



U.S. Department
of Transportation
**Federal Aviation
Administration**

Department of Transportation
Federal Aviation Administration
Orlando Airports District Office
Orlando, Florida

FINDING OF NO SIGNIFICANT IMPACT AND RECORD OF DECISION

**Environmental Assessment for
Development of Landside Projects
at the
Fort Lauderdale-Hollywood International Airport**

Fort Lauderdale, Florida

December 13, 2024

CEQ ID No. EAXX-021-12-ARP-1728462571

BACKGROUND: The Fort Lauderdale-Hollywood International Airport (FLL) is owned by Broward County (Sponsor) and operated by the Broward County Aviation Department (BCAD). FLL has an operating certificate under Title 14 Code of Federal Regulation (CFR) Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*, which certifies the airport to allow scheduled air carrier service. FLL is a large-hub commercial service airport serving both domestic and international markets. The airport also supports general aviation services and activities.

The airport is located approximately four miles south of downtown Fort Lauderdale and approximately 1.5 miles west of Port Everglades. The airport is bordered by the cities of Fort Lauderdale, Hollywood, and Dania Beach. The airport's passenger terminal complex, located on the east side of the airfield, presently has four passenger terminals. A fifth passenger terminal, Terminal 5, is under development. Access to the FLL's passenger terminal area is from U.S. Highway 1 (US Hwy 1), U.S. Interstate Highway 595 (I-595), and local roads. Terminal Drive, a two-level, single-direction roadway, provides access to terminal curbsides, three parking garages, and a rental car facility. The upper and lower levels of Terminal Drive support multiple types of commercial and private vehicles in a constrained area within which vehicles weave and merge and pedestrian traffic is present.

The 2020 FLL Master Plan Update identified the need for a series of terminal area improvements to efficiently accommodate existing and forecast passenger demand, while improving the passenger experience at FLL's landside facilities¹, which is expected to continue to deteriorate with forecast growth in passenger activity. The Master Plan Update identified airport improvements necessary to meet current and projected passenger demand and enhance customer service over a planning period through 2035. To meet demand, BCAD proposes several landside development projects to enhance airport access and reduce congestion on terminal area roadways. The proposed landside development projects include an Intermodal Center (IMC), Automated People Mover (APM) Circulator, Palm Garage Redevelopment with Airport Hotel and Commercial Center, Supplemental Roadways and Curbsides, Cypress Garage Expansion, and supporting improvements. These project components are collectively referred to in the Environmental Assessment as the "Landside Projects" or "Proposed Project". The Proposed Project would improve the operational efficiency of, and passenger experience at, the landside access facilities at FLL.

The Proposed Project described in Section 1.2 of the EA represents BCAD's terminal access and parking development plan at FLL. BCAD intends to request federal funding for the APM, and eligible portions of the IMC using Airport Improvement Program (AIP) funds, Bipartisan Infrastructure Law (BIL) funds, and Passenger Facility Charge (PFC) collections. Funding these project elements, as well as FAA's approval for the collection and use of PFC funds, are federal actions that are subject to review under the *National*

¹ The term "landside" commonly refers to an airport's passenger terminal area facilities that are accessible to the general public, before passing through security checkpoints to reach aircraft boarding gates. The Sponsor has not proposed terminal passenger building improvements and use of the term in the EA refers to the area associated with airport terminal access roads, public parking garages, rental car facilities, and related facilities and infrastructure.

Environmental Policy Act (NEPA). For the portions of the projects located on federally acquired or conveyed land, the FAA has ALP approval authority and FAA's unconditional approval of those portions of the FLL Airport Layout Plan is a federal action also subject to NEPA. FAA does not have ALP approval authority for the IMC and portions of the APM, parking garage, and roadway/curbside projects located on Sponsor acquired or leased land. FAA's actions associated with funding and ALP approval are collectively referred to as the "FAA Proposed Action".

An Environmental Assessment (EA) was prepared in accordance with NEPA regulations and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*. Several components of the Proposed Project do not involve Federal action; however, they depend on portions of the project requiring FAA approval in order to be constructed or operated as planned.

This Finding of No Significant Impact (FONSI) and Record of Decision (ROD) provides the FAA's environmental determination, approval, and conditions for agency actions necessary to implement the FAA Proposed Action. This FONSI/ROD is based on information and analyses contained in the November 2024 *Final Environmental Assessment for the Development of Landside Projects at the Fort Lauderdale-Hollywood International Airport*, which is incorporated by reference, and other related documents and materials available to the agency.

PROPOSED PROJECT: BCAD identified the need for a series of passenger terminal area landside improvements to efficiently accommodate existing and forecasted passenger demand, while improving the passenger experience at FLL's landside facilities, which is expected to continue to deteriorate with forecast growth in passenger activity. The Proposed Project would improve operational efficiency of, and passenger experience at, the landside access facilities at FLL. As described in Section 1.2 of the EA, Broward County proposes to construct an IMC and APM, redevelop a parking garage, expand the Rental Car Center, supplement the passenger terminal complex roadways and curbside, and other associated landside improvements at FLL. Construction of the Proposed Project is planned to begin in 2026 and all project components would be operational by 2033. The Proposed Project's major components are described below.

Intermodal Center (IMC) – The IMC will be a multi-modal transportation hub facility that improves access to FLL by different modes of transportation and provides additional parking capacity for the airport. The IMC would be constructed on a 22-acre parcel of land within the US Hwy 1 right-of-way located adjacent to the airport that will be leased from the Florida Department of Transportation. The parcel is within the greenspace bounded by the existing interchange between US Hwy 1 and the terminal entrance/exit roadways. The proposed eight-level, 4.6-million-square-foot facility would provide approximately 6,790 parking spaces, space for buses, a Ground Transportation Center (GTC) for commercial vehicle pickups and drop-offs, a multimodal transfer lobby with concessions and seating, and leasable office space. Access to the airport's passenger terminal buildings and parking garages will be provided by the proposed Automated

People Mover (APM), which will have a station at the IMC. The IMC project also includes modification to sections of US Hwy 1 and I-595 access ramps and roadways to provide access to/from the IMC.

The IMC would also connect to the regional roadway network and provide the ability to connect to other transportation modes developed by other entities. For example, Broward County's proposed Broward Commuter Rail South (BCRS) project would extend commuter rail service along the existing FEC Railway corridor in the southern part of the County, of which a section of the rail line runs alongside FLL. The BCRS project includes a proposed rail station on a section of existing railroad track located adjacent to FLL's landside area. The commuter rail project, if implemented, would construct its own access to the IMC and APM. The evaluation of Cumulative Impacts in the EA considered the proposed BCRS station at FLL.

Automated People Mover - The APM would be a landside airport circulator comprising an elevated dual-track guideway and train system connecting the FLL terminals, airport parking garages, Rental Car Center, and the proposed IMC. The APM would have approximately 16,000 feet of elevated dual-track guideway; five elevated on-airport stations and a sixth station constructed adjacent to the IMC; pedestrian bridges and vertical circulation systems to connect the stations to terminal and parking facilities; a 52,000-square-foot Maintenance and Storage Facility (M&SF); and supporting utility infrastructure improvements, including two power distribution substations.

The APM will be constructed in two phases. The first phase would serve stations between Terminal 2 and Terminal 4, via Terminal 1, the IMC, and future Terminal 5. A sixth station at Terminal 3, with the proposed redevelopment of Palm Garage. At completion, the APM would operate as a bi-directional closed loop system. The project includes installing power substations and additional utility improvements.

Palm Garage Redevelopment with Airport Hotel and Commercial Center – The existing four-level Palm Garage accommodates 2,490 public parking spaces and has a footprint of approximately 250,000 square feet. The project includes demolition of the existing parking structure in phases and redevelopment of the garage on a smaller footprint at the same site. The proposed garage would provide approximately 3,400 to 3,700 parking spaces and a Ground Transportation Center (GTC) for commercial vehicle pickup and drop-off operations. The reduced Palm Garage footprint allows for the construction of a commercial center along the west side of the garage that could support an airport hotel and other commercial space.

Supplemental Roadways and Curbsides – Given the growth in passenger activity and the associated increase vehicle and shuttle bus traffic at the airport on the Terminal Drive and the terminal access roadways, the roadways are projected to operate at failing levels of service. The Sponsor proposes two new at-grade supplemental curb areas to address terminal curbfront capacity deficiencies. The supplemental curb areas would be provided at the lower levels of Terminals 1 and 3. Also proposed is a supplemental

roadway to bypass traffic congestion at the terminals. These improvements would improve the level of service on the roads serving the airport terminals.

Cypress Garage Expansion - The existing Cypress Garage is a nine-level facility that includes FLL's Rental Car Center (levels 1 through 5) and public parking (levels 6 through 9). The Proposed Project would expand the Cypress Garage footprint by approximately 90,000 square feet to add additional area for the Rental Car Center, which is undersized to meet current demand. Each level of the expansion would be built to the same elevation as the corresponding level in the existing Cypress Garage to maintain internal vehicle circulation connectivity. Access to the expanded portion of the Cypress Garage would use the existing access ramp from the departures level roadway located in the northeast corner of the garage on level 3. Customers renting vehicles exit the facility via a helix at the southwest corner of the garage and exit to Terminal Drive.

REQUESTED FEDERAL ACTIONS: The requested Federal actions associated with the Airport Sponsor's Proposed Project include the following:

- Unconditional approval of those portions of the FLL Airport Layout Plan that depict the Proposed Project components, or portions thereof, for which FAA has ALP approval authority pursuant to 49 United States Code (U.S.C.) Sections 40103(b), 44718, and 47107(a)(16), and Title 14 CFR Parts 77 and 139.
- Determinations under 49 USC §§ 47106 and 47107 that are associated with the eligibility of proposed project components for federal funding under the Airport Improvement Program and determinations for federal funding under the Bipartisan Infrastructure Law.
- Determinations under 49 U.S.C. § 40117, as implemented by 14 CFR 158.25, to impose and use passenger facility charges collected at the Airport for project components that are eligible for Passenger Facility Charge funding.

PURPOSE AND NEED: Section 1.4 of the EA describes the purpose of and need for the Proposed Project. BCAD identified the need to improve the operational efficiency of, and passenger experience at, the landside access facilities at FLL, as follows:

- Segments of Terminal Drive and the terminal entrance/exit roadways are projected to operate at failing levels of service.
- The configuration of landside facilities results in operational inefficiencies and traffic congestion.
- Landside facilities do not provide sufficient and conveniently located parking to meet existing and forecast demand.
- Regional plans to reduce traffic congestion and improve accessibility and mobility in the region include multi-modal connections to FLL.

The Proposed Project would improve landside access options and facilities that would enhance the overall passenger travel experience at FLL for existing and forecasted

passenger activity levels and parking demands, while reducing congestion along the terminal roadways.

ALTERNATIVES: Chapter 2 of the EA evaluated alternatives to the Proposed Project, including the No-Action Alternative.² The EA considered a reasonable range of alternatives that are technically and economically feasible. As discussed in Section 2.1 of the EA, potential alternatives were organized by general location, including:

- 1) Potential alternatives adjacent to the passenger terminal complex,
- 2) Potential alternatives within the passenger terminal complex,
- 3) Potential alternatives on airport property, outside of the passenger terminal complex, and
- 4) Potential alternatives off airport property.

The initial alternatives screening process identified five alternatives, including the Proposed Project site, as being technically and economically feasible. These alternatives were carried forward and were further evaluated for their ability to meet the purpose of and need for the Proposed Project. The alternatives were evaluated to determine if they would accommodate forecasted parking demand, would improve the configuration of the terminal roadways and curbfront, would reduce traffic volumes along the terminal roadway, would improve the landside passenger access experience, and would meet the local objective of establishing a multimodal facility at FLL. The No-Action Alternative was also evaluated. A summary of the alternatives analysis is provided in Table 2.3 of the EA.

Alternative 1.1 – BCAD’s Proposed Project. Alternative 1.1, the Sponsor’s Proposed Project would develop the IMC adjacent to the passenger terminal complex, within the US-1 interchange ROW, as described in Section 1.2 of the EA. This alternative is considered technically and economically feasible. Further evaluation found the alternative would accommodate the forecasted parking demand; would improve the configuration of the terminal roadways and curbfront; would reduce traffic volumes along the terminal roadway; would improve the landside passenger access experience; would meet local objectives of establishing a multimodal facility at FLL; and would support BCAD’s goal to increase generation of nonaeronautical revenues. Alternative 1-1 is the Sponsor’s Preferred Alternative as it is the only technically and economically feasible alternative that meets all of the objectives of the Proposed Project. *The alternative was retained for further evaluation in the EA.*

Alternative 1.2 – Site East of the Terminals with Busing (No APM). As an alternative to constructing an APM, BCAD could operate the IMC at the ROW of the US-1 interchange site and transport passengers and employees between the IMC and terminals via shuttle bus. This alternative is considered technically and economically feasible. Further

² In the EA, the Airport Sponsor evaluated alternatives to the Proposed Project that include project components for which FAA may not have approval authority. However, FAA will only render environmental determinations and issue a decision on those components identified in the EA that comprise the FAA Proposed Action.

evaluation found the alternative would accommodate the forecasted parking demand; would improve the configuration of the terminal roadways and curbfront; would reduce traffic volumes along the terminal roadway; would meet the local objective of establishing a multimodal facility at FLL; and would support BCAD's goal to increase generation of nonaeronautical revenues. However, it would not meet all criteria for improving the landside passenger access experience. Without the APM, passengers needing access between the Cypress Garage (for public parking or the Rental Car Center) and the passenger terminals would need to take a secondary trip along the terminal roadways via shuttle bus to transfer between Cypress Garage and the terminals. Although other criteria would be met, this alternative would be inconvenient and inefficient, and thus would not improve the overall landside access experience for some passengers. *The alternative was eliminated from further consideration.*

Alternative 2.1 – Redevelop Cypress Garage as an Intermodal Center. Alternative 2.1 would demolish the Cypress Garage and construct the IMC at the site. This alternative would require the operation of a shuttle bus system to connect the IMC and terminals. The alternative would also displace the Rental Car Center and employee parking, which would be relocated to a parcel of land located at the northeast corner of Eller Drive and US-1 (referred to as the "Dynergy site"). This alternative is considered technically and economically feasible. Further evaluation found the alternative would accommodate the forecasted parking demand; would improve the configuration of the terminal roadways and curbfront; would reduce traffic volumes along the terminal roadway; and would support BCAD's goal to increase generation of nonaeronautical revenues. However, the alternative would not meet all criteria for improving the landside passenger access experience and would not meet the local objective of establishing a multimodal facility at FLL. *The alternative was eliminated from further consideration.*

Alternative 3.1 – Develop the IMC at the Dynergy Site. The 18.8-acre Dynergy site, located adjacent to the US Hwy 1 corridor, could support future regional multimodal connections, including light rail connections to the cruise ship port, the Broward County Convention Center, and downtown Fort Lauderdale. Developing this site for the IMC would require entrance/exit roadway improvements to provide access to/from FLL and US Hwy 1. Constructing an APM that connecting the IMC at this site to FLL's passenger terminals and parking facilities is not feasible. This would require that passengers and employees be transported to and from the IMC and terminal facilities by shuttle buses. Shuttle buses would also transport people to/from the Cypress Garage location and passenger terminals.

Alternative 3.1 is considered technically and economically feasible. Further evaluation found the alternative would accommodate the forecasted parking demand; would improve the configuration of the terminal roadways and curbfront; would reduce traffic volumes along the terminal roadway to some extent; and it would support BCAD's goal to increase generation of nonaeronautical revenues. However, it would not meet all criteria for improving the landside passenger access experience and it would not meet the local objective of establishing a multimodal facility at FLL. Because APM access to

the site is not possible and would require use of shuttle buses to get to the airport, this alternative would not improve the landside passenger access experience. *The alternative was eliminated from further consideration.*

Alternative 3.2 – Griffin Road Site. The Griffin Road site is in alignment with transit along the US-1 corridor; however, it is not conveniently positioned to serve a light rail connection to the cruise port, the convention center, and downtown Fort Lauderdale, which all are north of the Airport. The alternative would provide public and employee parking, with transport between the Griffin Road site and the terminals via shuttle bus. Similar to the Alternative 3.1, the ability to construct an APM between the Griffin Road site and the terminals is not technically feasible. The alternative would reduce some traffic on the terminal roadways and curbside, but it would require the continuation of shuttle bus operations on the terminal roadways and curbside. Shuttle bus operations on the terminal roadways and curbside would also be required to transport rental car patrons and public parkers between the Cypress Garage location and the terminals.

Alternative 3.2 is considered technically and economically feasible. Further evaluation found the alternative would accommodate the forecasted parking demand; would improve the configuration of the terminal roadways and curbside; would reduce traffic volumes along the terminal roadway to some extent; and it would support BCAD's goal to increase generation of nonaeronautical revenues. However, it would not meet all criteria for improving the landside passenger access experience and it would not meet the local objective of establishing a multimodal facility at FLL. Because APM access to the site is not possible and would require use of shuttle buses to get to the airport, this alternative would not improve the landside passenger access experience. *The alternative was eliminated from further consideration.*

No-Action Alternative - Under the No Action Alternative, the Proposed Project would not be implemented. BCAD would continue to operate and maintain the existing terminal access roadway system, public parking and rental car facilities, and related infrastructure. Additionally, without the proposed improvements to landside transportation, BCAD would not have opportunities for commercial development that generates nonaeronautical revenues to support Airport operating expenses. All ground access modes would rely on use of the terminal roadways, with some access modes involving two modal trips on the terminal roadways (that is, for example, a trip in a personal or rental vehicle using the terminal roadways between a local off-Airport destination and the Cypress Garage and a shuttle bus trip between the Cypress Garage and the curbside).

The No-Action Alternative would not implement any of the Landside Development Projects and does not meet the purpose of and need for the proposed improvements. However, it was retained in the EA for comparison purposes to comply with CEQ regulations.

ENVIRONMENTAL IMPACTS: The No-Action Alternative and FAA Proposed Action were evaluated for potential impacts on the environmental resource categories identified in FAA Order 1050.1F. The Affected Environment and Environmental Consequences section of the EA (Chapters 3) provides a description of existing conditions and an analysis of direct, indirect, and cumulative impacts.

The environmental effects of the FAA's Proposed Action and the Airport Sponsor's Proposed Project were evaluated in the EA. Under the No Action Alternative, the Proposed Project would not be implemented, and the environmental impacts associated with FAA's Proposed Action would not occur. Under the No Action Alternative, the existing landside terminal facilities, with routine maintenance and updates, would continue to operate and provide access to FLL's passenger terminals; however, at declining rates of efficiency and customer satisfaction.

As discussed in the EA, the Proposed Project is needed to improve the operational efficiency of, and passenger experience at, the landside access facilities at FLL. The Proposed Project and FAA's Proposed Action would not result in a change in aircraft operations at the airport and would not induce growth in passenger levels or vehicle trips at FLL.

Environmental resource categories not affected by the FAA Proposed Action include Farmlands and Wild and Scenic Rivers. These resources were considered, but were not subject to detailed evaluation in the EA.

Air Quality – Construction associated with the Proposed Project is scheduled to begin in 2026 and be completed in 2032. During this period, the different phases of construction projects and activities would generate varying levels of air emissions. Construction emissions would primarily be generated by equipment and vehicle exhaust, as well as fugitive dust during excavation and grading activities. The estimated annual construction emissions inventory for the Proposed Project are provided in Table 3-2 and Figure 3-1 in the EA. Estimated annual construction emissions for each project element and phase are provided in Appendix B. Overall, annual construction air emissions would be highest during site preparation work for the IMC and APM. Construction emissions associated with the IMC and first phase of the APM continue into 2028 and 2029, at decreasing levels during this period. Construction emissions reach their lowest levels in 2029 with the completion of the IMC. Emissions increase again in 2030 with the construction of the Palm Garage Redevelopment, supplemental roadways and curbsides, Cypress Garage Expansion, and the completion of the APM. From 2030 to 2032, construction-related air emissions levels would decrease substantially. The EA also notes typical measures and best practices that can be taken by contractors to reduce air emissions during construction.

After construction is completed, the Proposed Project would not induce growth in passengers or vehicle trips at FLL. The Proposed Project is expected to improve access to the airport by private vehicles, local bus systems, taxis, and shared rides and also

improve access to parking facilities. When compared to the No-Action Alternative, the Proposed Project will reduce traffic congestion and idling on the terminal access roadways and curbsides, which would reduce vehicle air emissions.

The FLL is located in an area classified as Attainment for all criteria air pollutants, and there is no State Implementation Plan or numeric significance threshold applicable to the Proposed Project. Though not applicable, annual emissions from construction activity associated with the FAA's Proposed Action and the Proposed Project fall below General Conformity Rule *de minimis* thresholds for each criteria pollutant (see Appendix B). Even if *de minimis* thresholds were in place for Broward County, the anticipated air emissions would not exceed thresholds indicating a significant impact.

Based on the information and analyses in the EA, the Proposed Project would not have a significant impact on air quality.

Biological Resources (including Fish, Wildlife, and Plants) – The parking garage improvements, roadway/curbside improvements, and a majority of the APM would be constructed on developed land within the airport's passenger terminal area. The IMC and a portion of the APM would be constructed within a section of the adjacent US Hwy 1 right-of-way (ROW). Habitat within these areas primarily consists of landscaping and maintained grass areas associated with ditches, swales, and stormwater management areas. A 34-acre mangrove wetland is located east of US Hwy 1 and NE 7th Avenue. The mangrove wetland area is bounded by US Hwy 1 and NE 7th Avenue and a power transmission line maintenance access road. This mangrove wetland area also receives treated stormwater from the adjacent section of US Hwy 1 and NE 7th Avenue via a single 48-inch outfall pipe and three smaller outfall pipes. Stormwater flows through this mangrove wetland area into a FDOT drainage channel via seven existing culverts under the powerline maintenance access road. The FDOT drainage channel flows south, ultimately discharging into the Dania Cut-Off Canal.

Natural Habitat Impacts – The IMC is proposed to be developed within the US Hwy 1 interchange loop serving FLL that presently functions as a stormwater detention basin and discharges treated stormwater into the mangrove wetland area east of US Hwy 1. The Proposed Project would require modifications to this stormwater management system and drainage infrastructure in this area. After construction of the IMC is completed, the mangrove area would continue to receive stormwater discharged from the US Hwy 1 drainage system, with additional minor periodic increases. Prior to stormwater entering the mangrove wetland, it would continue to be treated in accordance with state water quality standards. Stormwater would flow through the mangrove wetland area and would discharge into the canal system without adversely impacting water quality (e.g., temperature, salinity, nutrient loads).

Tidal connectivity between the mangrove wetlands and the nearby Dania Cut-Off Canal will be maintained and the Proposed Project includes upsizing the seven culvert drainage outfall pipes located under the power line maintenance road. Natural habitat impacts

associated with the Proposed Project would be associated with replacing and upgrading the culvert drainage pipes. Each existing culvert pipe has grates and similar grates will be installed on the upgraded culvert pipes. In total, replacing the seven culverts would affect approximately 0.22 acre of mangrove wetland habitat (total). The mangrove habitat impacts would be temporary, and mitigation will be provided (see discussion below on Essential Fish habitat for more information).

Wildlife and Protected Species – The EA considered impacts to wildlife species in the study area, including wildlife species associated with the mangrove swamp area. A Biological Assessment was prepared to evaluate the effects of the Proposed Project on federally protected species and critical habitat. In accordance with the Section 7 of the *Endangered Species Act*, FAA consulted with the US Fish and Wildlife Service (USFWS) and the National Oceanic and Marine Administration's National Marine Fisheries Service (NMFS) on the effects of the Proposed Project on federally-listed species. It was determined the Proposed Project "May Affect, Not Likely to Adversely Affect" the Florida Bonneted Bat and the Wood Stork. It was also determined that Proposed Project would have "No Effect" on the West Indian Manatee, American Crocodile, American Alligator, Loggerhead Sea Turtle, Green Sea Turtle, Hawksbill Sea Turtle, and Leatherback Sea Turtle.

