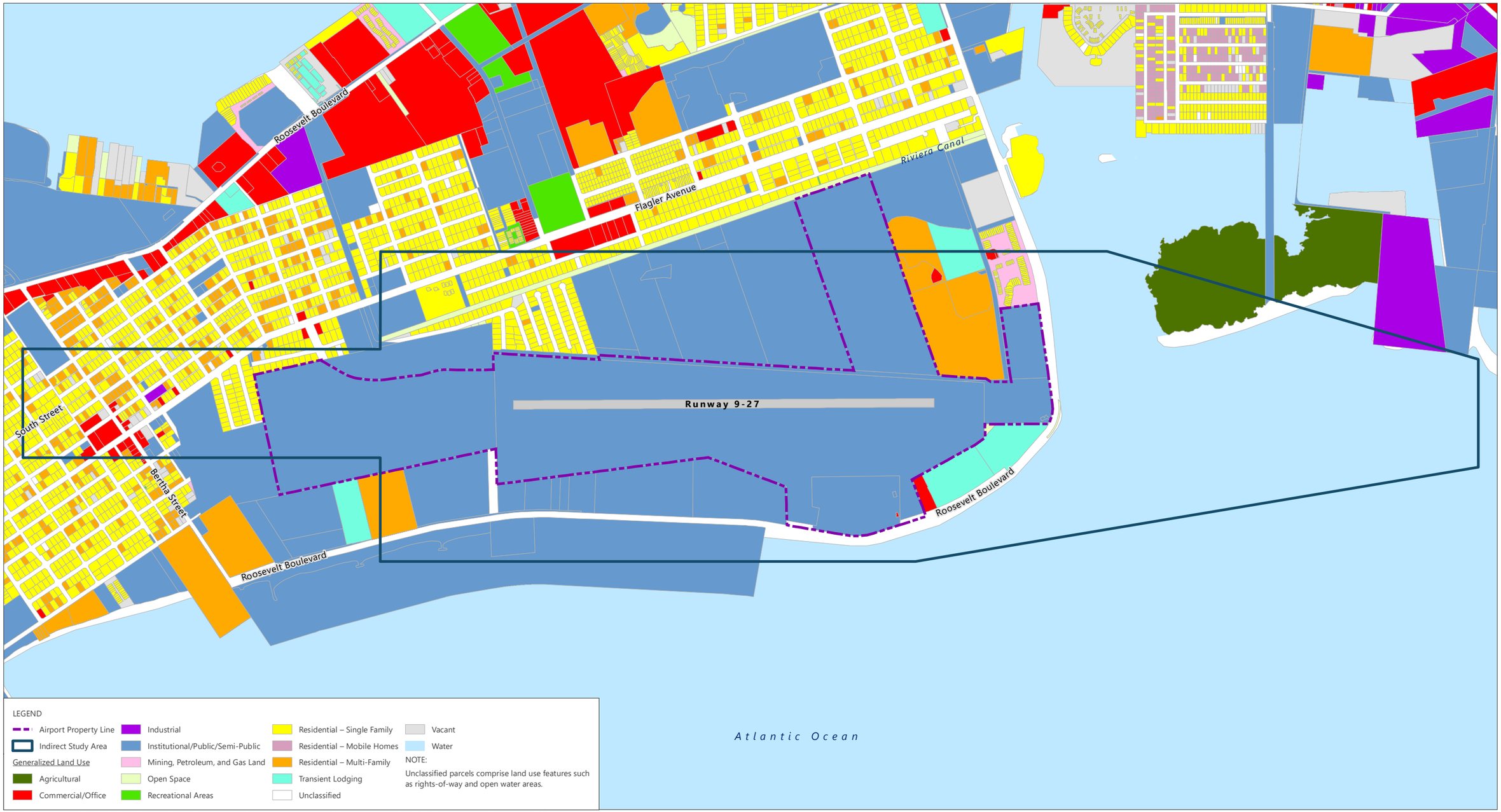

SOURCES: University of Florida GeoPlan Center, July 2020 (land use); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line, runway); US Census, Geography Division, TIGER/Line Shapefile, 2019 (counties); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

NORTH 0 1,100 ft

EXHIBIT 3-7

EXISTING GENERALIZED LAND USE

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3.12 NATURAL RESOURCES AND ENERGY SUPPLY

The regulatory setting for this topic is summarized in Table B-9 of Appendix B. Keys Energy Services, which currently imports nearly all of its power supply and uses local generation for emergency backup only, supplies electricity to EYW.[19] Electricity is primarily used at EYW for lighting, cooling, and equipment operation in buildings and airfield lighting and operations. Electricity is also indirectly used in the delivery and distribution of water used at the Airport and the treatment of wastewater.

The Florida Keys Aqueduct Authority is responsible for supplying, treating, and distributing drinking water to Florida Keys residents, including EYW. The Florida Keys Aqueduct Authority maintains 48 million gallons of storage and delivers approximately 17 million gallons per day. The water management system consists of 26 pumping stations, 15 aquifer wells, and 6 wastewater treatment plants.

Natural resources such as water, asphalt, aggregate, and wood could be used in the construction, operation, and maintenance of the Proposed Action. Based on similar construction in the Florida Keys, suppliers of construction materials, like aggregate and asphalt, are readily available in the Miami area.

3.13 NOISE AND COMPATIBLE LAND USE

Noise levels are measured using a variety of scientific metrics. Through research into the characteristics of noise and human response to that noise, standard noise descriptors have been developed for noise exposure analyses related to airport projects under NEPA. Noise descriptors referenced in this EA are described in this section. All noise levels provided in this analysis are for outdoor conditions, unless otherwise stated specifically to be interior noise levels.

- A-Weighted Sound Pressure Level (dBA)—The dB is a unit used to describe sound pressure level. When expressed in dBA, the sound is filtered to reduce the effect of very low and very high frequency sounds, much like the human ear filters sound frequencies. Without this filtering, calculated and measured sound levels would include events that the human ear cannot hear (for example, dog whistles and low frequency sounds). With A-weighting, calculations and sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies.
- DNL—Formerly referred to as Ldn, DNL is expressed in dBA and represents the noise level over a 24-hour period. Because environmental noise fluctuates over time, DNL was devised to relate noise exposure over time to human response. DNL is a 24-hour average of the hourly equivalent sound level (L_{eq}); however, it has penalties to account for the increased sensitivity to noise events that occur during nighttime periods.[20] Specifically, DNL penalizes noise 10 dB during the nighttime period (10:00 p.m. to 6:59 a.m.). The USEPA introduced the metric in 1976 as a single-number measurement of community noise exposure. The FAA adopted DNL as the noise metric under 14 CFR Part 150, *Airport Noise Compatibility Planning*. The Department of Housing and Urban Development, the Veterans Administration, the Department of Defense, the US Coast Guard, and the Federal Transit Administration have also adopted DNL for measuring cumulative noise exposure.

DNL is employed to describe existing and predicted noise exposure in communities in airport environs; this is based on the average daily aircraft operations over the year and the average annual operational conditions at an airport. Therefore, at a specific location near an airport, the noise exposure on any given day is likely to be higher or lower

[19] Keys Energy Services, About Keys, https://www.keysenergy.com/about-keys/ (accessed January 15, 2020).

[20] L_{eq} is a cumulative level of a steady sound level that produces an equivalent amount of sound energy for any specific period.

than the annual average noise exposure, depending on the specific operations at an airport on that day. DNL is widely accepted as the best available method to describe aircraft noise exposure, and it is the noise descriptor required for aircraft noise exposure analyses and land use compatibility planning under 14 CFR Part 150 and for EAs for airport improvement projects (FAA Order 1050.1F).

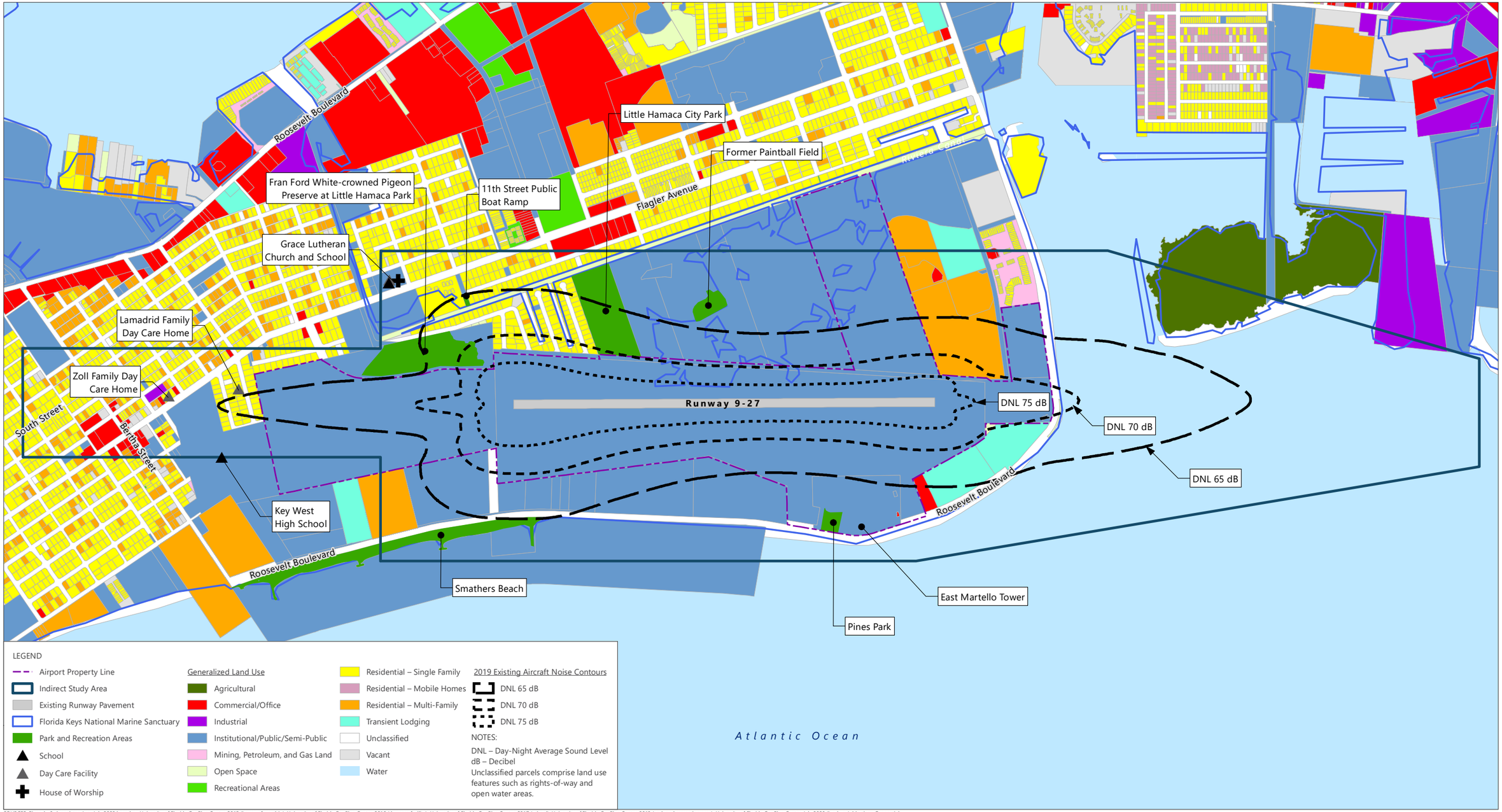
The regulatory setting for noise and compatible land use is summarized in Table B-10 of Appendix B. The FAA defines DNL 65 dB as the threshold of noise compatibility for residential and other noise-sensitive land uses, such as schools, libraries, and religious facilities.[21] The FAA requires an analysis of noise exposure when development actions may change the cumulative noise exposure of individuals to aircraft noise in areas surrounding an airport. Common development actions that may change the cumulative noise environment include the following: runway reconfiguration, changes in aircraft operations and/or movements, changes in aircraft types using the airport, or changes in aircraft tracks and profiles.

The Aviation Environmental Design Tool (AEDT) is the required tool to evaluate potential noise impacts from airport actions subject to NEPA. The AEDT incorporates the number of annual average daily daytime and nighttime aircraft operations, flight paths, and flight profiles of aircraft, along with its extensive internal database of aircraft noise and performance information, to calculate the DNL around an airport. From a grid of points, the AEDT contouring program draws contours of equal DNL. To align with FAA noise compatibility guidance, the DNL 65, 70, and 75 dB noise contours are presented. The version of AEDT available at the time of this noise analysis (Version 3b) was used to assess aircraft noise for this EA.

The existing noise environment at and around the Airport is dominated by noise from airport-related uses, including aircraft departing and landing on the Airport's runway and taxiing on taxiways. Noise sensitive facilities, including residences, houses of worship, schools, day care homes, and park/recreation properties within the Indirect Study Area are shown on **Exhibit 3-8**. Existing noise conditions in 2019, the last full year of available data at the time this analysis was initiated, were modeled and are also shown on Exhibit 3-8. The AEDT input data utilized to prepare the noise contours are included in **Appendix F**.

The DNL 70 dB contour is located primarily on Airport property as is much of the DNL 65 dB contour. Four park/recreation properties have land located within the DNL 65 dB contour: the 11th Street Public Boat Ramp and portions of the Fran Ford White-crowned Pigeon Preserve, Little Hamaca City Park, and the Florida Keys Overseas Heritage Trail (FKOHT), along with 283 residential dwelling units. The residential dwelling units within the DNL 65 dB contour developed for this EA comprise 174 multi-family units, all of which are located east of the Airport (except one 2-unit residential property located north of the Airport) and 109 single-family units located north and west of the Airport. Nearly all of the single-family units, 104 of the 109, have participated in the Airport's Noise Insulation Program; thus, these residential land uses are considered compatible with aircraft noise for the purpose of this EA. The multi-family units and remaining 5 single-family units that have not participated in the Airport's Noise Insulation Program are considered incompatible with aircraft noise for the purpose of this EA.

[21] 14 CFR Part 150, Appendix A, Table 1.



SOURCES: Ricondo & Associates, Inc., July 2020 based on University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation area); University of Florida GeoPlan Center, July 2020 (land use); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line, runway); US Census, Geography Division, TIGER/Line Shapefile, 2019 (counties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (noise contours; Aviation Environmental Design Tool, Version 3b); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

NORTH 0 1,100 ft

EXHIBIT 3-8

EXISTING NOISE EXPOSURE CONTOURS, 2019

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The Noise Insulation Program is a corrective land use measure recommended by Monroe County in their 49 CFR Part 150 Noise Compatibility Program (NCP), originally approved by the FAA in 1999. The program was successfully implemented from 2000 through 2012. During that time, 294 out of 340 eligible noncompatible structures received noise insulation in exchange for an avigation easement, representing an 86.5 percent participation rate. These structures are now considered compatible, even if they remain exposed to noise levels of DNL 65 dB and greater. Noise insulation involves reducing aircraft noise levels inside noise-sensitive structures by decreasing the paths by which sound enters a building. Common noise insulation methods include one or a combination of the following: window and door replacement, caulking, weather-stripping, and installation of central air ventilation so that the windows can be kept closed if the structure does not already have a central air ventilation system.

In 2015, Monroe County submitted an update to the 49 CFR Part 150 NCP, recommending continuation of the Noise Insulation Program. Implementation of the program continued, and from 2016 through 2020, 115 noncompatible structures received noise insulation in exchange for an avigation easement. This measure is applicable to eligible structures within the DNL 65 dB and greater noise exposure contour of any future FAA accepted Noise Exposure Maps (NEMs) determined to accurately reflect the Airport operations at the time of the request for FAA funding.

Table 3-10 presents the results of the analysis of noise exposure to noise-sensitive facilities and land uses in the DNL 65 dB and greater noise exposure contour.

TABLE 3-10 EXISTING NOISE EXPOSURE

FACILITY/LAND USE	DNL 65 dB AND ABOVE	DNL 70 dB AND ABOVE	DNL 75 dB AND ABOVE
Noise-Sensitive Facilities (number)			
Total Residential Dwelling Units [1]	283	22	0
Single-Family	109	22	0
Multi-Family	174	0	0
Residential Population	602	53	0
Park/Recreation Property	4	2	0
Land Uses (acres)			
Institutional, Pubic, Semi-Public – General (includes the Airport)	281.2	150.9	72.0
Institutional, Public, Semi-Public – Parks and Recreational Lands	11.6	1.4	0.0
Residential, Single-Family	16.6	3.0	0.0
Residential, Multi-Family	12.5	2.6	0.0
Transient Lodging	11.8	0.2	0.0
Open Space	2.2	0.2	0.0
Commercial, Office	0.4	0.0	0.0
Unclassified [2]	9.1	1.6	0.0
Vacant	0.3	0.0	0.0
Open Water	54.6	1.4	0.0
Total	**400.5**	**161.4**	**72.0**

NOTES:
Totals may not add due to rounding.
dB – Decibel
DNL – Day-Night Average Sound Level
1 Of the 283 total residential dwelling units, 105 residential dwelling units (primarily single-family) participated in or plan to participate in the Noise Insulation Program (NIP), so these residential land uses are considered compatible with aircraft noise.
2 Unclassified land use comprises land use features such as rights-of-way.
SOURCES: University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation properties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (contours; Aviation Environmental Design Tool, Version 3b).

3.14 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Socioeconomics encompasses the activities and resources associated with the everyday human environment, particularly related to population centers, their demographics, and economic activities. The regulatory setting associated with this topic is summarized in Table B-11 of Appendix B. The principal social impacts to be considered are those associated with relocation or other community disruption, transportation, planned development, and employment. This analysis also describes the composition of the population in the Indirect Study Area, based on US Census data.

The Airport is entirely located within US Census Tract 9720, and portions of the Indirect Study Area extend into Census Tracts 9718, 9721, and 9722, as shown on **Exhibit 3-9**. No residential areas within Census Tract 9718 fall within the Indirect Study Area, only open waters, undeveloped areas of Cow Key, and the southern end of a marina on Stock Island supporting boat storage. Therefore, Census Tract 9718 was excluded from this analysis.

Table 3-11 presents historical and projected population, employment, and household numbers in the state of Florida, Monroe County, city of Key West, and Census Tracts 9720, 9721, and 9722. Monroe County represents approximately 0.4 percent of the state of Florida population; approximately 33.0 percent of the Monroe County population resides in the city of Key West. In 2017, the population under 18 was 7.5 percent of the total population in Census Tract 9720, 27.5 percent in Census Tract 9721, and 15.7 percent in Census Track 9722, compared to between 15.1 and 20.1 percent in the state, county, and city. Therefore, Census Track 9721 supports a comparatively higher population of children. Note that the demographic characteristics of the city of Key West are influenced by seasonal residents and visitors during peak travel seasons. The resulting higher functional population in the city of Key West during peak seasons is not reflected in these data because the US Census Bureau does not count seasonal residents and visitors.

Table 3-12 presents estimated income and poverty information for the state of Florida, Monroe County, city of Key West, and Census Tracts 9720, 9721, and 9722, as reported in the US Census Bureau's 2013–2017 American Community Survey 5-Year Estimates. According to these estimates, persons in Monroe County have a higher median income as compared to the state of Florida and a lower percentage of residents in poverty. Residents within Census Tracts 9720 and 9722 have a higher median income than the state of Florida, Monroe County, and the city of Key West. Residents in Census Tract 9721 have a higher median income than the state of Florida, but a lower median income than Monroe County and the city of Key West. All three census tracts have a lower percentage of residents living in poverty as compared to the state, county, and city. Therefore, the census tracts in the Indirect Study Area do not support a low-income community in comparison to the populations of the state, county, or city.

Table 3-13 shows 2017 population demographics for the state of Florida, Monroe County, the city of Key West, and Census Tracts 9720, 9721, and 9722. The majority demographic in each area is White alone, and the census tracts in the Indirect Study Area do not contain a minority population disproportionate to the populations of the state, county, and city.

SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); US Census, Geography Division, TIGER/Line Shapefile, 2019 (census tracts); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

NORTH 0 1,100 ft

EXHIBIT 3-9

US CENSUS TRACTS

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TABLE 3-11 POPULATION, EMPLOYMENT, AND HOUSEHOLDS (2010, 2017, AND 2020)

ENTITY	POPULATION			POPULATION UNDER 18			EMPLOYMENT			HOUSEHOLDS		
	2010[1]	2017[2]	2020[3]	2010[1]	2017[2]	2020[3]	2010[1]	2017[2]	2020[3]	2010[1]	2017[2]	2020[3]
State of Florida	18,801,310	20,278,447	21,372,207	4,002,091	4,066,276	N/A	8,294,502	9,073,645	N/A	7,420,802	7,510,882	N/A
Monroe County	73,090	76,745	74,414	11,001	11,570	N/A	37,999	41,202	N/A	32,629	30,198	N/A
City of Key West [4]	24,649	25,316	N/A	3,577	4,073	N/A	13,702	14,617	N/A	10,929	9,709	N/A
Census Tract 9720	4,164	3,234	N/A	523	244	N/A	1,941	2,120	N/A	1,845	1,524	N/A
Census Tract 9721	3,965	4,967	N/A	832	1,366	N/A	1,811	1,811	N/A	1,760	1,705	N/A
Census Tract 9722	2,903	3,453	N/A	413	541	N/A	1,202	1,202	N/A	1,227	1,099	N/A

NOTES: N/A – Not Available

1 2006–2010 American Community Survey 5-Year Estimates.

2 2013–2017 American Community Survey 5-Year Estimates.

3 University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Bulletin 175, June 2016.

4 The demographic characteristics of the city of Key West are influenced by seasonal residents and visitors during peak travel seasons. The resulting higher functional population in the city of Key West during peak seasons is not reflected in these data because the US Census Bureau does not count seasonal residents and visitors.

SOURCES: US Census Bureau, American Fact Finder, 2006–2010 American Community Survey 5-Year Estimates, ACS Demographic and Housing Estimates, 2010; US Census Bureau, American Fact Finder, 2013–2017 American Community Survey 5-Year Estimates, Selected Economic Characteristics, 2017; University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Bulletin 175, June 2016.

TABLE 3-12 INCOME AND POVERTY DATA

ENTITY	MEDIAN HOUSEHOLD INCOME[1]	MEDIAN FAMILY INCOME[1]	PER CAPITA INCOME[1]	PERCENT INDIVIDUALS IN POVERTY[2]
State of Florida	$53,267	$64,312	$30,197	13.6%
Monroe County	$67,023	$78,016	$43,477	12.0%
City of Key West	$67,712	$75,639	$41,773	12.0%
Census Tract 9720	$70,714	$79,539	$48,808	9.8%
Census Tract 9721	$64,500	$69,417	$30,217	5.2%
Census Tract 9722	$77,917	$102,946	$44,769	11.9%

NOTES:

1 In 2018 inflation-adjusted dollars.

2 Poverty level is $12,060 for one person and an additional $4,180 for each additional family member in the lower 48 contiguous states and Washington, DC.

SOURCE: US Census Bureau, 2018 American Community Survey 5-Year Estimates, https://data.census.gov/cedsci/table?g=1400000US12087972000,12087972100,12087972200&tid=ACSST5Y2018.S1701&t=Income%20and%20Poverty%3APoverty&vintage=2018&hidePreview=false&layer=VT_2018_140_00_PY_D1&cid=S1701_C01_001E (accessed June 13, 2020).

TABLE 3-13 POPULATION DEMOGRAPHICS

DEMOGRAPHIC CHARACTERISTIC [1]	STATE OF FLORIDA		MONROE COUNTY		CITY OF KEY WEST[1]		CENSUS TRACT 9720		CENSUS TRACT 9121		CENSUS TRACT 9722	
	POPULATION	PERCENT	POPULATION	PERCENT	POPULATION	PERCENT	POPULATION	PERCENT	POPULATION	PERCENT	POPULATION	PERCENT
Race												
White alone	15,529,098	75.4%	67,672	88.7%	28,327	81.4%	3,035	85.3%	3,939	82.3%	2,472	73.5%
Black or African American alone	3,316,376	16.1%	5,399	7.1%	4,259	12.2%	299	8.4%	728	15.2%	364	10.8%
American Indian and Alaskan Native	58,118	0.3%	114	0.1%	43	0.1%	0	0.0%	9	0.2%	0	0.0%
Asian	559,168	2.7%	977	1.3%	613	1.8%	105	3.0%	58	1.2%	278	8.3%
Native Hawaiian and Other Pacific Islander	12,887	0.1%	107	0.1%	107	0.3%	0	0.0%	0	0.0%	0	0.0%
Some Other Race	580,152	2.8%	921	1.2%	690	2.0%	80	2.2%	0	0.0%	153	4.6%
Total Population [2]	20,598,139	100.0%	76,325	100.0%	34,784	100.0%	3,556	100.0%	4,788	100.0%	3,361	100.0%
Ethnicity												
Hispanic or Latino (of any race)	5,184,720	25.2%	18,206	23.9%	9,701	27.9%	599	16.8%	1,254	26.2%	883	26.3%

NOTES:

1 The demographic characteristics of the city of Key West are influenced by seasonal residents and visitors during peak travel seasons. The resulting higher functional population in the city of Key West during peak seasons is not reflected in these data because the US Census Bureau does not count seasonal residents and visitors.

2 Totals may not add due to rounding.

SOURCE: US Census Bureau, American Community Survey 5-Year Estimates, ACS Demographic Estimates, 2018.

3.15 VISUAL EFFECTS

The Indirect Study Area is a moderate ambient light environment whose visual character is dominated by the Airport; Roosevelt Boulevard; commercial, residential, and light industrial land uses; and the natural environment typical of the Florida Keys. Airfield lighting is the dominate source of lighting emitting from and in the vicinity of the Direct Study Area. A series of high-mast lights are located along the south side of the airfield, adjacent to the terminal and tenant buildings. Edge lighting is used to define airfield pavement. The lighting in the Indirect Study Area adjacent to the Airport is typical of residential and commercial land uses and contributes to the ambient light environment. The nearest light-sensitive receptors to the airfield are properties along Roosevelt Boulevard, adjacent to the southeast corner of Airport property. Residential areas are located to the east, north, west, and southwest of the Airport, with vegetation obscuring light emissions from the airfield.

The Indirect Study Area is primarily comprised of the Airport and the Atlantic Ocean with residential and commercial development to the northeast, north, and west. The Airport itself is a mix of transportation-related, commercial, and industrial development. The visual character of the Indirect Study Area is defined by transportation-related structures (airfield and Airport facilities), residences to the north and west, commercial development to the east, and the Atlantic Ocean to the south and east.

3.16 WATER RESOURCES

Water resources are surface waters and groundwater that are vital to society; they are important in providing drinking water and in supporting recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. Water resources are discussed by resource type: wetlands, floodplains, surface waters, and ground water. See Tables B-12 to B-15 in Appendix B for regulatory setting information.

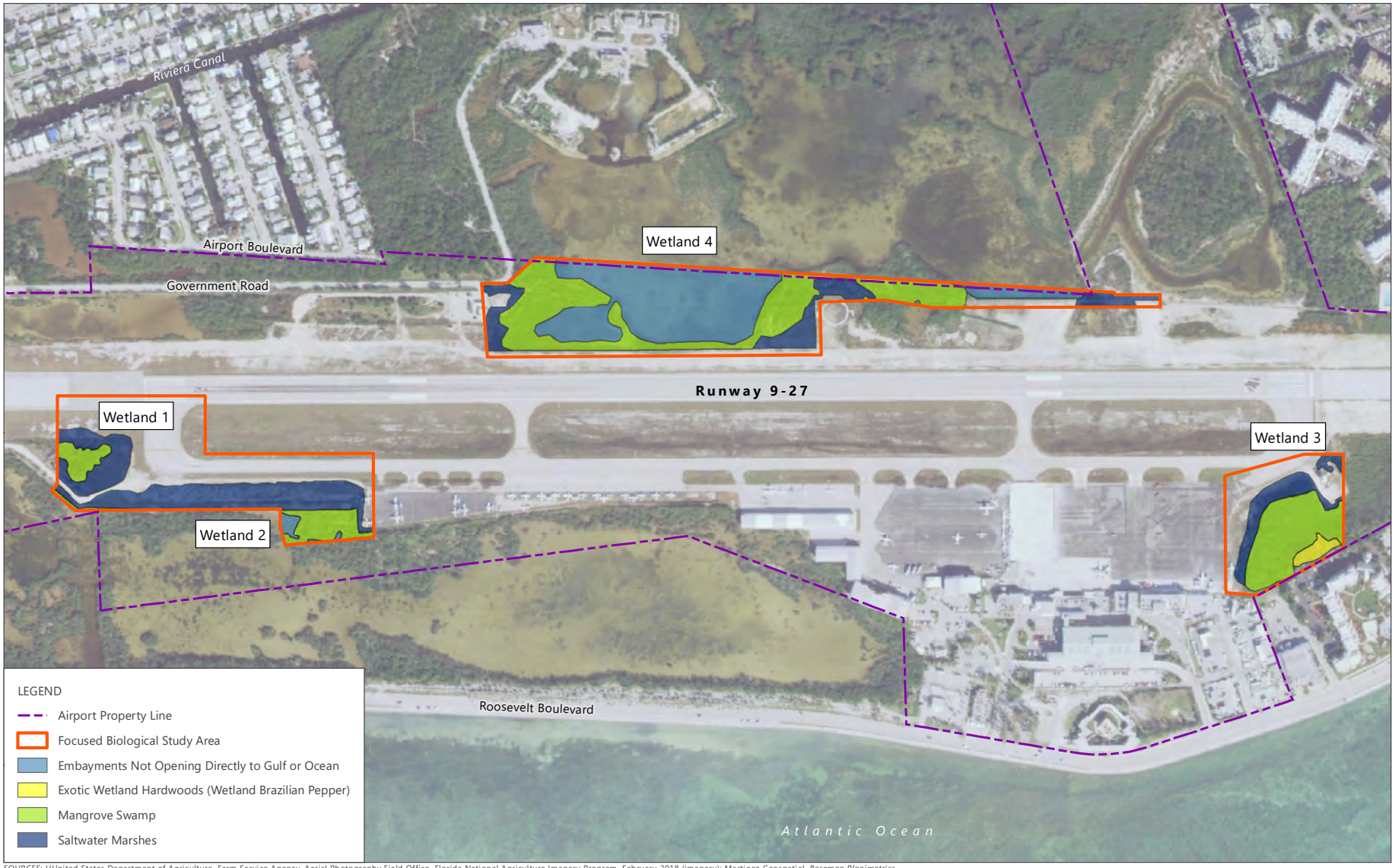
3.16.1 WETLANDS

Wetland limits were established utilizing the US Army Corps of Engineers (USACE) Wetland Delineation Manual,[22] supplemental regional guidance from the USACE,[23] and Florida Administrative Code (FAC) Chapter 62-340, *Delineation of Landward Extent of Wetlands and Surface Waters*.[24] The location of wetlands within the Focused Biological Study Area are shown on **Exhibit 3-10**. The total acreage of all wetlands within the Focused Biological Study Area is provided in **Table 3-14**.

[22] US Army Corps of Engineers, *Wetlands Research Program Technical Report Y-87-1, Corps of Engineers Wetland Delineation Manual*, January 1987.

[23] US Army Corps of Engineers, *Wetlands Regulatory Assistance Program, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Regional (Version 2.0)*, November 2010.

[24] Florida Administrative Code, Chapter 62-340, *Delineation of the Landward Extent of Wetlands and Surface Waters*, July 1, 1994.



SOURCES: UUnited States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); Birkitt Environmental Services, Inc., Pedestrian Qualitative Survey, September 17–19, 2010 (habitats, focused biological study area).

NORTH 0 600 ft

EXHIBIT 3-10

WETLANDS WITHIN THE FOCUSED BIOLOGICAL STUDY AREA

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TABLE 3-14 WETLAND COMMUNITY TYPES PRESENT WITHIN THE FOCUSED BIOLOGICAL STUDY AREA

FLUCFCS CODE	DESCRIPTION	ACRES
612 – Mangrove Swamp	E2FO3N – Estuarine, Intertidal, Forested, Broad-leaved Evergreen, Regularly Flooded	8.3
642 – Saltwater Marshes	E2EM1 – Estuarine, Intertidal, Emergent, Persistent	6.5
542 – Salt Ponds/Embayments not Opening Directly to Gulf or Ocean	E1UB2 – Estuarine, Subtidal, Unconsolidated Bottom, Sand	6.3
619 – Exotic Wetland Hardwoods (Wetland Brazilian Pepper)	E2F03P – Estuarine, Intertidal, Forested, Broad-leaved Evergreen, Irregularly Flooded	0.3
Total Wetlands within BSA		**21.4**

NOTES: BSA – Biological Study Area FLUCFCS – Florida Land Use, Covers and Form Classification System

SOURCE: Birkitt Environmental Services, Inc., September 2019, based on Florida Fish and Wildlife Conservation Commission, Florida Land Use, Covers and Form Classification System, South Florida Water Management District, 2016.

