

2. ALTERNATIVES

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

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

2.1 IDENTIFICATION OF POTENTIAL ALTERNATIVES

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

2.1.1 TAXIWAY ALTERNATIVES

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

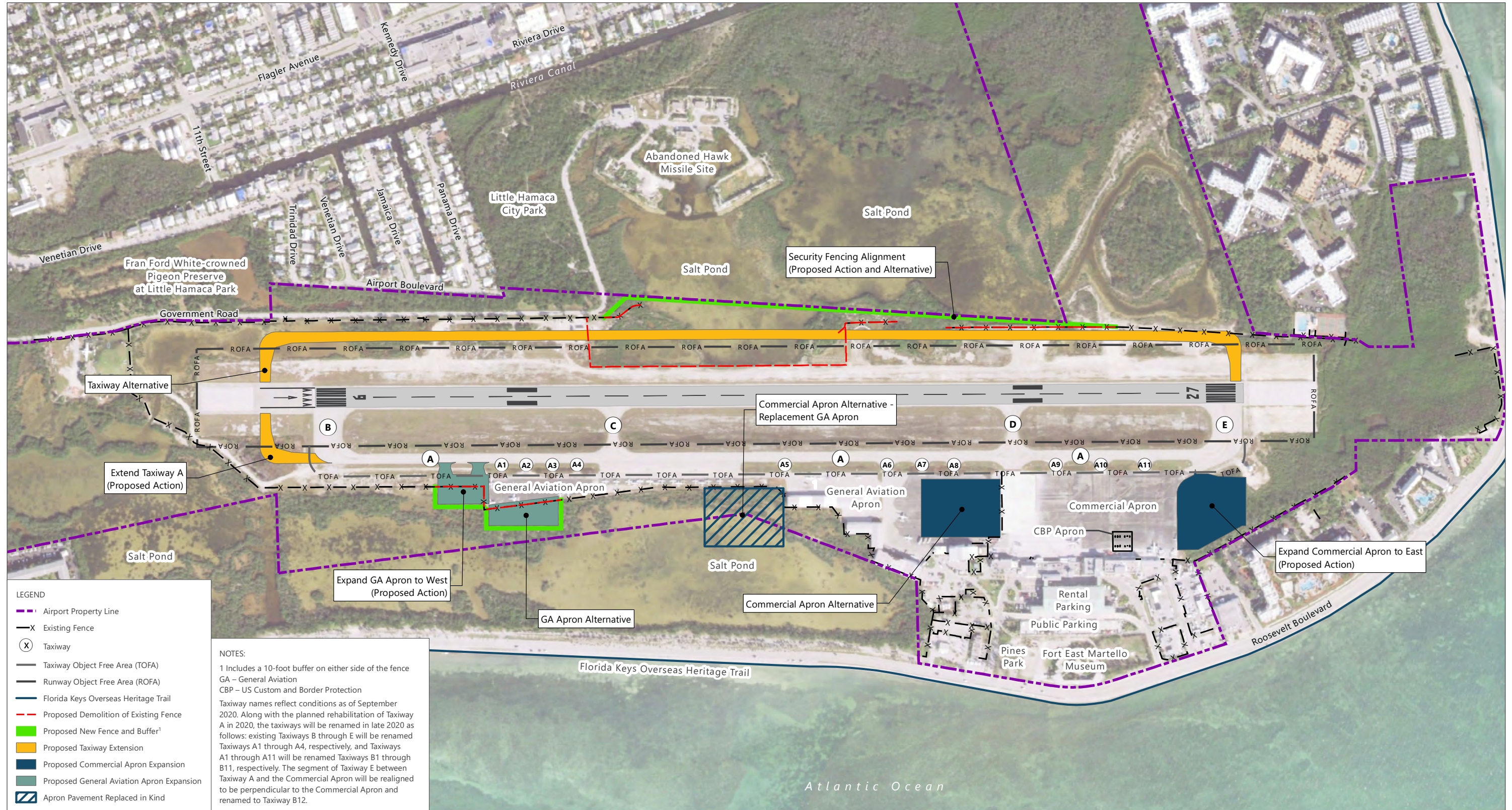
- **Extend Taxiway A 274 Feet to the End of Runway 9 (Proposed Action):** Extend Taxiway A 274 feet to the west to connect to the Runway 9 end of pavement. Extending Taxiway A would not result in a significant change in aircraft movements on the airfield.
- **Taxiway Alternative – Construct Full-Length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