Essential Fish Habitat – As noted above, it is estimated that replacing the seven culverts will affect approximately 0.22 acre of mangrove habitat. The affected area is identified as Essential Fish Habitat (EFH) and Habitat Area of Particular Concern (HAPC) for several species. The Sponsor and their contractors will use industry standard best management practices to minimize impacts to adjacent mangroves during the replacement of culvert pipes. Detailed minimization and mitigation plans will be developed during the project's design and permitting process. Common practices to minimize habitat and water quality impacts during construction include, but may not be limited to, installing floating and/or staked turbidity barriers and silt fences. Although the affected areas will likely revegetate naturally after the work is completed and pre-construction elevations are restored. To hasten recovery and minimize the temporal loss of ecosystem services, required mitigation for EFH impacts will include planting mangroves within affected areas of the mangrove wetland at appropriate elevations after construction. With the proposed mitigation, the NMFS concurred with FAA's opinion there would be no adverse effects on EFH and the NMFS has no EFH conservation recommendations for the proposed culvert replacements.

In regard to EFH mitigation, the Airport Sponsor is required to coordinate preliminary and final mitigation design plans for the replacement of the seven culverts with both FAA and NMFS. This coordination will be conducted during the preparation of required federal and/or state environmental permit applications. The FAA will be the Airport Sponsor's point of contact for coordinating the mitigation plans with the NMFS.

Based on the information and analyses in the EA, agency consultations, and required mitigation, the FAA's Proposed Action and the Proposed Project would not have a significant impact on biological resources.

Climate – The EA noted the transportation objectives in Broward County's 2020 Climate Change Action Plan. Among other goals, the County's plan seeks to reduce transportation emissions by two percent each year. A key transportation objective is to increase trips made by public transit by prioritizing intermodal centers, mobility hubs, and stations.

Operational GHG Emissions - The Proposed Project would not increase aircraft operations at the airport and would not induce growth in passenger levels or surface traffic at or in the vicinity of the airport that would increase GHG emissions from these sources, when compared to the No-Action Alternative. The Proposed Project would develop an Intermodal Center at FLL that would improve access to the airport and improve connections with other forms of transportation. The APM, parking improvements, and terminal roadway improvements would also reduce surface traffic GHG emissions at FLL. Therefore, the Proposed Project would align with local objectives to reduce GHG emissions and would not result in additional climate impacts in the EA's study years 2033 or 2038.

Construction GHG Emissions – Construction activities associated with the Proposed Project is anticipated to begin in 2026 and be complete in 2030. Estimated emissions were calculated for each year during the planned construction period based on the anticipated construction phasing plan. The first year of construction (2026) represents the highest level of GHG emissions associated with the start of site preparation work for the IMC and APM. Construction emissions continue into 2028 and 2029 at lower levels, reaching lowest levels in 2029. Emissions increase again in 2030 due to the Palm Garage Redevelopment along with the supplemental roadways and curbsides, Cypress Garage Expansion, and completion of the APM. After 2030, GHG emissions levels reduce substantially due to completion of the APM and IMC. The social cost of the entire construction phase GHG emissions was estimated to be \$6 million. After construction is completed, it is anticipated that the Proposed Project would reduce GHG emissions at FLL.

Based on the information and analyses in the EA, FAA's Proposed Action and the Proposed Project would not significantly impact climate.

Coastal Resources – The Proposed Project includes construction activities on approximately 112.7 acres of land within the State of Florida's coastal zone. Almost all of the land disturbance would take place in upland areas previously developed for transportation and related infrastructure. Direct impacts to coastal resources are limited to approximately 0.22 acre of temporary impacts in a mangrove wetland area that currently receives stormwater from the adjacent US Hwy 1 drainage system. Impacts to this mangrove wetland area would be limited to the replacement of seven existing culverts located under an existing powerline maintenance access road. Mitigation would be

provided for this impact. The mangrove wetland area would continue to receive treated stormwater from the US Hwy 1 drainage system through the existing drainage system.

Consultation with the Florida State Clearinghouse and an evaluation of applicable Florida state statutes was documented in the EA. The Proposed Project was determined to be consistent with the FCMP; however, the state's final consistency determination will be made during the project's environmental permitting process. Based on the analyses contained in the EA and the State of Florida's consistency review, the FAA Proposed Action and overall Proposed Project would not have a significant impact on coastal resources.

DOT Act, Section 4(f) Resources – The EA did not identify any publicly owned parks, recreation areas, historic sites, or wildlife and waterfowl refuge of national, state, or local significance that would be directly affected by the Proposed Project. The nearest public recreation area is the West Lake Park, which is located approximately 1.8 miles from the EA's Direct Effect's study area. One potential nearby resource is a conservation area located east of the mangrove wetland area that receives runoff from US Hwy 1. The conservation area is owned by the Broward County and is managed as a nature preserve. This conservation area is separated from the Proposed Project site by the powerline access road and a canal. The EA considered potential impacts and determined that construction phase impacts, potentially involving water quality, are anticipated to be minimal and temporary. Also, there would be no use or conversion of the conservation land. The FAA Proposed Action and overall Proposed Project would not have any significant impacts on Section 4(f) resources.

Hazardous Materials, Solid Waste, and Pollution Prevention – An environmental database search identified five on-airport RCRA sites within, or directly adjacent to, the proposed development area that are permitted as generators of hazardous wastes and one toxic release inventory (TRI) site. No National Priority List (NPL) sites are located in or adjacent to the proposed development area. State database searches identified two institutional control and two cleanup sites within the proposed development area. Four of the sites are located within the airport property boundary while one is located along Northeast 7th Avenue. These consist primarily of contaminated groundwater and soil with the heavily trafficked transportation corridor.

During construction, soils contaminated with petroleum at three on-airport sites and two cleanup sites may be disturbed. No soil or groundwater contamination is anticipated to be encountered at the IMC development site. Contaminated soil and groundwater encountered during design and/or construction will be contained, handled, and disposed of in accordance with applicable federal, state, and county regulations. A temporary increase in the use of hazardous materials and waste generation would occur during construction. These materials will also be handled in accordance with local, state, and federal laws and regulations, as well as common Best Management Practices, to minimize the chance for spills or release. During construction, construction material wastes and solid wastes will be recycled.

Based on the analysis in the EA, and availability of recycling programs, FAA's Proposed Action and the Proposed Project would not have significant impacts related to hazardous materials, solid wastes, and pollution.

Historical, Architectural, Archeological and Cultural Resources – Portions of FLL and the adjoining highway right-of-way have been previously studied for past development projects. In particular, a Cultural Resource Assessment Survey (CRAS) was conducted for an FDOT Project Development & Environmental (PD&E) Study conducted in 2009 for the IMC and APM. The CRAS study area encompassed almost the entirety of the current Proposed Project site and did not identify any effects on historic properties or cultural resources.

A review of the Florida Master Site File, conducted for the current EA, did not identify any newly recorded archaeological sites or historic resources within the Area of Potential Effects (APE). The APE does not contain any buildings or structures over 50 years old and the only area with mostly intact soils is the mangrove wetland area that currently receives stormwater discharge from US Highway 1. Other than the electric power line maintenance road, there are no structures or development in the mangrove wetland area.

Pursuant to Section 106 of the *National Historic Preservation Act*, consultation was initiated with the Florida State Historic Preservation Officer (SHPO), the Seminole Tribe of Florida, and the Seminole Nation of Oklahoma. Based on research conducted for the Proposed Project and past studies, the SHPO concurred with FAA's determination the proposed undertaking would have no effect on historic properties. The Seminole Tribe of Florida (STOF) requested copies of the maps referenced in FAA's consultation letter and information package. The STOF stated they had no objections or comments on the Proposed Project. FAA provided the requested copies of the maps to the STOF.

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

Land Use – The Proposed Project would not conflict with existing or future land use plans and zoning ordinances. The Proposed Project would not cause significant impacts, divide, or disrupt communities, or otherwise alter land use patterns or development near the airport. Based on the analysis in the EA, the FAA Proposed Action and overall Proposed Project would not result in a significant impact on land use near the airport.

Natural Resources and Energy Supply – The construction and operation of the Proposed Project components would use common materials and resources that are available locally. The primary natural resources utilized during construction include water, aggregate, asphalt, concrete, and fill material. It is not anticipated that any of the resources required for construction would be considered unusual, scarce, or in short supply.

The temporary increase in the use of electricity, other utility services, and fuel at FLL during the construction period, would be relatively minor overall and have no effect on

local energy supplies or fuel reserves. When the facilities become operational, there would be a modest increase in demand for electricity use at FLL associated with the APM, IMC, Palm Garage Redevelopment, and Cypress Garage Expansion. BCAD has an ongoing an Energy Master Plan and is assessing energy needs for all of the Proposed Project elements to identify needs. BCAD will also incorporate solar / alternative energy into the IMC design to minimize electric power consumption, to the greatest extent practical. It is anticipated that the Proposed Project would not have a significant impact on energy supplies. The Proposed Project is anticipated to reduce vehicle congestion at FLL and promote multi-modal access to the airport.

Based on the analysis in the EA, the FAA Proposed Action and overall Proposed Development Project would not have a significant impact on natural resource or energy supplies.

Noise and Noise-Compatible Land Use – The FAA Proposed Action and the Proposed Project would not result in an increase in aircraft operations and passengers at FLL or change aircraft types or flight patterns. No change in aircraft noise would occur and an aircraft noise analysis was not prepared for the EA.

Construction activities would result in a temporary increase in noise levels in the immediate vicinity of work areas at FLL, US Hwy 1, and the airport's terminal access roadways. The nearest residential areas are located approximately 0.7 mile to the south of the Proposed Project and are outside of the EA's General Study Area. The greatest increase in construction-related noise would occur during site preparation, grading, and paving operations. It is anticipated the operation of the anticipated noisiest equipment (e.g., pile driving equipment) would be limited and infrequent. The residential areas are also separated from the Proposed Project by Runway 10R-28L and other transportation infrastructure. Temporary and intermittent construction noise from the Proposed Project is unlikely to be distinguishable from surface traffic on US Hwy 1 and daily aircraft operations at FLL.

The Proposed Project, including the APM, would reduce vehicle noise and congestion in the terminal area. The IMC, when operational, is not expected to create traffic noise above ambient noise levels and would not be noticeable in any residential areas.

Based on the analysis in the EA, the FAA Proposed Action and overall Proposed Project would not have a significant noise impact.

Socioeconomics, Environmental Justice, And Children's Environmental Health and Safety Risks – The FAA Proposed Action and Proposed Project would not result in a shift in population or increase in local housing demand. The Proposed Project would not affect any schools, daycare facilities, parks, or children's health clinics. Because the project would not have significant impacts, disproportionately high and adverse environmental effects on minority and low-income populations would not occur. The Proposed Project would also result in some employment growth at FLL and would likely provide employment opportunities and economic benefit to the area. Based on the analysis in the EA, the FAA

Proposed Action and overall Proposed Project would not result in any significant socioeconomic, Environmental Justice, and children's health and safety risk impacts.

Surface Transportation – The County would lease a parcel of land located within the US Hwy 1 ROW to construct the IMC. The IMC and APM would ultimately link multiple modes of transportation and transit infrastructure to improve local and regional mobility.

The Proposed Project would result in a temporary increase in local surface traffic during the construction phase. The type, amount, and timing of construction-related traffic would vary during the construction phase and is not expected to affect local traffic or cause increased congestion at FLL. In addition, construction traffic would use the major highway corridors and not local streets in residential areas.

Access to FLL's passenger terminal area is provided from adjacent sections of US Hwy 1, I-595, and local roadways. These access roads connect to the on-airport terminal access roads, which provide circulation in the terminal area, access to the parking garages, and access to the terminal curbside for passenger drop-offs and pick-ups. Existing traffic volumes on these roadways are high, as they serve a densely developed urban area. Current Level of Service (LOS) ratings for the road segments within the study area range from A (Excellent) to D (Fair). The terminal area access roads on the Airport operate at LOS B (upper curbside) and LOS D (lower curbside). It is anticipated that traffic volumes on adjacent roads, and at FLL, will continue to increase and the LOS on the road segments will decline over time, even if the Proposed Project is not implemented.

The Proposed Project includes modifications to on- and off-airport roadway segments to provide access to/from the proposed IMC and existing passenger terminals; reduce congestion and improve vehicle access to passenger terminal curbside; and improve access to FLL's parking garages. While the Proposed Project is anticipated to alleviate congestion within terminal area roadways and curbside without increasing traffic volumes on off-airport road segments, traffic projections indicate that five airport access road and ramp segments on US Hwy 1 and I-595 will operate at LOS D or below by 2035, regardless of the Proposed Project being implemented. The Florida Department of Transportation (FDOT) is conducting a separate study to determine future improvements for these road segments.

The EA notes there are a number of additional studies and projects being evaluated and developed in support of improved regional transportation, of which the IMC is a key element. Ongoing studies include a potential north-south corridor east of FLL for multi-modal connections across the region and the proposed Broward Commuter Rail South, which is anticipated to extend commuter rail service along the FEC Railway corridor running alongside FLL (including a station at FLL). Future studies also include a potential light rail connection between FLL, the Port Everglades cruise port, and the Broward County Convention Center, and a future extension to downtown Fort Lauderdale. The cumulative impacts of these potential future projects were considered in the EA.

The Proposed Project is not expected to increase traffic at FLL and would alleviate current and predicted future traffic congestion in the passenger terminal area and improve access to the airport. Based on the analysis in the EA, the FAA Proposed Action and overall Proposed Project would not result in any significant surface traffic impacts.

Visual Effects Including Light Emissions – The Proposed Project includes new and improved structures and roadways on FLL property and within the adjacent US Hwy 1 ROW. Light emissions would result from both construction and operation of the Proposed Project. During construction, nighttime lighting would be limited to the work areas and would be placed as to not create a source of glare for drivers. The nearest residential development area is approximately 0.7 mile south of the project site. Given the project's setting, no noticeable or annoying construction phase light emissions would be introduced to residential communities, historic properties, or scenic resources.

After construction is completed, lighting along Terminal Drive and curbsfronts would be consistent with current lighting in the terminal area. The potential new hotel in the redeveloped Palm Garage and expanded Cypress Garage may introduce additional light sources. However, these proposed facilities are located in an area that is already densely lit and surrounded by terminal buildings. No residential communities, historic properties, or scenic resources would be affected by lighting or glare from the terminal area. The elevated IMC and APM would introduce new light sources, some of which would be visible from surrounding roadways, but would be designed to not introduce glare.

BCAD is also considering aesthetics for the proposed IMC and will consider design elements that complement and enhance the airport and serve as a welcoming gateway to FLL. The IMC and APM would not degrade the visual character of the surrounding area.

Based on the analysis in the EA, the FAA Proposed Action and Proposed Project would not have any significant visual or lighting impacts.

Water Resources (including Wetlands, Floodplains, Surface Waters, and Groundwater)

Wetlands – Database searches and field surveys identified two wetlands within the Direct Effects study area (DSA). One wetland is a 3.91-acre freshwater forested/shrub wetland located approximately 1,300 feet north of the proposed IMC location. The other wetland is a 34-acre mangrove wetland east of FLL, which is bounded by US Hwy 1 and Northeast 7th Avenue ROWs and a power transmission line maintenance access road. This wetland contains medium quality mangrove and buttonwood wetlands. The wetland also serves as the receiving body for treated stormwater from the adjacent section of US Hwy 1, on which the IMC is proposed to be developed.

The Proposed Project would have a minor and temporary affect the mangrove wetland area east of FLL. Construction within this mangrove wetland area would be limited to replacing seven existing culvert pipes located under an existing electric power transmission line maintenance access road. This would temporarily impact approximately

0.22 acres (total) within the wetland. The Proposed Project would not reduce the amount of wetlands in this area. Project design and implementing common Best Management Plans during construction will minimize impacts to water quality, vegetation, and substrate at each culvert location. Habitat impacts would be minor and temporary. Mitigation will be provided for the potential temporary loss of mangrove plants and other vegetation. Although the mangroves and other vegetation would naturally re-establish over time, required mitigation for effects on Essential Fish Habitat within the wetland will include planting mangroves at each at each culvert site after the culvert replacements are completed (see prior discussion on Biological Resources). After the Proposed Project is completed, the mangrove wetland area would remain in place and continue to function as natural wetland habitat and as an attenuation area for treated stormwater from a section of the US Hwy 1 drainage system in wet conditions.

Based on the analysis in the EA, the FAA Proposed Action and overall Proposed Project would not result in any significant wetland impacts.

Floodplains – Based on a review of FEMA floodplain maps, portions of the Proposed Project are located within areas where there is a one percent annual chance of a flood (i.e., 100-year floodplain). The other portions of the Proposed Project are located within areas where there is a 0.2 percent chance of flood hazard. The airport also has areas of minimal/moderate flood hazard zones that could be affected by severe, concentrated rainfall coupled with inadequate local drainage systems.

Potential impacts to the natural and beneficial values of the floodplain in the Proposed Project area would be minimized to the greatest extent practicable. The Proposed Project would not impact any agricultural or aquacultural activities. The Proposed Project would not create any permanent human-inhabited areas or other critical assets that would increase the risk of loss of human life in the event of a 100-year flood event. The design of structures will consider minimizing potential damage from elevated floodwater or significant storm surge. Planning and design for each project component will account for local conditions, minimize floodplain encroachment, conform with applicable state and local floodplain management programs, and comply with Broward County's land development codes.

The Proposed Project is not anticipated to create new or worsen existing flood hazard conditions or increase flood risks. In accordance with state and local requirements, the Proposed Project's design phase will identify and incorporate stormwater management systems and improvements within the existing US Hwy 1 drainage system to mitigate potential flood risks and increase flood resilience. The Proposed Project is not expected to: 1) have a high probability of loss of human life, 2) have substantial encroachment-related costs or damage and would not cause interruption of aircraft service or loss of a vital transportation facility, and 3) have an adverse impact on natural and beneficial floodplain values.

Based on the analysis in the EA, the FAA Proposed Action and overall Proposed Project would not result in any significant floodplain impacts.

Surface Waters and Groundwater – The Proposed Project development areas include impoundment and conveyance structures for stormwater detention, flow, and treatment. Coastal waters that are designated as impaired waters are located near the project area; however, these water bodies will not be affected by the Proposed Project. There are no private or public water supply wells within the GSA. The Proposed Project is not within a Floridian Aquifer Protection Zone or Wellfield Protection Zone.

A majority of construction activities will take place on previously developed airport and highway land and would not impact surface waters. Construction-related impacts in the mangrove wetland area involve the replacement of seven drainage culvert pipes located under a power line maintenance access road (see discussions in Biological Resources and Wetlands). The replacement of the culverts would employ measures to protect water quality and control siltation and sedimentation. The existing release of treated stormwater from the stormwater basin in the US Hwy 1 ROW will continue and preliminary modeling and analysis indicates there would be only a minor increase in periodic discharge quantity within the area and that there would be no significant impact to water quality in the mangrove wetland.

During construction, areas within the project site may require dewatering, which could encounter groundwater contamination from four sites located on airport property. In the event contaminated groundwater is encountered during design and/or construction, BCAD would implement preventative and remedial measures in accordance with applicable federal, state and county regulations. Best Management Practices would also be implemented to reduce the potential for release of contaminants during construction. It is anticipated that the Proposed Project would not adversely affect groundwater.

Commonly accepted measures to minimize erosion and sedimentation to maintain water quality during construction are available and would be required in the project's construction plans and specifications. Measures outlined in FAA Advisory Circular 150/5370.10H, *Standards for Specifying the Construction of Airports*, would also be incorporated into the plans to minimize the potential for water quality impacts. National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges will be required for construction activities and new impervious surfaces associated with operation of the expanded air cargo facility. Given the measures available to prevent pollutants in stormwater runoff, the construction and operation of the FAA Proposed Action and overall Proposed Project is not anticipated to have a significant impact on surface waters or groundwater.

Cumulative Impacts – Past, present, and future projects in the vicinity of the Proposed Project have generated or are anticipated to generate low to moderate levels of environmental impact. The projects are subject to environmental regulatory programs, some of which may require mitigation to reduce impacts below levels considered

significant. The impacts associated with FAA's Proposed Action and the Proposed Project, when considered in addition to other cumulative projects, are not expected to exceed thresholds that would indicate a significant impact.

OTHER FEDERAL, STATE, AND LOCAL ACTIONS AND PERMITS:

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

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

CONSISTENCY WITH APPROVED PLANS OR LAWS: The FAA Proposed Action and the Proposed Project are consistent with local plans and ordinances, as well as applicable plans, laws, and administrative environmental determinations of federal, state, and local agencies. Federal, state, and local agencies (including planning agencies) were notified of the Proposed Project during early agency coordination conducted for the EA. No objections or concerns regarding consistency with plans or laws were raised.

MITIGATION: Mitigation measures necessary to minimize or offset potential impacts are discussed in the EA. Required mitigation for unavoidable impacts are summarized below.

Essential Fish Habitat: To foster re-establishment of approximately 0.22 acre of impacts to EFH habitat and offset time-lag associated with regrowth, BCAD will develop and coordinate a mitigation plan with National Marine Fisheries Service and the FAA during the Proposed Project's design and permitting process. Proposed mitigation includes planting mangroves at appropriate elevations at each culvert replacement area within the mangrove wetland located east of FLL and US Hwy 1.

Floodplain Impacts: Floodplain encroachment would be mitigated by development of adequately designed stormwater management features within the existing US Hwy 1 drainage system so as to not decrease floodplain capacity or change floodwater flow. The IMC will be designed to retain floodplain capacity minimize impacts to the floodplain and accommodate on-site stormwater retention and treatment.

PUBLIC INVOLVEMENT: Notifications and early coordination letters were sent to several federal, state, and local agencies, and local government officials to inform them of the Proposed Project and preparation of the EA.

A Notice of Availability of the Draft EA and a Public Workshop was posted on BCAD's website and published in a newspaper of local circulation on July 22, 2024. The public notices were provided in English and Spanish languages. Copies of the Draft EA were available for review and download on BCAD's website and printed copies were also available at three local public libraries. The Public Workshop for the Draft EA was held on August 27, 2024. Approximately 35 people attended the Workshop. Those who attended the Workshop were primarily contractors and consultants interested in finding out more information on the Proposed Project. No issues, concerns, or objections were raised by the Workshop attendees or persons that submitted written comments.

The Draft EA comment period opened on July 22, 2024, and closed on September 4, 2024. No comments on the Draft EA were submitted by Federal and State agencies. Two comment submittals were received via email during the Draft EA comment period. One local agency (Broward Metropolitan Planning Department) provided comments in support of the Proposed Project. A comment received from one member of the public stated that the commenter could not attend the public workshop and requested a copy of the information presented in the workshop. BCAD provided the commenter a link to view the materials on BCAD's website. The comment submittals and responses to each submittal are provided in Appendix H-4 of the EA. The FAA reviewed and considered the comments in the preparation of the Final EA and this FONSI/ROD.

FEDERAL FINDING OF NO SIGNIFICANT IMPACT: After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101 of the National Environmental Policy Act (NEPA) and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(C) of NEPA.

APPROVED: **JUAN C BROWN** Digitally signed by JUAN C BROWN
Date: 2024.12.13 14:19:31 -05'00'

Juan C. Brown, Manager, Orlando Airports District Office

DATE: December 13, 2024

DISAPPROVED: _____

DATE: _____

RECORD OF DECISION AND ORDER

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

Under the authority delegated to me by the FAA Administrator, I find the FAA Proposed Action described in the attached EA is reasonably supported. I, therefore, direct that action be taken to carry forward the necessary agency actions discussed in the attached EA and FONSI.

APPROVED: **JUAN C BROWN** Digitally signed by JUAN C BROWN
Date: 2024.12.13 14:20:53 -05'00'

Juan C. Brown, Manager, Orlando Airports District Office

DATE: December 13, 2024

DISAPPROVED: _____

DATE: _____

Judicial Review

This Record of Decision (ROD) represents the FAA's final decision and approval for the actions identified in the EA and constitutes a final order of the FAA Administrator subject to review by the Courts of Appeal of the United States in accordance with the provisions of 49 U.S.C. § 46110.