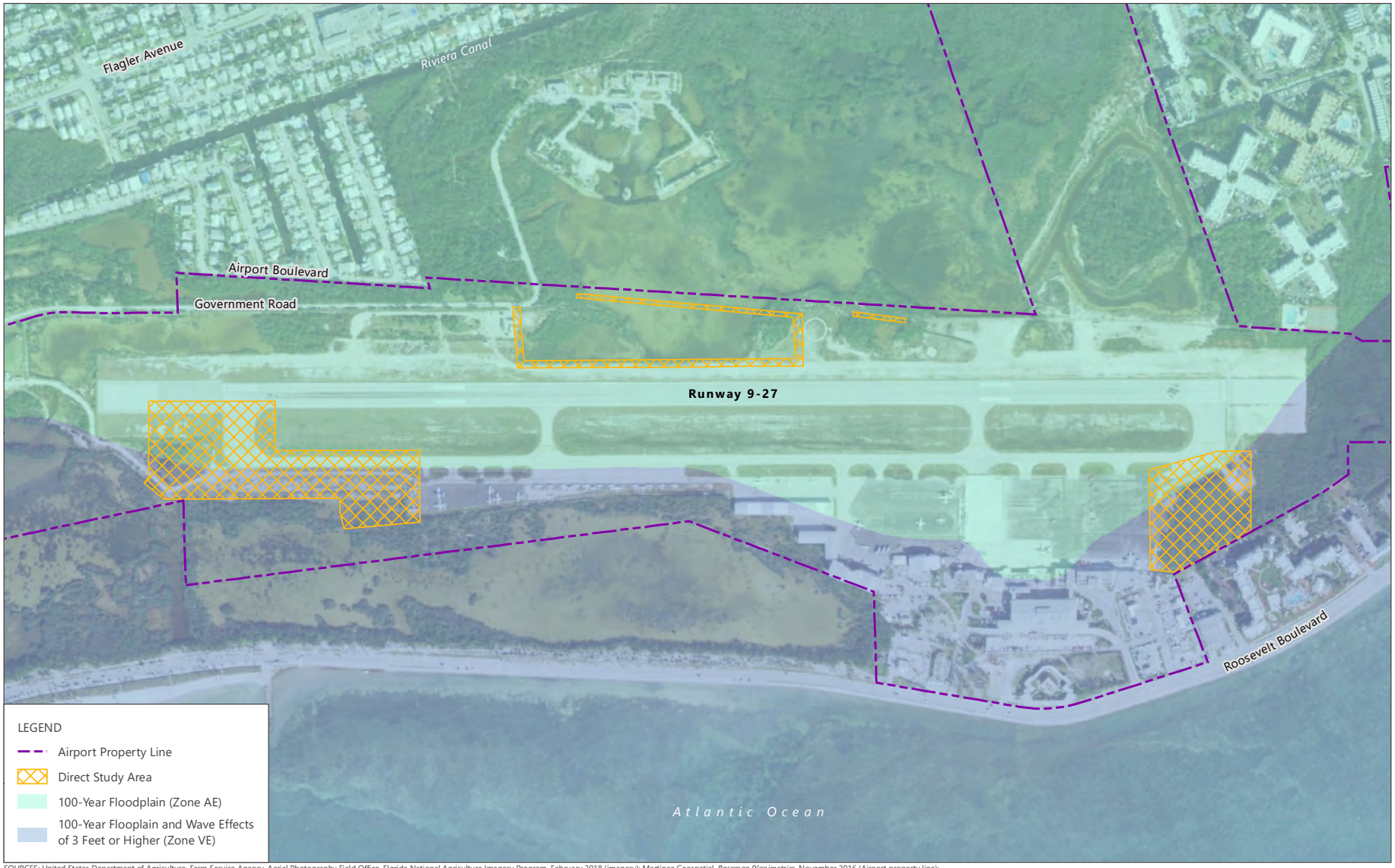
3.16.2 FLOODPLAINS

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), all land on and adjacent to the Airport, including the Direct Study Area, is located within the 100-year floodplain. The south side of the Airport along the Atlantic Ocean shoreline, including the south portions of the Direct Study Area, is designated as Zone VE, which indicates areas that are subject to inundation by a 100-year flood event with additional hazards due to storm-induced velocity wave action of 3 feet or higher. The remainder of the Airport is designated as Zone AE, which indicates areas that are subject to inundation by a 100-year flood event and where Base Flood Elevations[25] have been determined. **Exhibit 3-11** depicts the current 100-year floodplain in the vicinity of the Direct Study Area.

3.16.3 SURFACE WATERS

The Direct Study Area, as well as the entirety of EYW property, is located within the Key West sub-watershed 6014A. Sub-watersheds in the vicinity of the Airport are depicted on **Exhibit 3-12**. Surface waters on Airport property include ditches, salt ponds, mangrove swamp wetlands, and saltwater marsh wetlands, which interchange with tidal waters and drain via connections (direct and culverts) to Riviera Canal as well as via culverts to the Atlantic Ocean on the east side. The Riviera Canal is oriented southwest to northeast and connects to inshore waters of Cow Key Channel northeast of EYW.

[25] Base Flood Elevations are the elevations that floodwater is predicted to rise to in the event of a 100-year flood event. Base Flood Elevations in the Direct Study Area range from approximately 7 to 9 feet. (National Oceanic and Atmospheric Administration, North American Vertical Datum of 1988, https://www.ngs.noaa.gov/datums/vertical/north-american-vertical-datum-1988.shtml [accessed February 24, 2020].)



SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); Federal Emergency Management Agency, FIRM Panels 12087C0450G, 12087C1717G, 12087C1736H, 12087C1728H and 12087C1709G for Monroe County, Florida, March 6, 2020 (floodplain); Ricondo & Associates, Inc., June 2020 (study area).

EXHIBIT 3-11

NORTH 0 700 ft

FLOODPLAINS

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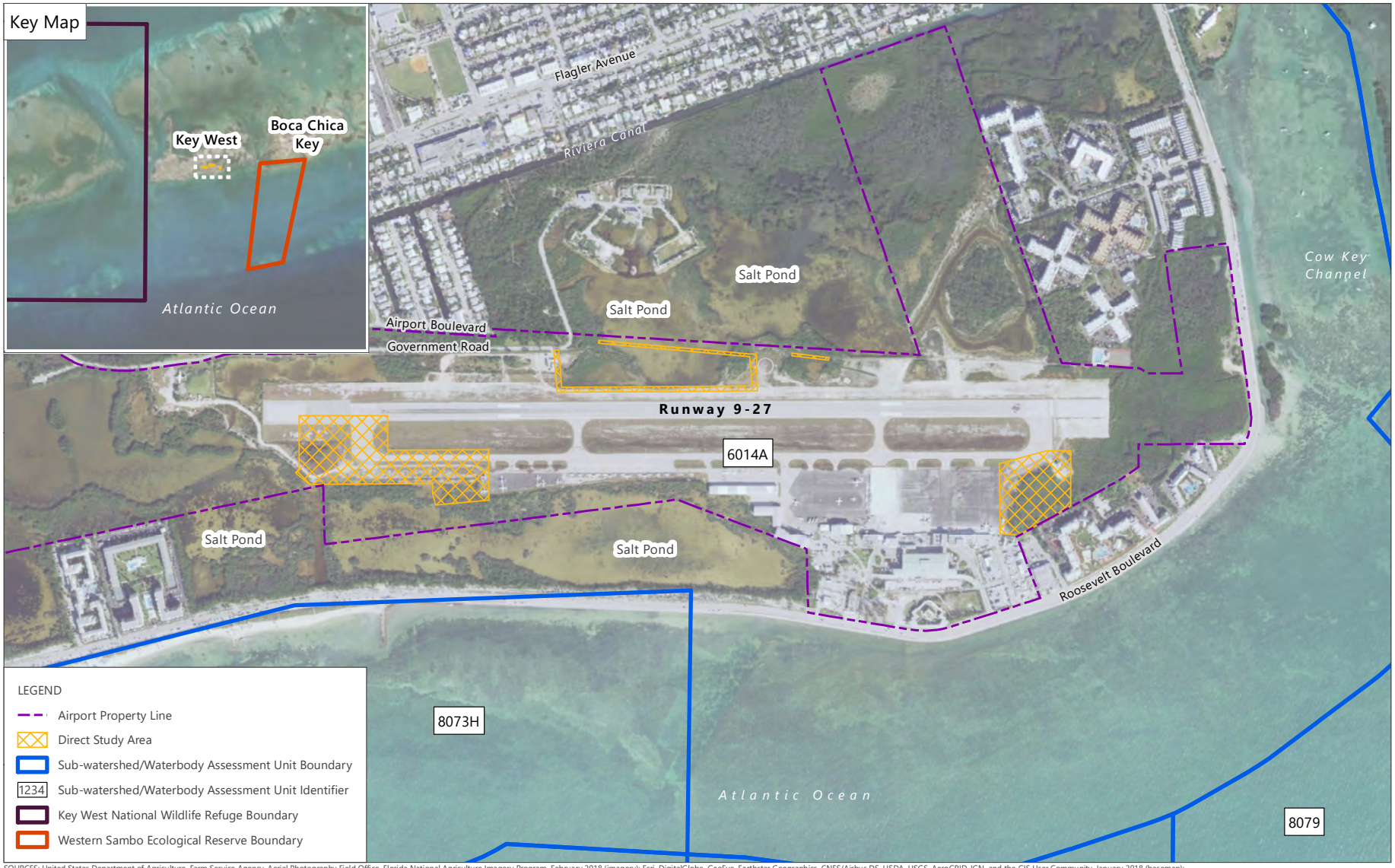

SOURCES: United States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, January 2018 (basemap); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); Florida Department of Environmental Protection, 2019 (waterbody units); National Oceanic and Atmospheric Administration, Marine Protected Areas Inventory, 2020 (refuge, reserve); Ricondo & Associates, Inc., June 2020 (study area).

EXHIBIT 3-12

NORTH 0 1,000 ft

SURFACE WATERS

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Surface waters within the Key West sub-watershed are designated by the FDEP as Class III waters. Class III waters, by definition, should be suitable for recreational use and propagation and maintenance of a healthy, well-balanced population of fish and wildlife, as well as suitable for supporting populations of fish that can be safely consumed. The Key West sub-watershed is listed as impaired under Section 303(d) of the Clean Water Act (CWA) due to elevated levels of copper.[26] Copper in stormwater runoff from urban areas can come from a variety of sources, such as brake pad dust, engine oil, combustion of lubricating oil, roof and gutter runoff, runoff from building siding, fertilizers, pesticides, and industrial releases.[27] Other sources of copper in the marine environment can include antifouling paints used to protect the hulls of ships, buoys, and other man-made structures that have to be underwater for long periods of time and the chromated copper arsenate that was used to treat marine lumber and pilings.[28]

In addition to being designated Class III waters within the Key West sub-watershed, the waters of the Florida Keys are designated "special water" Outstanding Florida Waters (OFWs), as detailed in FAC 62-302.700(9). For projects that require permitting by the FDEP or the state Water Management Districts for discharge directly to OFWs, the permittee must demonstrate that the project would not lower the ambient water quality. Similarly, for projects with an indirect discharge to an OFW, the project cannot significantly degrade the OFW. Exceptions may be allowable in certain situations if it is determined that the project is clearly in the public interest and the ambient water quality of the OFW would either not be lowered or only lowered for a period that would not exceed 30 days.[29] The OFW designation does not extend into man-made canals; therefore, it would not include the Riviera Canal. The salt ponds surrounding the Airport, including those that connect to the Riviera Canal, are designated OFW. The Key West National Wildlife Refuge, located approximately 3 miles west of the Direct Study Area, is also a designated OFW. The Western Sambo Ecological Reserve, approximately 2.3 miles east of the Direct Study Area, is not identified as an OFW, but it is overlapped by the Florida Keys OFW.

The waters surrounding the Florida Keys also comprise the Florida Keys National Marine Sanctuary, which is afforded protective measures, including requirements related to discharges from within and outside of the sanctuary that could affect sanctuary resources through water quality issues. Development projects with the potential to affect the sanctuary are subject to review for conformance to the policies and restrictions of the National Marine Sanctuaries Act (NMSA) prior to approval. The boundary of the Florida Keys National Marine Sanctuary includes the shoreline south of Roosevelt Boulevard, continues into Cow Key Channel, and extends through Riviera Canal. For mangrove fringed shorelines, the sanctuary boundary stops at the waterward edge of the mangrove fringe; therefore, the wetlands adjacent to EYW and between EYW and Riviera Canal are not considered part of the Florida Keys National Marine Sanctuary.[30]

Florida adopted the federal stormwater multi-sector general permit for industrial activities in October 2000. It operates as the State of Florida Multi-Sector Generic Permit for Stormwater Discharge Associated with Industrial Activity and consists of the original 1995 issuance and subsequent modifications and corrections. The permit, which

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[26] Florida Department of Environmental Protection, Comprehensive Verified List November 26, 2019, https://floridadep.gov/dear/watershed-assessment-section/documents/comprehensive-verified-list (accessed December 23, 2019).

[27] Nason, Jeffrey A. et al., "Factors Influencing Dissolved Copper Concentrations in Oregon Highway Stormwater Runoff," https://ir.library.oregonstate.edu/downloads/8910jv27b (accessed December 23, 2019).

[28] US Environmental Protection Agency, Aquatic Life Criteria – Copper, https://www.epa.gov/wqc/aquatic-life-criteria-copper#:~:text=A%20major%20source%20of%20copper,arsenate%20(CCA)%20treated%20timbers (accessed September 1, 2020).

[29] Florida Administrative Code, Rule 62-4.242(2).

[30] Joanne Delaney, Resource Protection and Permit Coordinator, Florida Keys Marine Sanctuary, "Re: Question Regarding Key West International Airport Apron and Taxiway Improvements Project," email to Jay Gable, Michael Baker International, June 12, 2020.

is to be renewed every five years, requires the County to maintain a Stormwater Pollution Prevention Plan (SWPPP)[31] for activities at the Airport. The Airport's operational SWPPP was last updated on September 14, 2018 (the SWPPP's executive summary is provided in **Appendix J**). The SWPPP includes BMPs to minimize potential surface water pollution resulting from Airport and tenant facilities and activities and incorporates guidelines from FAA Advisory Circular 150/5320-15A, Management of Airport Industrial Waste.

The Florida Department of Transportation (FDOT) has also issued the *Statewide Airport Stormwater Best Management Practices Manual* (BMP Manual) to protect water quality, limit or prevent flooding, and preserve or maintain healthy ecosystems in a way consistent with safe and efficient air transportation.[32] Runoff from impervious surfaces at the Airport are managed consistent with the FDOT BMP Manual. Stormwater runoff from airfield taxiways and roadways sheet flows into adjacent grassed areas. If the areas adjacent to roadways and taxiways are less than 25 feet in width (the minimum dimension defined in the BMP Manual for the overland flow water quality BMP), stormwater enters catch basins connected by pipes to a system of exfiltration trenches, gravity drainage wells, or a pumped injection well. Runoff from apron areas is piped to the system of exfiltration trenches, gravity drainage wells, or a pumped injection well. **Exhibit 3-13** depicts the existing drainage system at EYW.

In addition to the operational SWPPP, contractors are required to develop project-specific construction SWPPPs that establish BMPs to be followed throughout the construction phase of a project. Examples of typical BMPs include installing silt fencing or using straw bales to provide sediment and erosion control, establishing groundcover (e.g., turfgrass sod) on recently graded soils, and properly storing materials that are potential pollutants during construction.

No navigable Waters of the United States or natural stream channels are within the Direct Study Area.

3.16.4 GROUNDWATER

The Lower Keys are relatively large and comprised of Miami Limestone. Small freshwater to slightly brackish lenses occur on the largest of these islands.[33] Layers of freshwater, known in hydrology terms as a lens, are convex layers of groundwater that float on top of denser saltwater. A lens is reacted by rainwater seeping through the soil surface and gathering over the denser seawater at or up to 5 feet below sea level. Freshwater lenses are found on small coral or limestone islands and atolls.

In general, water resources in the Florida Keys are insufficient for the human population of the area. Most Keys have only ephemeral freshwater lenses and cannot be relied on for perennial supplies of potable water. Only the largest of the Lower Keys, Big Pine Key and Key West, have permanent freshwater lenses. Although some private wells do draw water from the Key West freshwater lens, the lens is not a sole-source aquifer. More than 95 percent of water for domestic use is provided by the Florida Keys Aqueduct Authority via pipeline from wellfields on the mainland.[34]

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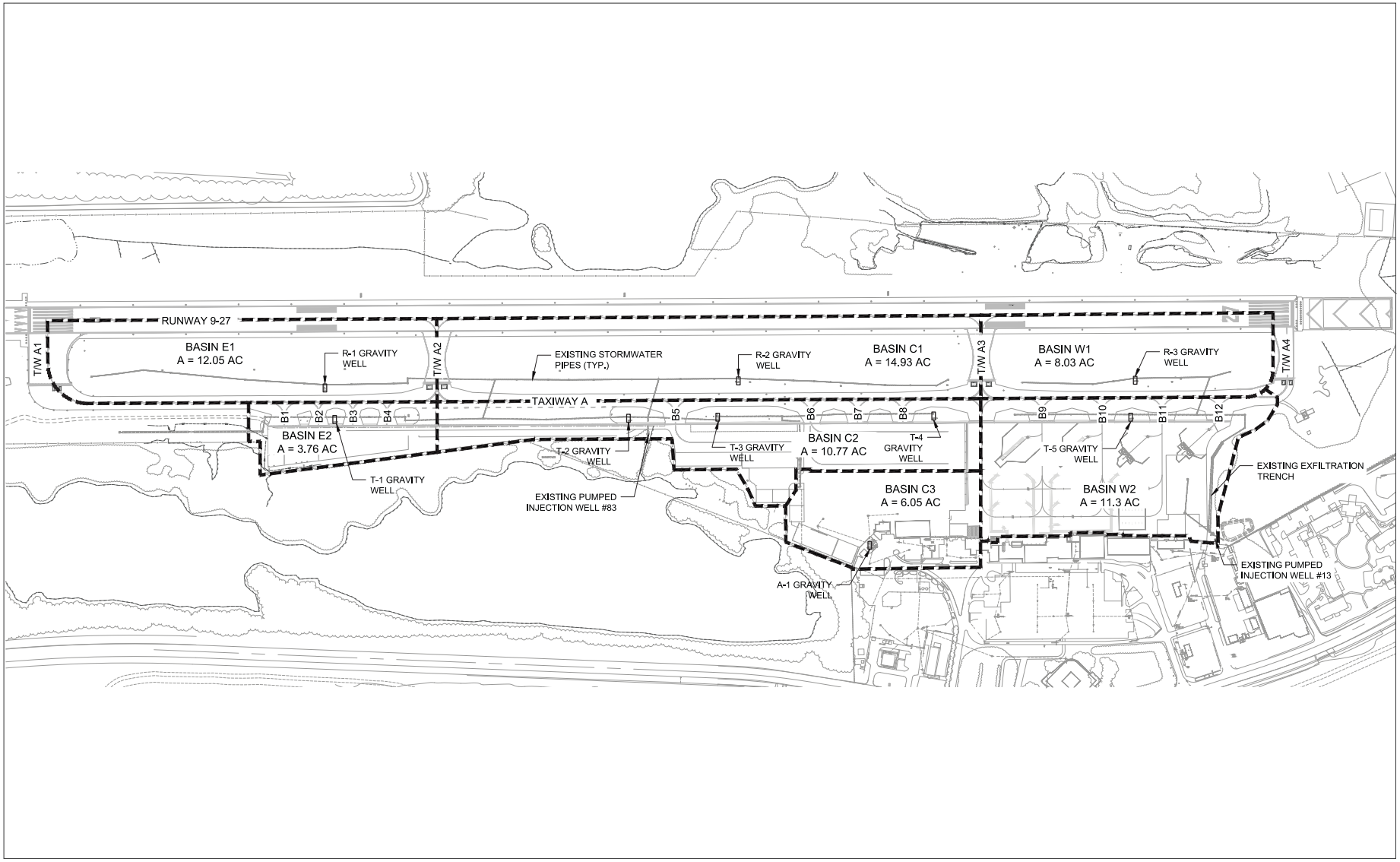
[31] Jacobs, *Stormwater Pollution Prevention Plan for: Key West International Airport (EYW), Facility ID FLR05F355, 3491 South Roosevelt Blvd., Key West, FL 33040*, September 14, 2018.

[32] Florida Department of Transportation, Aviation Office, *Statewide Airport Stormwater Best Management Practices Manual*, April 27, 2013.

[33] Hailey, Robert B., H. L. Vacher, and Eugene A. Shinn, "Geology and Hydrology of Carbonate Islands," H. L. Vacher and T. Quinn (Eds.), Development in Sedimentology, Volume 54. Amsterdam: Elsevier Science, April 2004.

[34] Florida Keys Aqueduct Authority, https://www.fkaa.com/#what_we_do (accessed November 7, 2019).



SOURCE: Jacobs, January 4, 2021.

NORTH

Not To Scale

EXHIBIT 3-13

STORMWATER DRAINAGE INFRASTRUCTURE

ricondo (2):Shared:oDrive:Corporate:Creative Services:01 Projects:01 Client Projects:2021:EYW:19041130-708_Exhibit:19041130-708_Exhibit_3-13.indd

4. ENVIRONMENTAL CONSEQUENCES

This Chapter provides a discussion of the potential environmental consequences associated with the Proposed Action and the No Action Alternative. Two of the environmental categories specified in FAA Orders 1050.1F and 5050.4B are not evaluated as part of this EA (farmlands and Wild and Scenic Rivers), because these resources are not present in the vicinity of the Airport, as discussed in Section 3.3.

4.1 AIR QUALITY

4.1.1 METHODOLOGY

The CAA requires federal agencies, such as the FAA, to ensure their actions conform to the appropriate state plan (referred to as a State Implementation Plan) that sets strategies and timelines for attaining the NAAQS. Because Monroe County is in attainment for all NAAQS, the General Conformity Rule is not applicable. However, for purposes of determining whether implementation of the Proposed Action would result in an air quality impact, changes in emissions of criteria pollutants were estimated to determine if they would contribute to an exceedance of the NAAQS by comparing the change in emissions to the *de minimis* thresholds established for evaluating General Conformity (that is, 100 tons per year of CO, volatile organic compounds [VOCs], oxides of nitrogen [NO_X], oxides of sulfur [SO_X], PM_{10}, and $PM_{2.5}$).

Construction emissions were estimated in compliance with guidance in FAA Orders 1050.1F and 5050.4B; the CAA, as amended by the Clean Air Act Amendments of 1990 and the associated regulations; and the FAA's *Aviation Emissions and Air Quality Handbook*.[1] Construction emissions were estimated using the Airport Construction Emissions Inventory Tool (ACEIT), which provides default values for most input data required to produce construction emissions inventories, including activity data and emission factors, and it allows for the manipulation of various parameters to better define and refine a project analysis.[2] The model calculates emissions for the criterial pollutants and their precursor compounds (that is, CO, SO_2, PM_{10}, $PM_{2.5}$, CO_2, N_2O, VOCs, NO_X, and CH_4) for both on-road and off-road construction sources.[3] The model uses the USEPA's nonroad equipment emissions model 2008a (NONROAD2008a) for nonroad construction vehicle/equipment emissions and the Motor Vehicle Emission Simulator 2010b (MOVES2010b) for on-road vehicle emissions.[4] Because MOVES2010b has been replaced with MOVES2014b, the latter model was used outside of the ACEIT model to derive on-road emission factors for use in this analysis. In addition to exhaust emissions, MOVES estimates fugitive emissions related to non-exhaust and non-equipment sources, including evaporative (such as VOC) emissions and brake and tire wear (such as PM) emissions. Fugitive emissions from other sources, including batch plants, asphalt drying, soil handling, and material movement,

[1] US Department of Transportation, Federal Aviation Administration, *Aviation Emissions and Air Quality Handbook*, Version 3, Update 1, January 2015.

[2] The FAA funded the development of ACEIT through the Transportation Research Board's 2014 Airport Cooperative Research Program (Report 102, *Guidance for Estimating Airport Construction Emissions*). The model was developed to provide consistency in determining estimated emissions levels associated with construction activity, which are not accounted for in FAA's Aviation Environmental Design Tool (AEDT).

[3] For purposes of this analysis, it was assumed that estimates of SO_X emissions are equal to calculated emissions of SO_2.

[4] The latest MOVES model incorporates the NONROAD2008a model for estimating emissions from nonroad construction vehicles and equipment.

are also included in the model, using methodologies from the USEPA's AP-42.[5] Detailed information regarding the ACEIT, analysis methodologies, and assumptions is provided in **Appendix G**.

Operational emissions associated with aircraft operations were estimated using the FAA-approved model for estimating emissions, AEDT, Version 3b. Aircraft-related sources of emissions included aircraft taxiing as well as arrival and departure operations below 3,000 feet, auxiliary power units, and ground support equipment. Emissions from aircraft operations are estimated up to the "mixing height," for which the default 3,000 feet above ground level mixing height is used because an applicable State Implementation Plan or Transportation Implementation Plan does not specify an alternate mixing height. Emissions above the mixing height are considered to be *de minimis* per 40 CFR 93.153(c)(2)(xxii). More information regarding modeling methodology and model inputs is provided in Section 3.13 and Appendix F. Operational emissions associated with surface transportation are discussed qualitatively.

4.1.2 SIGNIFICANCE THRESHOLDS

As discussed in FAA Order 1050.1F, an action would cause significant air quality impacts if pollutant concentrations would exceed one or more of the NAAQS, as established by the USEPA under the CAA, for any of the time periods analyzed, or if the action would cause an increase in the frequency or severity of any such existing violations.

4.1.3 CONSTRUCTION IMPACTS

4.1.3.1 NO ACTION ALTERNATIVE

No construction activities would occur under the No Action Alternative. Therefore, no construction emissions would result from the No Action Alternative.

4.1.3.2 PROPOSED ACTION

Construction of the Proposed Action would include site preparation, demolition of pavement, construction of new pavement, application of pavement markings, and installation of lighting and fencing. These activities would require the use of heavy trucks, excavating and grading equipment, material loaders, dozers, and paving equipment. Emissions would result from, but would not be limited to: engine exhaust from construction worker vehicle trips to and from the site; engine exhaust from construction equipment, including trips by trucks hauling raw materials, supplies, and fill material, and the operation of construction equipment at the site; and fugitive dust emissions during ground-disturbing activities, materials handling, and equipment use on unimproved surfaces. Details of each construction activity analyzed, and the resulting emissions, are provided in Appendix G. **Table 4-1** presents the emissions inventory for construction activities associated with the Proposed Action, which would occur between 2021 and 2023. As shown, the construction-related emissions of criteria pollutants or their precursor compounds would be well below the established *de minimis* thresholds for each year during the construction period and, therefore, would not cause pollutant concentrations to exceed any of the NAAQS. The increase in emissions would be temporary, only occurring during the construction period. No significant adverse air quality impacts would be expected to result from construction of the Proposed Action.

To address localized effects of construction, the contractor would be required to implement measures to minimize emissions during construction, consistent with the provisions of the FAA Advisory Circular 150/5370-10H, *Standards for Specifying Construction of Airports*, to reduce construction-related emissions, including: reduction of exposed

[5] US Environmental Protection Agency, AP-42, *Compilation of Air Pollutant Emission Factors*, 5th edition, January 1995.

erodible surface area through appropriate materials and equipment staging procedures; reduction of equipment idling times; ensuring contractor knowledge of appropriate fugitive dust and equipment exhaust controls; soil and stock-pile stabilization via cover or periodic watering; use of covered haul trucks and conveyors during materials transportation; and reduction of electrical generator usage, wherever possible. Additionally, the Airport would implement construction dust control BMPs during construction to minimize fugitive dust, as required by the FAA Advisory Circular 150/5370-2G, *Operational Safety on Airports During Construction*.

TABLE 4-1 CONSTRUCTION EMISSIONS – PROPOSED ACTION

	EMISSIONS (TONS/YEAR)					
CONSTRUCTION YEAR	CO	VOC [1]	NO_X [1]	SO_X [2]	PM_{10}	$PM_{2.5}$
2021	3.386	2.093	1.520	0.026	0.276	0.067
2022	8.559	4.549	3.463	0.075	0.821	0.146
2023	2.401	0.511	1.153	0.010	0.444	0.047
de minimis Threshold	100.000	100.000	100.000	100.000	100.000	100.000
Exceeds *de minimis* Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

NOTES:
CO – Carbon Dioxide
NO_X – Oxides of Nitrogen
PM_{10} – Particulate Matter up to 10 Microns
$PM_{2.5}$ – Particulate Matter Less than 2.5 Microns
SO_X – Oxides of Sulfur
VOC – Volatile Organic Compound
1 Following standard industry practice, ozone was evaluated by estimating emissions of VOC and NO_X, which are precursors in the formation of ozone.
2 In accordance with standard industry practice, it was assumed that estimates of SO_X emissions are equal to calculated emissions of SO_2.
SOURCE: Ricondo & Associates, Inc., December 2019 (based on inputs to the Airport Construction Emissions Inventory Tool [ACEIT], using the US Environmental Protection Agency NONROAD2008a and MOVES2014b emissions models).

4.1.4 OPERATIONAL IMPACTS

4.1.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, emissions associated with aircraft operations and surface transportation vehicle operations would increase commensurate with increases in aircraft activity. **Table 4-2** presents aircraft emissions associated with the No Action Alternative.

TABLE 4-2 OPERATIONAL AIRCRAFT EMISSIONS – NO ACTION ALTERNATIVE

	AIRCRAFT EMISSIONS (TONS)					
YEAR	CO	VOC [1]	NO_X [1]	SO_X [2]	PM_{10}	$PM_{2.5}$
2024	303.58	16.73	39.66	5.42	0.97	0.97
2029	310.28	17.75	43.34	5.89	1.04	1.03

NOTES:
CO – Carbon Dioxide
NO_X – Oxides of Nitrogen
PM_{10} – Particulate Matter up to 10 Microns
$PM_{2.5}$ – Particulate Matter Less than 2.5 Microns
SO_X – Oxides of Sulfur
VOC – Volatile Organic Compound
1 Following standard industry practice, ozone was evaluated by estimating emissions of VOC and NO_X, which are precursors in the formation of ozone.
2 In accordance with standard industry practice, it was assumed that estimates of SO_X emissions are equal to calculated emissions of SO_2.
SOURCE: KB Environmental Sciences, Inc., September 2020 (using the Aviation Environmental Design Tool, Version 3b).

4.1.4.2 PROPOSED ACTION

Under the Proposed Action, emissions associated with aircraft operations would increase when compared to the No Action Alternative due to increases in aircraft activity, as shown in **Table 4-3**. The incremental change in emissions of criteria pollutants or their precursor compounds that would result from operations under the Proposed Action, however, would be minor and would be well below *de minimis* thresholds.

TABLE 4-3 OPERATIONAL AIRCRAFT EMISSIONS – PROPOSED ACTION

	AIRCRAFT EMISSIONS (TONS)					
YEAR	CO	VOC [1]	NO_X [1]	SO_X [2]	PM_{10}	$PM_{2.5}$
2024						
Annual Aircraft Emissions	309.32	17.06	41.66	5.67	1.01	1.00
Incremental Difference [3]	5.74	0.33	2.00	0.25	0.04	0.03
de minimis Threshold	100.000	100.000	100.000	100.000	100.000	100.000
Exceeds de minimis Threshold? [3]	**No**	**No**	**No**	**No**	**No**	**No**
2029						
Annual Aircraft Emissions	316.11	18.09	45.40	6.15	1.08	1.07
Incremental Difference [3]	5.83	0.34	2.06	0.26	0.04	0.04
de minimis Threshold	100.000	100.000	100.000	100.000	100.000	100.000
Exceeds de minimis Threshold? [3]	**No**	**No**	**No**	**No**	**No**	**No**

NOTES:
CO – Carbon Dioxide
NO_X – Oxides of Nitrogen
PM_{10} – Particulate Matter up to 10 Microns
$PM_{2.5}$ – Particulate Matter Less than 2.5 Microns
SO_X – Oxides of Sulfur
VOC – Volatile Organic Compound
1 Following standard industry practice, ozone was evaluated by estimating emissions of VOC and NO_X, which are precursors in the formation of ozone.
2 In accordance with standard industry practice, it was assumed that estimates of SO_X emissions are equal to calculated emissions of SO_2.
3 The incremental difference is the change in emissions of the Proposed Action compared to the No Action Alternative.
SOURCE: KB Environmental Sciences, Inc., September 2020 (using the Aviation Environmental Design Tool, Version 3b); Ricondo & Associates, Inc., September 2020.

The additional aircraft operations are forecast to transport approximately 78,590 more annual enplaned passengers in 2024 and 2029 under Proposed Action than under the No Action Alternative (see Table 1-2). The increase in passengers would result in an increase in the number of vehicles to and from the Airport. Passengers travel in party sizes that range from a single person in a vehicle (such as a private car or rental car) to several persons that share a vehicle. Based on a comparison of the peak hour forecast of enplaned passengers to the estimated peak hour vehicle demand on the departure roadway documented for the future year 2035 in the *Airport Master Plan Update, 2015–2035*,[6] it is estimated that each passenger accessing or leaving the Airport during the peak hour generates an average of 0.773 new vehicle trips (or a vehicle-to-passenger ratio of 77.3 percent). Although an annual number of vehicles was not estimated in the Airport Master Plan Update, application of the peak hour ratio to the additional 78,590 annual enplaned passengers equates to approximately 60,765 new vehicles accessing the Airport for departures per year, or an increase of 12 percent over the estimated 487,170 vehicle trips that would access the Airport under the No Action Alternative in 2024 (and 524,600 vehicle trips in 2029) and a comparable number of vehicles associated with arrivals. Furthermore, some of these new passengers may include visitors to Key West that

[6] Monroe County, *Key West International Airport, Airport Master Plan Update, 2015–2035*, Table 4.3-1, "Future Year Passenger Forecasts," and Table 4.3-3, "Curbside Requirements Summary," September 2019.

would otherwise drive the Overseas Highway from mainland Florida to access the Lower Keys, along the 125-mile, two-lane highway, often characterized by traffic congestion. Given the anticipated scale of the increase of annual vehicles that may result from implementation of the Proposed Action, along with the possibility that some vehicles otherwise accessing Key West via the Overseas Highway may decrease, the change in emissions associated with vehicle trips under the Proposed Action is expected to be minor in comparison to the No Action Alternative. Furthermore, Monroe County is in attainment with the NAAQS.

The increase in emissions due to trips to and from the Airport by additional air passengers under the Proposed Action is expected to represent a minor increase in emissions compared with the No Action Alternative that would be below the established *de minimis* thresholds. The change in emissions of criteria pollutants or their precursor compounds resulting from implementation of the Proposed Action would be below the established *de minimis* thresholds and, therefore, would not cause pollutant concentrations to exceed any of the NAAQS. Therefore, no significant adverse air quality impacts would be expected to result from implementation of the Proposed Action.

4.2 BIOLOGICAL RESOURCES

4.2.1 METHODOLOGY

Analysis of the effects to biological resources was performed initially by gathering information via desktop research utilizing a wide variety of information and documents related to protected habitat and species in the Florida Keys. A list of these sources is provided in Appendix C. Scientists from Birkitt Environmental Services, Inc., conducted a review of the Biological Study Area, as well as a detailed survey of the Focused Biological Study Area, from September 17 through 19, 2019, to supplement the desktop analysis and identify biological and/or natural resources that may be affected by the Proposed Action. During the site assessment, all existing on-site habitats were mapped utilizing FLUCFCS classifications and any observations of federal or state threatened or endangered species, species indicators, or potential habitat were documented.

The potential presence and use of the Biological Study Areas by federal protected species was evaluated based on existing habitats, field observations, review of species records, effect determination keys/assessment guides, and agency comments. The evaluation was documented in a BA (see Appendix C) that was used to coordinate review of the Proposed Action with the USFWS for terrestrial and freshwater species and the NMFS for marine and anadromous species to ensure that the action is not likely to jeopardize the continued existence of any federal threatened or endangered species or result in the destruction or adverse modification of critical habitat. Coordination with USFWS and/or NMFS is required when the FAA determines that an action may affect a threatened or endangered species under Section 7 of the Endangered Species Act.

