

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], PM₁₀, 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, SO₂, PM₁₀, PM_{2.5}, CO₂, N₂O, VOCs, NO_x, and CH₄) 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 SO₂.

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

CONSTRUCTION YEAR	EMISSIONS (TONS/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
<i>de minimis</i> Threshold	100.000	100.000	100.000	100.000	100.000	100.000
Exceeds <i>de minimis</i> Threshold?	No	No	No	No	No	No

NOTES:

CO – Carbon Dioxide

PM₁₀ – Particulate Matter up to 10 MicronsSO_x – Oxides of SulfurNO_x – Oxides of NitrogenPM_{2.5} – Particulate Matter Less than 2.5 Microns

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 SO₂.

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

YEAR	AIRCRAFT EMISSIONS (TONS)					
	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

PM₁₀ – Particulate Matter up to 10 MicronsSO_x – Oxides of SulfurNO_x – Oxides of NitrogenPM_{2.5} – Particulate Matter Less than 2.5 Microns

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 SO₂.

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

YEAR	AIRCRAFT EMISSIONS (TONS)					
	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
<i>de minimis</i> 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
<i>de minimis</i> 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

PM₁₀ – Particulate Matter up to 10 Microns

SO_x – Oxides of Sulfur

NO_x – Oxides of Nitrogen

PM_{2.5} – Particulate Matter Less than 2.5 Microns

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 SO₂.

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, extirpation⁸ 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 Critical 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 (<i>Opuntia corallicola</i>)	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 (<i>Chamaesyce garberi</i>)	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 (<i>Chromolaena frustata</i>)	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 (<i>Crocodylus acutus</i>)	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 (<i>Drymarchon corais couperi</i>)	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 (<i>Gopherus polyphemus</i>) 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 <i>Standard Protection Measures for the Eastern Indigo Snake</i> 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
<i>Birds</i>		
Piping plover (<i>Charadrius melodus</i>)	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 (<i>Calidris canutus rufa</i>)	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 (<i>Sterna dougalli dougalli</i>)	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 (<i>Mycteria americana</i>)	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
<i>Mammals</i>		
West Indian manatee (<i>Trichechus manatus</i>)	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
<i>Fish</i>		
Smalltooth sawfish (<i>Pristis pectinate</i>)	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/embalements. 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 CO₂, CH₄, and N₂O. GHG emissions are reported in metric tons of CO₂ equivalent (MT CO₂e), 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 CO₂e.

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 CO₂e. 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 ₂ e)
2021	1,688
2022	3,896
2023	1,576

NOTES:

GHG – Greenhouse Gases

MT CO₂e – 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 guidance¹³ 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 ₂ e)
2024	14,310
2029	15,546

NOTES:

GHG – Greenhouse Gases

MT CO₂e – 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 GREENHOUSE GAS EMISSIONS – PROPOSED ACTION

YEAR	ANNUAL GHG EMISSIONS (MT CO ₂ e)
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 CO₂e – 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 CO₂e.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 CO₂e for the year 2017¹⁶ and global emissions estimated as 53.5 gigatons of CO₂e 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

SOURCES: Michael Baker International, January 2020; Ricondo & Associates, Inc., May 2020.

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

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

POTENTIAL SECTION 4(f) PROPERTY	TOTAL PROPERTY	2024			2029		
		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

POTENTIAL SECTION 4(f) PROPERTY	NOISE EXPOSURE LEVEL (DNL, dB) ¹	
	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

- 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.
- 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 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 AFE²⁹ 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) guidance³⁰ was used to assess construction noise (consistent with guidance in FAA Order 1050.1F and with Florida Department of Transportation guidance³¹). 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.