Final Environmental Assessment for the Development of Landside Projects at Fort Lauderdale– Hollywood International Airport (FLL)

Prepared for:

Federal Aviation Administration
Southern Region
Orlando Airports District Office 8427 South Park Circle, Suite 524 Orlando, FL 32819

Prepared by:

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Orlando, Florida 32819

Document Number: EAXX-021-12-ARP-1728462571

November 2024

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

**JUAN C
BROWN**

Digitally signed by JUAN C
BROWN
Date: 2024.12.13 14:30:05
-05'00'

December 13, 2024

Responsible FAA Official

Date

FINAL ENVIRONMENTAL ASSESSMENT FOR THE DEVELOPMENT OF LANDSIDE PROJECTS

FORT LAUDERDALE–HOLLYWOOD INTERNATIONAL AIRPORT (FLL)

November 2024



Visualization for illustrative purposes only

Document Number: EAXX-021-12-ARP-1728462571

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1. Purpose and Need

The Broward County Aviation Department (BCAD) proposes the development of passenger terminal access and parking improvements at, and adjacent to, Fort Lauderdale-Hollywood International Airport (FLL or the Airport). The proposed projects, referred to as “Landside Projects,” include several projects to enhance Airport access and reduce congestion on terminal area roadways. The Landside Projects include an Intermodal Center (IMC), Automated People Mover (APM) Circulator, Palm Garage Redevelopment with Airport Hotel and Commercial Center, Supplemental Roadways and Curbsides, Cypress Garage Expansion, and other minor connected projects (the Proposed Project).

Implementation of the Proposed Project requires certain decisions and approvals by the Federal Aviation Administration (FAA), and these federal actions are subject to the National Environmental Policy Act of 1969 (NEPA)¹ and guidance contained in FAA Orders 1050.1F, *Environmental Impacts: Policies and Procedures*,² and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.³ Accordingly, this Environmental Assessment (EA) has been prepared pursuant to the requirements of Section 102(2)(C) of the NEPA, FAA Order 1050.1F, and FAA Order 5050.4B. The FAA is the lead federal agency with primary responsibility to ensure the requested federal actions comply with NEPA.

1.1 Airport Information

1.1.1 AIRPORT PHYSICAL SETTING

The Airport is a commercial service airport located on 1,400 acres in unincorporated Broward County, Florida. The airfield is bounded by Interstate 595 (I-595) to the north, I-95 to the west, U.S. Highway 1 (U.S. 1) to the east, and Griffin Road to the south. It is also convenient to both Florida’s Turnpike and I-75. FLL is located approximately 4 miles south of downtown Fort Lauderdale and approximately 1.5 miles west of Port Everglades, one of the three busiest cruise ship homeports in the world.⁴ The Airport is bordered by the cities of Fort Lauderdale, Hollywood, and Dania Beach. **Exhibit 1-1** depicts the location of the Airport. **Exhibit 1-2** depicts the Airport and the surrounding area.

FLL is a large-hub commercial service airport serving both domestic and international markets.⁵ The Airport has one pair of parallel runways: Runway 10L-28R (9,000 feet long) on the north airfield and Runway 10R-28L (8,000 feet long) on the south airfield. Both runways have a width of 150 feet and accommodate commercial and general aviation traffic. Aircraft taxi between the runways and the passenger terminal buildings via taxiways and aircraft apron areas that surround and provide access to the aircraft gate positions. The passenger terminal complex, located on the east side of FLL between the runways, comprises four unit-terminals arranged in a U-shape around the Airport’s landside access facilities, including Terminal Drive (a two-level, single-direction roadway with curbside access to the terminals) and three parking garages.

The passenger terminal complex is shown on **Exhibit 1-3**. As of 2023, a fifth unit terminal was planned for the site, east of Terminal 4. Site preparation and grading for the new unit terminal, referred to as Terminal 5, began with a groundbreaking ceremony in October 2023.⁶ Other FLL facilities include fixed base operators (FBOs), air cargo facilities, aircraft storage hangars, aircraft maintenance hangars, aircraft parking aprons, and support facilities such as fuel storage, vehicle parking, utilities, aircraft rescue and firefighting facilities, and an FAA-staffed airport traffic control tower. Public parking is accommodated in three garages located in the center of the passenger terminal complex—Palm Garage, Hibiscus Garage, and Cypress Garage. The Cypress Garage

¹ Public Law (P.L.) 91-190, as amended through P.L. 118-5, enacted June 3, 2023.

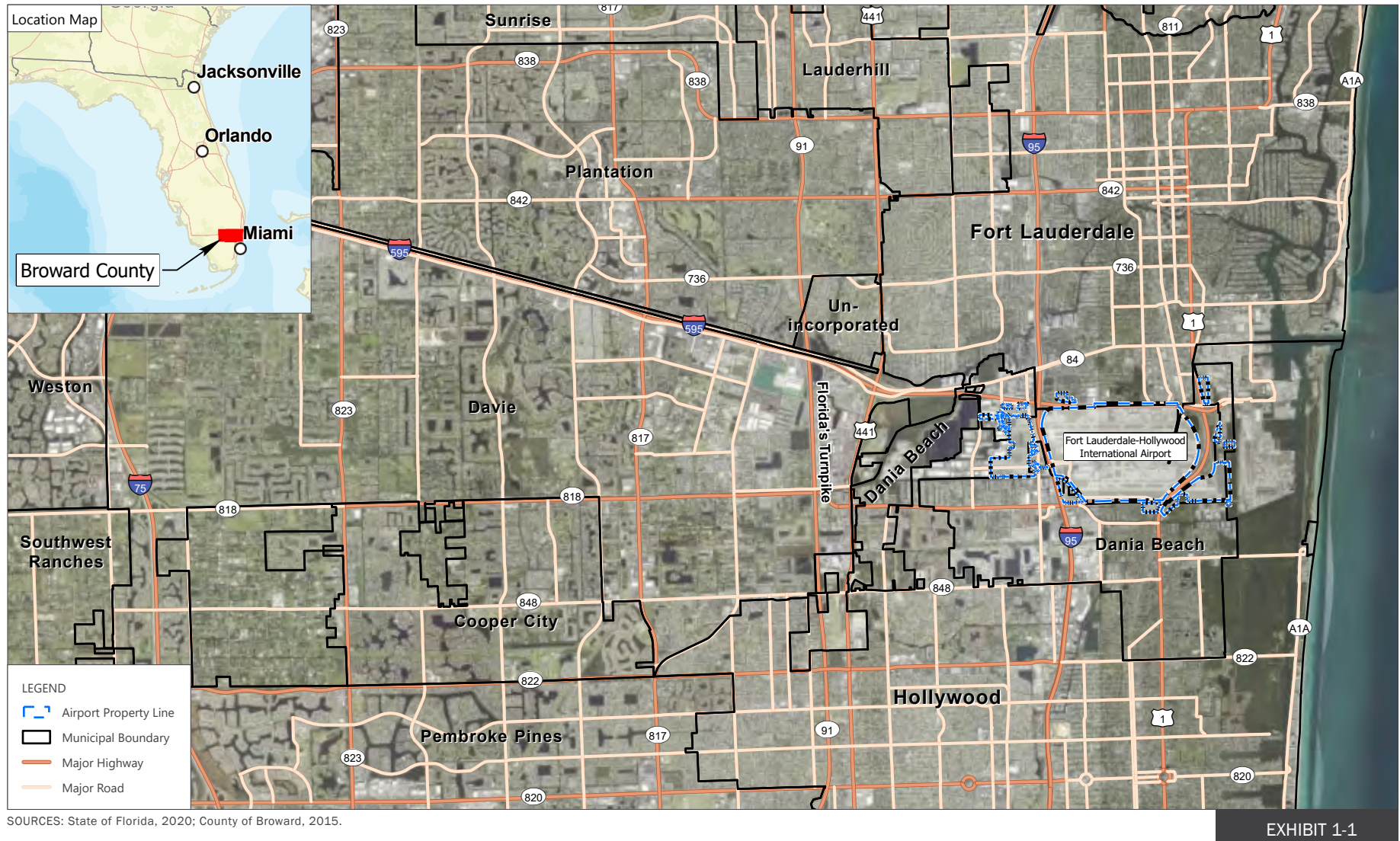
² U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 16, 2015.

³ U.S. Department of Transportation, Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 28, 2006.

⁴ Port Everglades, “A Warm Welcome for Cruise Guests.” Available at: <https://www.porteverglades.net/cruise/terminals/> (accessed January 10, 2024).

⁵ A large hub airport is a commercial service airport that has at least 1.0% of the annual U.S. passenger boardings.

⁶ The new Terminal 5 will be a two-level, five-gate domestic terminal located east of Terminal 4, along Terminal Drive. The new terminal will include pedestrian connectors to Terminal 4, the Cypress Garage, and the Rental Car Center. Terminal 5 will be served by a dedicated, one-level, Terminal 5 roadway and curbside accessed via Terminal Drive. Additional access improvements include expansion of GTA 4, located on the lower-level east of Terminal 4, and a new GTA along the Terminal 5 roadway. The GTAs provide additional curbside between terminals.

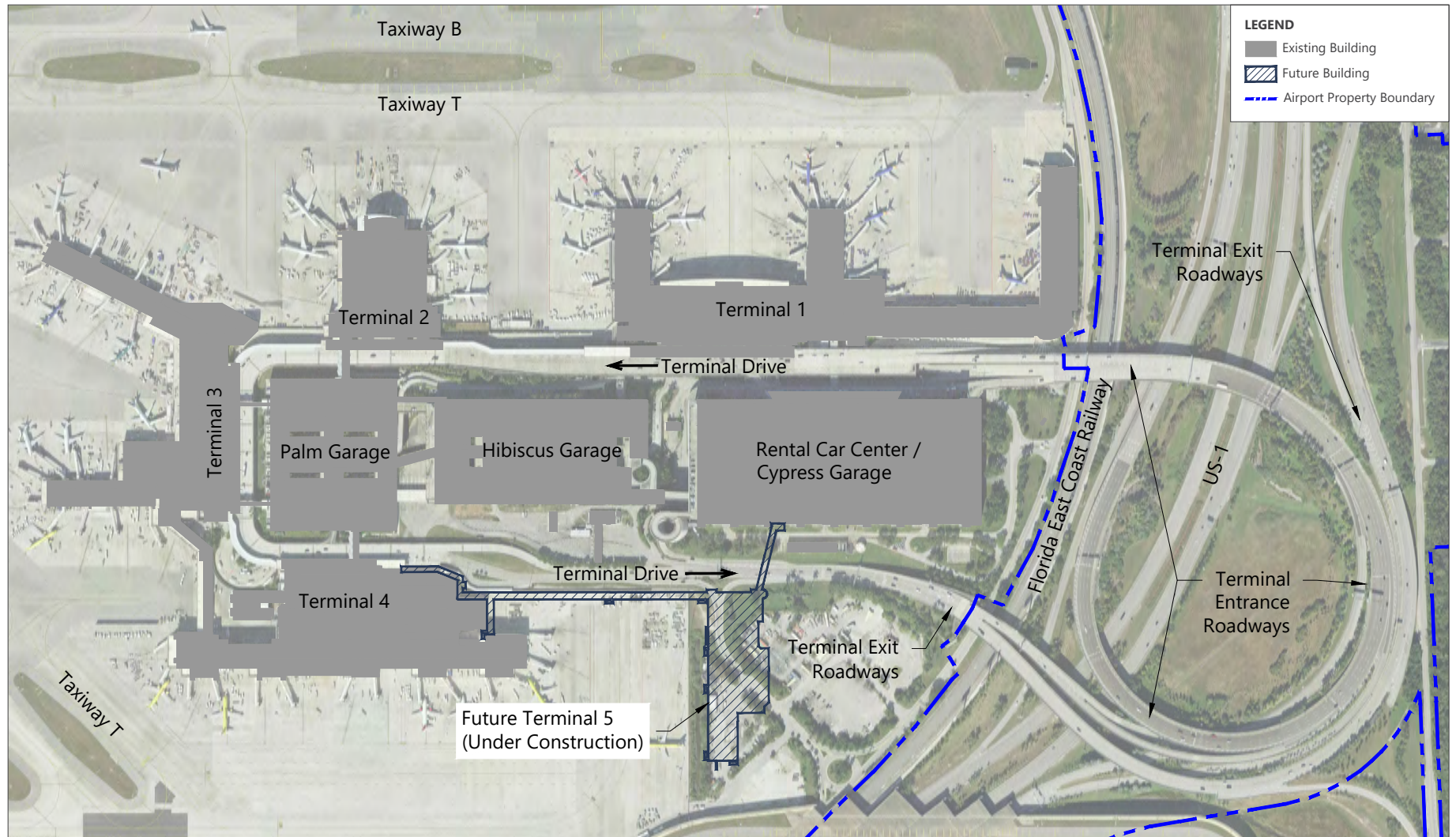




Airport Vicinity Map
Fort Lauderdale-Hollywood International Airport



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SOURCES: Nearmap, November 2023 (aerial photography - for visual reference only, may not be to scale); Broward County Aviation Department, Fort Lauderdale-Hollywood International, 2020 Master Plan Update, November 2020 (existing facilities, Airport property boundary); Broward County Aviation Department, Terminal 5 Project Definition Document (PDD), January 2021 (Terminal 5).

EXHIBIT 1-3

Passenger Terminal Complex Existing Conditions



Drawing: P:\PROJECTS\BCAD\23011349-On-Call Environmental Planning\Task 01 - Landside Environmental Assessment\03 - Purpose and Need\CAD\Ex 1-3 - Passenger Terminal Complex.dwg Layout: 1-3 Plotted: Sep 24, 2024, 03:04PM

accommodates the Rental Car Center on the first five levels and public parking on the upper four levels. Employee parking is accommodated in a remote surface lot located west of the Airport, and west of I-95, accessed via Southwest 42nd Street. The West Employee Lot formerly served as remote economy parking for the public. BCAD operates a shuttle bus to transport employees between the remote lot and the passenger terminal complex via Perimeter Road, an on-Airport Road. BCAD's annual cost for this shuttle bus operation is \$12 million to \$15 million. **Table 1-1** presents the allocation of parking spaces by facility.

Table 1-1 On-Airport Parking Capacity

PARKING FACILITY	FACILITY DESCRIPTION	NUMBER OF PARKING SPACES
Public Parking Garages¹		
Palm Garage	4-level parking structure	2,490
Hibiscus Garage	7-level parking structure	4,785
Cypress Garage	9-level parking structure ²	4,197
Subtotal for Public Parking Garages		11,472
Employee Parking Lot		
West Employee Lot	Surface parking lot	4,010
Total		15,482

NOTES:

1 The Broward County Aviation Department may allocate a subset of spaces within the public parking garages for employee parking. For purposes of this Environmental Assessment, it is assumed the parking supply in the parking garages is available to accommodate public parking. For context, 251 spaces on level 2 of the Hibiscus Garage accommodated employee parking in 2019.

2 Accommodates space for the Rental Car Center in addition to public parking.

SOURCE: Broward County Aviation Department, *Advanced Planning for Palm Garage Demolition and Replacement, and Supplemental Curb Technical Report, Fort Lauderdale-Hollywood International Airport*, April 2023.

FLL terminals and parking garages are accessed via Terminal Drive. Vehicles circulate counterclockwise along Terminal Drive, a six-lane road that splits to accommodate departing passengers on the upper level and arriving passengers on the lower level. Terminal Drive exits to the regional roadway network, with connections to U.S. 1 and I-595.⁷

The two-level terminal roadways and curbside accommodate a variety of commercial and private vehicle landside access modes. These vehicles are typically accessing the curbside of one of FLL's terminals, a Ground Transportation Area (GTA), or one of the public parking garages. Along the upper and lower levels, the left traffic lanes accommodate through traffic and the right lanes are curbing lanes, at which passenger unloading and loading occurs. Curbsides, comprising a raised curb and sidewalk, are adjacent to the curbing lanes to support access between the terminals and ground transportation vehicles. Both the upper and lower levels of Terminal Drive support multiple types of commercial vehicles and private vehicles in a constrained area within which vehicles weave and merge and pedestrian traffic is present.

1.1.2 AIRPORT ROLE AND ACTIVITY

BCAD prepared a master plan update study, herein referred to as the 2020 Master Plan Update,⁸ that identified recommended airport improvements necessary to serve demand and enhance customer service over a planning period through 2035. The 2020 Master Plan Update included development of a passenger forecast for FLL using fiscal year (FY) 2015 as base year; the forecast was approved by the FAA on January 13, 2017. The 2020 Master Plan Update, including the forecast, was prepared prior to the COVID-19 pandemic, so BCAD conducted validation and refinement studies to assess the impacts of the COVID-19 pandemic on the master plan recommendations. **Table 1-2** presents the 2020 Master Plan Update forecast validation (referred to as the 2021 Forecast Validation) and compares it to the FAA's 2023 Terminal Area Forecast (TAF), which is the current edition of FAA's annual forecast of aviation activity for U.S. airports.⁹ The comparison demonstrates that although BCAD's 2021 Forecast Validation projected an earlier recovery of passengers to pre-pandemic activity levels in FY 2023, as compared to FY 2024 in the 2023 TAF, the compound annual growth rate of over 6% between FY 2020 and FY 2035 for both forecasts demonstrates overall consistency through the planning period, with both efforts forecasting nearly 26 million annual enplaned passengers at FLL by FY 2035. The

⁷ I-595 runs along the north side of FLL and provides access to I-95 west of the Airport.

⁸ Broward County Aviation Department, 2020 Master Plan Update, Fort Lauderdale-Hollywood International Airport.

⁹ The 2023 TAF was the current edition of the FAA's annual forecast in February 2024, when this analysis was prepared.

Forecast Validation was prepared in 2021, so it included forecast passenger data for FY 2021 and subsequent years; at the time of preparing this EA in 2024, actual passenger data were available for the years 2021 through 2023. For context, annual passenger enplanements¹⁰ were 13,970,682 in calendar year 2021, and increased to 15,812,603 in calendar year 2022, and 17,516,650 in calendar year 2023. Note that passenger data are presented as enplaned passengers, which are assumed to be approximately one-half the number of total passengers arriving at and departing FLL.

Table 1-2 Enplaned Passenger Forecasts

FISCAL YEAR ¹	2021 FORECAST VALIDATION ²	2023 FAA TAF	VARIANCE ³
2010	10,912,918	10,524,811	--
2011	11,671,530	11,351,139	--
2012	11,741,733	11,413,654	--
2013	11,794,271	11,530,394	--
2014	12,024,714	11,721,956	--
2015	13,214,469	12,749,895	--
2016	14,352,610	13,857,169	--
2017	15,805,217	15,331,180	--
2018	17,661,179	17,098,170	--
2019	18,164,427	17,705,497	--
2020	10,683,612	10,273,082	--
2021	11,803,000 *	12,130,044	-2.7%
2022	17,420,000 *	14,914,562	16.8%
2023	19,825,000 *	16,496,668 *	20.2%
2024	20,606,000 *	18,281,108 *	12.7%
2025	21,072,000 *	19,478,640 *	8.2%
2030	23,459,000 *	22,504,699 *	4.2%
2035	25,817,000 *	25,605,799 *	0.8%
Compound Annual Growth Rate			
2010-2019	5.8%	5.9%	--
2019-2035	2.2%	2.3%	--
2020-2035	6.1%	6.3%	--

NOTES:

Shaded cells represent pre-COVID-19 pandemic passenger activity levels in 2019 and the years in which FLL is forecast to return to 2019 activity levels in the forecasts.

FAA – Federal Aviation Administration

TAF – Terminal Area Forecast

* Forecast passenger data

-- Not applicable

1 Fiscal Year comprises the period of October to September.

2 Broward County Aviation Department prepared the 2021 Forecast Validation to assess the impacts of the COVID-19 pandemic on the 2020 Master Plan Update accelerated forecast, which was approved by the FAA on January 13, 2017.

3 The variance represents a comparison of forecast activity in the 2021 Forecast Validation with the 2023 TAF.

SOURCES: Broward County Aviation Department, April 2021 (historical); Ricondo & Associates, Inc., May 2021 (2021 forecast validation), based on Broward County Aviation Department, *2020 Master Plan Update, Fort Lauderdale-Hollywood International Airport*, Volume 1, Table 3.3-14, "Enplaned Passengers Forecast Comparison-Baseline Forecasts versus TAF," page 3-62, 2020; U.S. Department of Transportation, Federal Aviation Administration, 2023 Terminal Area Forecast, 2024 (2023 FAA TAF).

1.2 Description of the Proposed Project

BCAD proposes to construct an IMC and APM, redevelop a parking garage, expand the Rental Car Center, supplement the passenger terminal complex roadways and curbside, and implement other associated landside improvements at FLL. The Landside Projects described in Section 1.2 of the EA represent the County's terminal access and parking development plan at FLL. The County intends to request federal funding for the APM, eligible portions of the IMC, and other project elements using Airport Improvement Program (AIP) funds, Bipartisan Infrastructure Law (BIL) funds, and/or Passenger Facility Charge (PFC) collections. FAA's processing of grant applications and issuing grants, as well as FAA approvals for the collection and use of PFC funds are federal actions that are subject to NEPA. Portions of the proposed APM, Palm Garage Redevelopment, and Supplemental

¹⁰ An *enplanement* is when a passenger boards a plane at an airport.

Roadway and Curbside projects are located on federally acquired or conveyed land.¹¹ For the portions of the projects located on federally acquired or conveyed land, the FAA has airport layout plan (ALP) approval authority and FAA's unconditional approval of those portions of the FLL ALP is a federal action and subject to NEPA. The IMC and portions of the APM, parking garages, and roadway/curbside projects located on Sponsor acquired land would not implicate an FAA zone of interest,¹² and FAA does not have ALP approval authority. The Proposed Project is shown on **Exhibit 1-4**, and the main project components are discussed below.

1.2.1 INTERMODAL CENTER

The IMC would be a transportation hub that improves integration between the regional transportation network and FLL. The IMC would be located within U.S. 1 right-of-way (ROW). The U.S. 1 ROW is located outside FLL property at the east end of the FLL terminal complex on a 22-acre parcel within the greenspace bounded by the interchange between U.S. 1 and the terminal entrance/exit roadways. The proposed eight-level, 4.6-million-square-foot facility would accommodate parking, a Ground Transportation Center (GTC) for commercial vehicle pickups and drop-offs, a multimodal transfer lobby with concessions and seating that connects to the proposed APM, and leasable office space.

The first level of the IMC would be constructed within the interchange footprint, on land leased from the Florida Department of Transportation (FDOT).¹³ Levels 2 through 8 would extend over U.S. 1, supported by columns and footings on the west side of the highway, to achieve the desired structural square footage while remaining under airspace protected for aircraft using FLL's runways. In addition to the proposed APM connection between the IMC and the FLL terminals, the IMC would connect to the regional roadway network at several access points and would provide the ability to connect to regional transportation modes (rail) developed by other entities.

The Level 1 GTC is shown on **Exhibit 1-5**. The open-air level would accommodate five two-lane drive aisles for commercial vehicle circulation and a combined curb linear frontage of 2,250 feet along the drive aisles for passenger pickups and drop-offs. Vertical circulation cores (elevators, escalators, and stairs) would provide access to the APM at Level 3 and other levels of the IMC. The U.S. 1 transportation corridor would comprise the remainder of the ground-level IMC footprint (west side).

Levels 2 through 8 would accommodate approximately 6,790 parking spaces. Along with parking, Levels 3 and 8 would accommodate additional functions. Level 3 (see Exhibit 1-5) would include a multimodal transfer lobby comprising a passenger waiting area and seating as well as commercial space for concessions. The lobby would accommodate passengers transferring between various ground access modes at the IMC and the FLL terminals via the APM, and the lobby would provide access to an elevated walkway to the IMC Station platform. Level 8 is planned to accommodate approximately 200,000 square feet of Class A office space.¹⁴

Connectivity between the regional roadway network and the IMC would be provided via various access points to Levels 1, 2, and 3, with Level 1 access designated for commercial vehicle operators using the GTC and Levels 2 and 3 access designated for other vehicles accessing the IMC. **Exhibit 1-6** presents a conceptual composite of all IMC entry and access points, illustrating commercial vehicle access from northbound and southbound U.S. 1 via a T-intersection and ramp, respectively, and a tunnel providing access to/from Northeast 7th Avenue. Public and employee private vehicles parking at the IMC, as well as drop-and-ride passenger¹⁵ pickups would access the IMC at Level 2 via new ramps from existing Airport roadways providing connections from northbound and southbound U.S. 1. These vehicles would exit the IMC at Level 3 via new ramps to northbound and southbound U.S. 1 and a new ramp to I-595. The new ramps to northbound U.S. 1 and I-595 would include an approximately 1,800-linear-foot overpass to clear the existing Airport roadway network.