4.2.2 SIGNIFICANCE THRESHOLDS

As identified in FAA Order 1050.1F, a significant impact to biological resources would occur when the USFWS or the NMFS 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.[7] The FAA has not established a significance threshold for non-listed species.

[7] US Department of Transportation, Federal Aviation Administration Order 1050.1F Desk Reference, February 2020.

FAA Order 1050.1F provides additional factors to consider in evaluating the context and intensity of potential environmental impacts for biological resources. These factors include whether the action would have the potential to:

- create a long-term or permanent loss of unlisted plant or wildlife species, that is, extirpation[8] of the species from a large project area;
- adversely affect special status species or their habitat;
- create a substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitat or populations; or
- adversely affect species' reproductive success rates, natural mortality rates, non-natural mortality, or ability to sustain minimum population levels required for population maintenance.

4.2.3 CONSTRUCTION IMPACTS

4.2.3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, none of the proposed airfield improvements would be constructed. Consequently, there would be no impacts to existing land use/vegetative cover or to federal and state protected species within the Biological Study Area. Additionally, there would be no impact to EFH or migratory birds.

4.2.3.2 PROPOSED ACTION

Construction of the Proposed Action would involve the placement of fill and clearing on land designated as airport land use, as well as in portions of wetland and upland habitat designated as mangrove swamp, saltwater marshes, salt ponds/embayments, and exotic Brazilian pepper. **Table 4-4** lists the land use and vegetative cover that would be impacted by construction of the Proposed Action.

Protected Species and Critcal Habitats

No effects to species using habitats outside of the area of disturbance (the Focused Biological Study Area) are anticipated due to construction noise since these species currently use habitats adjacent to an active runway and are acclimated to high levels of ambient noise. No effects to species using habitats outside of the area of disturbance are anticipated due to changes in light emissions because new light sources in the highly illuminated airfield environment would be shielded and focused on the aircraft movement and construction areas to eliminate unnecessary light spillover and glare and vegetative buffers would be maintained along the landside perimeter of new apron pavement areas.

Of the 13 federally listed plant and wildlife species with habitat present in the Focused Biological Study Area, two species were eliminated following further evaluation: the silver rice rat and the Lower Keys marsh rabbit. Literature and data from USFWS, FFWCC, and Monroe County demonstrate that the current range of both species does not extend to Key West and is thus outside of the Biological Study Area. The range of the silver rice rat extends southwest in the Florida Keys as far as the Saddlebunch Keys, approximately 8 miles northwest of Key West, and the range of the Lower Keys marsh rabbit extends southwest in the Florida Keys to Boca Chica, approximately 2 miles northeast of Key West. Therefore, a formal effects determination was not performed for these species since neither species inhabits Key West, including the Biological Study Area on Airport property.

[8] To remove or destroy totally.

TABLE 4-4 LAND USE AND VEGETATIVE COVER TO BE IMPACTED

LAND USE/VEGETATIVE COVER (FLUCFCS CODE)	USFWS CLASSIFICATION	PROPOSED FILL (ACRES)	PROPOSED CLEARING (ACRES)
Uplands			
Airports (811)	N/A	3.47	0.00
Brazilian pepper – upland (422)	N/A	0.07	0.00
Wetlands			
Mangrove swamp (612)	E2FO3N – Estuarine, Intertidal, Forested, Broad-leaved Evergreen, Regularly Flooded	3.14	0.20
Saltwater marshes (642)	E2EM1 – Estuarine, Intertidal, Emergent, Persistent	4.03	0.00
Salt ponds/embayments not opening directly to gulf or ocean (542)	E1UB2 – Estuarine, Subtidal, Unconsolidated Bottom, Sand	0.09	0.00
Exotic wetland hardwoods – wetland Brazilian pepper (619)	E2FO3P – Estuarine, Intertidal, Forested, Broad-leaved Evergreen, Irregularly Flooded	0.25	0.00
Total		**11.05**	**0.20**

NOTES:
N/A – Not Applicable FLUCFCS – Florida Land Use, Cover, and Forms Classification System USFWS – US Fish and Wildlife Service
SOURCE: Birkitt Environmental Services, Inc., *EYW Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment*, July 2020.

The Focused Biological Study Area was also evaluated for the occurrence of critical habitat designated in 17 CFR 35.1532 and for habitat proposed by the USFWS. No designated or proposed critical habitat for any protected species is located on Airport property or would be affected by the Proposed Action.

The Proposed Action would affect habitats that may support 11 federally listed species of plants and wildlife. Determinations of *may affect, not likely to adversely affect* the 11 federally listed species are recommended, as summarized in **Table 4-5**. Consultation with the USFWS and NMFS was conducted, as discussed in Section 4.2.5.1. Both USFWS and NMFS found that the Proposed Action is not likely to adversely affect any federally listed species or designated critical habitat protected under the Endangered Species Act.

Migratory Birds

Migratory birds including the piping plover, red knot, roseate tern, wood stork, reddish egret, roseate spoonbill, tricolored heron, and osprey are not expected to be adversely impacted by construction of the Proposed Action, as compensatory wetlands mitigation would be provided to replace habitat loss associated with construction of the Proposed Action (see Section 4.2.6). Temporary construction noise is not anticipated to affect migratory birds or the state-listed white-crowned pigeon. Major construction equipment is expected to include backhoes, concrete mixer trucks, dozers, dump trucks, graders, and paving machines. Outside of the immediate construction area and at off-Airport locations, noise from these sources is anticipated to be at or below ambient background noise levels.

Essential Fish Habitat

Construction of the Proposed Action would impact three habitats that serve as EFH for federally managed fish. The habitat impacts include approximately 3.34 acres of mangrove swamp habitat, 4.03 acres of saltwater marsh, and 0.09 acres of salt ponds/embayments. A discussion of each of these on-Airport habitats follows.

- Mangrove dominated wetlands are considered EFH for several managed species including adult white grunt, juvenile and adult gray snapper, and juvenile mutton snapper. Within the Focused Biological Study Area, these mangrove habitats are generally located along the periphery of the on-site salt ponds/embayments that share limited or no hydrologic connection to nearby ocean waters. Therefore, use by fish of these habitats is anticipated to be limited.
- Saltwater marshes serve as EFH for species such as snook, red drum, and seatrout, all of which rely on this habitat for part of its lifecycle. As with the on-site mangrove swamps, within the Focused Biological Study Area these marshes are located along the periphery of the on-site salt ponds/embayments that share limited or no hydrologic connection to nearby ocean waters. Therefore, utilization by fish of these habitats is anticipated to be minimal. In addition, significant portions of the saltwater marshes located within the Focused Biological Study Area are regularly maintained by mowing; thus, these areas likely provide only limited benefits to these fish.
- On-site salt ponds/embayments contain soft subtidal sediments that are inhabited by macroinvertebrates that serve as prey to manage fish species. As previously noted, the benefits provided to fish by the salt ponds/embayments within the Focused Biological Study Area are likely minimal due to limited connection to adjacent ocean waters.

Based on existing conditions, access from open waters to wetlands and waters proposed to be impacted by the Proposed Action would be limited. Therefore, the Proposed Action is not expected to impact EFH for the federally managed species of fish dependent on each habitat. Furthermore, compensatory wetland mitigation would be provided on-site and off-site to replace functional loss associated with impacts to these habitats due to construction of the Proposed Action, as discussed in Section 4.2.6.

TABLE 4-5 (1 OF 3) PROTECTED SPECIES RECOMMENDED EFFECT DETERMINATION

SPECIES NAME [1]	DISCUSSION	RECOMMENDED EFFECTS DETERMINATION
Plants		
Florida semaphore cactus (*Opuntia corallicola*)	The semaphore cactus could be found in the buttonwood areas along the periphery of the mangrove swamps. However, no semaphore cacti were observed during the field survey, and this species has not been documented within 1 mile of the Airport in the FNAI report. The proposed mitigation for impacts to the mangrove swamp[2] would be sufficient to offset the habitat impacts that could result from the Proposed Action. In addition, the Focused Biological Study Area would be surveyed for the semaphore cactus prior to construction. If this species is found within the Focused Biological Study Area, the semaphore cactus plants would be relocated to appropriate habitat that would not be disturbed by the Proposed Action.	May affect, not likely to adversely affect
Garber's spurge (*Chamaesyce garberi*)	The Garber's spurge is generally found in sandy soils with a limestone substrate, which may be found within and along the periphery of the on-site saltwater marshes. The FNAI report documented one observation of this species within the larger Biological Study Area but not within the Focused Biological Study Area. This species, however, is typically associated with pine rocklands and hammock edges, habitats that are not present within the Focused Biological Study Area. Furthermore, no Garber's spurge individuals were observed during the field survey. In addition, the Focused Biological Study Area would be surveyed for the Garber's spurge prior to construction. If this species is found, the plants would be relocated to appropriate habitat that would not be disturbed by the Proposed Action.	May affect, not likely to adversely affect
Cape Sable thoroughwort (*Chromoiaena frustrata*)	The Cape Sable thoroughwort can be found in coastal environments such as those present within the Focused Biological Study Area. It is generally associated with coastal rock barrens and berms and along the sunny edges of rockland habitat; however, these habitats are not present within the Focused Biological Study Area. In addition, no Cape Sable thoroughwort individuals were documented during the field survey. The Focused Biological Study Area would be surveyed for the thoroughwort prior to construction. If this species is found, the plants would be relocated to appropriate habitat that would not be disturbed by the Proposed Action.	May affect, not likely to adversely affect
Reptiles		
American crocodile (*Crocodylus acutus*)	The American crocodile could inhabit the mangrove swamp, saltwater marshes, or salt ponds/embayments within the Focused Biological Study Area, but these crocodilians are more common in southern peninsular Florida and are rarely found in the Lower Keys. No individuals were observed during the field survey. No documented occurrences have been reported in the FNAI within 1 mile of the Airport. In addition, the proposed mangrove swamp and saltwater marsh wetland habitat mitigation measures[2] would be sufficient to offset the on-site habitat impacts that could result from the Proposed Action.	May affect, not likely to adversely affect
Eastern indigo snake (*Drymarchon corais couperi*)	The Eastern indigo snake could inhabit the upland or mangrove swamp wetlands in the Focused Biological Study Area. All uplands areas, however, are maintained and are unlikely to provide habitat. No individuals were observed during the field survey, nor were any gopher tortoise (*Gopherus polyphemus*) burrows, a species with which the indigo snake is associated, observed. To minimize any potential adverse impacts to this species, the most current version of the USFWS-approved *Standard Protection Measures for the Eastern Indigo Snake* would be used during construction of the Proposed Action. The effects determination was based on the following, consistent with the Eastern Indigo Snake Programmatic Effect Determination Key: use of the USFWS-approved standard protection measures during construction, project impacts to less than 25 acres of potential habitat, and no known cavities or other refugia including gopher tortoise burrows present.	May affect, not likely to adversely affect

TABLE 4-5 (2 OF 3) PROTECTED SPECIES RECOMMENDED EFFECT DETERMINATION

SPECIES NAME [1]	DISCUSSION	RECOMMENDED EFFECTS DETERMINATION
Birds		
Piping plover (*Charadrius melodus*)	The piping plover could potentially be found within open mud flats interspersed within the on-site saltwater marsh habitat. These unvegetated areas are minimal within the Focused Biological Study Area, however, as the majority of the saltwater marsh habitat is vegetated with saltmarsh species. No observations of this species were documented during the field survey, nor has the species been documented within 1 mile of the Airport by FNAI. In addition, the proposed mangrove swamp and saltwater marsh wetland habitat mitigation measures[2] would be sufficient to offset the on-site habitat impacts that could result from the Proposed Action.	May affect, not likely to adversely affect
Red knot (*Calidris canutus rufa*)	The red knot could potentially be found within open mud flats interspersed within the on-site saltwater marsh habitat. These unvegetated areas are minimal within the Focused Biological Study Area, however, as the majority of the saltwater marsh habitat is vegetated with saltmarsh species. No observations of this species were documented during the field survey, nor has it been documented within 1 mile of the Airport by FNAI. In addition, the proposed mangrove swamp and saltwater marsh wetland habitat mitigation measures[2] would be sufficient to offset the on-site habitat impacts that could result from the Proposed Action.	May affect, not likely to adversely affect
Roseate tern (*Sterna doufalli dougallii*)	The roseate tern could potentially inhabit the Focused Biological Study Area. While no bare limestone or shell beaches, which this species uses for nesting, are present, a minimal amount of open water habitat within the salt ponds is available. The roseate tern may use the open water habitat for foraging. No observations of this species were documented during the field survey, nor has it been documented within 1 mile of the Airport by FNAI. In addition, the proposed mangrove swamp and saltwater marsh wetland habitat mitigation measures[2] would be sufficient to offset the on-site habitat impacts that could result from the Proposed Action.	May affect, not likely to adversely affect
Wood stork (*Mycteria americana*)	The wood stork could potentially use the on-site saltwater marshes and salt ponds for foraging and the mangrove swamp for nesting. Based on wood stork active colonies and Core Foraging Area (CFA) data obtained from USFWS, however, the Biological Study Area is not located in a CFA. Additionally, no observations of this species were documented during the field survey, and it has not been documented within 1 mile of the Airport by FNAI. The effects determination is based on the USFWS South Florida Wood Stork Programmatic Effect Determination Key (see Attachment D of the BA provided in Appendix C), and specifically, that the Proposed Action would not be located in a CFA and compensation would provide habitat similar to, or higher than, the impacted wetlands. The proposed mangrove swamp and saltwater marsh wetland habitat mitigation measures[2] would be sufficient to offset the on-site habitat impacts that could result from the Proposed Action.	May affect, not likely to adversely affect

TABLE 4-5 (3 OF 3) PROTECTED SPECIES RECOMMENDED EFFECT DETERMINATION

SPECIES NAME [1]	DISCUSSION	RECOMMENDED EFFECTS DETERMINATION
Mammals		
West Indian manatee (*Trichechus manatus*)	The West Indian manatee could potentially inhabit the salt ponds/embayments within the Focused Biological Study Area. No individuals were observed during the field survey, and no documented occurrences have been reported in the FNAI within 1 mile of the Airport. Furthermore, the project is not within an Important Manatee Area (IMA) as designated by USFWS and access to the salt ponds from adjacent tidal waters is limited. As noted above, the security fencing would be floating at the surface and manatee would be able to access habitat behind the fence by swimming underneath it.	May affect, not likely to adversely affect
Fish		
Smalltooth sawfish (*Pristis pectinate*)	The smalltooth sawfish could potentially inhabit the tidally influenced mangrove swamp areas on the Airport. However, it is unlikely the smalltooth sawfish would inhabit this area because of limited access. Portions of the mangrove swamp are tidally connected via culverts to the Atlantic Ocean. Additionally, this species is generally rare outside of southern peninsular Florida. No observations of this species were documented during the field survey, and it has not been documented within 1 mile of the Airport by FNAI. To ensure the species would not be adversely affected by the Proposed Action, the standard Sea Turtle and Smalltooth Sawfish Construction Conditions (see Attachment D of the BA provided in Appendix C) would be implemented during construction. The proposed mangrove swamp habitat mitigation measures[2] would be sufficient to offset habitat impacts that could result from the Proposed Action.	May affect, not likely to adversely affect

NOTES: CFA – Core Foraging Area FNAI – Florida Natural Areas Inventory IMA – Important Manatee Area USFWS – US Fish and Wildlife Service

1 The species common name is followed by the scientific name in parentheses.

2 The proposed mangrove swamp and saltwater marsh wetland habitat mitigation measures are referenced in Section 4.2.6 and discussed in more detail in Section 4.13.5 and in the BA (see Appendix C).

SOURCE: Birkitt Environmental Services, Inc., *EYW Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment*, July 2020.

4.2.4 OPERATIONAL IMPACTS

4.2.4.1 NO ACTION ALTERNATIVE

None of the proposed airfield improvements would be implemented under the No Action Alternative. The Airport would continue to operate under current conditions; therefore, there would be no impacts to biological resources.

4.2.4.2 PROPOSED ACTION

Airport operations under the Proposed Action would continue similar to conditions under the No Action Alternative; however, the number of annual aircraft operations would be slightly higher than the No Action Alternative, as discussed in Section 1.5. As prescribed in the Airport's Wildlife Hazard Management Plan, the airfield would be managed to minimize wildlife habitat and activity to reduce the potential for aircraft-wildlife incidents, as it would under the No Action Alternative. Additionally, species using habitats in the vicinity of the Airport, such as the state-listed white-crowned pigeon using tropical hardwood hammock habitats near the Airport, are acclimated to high levels of ambient noise from aircraft operations. No operational effects due to implementation of the Proposed Action are anticipated.

4.2.5 SECTION 7 AND ESSENTIAL FISH HABITAT CONSULTATION

The USFWS and NMFS were both contacted as part of this EA during scoping, as well as via an agency coordination webinars during the analysis conducted for this EA. Scoping letters were sent to the agencies on August 19, 2019, and copies are included in Attachment 1 of the Scoping Report, provided in **Appendix H**. Agency coordination webinars were held on April 27, 2020, and September 18, 2020, and copies of the materials shared with agencies and a summary of the meeting are provided in Appendix H.

4.2.5.1 SECTION 7 CONSULTATION

The evaluation of protected species presented in this EA was coordinated with the USFWS and NMFS to meet the statutory requirements of ESA Section 7 and federal regulations.[9] The FAA shared the findings of effects of the Proposed Action on federally listed threatened and endangered species and designated Critical Habitat. As described in the BA, the Proposed Action would fill approximately 7.51 acres of wetlands and clear an additional 0.20 acres of wetlands, which would affect 3.34 acres of mangrove habitat, 4.03 acres of saltwater marsh, and 0.09 acres of salt ponds/embayments. As identified in Table 4-5, the FAA determined that 11 federally listed species (Florida semaphore cactus, Garber's spurge, Cape Sable throughwort, American crocodile, Eastern indigo snake, Piping plover, Red knot, Roseate term, Wood stork, West Indian manatee, and Smalltooth sawfish) have the potential to occur in the vicinity of the Airport and project site. Compensatory wetland mitigation would be provided to replace functional loss associated with impacts to wetland habitats and standard practices for protected species would be implemented during the construction phase, as discussed in Section 4.2.6. Following review of the potential effects of the Proposed Action on the above-listed species along with the proposed mitigation and conservation measures, the FAA determined that the Proposed Action may affect, but is not likely to adversely affect the 11 federally listed species.

On October 21, 2020, FAA initiated consultation with USFWS and NMFS. On January 8, 2021, USFWS found that the Proposed Action is not likely to adversely affect any federally listed species or designated critical habitat, stated that the requirements of Section 7 were fulfilled, and confirmed that no further action is needed. Similarly, NMFS found

[9] 50 CFR 402.10–402.17

on January 27, 2021, that all potential project effects to listed species were found to be extremely unlikely to occur, insignificant, or beneficial, and concluded that the Proposed Action is not likely to adversely affect listed species under NMFS's purview and that consultation responsibilities for species under NMFS's purview are concluded. Copies of FAA's correspondence with USFWS and NMFS are provided in Appendix C.1.

4.2.5.2 ESSENTIAL FISH HABITAT CONSULTATION

The evaluation of EFH presented in this EA was coordinated with NMFS to meet the statutory requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The FAA shared the findings of effects of the Proposed Action on EFH. As described in the BA, the Proposed Action would fill approximately 7.51 acres of wetlands and clear an additional 0.20 acres of wetlands, which would affect 3.34 acres of mangrove habitat, 4.03 acres of saltwater marsh, and 0.09 acres of salt ponds/embayments. The affected mangroves are essential for several managed species, include adult white grunt, juvenile and adult gray snapper, and juvenile mutton snapper. The saltwater marsh provides habitat for several species, including snook, red drum, and seatrout, all of which rely on this habitat for part of their lifecycle. The salt ponds/embayments provide habitat and food sources for a variety of managed species. Erosion and sediment controls and BMPs would be implemented to maintain water quality. Conceptual mitigation measures, summarized in Section 4.2.6, were identified to replace the functional loss of the affected habitat. With the proposed measures, conditions, and mitigation, the FAA determined that the net effect of the Proposed Action on EFH should not be adverse.

On November 10, 2020, FAA initiated consultation with NMFS. On December 9, 2020, NMFS proposed the following EFH conservation measures:

- A complete compensatory mitigation plan should be developed for the unavoidable impacts to mangrove, salt marsh, and tide pools. The mitigation plan should be based on functional assessments, including supporting information, demonstrating all adverse impacts to EFH are fully offset.
- To minimize impacts to adjacent mangrove wetlands, the FAA should require use of BMPs, including use of staked silt fences around work areas, to prevent sediment-laden runoff during construction.

On February 5, 2021, FAA responded to NMFS to confirm agreement with the recommended conservation measures. Additionally, the FAA stated that its environmental finding in accordance with NEPA will consider the County's conceptual mitigation plan, and if the environmental finding results in the issuance of a FONSI, the FONSI will require the County to obtain all necessary environmental permits and approvals prior to initiating any construction activities. This subsequent process will include development of a final mitigation plan, and the FONSI would also condition FAA's environmental approval on completion of EFH consultation. EFH consultation would be completed through the County coordinating the draft and final compensatory mitigation plan with FAA and NMFS. The FAA also confirmed that the County would be required to comply with FAA Advisory Circular 150/5370-H, Standard Specifications for Construction of Airports, which includes impact minimization measures. On February 15, 2021, NMFS confirmed acceptance of deferring the finalization of the mitigation plans to the permitting phase and recognized the impact minimization measures with which the County would be required to comply.

Copies of FAA's correspondence with NMFS are provided in Appendix C.1.

4.2.6 CONSERVATION AND MITIGATION MEASURES

Eleven federally listed species were identified as having the potential to be present within the Focused Biological Study Area; however, none of the species were observed during field inspections. These species are not anticipated to be adversely affected by the Proposed Action based on species range and distribution, limited connection to

open waters, the nature of project impacts, and compensatory mitigation. Additionally, the approved *Standard Protection Measures for the Eastern Indigo Snake*[10] and Sea Turtle and Smalltooth Sawfish Construction Conditions[11] would be implemented during construction of the Proposed Action. Appropriate turbidity controls and construction area signage would be implemented during construction to minimize construction-related impacts to adjacent areas. Protected plant species found within the Focused Biological Study Area would be relocated prior to construction of the Proposed Action. The proposed security fencing across open water would be a floating structure to allow West Indian manatee underwater movements. The mitigation measures proposed for the filling of wetland habitat, as discussed in Section 4.13.5, would provide for protection of and suitable replacement habitat for protected vegetative and wildlife species, including EFH, that may be affected by the Proposed Action. The mitigation measures include a compensatory wetland mitigation plan defined based on assessments of functional habitat loss associated with the Proposed Action and functional habitat gain associated with proposed conceptual mitigation. The compensatory mitigation plan to fully offset EFH impacts would be finalized during permitting in coordination with county, state, and federal agencies. Additionally, improvements would be designed to incorporate suitable water quality protection measures (that is, BMPs) to avoid indirect impacts to receiving waters, including mangrove wetlands providing EFH, as described in Section 4.13.3.2 (Surface Waters).

4.2.7 SIGNIFICANCE DETERMINATION

As previously discussed, construction activities may affect protected species and EFH; however, construction activities associated with the Proposed Action would be localized, and the implementation of conservation and mitigation measures would minimize potential impacts to biological resources. Consideration of the factors relevant to evaluating the context and intensity of potential environmental impacts on biological resources indicate that the Proposed Action would not have a significant impact on biological resources, including protected species and EFH.

4.3 CLIMATE

4.3.1 METHODOLOGY

For disclosure purposes, GHG emissions associated with the Proposed Action and No Action Alternative have been calculated in accordance with FAA guidelines. Consistent with the air quality analysis, short-term increases in GHG emissions would be expected during construction of the Proposed Action. Therefore, an inventory of GHG emissions associated with construction of the Proposed Action (for example, construction equipment, construction haul trips, and construction worker commute trips) was conducted using the same methodology as the air quality analysis (see Section 4.1.1 and Appendix G). GHGs of concern from construction sources are primarily CO_2, CH_4, and N_2O. GHG emissions are reported in metric tons of CO_2 equivalent (MT CO_2e), a single metric that represents all GHGs and provides a consistent methodology for comparing GHG emissions. Operational GHG emissions from aircraft emissions were estimated, as described in Section 4.1.1, and are also reported in MT CO_2e.

4.3.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for climate and GHG emissions, nor has the FAA identified specific factors to consider in making a significance determination for GHG emissions. No accepted methods of

[10] US Department of Interior, Fish and Wildlife Service, South Florida Ecological Services Office, "Eastern Indigo Snake Programmatic Effect Determination Key," August 1, 2017.

[11] US Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, "Sea Turtle and Smalltooth Sawfish Construction Conditions," March 23, 2006.

determining significance applicable to aviation or transit projects emissions have been developed, as such direct linkage is difficult to isolate and to understand.[12]

4.3.3 CONSTRUCTION IMPACTS

4.3.3.1 NO ACTION ALTERNATIVE

No construction activities associated with the Proposed Action would occur under the No Action Alternative; therefore, GHGs would not be emitted from construction activities. Therefore, consideration of construction impacts on climate under the No Action Alternative is not applicable.

4.3.3.2 PROPOSED ACTION

Construction of the Proposed Action would include the activities identified for the air quality analysis (see Section 4.1.3.2 and Appendix G). **Table 4-6** presents the GHG emissions inventory for construction activities associated with the Proposed Action by construction year. During the peak year of construction, construction GHG emissions are estimated as 3,896 MT CO_2e. To address effects of construction, the contractor would be required to implement measures to minimize emissions during construction, consistent with the provisions of the FAA Advisory Circular 150/5370-10H, *Standards for Specifying Construction of Airports*, to reduce construction-related emissions, including: reduction of equipment idling times; ensuring contractor knowledge of appropriate equipment exhaust controls; and reduction of electrical generator usage, wherever possible.

TABLE 4-6 CONSTRUCTION GREENHOUSE GAS EMISSIONS – PROPOSED ACTION

YEAR	ANNUAL GHG EMISSIONS (MT CO_2e)
2021	1,688
2022	3,896
2023	1,576

NOTES:
GHG – Greenhouse Gases
MT CO_2e – Metric Tons of Carbon Dioxide Equivalent
SOURCE: Ricondo & Associates, Inc., December 2019 (based on inputs to the Airport Construction Emissions Inventory Tool [ACEIT], using the US Environmental Protection Agency NONROAD2008a and MOVES2014b emissions models).

While construction of the Proposed Action would result in an increase in GHG emissions when compared to the No Action Alternative, the emissions associated with the Proposed Action would be short-term and temporary in nature and would not significantly contribute to climate change when compared to the No Action Alternative. As a result, operation of the Proposed Action is consistent with the latest CEQ guidance[13] for disclosing GHG emissions and is not a significant contributor to climate change. In summary, while there are no significance thresholds established for climate impacts, GHGs associated with the Proposed Action have been calculated in accordance with FAA guidelines.

[12] US Department of Transportation, Federal Aviation Administration, Order 1050.1F Desk Reference, February 2020.

[13] Council on Environmental Quality, *Memorandum for Heads of Federal Departments and Agencies*, https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf (accessed April 10, 2020).

4.3.4 OPERATIONAL IMPACTS

4.3.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, GHG emissions associated with Airport operations would increase commensurate with increases in Airport activity. **Table 4-7** presents aircraft GHG emissions associated with the No Action Alternative. Given the coastal location of the Airport, increased sea level rise could affect Airport operations over time under the No Action Alternative.[14]

TABLE 4-7 OPERATIONAL AIRCRAFT GREENHOUSE GAS EMISSIONS – NO ACTION ALTERNATIVE

YEAR	ANNUAL GHG EMISSIONS (MT CO_2e)
2024	14,310
2029	15,546

NOTES:
GHG – Greenhouse Gases
MT CO_2e – Metric Tons of Carbon Dioxide Equivalent
1 Total GHG emissions include emissions of carbon dioxide, methane, and nitrogen dioxide.
SOURCE: KB Environmental Sciences, Inc., September 2020, (using the Aviation Environmental Design Tool, Version 3b).

4.3.4.2 PROPOSED ACTION

Under the Proposed Action, GHG emissions associated with aircraft operations would increase up to 4.6 percent compared with the No Action Alternative due to increases in aircraft activity, as shown in **Table 4-8**. The additional aircraft operations are forecast to transport approximately 78,590 additional annual enplaned passengers in 2024 and 2029 under Proposed Action than under the No Action Alternative (see Table 1-2). As discussed, in Section 4.1.4.2, the Proposed Action may result in approximately 60,765 new vehicles accessing the Airport for departures per year, or an increase of 12 percent over the estimated 487,170 vehicle trips that would access the Airport under the No Action Alternative in 2024 (and 524,600 vehicle trips in 2029) and a comparable number of vehicles associated with arrivals. Furthermore, some of these passengers may represent a transition of visitors to Key West who would otherwise drive the Overseas Highway from mainland Florida to access the Lower Keys, along the 125-mile, two-lane highway, often characterized by traffic congestion. The increase in GHG emissions due to the estimated change in trips to and from the Airport by additional air passengers under the Proposed Action is expected to represent a minor increase in emissions compared with the No Action Alternative. Therefore, the increase in GHG emissions resulting from implementation of the Proposed Action would not have a substantial contribution to climate change impact to climate as compared to the No Action Alternative.

[14] Monroe County, *Sea Level Rise Vulnerability Assessment for Monroe County, Florida, Technical Appendix in Support of the GreenKeys! Sustainability and Climate Action Plan*, January 26, 2016.

TABLE 4-8 OPERATIONAL AIRCRAFT GREEHOUSE GAS EMISSIONS – PROPOSED ACTION

YEAR	ANNUAL GHG EMISSIONS (MT CO_2e)
2024	
Aircraft Emissions	14,974
Change Compared to No Action Alternative	644
Percent Increase	4.6%
2029	
Aircraft Emissions	16,229
Change Compared to No Action Alternative	683
Percent Increase	4.4%

NOTES:
MT CO_2e – Metric Tons of Carbon Dioxide Equivalent
1 Total emissions include emissions of carbon dioxide, methane, and nitrogen dioxide.
SOURCES: KB Environmental Sciences, Inc., September 2020 (using the Aviation Environmental Design Tool, Version 3b).

As discussed in Section 3.6, Monroe County set targets to reduce GHG emissions in the 2016 *Greenkeys! Sustainability Action Plan* and is a participant in the Southeast Florida Regional Climate Action Plan, both of which demonstrate the County's commitment to emissions reductions. The 2016 *Greenkeys! Sustainability Action Plan* reported community scale GHG emissions for 2012 as 1,224,278 MT CO_2e.[15] For perspective, the additional GHG emissions from implementation of the Proposed Action in 2027 would represent less than 0.06 percent of annual community emissions at 2012 levels. The Proposed Action's additional GHG emissions would also comprise a very small fraction of total annual US emissions, estimated as 6,472 million MT CO_2e for the year 2017[16] and global emissions estimated as 53.5 gigatons of CO_2e for the year 2017.[17] GHG emissions are disclosed in this document in accordance with CEQ guidance.[18] Given the enormity of GHG emissions worldwide, the contributions of one project, such as that of the Proposed Action, are negligible. CEQ has also 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.

Potential impacts from climate change include sea level rise. Given the Airport's setting, future sea level rise is expected to have some effect on Airport operations over time. However, the proposed apron expansions, taxiway extension, and airfield access road evaluated in this EA are all at-grade facilities, designed to tie into existing taxiway

[15] The 2012 GHG emissions inventory for Monroe County demonstrated a reduction in emissions resulting from a one-time conversion transition from landfilling all municipal solid waste to incinerating most of the waste in a waste-to-energy facility and recognized that it would be challenging to identify additional actions that can reduce emissions at comparable levels (Monroe County, Greenkeys! Greenhouse Gas Inventory Update, http://greenkeys.info/greenhouse-gas-inventory-update/ [accessed October 27, 2020]).

[16] Intergovernmental Panel on Climate Change, *Emissions Gap Report 2018*, December 2018.

[17] Intergovernmental Panel on Climate Change, Climate Change 2014: Synthesis Report, [Core Writing Team, Pachauri, R.K and Reisinger, A. (Eds.)]. IPCC, Geneva, Switzerland, https://www.ipcc.ch/site/assets/uploads/2018/02/SYR_AR5_FINAL_full.pdf (accessed March 31, 2020).

[18] Council on Environmental Quality, *Memorandum for Heads of Federal Departments and Agencies*, https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf (accessed April 10, 2020).

and apron pavements. The long-term effects of sea level rise on Airport operations would essentially be the same under the Proposed Action as it would under the No Action Alternative.[19]

There are no significance thresholds for aviation and commercial space launch GHG emissions and the FAA has not identified specific factors to consider in making a significance determination for GHG emissions. As stated above, there are currently no accepted methods of determining significance applicable to aviation projects given the small percentage of emissions they contribute. Accordingly, it is not useful to attempt to determine the significance of such impacts for the Proposed Action.

The County is considering transitioning its fleet vehicles to electric, where reasonable, as well as encouraging airlines to transition ground support equipment to electric to reduce GHG emissions at the Airport over time.

4.4 COASTAL RESOURCES

4.4.1 METHODOLOGY

Federal agencies must determine if an action affects the coastal zone protected by an approved management plan. If the federal agency determines that the activity has no effect on any coastal use or resource, a negative determination under 15 CFR 930.35 is not required, and the federal agency is not required to coordinate with state agencies under Section 307 of the Coastal Zone Management Act (CZMA). Under provisions of the CZMA, any federal activity that has the potential to impact Florida's coastal resources must be consistent with the goals and policies of the Florida Coastal Management Program (FCMP). The FDEP Office of Resilience and Coastal Protection oversees the FCMP and coordinates the state Federal Consistency determinations through the Florida State Clearinghouse review that is administered by the FDEP Office of Intergovernmental Programs.

4.4.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for coastal resources; however, FAA Order 1050.1F provides factors to consider when determining if a proposed action would result in significant impacts to coastal resources,[20] including having the potential to:

- be inconsistent with the relevant state coastal zone management plan(s);
- impact a coastal barrier resources system unit (and the degree to which the resource would be impacted);
- pose and impact to coral reef ecosystems (and the degree to which the ecosystem would be affected);
- cause an unacceptable risk to human safety or property; or
- cause adverse impacts to the coastal environment that cannot be satisfactorily mitigated.