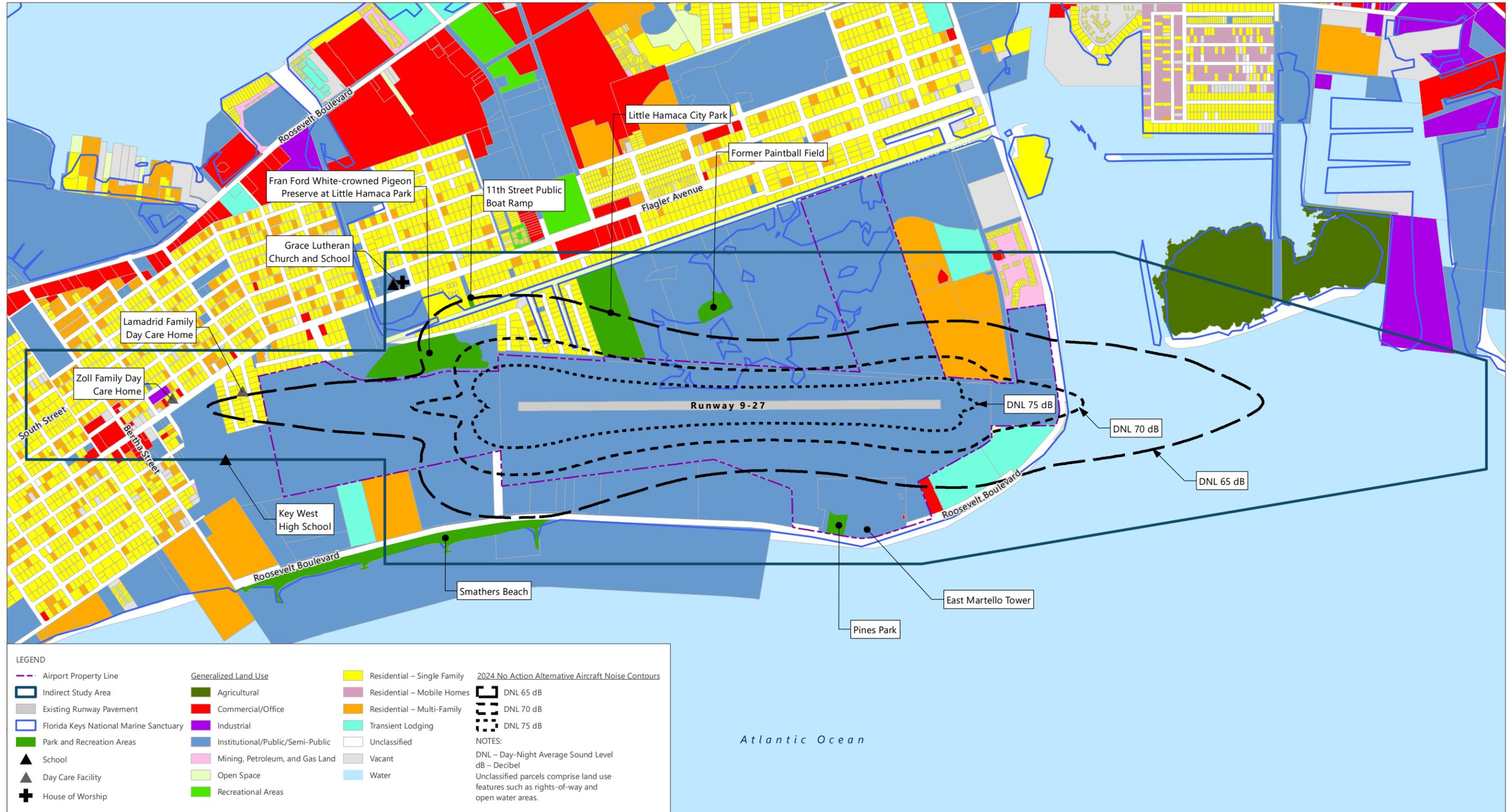
4.10.4 OPERATIONAL IMPACTS

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.