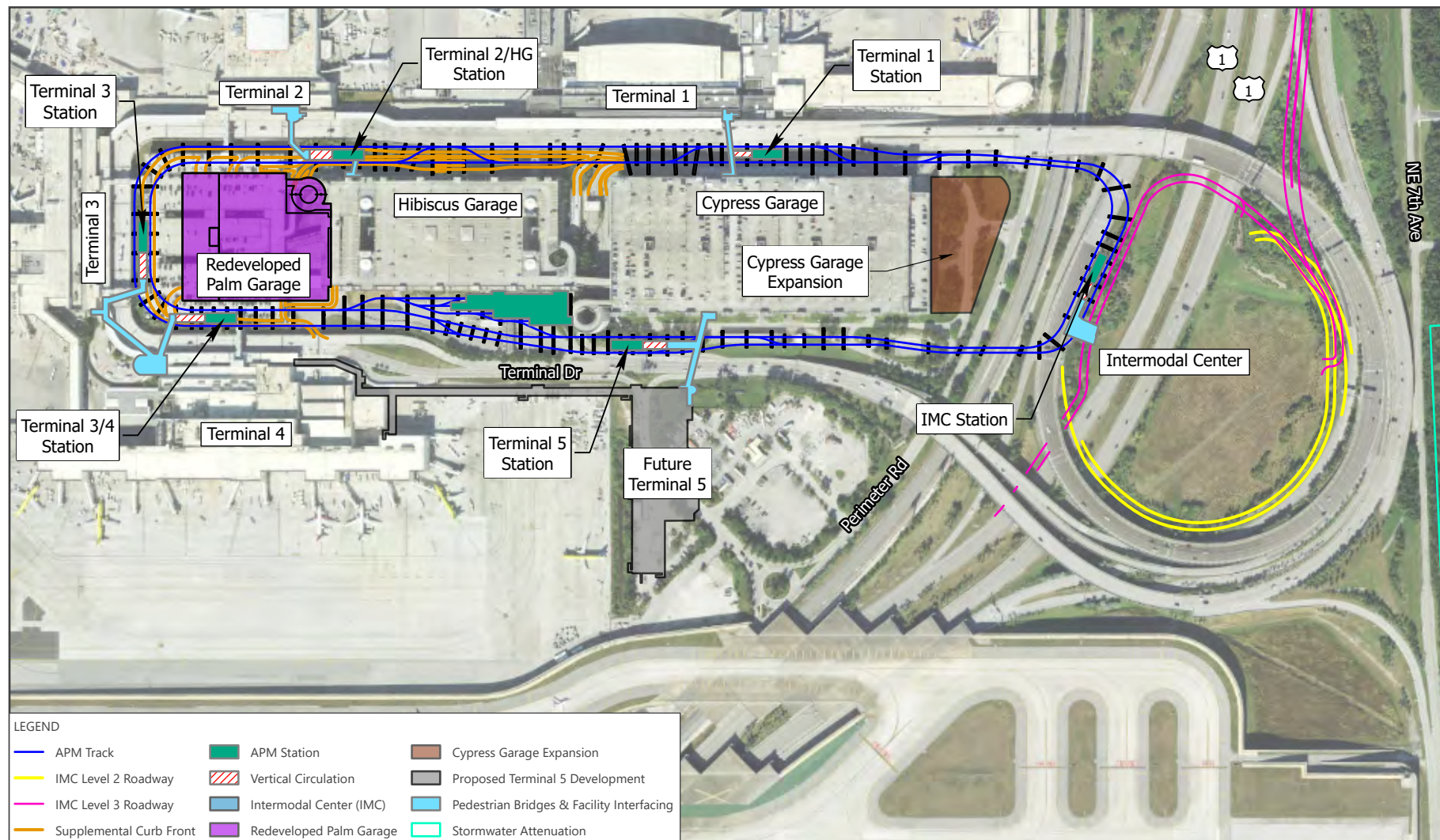
¹¹ Section 743 of the FAA Reauthorization Act of 2024 (P.L. 118-63, May 16, 2024), entitled "Review of Airport Layout Plans" (ALPs), modified limitations on FAA authority to review and approve ALPs first set forth in Section 163 of the FAA Reauthorization Act of 2018 (P.L. 115-254, Oct. 5, 2018).

¹² FAA must consider if a project whole, or in part, would materially impact the safe and efficient operation of aircraft at, to, or from the airport; adversely affects the safety of people or property on the ground as a result of aircraft operations; or adversely affects the value of prior Federal investments to a significant extent.

¹³ BCAD is pursuing a 99-year land lease from FDOT.

¹⁴ Class A office space is defined as being located in prestigious buildings with high quality finishes, state-of-the-art systems, exceptional accessibility, and a market presence (Building Owners and Managers Association [BOMA] International, Building Class Definitions. Available at: https://www.boma.org/BOMA/Research-Resources/Industry_Resources/BuildingClassDefinitions.aspx [accessed January 19, 2024]).

¹⁵ Drop-and-ride passengers are those that are dropped off at or picked up from the IMC by a private vehicle.



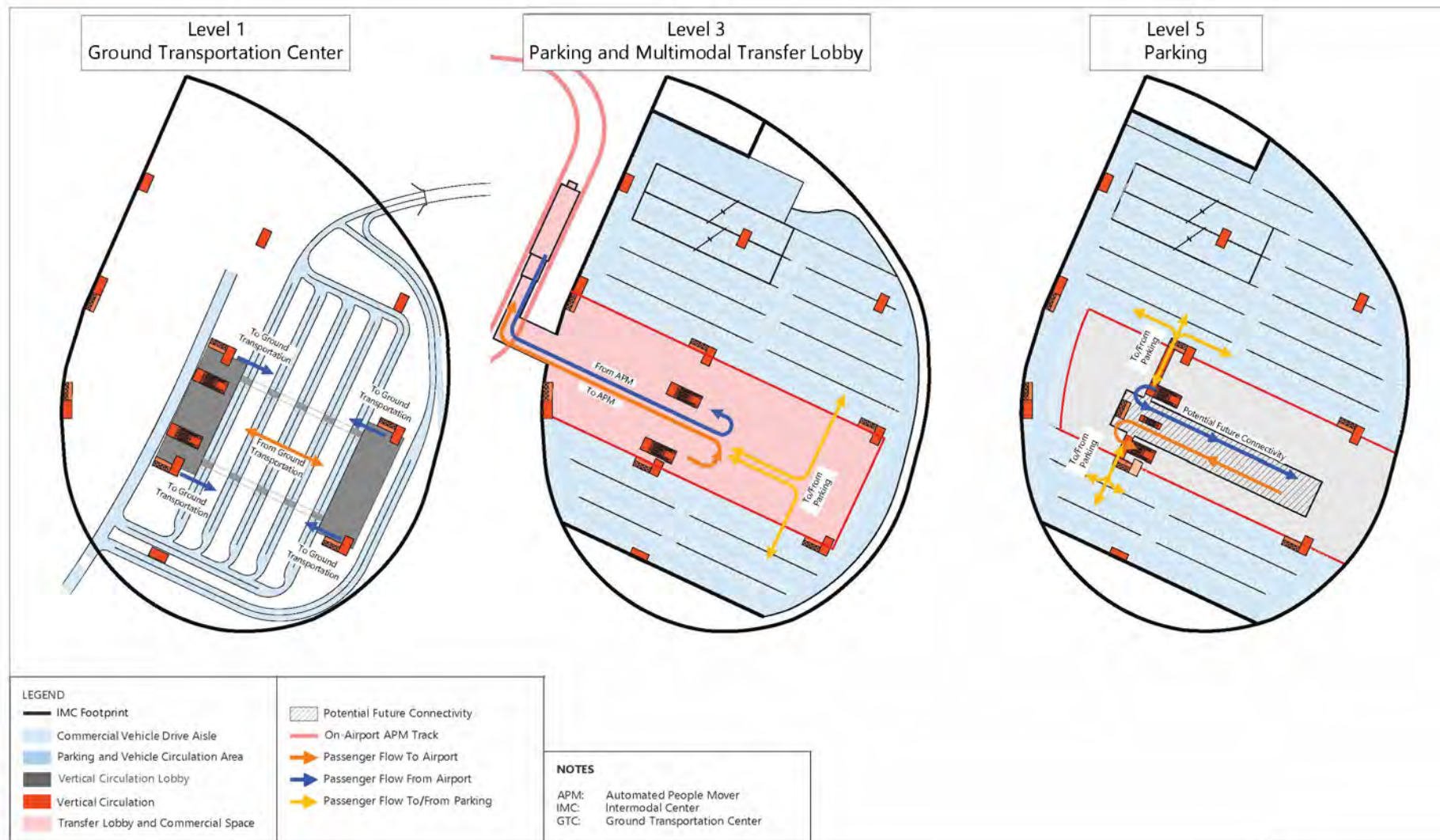
SOURCES: Ricondo & Associates, 2023; Adapted by ESA, 2024.

EXHIBIT 1-4

Proposed Project Elements Fort Lauderdale-Hollywood International Airport



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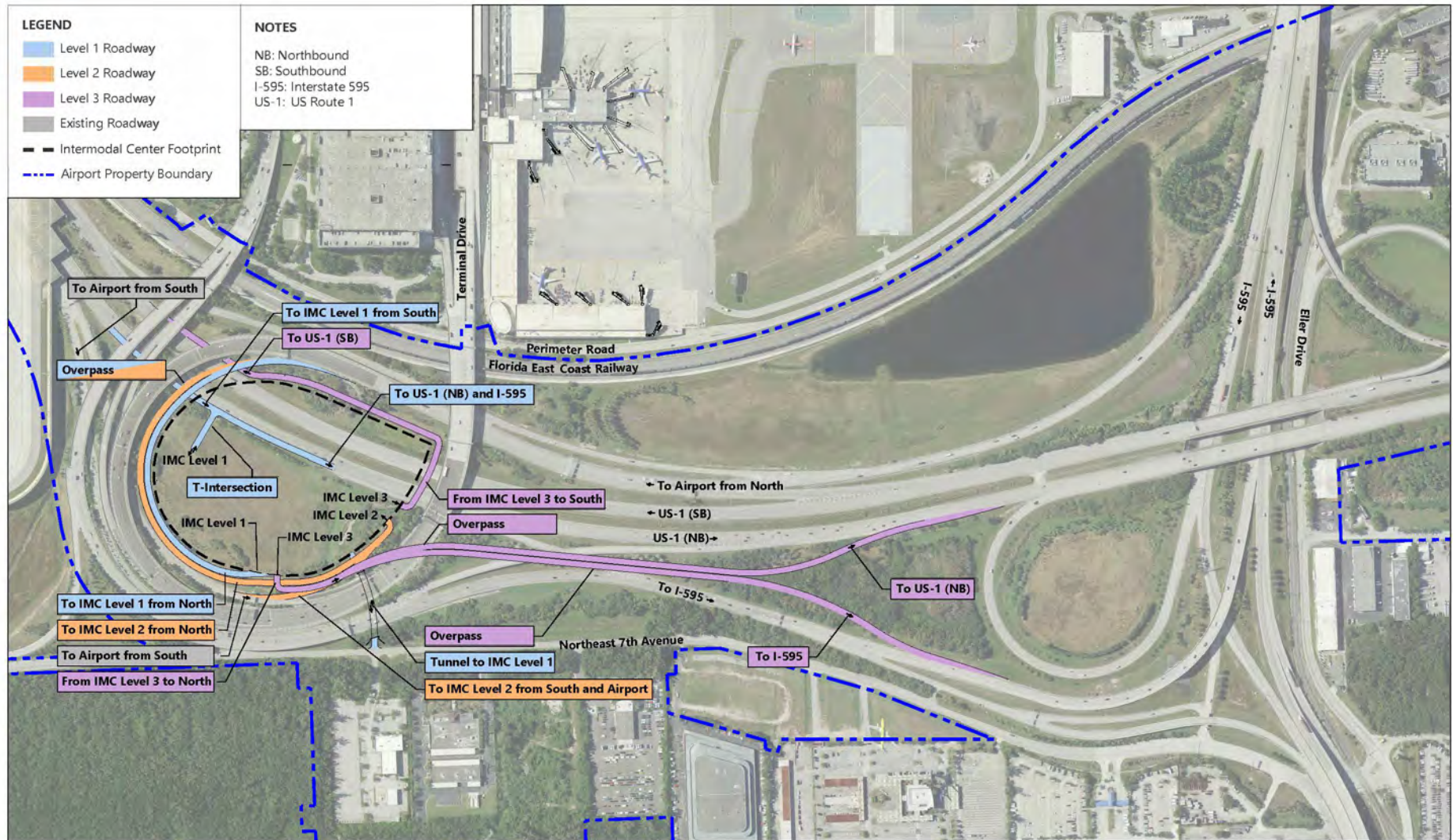
SOURCE: Broward County Aviation Department, Intermodal Center Concept Plan and Implementation Guide, November 2023.

EXHIBIT 1-5



Intermodal Center Select Plan Views (Levels 1, 3, and 5)

Drawing: P:\PROJECTS\BCAD\23011349-On Call Environmental Planning\Task 01 - Landside Environmental Assessment\03 - Purpose and Need\CAD\Ex 1-4 - IMC Profile_20230223.dwg Layout: Ex 1-4 Plotted: Mar 22, 2024, 01:23PM



SOURCE: Broward County Aviation Department, *Intermodal Center Concept Plan and Implementation Guide*, November 2023.

EXHIBIT 1-6



Intermodal Center Access and Egress (Conceptual)

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Construction of the IMC would also include utility and stormwater improvements to serve development at the site. All stormwater runoff from the new IMC facility would be collected and treated on site prior to discharge. The proposed IMC site currently accommodates an existing retention basin that would be affected by the IMC development. The basin is part of the interconnected U.S. 1 drainage system that currently discharges to the undeveloped land (a mangrove/wetland area) east of Northeast 7th Avenue. Stormwater treatment and storage from the U.S. 1 ROW displaced by construction of the IMC would be accommodated through a combination of on-site and off-site drainage improvements. These improvements include accommodating all drainage for the IMC on-site, maximizing the storage and treatment capacity within the existing U.S. 1 drainage system, and upsizing existing culverts that currently drain stormwater from the mangrove area east of Northeast 7th Avenue. The eastern portion of the mangrove area is a dedicated utility easement that accommodates a Florida Power and Light (FPL) maintenance access road. Currently, stormwater from a section of the U.S. 1 drainage basin discharges into the mangrove area and then is released into an FDOT drainage channel located on the east side of the FPL maintenance access road through seven existing culverts under the FPL road. The FDOT drainage channel then flows south into the Dania Cut-Off Canal.

Exhibit 1-7 depicts the area east of the IMC identified for stormwater attenuation¹⁶ as well as the larger system of connected detention basins along U.S. 1. The stormwater attenuation area east of the IMC is County-owned land comprising a mangrove/wetland area that serves as the receiving body for treated stormwater from a section of the U.S. 1 drainage area that runs along the east side of FLL. The stormwater attenuation area is bounded by existing uplands and the FPL maintenance access road along the eastern and southern boundaries, Northeast 7th Avenue on the western boundary, and development to the north; these uplands act as a perimeter berm. The Proposed Project would require improvements to the existing drainage culverts under the FPL maintenance access road but would not alter the FDOT drainage channel. The culverts would be upsized to manage the increased stormwater volume discharged into the mangrove area as a result of the displacement of stormwater retention from the IMC site. Construction activities for the culverts would be temporary, and avoidance and minimization measures would be identified during design of the stormwater system and implemented to assure there are no adverse impacts to off-site water quality or quantity as treated stormwater flows through the wetland area east of Northeast 7th Avenue.

1.2.2 AUTOMATED PEOPLE MOVER

The APM would be a landside airport circulator comprising an elevated dual-track guideway and train system connecting the FLL terminals, Airport parking garages, Rental Car Center, and the proposed IMC. The APM project would include the following elements:

- 16,000 feet of elevated dual-track guideway.
- five elevated on-Airport stations and a sixth station constructed adjacent to the IMC.
- pedestrian bridges and vertical circulation systems to connect the stations to terminal and parking facilities.
- a 52,000-square-foot Maintenance and Storage Facility (M&SF).
- supporting utility infrastructure improvements, including two power distribution substations.

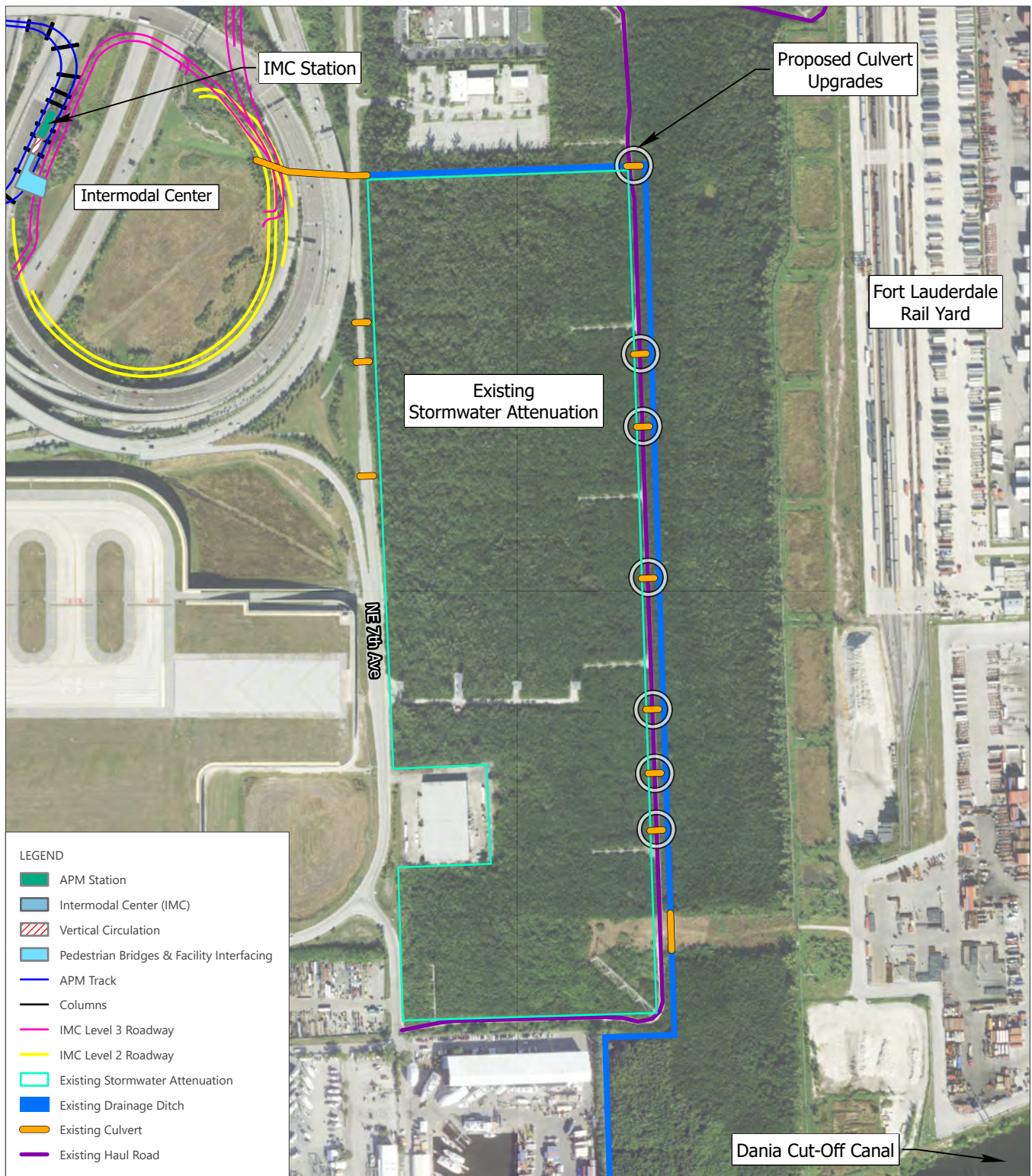
The 16,000-foot dual-track guideway would be elevated above the upper level of Terminal Drive, running between the terminals and the parking garages, on Airport property. It would cross over the Florida East Coast (FEC) Railway tracks, but no support columns would be placed in FEC right-of-way; BCAD would obtain an aerial rights agreement with FEC for the guideway overpass. The portion of the guideway connecting to the IMC would extend into land BCAD plans to lease from FDOT for the IMC.

The APM would be constructed in two phases. The first phase would include a guideway operating in a pinched loop configuration¹⁷ serving stations between Terminal 2 and Terminal 4, via Terminal 1, the IMC, and future Terminal 5 (see **Exhibit 1-8**). A sixth station at Terminal 3 and full guideway loop at the west end would be constructed in the second phase with redevelopment of Palm Garage. By the second phase, the APM would operate as a bi-directional closed loop,¹⁸ with the guideway crossovers providing operational redundancy.

¹⁶ "Stormwater attenuation" is the process by which peak flows from precipitation are reduced and runoff velocities are decreased as a result of passing through a waterbody.

¹⁷ A *pinched loop* APM system operates back and forth between two distinct end points, requiring crossovers between the parallel guideways for train repositioning based on operating direction of each guideway.

¹⁸ A *closed loop* APM operates as a continuous circuit in one direction. The Proposed Project would include two parallel guideways, allowing each guideway to operate independently as a closed loop in opposite directions. Bi-directional closed loop refers to the set of closed loop guideways.



SOURCES: Ricondo & Associates, 2023; Adapted by ESA, 2024; State of Florida, 2020.

NOTES: Natural habitat within the Stormwater Attenuation area would remain. This area would act as a wet retention system for treated stormwater.

EXHIBIT 1-7



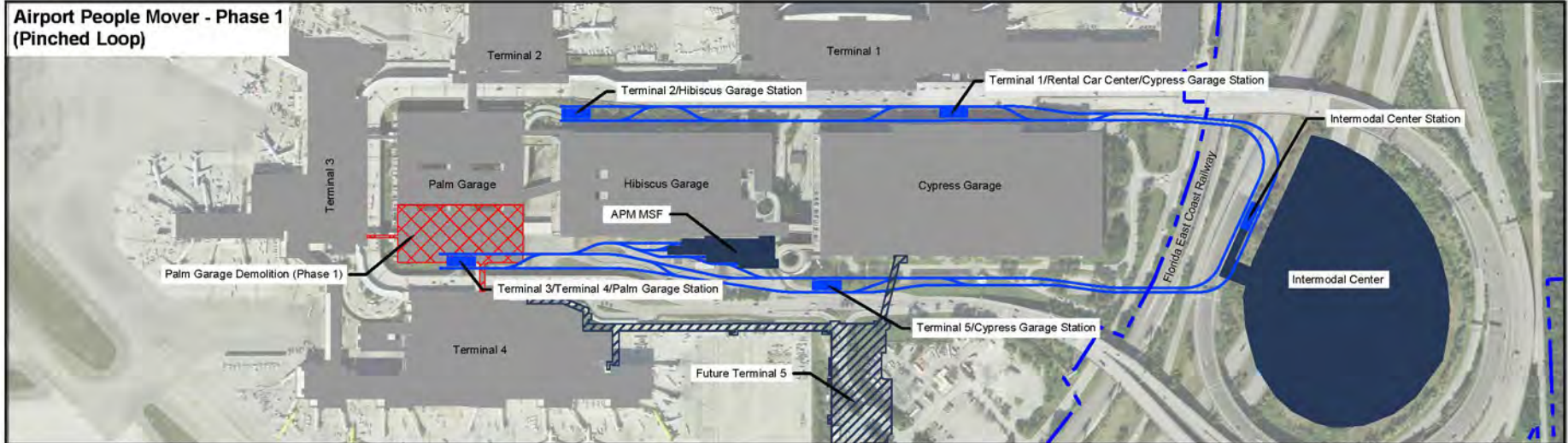
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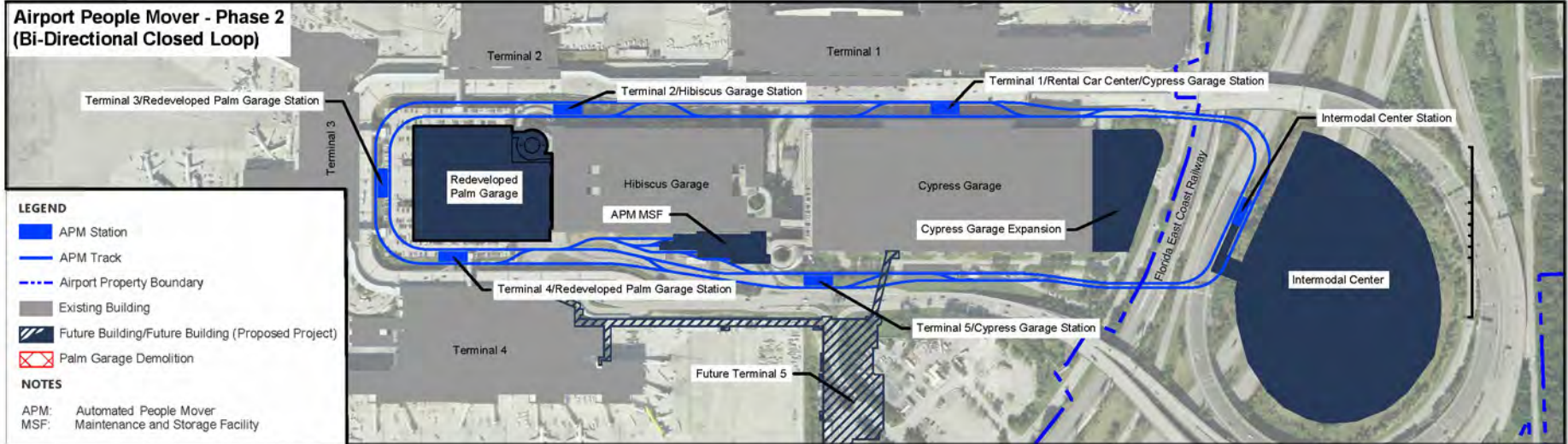
IMC and Stormwater Improvements Fort Lauderdale-Hollywood International Airport

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Airport People Mover - Phase 1 (Pinched Loop)



Airport People Mover - Phase 2 (Bi-Directional Closed Loop)



LEGEND

- APM Station
- APM Track
- Airport Property Boundary
- Existing Building
- Future Building/Future Building (Proposed Project)
- Palm Garage Demolition

NOTES

- APM: Automated People Mover
- MSF: Maintenance and Storage Facility

SOURCES: Nearmap, November 2023 (aerial photography - for visual reference only, may not be to scale); Broward County Aviation Department, APM Project Definition Document, December 2022; Ricondo & Associates, Inc., 2023 (Cypress Garage Expansion).