[19] Monroe County, *Sea Level Rise Vulnerability Assessment for Monroe County, Florida, Technical Appendix in Support of the GreenKeys! Sustainability and Climate Action Plan*, January 26, 2016.

[20] The FAA Order 1050.1F Desk Reference also provides factors to consider for impacts to coastal barrier resource systems or coral reef ecosystems; however, since these resources are not present within the Direct Study Area, they are not applicable to the analysis.

4.4.3 CONSTRUCTION IMPACTS

4.4.3.1 NO ACTION ALTERNATIVE

No development or changes in land use associated with the Proposed Action would occur under the No Action Alternative. Therefore, no construction impacts to coastal use or resources would occur.

4.4.3.2 PROPOSED ACTION

Construction activities would include clearing, grading, site preparation, excavation and embankment, drainage improvements, paving, and fence installation within a coastal zone. Approximately 7.71 acres of wetland resources would be impacted, which includes the placement of fill in 3.14 acres of mangrove swamp wetlands and clearing of 0.2 acres of mangrove swamp wetlands, as discussed in Section 4.13. Mitigation for wetland impacts would require type-for-type compensation (that is, mangrove swamp mitigation to offset mangrove swamp impact); therefore, compensatory mitigation would be provided to offset the functional loss associated with impacts to mangrove swamp and other wetlands due to construction of the Proposed Action, as discussed in Section 4.13.5. Other coastal resources and attributes, such as natural shoreline, outer continental shelf resources, shellfish resources and shellfish waters, suitability for fishing and other recreational uses, coastal fish and wildlife populations, surface water quality, and historic resources within the coastal zone, would not be affected or would experience temporary effects. Biological resources, historic resources, and surface water quality are discussed in greater detail in Sections 4.2.3, 4.7.3, and 4.13.3, respectively, of this EA.

Construction activities have the potential to cause erosion, sedimentation, and increased turbidity in water bodies. Erosion, sedimentation, and turbidity would be minimized by utilizing sediment and erosion control BMPs throughout construction of the Proposed Action. These measures could include installation of silt fencing and turbidity barriers, stabilization of bare soil with sod after grading is complete, and other measures per the requirements of FAA Advisory Circular 150/5370-1H, *Standard Specifications for Construction of Airports*. Construction of the Proposed Action would not cause an unacceptable risk to human safety or property or adverse impacts to the coastal environment that cannot be mitigated. Therefore, construction impacts to coastal uses and resources from the Proposed Action would not be significant with the water permitting and management plans discussed in Section 4.13.3.

4.4.4 OPERATIONAL IMPACTS

4.4.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no development or change in land use that could affect coastal uses or resources would occur. Activities at the Airport would continue similar to existing conditions, and aircraft operations would increase commensurate with the forecast increases in aircraft activity.

4.4.4.2 PROPOSED ACTION

Construction and operation of the Proposed Action would be located within a Florida Coastal County and, therefore, must be consistent with the FCMP.

The Proposed Action would increase the amount of paved surface at the Airport by 3.9 acres, which would increase stormwater runoff to coastal resources. The Proposed Action includes stormwater improvements to ensure water storage and quality are consistent with local, state, and federal requirements. Additionally, the Proposed Action would create a small increase in the number of commercial and GA operations at the Airport and slightly increase

the number of people arriving in Key West by air. These changes resulting from the Proposed Action, however, would not cause an unacceptable risk to human safety or property or adverse impacts to the coastal environment that cannot be mitigated.

4.4.5 FEDERAL CONSISTENCY WITH FLORIDA COASTAL MANAGEMENT PROGRAM

Because the Proposed Action would be implemented within the coastal zone, it is subject to FCMP federal consistency review. The FCMP federal consistency review considers 24 statutes (referred to as enforceable policies) administered by the FDEP and a group of partner agencies responsible for implementing the statutes.[21] During the preparation of this EA, the FAA conducted a preliminary consistency review to identify any issues that require additional analysis or indicate inconsistency with the FCMP. The results of the review are provided in **Table 4-9**.

The EA was submitted to the Florida State Clearinghouse, which coordinates review among relevant state agencies, for coastal consistency review. Through this review, the state had no objection to the Proposed Action and found it to be consistent with the FCMP. The state's final concurrence of the project's consistency with the FCMP will be determined during the environmental permitting process, in accordance with Section 373.428, Florida Statutes.

4.4.6 MITIGATION MEASURES

Mitigation measures for the Proposed Action's impacts to biological resources and wetlands are described in Sections 4.2.6 and 4.13.5, respectively.

4.4.7 SIGNIFICANCE DETERMINATION

The FAA has not established a significance threshold for coastal resources in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts on coastal resources. The Proposed Action is consistent with the FCMP, would not affect the Coastal Barrier Resources System or coral reef ecosystems, and would not cause an unacceptable risk to human safety or property. Mitigation is proposed for unavoidable impacts to coastal Essential Fish Habitat and wetlands (see Sections 4.2.6 and 4.13.5, respectively, of this EA). Therefore, impacts to coastal resources under the Proposed Action are not anticipated to be significant.

4.5 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) PROPERTIES

4.5.1 METHODOLOGY

The assessment of potential impacts to Section 4(f) properties was conducted by determining whether the Proposed Action would result in the physical use of any Section 4(f) properties or would constitute a constructive use of a Section 4(f) property that would substantially impair the resource. According to FAA Order 1050.1F, a physical use is an instance in which a Section 4(f) property is permanently incorporated into the transportation facility or, as a temporary physical use, in which a resource is occupied in a way that is adverse to the Section 4(f) property's activities or purpose, and is more than minimal. Constructive use is an instance in which, although a resource is not physically used, an action's indirect impacts substantially impair the Section 4(f) property's protected activities, features, or attributes.

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

TABLE 4-9 (1 OF 2) SUMMARY OF CONSISTENCY WITH THE ENFORCEABLE POLICIES OF THE FLORIDA COASTAL MANAGEMENT PROGRAM

ENFORCEABLE POLICIES	SUMMARY OF CONSISTENCY WITH ENFORCEABLE POLICIES
Chapter 161 Beach and Shore Preservation	The Proposed Action would be separated from the shoreline by Roosevelt Boulevard and, thus, would not affect beach or shoreline.
Chapter 163, Part II Intergovernmental Programs: Growth Policy; County and Municipal Planning; Land Development Regulation	The Proposed Action would be within an area zoned as "Airport District" by Monroe County. The Proposed Action is consistent with most of the goals and policies of the Monroe County Comprehensive Plan, and the County plans to amend elements of the Comprehensive Plan that are inconsistent, which includes those that limit development within specific habitats such as wetlands, as discussed in Section 4.8.3. Wetland protection shall at a minimum be consistent with state and federal regulatory policies. A SFWMD ERP and USACE Section 404 permit would be required for development of the Proposed Action. Water quality and stormwater treatment requirements are typically considered to meet Monroe County requirements at issuance of the SFWMD ERP. The Proposed Action would have no effect on hurricane evacuation objectives or policies.
Chapter 186 State and Regional Planning	The Proposed Action has been coordinated with federal, state, and local governments, as well as tribes, through the agency scoping process. The Draft EA was provided to federal and local agencies for review as well as to state agencies for review via the Florida State Clearinghouse, which coordinates review by state agencies. See Chapter 5.
Chapter 252 Emergency Management	The Proposed Action would enhance safety for passengers and aircraft at EYW and would not affect emergency response or evacuation plans. The Proposed Action would be constructed within a 100-year floodplain and would meet Monroe County floodplain management requirements. A detailed discussion of floodplain impacts is provided in Section 4.13.
Chapter 253 State Lands	The Proposed Action would not use state lands.
Chapter 258 State Parks and Preserves	The Proposed Action would not impact state parks, recreational areas, or preserves. See discussion in Section 4.5.
Chapter 259 Land Acquisitions for Conservation or Recreation	The Proposed Action would not affect publicly owned land used for conservation or recreation, as discussed in Section 4.5.
Chapter 260 Florida Greenways and Trails Act	The Proposed Action would not affect greenways or trails, as discussed in Section 4.5.
Chapter 267 Historical Resources	The Proposed Action would occur on Airport property and would not directly or indirectly impact historical resources. Review of the Proposed Action was conducted with the SHPO, as discussed in Section 4.7.
Chapter 288 Commercial Development and Capital Improvements	The Proposed Action would enhance the operational safety and efficiency at an aviation facility that supports personal, business, and tourism travel in Key West and the Florida Keys. The Proposed Action would not inhibit or adversely impact economic development efforts, commercial development, or planned capital improvements.
Chapter 334 Transportation Administration	The Proposed Action improves transportation safety on Airport property and would not affect surface transportation facilities or alter surface traffic patterns. The Proposed Action would support additional passenger activity, as discussed in Section 1.5 and Appendix A. The Proposed Action's effects on traffic demand would not be significant, as discussed in Section 4.11.
Chapter 339 Transportation Finance and Planning	FDOT grant funding for the Proposed Action would be consistent with Florida statutes that address the finance and planning needs of the state's transportation system. The Proposed Action would not require improvements to existing or construction of new roadway facilities.
Chapter 373 Water Resources	Surface and groundwater quality would not be adversely affected by the Proposed Action, as discussed in Section 4.13. Water quality would be maintained by adherence to conditions of the ERP, NPDES permit, and underground injection control well permits. Sediment and erosion control measures would be implemented during construction, and SWPPPs would be developed for construction of the Proposed Action and the operation of the Airport under the Proposed Action would continue to follow BMPs in the Airport's SWPPP for industrial activities. Additionally, sediment and erosion control measures to comply with Rule 62-4.242(2) FAC antidegradation requirements for discharges into OFWs would be followed.

TABLE 4-9 (2 OF 2) SUMMARY OF CONSISTENCY WITH THE ENFORCEABLE POLICIES OF THE FLORIDA COASTAL MANAGEMENT PROGRAM

ENFORCEABLE POLICIES	SUMMARY OF CONSISTENCY WITH ENFORCEABLE POLICIES
Chapter 375 Outdoor Recreation and Conservation Lands	Of the parks and conservation lands in the Indirect Study Area, implementation of the Proposed Action would introduce 0.12 acres of the 9.69-acre K.W. White Pigeon Preserve to noise exposure levels that are considered incompatible with park land uses; however, this change would not result in a constructive use of this property, as discussed in Section 4.5. No other outdoor recreation areas or conservation lands would be significantly affected by the Proposed Action, as discussed in Section 4.5.
Chapter 376 Pollutant Discharge Prevention and Removal	A construction SWPPP would be implemented during construction to minimize the discharge of pollutants. Project-specific BMPs would be implemented in accordance with stormwater discharge permit conditions, as discussed in Section 4.13. Additionally, the Proposed Action would require an ERP, issued by the SFWMD.
Chapter 377 Energy Resources	Although a minor and temporary increase in fuel consumption would occur during construction and an increase in aircraft fuel use would occur as a result of induced operations under the Proposed Action, these increases in energy demand would not impact the availability of energy resources in the region. Natural resources and energy supply are discussed in more detail in Section 4.9.
Chapter 379 Fish and Wildlife Conservation	The Proposed Action would result in the filling of 3.14 acres of mangrove swamp, 4.03 acres of saltwater marshes, 0.09 acres of salt ponds/embayments, and 0.25 acres of wetland Brazilian pepper, and the clearing of 0.20 acres of mangrove swamp. This action would have a minor impact on terrestrial, wetland, and aquatic habitats affecting fish, wildlife, and plants common to the Lower Keys. Mitigation for wetlands impacts would provide replacement habitat. No significant impacts to habitat or species would occur after mitigation, as discussed in more detail in Section 4.13.5.
Chapter 380 Land and Water Management	The Proposed Action would be consistent with local land use and water management plans. Minor increases in water consumption may occur from implementation of the Proposed Action with additional passenger activity at the Airport; however, this increase would not be significant. Coordination with and authorization by the USACE and SFWMD for impacts to Waters of the United States would be required, as discussed in Section 4.13.
Chapter 381 Public Health: General Provisions	The Proposed Action would not impact public policy or management regarding sanitation, communicable diseases, or public health.
Chapter 388 Mosquito Control	The Proposed Action would not affect local mosquito control efforts or contribute to increased propagation of mosquitoes.
Chapter 403 Environmental Control	The construction and operation of the Proposed Action would include project-specific BMPs and pollution prevention measures, as discussed in Section 4.13. The Proposed Action would result in a reduction of vehicle trips and associated vehicle emissions on the Overseas Highway, so the slight increase in aircraft operations would not result in an air quality impact, as discussed in Section 4.1.4.2. No potential issues regarding construction waste, municipal solid waste, or hazardous waste have been identified, as discussed in Section 4.6.
Chapter 533 Building and Construction Standards	The Proposed Action would comply with local building and construction permits.
Chapter 582 Soil and Water Conservation	The Proposed Action would have no notable effect on soils. Erosion would be minimized through sediment and erosion control BMPs. No effect on water conservation is anticipated.
Chapter 597 Aquaculture	No aquaculture land uses occur within the Biological Study Area, so the Proposed Action would not affect the state's aquaculture plan.

NOTES:
BMP – Best Management Practice
EA – Environmental Assessment
ERP – Environmental Resource Permit
EYW – Key West International Airport
FCMP – Florida Coastal Management Program
FDOT – Florida Department of Transportation
NPDES – National Pollutant Discharge Elimination System
SFWMD – South Florida Water Management District
SWPPP – Stormwater Pollution Prevention Plan
SHPO – State Historic Preservation Office
USACE – US Army Corps of Engineers
SOURCES: Michael Baker International, January 2020; Ricondo & Associates, Inc., May 2020.

4.5.2 SIGNIFICANCE THRESHOLDS

An adverse effect to a Section 4(f) property would occur when the action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the project would substantially impair the Section 4(f) resource. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.

4.5.3 CONSTRUCTION IMPACTS

4.5.3.1 NO ACTION ALTERNATIVE

No construction activities would occur under the No Action Alternative. Therefore, the No Action Alternative would not result in a physical or constructive use of a Section 4(f) property.

4.5.3.2 PROPOSED ACTION

Of the nearby potential Section 4(f) properties identified in Section 3.8.2, Little Hamaca City Park and the Fran Ford White-crowned Pigeon Preserve are closest to the Direct Study Area. Little Hamaca City Park is approximately 150 feet northwest of the Direct Study Area (across Government Road), and the Fran Ford White-crowned Pigeon Preserve, the next closest property, is approximately 460 feet north of the Direct Study Area. Construction of the Proposed Action would occur on Airport property and would not result in a physical use of a Section 4(f) property.

Construction of the Proposed Action would not result in air quality or water quality effects that would affect potential Section 4(f) properties (see Sections 4.1.3 and 4.13.3, respectively). Construction truck trips would operate along roadways that provide access to Section 4(f) properties, but truck trips would not be expected to affect access to any Section 4(f) properties (see Section 4.11.3). Any noise impacts resulting from construction activities would be temporary and would not have a significant effect given the proximity of the resources to the high ambient noise environment of the active airfield. Therefore, construction of the Proposed Action would not result in a constructive use of a potential Section 4(f) property.

4.5.4 OPERATIONAL IMPACTS

4.5.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Airport would operate as it does under existing conditions. No physical use of a Section 4(f) property would occur under the No Action Alternative.

One historic resource listed on the National Register of Historic Places, the East Martello Tower (8MO211), is within the Indirect Study Area, but not within the area exposed to aircraft noise levels of DNL 65 dB and greater in the future years of 2024 and 2029 under the No Action Alternative. Of the potential Section 4(f) park and recreation properties within the Indirect Study Area, portions of four park properties would be exposed to aircraft noise levels of DNL 65 dB and greater in the future years of 2024 and 2029, as shown in **Table 4-10**. Noise exposure levels at these four properties are presented in **Table 4-11** and discussed further in Section 4.10. The land-use compatibility guidelines provided in 14 CFR Part 150 indicate that parks are compatible with noise levels up to DNL 75 dB; therefore, all parks are considered compatible because they would not experience noise levels above DNL 75 dB.[22] In addition to consideration of land-use compatibility guidelines, the properties were evaluated to determine if the recognized purpose and attributes of these properties were based on low levels of noise or quiet setting. Based on

[22] 14 CFR Part 150, *Airport Noise Compatibility Planning*, Table 1, "Land Use Compatibility with Yearly Day-Night Average Sound Levels."

the setting of these properties adjacent to the Airport and the uses of these properties described in Section 3.8.2, the section of the FKOHT near the Airport, Little Hamaca City Park, Fran Ford White-crowned Pigeon Preserve, and the 11th Street Public Boat Ramp are not properties with recognized purpose and attributes based on low noise levels or quiet setting. Therefore, these properties would be compatible with the future levels of noise exposure shown in Tables 4-10 and 4-11 under the No Action Alternative.

TABLE 4-10 POTENTIAL SECTION 4(f) PROPERTIES NOISE EXPOSURE AREA – NO ACTION ALTERNATIVE

		2024			2029		
POTENTIAL SECTION 4(f) PROPERTY	TOTAL PROPERTY	DNL 65–70 dB	DNL 70–75 dB	DNL 75 dB AND GREATER	DNL 65–70 dB	DNL 70–75 dB	DNL 75 dB AND GREATER
Trail Resource (linear feet)							
FKOHT	475,200.0 [1]	1,447.3	276.9	0.0	1,499.0	322.8	0.0
Recreation Resource (acres)							
Little Hamaca City Park	10.73	5.57	0.05	0.00	5.64	0.09	0.00
Fran Ford White-crowned Pigeon Preserve	9.69	4.02	1.53	0.00	4.10	1.63	0.00
11th Street Public Boat Ramp	0.15	0.12	0.00	0.00	0.13	0.00	0.00

NOTES: dB – Decibel DNL – Day-Night Average Sound Level FKOHT – Florida Keys Overseas Heritage Trail

1 The total linear length of the FKOHT is estimated based on the approximately 90-mile length of paved trail, within the planned 106-mile corridor.

SOURCE: Ricondo & Associates, Inc., June 2020 (based on Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 [using the Aviation Environmental Design Tool, Version 3b; noise contours]); University of Florida GeoPlan Center, 2019 (park and recreation properties).

TABLE 4-11 POTENTIAL SECTION 4(f) PROPERTIES NOISE EXPOSURE LEVELS – NO ACTION ALTERNATIVE

	NOISE EXPOSURE LEVEL (DNL, dB) [1]	
POTENTIAL SECTION 4(f) PROPERTY	2024	2029
FKOHT	70.6	70.8
Little Hamaca City Park	69.5	69.6
Fran Ford White-crowned Pigeon Preserve	74.5	74.6
11th Street Public Boat Ramp	65.8	65.9

NOTES:

dB – Decibel DNL – Day-Night Average Sound Level FKOHT – Florida Keys Overseas Heritage Trail

1 Noise exposure levels are reported for the location on the property closest to the runway, except for the FKOHT. The point along the FKOHT within the DNL 70 dB and greater noise exposure area that was closest to the runway was selected for this property.

SOURCE: Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020, using the Aviation Environmental Design Tool, Version 3b.

Under the No Action Alternative, operation of the Airport would not result in air quality or water quality effects that could affect potential Section 4(f) properties, and existing public roadways would continue to provide access to these properties. Views from these properties toward the airfield would be characterized by the low-profile transportation setting of taxiways and Airport buildings.

Therefore, the No Action Alternative would not result in a constructive use of potential Section 4(f) properties.

4.5.4.2 PROPOSED ACTION

Of the nearby potential Section 4(f) properties identified in Section 3.8.2, Little Hamaca City Park and the Fran Ford White-crowned Pigeon Preserve are closest to, but outside of, the Direct Study Area. There is one resource listed on the National Register, the East Martello Tower (8MO211), within the boundaries of the Airport but outside the Direct Study Area. Additional information about historic resources is presented in Appendix D. The Proposed Action would not result in a physical use of a Section 4(f) property.

Operation of the Airport with implementation of the Proposed Action would not result in air quality or water quality effects that could affect potential Section 4(f) properties, nor would it result in changes to public roadways that would affect access to a potential Section 4(f) property. The Proposed Action includes low-profile improvements of the existing airfield that would be consistent with the visual setting in the Airport environment.

As discussed in Section 4.10, noise exposure with implementation of the Proposed Action would shift slightly with implementation of the Proposed Action. In comparison to the No Action Alternative, this shift would introduce portions of two Section 4(f) properties (up to 1.23 acres of the Fran Ford White-crowned Pigeon Preserve and 0.03 acres of the 11th Street Public Boat Ramp) into the DNL 65 dB and greater noise exposure contour in 2024 and 2029, as presented in **Table 4-12**, while approximately 0.5 acres of Little Hamaca City Park would shift out of the DNL 65 dB noise exposure contour with implementation of the Proposed Action in 2024 and 2029. No historic resource listed on the National Register would be within the area exposed to aircraft noise levels of DNL 65 dB and greater in the future years of 2024 and 2029 with implementation of the Proposed Action.

Although approximately 50 to 65 linear feet of the approximately 90-mile FKOHT would shift into the DNL 65 dB and greater noise exposure contour, the length of trail exposed to noise levels above DNL 70 dB would decrease with implementation of the Proposed Action compared to the No Action Alternative. Noise exposure levels at these properties are presented in **Table 4-13**, which illustrates that only portions of the Fran Ford White-crowned Pigeon Preserve would be newly exposed to noise levels above DNL 75 dB. Land-use compatibility guidelines indicate these properties are compatible with noise levels up to DNL 75 dB, so the portions of the Fran Ford White-crowned Pigeon Preserve newly exposed to DNL 75 dB with implementation of the Proposed Action would be considered incompatible.[23] In addition to consideration of land-use compatibility guidelines, the properties were evaluated to determine if the recognized purpose and attributes of these properties are based on low levels of noise or quiet setting. Based on the setting of these properties adjacent to the Airport and the uses of these properties described in Section 3.8.2, the section of the FKOHT near the Airport, Little Hamaca City Park, the 11th Street Public Boat Ramp, and the Fran Ford White-crowned Pigeon Preserve are not properties with recognized purpose and attributes based on low noise levels or quiet setting.

[23] 14 CFR Part 150, Appendix A, Table 1, "Land Use Compatibility With Yearly Day-Night Average Sound Levels."

TABLE 4-12 POTENTIAL SECTION 4(f) PROPERTIES NOISE EXPOSURE AREA – PROPOSED ACTION

POTENTIAL SECTION 4(f) PROPERTY	TOTAL PROPERTY	2024				2029			
		DNL 65–70 dB	DNL 70–75 dB	DNL 75 dB AND GREATER	CHANGE (DNL 65 dB AND GREATER) [1]	DNL 65–70 dB	DNL 70–75 dB	DNL 75 dB AND GREATER	CHANGE (DNL 65 dB AND GREATER) [1]
Trail Resource (linear feet)									
FKOHT	475,200.0 [2]	1,640.6	134.8	0.0	+51.3	1,686.7	201.0	0.0	+65.8
Change Compared to the No Action Alternative					**+51.3**				**+65.8**
Recreation Resource (acres)									
Little Hamaca City Park	10.73	5.09	0.00	0.00	-0.53	5.20	0.00	0.00	-0.52
Fran Ford White-crowned Pigeon Preserve	9.69	4.04	2.56	0.09	+1.14	4.22	2.61	0.12	+1.23
11th Street Public Boat Ramp	0.15	0.15	0.00	0.00	+0.03	0.15	0.00	0.00	+0.02
Change Compared to the No Action Alternative					**+0.64**				**+0.72**

NOTES:

dB – Decibel DNL – Day-Night Average Sound Level FKOHT – Florida Keys Overseas Heritage Trail

1 Change is calculated as the difference in the amount of the property (that is, the length or area) within the total DNL 65 dB and greater contour between the Proposed Action and the No Action Alternative for the respective year. A positive number indicates the amount of the property within the DNL 65 dB and greater contour with implementation of the Proposed Action has increased or, more simply put, more property is exposed to noise levels above DNL 65 dB. Conversely, a negative number indicates the amount of the property within the DNL 65 dB and greater contour has decreased with implementation of the Proposed Action.

2 The total linear length of the FKOHT is estimated based on the approximately 90-mile length of paved trail, within the planned 106-mile corridor.

SOURCES: Ricondo & Associates, Inc., June 2020 (based on Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 [using the Aviation Environmental Design Tool, Version 3b; noise contours]); University of Florida GeoPlan Center, 2019 (park and recreation properties).

TABLE 4-13 POTENTIAL SECTION 4(f) PROPERTIES NOISE EXPOSURE LEVELS – PROPOSED ACTION

POTENTIAL SECTION 4(F) PROPERTY	2024 NOISE EXPOSURE (DNL, dB) [1]		2029 NOISE EXPOSURE (DNL, dB) [1]	
	NOISE EXPOSURE LEVEL	CHANGE	NOISE EXPOSURE LEVEL	CHANGE
FKOHT	70.1	-0.5	70.3	-0.5
Little Hamaca City Park	69.1	-0.3	69.3	-0.3
Fran Ford White-crowned Pigeon Preserve	75.7	1.2	75.9	1.2
11th Street Public Boat Ramp	66.2	0.3	66.3	0.3

NOTES:
dB – Decibel DNL – Day-Night Average Sound Level FKOHT – Florida Keys Overseas Heritage Trail
1 Noise exposure levels are reported for the location on the property closest to the runway, except for the FKOHT. The point along the FKOHT within the DNL 70 dB and greater noise exposure area that was closest to the runway was selected for this property.
SOURCE: Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020, using the Aviation Environmental Design Tool, Version 3b.

As discussed above, land use compatibility guidelines defined in 14 CFR Part 150 indicate that park land uses may be incompatible with noise levels above DNL 75 dB.[24] The southeast corner of the Fran Ford White-crowned Pigeon Preserve (0.09 acres in 2024 and 0.12 acres in 2029) closest to the active airfield would be newly exposed to noise levels above DNL 75 dB with implementation of the Proposed Action. The portion of the property newly exposed to noise levels above DNL 75 dB would be 0.9 percent of the total property area in 2024 and 1.2 percent in 2029. This area is along the southeast periphery of the property along Government Road (within 50 feet of the edge of roadway pavement) and is approximately 400 feet north of the Runway 9 end. The property is an undeveloped conservation area for bird species and trees and is used for bird watching. The property was established in 2003,[25] and in 2004, the southwest corner of the property was within the DNL 65 noise exposure contour as evidenced by the noise exposure contours prepared for existing conditions in the year 2004,[26] which indicates that a natural quiet setting was not an attribute of the property following its designation as a preserve. While amenities such as trails through the property are not provided, the periphery of the property along Government Road accommodates a paved parking area for two vehicles and a pavilion with information on wildlife species located approximately 500 feet west of the area that would be newly exposed to DNL 75 dB. Given the proximity of the Fran Ford White-crowned Pigeon Preserve to the airfield, natural quiet is not one of its attributes and, as confirmed with the City of Key West, it is not managed for natural quiet.[27] Because the area of new exposure to aircraft noise levels above DNL 75 dB is along the periphery of the property adjacent to a roadway and the airfield, this change in noise exposure with implementation of the Proposed Action would not result in in a substantial impairment of the activities, features, or attributes of the resource that contribute to its use or enjoyment. Based on this evaluation, the portion of Fran Ford White-crowned Pigeon Preserve that would be exposed to noise levels above DNL 75 dB would not result in a constructive use of this resource.

[24] 14 CFR Part 150, *Airport Noise Compatibility Planning*, Table 1, "Land Use Compatibility with Yearly Day-Night Average Sound Levels."

[25] Florida Keys Audubon Society, https://floridakeysaudubonsociety.tumblr.com/post/98553369941/the-fran-ford-white-crowned-pigeon-preserve-is (accessed February 22, 2021)

[26] Monroe County, *Final Environmental Assessment for Proposed Runway Safety Area (RSA) Improvements*, Figure 4.2-1, "2004 Noise Contours," July 2007.

[27] Marcus Davila, City of Key West, Director of Community Services, telephone call with Lisa Reznar, Ricondo & Associates, Inc., May 15, 2020.

Therefore, most properties would be compatible with future levels of noise exposure shown in Table 4-13 under the Proposed Action, and the Proposed Action would not substantially impair the activities, features, or attributes of any Section 4(f) property and, thus, would not result in a constructive use of a Section 4(f) property.

The Proposed Action would not exceed thresholds that indicate a significant impact to Section 4(f) properties because the Proposed Action would not involve a physical use or constitute a constructive use resulting from substantial impairment of a Section 4(f) resource.

4.6 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

4.6.1 METHODOLOGY

Facilities permitted to handle solid waste and sites previously identified for hazardous materials releases are located on Airport property, as documented in Section 3.9. The locations of these facilities and sites were compared with construction areas associated with the alternatives to identify the potential to encounter hazardous materials during ground-disturbing construction activities. The potential to generate hazardous materials and solid waste was also evaluated based on anticipated construction and operational activities.

The findings of these evaluations were compared to the appropriate regulatory guidelines, significance thresholds, and other appropriate criteria. Relevant safeguards and precautions that would be undertaken to avoid or minimize potential environmental impacts associated with hazardous materials and/or environmental contamination during the construction and operational phases of the Proposed Action and the No Action Alternative were also identified.

4.6.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention. However, FAA Order 1050.1F identifies factors in evaluating the context and intensity of potential environmental impacts for hazardous materials, solid waste, or pollution prevention. These factors include whether an action would have the potential to:

- violate hazardous waste or solid waste management laws and regulations;
- involve a contaminated site;
- produce an appreciably different quantity or type of hazardous waste;
- generate an appreciably different quantity or type of solid waste that would exceed local capacity; or
- adversely affect human health and the environment.

4.6.3 CONSTRUCTION IMPACTS

4.6.3.1 NO ACTION ALTERNATIVE

No construction activities would occur under the No Action Alternative; therefore, the No Action Alternative would not result in the disturbance of contaminated soils or hazardous materials, nor would it produce C&D debris. The No Action Alternative would not result in a construction-related impact involving hazardous materials or solid waste.

4.6.3.2 PROPOSED ACTION

Construction of the Proposed Action would temporarily increase the amount of hazardous materials used at the Airport, primarily in the form of fuel used for construction equipment. Additionally, as discussed in Section 3.9.1.2, several instances of contaminated materials releases have been reported on Airport property, none of which are within the Direct Study Area within which ground disturbance would occur. Therefore, contaminated soils are not likely to be encountered during construction. Construction of the Proposed Action would increase C&D debris generated at the Airport, due to demolition activities. The following plans, practices, and policies are in place to minimize potential pollution related to hazardous materials and solid waste:

- Construction would be accomplished in accordance with the provisions of FAA Advisory Circular 150/5370-10H, *Standard Specifications for Construction of Airports*, and by using appropriate BMPs to minimize potential impacts from hazardous materials or solid waste.
- Should any contaminated materials be encountered during construction, the finding would be reported, and the material would be excavated and stored on-site for testing in accordance with applicable regulations. Such material would be disposed of by a certified hauler at a permitted disposal facility. Reporting, sampling, testing, handling, storage, transportation, and disposal would be conducted in accordance with all relevant FDEP regulations and guidance.
- Airfield pavement would be tested, and reused to the extent practical, in accordance with FAA pavement standards outlined in FAA Advisory Circular 150/5320-6F, *Airport Pavement Design and Evaluation*. The remaining debris would be recycled or disposed of in accordance with all applicable federal, state, and local laws and regulations. Construction waste would be removed by private contractors and transported to a local transfer station for sorting and recycling or disposed at a permitted landfill facility.
- In accordance with the Florida NPDES Stormwater Program and Multi-Sector General Permit, the County maintains a SWPPP for the Airport for industrial and construction activities. Additionally, per the NPDES Permit, a site-specific construction SWPPP would be prepared for construction activities associated with the Proposed Action, with the goal of identifying the sources of sediment and other pollutants that could affect the quality of stormwater discharges. The SWPPP would describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater, as well as non-stormwater discharges.

The County would require the contractor to prepare and implement a project-specific SWPPP, a solid waste management plan, and a Spill Prevention, Control, and Countermeasures (SPCC) Plan, if needed, documenting measures to prevent accidental releases to the environment and, should they occur, the response procedures and corrective actions to minimize environmental impact.

In summary, the County has BMPs in place to comply with federal, state, and local hazardous material regulations during construction, and sufficient disposal capacity is available in the South Dade Landfill for solid waste that cannot be reused on-site, as described in Section 3.9.2.2. Therefore, construction of the Proposed Action would not result in a significant impact involving hazardous materials or solid waste, because it would not violate federal, state, local, or tribal regulations; result in impacts associated with construction in previously contaminated sites; produce an appreciably different quantity or type of hazardous or solid waste; or otherwise adversely affect human health and the environment.

4.6.4 OPERATIONAL IMPACTS

4.6.4.1 NO ACTION ALTERNATIVE

A variety of hazardous materials typically associated with the operation of a commercial airport are used at EYW. The Airport would maintain compliance with federal, state, and local regulations regarding hazardous materials, and existing pollution prevention measures would remain in place. The No Action Alternative would not affect the types or quantities of hazardous materials currently used, or solid waste currently generated, at EYW beyond that associated with increases in aviation activity. Additionally, sufficient landfill capacity exists to accept waste streams from the Airport. Therefore, Airport operations under the No Action Alternative would not result in impacts associated with hazardous materials or solid waste, because the Airport would not violate federal, state, or local regulations pertaining to hazardous materials; produce an appreciably different quantity or type of hazardous or solid waste; or otherwise adversely affect human health and the environment.

4.6.4.2 PROPOSED ACTION

Although the types of hazardous materials and solid waste generated at EYW under the Proposed Action would be the same as those generated under the No Action Alternative, it is expected that an increase in the quantity of hazardous materials and solid waste would occur, commensurate with the additional passenger and aircraft activity forecast for the Proposed Action. Sufficient landfill capacity exists to accept waste streams from the Airport. The Airport would maintain compliance with federal, state, and local regulations regarding hazardous materials, and existing pollution prevention measures would remain in place. Operations under the Proposed Action would not violate federal, state, or local regulations pertaining to hazardous materials; produce an appreciably different quantity or type of hazardous or solid waste; or otherwise adversely affect human health and the environment. Therefore, implementation of the Proposed Action would not result in impacts associated with hazardous materials or solid waste in comparison to the No Action Alternative.