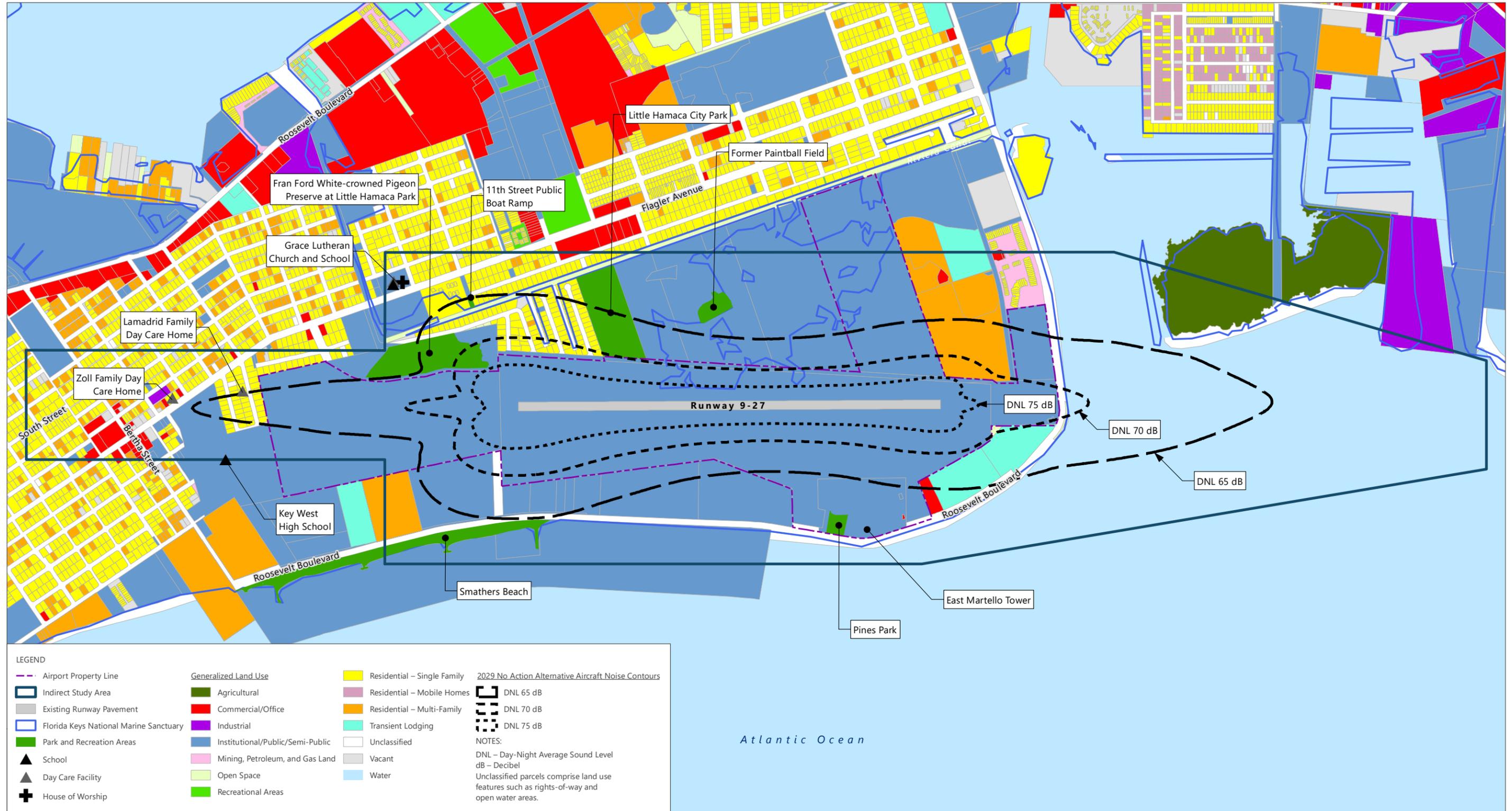
LEGEND

<ul style="list-style-type: none"> Airport Property Line Indirect Study Area Existing Runway Pavement Florida Keys National Marine Sanctuary Park and Recreation Areas ▲ School ▲ Day Care Facility + House of Worship 	<p>Generalized Land Use</p> <ul style="list-style-type: none"> Agricultural Commercial/Office Institutional/Public/Semi-Public Mining, Petroleum, and Gas Land Open Space Recreational Areas Residential – Single Family Residential – Mobile Homes Residential – Multi-Family Transient Lodging Unclassified Vacant Water 	<p>2024 No Action Alternative Aircraft Noise Contours</p> <ul style="list-style-type: none"> DNL 65 dB DNL 70 dB DNL 75 dB <p>NOTES: DNL – Day-Night Average Sound Level dB – Decibel Unclassified parcels comprise land use features such as rights-of-way and open water areas.</p>
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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, 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).



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Airport Property Line	Generalized Land Use	Residential – Single Family	2029 No Action Alternative Aircraft Noise Contours
Indirect Study Area	Agricultural	Residential – Mobile Homes	DNL 65 dB
Existing Runway Pavement	Commercial/Office	Residential – Multi-Family	DNL 70 dB
Florida Keys National Marine Sanctuary	Industrial	Transient Lodging	DNL 75 dB
Park and Recreation Areas	Institutional/Public/Semi-Public	Unclassified	NOTES:
School	Mining, Petroleum, and Gas Land	Vacant	DNL – Day-Night Average Sound Level
Day Care Facility	Open Space	Water	dB – Decibel
House of Worship	Recreational Areas		Unclassified parcels comprise land use features such as rights-of-way and open water areas.

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).



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TABLE 4-17 NO ACTION ALTERNATIVE NOISE EXPOSURE SUMMARY

LAND USE	2024			2029		
	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 Facilities¹ (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, Public, 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.