EXHIBIT 1-8



Automated People Mover Phase 1 and Phase 2

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The elevated dual-track guideway separation would range from 16 feet wide between stations to 52 feet wide at stations where the guideways are separated by the station platform and would be supported by columns along the guideway's entire length. Program definition (to be verified in design) included a column plan defined to meet structural design requirements of Florida Building Code (2020 Edition), wind and gravity load requirements defined by the American Society of Civil Engineers (ASCE/SEI 7-16), and the BCAD Airport Design Guidelines Manual. An initial column layout was adjusted to avoid conflicts with existing structures, pressurized fuel pipelines, utilities, existing roadways, and planned future roadways. Based on program definition and preliminary structural engineering, APM foundations are planned to be standard driven piles below each pier column 12 inches wider than the column for reinforcement clearance and tolerance. Columns would be between 5 and 8 feet wide. A geotechnical evaluation of the soil condition is required through the APM complete loop for final foundation design. **Exhibit 1-9** depicts a rendering of the elevated guideway and support columns.

The six APM stations would each include an elevated platform (at the guideway level) sized to accommodate the boarding and deboarding of passengers to and from a two-car train as well as vertical circulation between the platform and a mezzanine level directly below the platform level. At the mezzanine level, elevated pedestrian bridges would link the stations with adjacent terminals and parking garages. A station equipment room would also be accommodated at the mezzanine level. At the terminal and parking garage ends of the elevated pedestrian bridges, vertical circulation cores would be added to connect the bridges with the various levels of the terminal and parking garage facilities.

The APM project also includes construction of a two-level M&SF of approximately 52,000 square feet, to be constructed south of the Hibiscus Garage. The lower level of M&SF would accommodate APM vehicle storage and maintenance space, and the second level would accommodate APM operational control space, including administrative offices, locker rooms, and restrooms. M&SF staff would park at the IMC or the Hibiscus Garage.

The first phase of the APM would require one Traction Power Substation (TPSS) of approximately 3,000 square feet, and a second TPSS would be required to support the extended guideway length in Phase 2. The TPSS buildings would be standalone facilities generally located within the northwest and southeast corners of the APM guideway loop. In addition to the TPSS stations, additional utility improvements would be implemented to support the APM.

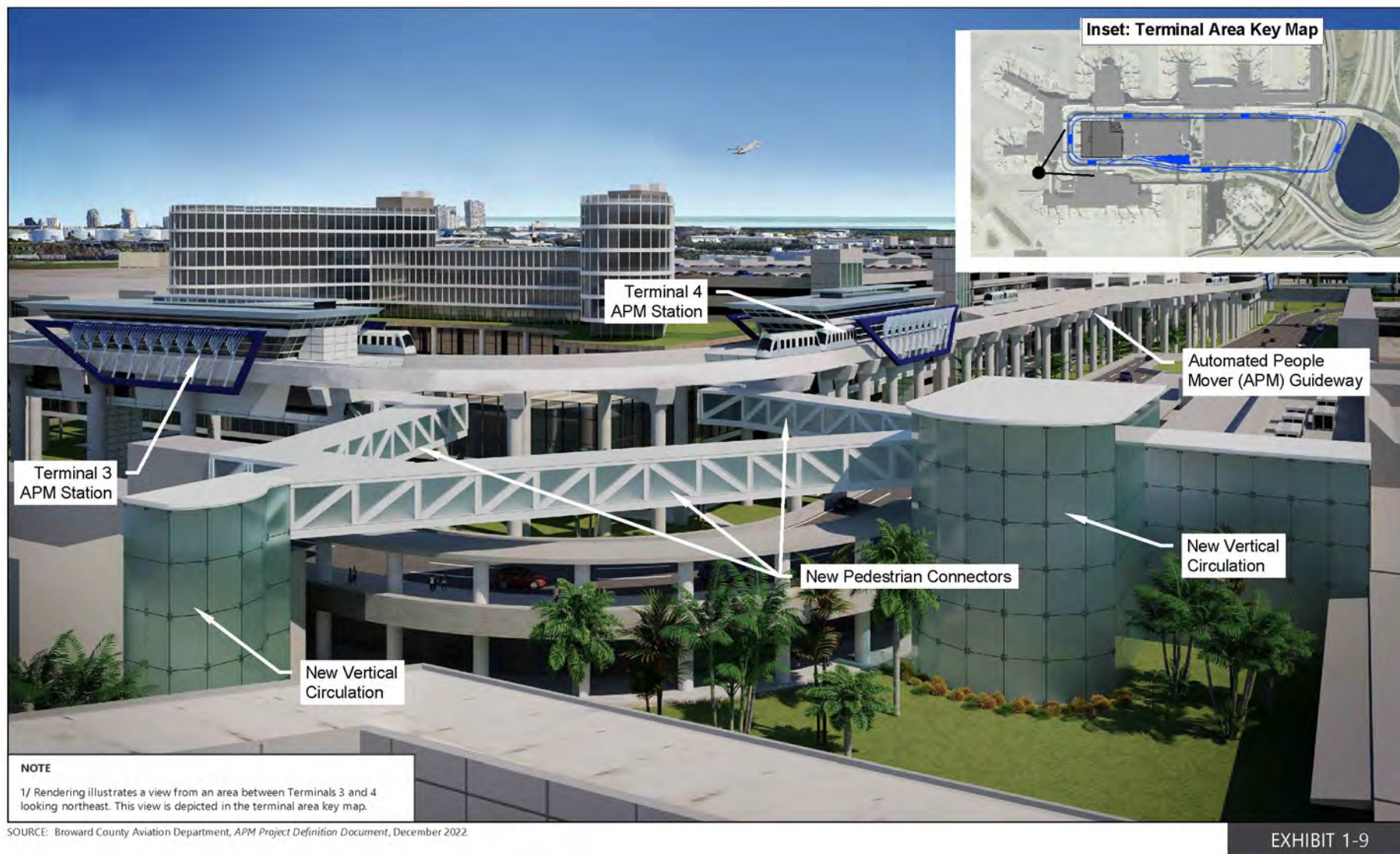
1.2.3 PALM GARAGE REDEVELOPMENT WITH AIRPORT HOTEL AND COMMERCIAL CENTER

The existing four-level Palm Garage accommodates 2,490 public parking spaces and has a footprint of approximately 250,000 square feet. The Proposed Project includes demolition of the existing, aging parking structure in phases and redevelopment of the garage on a smaller footprint at the same site with seven to nine levels that include additional parking and areas for commercial development. The Proposed Project also includes utility improvements to support redevelopment and areas for commercial development.

In the first phase of construction, BCAD plans to demolish the southern one-third of the Palm Garage to enable construction of the first phase of the APM. The extent of building demolition in the first phase was defined to match an original expansion joint to minimize the structural effects of demolition.

The second phase of Palm Garage redevelopment includes demolition of the remaining two-thirds of the structure and site redevelopment. Palm Garage would be redeveloped on its existing site, within a smaller building footprint of approximately 135,000 square feet. The seven- to nine-level structure would be a multimodal facility that includes public parking and a commercial GTC. The garage would provide approximately 3,400 to 3,700 parking spaces on Level 2 and above. Level 1 would accommodate a GTC for commercial vehicle pickup and drop-off operations. The GTC would provide approximately 1,700 linear feet of curbfront and 110 vehicle staging positions for commercial ground transportation operations. Pedestrian connectivity to the terminals would be provided at Level 3, which would include a large pedestrian circulation area. The intent for the dedicated third-level connection with terminals is to reduce at-grade pedestrian crossings between the Palm Garage and terminals. The east side of each level of Palm Garage would be integrated with the adjacent levels of the Hibiscus Garage.

The reduced Palm Garage footprint allows for the construction of a 90,000-square-foot commercial center that could include an Airport hotel and other commercial space along the west side of the redeveloped Palm Garage.



Automated People Mover Rendering

1.2.4 SUPPLEMENTAL ROADWAYS AND CURBSIDES

Two at-grade supplemental curb areas are proposed to address terminal curbfront capacity deficiencies and a supplemental roadway is proposed to bypass the traffic congestion at the terminals and improve roadway level of service. The supplemental curb areas would be provided at the lower levels of Terminals 1 and 3 and would include a raised curb and sidewalk, consistent with existing FLL terminal curbside design.

The lower level of Terminal Drive at Terminal 1 is currently a five-lane roadway—two curbing lanes adjacent to the Terminal 1 curbside for picking up arriving passengers and three through-lanes. The Proposed Project would maintain these lanes and construct a new 310-foot curbing lane to the south along the Hibiscus and Cypress Garage access road to support a new supplemental curbside at Terminal 1 (see **Exhibit 1-10**). The parking garage access road would then be extended to provide access to the Palm Garage and serve as a bypass to the Terminal Drive Arrivals Roadway. A second supplemental curbside along the bypass roadway would be provided in front of Terminal 3, which would add approximately 330 feet of additional arrivals curbside to Terminal 3.

1.2.5 CYPRESS GARAGE EXPANSION

The existing Cypress Garage is a nine-level facility that includes FLL's Rental Car Center on Levels 1 through 5 and public parking on Levels 6 through 9. The Proposed Project includes the construction of a Cypress Garage expansion along the structure's east face. The nine-level expansion to the garage would increase the garage footprint by approximately 90,000 square feet to add area for the Rental Car Center, which is undersized to meet current demand. Each level of the expansion would be built to the same elevation as the corresponding level in the existing Cypress Garage to maintain internal vehicle circulation connectivity. Access to the expanded portion of the Cypress Garage would use the existing access ramp from the departures level roadway located in the northeast corner of the garage on Level 3. Customers renting vehicles exit the facility via a helix at the southwest corner of the garage and exit to Terminal Drive.

1.2.6 SUMMARY OF CHANGES IN PARKING SUPPLY

Changes in parking supply are associated with IMC construction and Palm Garage redevelopment along with the associated changes in allocation of public and employee parking to these facilities. **Table 1-3** shows the transition of parking space supply before, during, and after construction of the Proposed Project, as project components come online. Given the construction phasing for the Proposed Project, which is presented in Section 1.3, a temporary mid-project-implementation peak in parking supply would occur with the first full year of operating the IMC in 2029.

1.3 Timeframe of the Proposed Project

As shown in **Table 1-4**, construction of the Proposed Project is planned to begin in 2026, and all project components would be operational by 2033.

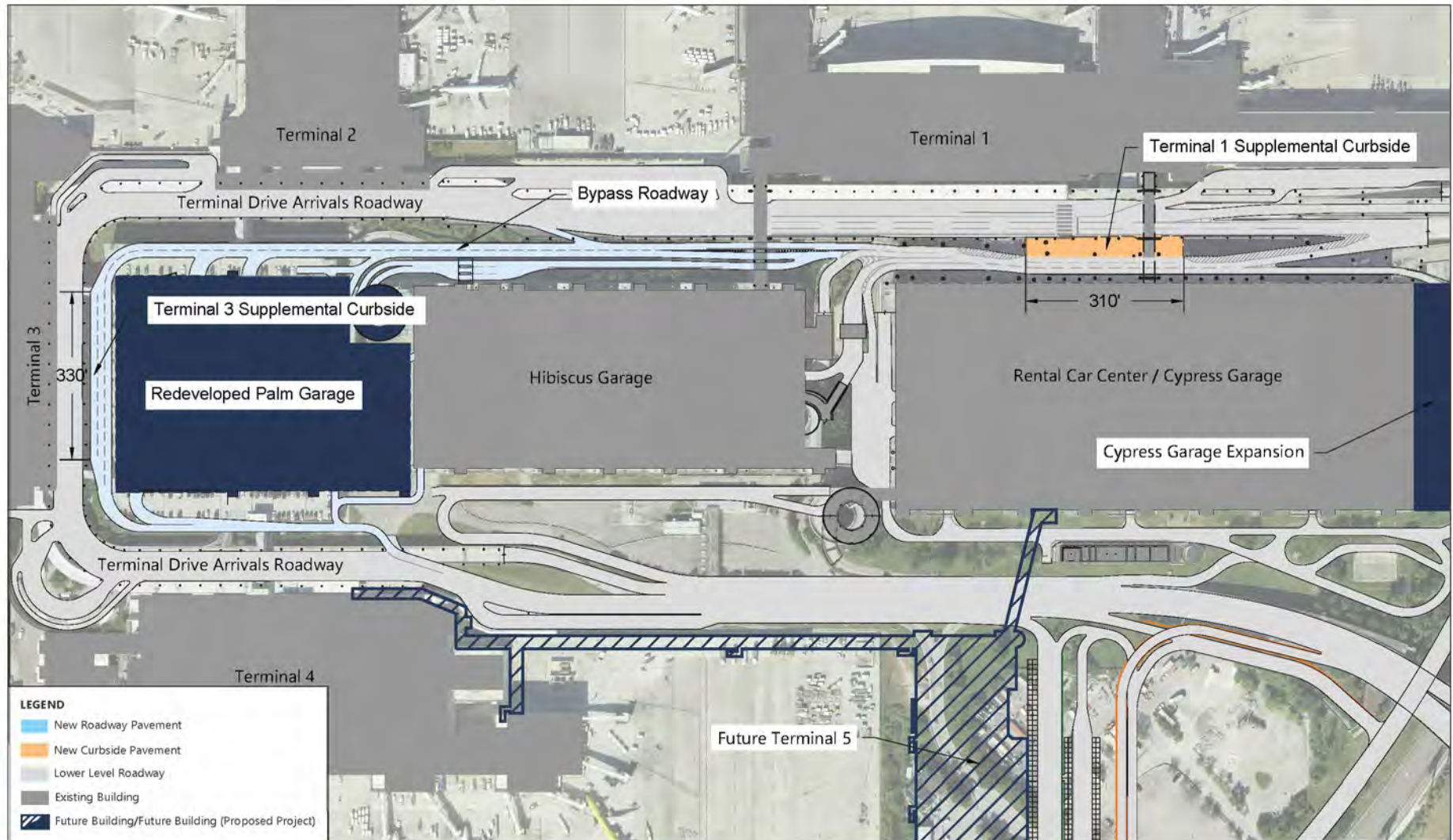
1.4 Purpose and Need

1.4.1 NEED FOR THE PROPOSED PROJECT

The 2020 Master Plan Update identified the need for a series of landside enhancements to efficiently accommodate existing and forecast passenger demand, while improving the passenger experience at FLL's landside facilities, which is expected to continue to deteriorate with forecast growth in passenger activity. The Proposed Project is needed to improve the operational efficiency of and passenger experience at the landside access facilities at FLL, by addressing the following needs:

- Segments of Terminal Drive and the terminal entrance/exit roadways are projected to operate at failing levels of service.
- The configuration of landside facilities results in operational inefficiencies and traffic congestion.
- Landside facilities do not provide sufficient and conveniently located parking to meet existing and forecast demand.
- Regional plans to reduce traffic congestion and improve accessibility and mobility in the region include a multi-modal connection to FLL.

Additional information on the needs for the Proposed Project is discussed in this section.



SOURCES: Nearmap, November 2023 (aerial photography - for visual reference only, may not be to scale); Broward County Aviation Department, *Intermodal Center Concept Plan and Implementation Guide*, November 2023 (existing facilities, bypass roadway, supplemental curbside, redeveloped Palm Garage); Broward County Aviation Department, *Terminal 5 Project Definition Document*, January 2021 (Terminal 5); Ricondo & Associates, Inc., 2023 (Cypress Garage Expansion).

EXHIBIT 1-10



Bypass Roadway and Supplemental Curbsides at Terminals 1 and 3

Drawing P:\PROJECTS\BICAD\23011348-On-Call Environmental Planning\Task 01 - Landside Environmental Assessment\03 - Purpose and Need\CAD\Ex 1-9 - Supp Roadway_20240223.dwg Layout Exhibit 1 Plotted: Mar 22, 2024, 01:24PM

Table 1-3 Public and Employee Parking Capacity Changes with Implementation of the Proposed Project

FACILITY	NUMBER OF VEHICLE PARKING SPACES, BY YEAR		
	2022	2029 ¹	2033 ²
Public Parking			
Palm Garage	2,490	1,490	3,500
Hibiscus Garage	4,785	4,785	4,785
Cypress Garage	4,197	4,197	4,197
IMC ³	0	6,790	0
Public Parking Subtotal	11,472	17,262	12,482
Employee Parking			
West Employee Lot	4,010	4,010	0
IMC ³	0	0	6,790
Employee Parking Subtotal	4,010	4,010	6,790
Total Parking	15,482	21,272	19,272

NOTES:

IMC – Intermodal Center

- 1 As shown in Table 1-4, construction of the IMC is planned to be completed in 2028. The year 2029 represents the first full year of operation with reduced capacity in the Palm Garage and temporary accommodation of displaced public parking at the IMC.
- 2 As shown in Table 1-4, reconstruction of the Palm Garage is planned to be completed in 2032. The year 2033 represents the first full year of operation of the fully reconstructed Palm Garage (spaces temporarily displaced to the IMC return to the Palm Garage). With operation of the Redeveloped Palm Garage, employee parking then shifts from the West Employee Lot to the IMC.
- 3 Parking at the IMC includes parking for other IMC users in addition to public parking (2029) and employee parking (2033).

SOURCE: Broward County Aviation Department, *Advanced Planning for Palm Garage Demolition and Replacement, and Supplemental Curb Technical Report, Fort Lauderdale-Hollywood International Airport*, April 2023; Broward County Aviation Department, *Intermodal Center Advanced Planning Technical Report*, November 2022.

1.4.1.1 Level of Service along Terminal Drive and Terminal Entrance/Exit Roadways

The Level of Service (LOS) of the terminal roadways and curbside comprising Terminal Drive as well as the entrance and exit roadways to and from Terminal Drive were evaluated in the 2020 Master Plan Update. The analysis was conducted using industry standard metrics that characterize LOS. The LOS metric is a grade (A through F). LOS A represents free-flow conditions. With increasing congestion, the LOS drops. LOS C represents some double parking along the curbside that affects the capacity of adjacent through lanes; LOS C is considered the standard for planning new airport facilities. LOS D represents increasingly congested facilities but is considered acceptable for large-hub airports such as FLL. LOS E represents congested conditions with significant delays. Under LOS F conditions, vehicle flows frequently come to a halt and roadway segments experience gridlock.

The 2020 Master Plan Update (specifically, Sections 4.4 and 4.5) presents the methodology, analysis, and results of the roadways and curbside analyses during peak month average day conditions. The findings indicated failing conditions in the following areas:

- The lower levels of Terminals 3 and 4 are over capacity (LOS F) under existing conditions and are projected to remain over capacity through 2035 as passenger activity grows.¹⁹
- Terminal 1 roadways are projected to operate at LOS E in future years, with the lower level reaching LOS E by 2025 and the upper level, by 2035.
- A segment of exit roadway from the terminal area to I-595 is projected to operate at LOS E starting in 2025.
- Segments of the terminal area entry and exit ramps are projected to operate at LOS E by 2025, with the I-595 southbound off-ramp to the terminal area reaching LOS F by 2035.

¹⁹ The Terminal 4 lower level would experience a temporary LOS improvement due to near-term roadway improvements conducted after 2015; however, the LOS was projected to drop back to LOS F by 2025.

Table 1-4 Proposed Project Implementation Schedule

PROJECT COMPONENT	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Intermodal Center (IMC)										
Automated People Mover (APM)										
Phase 1 (Pinched Loop)										
Phase 2 (Closed Loop)										
Palm Garage Site Redevelopment										
Phase 1 Demolition, Southern Third										
Phase 2 Demolition, Remainder of Structure										
New Palm Garage Redevelopment										
Commercial Center and Airport Hotel										
Supplemental Roadways and Curbsides										
Cypress Garage Expansion										

NOTES:  Design  Demolition/Construction

SOURCE: Broward County Aviation Department, 2022.

1.4.1.2 Landside Facilities Configuration

In addition to growth in passenger activity and the resulting growth in vehicle and shuttle bus operations affecting roadway and curbside conditions over the forecast period, the 2020 Master Plan Update identified a series of challenges related to the configuration of the terminal roadways and curbside that result in roadway congestion:

- Pedestrian crossings along the lower-level roadways interrupt traffic flow. Some of these crossings are not signalized, which is a safety concern and can result in roadway congestion.
- Recirculating traffic through the terminal roadways, including inter-terminal shuttle bus operations, adds to the overall vehicle volume and contributes to congestion.
- The existing curbside roadway turns at a radius of 90 degrees between Terminals 2 and 3 and between Terminals 3 and 4. The tight radii require a reduction in speed that results in congestion at these locations.
- Where the curbside roadway extends past Terminal 4, all outbound traffic, including vehicles exiting parking garages and Rental Car Center, merge together at a single-level, three-lane roadway. This merge results in congestion.
- The Terminal Drive roadway configuration requires all vehicles accessing a terminal curbside to drive past all terminal curbsides before exiting the terminal area. As such, vehicles dropping off or picking up passengers at Terminal 1, must use the through lanes adjacent to Terminals 2, 3, and 4 before exiting the terminal area, and this unnecessary use of the terminal roadways contributes to congestion.
- The locations of the employee parking lot and the Cypress Garage²⁰ (which accommodates public parking and the Rental Car Center) require BCAD to operate shuttle bus routes to transfer these employees and passengers between these facilities and the terminal facilities. Shuttle bus operations add vehicles to the congested roadways and require dedicated curbside at each terminal curbside for passenger loading and unloading.
- The terminal area is fully developed, and the site is constrained on all sides by major transportation facilities—airfield facilities (runways and taxiways) to the north, west, and south, and U.S. 1 to the east.

BCAD needs to resolve components of the FLL landside facilities that have resulted in operational inefficiencies and congestion.

1.4.1.3 Parking Demand and Location

As shown in Table 1-4, FLL currently provides a total of 15,482 parking spaces at FLL (public and employee parking spaces). Of the total, 11,472 are located in the Palm, Hibiscus, and Cypress Garages and primarily accommodate public parking. Passengers walk between parking at the Palm or Hibiscus Garages and the terminal facilities; however, over 35% of public parking spaces are accommodated in the Cypress Garage, which is served by shuttle buses that operate along the terminal roadways and curbside to transport passengers to/from the terminals. Additionally, the 4,010 spaces allocated to employee parking are provided in a parking lot on Airport property west of I-95, which requires operation of a shuttle bus around the Airport via Perimeter Road and along the terminal roadways and curbside. As discussed in Section 1.4.1.2, the terminal roadways and curbside are congested, and the operation of shuttle buses contributes to this congestion.