4.7 HISTORICAL, ARCHEOLOGICAL, ARCHITECTURAL, AND CULTURAL RESOURCES

4.7.1 METHODOLOGY

The consequences of construction activities and Airport operations under the Proposed Action and No Action Alternative on historical, architectural, archeological, and cultural resources were evaluated in a CRAS and coordinated with the SHPO, as documented in Appendix D. The CRAS evaluated archeological resources through the conduct of background research and a literature review, which contributed to the formulation of project-specific field methods to locate and evaluate previously recorded archeological sites within the project area; conduct of an archeological field survey, which comprised visual surface inspection and subsurface testing using conventional shovel testing, where possible, based on field conditions; and conduct of interviews of local informants. In support of the CRAS, an architectural historian identified potential historic resources through the conduct of a historic resource survey, conduct of visual reconnaissance, and review of property tax records and historic aerial photography. For potential historic properties identified, the architectural historian completed Florida Master Site File (FMSF) forms to document field data and notes from site observations and evaluated each resource's significance for potential eligibility for inclusion in the National Register. The National Register's criteria evaluate the significance of cultural resources for districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; (b) that are associated with the lives of significant persons in our past; (c) that 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) that have yielded, or may be likely to yield, information important in history or prehistory.

4.7.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for historical, architectural, archeological, and cultural resources. FAA Order 1050.1F identifies a finding of adverse effect through the Section 106 process as a factor to consider in evaluating significance; however, an adverse effect finding does not automatically equate to a significant impact.

4.7.3 CONSTRUCTION IMPACTS

4.7.3.1 NO ACTION ALTERNATIVE

No construction activities would occur under the No Action Alternative. Therefore, no construction impacts to historical, architectural, archeological, or cultural resources would occur.

4.7.3.2 PROPOSED ACTION

No previously recorded or new archeological resources were identified within the Direct Effects APE, and the area was identified as exhibiting low archeological probability due to the high level of disturbance and fill that occurred during the original Airport construction, as it is located within former wetlands. Therefore, construction of the Proposed Action is unlikely to affect archeological resources. Although unlikely, should construction activities uncover any intact archeological remains, construction activity in the immediate area of the remains would be stopped while a professional archeologist evaluates the remains. In the event that human remains are found during construction or maintenance activities, the provisions of Chapter 872.05 of the Florida Statutes would apply. Chapter 872.05 states that, when human remains are encountered, all activity that might disturb the remains shall cease and may not resume until authorized by the District Medical Examiner (for remains less than 75 years old or remains involved in a criminal investigation) or the State Archeologist (for remains more than 75 years of age).

No structures are located within the Direct Effects APE. Eleven structures and features over 50 years old were identified in the Final Indirect Effects APE. One feature, the Bridle Path (8MO2700), was determined to be National Register–ineligible on November 17, 1998, and it is still considered to be National Register–ineligible. The Bridle Path and the 10 structures identified in the Final Indirect Effects APE were considered to be ineligible by FAA for listing in the National Register, and the FAA made a finding that no historic properties would be affected by the proposed undertaking (the Proposed Action). The FAA reviewed its finding and the supporting documentation (the Cultural Resources Assessment Survey [CRAS] report) with the SHPO. The SHPO concurred with FAA's finding that the proposed undertaking would have no effect to historic properties and that the CRAS report was complete and sufficient in accordance with Chapter 1A-46, *Florida Administrative Code*, on October 19, 2020 (see Appendix D). Furthermore, the Proposed Action would not result in construction impacts in resource categories that could indirectly affect historic resources in the Indirect Effects APE, such as air quality (see Section 4.1.3), noise (see Section 4.10.3), or visual impacts (see Section 4.12.3). Additionally, the Seminole Tribe of Florida confirmed that the Proposed Action falls within their area of interest and expressed that they have no objections to the Proposed Action but requested to be notified if any archaeological, historical, or burial resources are inadvertently discovered during project implementation. Therefore, no direct or indirect effects to historic, architectural, or cultural resources would occur.

With practices in place should intact archeological remains be identified during construction, the FAA determined, and the SHPO concurred, that the Proposed Action would not directly or indirectly affect historical, architectural, archeological, or cultural resources.

4.7.4 OPERATIONAL IMPACTS

4.7.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, Airport operations would increase commensurate with increases in aircraft activity. No action would be taken under this alternative that would affect historical, architectural, archeological, or cultural resources.

4.7.4.2 PROPOSED ACTION

As discussed in Sections 3.10 and 4.7.3.2, no National Register–eligible historical, architectural, known archeological, or cultural resources are located within the Direct or Final Indirect Effects APE. The Final Indirect Effects APE was defined to evaluate the potential for changes in noise exposure with implementation of the Proposed Action to affect historic resources. Potential historic resources within the area newly exposed to noise levels above DNL 65 dB and greater with implementation of the Proposed Action (within the Final Indirect Effects APE) were identified and then evaluated to determine if they were eligible for listing on the National Register of Historic Places. Based on the analysis documented in Section 3.10, no resources within the Final Indirect Effects APE were determined to be eligible for listing on the National Register. Therefore, implementation of the Proposed Action would not indirectly affect historical or architectural resources due to noise. Furthermore, the Proposed Action would not result in air quality impacts (see Section 4.1.4) or visual effects (see Section 4.12.4) that would result in other indirect effects on historic or architectural resources within the Indirect Study Area.

Therefore, implementation of the Proposed Action would not affect historical, architectural, archeological, or cultural resources.

4.7.5 SECTION 106 CONSULTATION PROCESS

The FAA conducted consultation pursuant to Section 106 of the NHPA to discuss the methodology in developing the APE, identify historic properties listed in or determined eligible for listing in the National Register of Historic Places, and assess the effects of the Proposed Action. As required by 36 CFR 800.4 (a)(1), the FAA established the Direct and Indirect Effects APE and initiated Section 106 consultation with the SHPO by letter on February 24, 2020. The SHPO concurred on the use of the APEs for evaluation of the proposed undertaking on March 17, 2020.

Consultation continued with the FAA's transmittal of its finding that no historic properties would be affected by the proposed undertaking (the Proposed Action) and the supporting CRAS report to the SHPO and to five federally recognized Native American Tribes typically involved in consultation in South Florida (the Seminole Tribe of Florida, Seminole Nation of Oklahoma, Poarch Band of Creek Indians, Miccosukee Tribe of Indians of Florida, and the Muscogee [Creek] Nation) on July 15, 2020. Copies of correspondence documenting consultation pursuant to Section 106 are provided in Appendix D. As of October 2020, one response was received from the Native American Tribes contacted; the Muscogee (Creek) Nation stated in an email dated August 21, 2020, that the Proposed Action is located outside of the Muscogee (Creek) National's historic area of interest and that they defer to other tribes that had been contacted.

The SHPO concurred with FAA's finding of no historic properties affected by the proposed undertaking (the Proposed Action). The SHPO also concurred with FAA's finding that the proposed undertaking would have no effect

to historic properties and that the CRAS report was complete and sufficient in accordance with Chapter 1A-46, *Florida Administrative Code*, on October 19, 2020 (see Appendix D).

4.7.6 SIGNIFICANCE DETERMINATION

Based on analysis of historic resources as documented in the CRAS report and consultation with Native American Tribes and the SHPO, the Proposed Action would not exceed the thresholds that indicate a significant impact to historic, archaeological, architectural, or cultural resources, as identified in Section 4.7.2.

4.8 LAND USE

4.8.1 METHODOLOGY

The assessment of potential land use and planning effects of the No Action Alternative and Proposed Action focused on identifying applicable federal, regional, state, and local land use plans and policies and assessing the consistency of the alternatives to those plans and policies. The analysis of plan consistency is designed to determine whether any inconsistencies need to be addressed before the Proposed Action can be implemented. For this EA, the Proposed Action and No Action Alternative were reviewed for consistency with the comprehensive plan for Monroe County.

4.8.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for land use and there are no specific independent factors to consider for land use. The determination that significant impacts exist in the land use impacts category is normally dependent on the significance of other impacts.

4.8.3 CONSTRUCTION AND OPERATIONAL IMPACTS

4.8.3.1 NO ACTION ALTERNATIVE

No construction activity would occur under the No Action Alternative; therefore, no land use impacts related to construction would occur under the No Action Alternative. Monroe County's Comprehensive Plan established policies that regulate height and land uses around EYW. The No Action Alternative would not affect the established policies.

4.8.3.2 PROPOSED ACTION

The Proposed Action would be consistent with the Monroe County Comprehensive Plan, including the following elements relevant to implementation of the Proposed Action:

- Policy 101.5.30 (of Goal 101 regarding future development) regulates heights around the Airport. Implementation of the Proposed Action would occur on Airport property; it would not affect existing land use designations within the Indirect or Direct Study Areas, and it would be consistent with plans for the area.
- Goal 501 states that the County shall provide aviation facilities in a manner that maximizes safety, convenience, economic benefit, environmental compatibility, and consistency with other elements of the comprehensive plan, and specifically the following supporting objectives and policies:
  - Policy 501.1.5 states that the County shall encourage development of aviation facilities and activities that relieve the traffic on US 1 or serve as an alternate to US 1 as a means of delivering goods or services to the community (see Section 4.11.4).

- Policy 501.2.2 states that the Airport shall be expanded to be consistent with the needs identified in the updated master plan as provided for by the Board of County Commissioners (see Chapter 1).
- Policy 501.2.3 states that development activities to construct or expand the Airport shall not occur on environmentally sensitive areas unless a viable alternative is not available (see Chapter 2) and that mitigation and restoration shall occur when there is no other alternative than to disturb environmental sensitive areas (see Section 4.13.5).
- Objective 501.3 states that airports shall operate in a manner to maximize safety and least adverse impact on the community (see Chapters 1, 2, and 4).

Construction of the Proposed Action would affect 7.51 acres of mangrove swamp, saltwater marshes, embayments, and exotic wetland hardwoods within the Direct Study Area by placement of fill and an additional 0.2 acres would be affected by clearing activities. Although wetland impacts are not currently permitted under the Monroe County Comprehensive Plan, an amendment to the plan (specifically to Policies 102.1.1, 203.1.1, 204.2.2, 204.2.3, and 204.2.4) is being considered that would allow for expansion of aviation and related facilities on the Airport that may impact wetland areas where other viable alternatives are not available, consistent with the approved Airport Master Plan and Airport Layout Plan, including any anticipated environmental impacts and associated mitigation.[28] The Comprehensive Plan would need to be amended prior to construction of the Proposed Action. The proposed mangrove swamp and saltwater marsh wetland habitat mitigation measures discussed in Section 4.13.5, would be sufficient to offset on-site habitat impacts that could result from construction of the Proposed Action, consistent with applicable state and federal regulatory policies.

Operation of the Proposed Action would not impact existing or planned off-Airport land uses. The Proposed Action would not alter existing or planned zoning in the Indirect Study Area. No off-Airport land use or zoning conflicts would be generated by operation of the Proposed Action, as it would not cause significant off-Airport impacts, divide or disrupt the community, or otherwise influence land use patterns or development near the Airport.

The Proposed Action is consistent with the objectives of federal, regional, state, tribal, and local land use plans, policies, and controls for the area concerned. **Appendix I** provides a letter documenting the County's assurance that appropriate action 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, pursuant to 49 U.S.C. § 47107(a)(10).

Because the Proposed Action would be consistent with the goals, objectives, and policies of local plans, and would not result in significant impacts in other environmental resource categories that may affect land use, the Proposed Action would not have a significant land use impact.

4.9 NATURAL RESOURCES AND ENERGY SUPPLY

4.9.1 METHODOLOGY

The analysis for natural resources and energy supply considers the demand for consumable natural resources and energy under the No Action Alternative and Proposed Action. Impacts to electricity demand, fuel consumption, and

[28] The Monroe County Planning Commission heard the proposed amendments at a Public Hearing on December 15, 2020, and recommended approval of the amendments to the Board of County Commissioners (BOCC). At the January 20, 2021, BOCC hearings, no public comments on the amendments were received and the BOCC approved the amendments. The amendments will be submitted to the State Land Planning Agency for review, and if no objections are received, the amendments will be presented to the BOCC for adoption.

other consumable materials were determined by evaluating the extent to which construction and Airport operations under the Proposed Action would change demand in comparison to the No Action Alternative and whether any deficiencies would be anticipated as a result of the Proposed Action. Changes in fuel use associated with aircraft operations were estimated using the FAA-approved model for estimating emissions, AEDT, as discussed in Section 4.1.1.

4.9.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for natural resources and energy supply. However, the FAA has identified a factor to consider when evaluating the context and intensity of impacts: if the action would have the potential to cause demand to exceed available or future supplies of these resources.

4.9.3 CONSTRUCTION IMPACTS

4.9.3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no construction activities would occur; therefore, no effects related to natural resources or energy supply associated with construction would occur.

4.9.3.2 PROPOSED ACTION

Construction of the Proposed Action would use common materials that are not unusual or in short supply, such as asphalt, concrete, and soil. These materials are readily available and would not impact natural resource supplies. Construction of the Proposed Action would be consistent with local construction procedures, whereby other materials not readily available in the Florida Keys are hauled from the mainland, primarily from Miami. Operation of construction equipment and vehicles would use diesel and other fuels that are not unusual or in short supply. Due to the readily available nature of both construction materials and equipment fuel, construction of the Proposed Action would not result in a significant impact on consumable natural resources.

Energy for construction lighting and equipment would use electricity, diesel, and other fuels that are not unusual or in short supply. Overall, the increase in energy use during construction would be temporary and, compared to the overall energy consumption for Airport operations, would not be significant. Therefore, construction of the Proposed Action would not result in a significant impact on energy supply.

4.9.4 OPERATIONAL IMPACTS

4.9.4.1 NO ACTION ALTERNATIVE

Natural resource and energy use at EYW under the No Action Alternative would increase commensurate with increases in Airport activity. Aircraft fuel use was estimated as part of the analysis of air quality and aircraft noise impacts, which modeled aircraft taxi movements on the airfield, climb-outs during departures to 3,000 feet Above Field Elevation (AFE), and descents from 3,000 feet to the runway during arrivals. Although not representative of total fuel use associated with flights operating at EYW, fuel use under 3,000 feet provides a means to compare the increase in fuel use associated with the Proposed Action. **Table 4-14** presents annual fuel use for aircraft operations below 3,000 feet above ground level (AGL) under the No Action Alternative.

TABLE 4-14 AIRCRAFT FUEL USE – NO ACTION ALTERNATIVE

YEAR	ANNUAL FUEL USE (TONS)
2024	4,343.0
2029	4,719.4

NOTE: Fuel use is associated with aircraft operations at Key West International Airport below 3,000 feet.
SOURCE: Deborah Murphy Lagos & Associates, LLC, and KB Environmental Services, Inc., March 2020 (using the Aviation Environmental Design Tool, Version 3b).

The No Action Alternative would not cause levels of demand that would exceed available or future natural resource or energy supplies in the area. Therefore, no significant impacts related to natural resources or energy supply associated with Airport operations under the No Action Alternative would occur.

4.9.4.2 PROPOSED ACTION

Operation of the Airport under the Proposed Action would not affect consumable natural resources in comparison to the No Action Alternative. Under the Proposed Action, electricity usage would be slightly higher than under the No Action Alternative given the need for additional taxiway edge and apron pavement lighting; however, this increase would not be significant in comparison to total airfield lighting under the No Action Alternative. Additionally, aircraft fuel use would be slightly higher under the Proposed Action than the No Action Alternative, as the number of aircraft operations would be approximately 3 percent higher than under the No Action Alternative. **Table 4-15** presents fuel use by aircraft operating in the vicinity of EYW under 3,000 feet AFE[29] and shows that implementation of the Proposed Action would result in an increase in aircraft fuel use by less than 5 percent.

TABLE 4-15 AIRCRAFT FUEL USE – PROPOSED ACTION

YEAR	PROPOSED ACTION (TONS)	INCREASE COMPARED TO NO ACTION ALTERNATIVE (TONS) [1]	PERCENT CHANGE COMPARED TO NO ACTION ALTERNATIVE
2024	4,550.5	206.7	4.8%
2029	4,719.4	212.3	4.5%

NOTES: Fuel use is associated with aircraft operations at Key West International Airport below 3,000 feet.
1 See Table 4-14.
SOURCE: Deborah Murphy Lagos & Associates, LLC, and KB Environmental Services, Inc., March 2020 (using the Aviation Environmental Design Tool, version 3b).

These changes in electricity and fuel under the Proposed Action would not exceed available or future energy supply. Therefore, Airport operations under the Proposed Action would not cause a significant impact related to energy supply when compared to the No Action Alternative.

4.10 NOISE AND COMPATIBLE LAND USE

4.10.1 METHODOLOGY

Potential noise impacts are analyzed using the methodologies developed by the FAA and published in Appendix B of FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and in the 1050.1F Desk Reference. The aircraft noise analysis compared the Proposed Action to the No Action Alternative for the operational years of 2024 (first

[29] Fuel use was estimated for aircraft taxiing, climb-outs to 3,000 feet, and descents from 3,000 feet to the runway.

full year of operation) and 2029. More information regarding aircraft noise metrics, modeling methodology, and model inputs is provided in Section 3.13 and Appendix F.

Because the FAA-approved model for noise analyses, AEDT, does not model construction noise, Federal Highway Administration (FHWA) guidance[30] was used to assess construction noise (consistent with guidance in FAA Order 1050.1F and with Florida Department of Transportation guidance[31]). The FHWA Roadway Construction Noise Model (RCNM)[32] was used to calculate the noise level of construction equipment that would potentially be used during construction of the Proposed Action. Construction would take place over a two-year period and the type and amount of equipment being used at any given time would vary with each construction phase. At this time, the exact timing of construction phases and types of equipment used during each phase have not yet been determined. As such, cumulative construction noise levels were calculated assuming all equipment would be used at the same time. Noise levels are reported using the L_{eq} metric, which allows for aggregating noise levels of multiple sound events such as construction noise and aircraft noise. Detailed information on methodologies used in and assumptions for the construction noise analysis are provided in Appendix F.

4.10.2 SIGNIFICANCE THRESHOLDS

FAA Order 1050.1F states that an action would be considered to have a significant impact with regard to aircraft noise if the action would increase noise by DNL 1.5 dB or greater 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 FAA has not established a significance threshold for construction noise.

4.10.3 CONSTRUCTION IMPACTS

4.10.3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no construction activities associated with the Proposed Action would occur that would change the noise environment around EYW.

4.10.3.2 PROPOSED ACTION

Construction of the Proposed Action would increase noise in the Airport environs during the 2-year construction period. During the first year of construction, it is assumed that nighttime construction would occur routinely to minimize effects on aircraft operating on the airfield during daytime hours. Additionally, the type and amount of equipment being used at any given time would vary with each construction phase. The nearest sensitive noise receptors to the area of construction (the Direct Study Area) are the residences along Airport Boulevard approximately 645 feet to the north of the Airport and the Ocean Walk Apartments approximately 820 feet to the east of the Airport. The construction noise level estimated at each of these receptors was combined with ambient

[30] US Department of Transportation, Federal Highway Administration, *Highway Traffic Noise: Analysis and Abatement Guidance*, December 2011.

[31] Florida Department of Transportation, Topic No. 650-000-001, *Project Development and Environmental Manual, Highway Traffic Noise*, Section 18.2.6.5, "Construction Noise and Vibration Impacts," effective June 14, 2017.

[32] US Department of Transportation, Federal Highway Administration, *Roadway Construction Noise Model – RCNM*, https://www.fhwa.dot.gov/Environment/noise/construction_noise/rcnm/ (accessed January 2018).

background noise, as modeled for the future year 2024 (see Section 4.10.1 for information on the aircraft noise analysis) to estimate combined noise levels at each receptor, as presented in **Table 4-16**.

TABLE 4-16 NOISE LEVELS AT RESIDENTIAL RECEPTORS

NOISE METRIC	AIRPORT BOULEVARD RESIDENCES	OCEAN WALK APARTMENTS
L_{eq} Construction Noise Level at Receptor (dBA)	73.0	67.8
Ambient Background Noise Level (dBA)	68.7	66.7
Total Noise Level During Construction (dBA)	**74.4**	**70.3**

NOTES:
dBA – A-Weighted Decibels
L_{eq} – Equivalent Sound Level
SOURCE: Ricondo & Associates, Inc., June 2020.

The majority of residences in the Airport Boulevard neighborhood have participated in the Airport's Noise Insulation Program, which is discussed in Section 3.13. Construction equipment would be muffled and maintained consistent with construction industry standards. FAA has not established significance thresholds for construction noise impacts and local ordinances do not define criteria for assessing noise impacts. Construction of the Proposed Action would result in increases in noise levels at nearby residential areas; however, these noise effects would be temporary. Furthermore, the majority of residential land uses in the Airport Boulevard neighborhood are considered compatible with aircraft noise for the purpose of this EA, as discussed in Section 3.13. If unanticipated noise issues arise during the construction process, the Airport would work with the construction contractor to investigate additional methods to control impacts.

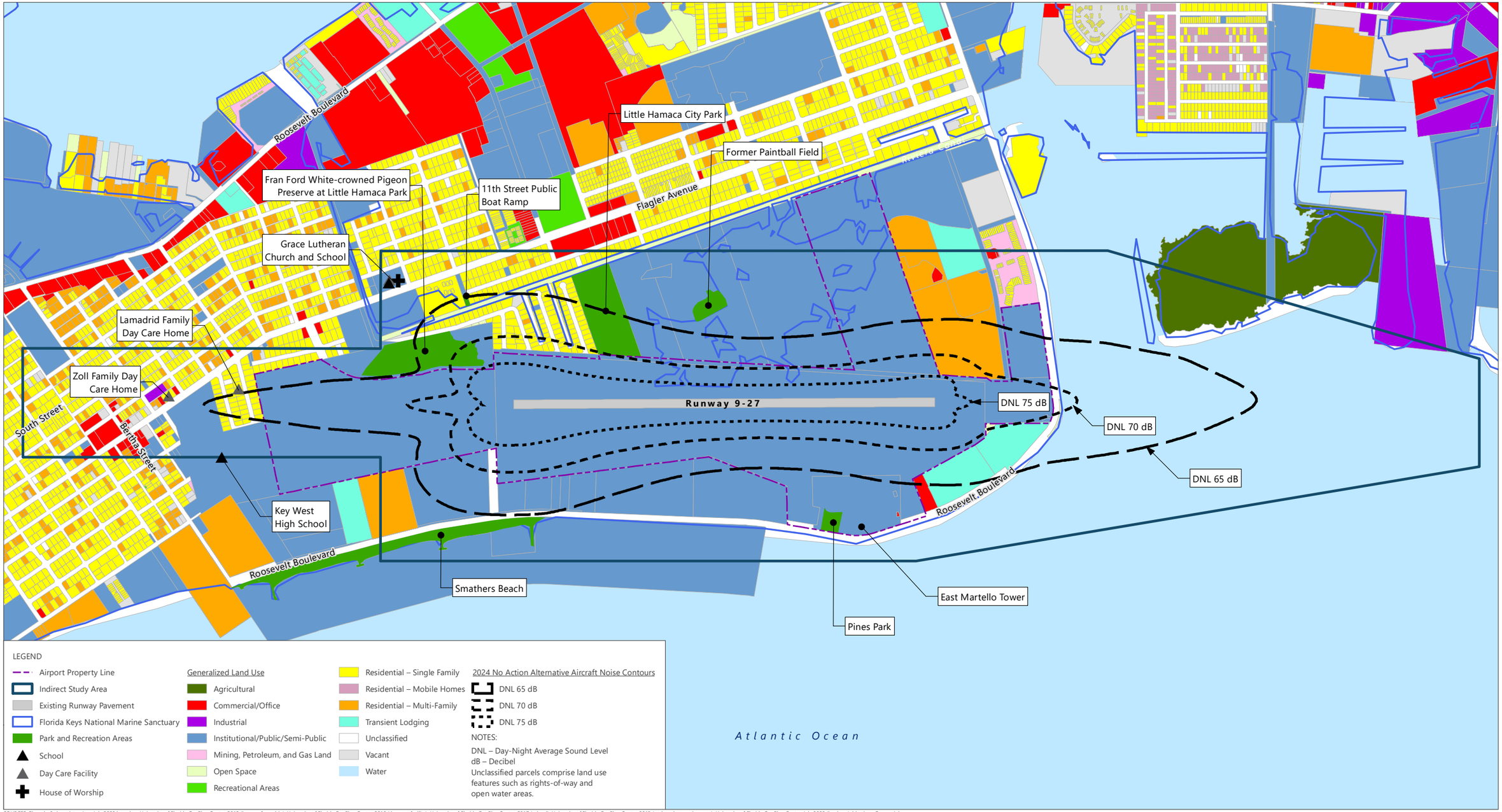
4.10.4 OPERATIONAL IMPACTS

No Action Alternative

Under the No Action Alternative, aircraft operational patterns would be similar to existing conditions, and noise exposure would change commensurate with forecast increases in aircraft activity. Given the lack of direct access to the end of Runway 9, it is assumed that 10 percent of aircraft operations would back taxi on the runway to the end of runway pavement on Runway 9, consistent with current operations.

Future year 2024 No Action Alternative noise exposure contours (DNL 65, 70, and 75 dB contours) are shown on **Exhibit 4-1**, and contours representing future year 2029 No Action Alternative are shown on **Exhibit 4-2**.

Table 4-17 shows that approximately 269 dwelling units with 573 people would be located within the DNL 65 dB and greater noise exposure contour in 2024, and by 2029, 283 dwelling units and 600 people would be located within the DNL 65 dB and greater noise exposure contour. The residential dwelling units within the No Action Alternative 2024 DNL 65 dB contour include 162 multi-family units located east of the Airport, one 2-unit residential property located north of the Airport, and 107 single-family units located north and west of the Airport. Of the residential units on the north and west sides of the Airport, 103 have participated in the Airport's Noise Insulation Program and, for the purpose of this EA, these residential land uses are considered compatible with aircraft noise. Similarly, the residential dwelling units within the No Action Alternative 2029 DNL 65 dB contour include 171 multi-family units located east of the Airport, one 2-unit residential property located north of the Airport, and 112 single-family units located north and west of the Airport. Of the residential units on the north and west sides of the Airport, 108 have participated in the Airport's Noise Insulation Program and, thus, these residential land uses are considered to be compatible with aircraft noise for the purpose of this EA.



SOURCES: Ricondo & Associates, Inc., July 2020 based on University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation area); University of Florida GeoPlan Center, July 2020 (land use); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line, runway); US Census, Geography Division, TIGER/Line Shapefile, 2019 (counties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (noise contours; Aviation Environmental Design Tool, Version 3b); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

EXHIBIT 4-1

NO ACTION ALTERNATIVE NOISE EXPOSURE CONTOURS, 2024

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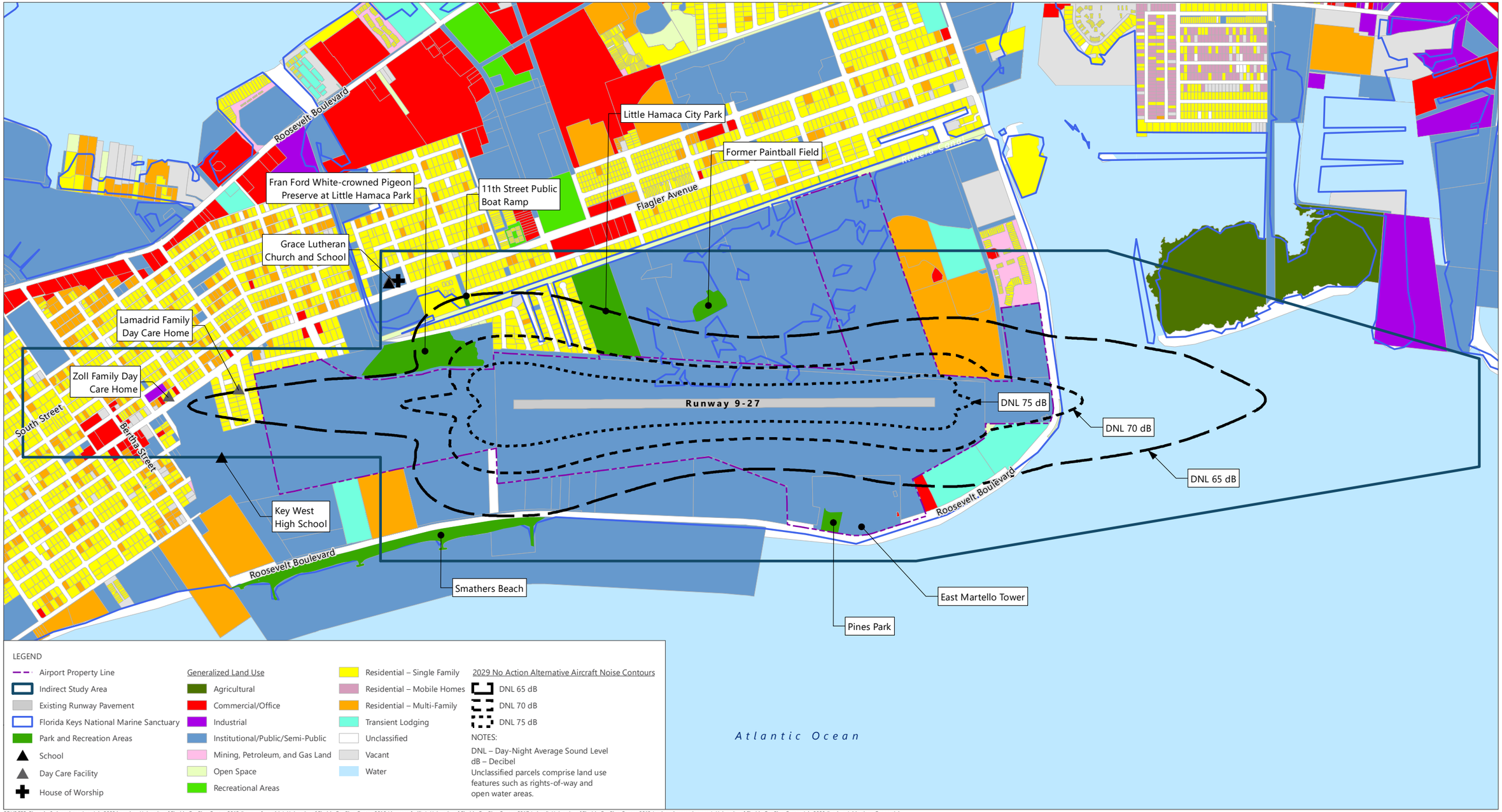

SOURCES: Ricondo & Associates, Inc., July 2020 based on University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation area); University of Florida GeoPlan Center, July 2020 (land use); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line, runway); US Census, Geography Division, TIGER/Line Shapefile, 2019 (counties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (noise contours; Aviation Environmental Design Tool, Version 3b); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

EXHIBIT 4-2

NO ACTION ALTERNATIVE NOISE EXPOSURE CONTOURS, 2029

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TABLE 4-17 NO ACTION ALTERNATIVE NOISE EXPOSURE SUMMARY

LAND USE	2024 DNL 65 dB AND GREATER	2024 DNL 70 dB AND GREATER	2024 DNL 75 dB AND GREATER	2029 DNL 65 dB AND GREATER	2029 DNL 70 dB AND GREATER	2029 DNL 75 dB AND GREATER
Noise-Sensitive Facilities [1] (number)						
Residential Dwelling Units	269	18	0	283	20	0
Single-Family	107	18	0	112	19	0
Multi-Family	162	0	0	171	1 [5]	0
Residential Population	573	43	0	600	47	0
Park/Recreation Property [2]	3	2	0	3	2	0
School [3]	0	0	0	0	0	0
Land Uses (acres)						
Institutional, Pubic, Semi-Public – General (includes the Airport)	275.0	149.8	72.0	280.5	151.7	72.3
Institutional, Public, Semi-Public – Parks and Recreational Lands	11.3	1.6	0.0	11.9	2.7	0.0
Residential, Single-Family	16.3	2.4	0.0	18.0	2.1	0.0
Residential, Multi-Family	12.0	2.6	0.0	12.6	2.6	0.0
Transient Lodging	11.5	0.2	0.0	11.8	0.0	0.0
Open Space	2.1	0.2	0.0	2.4	0.1	0.0
Commercial, Office	0.3	0.0	0.0	0.4	0.0	0.0
Unclassified [4]	8.2	1.4	0.0	8.5	1.2	0.0
Vacant	0.3	0.0	0.0	0.4	0.0	0.0
Open Water	55.1	1.3	0.0	50.6	0.4	0.0
Total	**392.1**	**159.4**	**72.0**	**397.2**	**160.8**	**72.3**

NOTES:
DNL – Day-Night Average Sound Level
dB – Decibel
1 No houses of worship or hospitals would be in the DNL 65 dB noise exposure contour.
2 Recreation properties do not include the Florida Keys Overseas Heritage Trail for purposes of this analysis. See Table 4-10 for a summary of impacts to the trail.
3 In 2024, 0.37 acres of Key West High School property (access road and parking lot, landscaped areas, and a portion of one of the school's five tennis courts) would be within the DNL 65 dB noise exposure contour, and this area would be 1.16 acres of the same facilities in 2029. The school building itself would not be within the DNL 65 dB noise exposure contour in 2024 or 2029.
4 Unclassified parcels comprise land use features such as rights-of-way.
SOURCES: University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation properties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (using the Aviation Environmental Design Tool, Version 3b; contours).

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Portions of three recreational properties (portions of Little Hamaca City Park, the Fran Ford White-crowned Pigeon Preserve, and the 11th Street Public Boat Ramp) would be located within the DNL 65 dB and greater noise exposure contour in both 2024 and 2029, and portions of two of these properties (Little Hamaca City Park and the Fran Ford White-crowned Pigeon Preserve) would be exposed to noise levels greater than DNL 70 dB. Approximately 44.7 acres of noise-sensitive land uses would be within the DNL 65 dB noise exposure contour in 2024, and this acreage would increase to approximately 46.5 acres in 2029.

Proposed Action

Under the Proposed Action, aircraft operations would increase in comparison to the No Action Alternative. Additionally, with the extension of Taxiway A to the end of pavement on Runway 9, it is assumed that 100 percent of aircraft operations would depart from the end of Runway 9 under the Proposed Action, compared to 10 percent of aircraft operations under the No Action Alternative. These changes in aircraft operations under the Proposed Action result in a slight shift in the noise exposure contours to the west when compared to the No Action Alternative. **Exhibit 4-3** shows the future year 2024 Proposed Action noise exposure contours, and **Exhibit 4-4** shows the future year 2029 Proposed Action noise exposure contours.