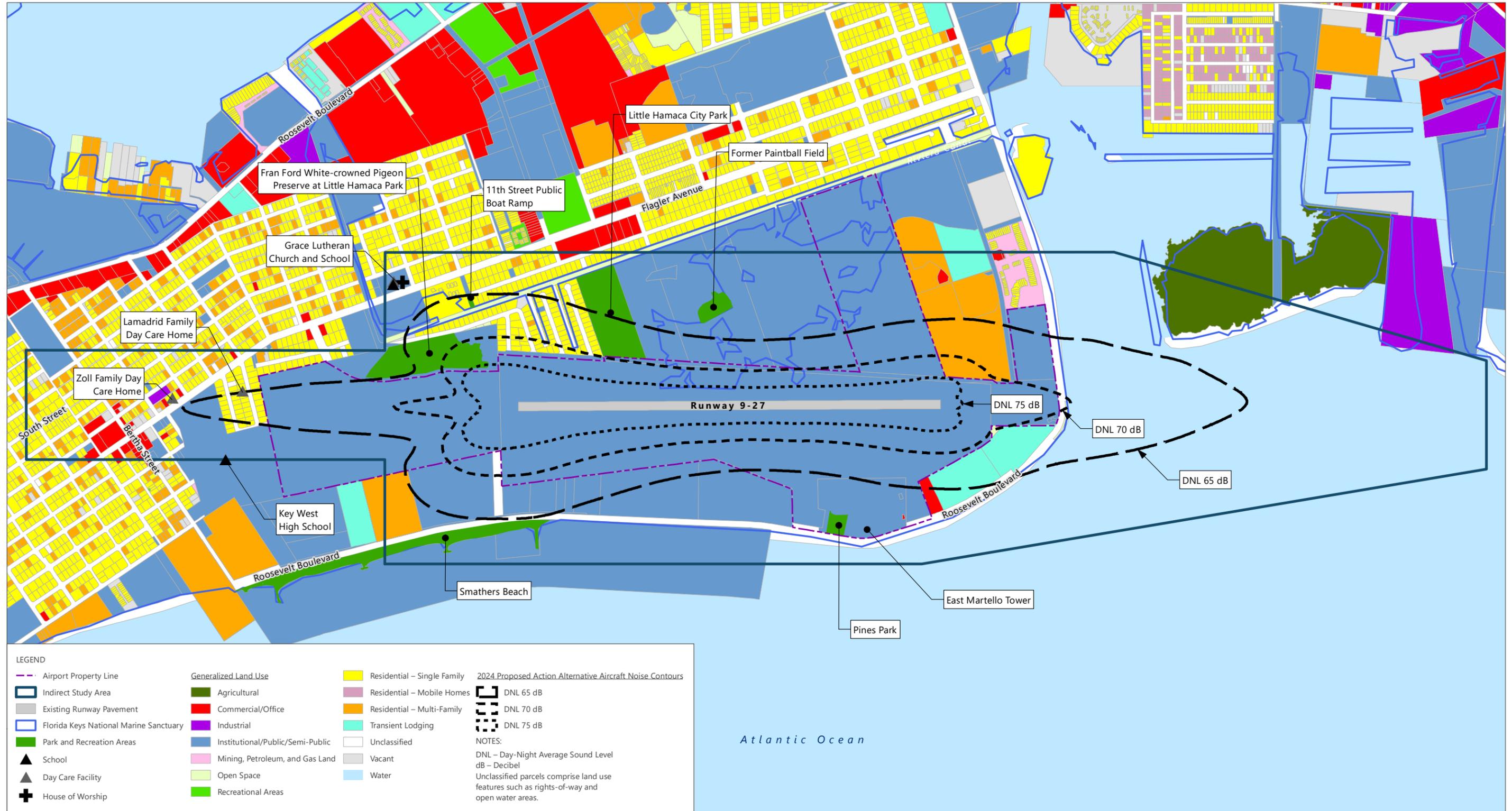
Proposed Action

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.