The 2020 Master Plan Update evaluated various parking demand scenarios that considered the effect of the trends in the ground transportation market on Airport parking demand. The emergence of Transportation Network Companies (TNCs) in recent years has affected the ground transportation market, including a reduction in the demand for parking and other forms of transportation. A similar shift in ground transportation market share and reduced demand for Airport parking may occur with increasing adoption of transportation-as-a-service (TaaS)²¹ and an associated decline in vehicle ownership. Since the 2020 Master Plan Update, BCAD conducted an advanced planning study that assessed public parking needs and completed a series of validation and refinement studies to assess the impacts of the COVID-19 pandemic on the 2020 Master Plan Update recommendations, including updates to the forecast and public parking requirements. **Table 1-5** presents a comparison of the various parking requirements analyses, including the scenarios evaluated in the 2020 Master Plan Update and the two subsequent updates. For facility planning

²⁰ Passengers are able to walk between the Cypress Garage and the terminals.

²¹ TaaS is a term for the use of on-demand transportation systems, such as car-sharing and ride-sharing.

purposes, BCAD adopted the revised parking requirements based on the 2021 Forecast Validation to account for the recovery in aviation activity following the COVID-19 pandemic and a change in parking demand reflecting ground transportation market trends (see **Appendix A** for additional information on the parking requirements validation analysis). Therefore, the total parking requirement for 2035 is 18,810 parking spaces, comprising the requirement for 14,800 public parking spaces and the 4,010 employee parking spaces accommodated in the West Employee Lot.

Table 1-5 Public Parking Requirements (in Numbers of Spaces)

	BASE YEAR	FORECAST	2025	2035
2020 Master Plan Update				
Baseline Requirement ¹	2015/16	2020 Master Plan Update	14,510	17,760
Scenario 1 Requirement ¹	2015/16	2020 Master Plan Update	13,250	16,230
Scenario 2 Requirement ¹	2015/16	2020 Master Plan Update	11,890	12,800
Updates after the 2020 Master Plan Update				
Palm Garage Advanced Planning Requirement ²	2019	2020 Master Plan Update	11,790	14,420
2021 MPU Validation Requirement³	2019	2021 Forecast Validation	12,170	14,800

NOTES:

- 1 Requirements from 2020 Master Plan Update, Tables 4.7-1 through 4.7-3, Accelerated Forecast (Broward County Aviation Department, 2020 Master Plan Update, Fort Lauderdale-Hollywood International Airport, 2020).
- 2 Requirements from the Palm Garage Advanced Planning, Table 3-6 (Broward County Aviation Department, Advanced Planning for Palm Garage Demolition and Replacement, and Supplemental Curb Technical Report, April 2023).
- 3 Requirements validated using the 2021 Forecast Validation and provided in Appendix A (Broward County Aviation Department, May 2021; Ricondo & Associates, Inc., May 2021 [forecast] and October 2021 [requirements analysis]).

SOURCES: See Notes 1–3.

The on-Airport destinations for passengers and most FLL employees are the terminal facilities. The fully developed and constrained conditions of the terminal area limit the ability to develop facilities adjacent to the terminals to accommodate parking demand. The terminal area is also constrained vertically by restrictions in place to protect airspace for the aircraft landing on and departing from FLL’s runways, which limit the height of parking structures to accommodate demand vertically. However, the Palm Garage, an aging structure in need of replacement, has a large facility footprint within the terminal area but, at four-levels, has vertical capacity to expand under airspace height restrictions.

Given market uncertainties and aging parking structures, BCAD needs flexibility within its landside facilities to accommodate existing and future public and employee parking in a location easily accessible to FLL’s terminals, and in a manner that does not contribute additional vehicle trips to the already congested terminal roadways and curbfront.

1.4.1.4 Accommodate Multi-Modal Connections to the Airport

The Broward County Metropolitan Planning Organization’s (MPO) *Commitment 2045 Metropolitan Transportation Plan (MTP)* establishes the County’s vision for how the transportation system will grow and change to meet the needs of those who live in, work in, and travel to Broward County. Supporting studies and needs assessments identified a north-south corridor that passes along the eastside of FLL as a high-opportunity corridor for multi-modal connections across the region to reduce traffic congestion, improve safety, and improve accessibility and mobility in the area as well as the need for an intermodal transfer station to connect air passengers to future multi-modal transportation connections.^{22,23} The IMC location is an essential component of MPO’s *Commitment 2045 MTP* to reduce traffic congestion, improve safety, and improve accessibility and mobility in the area.

On August 25, 2022, the Broward County Commission adopted a Locally Preferred Alternative (LPA) for Broward Commuter Rail South, to extend commuter rail service along the FEC Railway corridor running alongside FLL, including a station at FLL.²⁴ Broward

²² Broward Metropolitan Planning Organization, 2018. *Commitment 2045 Metropolitan Transportation Plan, Technical Report #8 High Opportunity Transit Assessment*. September 2018.

²³ Broward Metropolitan Planning Organization, 2019. *Commitment 2045 Metropolitan Transportation Plan, Technical Report #13 Needs Assessment*. December 2019.

²⁴ Broward County Transit and Florida Department of Transportation, 2023. *Broward Commuter Rail (BCR) South, Project Development & Environmental (PD&E) Study, Broward Commuter Rail South Newsletter Update #2*, November 2023.

Commuter Rail South is part of Broward County's mobility plan, which also includes plans for light rail connections between the Airport, Port Everglades cruise port, and the Broward County Convention Center, and a next phase extension to downtown Fort Lauderdale.²⁵ A multi-modal connection to FLL is a regional priority, so BCAD needs to be able to accommodate future multi-modal connections to the Airport, including local priority connections with Port Everglades cruise port and the Broward County Convention Center, which will, in turn, support BCAD's needs to reduce vehicle congestion along the terminal roadways and curbfront as passenger activity is forecast to increase.

1.4.1.5 Improve the Landside Passenger Experience

In addition to improving landside access at FLL given existing and forecast conditions and activity, BCAD needs to improve the passenger experience throughout the terminal landside facilities. FLL's proximity to the Port Everglades cruise port means that FLL serves as the primary airport for these cruise ship passengers. FLL experiences surges in departing and arriving passengers due to cruise ship embarking and disembarking schedules. Notably, departing air passengers from cruise ships often arrive at FLL several hours earlier than do typical departing air passengers, and these early-arrival passengers dwell in the pre-secure areas of the terminals while waiting to pass through a security screening checkpoint. With longer dwell times in the public, nonsecure areas of terminal facilities, BCAD needs to provide passenger waiting areas and amenities to accommodate the early pre-flight arrival times of passengers transferring between cruise ships and FLL. The provision of dedicated pre-security passenger waiting areas is anticipated to be a safety and security benefit by providing a dedicated location for passenger waiting away from the critical passenger processing functions of ticketing and security screening.

1.4.2 PURPOSE OF THE PROPOSED PROJECT

The purpose of the Proposed Project is to improve landside access options and facilities to enhance the overall travel experience at FLL and meet existing and forecast passenger activity levels and parking demands while reducing congestion along the terminal roadways. Given the fully developed and constrained conditions of the terminal area, the Proposed Project's purpose includes evaluating means to shift a portion of the landside facilities outside of the existing terminal area while maintaining efficient and convenient access to the terminals. Additionally, BCAD seeks opportunities to maximize nonaeronautical revenue generation to support Airport operating expenses.

1.5 FAA Federal Actions

The federal actions associated with the Proposed Project include:

- Unconditional approval of those portions of the FLL ALP that depict components of the proposed project pursuant to 49 United States Code (U.S.C.) Sections 40103(b), 44718, and 47107(a)(16), and Title 14 CFR Parts 77 and 139.
- Determinations under 49 USC §§ 47106 and 47107 that are associated with the eligibility of proposed project components for federal funding under the AIP and the BIL, and further processing applications for federal funding for eligible project components.
- Processing applications under 49 U.S.C. § 40117, as implemented by 14 CFR 158.25, to impose and use passenger facility charges collected at the Airport for project components that are eligible for PFC funding.

²⁵ Broward County, 2023. Broward County Transit Systemwide Study, Planning, and Preliminary Design, Premium Mobility Plan. August 2023.

2. Alternatives

The Alternatives section summarizes the process used to identify, compare, and screen a reasonable range of alternatives to the Proposed Project to determine whether alternatives exist that would reasonably satisfy the purpose of and need for the Proposed Project. NEPA requires that federal agencies perform the following tasks: evaluate reasonable alternatives to the proposed action, and, for alternatives that the agency eliminated from detailed study, briefly discuss the reasons for their elimination; discuss each alternative considered in detail, including the proposed action, so that reviewers may evaluate their comparative merits; include the no action alternative; identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference; include appropriate mitigation measures not already included in the proposed action or alternatives; and limit their consideration to a reasonable number of alternatives.

In accordance with the NEPA and FAA Orders, this EA considered a reasonable range of alternatives that are technically and economically feasible and that meet the Purpose and Need. The need for the Proposed Project, as identified in Section 1.4, is to address the following: (1) segments of Terminal Drive and the terminal entrance/exit roadways are projected to operate at failing levels of service; (2) the configuration of landside facilities results in operational inefficiencies and traffic congestion; (3) landside facilities do not provide sufficient and conveniently located parking to meet existing and forecast demand; and (4) regional plans to reduce traffic congestion and improve accessibility and mobility in the region include a multimodal connection to FLL.

The purpose of the Proposed Project is to improve landside access options and facilities to enhance the overall travel experience at FLL and meet existing and forecast passenger activity levels and parking demands while reducing congestion in the terminal area. Given the fully developed and constrained conditions of the terminal area, the Proposed Project's purpose includes evaluating means to shift a portion of the landside facilities outside of the developed terminal area to reduce vehicle traffic while maintaining efficient and convenient access to the terminals. Additionally, BCAD seeks opportunities to maximize nonaeronautical revenue generation to support Airport operating expenses.

The following sections describe the processes for identifying technically and economically feasible alternatives and determining which alternatives would reasonably satisfy the Purpose and Need of the Proposed Project. Alternatives that satisfied the evaluation criteria were then carried forward for analysis of environmental consequences.

2.1 Identification of Potential Alternatives

This section describes the potential alternatives that were considered to identify technically and economically feasible alternatives. The technical feasibility review considered the ability to construct and/or operate the potential alternative, and the economic feasibility review considered the financial reasonableness of implementing the potential alternative. Financial reasonableness reviews considered, for example, the need for extensive construction given site conditions or challenging ground transfer connections between the proposed IMC location and the passenger terminal complex that require long shuttle bus routes that are both more costly to operate and may generate less revenues given the diminished desirability of parking at a remote site.

The identification process considered alternate locations for project elements that would maintain efficient and convenient access to the passenger terminals. Undeveloped sites on and within 1.5 miles of the terminal roadways were identified to accommodate a landside access facility to replace or supplement one or a combination of the existing landside access facilities: public and employee parking, curbsides, or a Rental Car Center, as well as regional multimodal connections that may be developed by others in the future. It was not considered operationally or economically feasible to transport passengers or employees a distance farther than the distance between the terminal roadways and the West Employee Lot (the farthest existing shuttle bus distance that BCAD currently operates), which is approximately 1.6 miles west of the terminal roadway system.

Eleven potential sites were identified and reviewed for technical and economic feasibility to accommodate a landside access facility from which passengers and/or employees could be conveniently transported to and from the terminals. **Table 2-1** and **Exhibit 2-1** identify the potential sites on and around FLL identified to accommodate a new landside facility. The alternatives are

organized into categories of those adjacent to the passenger terminal complex, within the passenger terminal complex, on Airport property but outside the passenger terminal complex, and other off-Airport property sites. The categories represent comparable landside development and needs associated with transporting passengers and/or employees between a new landside facility at the potential site and the terminals. In addition to considering the potential alternatives in and around FLL, and consistent with NEPA and FAA Orders, a no action alternative was also evaluated.

Table 2-1 Summary of Technical and Environmental Feasibility of Potential Alternatives, by Category

ALTERNATIVE CATEGORY 1	ALTERNATIVE NUMBER AND NAME	FEASIBLE?
Category 1: Adjacent to the Passenger Terminal Complex	1.1 – BCAD’s Proposed Project	Yes
	1.2 – Site East of the Terminals with Busing	Yes
Category 2: Within the Passenger Terminal Complex	2.1 – Redevelop Cypress Garage as an Intermodal Center	Yes
	2.2 – Site East of Future Terminal 5	No
Category 3: On Airport Property, Outside of the Passenger Terminal Complex	3.1 – Dynegy Site	Yes
	3.2 – Griffin Road Site	Yes
	3.3 – Site East of Northeast 7th Street	No
	3.4 – Site South of Runway 28L End	No
	3.5 – Site on West Side of the Airport	No
Category 4: Off Airport Property	4.1 – Site at Northeast Corner of the Airport	No
	4.2 – Site South of the Dania Cut-Off Canal	No
	4.3 – Site East of Port Everglades	No
	4.4 – Site North of the Airport	No

NOTES:

BCAD – Broward County Aviation Department

1 Per NEPA and FAA guidance, a no action alternative is also evaluated. See Exhibit 2-1 for the location of all potential alternatives.

SOURCE: Created in collaboration with Ricondo & Associates, Inc. (January 2024).

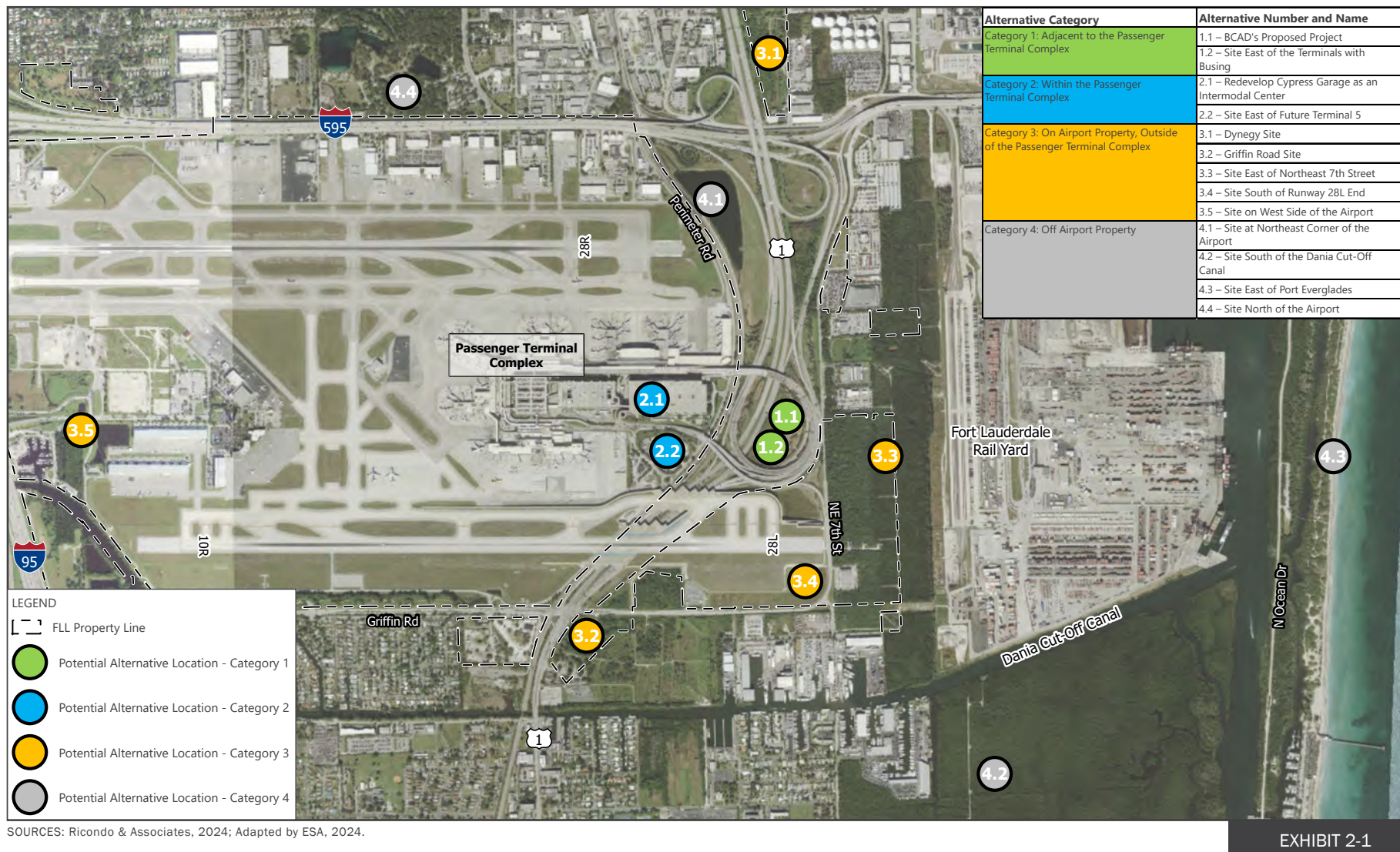
Of the potential alternatives considered, five were identified as technically and economically feasible and carried forward to the alternatives screening analysis in Section 2.3. The remainder of this section presents the feasibility evaluations of each of the potential sites considered, with explanations of why potential alternatives were or were not considered technically or economically feasible.

2.1.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, BCAD would not implement the Proposed Project, as described in Section 1.2 of this EA. BCAD would continue to operate and maintain the existing terminal access roadway system, public parking and rental car facilities, and related infrastructure. Additionally, without the proposed improvements to landside transportation, BCAD would not have opportunities for commercial development that generates nonaeronautical revenues to support Airport operating expenses. All ground access modes²⁶ would rely on use of the terminal roadways, with some access modes involving two modal trips on the terminal roadways (that is, for example, a trip in a personal or rental vehicle using the terminal roadways between a local off-Airport destination and the Cypress Garage and a shuttle bus trip between the Cypress Garage and the curbside).

Without implementation of the proposed IMC, current access options to the Airport would continue to be limited to surface transportation, which would cause significant traffic congestion within and around the passenger terminal complex resulting in failing LOS along several roadway segments. The existing employee and parking space supply of 15,482 spaces would not meet the forecast requirement of 18,810 spaces, resulting in additional circulating vehicles along the terminal roadways as well as limiting BCAD’s ability to flexibly respond to aging parking infrastructure and changes in parking demand. Curbsides would not be

²⁶ Ground access to airports can be categorized by mode of access. The following ground access modes are relevant to trips on the FLL terminal roadways and curbside: private vehicles accessing a public airport parking facility, private vehicles accessing an employee parking facility, curbside drop off and pickup operations by private vehicles and commercial vehicles (including taxis, limousines, ride share/TNCs, hotel/motel shuttles, off-Airport parking shuttles, charter buses, cruise shuttles, etc.), and rental car patrons accessing the Rental Car Center.



Locations of Potential Alternatives for Landside Facility Development
Fort Lauderdale-Hollywood International Airport



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improved, and the roadway/curbside geometry would further contribute to increased terminal roadway congestion. BCAD would continue shuttle bus operations to connect the terminals with the West Employee Lot and the Cypress Garage, which would continue to contribute to the already congested roadways.

2.1.2 CATEGORY 1: POTENTIAL ALTERNATIVES ADJACENT TO THE PASSENGER TERMINAL COMPLEX

Development of an IMC adjacent to the passenger terminal complex would provide direct access and convenient transport of passengers and employees between the passenger terminals and the IMC. One available site adjacent to the passenger terminal complex was identified in prior studies, including regional plans (see Section 1.4.1.4) and the 2020 Master Plan Update—a site immediately east of the terminals, within the ROW of the U.S. 1 interchange with the terminal entrance/exit roadways. The site's position along the U.S. 1 corridor is convenient to regional multimodal connections that may be developed by others in the future, including a light rail connection to the cruise port, the convention center, and downtown Fort Lauderdale.

Category 1 alternatives would include the following components, and in total, would provide approximately 19,000 spaces for public and employee parking: (1) construction of an IMC on a 22-acre parcel at the U.S. 1 ROW bounded by the interchange between U.S. 1 and the terminal entrance/exit roadways; (2) redevelopment of the Palm Garage with temporary relocation of public parking to the IMC during Palm Garage construction; (3) relocation of employee parking from the West Employee Lot to the IMC following the opening of Palm Garage; (4) terminal roadways and curbside improvements to provide supplemental curbsides and a bypass roadway; (5) Cypress Garage expansion; and (6) area for commercial development including an Airport hotel and commercial center adjacent to Palm Garage and Class A office space²⁷ and a multimodal transfer lobby with concessions in the IMC.

Two options for transporting passengers and employees between the IMC and terminal were identified—via APM and via shuttle bus. The effects on use of the terminal roadways under each of these alternatives are discussed in the following subsections.

Alternative 1.1 – BCAD's Proposed Project

The Proposed Project is considered technically and economically feasible. It includes construction of an APM to connect the IMC located within the U.S. 1 ROW, with the terminals, parking garages, and Rental Car Center located in the terminal passenger complex. This alternative would transition a portion of commercial vehicle drop-off trips to the IMC and temporarily move a portion of public parking access trips to the IMC, removing those vehicles from the terminal roadways and curbside. Following Palm Garage redevelopment and the transition of public parking back into the terminal area, the alternative would include transitioning employee parking from the West Employee Lot to the IMC. The alternative would eliminate the existing employee and public parking/Rental Car Center shuttle bus operations by shifting those passengers to the APM, which removes these shuttle bus trips from the terminal roadways and curbside.

The Proposed Project has been the subject of numerous studies, including (and preceding) the 2020 Master Plan²⁸ and advanced planning.²⁹ As discussed in Section 1.4.1.4, the IMC location is an essential component of the MPO's *Commitment to 2045 MTP*³⁰ to reduce traffic congestion, improve safety, and improve accessibility and mobility in the area. An IMC within the U.S. 1 ROW and APM was the locally preferred alternative evaluated in the FDOT EA prepared in 2009.³¹

Alternative 1.2 – Site East of the Terminals with Busing

As an alternative to constructing an APM, BCAD could operate the IMC at the ROW of the U.S. 1 interchange site and transport passengers and employees between the IMC and terminals via shuttle bus; this alternative is considered technically and economically feasible. IMC users would be the same as described for Alternative 1.1. The alternative would remove some access

²⁷ Class A office space is defined as being located in prestigious buildings with high quality finishes, state-of-the-art systems, exceptional accessibility, and a market presence (Building Owners and Managers Association [BOMA] International, Building Class Definitions. Available at: https://www.boma.org/BOMA/Research-Resources/Industry_Resources/BuildingClassDefinitions.aspx [accessed January 19, 2024]).

²⁸ Broward County Aviation Department, 2020 Master Plan Update, Fort Lauderdale-Hollywood International Airport. November 2020.

²⁹ Ricondo & Associates, Inc., and Kimley-Horn and Associates, Inc., 2022. *Intermodal Center Concept Plan and Implementation Guide, Intermodal Center Advanced Planning Technical Report*, prepared for Broward County Aviation Department, November 2022.

³⁰ Broward Metropolitan Planning Organization, 2019. *Commitment 2045 Metropolitan Transportation Plan, Technical Report #13 Needs Assessment*. December 2019.

³¹ U.S. Department of Transportation, Federal Highway Administration, 2009. Administrative Action, Environmental Assessment, "SunPort" Broward County Intermodal Center and People Mover. June 2009.

trips from the terminal roadways and curbside but would require the continuation of shuttle bus operations on the terminal roadways and curbside. Due to the configuration of access/exit routes between the IMC and the regional roadway network, a direct connection between the IMC and terminal roadways is not feasible. Shuttle buses would be routed to northbound U.S. 1, and from U.S. 1, they would either make a U-turn and enter Terminal Drive from southbound U.S. 1 or exit to Northeast 7th Avenue, continue south toward the U.S. 1/Griffin Road intersection, and enter Terminal Drive from northbound U.S. 1.

2.1.3 CATEGORY 2: POTENTIAL ALTERNATIVES WITHIN THE PASSENGER TERMINAL COMPLEX

Development of an IMC within the passenger terminal complex would provide opportunities for convenient transportation between the terminals and the new landside access facility. As noted in Section 1.1.1, Terminal 5 is currently under construction; thus, the only remaining developable parcel of land within the passenger terminal complex is in the southeast corner, east of future Terminal 5. In addition to new development sites, BCAD has also evaluated the ability to redevelop Cypress Garage as an IMC.