Table 4-18 presents the noise-sensitive facilities located within the DNL 65 dB and greater noise exposure contours in future years 2024 and 2029. **Table 4-19** summarizes the changes in noise-sensitive facility exposure due to implementation of the Proposed Action in comparison to the No Action Alternative. In summary, implementation of the Proposed Action would increase the number of dwelling units and persons exposed to noise levels greater than DNL 65 dB; however, fewer homes and persons would be exposed to noise levels greater than DNL 70 dB under the Proposed Action. The residential dwelling units within the Proposed Action 2024 DNL 65 dB contour include 174 multi-family units located east of the Airport, one 2-unit residential property located north of the Airport, and 113 single-family units located north and west of the Airport. Of the residential units on the north and west sides of the Airport, 108 have participated in the Airport's Noise Insulation Program and thus these residential land uses are considered to be compatible with aircraft noise. Similarly, the residential dwelling units within the Proposed Action 2029 DNL 65 dB contour include 185 multi-family units located east of the Airport, one 2-unit residential property located north of the Airport, and 117 single-family units located north and west of the Airport. Of the residential units on the north and west sides of the Airport, 111 have participated in the Airport's Noise Insulation Program and thus these residential land uses are considered to be compatible with aircraft noise.

Section 4.5.4 provides details on changes in noise exposure at recreational properties due to implementation of the Proposed Action. In summary, noise exposure would be reduced over Little Hamaca City Park, increased over Fran Ford White-crowned Pigeon Preserve, and very slightly increased over the 11th Street Public Boat Ramp. Because the FKOHT is a linear property of which only a small portion is located in the Indirect Study Area, it is not included in the summaries presented in Tables 4-18 or 4-19; however, implementation of the Proposed Action would increase the linear length of trail exposed to noise levels of DNL 65 dB and greater but reduce the linear length of trail exposed to noise levels over DNL 70 dB, as shown in Table 4-18. Finally, implementation of the Proposed Action would result in one day care facility being exposed to noise levels greater than DNL 65 dB in 2029. Under all future scenarios, portions of the Key West High School property, including the access road and parking lot, landscaped areas, and a small portion of one of the school's five tennis courts, would be within the DNL 65 dB and greater noise exposure, although the high school building would be outside of the DNL 65 dB contour in all future year scenarios.

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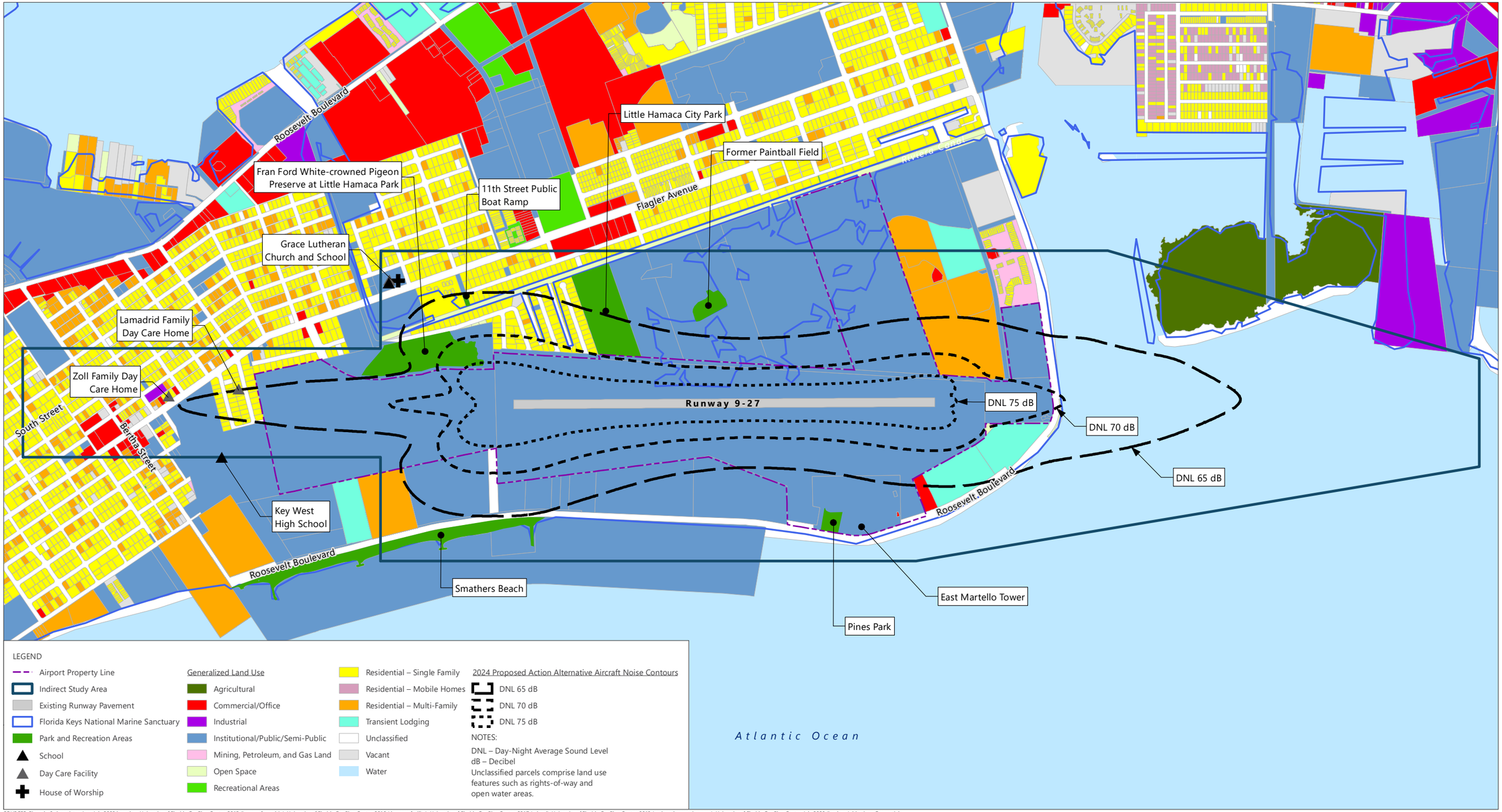

SOURCES: Ricondo & Associates, Inc., July 2020 based on University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation area); University of Florida GeoPlan Center, July 2020 (land use); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line, runway); US Census, Geography Division, TIGER/Line Shapefile, 2019 (counties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (noise contours; Aviation Environmental Design Tool, Version 3b); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

EXHIBIT 4-3

NORTH 0 1,100 ft

PROPOSED ACTION NOISE EXPOSURE CONTOURS, 2024

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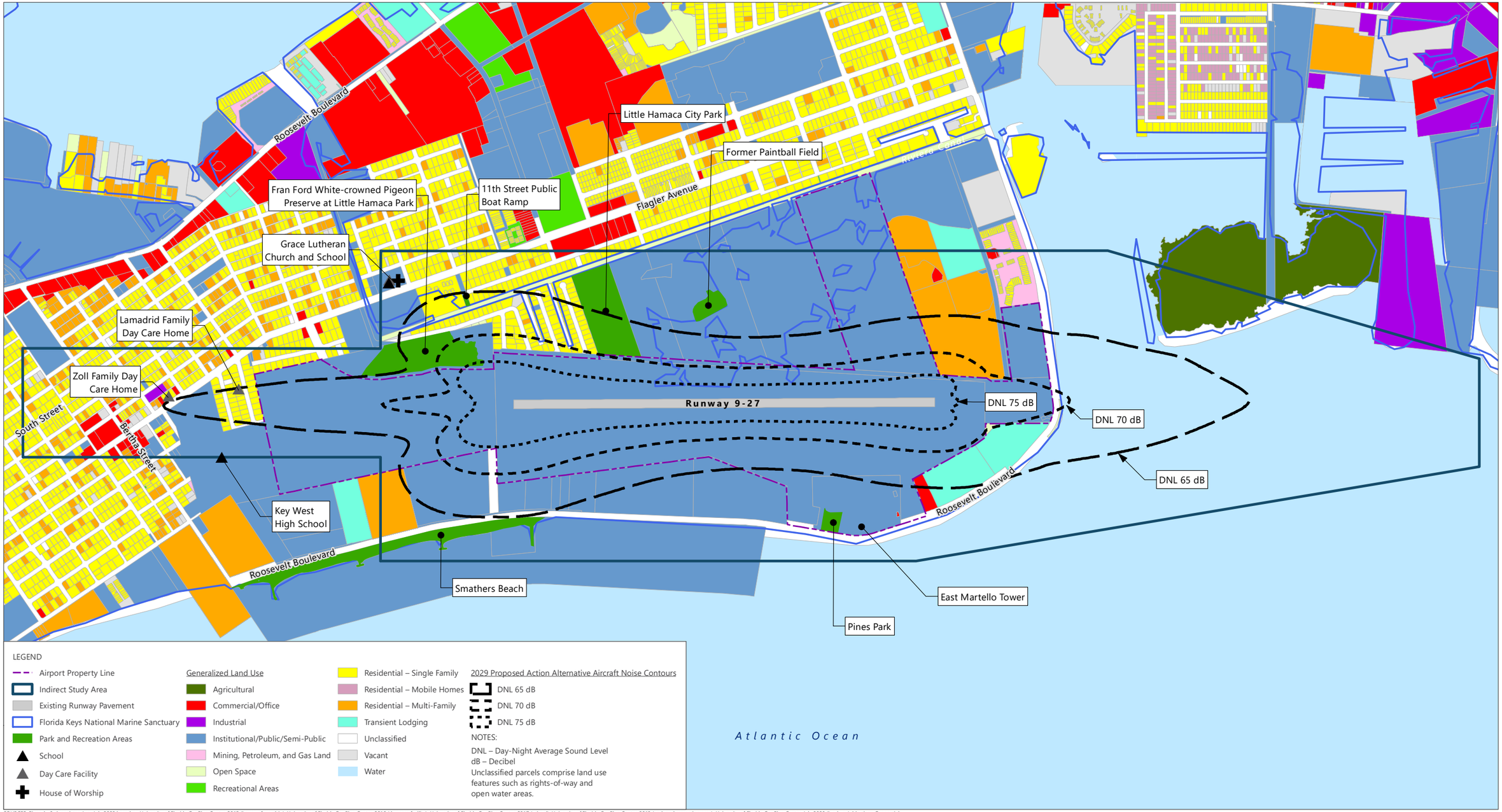

SOURCES: Ricondo & Associates, Inc., July 2020 based on University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation area); University of Florida GeoPlan Center, July 2020 (land use); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line, runway); US Census, Geography Division, TIGER/Line Shapefile, 2019 (counties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (noise contours; Aviation Environmental Design Tool, Version 3b); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

EXHIBIT 4-4

NORTH 0 1,100 ft

PROPOSED ACTION NOISE EXPOSURE CONTOURS, 2029

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TABLE 4-18 PROPOSED ACTION NOISE EXPOSURE SUMMARY

LAND USE	2024 DNL 65 dB AND GREATER	2024 DNL 70 dB AND GREATER	2024 DNL 75 dB AND GREATER	2029 DNL 65 dB AND GREATER	2029 DNL 70 dB AND GREATER	2029 DNL 75 dB AND GREATER
Noise-Sensitive Facilities [1] (number)						
Residential Dwelling Units	287	15	0	302	18	0
Single-Family	113	14	0	117	16	0
Multi-Family	174	1	0	185	2	0
Residential Population	608	35	0	640	43	0
Park/Recreation Property [2]	3	1	1	3	2	1
School [3, 4]	0	0	0	1	0	0
Land Uses (acres)						
Institutional, Pubic, Semi-Public – General (includes the Airport)	280.2	152.8	73.8	285.6	155.0	74.0
Institutional, Public, Semi-Public – Parks and Recreational Lands	11.6	1.7	0.0	12.3	2.7	0.0
Residential, Single-Family	17.1	2.6	0.0	18.6	2.2	0.0
Residential, Multi-Family	12.4	2.8	0.0	13.1	2.9	0.0
Transient Lodging	11.8	0.3	0.0	12.0	0.1	0.0
Open Space	2.2	0.3	0.0	2.5	0.2	0.0
Commercial, Office	0.4	0.0	0.0	0.4	0.0	0.0
Unclassified [5]	8.6	1.4	0.0	9.3	1.3	0.0
Vacant	0.3	0.0	0.0	0.5	0.0	0.0
Open Water	60.1	1.7	0.0	55.5	0.7	0.0
Total	**404.7**	**163.7**	**73.8**	**409.8**	**165.2**	**74.0**

NOTES:

DNL – Day-Night Average Sound Level dB – Decibel

1 No houses of worship or hospitals would be in the DNL 65 dB noise exposure contour.

2 Recreation properties do not include the Florida Keys Overseas Heritage Trail for purposes of this analysis. See Table 4-12 for a summary of impacts to the trail.

3 One day care facility would be located within the DNL 65 dB noise exposure contour in 2029.

4 In 2024, 1.73 acres of Key West High School property (access road and parking lot, landscaped areas, and a portion of one of the school's five tennis courts) would be within the DNL 65 dB noise exposure contour, and this area would be 2.26 acres of the same facilities in 2029. The school building itself would not be within the DNL 65 dB noise exposure contour in 2024 or 2029.

5 Unclassified parcels comprise land use features such as rights-of-way.

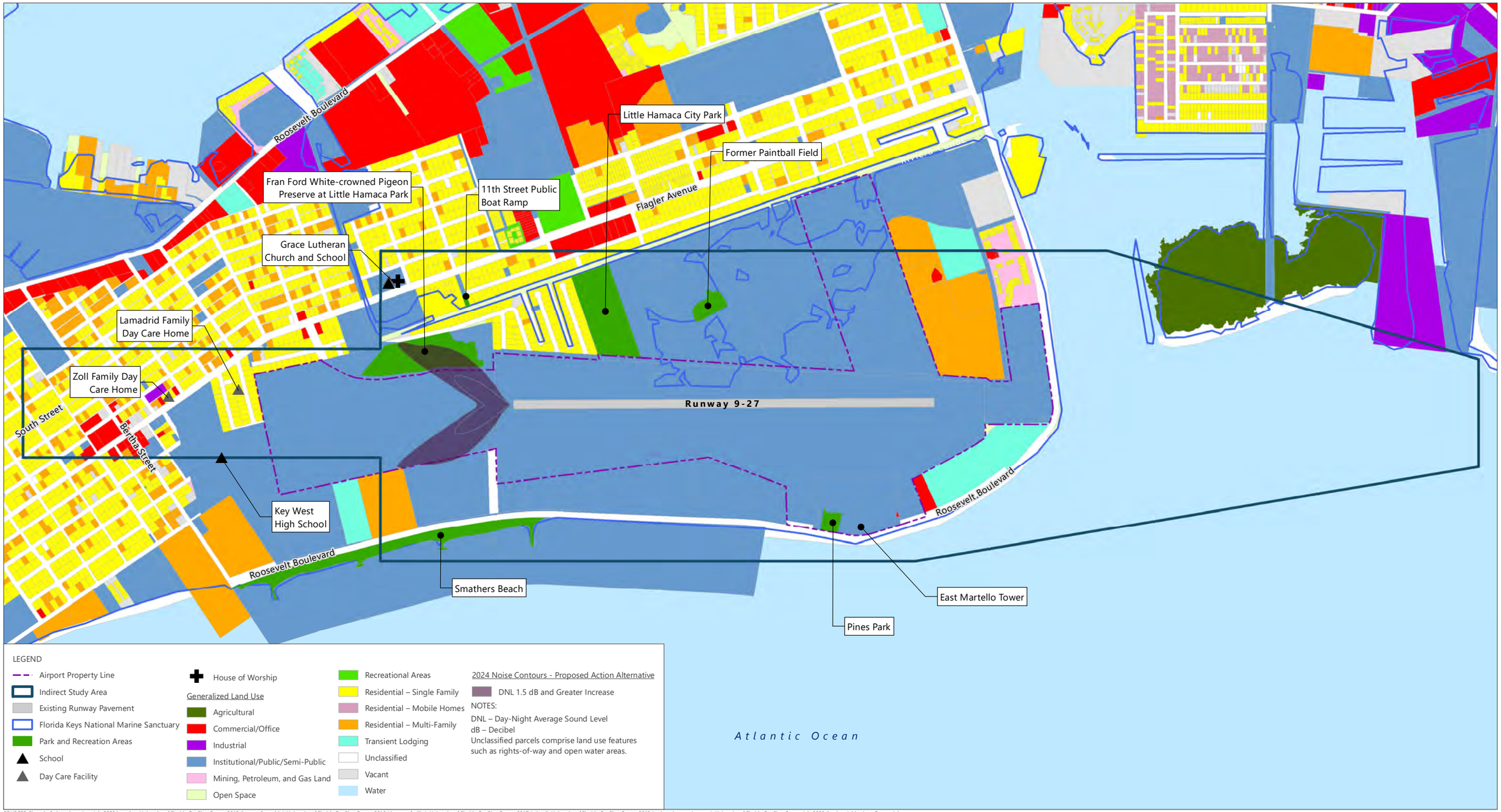
SOURCES: University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation properties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (using the Aviation Environmental Design Tool, Version 3b; contours).

TABLE 4-19 SUMMARY OF CHANGES IN NOISE EXPOSURE WITH IMPLEMENTATION OF THE PROPOSED ACTION COMPARED TO THE NO ACTION ALTERNATIVE

	2024			2029		
LAND USE	DNL 65 dB AND GREATER	DNL 70 dB AND GREATER	DNL 75 dB AND GREATER	DNL 65 dB AND GREATER	DNL 70 dB AND GREATER	DNL 75 dB AND GREATER
Noise-Sensitive Facilities [1] (number)						
Residential Dwelling Unit	18	-3	0	20	-2	0
Single-Family	6	-4	0	5	-3	0
Multi-Family	12	1	0	15	1	0
Residential Population	35	-8	0	40	-4	0
Park/Recreation Property	0	-1	1	0	0	1
School	0	0	0	1	0	0
Land Uses (acres)						
Institutional, Pubic, Semi-Public – General (includes the Airport)	5.2	3.0	1.8	5.1	3.3	1.8
Institutional, Public, Semi-Public – Parks and Recreational Lands	0.3	0.1	0.0	0.4	0.1	0.0
Residential, Single-Family	0.8	0.2	0.0	0.7	0.2	0.0
Residential, Multi-Family	0.4	0.3	0.0	0.5	0.3	0.0
Transient Lodging	0.3	0.1	0.0	0.2	0.1	0.0
Open Space	0.1	0.0	0.0	0.1	0.1	0.0
Commercial, Office	0.1	0.0	0.0	0.1	0.0	0.0
Unclassified [2]	0.4	0.1	0.0	0.7	0.1	0.0
Vacant	0.0	0.0	0.0	0.0	0.0	0.0
Open Water	5.1	0.5	0.0	4.9	0.3	0.0
Total	**12.6**	**4.3**	**1.8**	**12.6**	**4.4**	**1.8**

NOTES:
DNL – Day-Night Average Sound Level dB – Decibel
1 No houses of worship or hospitals are in the DNL 65 dB noise exposure contour.
2 Unclassified parcels comprise land use features such as rights-of-way.
SOURCE: Ricondo & Associates, Inc., June 2020.

To evaluate if the increase in noise exposure at noise-sensitive facilities is significant, the areas exposed to a DNL 1.5 dB increase or greater under the Proposed Action compared to the No Action Alternative were identified. **Exhibit 4-5** presents the area exposed to a DNL 1.5 dB increase under the Proposed Action in 2024, and **Exhibit 4-6** presents the same for the year 2029. In both future years, the DNL 1.5 dB increase contour is primarily contained on Airport property, although it also extends north over the Fran Ford White-crowned Pigeon Preserve. No residential areas within the DNL 65 dB would experience a DNL 1.5 db increase.



SOURCES: Ricondo & Associates, Inc., July 2020 based on University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation area); University of Florida GeoPlan Center, July 2020 (land use); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line, runway); US Census, Geography Division, TIGER/Line Shapefile, 2019 (counties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (noise contours; Aviation Environmental Design Tool, Version 3b); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

EXHIBIT 4-5

DIFFERENTIAL NOISE CONTOURS, 2024

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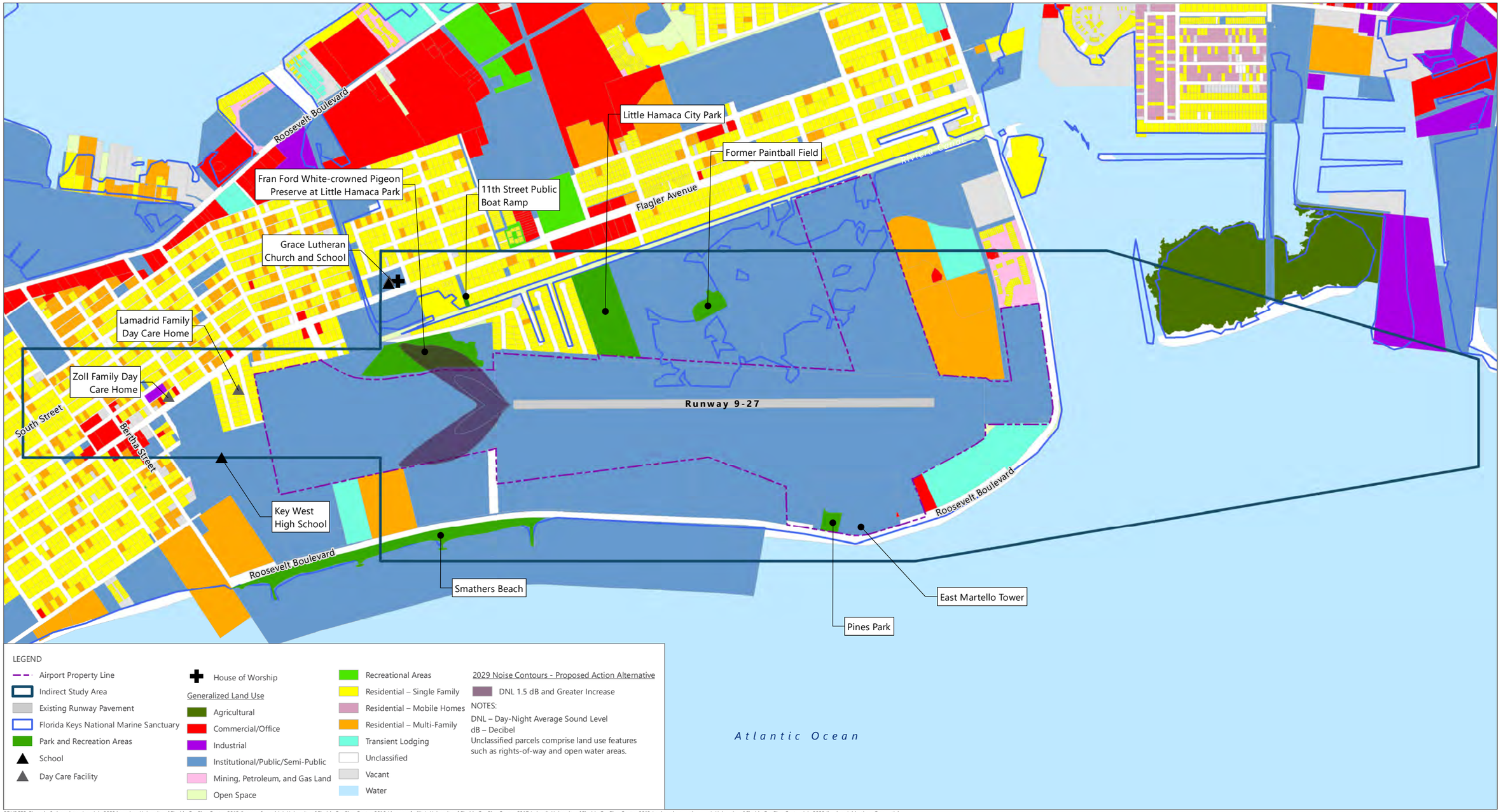

SOURCES: Ricondo & Associates, Inc., July 2020 based on University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of Florida GeoPlan Center, 2019 (park and recreation area); University of Florida GeoPlan Center, July 2020 (land use); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line, runway); US Census, Geography Division, TIGER/Line Shapefile, 2019 (counties); Deborah Murphy Lagos & Associates, LLC, and KB Environmental Sciences, Inc., March 2020 (noise contours; Aviation Environmental Design Tool, Version 3b); Ricondo & Associates, Inc., January 2020 (Indirect Study Area).

EXHIBIT 4-6

DIFFERENTIAL NOISE CONTOURS, 2029

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The change in noise exposure due to implementation of the Proposed Action would result in a small portion of the Fran Ford White-crowned Pigeon Preserve being exposed to noise levels above DNL 75 dB, the level at which parks lands are considered incompatible per the land use compatibility guidelines in 14 CFR Part 150. As discussed in Section 4.5.4.2, this change in noise exposure would not substantially impair the activities, features, or attributes of the park such that a constructive use of the property would result from implementation of the Proposed Action.

Under the Proposed Action, several residences on the west side of the Airport, as well as units in the Ocean Walk Apartments east of the Airport,[33] would be newly exposed to noise levels of DNL 65 dB and greater with implementation of the Proposed Action compared to the No Action Alternative. As summarized in **Table 4-20**, the majority of these residences participated in the 2012 Noise Insulation Program (NIP) and have avigation easements. The anticipated increase in noise exposure for these residences would be less than DNL 1.5 dB; therefore, none of the residences would experience a significant noise impact.

Although the Proposed Action would change noise exposure in the Airport environs, the Proposed Action would not have a significant impact with regard to aircraft noise because the Proposed Action would not increase noise exposure by DNL 1.5 dB or greater for a noise sensitive area exposed to the DNL 65 dB noise exposure level.

4.11 SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S HEALTH AND SAFETY RISKS

4.11.1 METHODOLOGY

Socioeconomic data representing the Indirect Study Area, presented in Section 3.14.2, served as the basis of this analysis. The potential effects of the Proposed Action and No Action Alternative on the socioeconomic conditions of the Indirect Study Area were evaluated qualitatively, considering whether implementation of the Proposed Action and No Action Alternative could impact sensitive populations and resources important to surrounding populations. Environmental justice impacts were evaluated by determining whether the Proposed Action and No Action Alternative would have disproportionately high and adverse human health or environmental effects on minority and low-income populations in the Indirect Study Area. Finally, the Proposed Action and No Action Alternative were evaluated qualitatively for risks to children's environmental health and safety. The locations of schools within the Indirect Study Area were identified, and any specific health concerns for children were qualitatively described.

4.11.2 SIGNIFICANCE THRESHOLDS

The FAA has not established significance thresholds for socioeconomic resources, environmental justice, or children's environmental health and safety risks. However, FAA Order 1050.1F has identified several factors to consider when evaluating the context and intensity of impact in this resource category.

Socioeconomics impacts may result if an action would have the potential to (1) induce substantial economic growth in an area, either directly or indirectly (for example, through establishing projects in an undeveloped area); (2) disrupt or divide the physical arrangement of an established community; (3) cause extensive relocation when sufficient replacement housing is unavailable; (4) cause extensive relocation of community businesses that would cause severe economic hardship for affected communities; (5) disrupt local traffic patterns and substantially reduce the level of service (LOS) for roads serving an airport and its surrounding community; or (6) produce a substantial change in the community tax base.

[33] The number of units in the Ocean Walk Apartments within the DNL 65 dB noise exposure contour was estimated based on the proportion of the building footprint within the noise exposure contour to the number of units in the apartment building.

TABLE 4-20 DWELLING UNITS NEWLY EXPOSED TO DAY-NIGHT AVERAGE SOUND LEVEL 65 DECIBELS AND GREATER UNDER THE PROPOSED ACTION COMPARED TO THE NO ACTION ALTERNATIVE

		2024			2029		
ADDRESS	2012 NIP PARTICIPATION	NO ACTION ALTERNATIVE	PROPOSED ACTION	NEWLY EXPOSED TO DNL 65 dB AND GREATER WITH PROPOSED ACTION	NO ACTION ALTERNATIVE	PROPOSED ACTION	NEWLY EXPOSED TO DNL 65 dB AND GREATER WITH PROPOSED ACTION
1518 4th Street	Yes	No	Yes	**Yes**	Yes	Yes	No
1519 4th Street	Yes	No	No	No	No	Yes	**Yes**
1536 4th Street	Yes	No	Yes	**Yes**	Yes	Yes	No
1542 4th Street	Yes	No	No	No	No	Yes	**Yes**
1547 4th Street	Yes	No	Yes	**Yes**	Yes	Yes	No
1524 5th Street [1]	Yes	No	No	No	No	Yes	**Yes**
1529 5th Street	Yes	No	Yes	**Yes**	No	Yes	**Yes**
2207 Juanita Lane	Yes	No	Yes	**Yes**	No	Yes	**Yes**
2904 Riviera Drive	Yes	No	Yes	**Yes**	Yes	Yes	No
2908 Riviera Drive	Yes	No	Yes	**Yes**	Yes	Yes	No
2916 Riviera Drive	No	No	No	No	No	Yes	**Yes**
2801 Venetian Drive	No	No	Yes	**Yes**	No	Yes	**Yes**
2900 South Roosevelt Boulevard (Ocean Walk Apartments, multiple units) [2]	No	Partial	Partial	**Yes**	Partial	Partial	**Yes**
Residential units newly exposed to DNL 65 dB and greater under the Proposed Action:							
Total				9			8
Total that participated in the 2012 NIP				7			5

NOTES:
DNL – Day-Night Average Sound Level dB – Decibel NIP – Noise Insulation Program
1 This residential unit is the site of a day care facility.
2 Participation in the NIP is based on residential address, and this summary does not account for multiple residential units at the Ocean Walk Apartments, of which a portion are located within the DNL 65 dB and greater noise exposure contour.
SOURCES: Deborah Murphy Lagos & Associates, LLC, 2020 (Noise Insulation Program); Ricondo & Associates, Inc., June 2020.

Environmental Justice impacts may result if an action would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population (that is, a low-income or minority population) due to significant impacts in other environmental impacts categories or impacts on the physical or natural environmental that affect an environmental justice population in a way that the FAA determines are unique to the environmental justice population and significant to that population.

Children's Environmental Health and Safety Risks impacts may result if an action would have the potential to lead to a disproportionate health and safety risk to children.

4.11.3 CONSTRUCTION IMPACTS

4.11.3.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no construction activities would occur. Therefore, no socioeconomic impacts, environmental justice impacts, or children's health and safety risks would occur as a result of construction activities.

4.11.3.2 PROPOSED ACTION

In terms of socioeconomic impacts, construction of the Proposed Action would generate temporary construction employment; however, the temporary nature of the employment would not induce population growth in communities adjacent to the Indirect Study Area. Construction workers would likely commute from the vicinity and would not relocate their residency because of the construction job opportunities generated by the Proposed Action. Construction would not otherwise disrupt or divide an established community, cause relocation of businesses, or produce a substantial change in the community tax base.

Although there may be short-term localized impacts associated with vehicle/equipment traffic, the Proposed Action would not substantially reduce the LOS on roads serving the Airport and the surrounding communities. Due to the temporary nature of construction activities, construction-related traffic impacts from the Proposed Action would not be significant. Therefore, construction of the Proposed Action would not result in significant socioeconomic impacts when compared to the No Action Alternative.

As described in this EA, construction of the Proposed Action would not result in significant impacts in those categories that could cause a disproportionately high or adverse impact on an environmental justice population or could cause health and safety risks to children, including air quality, water quality, hazardous materials, noise, or traffic. Furthermore, a low-income or minority environmental justice population is not present in the Indirect Study Area, as identified in Section 3.14.2. Construction of the Proposed Action would not result in a disproportionate impact on a low-income or minority environmental justice population or result in a disproportionate health or safety risk to children.

4.11.4 OPERATIONAL IMPACTS

4.11.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, the Proposed Action would not be implemented, and no project-related impacts would be generated. Vehicle trips to and from the Airport would increase commensurate with the forecast increases in aircraft activity. The No Action Alternative would not result in significant socioeconomic impacts.

As described in this EA, the No Action Alternative would not result in significant impacts in those categories that could cause a disproportionately high or adverse impact on an environmental justice population or could cause

health and safety risks to children, including air quality, water quality, hazardous materials, noise, or traffic. Furthermore, a low-income or minority environmental justice population is not present in the Indirect Study Area, as identified in Section 3.14.2. Therefore, Airport operations under the No Action Alternative would not result in a disproportionate impact on a low-income or minority environmental justice population or result in a disproportionate health or safety risk to children.

4.11.4.2 PROPOSED ACTION

Implementation of the Proposed Action would not disrupt or divide established communities, cause the relocation of housing or businesses, or produce a loss in the community tax base. Economic growth of the area would be similar to conditions under the No Action Alternative.

An increase in vehicle trips accessing the Airport would occur under the Proposed Action, as the additional aircraft operations associated with the Proposed Action are estimated to accommodate approximately 78,590 more enplaned passengers in 2024 and 2029 under the Proposed Action than under the No Action Alternative (see Table 1-2). The increase in passengers would result in an increase in the number of vehicles to and from the Airport. Passengers travel in party sizes that range from a single person in a vehicle (such as a private car or rental car) to several persons that share a vehicle. Based on a comparison of the peak hour forecast of enplaned passengers to the estimated peak hour vehicle demand on the departure roadway documented for the future year 2035 in the *Airport Master Plan Update, 2015–2035*,[34] it is estimated that each passenger accessing or leaving the Airport generates an average of 0.773 new vehicle trips (or a vehicle-to-passenger ratio of 77.3 percent). Using factors documented in the Airport Master Plan Update, the 78,590 additional annual enplaned passengers would equate to approximately 59 vehicles entering the Airport roadway system during the peak hour, or an increase of 12 percent over an estimated 617 peak hour vehicles under the No Action Alternative in 2024 (and an estimated 664 peak hour vehicles in 2029). Furthermore, some of these passengers may represent a transition of visitors to Key West that would otherwise drive the Overseas Highway from mainland Florida to access the Lower Keys, along the 125-mile, two-lane highway, often characterized by traffic congestion. Traffic conditions on Key West and near the Airport are affected by seasonal fluctuations in population in Key West. The minor increase in trips to and from the Airport associated with implementation of the Proposed would not be expected to disrupt local traffic patterns or to substantially reduce the LOS for roads serving the Airport and its surrounding community; and therefore, the Proposed Action would not result in a significant impact on surface traffic in comparison to the No Action Alternative.

As described in this EA, Airport operations under the Proposed Action would not result in significant impacts to those categories that could cause a disproportionately high or adverse impact on a low-income or minority environmental justice population or cause health and safety risks to children, including air quality, water quality, hazardous materials, noise, or traffic. Therefore, Airport operations under the Proposed Action would not result in a disproportionate impact on a low-income or minority environmental justice population or result in a disproportionate health or safety risk to children when compared to the No Action Alternative.