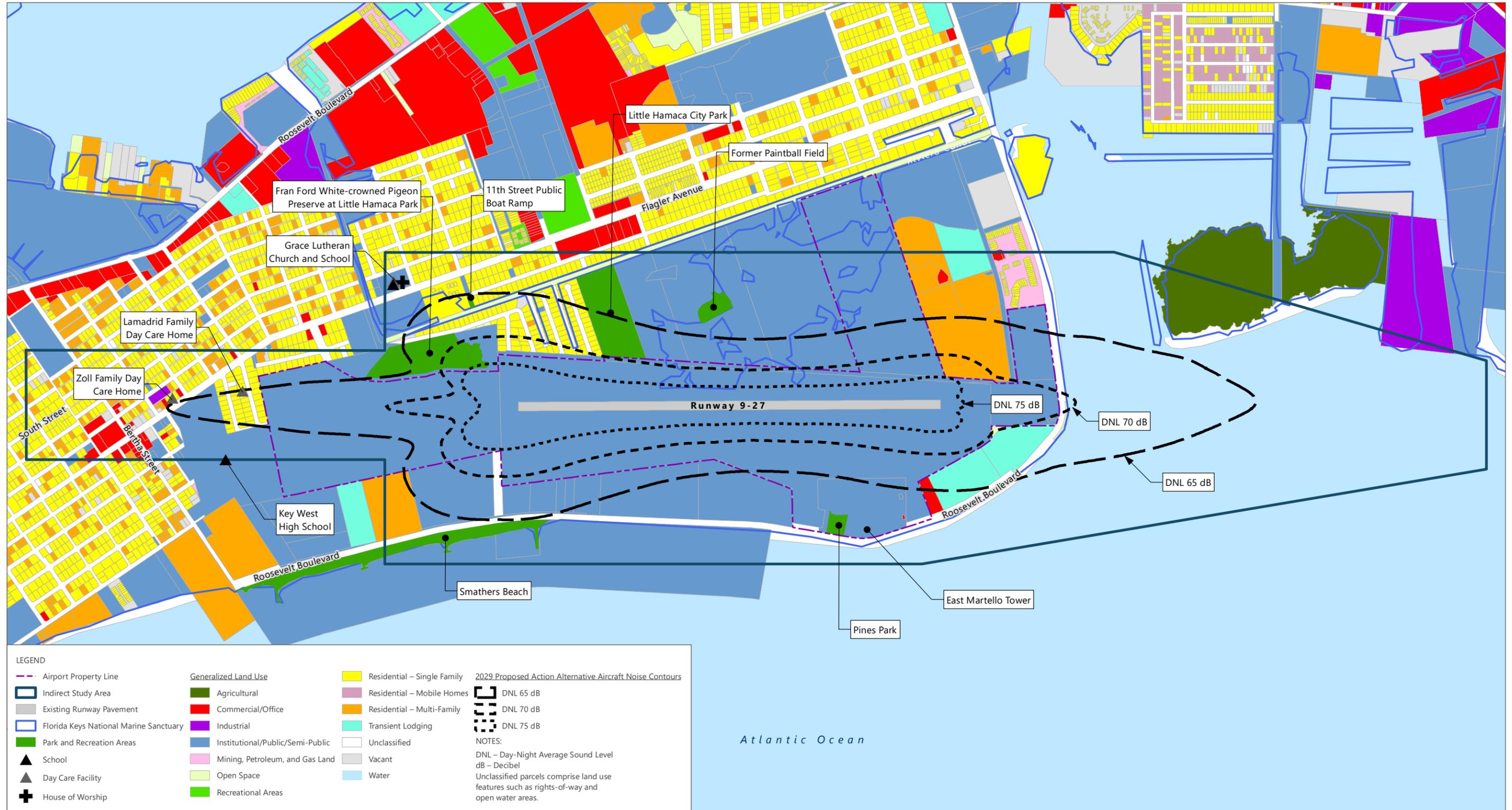
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SOURCES: Ricondo & Associates, Inc., July 2020 based on University of Florida GeoPlan Center, 2015 (house of worship); University of Florida GeoPlan Center, 2016 (day care facility); University of Florida GeoPlan Center, 2017 (school); University of 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).



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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).



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TABLE 4-18 PROPOSED ACTION NOISE EXPOSURE SUMMARY

LAND USE	2024			2029		
	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 Facilities¹ (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

LAND USE	2024			2029		
	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 Facilities¹ (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:

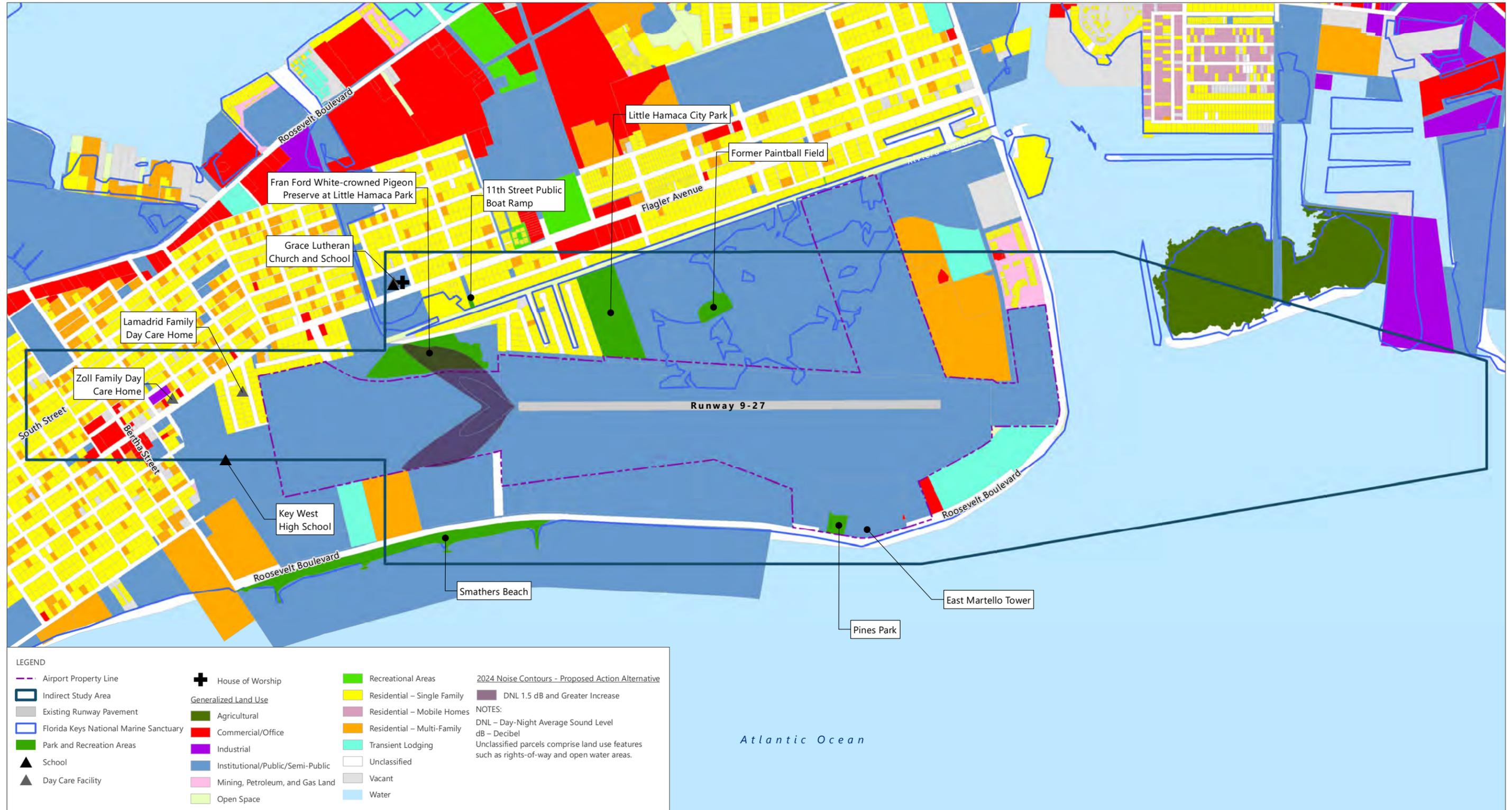
DNL – Day-Night Average Sound Level dB – Decibel