Alternative 2.1 – Redevelop Cypress Garage as an Intermodal Center

Alternative 2.1 is considered technically and economically feasible. It includes redeveloping the Cypress Garage as an IMC and relocating the Rental Car Center and employee parking to an 18.5-acre parcel of land³² located at the northeast corner of Eller Drive and U.S. 1, referred to as the “Dynergy site” (see the Alternative 3.1 site on Exhibit 2-1). The Dynergy site development is also assumed to accommodate Class A office space. The structural design of Cypress Garage would require demolition and redevelopment for a facility at this site to function as an IMC. The alternative would include Palm Garage redevelopment, terminal roadway and curbside improvements, and commercial development as defined for BCAD’s Proposed Project (Alternative 1.1).

The alternative is assumed to meet the 18,810-space requirement for public and employee parking. Transport of employees and rental car patrons between the Rental Car Center at Dynergy and the terminals would be via shuttle bus. BCAD evaluated the ability to construct an APM between the Dynergy site and the terminals, but the ability to clear elevated portions of the terminal entrance/exit ramps and existing off-Airport roadway network while remaining below the protected airspace needed to safely operate Runway 10L-28R precluded the ability to find a feasible APM alignment.

The alternative would remove some rental car access trips from the terminal roadways and curbside with construction of a remote Rental Car Center, but it would require the continuation of shuttle bus operations on the terminal roadways and curbside, serving employees and rental car patrons. A second shuttle bus operation on the terminal roadways and curbside would be required to transport passengers between the new IMC at the Cypress Garage location and the terminals.

Alternative 2.2 – Site East of Future Terminal 5

A 3.7-acre parcel at the southeast corner of the passenger terminal complex, east of future Terminal 5, is available for redevelopment. However, the available footprint is too small to support an IMC. Additionally, this site is subject to 14 CFR Part 77³³ height restrictions to protect the airspace associated with Runway 10R-28L, so vertical development could not compensate for the small footprint. This alternative is not considered technically feasible and was eliminated as a potential alternative.

2.1.4 CATEGORY 3: POTENTIAL ALTERNATIVES ON AIRPORT PROPERTY, OUTSIDE THE PASSENGER TERMINAL COMPLEX

Development of an IMC on Airport property but outside of the passenger terminal complex was considered. Four locations on the east side of the Airport were considered as well as one alternative to locate an IMC on the west side³⁴ of the Airport. With construction of a remote, on-Airport IMC, all improvements and operational changes assumed for Alternative 1.2 in the passenger terminal complex are assumed to be included in these alternatives. Therefore, the following discussions focus on the feasibility of locating and operating an IMC at the identified on-Airport sites. Two sites are considered feasible and retained for further analysis.

³² BCAD and Port Everglades have shared (50/50) ownership of the Dynergy property.

³³ 14 CFR Part 77 establishes standards to determine obstructions to air navigation and to navigational and communications facilities that may affect the safe and efficient use of navigable airspace.

³⁴ An IMC on the west side of the Airport was considered conceptually for feasibility and did not include identification of a specific site.

Alternative 3.1 – Dynegy Site

Construction of an IMC at the Dynegy site is considered technically and economically feasible. The site's position along the U.S. 1 corridor is convenient to regional multimodal connections that may be developed by others in the future, including a light rail connection to the cruise port, the convention center, and downtown Fort Lauderdale.

The alternative is assumed to meet the 18,810-space requirement for public and employee parking. Site entrance/exit roadway improvements would be required to support surface roadway access to and from the Dynegy Site. Transport of employees and passengers between the Dynegy site and the terminals would be via shuttle bus. BCAD evaluated the ability to construct an APM between the Dynegy site and the terminals, but the ability to clear elevated portions of the terminal entrance/exit ramps and existing off-Airport roadway network while remaining below the protected airspace needed to safely operate Runway 10L-28R precluded the ability to find a feasible APM alignment.

The alternative would remove a portion of commercial vehicle drop-offs and temporarily remove a portion of public parking vehicles from the terminal roadways and curbside, but it would require the continuation of shuttle bus operations on the terminal roadways and curbside, serving employees and drop-and-ride passengers (as well as public parkers in the short-term). A second shuttle bus operation on the terminal roadways and curbside would be required to transport rental car patrons and public parkers between the Cypress Garage location and the terminals.

Alternative 3.2 – Griffin Road Site

Construction of an IMC at the Griffin Road site³⁵ is considered technically and economically feasible. The site's position is in alignment with transit along the U.S. 1 corridor; however, it is not conveniently positioned to serve a light rail connection to the cruise port, the convention center, and downtown Fort Lauderdale, which all are north of the Airport.

The alternative is assumed to meet the 18,810-space requirement for public and employee parking. Transport of employees and passengers between the Griffin Road site and the terminals would be via shuttle bus. Similar to the Dynegy site, the ability to construct an APM between the Griffin Road site and the terminals is not technically feasible. An APM alignment would need to clear elevated portions of the terminal entrance/exit ramps while routing around the Runway 28L end and remaining below the protected airspace needed to safely operate the runway. The east end of Runway 28L extends over several transportation corridors (from east to west: northbound U.S. 1, southbound U.S. 1, the FEC rail corridor, and Perimeter Road) that are accommodated in four tunnel sections. No additional capacity exists in the existing tunnels to add an APM alignment, and construction of a new tunnel under Runway 28L is not considered technically feasible due to the potential for construction vibration and exaction risks to the mechanically stabilized earth (MSE) structure supporting the east end of Runway 10R-28L, a major transportation facility.

The alternative would remove a portion of commercial vehicle drop-offs and temporarily remove a portion of public parking vehicles from the terminal roadways and curbside, but it would require the continuation of shuttle bus operations on the terminal roadways and curbside, serving employees and drop-and-ride passengers (as well as public parkers in the short-term). A second shuttle bus operation on the terminal roadways and curbside would be required to transport rental car patrons and public parkers between the Cypress Garage location and the terminals.

Other On-Airport Potential Alternatives Not Considered Technically or Economically Feasible

Three additional sites were considered but determined to not be technically or economically feasible.

Alternative 3.3 – Site East of Northeast 7th Street would accommodate an IMC in the north-south corridor of undeveloped land east of Northeast 7th Street. While primarily within the Airport property boundary, the site could extend beyond the eastern boundary of FLL. Construction at this site is not considered technically feasible, and the potential alternative was eliminated. This property is designated as freshwater forested/shrub wetlands on the National Wetlands Inventory (NWI)³⁶ and the southeast portion of the undeveloped corridor adjacent to the site is Broward County conservation land—the West Lake Park/Anne Kolb

³⁵ Airport property includes the western portion of the undeveloped land at the southeast corner of the U.S. 1/Griffin Road interchange. For purposes of this analysis, it is assumed development could fit within Airport property.

³⁶ U.S. Fish and Wildlife Service, *National Wetlands Inventory*. Available at: <https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/> (accessed January 9, 2024).

Nature Center.³⁷ Furthermore, the site is located beyond the Runway 28L end and is within the Runway Protection Zone (RPZ).³⁸ Development of an IMC within an RPZ is an incompatible use.

Alternative 3.4 – Site South of Runway 28L End is not conveniently located in relation to future potential multimodal connections. Construction of an IMC at this site is not technically feasible and was eliminated. The site is immediately south of the retaining wall supporting the east end of Runway 28L. Development at this site is restricted by the runway's RPZ and protected airspace over this parcel, so an IMC at this site is not considered feasible. The developable land south of the retaining wall is limited and currently serves as a dry detention basin. Additionally, construction vibration and excavation also present risks to the adjacent MSE structure supporting the elevated Runway 28L end. The RPZ and airspace challenges associated with development at this site along with potential for construction risks to the structural integrity of the MSE structure supporting Runway 28L, a major transportation facility, preclude construction at this site.

Alternative 3.5 – Site on the West Side of the Airport was considered conceptually, but a specific site for IMC development was not identified. This alternative, however, is not considered technically or economically feasible and was eliminated as a potential alternative. An IMC on the west side of the Airport is not in alignment with transit opportunities along the U.S. 1 corridor, Port Everglades, and FLL. Additionally, the surface transportation network does not support convenient access between the west side of FLL and the region or between the west side of FLL and the terminal facilities. The regional roadway network is configured to efficiently route vehicles to access the Airport on the east, so detailed analyses of roadway network capacity, configuration, connectivity, and wayfinding would be needed to support redirecting a portion of trips that typically access the Airport on the east to a west site. In addition to inefficient connectivity with the region, an IMC on the west side of the Airport would require a shuttle bus operation transporting employees and a portion of passengers around the airfield to the terminals. Employees are currently shuttled from the west side of the Airport to the terminals, and this operation is inefficient and expensive. Increasing the shuttle bus operation between the west and east sides of the Airport is not considered economically feasible.

2.1.5 CATEGORY 4: POTENTIAL ALTERNATIVES OFF AIRPORT PROPERTY

Development of an IMC near the Airport, within 1.5 miles of the terminal roadways, was considered. Four undeveloped locations were identified. With construction of a remote IMC at the potential sites, all improvements and operational changes assumed for Alternative 1.2 in the passenger terminal complex are assumed to be included in these alternatives. As discussed below, none of the four alternatives were identified as technically and economically feasible.

Alternative 4.1 – Site at the Northeast Corner of the Airport would include development of an IMC between Perimeter Road and the U.S. 1/I-595 ramps; however, this site accommodates a stormwater retention pond. Furthermore, development on this site is restricted because it lies within the RPZ for Runway 10L-28R, and development of an IMC within an RPZ is an incompatible use. This alternative is not considered technically feasible and was eliminated as a potential alternative.

Alternative 4.2 – Site South of the Dania Cut-Off Canal accommodates Broward County's West Lake Park/Anne Kolb Nature Center conservation land, which extends from the parcel east of Alternative 3.3 to the undeveloped land south of the Dania Cut-Off Canal; construction of an IMC on this site is not considered technically feasible.

Alternative 4.3 – Site East of Port Everglades comprises undeveloped property on the barrier island³⁹ east of FLL; however, this site is state conservation land—the Dr. Von D. Mizell-Eula Johnson State Park and would not be a technically feasible site to accommodate an IMC. Additionally, ground transportation access to the site must cross the Stranahan River to the barrier island, with the nearest bridge to the south at East Dania Beach Boulevard. The over-4-mile route is not considered economically feasible.

³⁷ Broward County, *Broward County GeoHub*, "Broward County Parks." Updated January 19, 2024. Available at: <https://geohub-bcgis.opendata.arcgis.com/search?q=parks&sort=Date%20Updated%7Cmodified%7Cdesc> (accessed January 19, 2024).

³⁸ An RPZ is a trapezoidal-shaped, horizontal, protection zone centered about the extended runway centerline. RPZs are defined to enhance the protection of people and property on the ground by ensuring the area remains clear of incompatible objects and activities. The dimensions of an RPZ are a function of the characteristics of the aircraft using the runway.

³⁹ A barrier island is a type of coastal landform, made up of sand, that is created through the movement of waves adjacent to the mainland coast.

Alternative 4.4 – Site North of the Airport is undeveloped property designated as City of Fort Lauderdale conservation land—Snyder Park.⁴⁰ It is not considered technically feasible to construct an IMC at the city park property.

2.2 Screening Process Overview and Screening Criteria

A screening process was followed to comparatively evaluate the technically and economically feasible alternatives to determine which are reasonable and should be carried forward in the EA for detailed analysis of environmental effects. In the screening process, each alternative was analyzed to identify whether the alternative could meet the Purpose and Need. Alternatives that could not achieve all elements of the Purpose and Need were eliminated from further consideration. Alternatives meeting all elements of the Purpose and Need were considered reasonable alternatives and retained for detailed analysis of environmental effects. **Table 2-2** identifies the evaluation criteria and describes how each criterion was evaluated.

Table 2-2 Alternative Evaluation Criteria to Evaluate Purpose and Need

PURPOSE AND NEED EVALUATION CRITERIA	EVALUATION CRITERIA MEASURE
Does the alternative meet forecast parking demand?	For the response to be “yes,” the alternative must accommodate the forecast 2035 demand of 18,810 public and employee parking spaces.
Does the alternative reduce terminal roadway and curbside configuration challenges?	For the response to be “yes,” the alternative must provide for supplemental curbsides for drop-off and pick-up activities by various modes of transportation, and bypass routing capabilities to reduce the volume of vehicles traveling along the curbfront roadways.
Does the alternative reduce traffic volumes along the terminal roadway?	For the response to be “yes,” the alternative must transition a landside access mode, or portion of activity using that mode, to a location that does not require use of the terminal roadway system.
Does the alternative improve the passenger landside access experience?	For the response to be “yes,” the alternative must (1) provide area for the development of additional landside amenities to support FLL passengers, and (2) provide convenient connections between landside access modes and the terminals that do not require a secondary trip along the terminal roadways.
Does the alternative meet local the objective of establishing a multimodal facility at FLL, a large-hub airport?	For the response to be “yes,” the alternative must provide a multimodal facility in a location accessible and convenient to regional transit that may be implemented by others, including the Broward Commuter Rail South and a light rail connection between the Airport, Port Everglades cruise port, the Broward County Convention Center, and downtown Fort Lauderdale.
Does the alternative support BCAD’s goal to increase generation of nonaeronautical revenues to support Airport operating expenses?	For the response to be “yes,” the alternative must provide for new development opportunities that would generate additional nonaeronautical revenue for BCAD.

NOTES: BCAD – Broward County Aviation Department FLL – Fort Lauderdale International Airport

SOURCE: Appendix A (Ricondo & Associates, Inc., February 2024).

The five alternatives considered technically and economically feasible, as well as the No Action Alternative, were evaluated for their ability to meet the Purpose and Need of the Proposed Project. This section presents the evaluation of the alternatives.

2.3 Screening: Would the Alternative Meet the Purpose for and Need of the Proposed Project?

2.3.1 NO ACTION ALTERNATIVE

The No Action Alternative does not include any landside improvements and would not meet any of the Purpose and Need criteria; however, it is carried forward for analysis of environmental effects pursuant to NEPA and FAA Orders. The No Action Alternative would serve as the basis for comparison of the impacts of the other alternatives that are carried forward for analysis.

2.3.2 ALTERNATIVE 1.1 – BCAD’S PROPOSED PROJECT

Alternative 1.1 would include development of an IMC adjacent to the passenger terminal complex (within the U.S. 1 interchange ROW) to accommodate curbside space, vehicle parking, Class A office space, and multimodal connections with a transfer lobby. It includes construction of an APM to connect the IMC, terminals, parking garages, and Rental Car Center; redevelopment of Palm Garage with an Airport hotel and commercial center; expansion of Cypress Garage; and reconfiguration of the terminal roadways

⁴⁰ City of Fort Lauderdale, *Parks & Facilities Listing, Snyder Park*. Available at: <https://www.parks.fortlauderdale.gov/Home/Components/FacilityDirectory/FacilityDirectory/62/1091> (accessed January 19, 2024).

and curbfront. The alternative meets the Purpose and Need of the Proposed Project, as discussed below, and is, therefore, retained for detailed analysis of environmental effects.

The Proposed Project would accommodate forecast parking demand. Approximately 19,000 parking spaces would be provided in the redeveloped Palm Garage, Hibiscus Garage, Cypress Garage, and the IMC, meeting the need to accommodate the 2035 forecast parking demand of 18,810 spaces.

The Proposed Project would improve the configuration of the terminal roadways and curbfront with development of a bypass lane to reduce unnecessary traffic in front of the terminals and reduce the need for lane changes. It also includes development of supplemental curbsides along the redeveloped roadways, within the redeveloped Palm Garage, and within the IMC.

The Proposed Project would reduce traffic volumes along the terminal roadway. The alternative would shift a portion of commercial service activity to the IMC curbside, which would allow these commercial vehicle operators to pick up passengers from the IMC without using the terminal roadways and curbfront. In addition to reducing activity by a landside access mode, this alternative would eliminate two BCAD shuttle bus operations that currently use the terminal roadways and curbfront—the employee shuttle bus and the Cypress Garage shuttle bus.

The Proposed Project would improve the landside passenger access experience. The Proposed Project includes area for the development of landside amenities to support FLL passengers, and provides for development of an Airport hotel and commercial center within the passenger terminal complex and Class A office space and a multimodal transfer lobby in the IMC. Also, the alternative would eliminate the secondary access trips along the terminal roadways that occur when shuttle bus operations are needed to transfer passengers and/or employees between a landside access facility (parking or Rental Car Center) and the terminals. With this alternative, employees and a segment of passengers would transfer between the off-site IMC and the terminals via the APM and would not access the terminal roadway system. The APM would also transfer passengers accessing the Cypress Garage (for public parking or the Rental Car Center) to/from the terminals, thus eliminating their secondary trip via shuttle bus along the terminal roadways.

The Proposed Project would meet the local objective of establishing a multimodal facility at FLL. The position of the IMC along the U.S. 1 corridor aligns with regional multimodal connections that may be developed by others in the future. The site is centrally located between the destinations of the Airport, the cruise port, the convention center, and downtown Fort Lauderdale, which minimizes the connecting travel distances between locations.

The Proposed Project supports BCAD's goal to increase generation of nonaeronautical revenues. The Proposed Project includes development of an Airport hotel and a commercial center within the passenger terminal complex and the development of a multimodal transfer lobby with concessions in the IMC, which provides opportunities within the constrained landside to increase the generation of nonaeronautical revenues to support Airport operating expenses.

2.3.3 ALTERNATIVE 1.2 – SITE EAST OF THE TERMINALS WITH BUSING (NO APM)

Alternative 1.2 is similar to BCAD's Proposed Project but does not include APM development. The alternative does not meet the Purpose and Need for the Proposed Project because it does not improve the passenger landside access experience, as discussed below. Therefore, the alternative was eliminated from further consideration.

Alternative 1.2 would accommodate forecast parking demand. Approximately 19,000 parking spaces would be provided in the redeveloped Palm Garage, Hibiscus Garage, expanded Cypress Garage, and the IMC, meeting the need to accommodate the 2035 forecast parking demand of 18,810 spaces.

Alternative 1.2 would improve the configuration of the terminal roadways and curbfront with development of a bypass lane to reduce unnecessary traffic in front of the terminals and reduce the need for lane changes. It also includes development of supplemental curbsides along the redeveloped roadways, within the redeveloped Palm Garage, and within the IMC.

Alternative 1.2 would reduce traffic volumes along the terminal roadway. It would shift a portion of commercial service activity to the curbside at the IMC, which would allow these commercial vehicle operators to pick up passengers from the IMC without using

the terminal roadways and curbfront. However, the benefits of the shift would be reduced by the need to add a shuttle bus operation to transport the individuals between the IMC and the passenger terminal complex.

Alternative 1.2 would not meet all criteria for improving the landside passenger access experience. The alternative includes area for the development of landside amenities to support FLL passengers and provides for development of an Airport hotel and commercial center within the passenger terminal complex and Class A office space and a multimodal transfer lobby in the IMC. However, without construction of an APM, passengers accessing the Cypress Garage (for public parking or the Rental Car Center) via the terminal roadway system in private vehicles and rental cars would need to take a secondary trip along the terminal roadways via shuttle bus to transfer between Cypress Garage and the terminals. This secondary trip that would be required for a portion of passengers would be inconvenient and inefficient, and thus would not improve the overall landside access experience for some passengers. Even with construction of a bypass terminal roadway and curbside improvements, the additional shuttle bus trips on the roadways and stops at each curbside would contribute to future congestion and detract from the benefits associated with roadway and curbfront improvements.

Alternative 1.2 would meet the local objective of establishing a multimodal facility at FLL. The position of the IMC along the U.S. 1 corridor aligns with regional multimodal connections that may be developed by others in the future. The site is centrally located between the transit destinations of the Airport, cruise port, the convention center, and downtown Fort Lauderdale, minimizing the travel distance for connections between FLL and regional transit.

Alternative 1.2 supports BCAD's goal to increase generation of nonaeronautical revenues. The alternative includes development of an Airport hotel and a commercial center within the passenger terminal complex and the development of Class A office space and a multimodal transfer lobby with concessions in the IMC, which increases opportunities within the constrained landside to increase the generation of nonaeronautical revenues to support Airport operating expenses.

2.3.4 ALTERNATIVE 2.1 – REDEVELOP CYRESS GARAGE AS AN INTERMODAL CENTER

Alternative 2.1 would redevelop the Cypress Garage as an IMC and require the operation of a shuttle bus system to connect the IMC and terminals. The alternative also displaces the Rental Car Center, which could be relocated to the Dynegy site in a facility that also includes parking and Class A office space. The alternative does not meet the Purpose and Need for the Proposed Project because it would not improve the passenger landside access experience and would not meet the local objective of establishing a multimodal facility at FLL, as discussed below. Therefore, the alternative was eliminated from further consideration.

Alternative 2.1 would accommodate forecast parking demand. Although detailed planning to identify allocation of parking spaces among landside facilities was not conducted, it is assumed that between the reconstruction of Palm Garage, IMC development, and Rental Car Center/parking at the Dynegy site, this alternative would have the ability to meet the forecast parking demand for FLL.

Alternative 2.1 would improve the configuration of the terminal roadways and curbfront with development of a bypass lane to reduce unnecessary traffic in front of the terminals and reduce the need for lane changes. It also includes development of supplemental curbsides along the redeveloped roadways, within the redeveloped Palm Garage, and within the IMC.

Alternative 2.1 would reduce traffic volumes along the terminal roadway. The alternative would shift the Rental Car Center to the Dynegy Site, so rental car patrons would be able to pick up vehicles and depart the Airport as well as drop-off vehicles when returning to the Airport without driving along the terminal roadways. The shuttle bus operation transporting rental car patrons between the Rental Car Center and terminals would continue along the terminal roadways and curbfront (although the route would extend outside of the passenger terminal complex to the Dynegy Site). Even with construction of a bypass terminal roadway and curbside improvements, the additional shuttle bus trips on the roadways and stops at each curbside would contribute to future congestion and detract from the benefits associated with roadway and curbfront improvements.

Alternative 2.1 would not meet all criteria for improving the landside passenger access experience. The alternative includes area for the development of landside amenities to support FLL passengers and provides for development of an Airport hotel, a commercial center, and a multimodal transfer lobby. However, without construction of an APM, passengers accessing the IMC at the former Cypress Garage site for public parking or use of the remote curbsides via the terminal roadway system would need to take a secondary trip along the terminal

roadways via shuttle bus to transfer between IMC and the terminals. This secondary trip that would be required for a portion of passengers would be inconvenient and inefficient, and thus would not improve the overall landside access experience for some passengers.

Alternative 2.1 would not meet the local objective of establishing a multimodal facility at FLL. The alternative's IMC position in the passenger terminal complex would allow passengers to transfer from other modes along the nearby U.S. 1 corridor, but the passenger terminal complex is too congested to allow new modes to connect directly to the IMC. This site would not provide the ability for a true multimodal facility that would provide for the desired convenient multimodal connections.

Alternative 2.1 supports BCAD's goal to increase generation of nonaeronautical revenues. The alternative includes development of an Airport hotel, a commercial center, and a multimodal transfer lobby with concessions in the IMC and assumes ability to accommodate Class A office space at the relocated Rental Car Center. These developments increase opportunities within the constrained landside to increase the generation of nonaeronautical revenues to support Airport operating expenses.

2.3.5 ALTERNATIVE 3.1 – DYNEGY SITE

Alternative 3.1 would develop an IMC at the Dynegy Site. The alternative includes operation of a shuttle bus to connect the IMC, terminals, parking garages, and Rental Car Center.⁴¹ Alternative 3.1 does not meet the Purpose and Need for the Proposed Project because it would not improve the passenger landside access experience, as discussed below. Therefore, the alternative was eliminated from further consideration.

Alternative 3.1 would accommodate forecast parking demand. Although detailed planning to identify allocation of parking spaces among landside facilities was not conducted, it is assumed that this alternative would have the ability to meet the forecast parking demand for FLL considering the reconstruction of Palm Garage and IMC development.

Alternative 3.1 would improve the configuration of the terminal roadways and curbfront with development of a bypass lane to reduce unnecessary traffic in front of the terminals and reduce the need for lane changes. It also includes development of supplemental curbsides along the redeveloped roadways, within the redeveloped Palm Garage, and within the IMC.

Alternative 3.1 would reduce traffic volumes along the terminal roadway. It would shift a portion of commercial service activity to the curbside at the IMC, which would allow these commercial vehicle operators to pick up passengers from the IMC without using the terminal roadways and curbfront. However, the benefits of the shift would be reduced by the need to add a shuttle bus operation to transport the individuals between the IMC and the passenger terminal complex.