2.1.2 COMMERCIAL APRON EXPANSION ALTERNATIVES

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

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

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

EXHIBIT 2-1



ALTERNATIVES

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- **Commercial Apron Alternative – Expand Commercial Apron to West:** Expand the commercial apron to the west by converting existing GA apron pavement to commercial apron. Similar to the Proposed Action, this alternative could accommodate eight ADG-III parking positions on the existing commercial apron pavement¹ with the converted commercial apron pavement to the west accommodating a CBP position, cargo aircraft, and irregular operations. This alternative requires replacement of the GA apron, which would occur on the south side of Runway 9-27 adjacent to existing GA apron facilities. Additionally, although not included in the replacement GA apron footprint shown on Exhibit 2-1, this alternative would also require the relocation of the Airport’s fixed base operator (FBO) maintenance hangar and office adjacent to the replacement apron and possibly relocation of a portion of private GA hangars west of the FBO. Given the lack of developable land adjacent to existing GA apron area, this alternative would involve the placement of fill in wetlands and the salt pond, as illustrated by the replacement GA apron footprint shown on Exhibit 2-1. Western expansion of the commercial apron and relocation of GA apron and the FBO maintenance hangar, FBO offices, and private hangars would affect aircraft operations on the airfield, and facility relocations would affect GA businesses operating at EYW.

2.1.3 GENERAL AVIATION APRON EXPANSION ALTERNATIVES

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

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

2.1.4 SECURITY FENCING ALTERNATIVES

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

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

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

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

2.1.5 NO ACTION ALTERNATIVE

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

2.2 SCREENING PROCESS AND EVALUATION CRITERIA

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

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

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

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

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

² 40 CFR 230.10(a)(2).

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

2.3 EVALUATION RESULTS

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

2.4 ALTERNATIVES CARRIED FORWARD FOR DETAILED EVALUATION

2.4.1 NO-ACTION ALTERNATIVE

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

2.4.2 SPONSOR'S PREFERRED ALTERNATIVE

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

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

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TABLE 2-1 (1 OF 2) ALTERNATIVES EVALUATION

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

TABLE 2-1 (2 OF 2) ALTERNATIVES EVALUATION

EVALUATION STEP: SCREENING CRITERIA:	1 – PURPOSE AND NEED		2 – PRACTICABLE TO CONSTRUCT AND OPERATE		3 – UNAVOIDABLE IMPACTS TO WATERS OF THE UNITED STATES			RETAINED FOR FURTHER ANALYSIS IN THE EA
	Does the alternative satisfy Purpose and Need criteria?		Is the alternative practical to construct and operate?		Alternative must demonstrate that impacts to Waters of the United States are minimized in comparison to The Proposed Action and other reasonable alternatives			
PROPOSED ACTION AND ALTERNATIVE	EVALUATION	PASS / FAIL	EVALUATION	PASS / FAIL	EVALUATION ¹	DOES ALTERNATIVE MINIMIZE EFFECTS COMPARED TO OTHER ALTERNATIVES?	PASS / FAIL	
No-Action Alternative	Meet Purpose and Need for project?							
Proposed Action would not be implemented	No	N/A ²	<ul style="list-style-type: none"> ▪ No construction and associated construction costs required to implement alternative ▪ Operational inefficiencies would remain related to inefficient access to Runway 9 end, continued congestion and operational challenges on the commercial apron, and nonstandard fencing along the north perimeter of the airfield 	N/A ²	<ul style="list-style-type: none"> ▪ Would not impact surface waters or wetlands 	Yes	Pass	YES ²

NOTES:

GA – General Aviation

EA – Environmental Assessment

FAA – Federal Aviation Administration

FBO – Fixed Base Operator

¹ Wetland impact areas are approximate, and totals may not add due to rounding. The areas are based on direct project footprint impacts; they do not include areas to be graded and connected actions that would be consistent across alternatives.

² Although the No Action Alternative does not meet the Step 1 and Step 2 screening criteria, the alternative was retained for consideration of environmental consequences pursuant to Title 40 Code of Federal Regulations 1502.14(d).

SOURCES: Ricondo & Associates, Inc., October 2019 (overall analysis); Birkitt Environmental Services, Inc., November 4, 2019 (wetland impacts); Birkitt Environmental Services, Inc., January 13, 2020 (wetland impacts); Birkitt Environmental Services, Inc., March 23, 2020 (wetland impacts).