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.

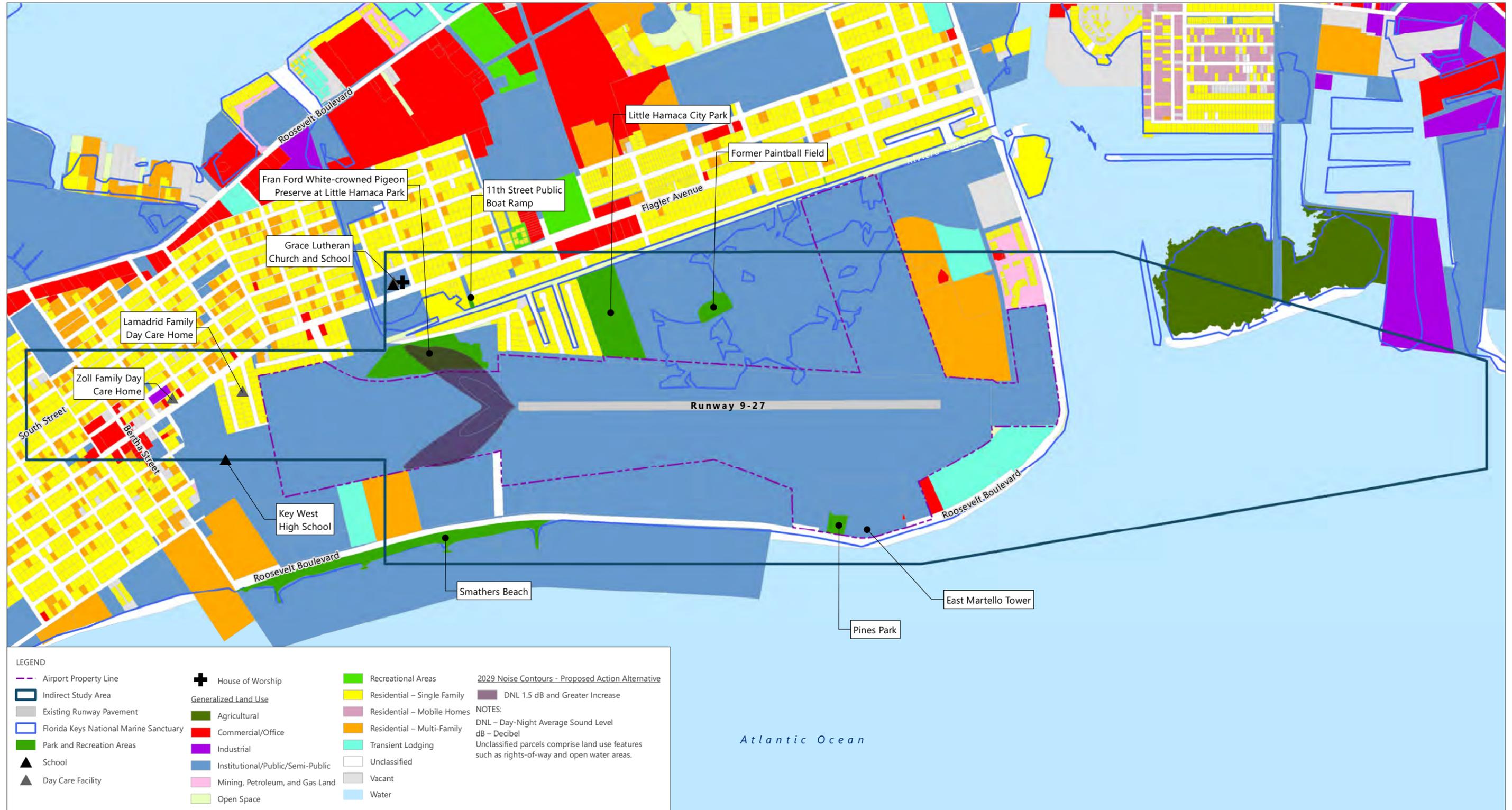
To evaluate if the increase in noise exposure at noise-sensitive facilities is significant, the areas exposed to a DNL 1.5 dB increase or greater under the Proposed Action compared to the No Action Alternative were identified. **Exhibit 4-5** presents the area exposed to a DNL 1.5 dB increase under the 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).