The Proposed Action would not divide any established communities, displace or restrict access to existing residences or businesses, or substantially change the community tax base. Additionally, the Proposed Action is not anticipated to substantially reduce the LOS on local roadways. Therefore, the Proposed Action would not result in a significant socioeconomic impact when compared to the No Action Alternative. The Proposed Action would not result in a

[34] Monroe County, *Key West International Airport, Airport Master Plan Update, 2015–2035*, Table 4.3-1, "Future Year Passenger Forecasts," and Table 4.3-3, "Curbside Requirements Summary," September 2019.

disproportionate impact on low-income or minority environmental justice population or result in a disproportionate health or safety risk to children when compared to the No Action Alternative; and therefore, implementation of the Proposed Action would not result in a significant impact to environmental justice populations or result in health and safety risks to children when compared to the No Action Alternative.

4.12 VISUAL EFFECTS

4.12.1 METHODOLOGY

Light emission impacts associated with the No Action Alternative and Proposed Action were determined by evaluating construction-related impacts, the extent to which airfield lighting would change, and the potential for the change to create an annoyance among sensitive land uses within the Indirect Study Area that could interfere with normal activities or contrast with existing visual character. The evaluation of visual impacts considered the potential changes in landscape and views within the Indirect Study Area and whether conflicts with existing visual character would occur.

4.12.2 SIGNIFICANCE THRESHOLDS

The FAA has not established a significance threshold for light emissions or visual effects, and there are no federal requirements or special purpose laws regarding light emissions or visual resources/visual character. However, FAA Order 1050.1F has identified several factors to consider when evaluating the context and intensity of impact in this resource category.

Factors to consider when evaluating light emissions impacts include the degree to which the action would have the potential to create annoyance or interfere with normal activities from light emissions and would have the potential to affect the visual character of the area due to light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources. Factors to consider when evaluating visual resources and visual character impacts include the extent that action would have the potential 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 view of visual resources, including whether these resources would still be viewable from other locations.

4.12.3 CONSTRUCTION IMPACTS

4.12.3.1 NO ACTION ALTERNATIVE

No construction activities would occur under the No Action Alternative. Therefore, the No Action Alternative would not result in a construction-related change in light emissions, in visual resources, and to the visual character of the Indirect Study Area.

4.12.3.2 PROPOSED ACTION

Construction activities are proposed to occur on the airfield at various hours during the day and night depending on the location of the construction. The proposed construction schedule is provided on Exhibit 1-7. During the first year of construction, it is assumed that nighttime construction would occur routinely to minimize effects on aircraft operating on the airfield during daytime hours. The commercial apron expansion proposed to be constructed during the second year of construction schedule would require less nighttime construction as construction activities would be more distant from critical operating areas of the airfield. Nighttime lighting would be limited to the Direct Study Area. Any construction activities that occur during the nighttime hours would require lighting for the safety of the

construction workers. This lighting would include lighting from construction vehicles (including haul and material delivery trucks and private contractor vehicles), construction equipment (for example, cranes, forklifts), and perimeter and safety lighting (such as light towers). However, following standard construction practices, lighting would be shielded and directed downward to minimize light spillover onto adjacent light-sensitive uses. The nearest light-sensitive receptors are residences to the north and east of the Airport along Airport Boulevard and in the Ocean Walk Apartments; however, existing vegetation between the airfield and these residential areas would minimize the effects of construction lighting. Therefore, no significant impacts relative to light emissions would occur during construction.

During construction, large trucks and other large-scale construction equipment would be present within the Direct Study Area. The construction activity would be a temporary condition. Views from residential areas to construction on the airfield would be obscured by existing vegetation. Construction activities would be restricted to the Direct Study Area, all within the Airport property boundary, and would not result in visual impacts. No significant effects on visual resources or the visual character would occur during construction of the Proposed Action.

4.12.4 OPERATIONAL IMPACTS

4.12.4.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, no changes would occur that would change light emissions and visual resources in, and the visual character of, the Indirect Study Area. The Indirect Study Area would continue to be characterized as a moderate ambient light environment whose visual character is dominated by the Airport; Roosevelt Boulevard; commercial, residential, and light industrial land uses; and the natural environment typical of the Florida Keys. The Airport's passenger terminal apron, runway, and taxiway facilities would continue to be illuminated for security and navigational purposes. Views of the airfield from nearby residential areas and airfield lighting spillover to these areas would be minimal given the screening provided by existing vegetation. The No Action Alternative would not result in visual or light emission changes that would cause a visual resources effect.

4.12.4.2 PROPOSED ACTION

With implementation of the Proposed Action, new lighting would be in place around the edge of pavement of the taxiway extension and apron expansions. These new light sources would be consistent with the highly illuminated airfield environment and, therefore, would not significantly change light emissions. Changes in airfield light emissions at residential areas to the east and north of the airfield would not likely be visible due to existing vegetation. Additionally, vegetative buffers would be maintained along the south side of the expanded commercial and GA aprons. Lighting associated with the Proposed Action would be shielded and focused on the aircraft movement areas to eliminate unnecessary light spillover and glare. Therefore, the Proposed Action would not result in a significant light emissions impact in comparison to the No Action Alternative.

The Proposed Action represents at-grade improvements of the existing airfield (taxiway extension, expanded GA and commercial aprons, and security fencing improvements) that are consistent with the visual character of the airfield and are not anticipated to have a visual impact in the Airport environs. Changes in views to the airfield from residential areas to the east and north of the airfield would not likely be visible due to existing vegetation. Additionally, vegetative buffers would be maintained along the south side of the expanded commercial and GA aprons. The visual character of, and visual resources associated with, the Proposed Action would be consistent with the character of the Indirect Study Area under the No Action Alternative. Therefore, implementation of the Proposed Action would not result in significant impacts related to visual resources or visual character.

4.13 WATER RESOURCES

4.13.1 METHODOLOGY

Potential effects on wetlands, floodplains, surface water, and groundwater resources were evaluated by comparing the location of water resources within the Direct Study Area with the components of the Proposed Action. Additionally, this analysis considered potential secondary effects on water resources, such as stormwater runoff.

4.13.2 SIGNIFICANCE THRESHOLDS

Significance thresholds for Water Resources, including wetlands, floodplains, surface water, and groundwater, are defined in FAA Order 1050.1F, as identified in this section.

A significant impact to **wetlands** would occur when an action would:

- 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;
- 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;
- substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety, or welfare;
- 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;
- promote development of secondary activities or services that would cause the circumstances listed above to occur; or
- be inconsistent with applicable state wetland strategies.

A significant impact to a **floodplain** would occur if 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.

A significant impact to **surface waters or groundwater** would occur if the action would:

- exceed water quality standards established by federal, state, and local regulatory agencies; or
- contaminate public drinking water supply such that public health may be adversely affected.

FAA Order 1050.1F also provides additional factors to consider when evaluating the context and intensity of potential environmental impacts to surface waters and groundwater. Factors to consider that may be applicable include situations in which an action would have the potential to:

- adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values;
- adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated;
- adversely affect groundwater quantities such that the beneficial uses and values of such groundwater are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated, or
- present difficulties based on water quality impacts when obtaining a permit or authorization.

4.13.3 CONSTRUCTION IMPACTS

4.13.3.1 NO ACTION ALTERNATIVE

No construction activities would occur under the No Action Alternative. Therefore, no construction-related impacts to wetlands, floodplains, surface water, or groundwater resources would occur.

4.13.3.2 PROPOSED ACTION

Wetlands

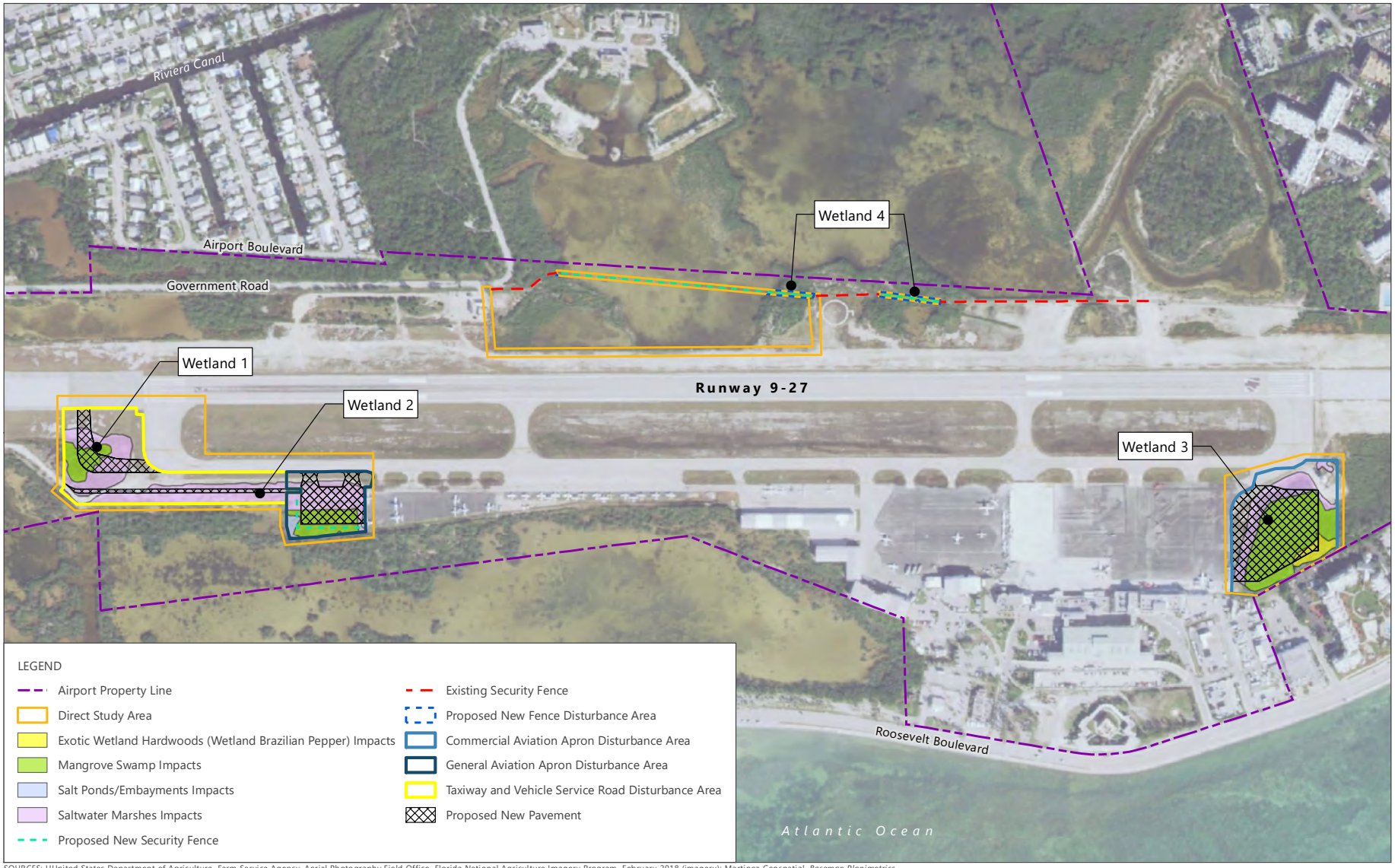
Construction of the Proposed Action has the potential to directly and indirectly impact wetlands. As shown on **Exhibit 4-7** and summarized in **Table 4-21**, approximately 7.71 acres of wetlands would be filled or cleared to support construction of the Proposed Action. Because the direct impacts from construction would affect the natural functions and values of wetlands, the Airport Sponsor would pursue compensatory mitigation under the permit approval process. Specifically, the filling of wetlands would require submittal of an Individual Permit to the USACE. The USACE's permit would be dependent on issuance of the ERP by SFWMD to demonstrate that state water quality standards are met (see the Surface Waters discussion). The final quantity of compensatory mitigation credits would be determined based on final construction plans and discussions with the USACE and FDEP. Section 4.13.5 defines the proposed compensatory mitigation plan, which was reviewed with regulatory agencies including the USACE and SWFMD during development of the EA.

TABLE 4-21 POTENTIAL WETLAND IMPACTS – PROPOSED ACTION

WETLAND TYPE BY FLUCFCS CODE [1]	DESCRIPTION	AREA TO BE FILLED (ACRES)	AREA TO BE CLEARED (ACRES)
612 – Mangrove Swamp	E2FO3N – Estuarine, Intertidal, Forested, Broad-leaved Evergreen, Regularly Flooded	3.14	0.20
642 – Saltwater Marshes	E2EM1 – Estuarine, Intertidal, Emergent, Persistent	4.03	0.00
542 – Embayments not Opening Directly to Gulf or Ocean	E1UB2 – Estuarine, Subtidal, Unconsolidated Bottom, Sand	0.09	0.00
619 – Exotic Wetland Hardwoods (Wetland Brazilian Pepper)	E2FO3P – Estuarine, Intertidal, Forested, Broad-leaved Evergreen, Irregularly Flooded	0.25	0.00
Total		**7.51**	**0.20**

NOTE: FLUCFCS – Florida Land Use, Covers, and Form Classification System
SOURCE: Birkitt Environmental Services, Inc., EYW Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment, July 2020.

With the proposed compensatory mitigation of filled and cleared wetlands to support construction of the Proposed Action (see Section 4.13.5) and the Airport's measures to prevent pollution in stormwater runoff entering surface waters (see following discussion under Surface Water), construction of the Proposed Action would not adversely affect wetlands that protect municipal water supplies, substantially alter the hydrology needed to sustain the wetland system's values and functions and those of connected wetlands, substantially reduce the wetland's ability to retain floodwaters and stormwater runoff, or adversely affect natural systems supporting wildlife and fish habitat. Construction of the Proposed Action would not promote development or secondary activities or services that would cause any of the above listed circumstances to occur. Finally, consistency of the Proposed Action with applicable state wetland strategies has been reviewed through coordination with regulatory agencies during the preparation of the EA (see Appendix C) and would be achieved through permitting. Therefore, wetland impacts would not be significant.



SOURCES: UUnited States Department of Agriculture, Farm Service Agency, Aerial Photography Field Office, Florida National Agriculture Imagery Program, February 2018 (imagery); Martinez Geospatial, *Basemap Planimetrics*, November 2016 (Airport property line); Birkitt Environmental Services, Inc., Pedestrian Qualitative Survey, September 17–19, 2010 (habitats); Ricondo & Associates, Inc., June 2020 (study area).

EXHIBIT 4-7

NORTH 0 600 ft

WETLAND IMPACTS

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Floodplains

Construction of the Proposed Action would represent an encroachment of the 100-year floodplain (Zones VE and AE) with the grading and paving of approximately 11.1 acres of land, including a net increase in impervious surfaces of approximately 3.9 acres. Changes in elevation due to grading and construction of new impervious surfaces would be minor, and no new vertical structures would be constructed under the Proposed Action. EYW is within an area defined as an open basin, which allows floodwater to flow through and then rapidly out of the area once the source of flooding ends. This open basin discharges to tidal waters; therefore, impacts to floodplains would not be significant.

EYW is subject to the land development and floodplain management regulations of Monroe County. Stormwater and floodplain impacts from large commercial development are reviewed by the SFWMD as part of the ERP process.[35]

Significance of floodplain encroachment was evaluated with respect to the three primary criteria from DOT Order 5650.2:

1. The floodplain encroachment from construction would not be anticipated to result in an increased probability of loss of human life. The Base Flood Elevation at Roosevelt Boulevard is approximately 11.7 feet south of the Airport. Since the road elevation is approximately 3 feet, floodwaters would be over 8 feet deep at Roosevelt Boulevard and directly connected with the Atlantic Ocean. The open basin is so vast that the fill from the Proposed Action would not affect the Base Flood Elevation. For this reason, the SFWMD does not require floodplain compensation for impacts to the 100-year floodplain that are in open coastal basins directly connected to the ocean.[36] As such, the Proposed Action would not cause an increase in flood hazard, including hazards associated with the loss of human life, or flood potential.
2. The Proposed Action is not anticipated to increase the likelihood of future flood-related property damage that could be substantial in cost or extent. Flood events in the vicinity of the Airport that reach the Base Flood Elevation are primarily due to extreme weather events, such as hurricanes or tropical storms. The Proposed Action would have no noticeable effect on Base Flood Elevations or severity of flood events because the volume of encroachment would be small in comparison to the volume of the open basin (the Atlantic Ocean). The Proposed Action is intended to address existing functional deficiencies at the Airport; therefore, it would not encourage additional development in the floodplain. Additionally, the Proposed Action would not interrupt service of a vital transportation facility because there would be no change to the runway itself, or impact roads that serve as evacuation routes from the Florida Keys.
3. Impacts to beneficial floodplain values associated with construction activities are anticipated to be minor. Construction of the Proposed Action would not affect the capacity of the floodplain to carry and store floodwaters because it is within an open basin; sustain agriculture, aquaculture, or aquatic or terrestrial organisms; provide for groundwater recharge; provide recreation opportunities; or maintain the water quality benefits provided by floodplains.

The Proposed Action would not result in the increased probability of loss of human life from flooding, likelihood of flood-related property damage, or significant impacts to natural and beneficial floodplain values. Since the

[35] Mike Roberts, Assistant Director, Environmental Resources, Monroe County Planning and Environmental Resources Department, telephone call with Jay Gable, Michael Baker International, January 2, 2020.

[36] Jesse Markle, P.E., South Florida Water Management District, Engineering Section Administrator, telephone call with Jay Gable, Michael Baker International, September 3, 2020.

floodplain encroachment would occur in an open basin directly connected to the Atlantic Ocean, no flood storage compensation is required. Therefore, the Proposed Action would not result in a significant impact to floodplains when considered alone or in comparison to the No Action Alternative.

Surface Water

Construction of the Proposed Action would involve the placement of fill as well as create approximately 4.8 acres of new impervious surface and remove approximately 0.9 acres of existing impervious surface for a net increase of 3.9 acres of impervious surface. Exfiltration trenches would be constructed under the expanded GA and commercial apron pavements. The expanded apron areas may include construction of additional pumped drainage wells if the capacity of the existing drainage wells is not sufficient to collect the additional volume of runoff generated by the new pavement areas. Treatment of runoff from the new impervious taxiway and roadway surfaces would be provided by the filtration of runoff through open grassed areas greater than 25 feet in width adjacent to new impervious surfaces, consistent with the BMP Manual's overland flow water quality BMP. Receiving wetlands and surface waters are within the Key West sub-watershed, which is a Class III water that is 303(d)-listed due to elevated levels of copper. Due to the water quality treatment that would be provided, construction of the Proposed Action would not affect the 303(d)-listing status of the Key West sub-watershed.

Stormwater runoff from areas supporting construction of the Proposed Action would discharge into surrounding salt ponds, which are designated OFWs, as well as OFWs surrounding Airport property through the Riviera Canal and other piped connections beneath Roosevelt Boulevard. Per Rule 62-4.242(2) FAC antidegradation requirements, sediment and erosion control measures would be implemented to minimize the potential for suspended sediments or other pollutants to significantly degrade the water quality of OFWs in the vicinity of the Proposed Action.

As part of the ERP process, the SFWMD considers the potential for indirect water quality impacts. Applicants must demonstrate that suitable sediment and erosion control measures would be implemented during construction to receive the ERP. CWA Section 401 water quality certification is issued by the SFMWD jointly with the ERP, after it is determined stormwater treatment requirements and state water quality standards are met. The ERP is issued with conditions that require the permittee, in this case Monroe County, to ensure the stormwater treatment facility is constructed per the design in the ERP and sediment and erosion control measures are implemented during construction. Therefore, improvements would be designed to incorporate suitable water quality protection measures to avoid indirect impacts.

Construction projects that are one acre or more in size are required to have a construction NPDES permit, per Section 402 of the CWA. The NPDES permitting authority is the responsibility of the FDEP. As a requirement of the NPDES permit, the contractor would be required to develop and implement a site-specific SWPPP for construction of the Proposed Action. The SWPPP would meet all the requirements for treatment of discharge pursuant the State of Florida Erosion and Sediment Control Manual.[37] The construction SWPPP would identify BMPs to prevent erosion of soil disturbed during construction, plans for preventing and responding to spills, and standards for handling materials to reduce the likelihood of spills, as well as other measures for protecting surface waters on and near the construction site from sediment and other pollutants that could affect the quality of stormwater discharges. Construction activities would comply with FAA Advisory Circular 150/5370-10H, *Standard Specifications for Construction of Airports*, specifically Item C-102, Temporary Air and Water Pollution, Soil Erosion, and Siltation Control. With BMPs defined and implemented to reduce or eliminate sediment and other pollutants in stormwater runoff and non-stormwater discharges during construction activities, impacts to surface waters would not be

[37] State Erosion and Sediment Control Task Force, State of Florida Erosion and Sediment Control Designer and Reviewer Manual, July 2013.

significant. Turbidity monitoring and reporting are both required as a condition of the ERP and the NDPES Construction permit. After construction of the Proposed Action is completed, the Airport submits as-built drawings of the stormwater treatment facility to SFWMD, who then inspects the facility for compliance.

Given measures identified to prevent pollutants in stormwater runoff, construction, and operation of the Proposed Action does not significantly affect surface water resources.

Groundwater

Groundwater flow correlates closely with regional surface water flows toward major drainage features. No public groundwater sources are located within Airport property. Construction of the Proposed Action would have the potential to disturb soils below the water table, but clean fill materials would be used to avoid negative impacts to groundwater quality. Under the NPDES permit for construction, the contractor would be required to implement a construction SWPPP and SPCC plans to protect groundwater from pollution during construction.

No sole source aquifer would be impacted by construction of the Proposed Action. With no direct groundwater impacts and measures in place to prevent pollutants in stormwater, construction of the Proposed Action would not significantly affect groundwater resources.

4.13.4 OPERATIONAL IMPACTS

4.13.4.1 NO ACTION ALTERNATIVE

No wetlands, floodplains, surface water, or groundwater would be directly affected (such as filled) to support Airport operations under the No Action Alternative. The Airport's SWPPP identifies measures to prevent pollutants in stormwater runoff from affecting receiving waters in the vicinity of the Airport. With stormwater controls and BMPs in place, water quality impacts to wetlands, floodplains, surface water, and groundwater would not be significant under the No Action Alternative.

4.13.4.2 PROPOSED ACTION

Wetlands

Wetlands would not be directly affected (such as filled) to support Airport operations under the Proposed Action. Although additional aircraft operations would occur under the Proposed Action in new locations on the airfield, the types of activities and the preventative measures defined in the SWPPP to address pollution prevention resulting from those activities that would be in place under the No Action Alternative would similarly be in place under the Proposed Action. The Proposed Action would increase the impervious area on the airfield by 3.9 acres and measures, such as the exfiltration trenches constructed under the apron pavement expansions and vegetated areas adjacent to taxiway and roadway pavement, would be in place to ensure water quality standards are maintained under the Proposed Action. Therefore, no significant indirect impacts to wetlands are anticipated from operating the Airport under the Proposed Action.

Floodplains

The Proposed Action includes development of additional stormwater detention capacity (i.e., exfiltration trenches constructed under the expanded apron footprints, as described in Section 1.5) to serve the expansions of the commercial apron and the GA apron. Additionally, the types of activities and the preventative measures defined in the SWPPP to address pollution prevention resulting from those activities that would be in place under the No Action Alternative would similarly be in place under the Proposed Action. Although additional aircraft operations are anticipated under the Proposed Action, the types of activities, and controls in place to prevent pollution in

stormwater runoff, would ensure aircraft operations and the regular operation and maintenance activities at EYW would not have a noticeable effect on natural and beneficial floodplain values.

Operation of the Proposed Action would not increase Base Flood Elevations, increase the potential for loss of human life during a flood event, increase the likelihood of property damage, or have additional effects to wildlife habitat value. Therefore, no significant impacts to floodplains are anticipated from operating the Airport under the Proposed Action.

Surface Water

The Proposed Action would result in approximately 3.9 acres of new impervious surface. Stormwater runoff would meet the local ordinances for post-construction stormwater quantity and quality. Treatment of runoff from the new impervious taxiway and roadway surfaces would be provided by the filtration of runoff through open grassed areas greater than 25 feet in width adjacent to new impervious surfaces, consistent with the FDOT – Aviation Office's *Statewide Airport Stormwater Best Management Practices Manual's* (BMP Manual's) overland flow water quality BMP. The GA and commercial aprons do not meet the criteria for the BMP Manual's overland flow water quality BMP; therefore, stormwater runoff would be captured and treated by routing the stormwater through exfiltration trenches constructed under the expanded apron footprints.[38] The Airport maintains an NPDES Multi-Section Generic Permit (MSGP) for Stormwater Discharges Associated with Industrial Activity. The NDPES MSGP requires the permittee to maintain functioning stormwater treatment systems, inspect stormwater system structures, provide training to staff on stormwater pollution prevention, and maintain an updated SWPPP. Maintenance and inspections are documented and are required during state NPDES MSGP inspections. The constructed Proposed Action would be part of the stormwater treatment system at the Airport and would therefore be inspected, cleaned, and maintained by the Airport.

Operation of the Proposed Action would be conducted in accordance with the Airport's NPDES MSGP SWPPP. The Airport's SWPPP would be updated to reflect the new impervious surface area and exfiltration trenches on the stormwater drainage map and the BMPs that would be utilized to prevent and/or minimize stormwater pollution as a result of the Proposed Action. Because the salt ponds are designated OFWs and waters adjacent to the Airport are connected to OFWs via the Riviera Canal and other piped connections beneath Roosevelt Boulevard, operation of the Proposed Action would require BMPs to ensure no significant degradation of water quality would occur within OFWs. With appropriate BMPs in place, and adherence to permit requirements, once operational, impacts to surface waters from the Proposed Action would not be significant.

Groundwater

The Airport's operational SWPPP would be updated, as needed, to reflect additional BMPs to prevent or minimize the risk of soil and groundwater contamination. Stormwater treatment for the impervious surface associated with the two apron expansions would occur via exfiltration trenches. The trenches may be connected to existing drainage wells, or, if the existing wells do not have sufficient capacity, additional drainage wells would be installed to handle the additional runoff from the new impervious surface. These wells would discharge into groundwater. The design of these stormwater facilities would be evaluated by the SFWMD during the ERP review process. Design and function of any new drainage wells would also be evaluated through the FDEP underground injection control well permitting process. Permits would not be issued until appropriate treatment of runoff is provided in the design. As discussed above, the exfiltration trenches become part of the Airport stormwater treatment system and would be inspected

[38] David Scott, PE, Jacobs, draft memorandum to Lasa Ennis, Jacobs, "Stormwater Management System Improvements Required for Additional Pavement Area, Key West International Airport," June 21, 2019.

and maintained under the Airport's NPDES MSGP SWPPP. Inspections and maintenance events are documented, and these records are maintained for a period of 3 years. Therefore, significant impacts related to groundwater resources would not occur from implementation of the Proposed Action.

4.13.5 MITIGATION MEASURES

The Proposed Action would require the placement of fill in 7.51 acres of wetlands and the clearing of 0.20 acres of wetland. Based on the Uniform Mitigation Assessment Method (UMAM), the proposed grading and/or paving of the wetland habitats would result in a functional loss of approximately 3.83 UMAM credits. Functional loss is calculated by multiplying impact acreage and the change or delta in pre- and post-UMAM scores. **Table 4-22** summarizes the acreage of impact and UMAM evaluation for wetland impacts associated with the Proposed Action.

TABLE 4-22 WETLAND IMPACT SUMMARY (UNIFORM MITIGATION ASSESSMENT METHOD)

IMPACT AREA BY PROJECT COMPONENT	IMPACT TYPE	IMPACT AREA (ACRES)	IMPACT DELTA	FUNCTIONAL LOSS
Taxiway A				
Wetland 1 (Mangrove Swamp)	Direct/Fill	0.44	0.467	0.205
Wetland 1 (Saltwater Marshes)	Direct/Fill	1.02	0.467	0.476
Wetland 2 (Saltwater Marshes)	Direct/Fill	1.31	0.500	0.655
Taxiway Total	Direct/Fill	2.77		1.336
General Aviation Apron				
Wetland 2 (Mangrove Swamp)	Direct/Fill	0.63	0.633	0.399
Wetland 2 (Saltwater Marshes)	Direct/Fill	0.83	0.500	0.415
Wetland 2 (Salt Ponds/Embayments)	Direct/Fill	0.09	0.500	0.045
GA Apron Total	Direct/Fill	1.55		0.859
Commercial Apron				
Wetland 3 (Mangrove Swamp)	Direct/Fill	2.07	0.567	1.173
Wetland 3 (Saltwater Marshes)	Direct/Fill	0.87	0.433	0.377
Wetland 3 (Wetland Brazilian Pepper)	Direct/Fill	0.25	0.230	0.058
Commercial Apron Total	Direct/Fill	3.19		1.608
Security Fence				
Wetland 4 (Mangrove Swamp)	Direct/Clearing	0.20	0.133	0.030
Security Fence Total	Direct/Clearing	0.20		0.030
TOTAL		**7.71**		**3.833**

SOURCE: Birkitt Environmental Services, Inc., *EYW Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment*, July 2020.

The Proposed Action would result in the grading and/or paving of mangrove swamp, saltwater marsh, salt ponds/embayments, and wetland Brazilian pepper on Airport property. Compensatory mitigation for habitat loss is anticipated to be required under federal and state permits. However, the permit application process has not been initiated and the final mitigation requirements are not known. 40 CFR Part 230, *Compensatory Mitigation for Losses of Aquatic Resources*, states a hierarchical preference for the use of mitigation banks and In Lieu Fee (ILF) programs for mitigation over Permittee Responsible Mitigation. However, where mitigation banks or ILF programs are not available, the rule provides for the use of Permittee Responsible Mitigation that must adequately address the

12 Components of a Compensatory Mitigation Plan: objectives, site selection, site protection instrument, baseline information, determination of credits, mitigation work plan, maintenance plan, performance standards, monitoring requirements, long-term management plan, and adaptive management plan.

A functional loss of approximately 3.83 UMAM credits with the Proposed Action as compared to the No Action Alternative was determined. According to the assessment method, functional gain attained by the proposed mitigation must be greater than functional loss for appropriate mitigation.

The preliminary compensatory wetland mitigation plan is detailed in Appendix C. No approved mitigation banks are within the vicinity of the Airport. The Keys Restoration Fund is an ILF; however, it is approved for mitigation only by the federal government. The state of Florida has not approved the Keys Restoration Fund as an ILF. Therefore, Permittee Responsible Mitigation is proposed to offset the proposed impacts. Demonstration of compliance with the 12 Components of a Compensatory Mitigation Plan would be provided during the permitting process.

Compensatory wetland mitigation would be provided both on-site[39] and off-site and would comprise wetland restoration/creation, enhancement, and preservation. The on-site activities would restore or create both saltwater marsh and mangrove communities along the periphery of the salt ponds. On-site improvements would also enhance tidal flow through the ponds via the expansion of a remnant mosquito ditch. Off-site mitigation would also be provided and would include type-for-type creation and enhancement of mangrove swamp habitat within the Lower Florida Keys. All mitigation areas would be preserved to ensure their ongoing protection.

Four on-site mitigation projects were identified, as shown on **Exhibit 4-8**. Additional details on existing conditions and mitigation opportunities are provided in Appendix C. The four projects are estimated to provide a total of 0.399 mangrove UMAM credits, 1.233 saltwater marsh UMAM credits, and 0.054 salt pond/embayment UMAM credits. The on-site projects include:

- On-Site Mitigation Area 1 (ONS-1), a 0.94-acre site, was previously filled to support the southern extents of a former runway and blimp pad, most of which was removed as part of previous mitigation and restoration projects. Approximately 0.87 acres of the site would be over-excavated to allow for placement of suitable organic soils and graded to an elevation matching adjacent existing saltmarsh communities to the north. These areas would be planted with a mixture of saltwater marsh species present in adjacent areas.
- On-Site Mitigation Area 2 (ONS-2), a 1.27-acre site, was also previously filled to support the southern extents of a former runway and blimp pad. Approximately 1.01 acres of limestone and gravel fill would be over-excavated to allow for placement of suitable organic soils and graded to an elevation matching existing saltmarsh communities to the north and planted with a mixture of saltwater marsh species present in adjacent areas. An existing mangrove community within this site would be preserved.
- On-Site Mitigation Area 3 (ONS-3), a 17.6-acre site, is located on the east side of the Airport. Most of the site (approximately 16 acres) comprises mature mangrove swamp habitat, and the site includes approximately 0.37 acres of buttonwood habitat. The remaining acreage on this site comprises areas of limestone and gravel fill. This approximately 0.68-acre fill area would be over-excavated to allow for placement of suitable organic soils and graded to an elevation matching the existing mangrove community. The area would be planted with mangroves. The 16 acres of mangrove swamp habitat and the 0.37 acres of buttonwood habitat would be preserved.

[39] The on-site mitigation projects would be subject to FAA review during the project's design and permitting phase to ensure the continued safe operation of the Airport.

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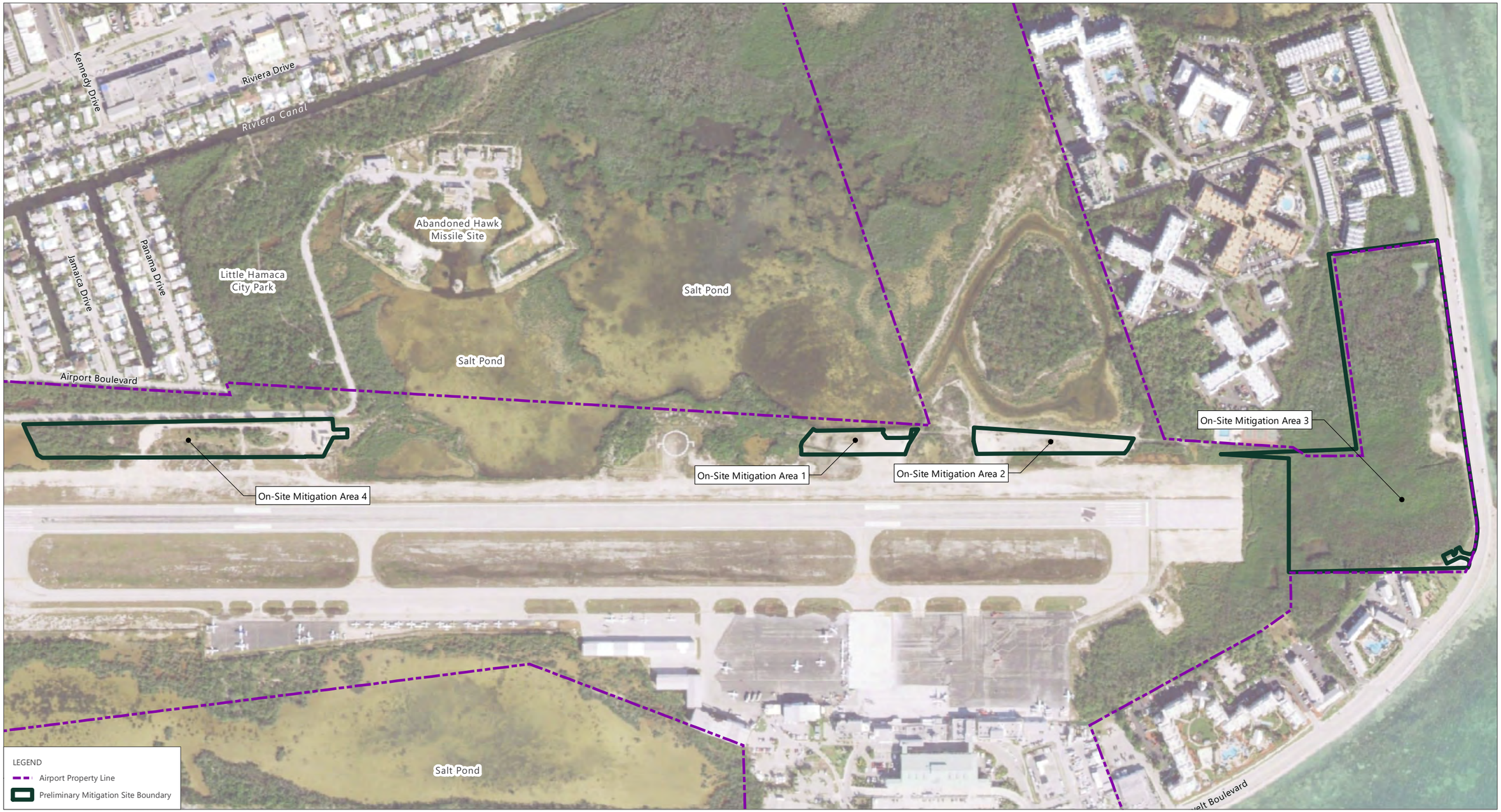

SOURCES: Florida National Agriculture Imagery Program, February 2018 (imagery); Birkitt Environmental Services, Inc., MONTH YEAR (mitigation areas); Ricondo & Associates, Inc., January 2020 (property line).

NORTH 0 400 ft

EXHIBIT 4-8

WETLAND COMPENSATORY MITIGATION
ON-SITE MITIGATION AREAS

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- On-site Mitigation Area 4 (ONS-4), a 4.28-acre site, historically supported a mix of saltwater marsh and mangrove swamp habitat and over time has been filled to support a roadway, parking, and temporary storage of fill, with the eastern portion currently being used for the temporary Airport Traffic Control Tower. Tidal circulation was channelized by a small mosquito ditch. Proposed mitigation includes widening the mosquito ditch to allow additional tidal circulation and provide increased hydrology to the adjacent saltwater marsh and buttonwood/mangrove habitats. A small tidal pool would be created and planted with mangroves. Small areas of fill would be removed from the buttonwood/mangrove and saltwater marsh communities and the areas would be treated for nuisance/exotic species including Brazilian pepper. Finally, the approximately 1.12-acre area of limestone and gravel fill would be over-excavated to allow for placement of suitable organic soils and graded to an elevation matching adjacent existing saltmarsh communities to the north and planted with a mixture of saltwater marsh species.

In addition to the four on-site mitigation projects and existing onsite credits, the Monroe County Department of Planning and Environmental Resources identified additional County-owned properties that have been designated for restoration improvements. Three properties on Cudjoe and Summerland Keys, all located between 18 and 20.9 miles northeast of the Airport, were evaluated. Restoration opportunities include removal of fill roads, building pads, and an upland berm to match elevation of existing mangrove communities. Fill would be removed, and restoration areas would be over-excavated as needed to allow for placement of suitable organic soils prior to grading to the appropriate elevation. The areas would be planted with mangroves. Areas of existing mangroves, listed plant species, and nesting habitat were identified and would be avoided during restoration activities to the extent possible. Any disturbance to existing wetland vegetation would be temporary during restoration activities and listed plant species would be relocated, if encountered. Additionally, construction practices to minimize temporary impacts to adjacent habitats during restoration would be followed, such as the use of low impact equipment and/or mats for access through existing habitat. The off-site County-owned properties are estimated to provide approximately 0.414 mangrove credits.

As summarized in **Table 4-23**, on-site mitigation opportunities and off-site mitigation opportunities on County-owned properties in the Lower Florida Keys would meet approximately half of the identified functional loss associated with the implementation of the Proposed Action. The UMAM functional loss and gain scores are preliminary and would be finalized during the permitting process. The SFWMD has indicated that 0.275 on-site mangrove credits and 0.209 on-site salt pond/embayment credits remain from the Runway Safety Area Improvements ERP Modification issued in July 2018 that may be used to compensate for impacts associated with the Proposed Action. Additional credits to fully offset the functional loss associated with the Proposed Action would be achieved through the purchase and restoration of private property. Preliminary evaluation has confirmed the ability to offset this functional loss on private property in the Lower Florida Keys. Finally, it is recognized that other opportunities to offset the impacts of the Proposed Action may be identified during permitting in coordination with county, state, and federal agencies.

TABLE 4-23 PROPOSED MITIGATION PLAN SUMMARY

MIGITATION TYPE	MANGOVE HABITAT	SALTWATER MARSH HABITAT	SALT POND/ EMBAYMENT HABITAT	TOTAL
Proposed Action				
Functional Loss	**-1.865**	**-1.923**	**-0.045**	**-3.833**
Mitigation Plan Summary – Functional Gain				
On-Site Mitigation Areas 1, 2, 3, and 4	0.399	1.233	0.054	1.686
Existing Onsite Credits [1]	0.275	0.000	0.000	0.275
Off-Site County-Owned Properties	0.414	0.000	0.000	0.414
Total Functional Gain to be Identified on Private Property [2]	0.777	0.690	0.000	1.467
Total Functional Gain	**1.865**	**1.923**	**0.054**	**3.842**

NOTES:
UMAM – Uniform Mitigation Assessment Method
1 The functional loss of mangrove habitat includes a 0.058 functional loss due to impacts to Wetland Brazilian Pepper habitat.
2 For purposes of this summary, the functional gain needed to be achieved by creation on private property to offset the functional loss of the Proposed Action is shown split between mangrove and saltwater marsh habitats. Site evaluations conducted in support of the mitigation plan indicate the potential to exceed the needed mangrove and saltwater marsh habitat credits.
3 The South Florida Water Management District has indicated that 0.275 mangrove credits remain from the Runway Safety Area Improvements ERP Modification issued in July 2018 that may be utilized to compensate for impacts associated with the Proposed Action.
SOURCE: Birkitt Environmental Services, Inc., *EYW Taxiway A, Apron Expansion, and Security Fencing Project, Draft Biological Assessment*, September 2020.

4.13.6 SIGNIFICANCE DETERMINATION

As described in the above sections, impacts to wetlands due to implementation of the Proposed Action with mitigation would not be significant, a significant encroachment on floodplains would not occur with implementation of the Proposed Action, and implementation of the Proposed Action would not cause significant impacts to surface waters or groundwater by exceeding water quality standards established by federal, state, and local regulatory agencies or contaminating public drinking water supply such that public health may be adversely affected.

4.14 CUMULATIVE IMPACTS

4.14.1 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE PROJECTS

Cumulative impacts to environmental resources result from incremental effects of future actions combined with past, present, and reasonably foreseeable future actions in the area. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed, under construction, recently completed, or planned for implementation in the future is required. For purposes of this EA, past, present, and reasonably foreseeable projects within the Indirect Study Area were identified. Past projects are those that were implemented within the last 5 years (that is, 2015 to 2020); present projects are those that will be in construction in the year 2021 (the first year of construction of the Proposed Action); and future projects are those that are planned for construction within the next 5 years (that is, 2022 to 2027) and that are reasonably foreseeable. These projects, known collectively as the past, present, and future projects, are listed in **Table 4-24**. No new development has occurred nor is known to be planned for off-Airport areas of the Indirect Study Area, so the cumulative impacts analysis only considers other on-Airport projects.

TABLE 4-24 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE PROJECTS

DESCRIPTION	CONSTRUCTION DATES
Past Projects	
Runway 9-27 RSA Improvements Phase 2 and Runway 27 Departure End EMAS	2015
14 CFR Part 150 Update – Noise Compatibility Program	2015
Airfield Drainage Improvements	2015
US CBP Facility Expansion (Phases 1, 2, and 3)	2015–2019
Commercial Apron Pavement Rehabilitation	2016–2018
Runway 9-27 Rehabilitation	2017–2018
Former Hertz Building Demolition	2019
NIP Phase 2 Construction	2019
Baggage Conveyor System Upgrade	2019
Airport Beacon Replacement	2019
Present and Reasonably Foreseeable Future Projects	
Airfield Security Improvements	2019–2023
Chiller Replacement	2020
Departures Hall Renovation – Pet Relief and Restroom Renovation	2019–2020
Taxiway A Rehabilitation	2019–2020
FAA Air Traffic Control Tower Rehabilitation	2020–2021
NIP Construction Phases 3 through 7	2020–2025
New General Aviation Access Road	2021
Terminal Building Expansion	2021-2025

NOTES:
CFR – Code of Federal Regulations
EMAS – Emergency Materials Arresting System
FAA – Federal Aviation Administration
NIP – Noise Insulation Program
RSA – Runway Safety Area
US CBP – US Customs and Border Protection
SOURCE: Key West International Airport, Five Year Capital Improvement Program, June 2020.

4.14.2 CUMULATIVE IMPACTS ANALYSIS

A cumulative impact could occur from a collection of projects that individually does not have a significant impact on a resource, but collectively has the potential to result in a cumulative impact. The cumulative impact of implementing the Proposed Action would not be significant when considered with other past, present, and reasonably foreseeable future projects, as discussed below.

Air Quality

Due to the nature of emissions, all emissions have the potential to contribute to cumulative air quality effects. USEPA's *de minimis* thresholds are set for the purpose of determining potential cumulative air quality effects resulting from individual project emission contributions. If a project's emissions are below the *de minimis* thresholds, then it is expected that the project would not contribute to the cumulative air quality effects in that region.

While the change in emissions resulting from implementation of the Proposed Action would increase temporarily during construction and emissions would increase due to operations, these emissions would be below the established General Conformity *de minimis* thresholds for all applicable criteria pollutants. Although the Proposed Action is forecast to result in an increase in aircraft operations and surface transportation activity compared with the No Action Alternative, the other past, present, and the future projects have not or would not result in increases in activity that could contribute to cumulative air quality effects. Construction of several present and future projects would occur simultaneous to construction of the Proposed Action, including Airfield Security Improvements, FAA Airport Traffic Control Tower Rehabilitation, NIP Construction Phases 3 through 7, New General Aviation Access

Road, and Terminal Building Expansion. Construction emissions associated with each of these projects is anticipated to be below *de minimis* thresholds, and therefore would not contribute to cumulative air quality effects.

Since Monroe County is in attainment with the NAAQS, these slight increases in emissions due to construction and operation of the Proposed Action when combined with implementation of past, present, and future projects would not cause pollutant concentrations to exceed one or more of the NAAQS. Therefore, the Proposed Action along with past, present, and future projects would not result in significant cumulative air quality impacts.

Biological Resources

The Proposed Action may affect, but is not likely to adversely affect, 11 federally protected species—3 plants, 2 reptiles, 4 birds, 1 mammal, and 1 fish. Proposed mitigation for wetland impacts would provide appropriate replacement habitat for migratory birds, protected species, and wetland habitat. The past Runway 9-27 RSA improvements project implemented compensatory mitigation to offset EFH impacts and the permanent loss of 8.38 acres of wetlands and surface water habitats. The future New General Aviation Access Road project would affect a small area (less than 0.2 acres) of mangrove wetlands that are characterized by limited connectivity to tidal waters and exotic Brazilian peppers, and mitigation would be defined during permitting to offset this functional loss to wetland habitat. Additionally, regular disturbances to upland habitats from Airport operations, such as airfield maintenance and vegetation management, and the abundance of high quality natural or managed mitigation habitat surrounding the Airport lessens the attractiveness of on-site habitats to protected species. The airfield would continue to be managed to minimize wildlife habitat and activity to reduce the potential for aircraft-wildlife incidents under the Proposed Action, as well as other past, present, and future projects. All past, present, and future projects have or will have similar measures to mitigate impacts to biological resources, including wetland and habitat mitigation (if applicable) and use of construction and operational BMPs. Therefore, the Proposed Action along with past, present, and future projects would not result in significant effects to biological resources when compared to the No Action Alternative.

Climate

GHG emissions effects are inherently a global cumulative effect. It was concluded that the Proposed Action would not have a substantial contribution to climate change, so the Proposed Action would not result in a substantial cumulative contribution to climate change when compared to the No Action Alternative.

Coastal Resources

It is not anticipated that the Proposed Action would result in significant impacts to coastal resources during construction or operation of the Proposed Action. Construction of the Proposed Action would impact approximately 7.71 acres of wetlands; however, other coastal resources and attributes would not be affected or would experience temporary effects. Past, present and future projects, including the Runway 9-27 RSA Improvements, Taxiway A Rehabilitation, and the New General Aviation Access Road had or may have short-term and long-term impacts on coastal resources; however, since Key West is largely built out, the potential for substantial new or future coastal zone impacts is low. Construction of the Proposed Action and present and future projects, such as the General Aviation Access Road, would require an ERP, which constitutes a finding of consistency or waiver of the State's statutory authorities under Florida's federally approved coastal zone management program.[40] Development of the past, present, and future projects would be subject to a coastal consistency assessment. It is assumed these projects would obtain the necessary permits and provide mitigation as needed to demonstrate consistency.

[40] Florida Department of Environmental Protection, *Environmental Resource Permit Applicant's Handbook, Volume I*, June 1, 2018.

The Proposed Action would be developed on a commercial service airport and would include design features, such as new exfiltration trenches and filtration of runoff through vegetated areas adjacent to impervious surfaces, to accommodate additional stormwater runoff from new impervious surfaces. Two other past, present, and future projects would result in increases to impervious surfaces, the Runway 9-27 RSA Improvements and the New General Aviation Access Road. These projects, along with the Proposed Action, met or would be required to meet all applicable federal, state, and local regulatory requirements for water quality and would incorporate construction BMPs to assure that discharges of pollutants of concern in stormwater runoff would be minimized. Therefore, cumulative coastal resource impacts from implementation of the Proposed Action in combination with past, present, and future projects would not be significant when compared to the No Action Alternative.

DOT Section 4(f) Properties

No past, present, or future projects would directly impact Section 4(f) properties. Additionally, construction of the Proposed Action and operation of the Airport under the Proposed Action along with implementation of the past, present, and future projects would not result in a significant cumulative impact in those categories that could impact Section 4(f) properties, including air quality or water quality.

The Runway 9-27 Rehabilitation project, which included converting existing pavement at the Runway 9 end to make the pavement available to departing aircraft for takeoff rollout, is the only project of the past, present, and future projects that involves a change in aircraft operations, and, therefore, a change in noise exposure in the Airport vicinity, including at the Fran Ford White-crowned Pigeon Preserve, Little Hamaca City Park, and the 11th Street Boat Ramp. An analysis of aircraft noise for the Runway 9-27 Rehabilitation project included the assumption that all aircraft departing on Runway 9 would back-taxi on Runway 9, which would not result in a significant noise impact. Since completion of that project, actual use of the full pavement for Runway 9 departures is estimated at 10 percent (as reflected in the No Action Alternative analysis in this EA) rather than all departing aircraft. It is assumed that use of the full runway length would increase to 100 percent with implementation of the Proposed Action. As the change in aircraft operations on the Runway 9 end are assessed as part of the Proposed Action, and none of the other past, present, or future projects would change aircraft arrivals, departures, or taxi procedures, there would not be any cumulative noise impact to Section 4(f) properties. Therefore, implementation of the Proposed Action and the past, present, and future projects would not result in a significant cumulative impact on Section 4(f) properties.

Hazardous Materials, Solid Waste, and Pollution Prevention

The Proposed Action would not violate laws and regulations or result in a significant change in the amount of hazardous or solid waste generated by operation of the Airport under the Proposed Action compared with the No Action Alternative. Pollution prevention measures would be employed to address short-term construction activities and long-term operation under the Proposed Action as well as construction and operation of the Airport with the past, present, and future projects. Solid waste generation rates during operation of the Airport would increase with additional passengers under the Proposed Action and may increase as well as a result of changes in activities associated with other past, present, or future projects, such as US Customs and Border Protection Facility expansions. Sufficient landfill capacity exists to accept waste streams for the Airport. Therefore, implementation of the Proposed Action and the past, present, and future projects would not result in a significant cumulative impact associated with hazardous materials or solids wastes.

Historical, Architectural, Archeological, and Cultural Resources

Indirect effects associated with construction of the Proposed Action and other past, present, and future projects could result from construction equipment noise; however, the effects would be temporary and would not cause significant noise impacts to nearby historical, architectural, archeological, or cultural resources. Additionally, the

Proposed Action and other past, present, and future projects would have standard practices in place should intact archeological remains be identified during construction; therefore, historical, architectural, archeological, or cultural resources would not be directly or indirectly affected.

There are no National Register-eligible historical, architectural, or cultural resources located in the Final Indirect Effects APE, which incorporates the area of significant noise effects associated with implementation of the Proposed Action. The Proposed Action and the past, present, and future projects are all consistent with the lighting and visual character of the Airport setting. Therefore, the implementation of the Proposed Action and other past, present, and future projects would not affect historical, architectural, archeological, or cultural resources.

Land Use

The Proposed Action would not affect existing land use designations within the Indirect Study Area and would be consistent with plans for the area. The Proposed Action and other past, present, and future projects would occur on Airport property and would not alter existing or planned zoning around the Airport. The Proposed Action along with past, present, and future projects would not result in a significant cumulative land use impact.

Natural Resources and Energy Supply

Demand for consumable natural resources and energy would temporarily increase during construction of the Proposed Action and the other past, present, and future projects; however, these increases would involve commonly available natural resources and energy sources that are not unusual or in short supply. With implementation of the Proposed Action, use of consumable natural resources and energy use would not be significantly affected. The energy demand associated with the Proposed Action and with new facilities associated with the past, present, and future projects would not exceed available or future energy supplies. Furthermore, energy demand from present and future projects, such as the departures hall renovation, would be minimized through the use of energy efficient lighting. Therefore, the Proposed Action along with past, present, and future projects would not result in a significant cumulative impact on natural resources and energy supply.

Noise and Noise-Compatible Land Use

Any noise impacts resulting from construction of the Proposed Action or other past, present, and future projects would be temporary and not significant. The Runway 9 27 Rehabilitation project, which included converting existing pavement at the Runway 9 end to make the pavement available to departing aircraft for takeoff rollout, is the only project of the past, present, and future projects that involves a change in aircraft operations, and, therefore, a change in noise exposure in the Airport vicinity. An analysis of aircraft noise for the Runway 9-27 Rehabilitation project included the assumption that all aircraft departing on Runway 9 would back-taxi on Runway 9, which would not result in a significant noise impact. Since completion of that project, actual use of the full pavement for Runway 9 departures is estimated at 10 percent (as reflected in the No Action Alternative analysis in this EA) rather than all departing aircraft. It is assumed that use of the full runway length would increase to 100 percent with implementation of the Proposed Action. None of the remaining past, present, and future projects would increase the capacity of the Airport. The Terminal Building Expansion and Departures Hall Renovation projects would improve passenger level of service at the Airport, while the Airfield Security Improvements and other rehabilitation projects would enhance the operational safety and efficiency of the Airport. As the change in aircraft operations on the Runway 9 end are assessed as part of the Proposed Action, and none of the other past, present, or future projects would change aircraft arrivals, departures, or taxi procedures, there would not be any cumulative noise impact.

Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks

The Proposed Action would not significantly affect levels of employment in the area, cause economic hardship on the community, affect the community tax base, or otherwise disrupt the local community such that a cumulative effect would result with other past, present, and future projects. Other past, present, and future projects, such as the Terminal Building Expansion and the Departure Hall Renovation projects would improve passenger level of service at the Airport rather than increasing capacity of the Airport in a manner that would induce substantial economic growth, disrupt local traffic patterns, or reduce the levels of service of roads serving the Airport. There are no environmental justice populations around the Airport, thus no cumulative impacts to environmental justice populations would occur. Similarly, the Proposed Action and other past, present, and future projects would not result in significant impacts to those categories that could cause health and safety risks to children, including air quality, water quality, and hazardous materials. Therefore, the Proposed Action and past, present, and future projects would not result in a significant cumulative impact related to socioeconomics, environmental justice, or children's health and safety.

Visual Effects

The Proposed Action and other past, present, and future projects occur within a moderate ambient light environment. Lighting used during nighttime construction for all projects would be shielded and focused on the construction area to eliminate unnecessary light spillover and glare. Additional lighting resulting from implementation of the Proposed Action and the past, present, and future projects would be consistent with the existing ambient light environment. The Proposed Action and the past, present, and future projects are consistent with the visual character of the Airport setting. Other past, present, and future projects that would be visible from the Indirect Study Area are consistent with the visual character of the airfield environment. Therefore, implementation of the Proposed Action and past, present, and future projects would not result in significant cumulative impacts related to light emissions, visual resources, or visual character.

Water Resources

The Proposed Action in combination with the past, present and future actions collectively could result in a significant impact to a water resource. The Proposed Action would mitigate impacts to water resources through wetland mitigation, stormwater treatment facilities, and use of construction and operational BMPs. All past, present, and future projects have or will have similar measures to mitigate impacts to water resources, including wetland mitigation (if applicable), use of construction and operational BMPs, and implementation stormwater treatment facilities (if applicable). Therefore, The Proposed Action and the past, present, and future projects would not cause a significant cumulative impact on water resources.

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5. COORDINATION AND PUBLIC INVOLVEMENT

5.1 INTRODUCTION

Under 40 CFR 1501.4, federal agencies are required to involve environmental agencies, applicants, and the public, to the extent practicable, when preparing EAs. Therefore, when conducting the NEPA process for the preparation of an EA, the FAA and the airport sponsor are encouraged to begin early coordination with the proper federal, state, tribal, and local agencies, including surrounding municipalities, in order to determine any possible environmental concerns. The primary components of the agency coordination and public involvement program include the following:

- agency and public scoping;
- notification of the publication of the Draft EA for agency and public review in local newspapers; and
- preparation of a Final EA.

The following sections summarize the agency coordination and public involvement program for this EA, and coordination and public involvement materials are provided in Appendix H.

5.2 AGENCY AND PUBLIC SCOPING

5.2.1.1 AGENCY AND PUBLIC SCOPING MEETINGS

Letters describing the Proposed Action and inviting federal, state, and local agencies to comment on the Draft EA were sent to 35 agency representatives on August 19, 2019. A web-based Agency Scoping Meeting was held September 19, 2019, from 1:00 p.m. to 2:00 p.m. Slides describing the Proposed Action were displayed. Airport management, the County's consultant, and an FAA representative were in attendance to describe the Proposed Action and answer questions. Agency scoping materials, including a sample scoping letter, mailing list, sign-in sheet, and presentation slides are provided in Appendix H.1.

A public scoping meeting was held September 19, 2019, from 5:00 p.m. to 7:00 p.m. in the Airport Administration Conference Room at Key West International Airport located at 3491 South Roosevelt Boulevard, Key West FL 33040. Presentation boards describing the proposed project were displayed, and Airport and consultant staff were available to describe the project and answer questions. Attachment H.1 provides the public scoping meeting materials, including the Public Notice, the sign-in sheet, and the display boards.

5.2.1.2 SCOPING COMMENTS RECEIVED

Scoping comments were solicited over a 30-day period, commencing on August 16, 2019, with the publication of the public notice in the *Key West Citizen*, and concluding on September 30, 2019. During this time, interested parties, responsible agencies, and the public were encouraged to provide input on the purpose and need for the project and alternatives considered as well as to identify any specific concerns that should be examined in the EA. A public scoping meeting was advertised in the public notice and held on September 19, 2019; the meeting was attended by airline and County representatives (see Appendix H.1.2). No comments were received from members of the public in response to scoping.

Scoping letters were emailed to federal, state, and local agencies on August 16, 2019, and a scoping meeting was held on September 19, 2019 (see Appendix H.1.1). Representatives from two agencies, USEPA and SFWMD, attended the agency scoping meeting. Two sets of comments were received from agencies via email during the scoping period, copies of which are provided in Appendix H.1.3. The commenters and their comments are summarized in **Table 5-1**.

TABLE 5-1 SUMMARY OF SCOPING COMMENTS RECEIVED

COMMENT DATE	COMMENTER	TOPICS IDENTIFIED IN COMMENT(S)
September 25, 2019	Seminole Tribe of Florida, Tribal Historic Preservation Office	Future coordination, Cultural resources
September 30, 2019	US Environmental Protection Agency – NEPA Section	Air quality, contaminated sites, environmental justice, Section 4(f) resources, stormwater management, threatened and endangered species, and Waters of the United States

SOURCE: Ricondo & Associates, Inc., November 2019.

No requests were received from a federal agency to be a cooperating agency for this EA.

5.3 REVIEW OF THE DRAFT ENVIRONMENTAL ASSESSMENT

The Draft EA was made available for review by the public, government agencies, and interested parties for a period of 39 days. The Notice of Availability (NOA) of the Draft EA was published on the Airport's website and in the *Key West Citizen* newspaper on November 13, 2020. The NOA, providing the location of the Draft EA documents online, was emailed to elected officials and agencies that participated in scoping and/or project consultation.[1] **Table 5-2** lists the locations where printed copies of the Draft EA were available for review. The Draft EA was also available online at https://eyw.com/public-notices. Appendix H.2 provides a copy of the NOA, proof of publication in the *Key West Citizen*, and a record of agency notification.

TABLE 5-2 LOCATIONS WHERE THE DRAFT ENVIRONMENTAL ASSESSMENT WAS AVAILABLE

LOCATION	ADDRESS	CITY	ZIP CODE
Monroe County Public Library [1]	700 Fleming Street	Key West, FL	33040
Airport Administration Office at Key West International Airport	3491 South Roosevelt Boulevard	Key West, FL	33040

NOTE:
1 The library was operating contact-free during the public review period, so printed copies and flash drives of the Draft EA were available for check-out.
SOURCE: Ricondo & Associates, Inc., January 2021.

A Public Information Workshop on the Draft EA was held on Tuesday, December 15, 2020, from 4:30 p.m. to 6:30 p.m. local time at the Key West Marriott Beachside Hotel at 3841 North Roosevelt Boulevard, Key West, FL 33040. The format of the Workshop was informal. During the Workshop, participants were able to view display boards presenting project information and discuss the proposed Airport improvements and ask questions of representatives from the County and its consultant team. A formal presentation was not made during the Workshop. Approximately 16 people attended the workshop, comprising 3 members of the public and 1 attendee representing the City of Key West as well as airline and County consultant team representatives (see Appendix H.2.4). The key

[1] The NOA provided a web address from which agencies and the public could download the Draft EA for review.

questions raised by members of the public related to aircraft noise, and they had an opportunity to discuss aircraft noise with the noise expert on the County's consultant team. As demonstrated in the EA, implementation of the Proposed Action would not have a significant noise impact. Anyone wishing to comment on the Draft EA was offered the opportunity to do so in writing during the Workshop. Copies of materials supporting the Public Workshop (that is, sign-in sheets and display boards) are provided in Appendix H.2. In addition to the Public Information Workshop, an overview of the Draft EA and the public review period was provided at the December 1, 2020, Key West International Airport Ad Hoc Committee on Noise. Finally, a link to information about the EA was provided on the Airport's Facebook page during the review and comment period.

The comment period on the Draft EA began on November 13, 2020, and closed on December 22, 2020. Anyone wishing to comment on the information and conclusions in the Draft EA were afforded the opportunity to do so at any time during the review and comment period. Commenters were informed to be as specific as possible and address the adequacy of the proposed action, the merits of alternatives, the analysis of potential environmental impacts, and the mitigation being considered.

Written comments on the Draft EA were accepted through Tuesday, December 22, 2020. Options for submitting comments included completing a comment form at the Public Workshop or submitting comments by mail or email, to:

Lisa Reznar
Ricondo & Associates, Inc.
20 North Clark Street, Suite 1500
Chicago, Illinois 60602

KeyWestEA@ricondo.com

Five sets of comments were received on the Draft EA during the review and comment period. Two commenters expressed concerns about aircraft noise; one commenter expressed support for the Proposed Action; a representative of the USEPA provided comments on the topics of air quality, climate change, contaminated sites, and stormwater management; and a representative from the Florida State Clearinghouse provided information on coastal resources and permit requirements. Several of the comments resulted in clarifications to the EA, but no substantive issues affecting the conclusions documented in the EA were raised. The County and the FAA reviewed and considered all comments in the preparation of the Final EA. The comment letters and responses to these comments are provided in Appendix H.2.

5.4 FINAL ENVIRONMENTAL ASSESSMENT

The FAA will review this Final EA to determine its adequacy under the National Environmental Policy Act, Council on Environmental Quality's regulations implementing NEPA (40 CFR Part 1500), and FAA Orders 1050.1F and 5050.4B. Based on the information and analyses in this Final EA, the FAA will decide whether to either issue a Finding of No Significant Impact or prepare an Environmental Impact Statement.

Copies of this Final EA are available for review at the Key West International Airport Administration Offices (3491 South Roosevelt Boulevard, Key West, Florida, 33040). Following the FAA's issuance of an environmental finding on the Final EA, the Final EA will be available for a minimum of 30 days for download from the Airport's website at: https://eyw.com/public-notices.

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6. LIST OF PREPARERS

6.1 LEAD AGENCY

Federal Aviation Administration

Peter Green, Environmental Protection Specialist, directed the preparation of this EA for the FAA.

6.2 PRINCIPAL PREPARERS – AIRPORT SPONSOR

Monroe County

Richard Strickland, Director of Airports, has 23 years of experience and is responsible for the overall environmental programs for the Airport.

6.3 PRINCIPAL PREPARERS – CONSULTANT TEAM

Ricondo & Associates, Inc.

Steve Culberson, Vice President, has over 30 years of experience in airport environmental and facilities planning studies, with significant experience preparing and managing environmental assessments and environmental impact statements, airport master plans, and aviation activity forecasts. Mr. Culberson was responsible for project management and quality assurance/quality control.

Lisa Reznar, Director, has over 20 years of experience in airport environmental and planning analyses, with experience preparing and managing environmental assessments, airport sustainability master plans, and airport ground transportation planning studies. Ms. Reznar was responsible for project management, overall NEPA documentation, purpose and need, and alternatives.

Sebastien Carreau, Director, has more than 10 years of experience in the planning and programming of airport development projects. Mr. Carreau was responsible for the definition of the Proposed Action.

Julie Car, Managing Consultant, has more than 11 years of experience in aviation and environmental planning, with expertise in protected species, sensitive habitat, wetlands, and wildlife management. Ms. Car was responsible for overall NEPA analyses and documentation, affected environment, environmental consequences, and Biological Assessment review.

Brian Philiben, Managing Consultant, has eight years of experience in airport planning and environmental analyses with a background of more than five years of environmental consulting experience, with particular expertise in land use planning. Mr. Philiben was responsible for managing EA documentation, including the purpose and need, alternatives, affected environment and environmental consequences sections, GIS analysis, and exhibit production.

Max Braun, Managing Consultant, specializes in developing and managing aviation activity forecasts for both master planning and revenue bond feasibility purposes. Mr. Braun was responsible for the aviation activity forecast.

Kate Doughty, Senior Consultant, has four years of experience in airport planning and environmental analysis, and more than six years of GIS experience. Ms. Doughty conducted the GIS analyses and prepared the EA exhibits.

Lindsay Levine, Consultant, has three years of experience in environmental consulting with experience in preparing environmental assessments and environmental impact statements. Ms. Levine conducted general documentation and contributed to the affected environment and environmental consequences.

Birkitt Environmental Services, Inc.

Beverly Birkitt, Principal Ecologist – Project Director, has over 40 years of experience in the environmental consulting field with significant experience in environmental impact studies, state, federal, and local environmental permitting, NEPA coordination and Section 7 Consultation, ecosystem restoration, and regulatory compliance specializing in wetlands, wildlife, water quality, aquatic ecology, and mitigation. Ms. Birkitt was responsible for the preparation of the Biological Assessment.

Robert Toth, Ecologist – Lead Scientist, has over 14 years of experience within the environmental field including conducting wetland surveys, flora and fauna identification, threatened and endangered species surveys, permitting processes for the Florida Department of Environmental Protection (FDEP) and United State Army Corps of Engineers (USACE) Section 404/10 and Section 7 Consultation. Mr. Toth was the lead scientist for the preparation of the Biological Assessment.

DMLA

Deborah Lagos, President of Deborah Murphy Lagos & Associates, has over 30 years of experience in aviation noise analyses, noise abatement and noise mitigation in airport and aircraft manufacturing environments. She has been the Aviation Noise Consultant for Key West International Airport since 1995. Ms. Lagos was responsible for the aircraft noise analysis for the affected environment and environmental consequences.

Jacobs

Chris Bowker, Senior PM, has over 29 years of experience in airport development, engineering and construction services. His emphasis has been on airside development projects from planning through implementation. Mr. Bowker was responsible for developing areas of impact and alignments of proposed improvements, and the definition of the Proposed Action.

Janus Research Group

Amy Streelman, Chief Architectural Historian, has over 23 years of experience in cultural resources management, with experience preparing and managing environmental assessments, and documentation and evaluations of historic resources. Ms. Streelman was responsible for project management and overall cultural resources documentation**.**

Michael Baker International

Mariben Andersen, Environmental Manager, has over 21 years of experience preparing and managing environmental assessments, airport sustainability management plans and wildlife hazard management plans and permitting transportation development projects. Ms. Andersen served as the airport wildlife biologist and was responsible for the review of the coastal and water resources sections.

Jay Gable, Senior Environmental Scientist, has over 20 years of experience in preparing airport NEPA documents and environmental transportation regulatory documents. Mr. Gable was the primary author of the coastal and water resources sections.