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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).



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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

ADDRESS	2012 NIP PARTICIPATION	2024			2029		
		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 environment 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 SFWMD during development of the EA.

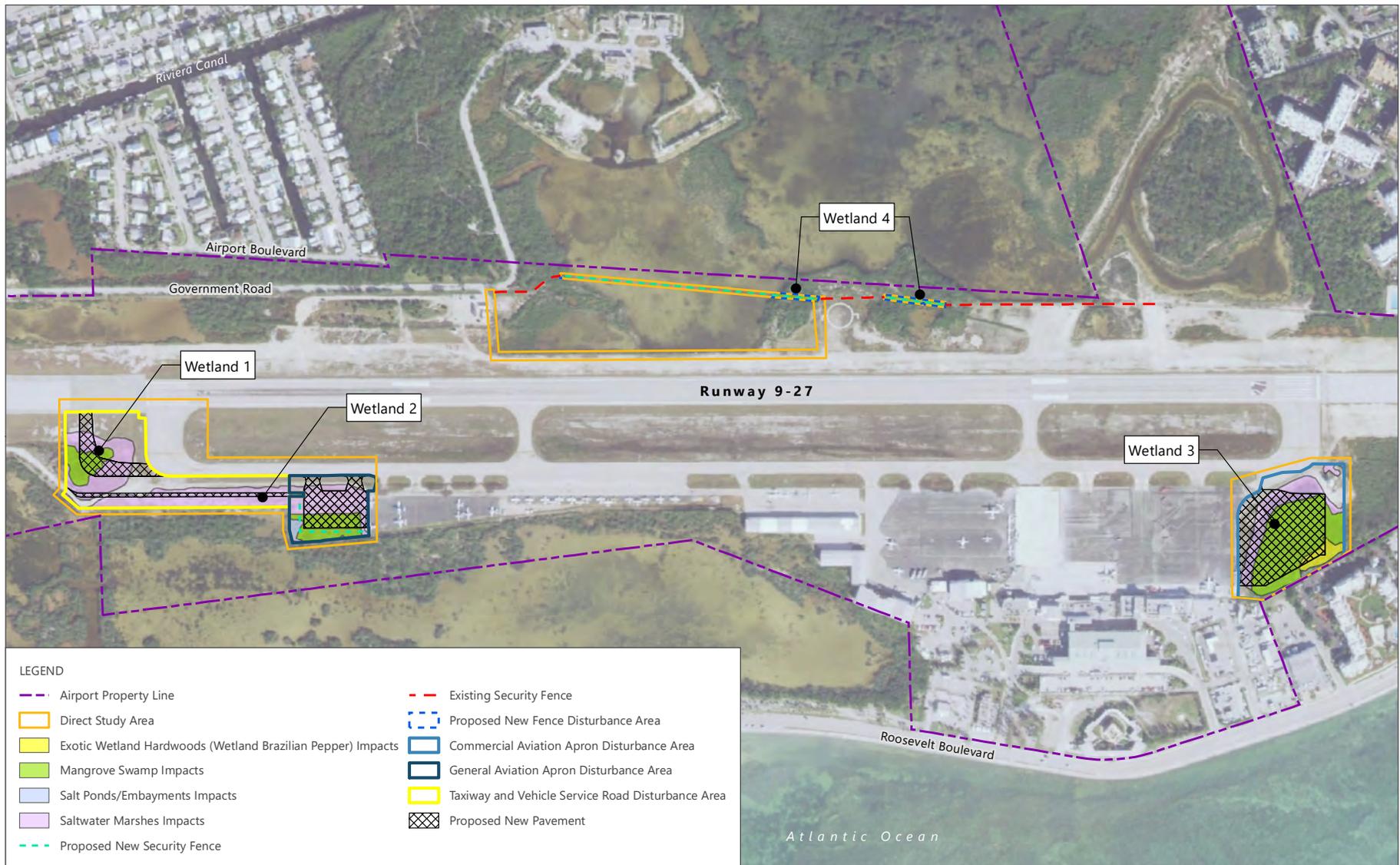
TABLE 4-21 POTENTIAL WETLAND IMPACTS – PROPOSED ACTION

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



WETLAND IMPACTS

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 NPDES 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.

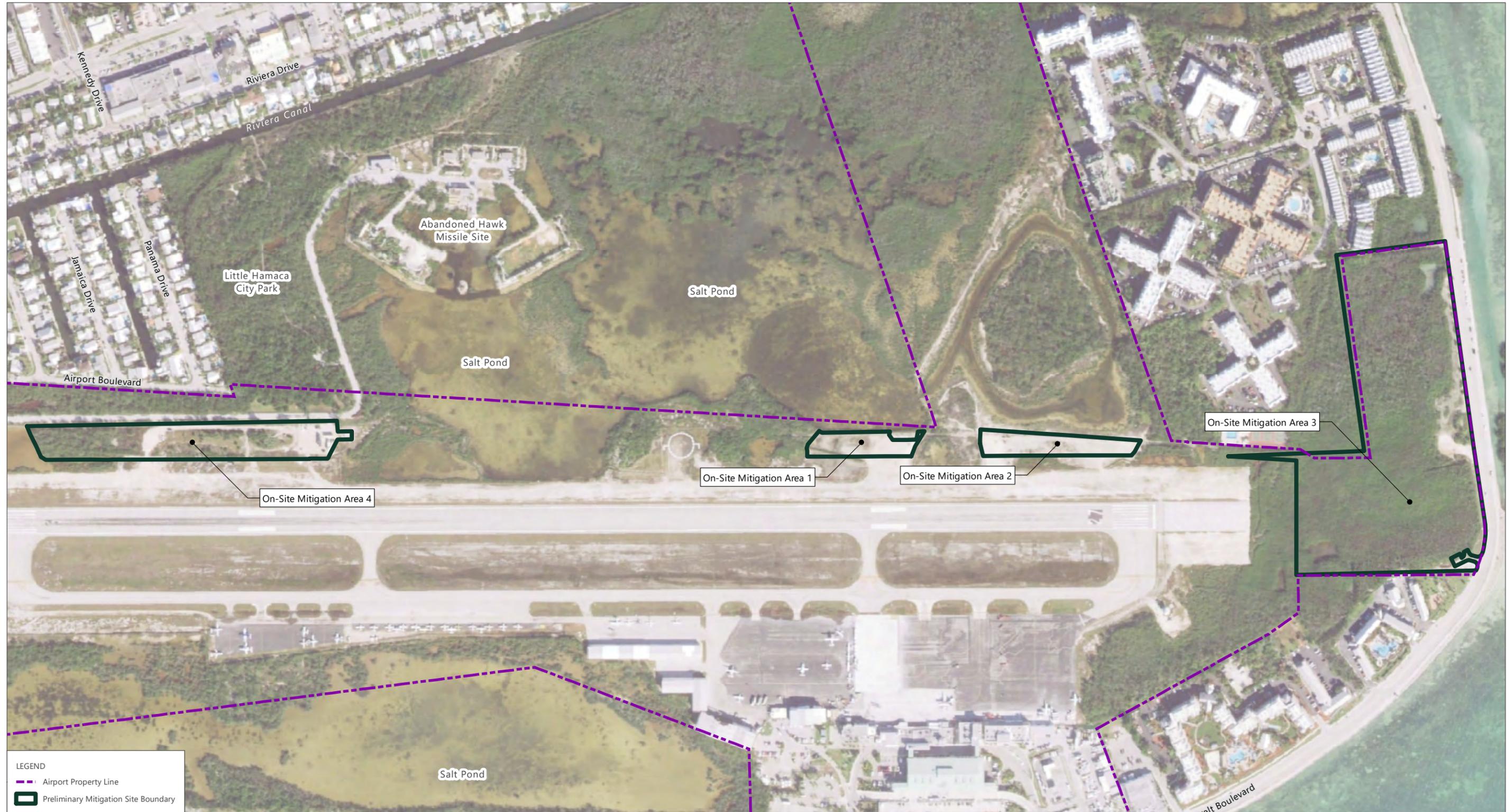
Compensatory wetland mitigation would be provided both on-site³⁹ and off-site and would comprise wetland restoration/creation, enhancement, and preservation. The on-site activities would restore or create both saltwater marsh and mangrove communities along the periphery of the salt ponds. On-site improvements 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).

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

FAA – Federal Aviation Administration

RSA – Runway Safety Area

EMAS – Emergency Materials Arresting System

NIP – Noise Insulation Program

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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