Alternative 3.1 would not meet all criteria for improving the landside passenger access experience. The alternative includes area for the development of landside amenities to support FLL passengers and provides for the development of an Airport hotel, commercial center, and a multimodal transfer lobby. However, without construction of an APM, passengers accessing the Cypress Garage (for public parking or the Rental Car Center) via the terminal roadway system in private vehicles and rental cars would need to take a secondary trip along the terminal roadways via shuttle bus to transfer between Cypress Garage and the terminals. This secondary trip that would be required for a portion of passengers would be inconvenient and inefficient and would not improve the overall landside access experience for some passengers.

Alternative 3.1 would meet the local objective of establishing a multimodal facility at FLL. The alternative's IMC position along the U.S. 1 corridor is convenient to regional multimodal connections that may be developed by others in the future to connect FLL, downtown Fort Lauderdale, and Port Everglades. The location is centrally located between the transit destinations of the Airport, downtown, and the cruise port, minimizing the travel distance for connections between FLL and regional transit.

Alternative 3.1 supports BCAD's goal to increase generation of nonaeronautical revenues. The alternative includes development of an Airport hotel and a commercial center within the passenger terminal complex and the development of Class A office space

⁴¹ BCAD evaluated the ability to construct an APM between the Dynegy site and the terminals, but the ability to clear elevated portions of the terminal entrance/exit ramps and existing off-Airport roadway network while remaining below the protected airspace needed to safely operate Runway 10L-28R precluded the ability to identify a feasible APM alignment.

and a multimodal transfer lobby with concessions in the IMC, which increases opportunities within the constrained landside to increase the generation of nonaeronautical revenues to support Airport operating expenses.

2.3.6 ALTERNATIVE 3.2 – GRIFFIN ROAD SITE

Alternative 3.2 includes development of an IMC at the Griffin Road Site and operation of a shuttle bus to connect the IMC,⁴² terminals, parking garages, and Rental Car Center. The alternative does not meet the Purpose and Need for the Proposed Project because it does not improve the passenger landside access experience and would not meet the local objective of establishing a multimodal facility at FLL, as discussed below. Therefore, the alternative was eliminated from further consideration.

Alternative 3.2 would accommodate forecast parking demand. Although detailed planning to identify allocation of parking spaces among landside facilities was not conducted, it is assumed that this alternative would have the ability to meet the forecast parking demand for FLL in the reconstructed Palm Garage and the IMC.

Alternative 3.2 would improve the configuration of the terminal roadways and curbside with development of a bypass lane to reduce unnecessary traffic in front of the terminals and reduce the need for lane changes. It also includes development of supplemental curbsides along the redeveloped roadways, within the redeveloped Palm Garage, and within the IMC.

Alternative 3.2 would reduce traffic volumes along the terminal roadway. It would shift a portion of commercial service activity to the curbside at the IMC, which would allow these commercial vehicle operators to pick up passengers from the IMC without using the terminal roadways and curbside. However, the benefits of the shift would be reduced by the need to add a shuttle bus operation to transport the individuals between the IMC and the passenger terminal complex.

Alternative 3.2 would not meet all criteria for improving the landside passenger access experience. The alternative includes area for the development of landside amenities to support FLL passengers and provides for development of an Airport hotel, a commercial center, and a multimodal transfer lobby in the IMC. However, without construction of an APM, passengers accessing the Cypress Garage (for public parking or the Rental Car Center) via the terminal roadway system in private vehicles and rental cars would need to take a secondary trip along the terminal roadways via shuttle bus to transfer between Cypress Garage and the terminals. This secondary trip that would be required for a portion of passengers would be inconvenient and inefficient, and thus would not improve the overall landside access experience for some passengers.

Alternative 3.2 would not meet the local objective of establishing a multimodal facility at FLL. The alternative's IMC position along the U.S. 1 corridor is proximate to existing rail alignments. However, the IMC location south of the Airport is not centrally located to serve the local priority destinations of FLL, downtown, and the cruise port, so this alternative would require extra travel distances for passengers between the terminals and regional transit connections.

Alternative 3.2 supports BCAD's goal to increase generation of nonaeronautical revenues. The alternative includes development of an Airport hotel and a commercial center within the passenger terminal complex and the development of Class A office space and a multimodal transfer lobby with concessions in the IMC, which increases opportunities within the constrained landside to increase the generation of nonaeronautical revenues to support Airport operating expenses.

2.4 Sponsor's Preferred Alternative

The results of the alternatives analysis are presented in **Table 2-3**. Based on this analysis, construction of an IMC in the ROW of the U.S. 1 interchange with the terminal entrance/exit roadways and an APM (Alternative 1.1) is the Sponsor's preferred development option. This is the only technically and economically feasible alternative that meets the Purpose and Need for the Proposed Project.

⁴² The ability to construct an APM between the Griffin Road site and the terminals is not feasible from a technical perspective because the APM alignment would need to clear elevated portions of the terminal entrance/exit ramps while routing around the Runway 28L end and remaining below the protected airspace needed to safely operate the runway. Furthermore, no additional capacity exists in the existing tunnels under the Runway 28L end.

Table 2-3 Summary of Alternatives Analysis

PURPOSE AND NEED EVALUATION CRITERIA	NO ACTION ALTERNATIVE	ALTERNATIVE 1.1 BCAD'S PROPOSED PROJECT	ALTERNATIVE 1.2 SITE EAST OF THE TERMINALS WITH BUSING	ALTERNATIVE 2.1 REDEVELOP CYPRESS GARAGE AS AN INTERMODAL CENTER	ALTERNATIVE 3.1 DYNEGY SITE	ALTERNATIVE 3.2 GRIFFIN ROAD SITE
Does the alternative meet forecast parking demand?	No	Yes	Yes	Yes	Yes	Yes
Does the alternative reduce terminal roadway and curbside configuration challenges?	No	Yes	Yes	Yes	Yes	Yes
Does the alternative reduce traffic volumes along the terminal roadway?	No	Yes	Yes	Yes	Yes	Yes
Does the alternative improve the passenger landside access experience?	No	Yes	No	No	No	No
Does the alternative meet local the objective of establishing a multimodal facility at FLL, a large-hub airport?	No	Yes	Yes	No	Yes	No
Does the alternative support BCAD's goal to increase generation of nonaeronautical revenues to support Airport operating expenses?	No	Yes	Yes	Yes	Yes	Yes
Does the alternative meet the Purpose and Need for the Proposed Project?	No	Yes	No	No	No	No
Was the alternative carried forward for detailed analysis of environmental affects?	Yes ¹	Yes	No	No	No	No

NOTES:

BCAD – Broward County Aviation Department

FLL – Fort Lauderdale International Airport

¹ The No Action Alternative is carried forward for analysis of environmental effects in accordance with NEPA and FAA Orders

SOURCE: Appendix A (Ricondo & Associates, Inc., February 2024).

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3. Affected Environment and Environmental Consequences

3.1 Introduction

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

3.1.1 STUDY AREAS

A General Study Area (GSA) and Detailed Study Area (DSA) were defined for the Proposed Project, which are below. For certain resources considered in this EA, specialized study areas were designated. The resource-specific study areas developed for this EA include the Area of Potential Effects (APE) for Historic Resources, an Action Area for Biological Resources, and a regional study area for resources that require a broader review.

3.1.1.1 General Study Area

The GSA is defined as the area where both direct and indirect impacts may result from the development of the Proposed Project. In this EA, the GSA boundary lines follow the perimeter of the drainage system for U.S. 1, major roadways, and other identifiable features, where available. In all circumstances, the GSA includes landside facilities at FLL, the proposed site of the IMC, and the primary stormwater basin for U.S. 1. The GSA is shown on **Exhibit 3-1**.

3.1.1.2 Detailed Study Area

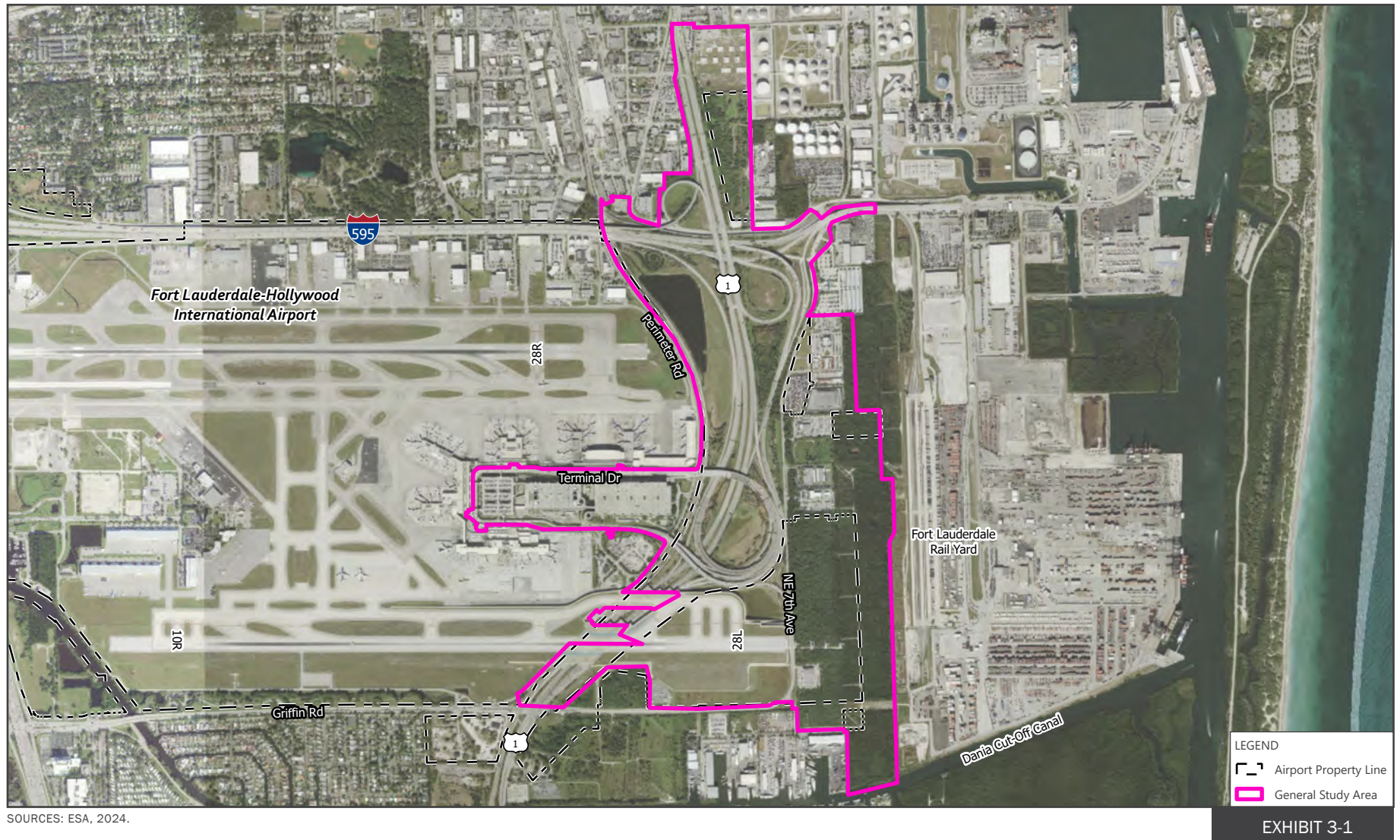
The DSA is generally defined as the areas where direct physical impacts may result from the Proposed Project. The DSA is inclusive of the area where direct construction-related ground disturbance would occur as well as where additional stormwater would be directed within an existing stormwater management treatment area. As such, the DSA represents the Proposed Project site and includes areas of potential physical disturbance due to construction. The DSA is shown on **Exhibit 3-2**.

3.1.2 MEASURING ENVIRONMENTAL IMPACTS AND STUDY YEARS

Impacts are analyzed and discussed at a level of detail necessary to disclose impacts and determine their significance. Impact significance was evaluated in accordance with FAA Order 1050.1F and 1050.1 Desk Reference. The environmental consequences analysis considers all potential environmental and social impacts of the Proposed Project when compared to the No Action Alternative for the same time frame. The year used to identify Existing Conditions in this EA is 2023, the most recent full calendar year. It is anticipated that construction would begin in 2026 and be completed in 2032. Therefore, the Future Conditions study years are 2033 and 2038, which reflect the first full year of operation and five years after the first year of operation.

3.1.3 RESOURCES CATEGORIES NOT AFFECTED

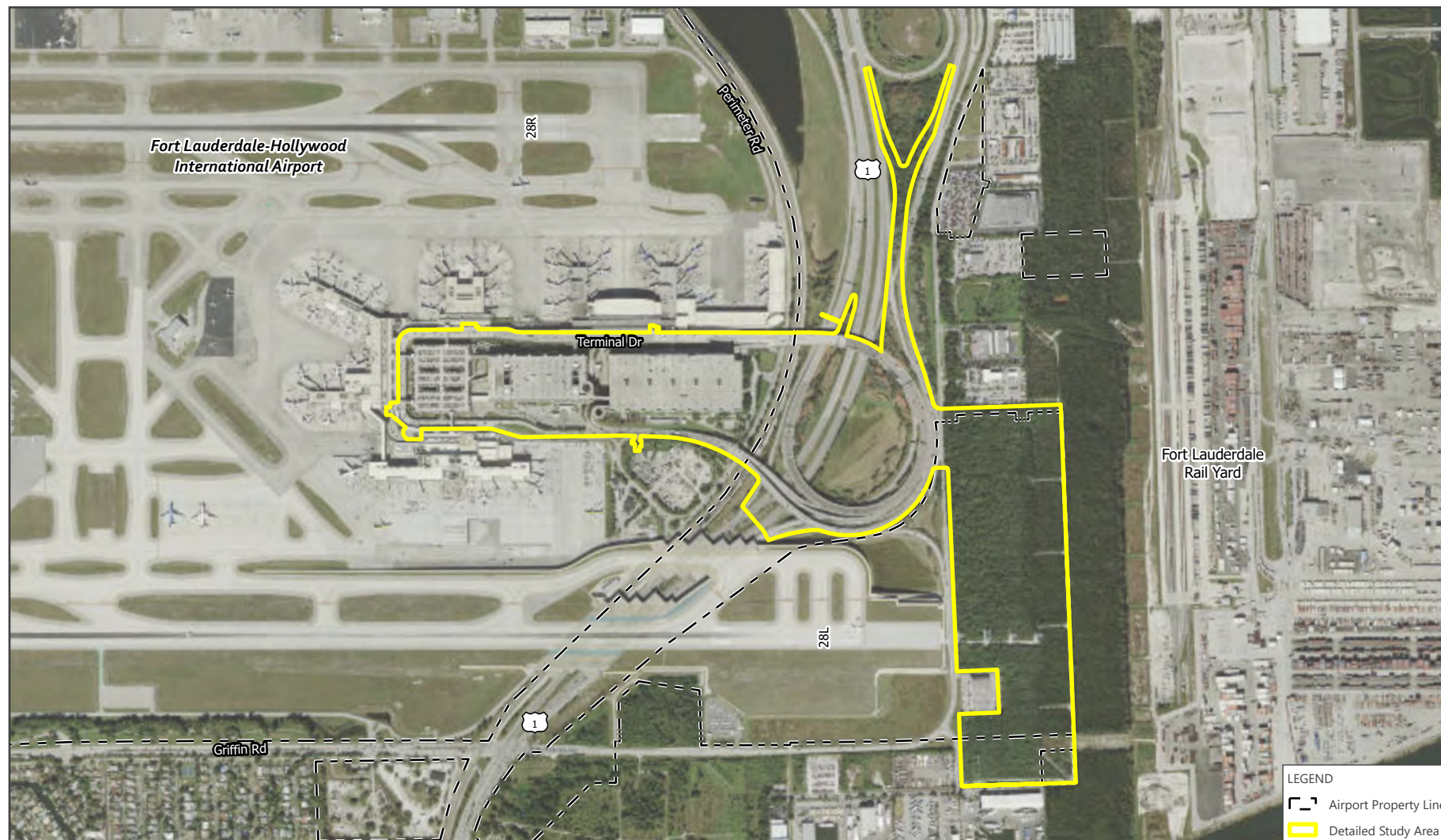
The environmental resources identified in FAA Order 1050.1F that would not be affected by the Proposed Project are listed and discussed below.



SOURCES: ESA, 2024.



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SOURCES: ESA, 2024.

LEGEND
 Airport Property Line
 Detailed Study Area

EXHIBIT 3-2



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Detailed Study Area Fort Lauderdale-Hollywood International Airport

3.1.3.1 Farmlands

The *Farmland Protection Policy Act (FPPA) of 1981* protects farmland, defined as prime or unique, from conversion to other uses. The FPPA does not apply to urbanized areas such as Fort Lauderdale, and FLL is an urban area⁴³. Therefore, the Proposed Project would not affect any farmland and would not convert agricultural land to transportation use. This resource was eliminated from further analysis in this EA.

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

Wild and Scenic Rivers are rivers, tributaries, creeks, and small lakes, with adjacent land that possess outstanding scenic, recreational, and wildlife values, that are designated through the *Wild and Scenic Rivers Act* to be preserved in free-flowing condition. Florida has two rivers designated as Wild and Scenic River System rivers: the Loxahatchee River in southeast Florida and the Wekiva River in central Florida, north of Orlando. These rivers are located over 90 miles away from FLL, which is well beyond the 0.25-mile distance that requires further analysis. Accordingly, this resource was eliminated from further analysis in this EA.^{44,45}

3.1.4 RESOURCES CONSIDERED IN THIS EA

FAA Order 1050.1F identifies environmental impact categories that the FAA examines for most of its actions. A total of 13 resource categories were evaluated for their potential to be impacted by the Proposed Project. This chapter also provides a list of past, present, and reasonably foreseeable projects that, in conjunction with the Proposed Project, may result in cumulative environmental impacts. The following sections discuss environmental resource impacts.

3.2 Air Quality

3.2.1 REGULATORY CONTEXT

The *Clean Air Act of 1970* (42 U.S.C. §§ 7401–7671q) (CAA), as amended, required the U.S. Environmental Protection Agency (USEPA) to develop National Ambient Air Quality Standards (NAAQS) for the “criteria air pollutants” considered harmful to public health and the environment.⁴⁶ Each state is required to analyze air quality in areas within their jurisdiction and make recommendations to the USEPA on whether they meet the NAAQS. “Attainment” areas meet or surpasses the NAAQS whereas those areas that do not meet the NAAQS are designated as being in “nonattainment.” Areas formally designated as “nonattainment” that have met the NAAQS are designated as “maintenance.” Under the General Conformity Rule (see 40 CFR Part 93), certain federal actions occurring in nonattainment areas require a general conformity determination, as defined under 40 CFR §93.153(b). The FAA has identified projects that are “presumed to conform” (see 72 Federal Register 41565–41580 [July 30, 2007]) and are thus not subject to General Conformity requirements. National standards exist for hazardous air pollutants (HAPs), which are regulated under Section 112(b) of the 1990 *Clean Air Act Amendments* (Pub. Law 101-549). Because of the low levels of emissions of these pollutants in air below the national average mixing height (3,000 feet above ground level), HAPs are not quantified in this EA.

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

⁴³ U.S. Census Bureau Urban Area Boundaries, 2020. Available at: <https://gis-fdot.opendata.arcgis.com/maps/edit?content=fdot%3A%3Au-s-census-urban-area-boundaries-2020> (accessed May 15, 2024).

⁴⁴ National Park Service, 2023. Available at: <https://www.nps.gov/maps/full.html?mapId=8adbe798-0d7e-40fb-bd48-225513d64977> (accessed December 2023).

⁴⁵ Wild and Scenic River Database, 2023. Available at: <https://www.rivers.gov/florida.php> (accessed December 2023).

⁴⁶ Criteria air pollutants include precursors of ozone (O₃) which include volatile organic compounds (VOC) and oxides of nitrogen (NO_x); carbon monoxide (CO); nitrogen dioxide (NO₂); sulfur dioxide (SO₂); particulate matter less than or equal to 10 microns in diameter (coarse particulates or PM₁₀); particulate matter less than or equal to 2.5 microns in diameter (fine particulates or PM_{2.5}); and lead.

3.2.2 METHODOLOGY

The USEPA has designated Broward County as attainment for each of the criteria air pollutants.⁴⁷ Since the USEPA established attainment at the county level, the Proposed Project was assessed for air quality impacts using Broward County as the study area. Given that the Proposed Project is not located in a nonattainment or maintenance area for any criteria air pollutant, a General Conformity determination is not necessary (40 CFR §93.153[b]).⁴⁸ The Proposed Project also does not include development actions that would result in a change in aircraft operations at the Airport. Further, the Proposed Project would not induce growth in passenger levels or vehicular travel. Therefore, emissions from aircraft and surface transportation were not modeled as part of this EA and the potential operational impacts of the Proposed Project on air resources are discussed qualitatively in this section. For assessing the potential impacts of construction on air quality resources, USEPA's Motor Vehicle Emission Simulator (MOVES) was used for calculating emissions associated with construction activity. For this analysis, activity profiles and emission factors generated by MOVES for construction activity include non-road sources, on-road sources, and fugitive emissions. **Appendix B** describes the methodology used in this air quality analysis for construction emissions.

3.2.3 AFFECTED ENVIRONMENT

Broward County is designated as being in attainment with the NAAQS for all criteria air pollutants.⁴⁹ Air quality is monitored at six air monitoring stations throughout the County.⁵⁰ The nearest monitoring station to FLL (Dr. Von Mizell-Eula Johnson State Park) is located about 1.5 miles east of the Airport and monitors O₃ and NO₂. A full year of data from the Dr. Von Mizell-Eula Johnson State Park and Near Road monitoring station is provided below in **Table 3-1**.

Table 3-1 Dr. Von Mizell-Eula Johnson State Park Station Air Quality Data

DATE OF AVERAGE POLLUTANT CONCENTRATION (O ₃ , 8-HOUR AVERAGE, & NO ₂ 1-HOUR AVERAGE)		8-HOUR AVERAGE POLLUTANT CONCENTRATION (PPB)	1-HOUR AVERAGE POLLUTANT CONCENTRATION (PPB)
YEAR	MONTH	O ₃	NO ₂
2024	January	37.52	20.41
2023	February	36.33	22.08
2023	March	41.48	18.93
2023	April	36.54	15.94
2023	May	43.03	16.63
2023	June	34.04	22.94
2022	July	23.16	7.36
2023	August	27.87	15.90
2023	September	32.83	16.24
2023	October	39.68	13.43
2023	November	37.10	13.34
2023	December	35.29	17.79

NOTES: Monitoring data was unavailable for July 2023.

O₃ = ozone; NO₂ = nitrogen dioxide; PPB = parts per billion.

SOURCE: Florida Department of Environmental Protection, Air Quality Monitoring (Accessed February 2024); Data collected and compiled by Environmental Science Associates (2024).

⁴⁷ USEPA, 2023. *Florida Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants*. Available at: https://www3.epa.gov/airquality/greenbook/anayo_fl.html (accessed December 2023).

⁴⁸ Under the General Conformity Rule (see 40 CFR Part 93), certain federal actions occurring in nonattainment areas require a general conformity determination, as defined under 40 CFR §93.153(b).

⁴⁹ USEPA, 2023. *Florida Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants*. Available at: https://www3.epa.gov/airquality/greenbook/anayo_fl.html (accessed December 2023).

⁵⁰ Broward County, 2023. *Broward County's Air Monitoring Sites*. Available at: <https://bcgishub.broward.org/portal/apps/Cascade/index.html?appid=a54d35ce890a4f2aabac4bb995dc7809> (accessed December 2023).

3.2.4 ENVIRONMENTAL CONSEQUENCES

3.2.4.1 No Action Alternative

Under the No Action Alternative, the proposed IMC, APM, hotel and commercial center, and parking roadway enhancements would not be constructed, and no potential construction impacts would occur. However, under this alternative, there would be no benefits related to improved local mobility and decreased traffic congestion in 2033 or 2038. Under the No Action Alternative, future background traffic would continue to grow in response to the projected FLL passenger levels and traffic volumes in Broward County. Terminal curbside and roadways would continue to be congested with both transit buses and passenger vehicles, which would result in persistent vehicular idling emissions. Parking garages would be at capacity and unable to accommodate increasing passenger demand, leading to increased traffic at the terminal area from vehicles searching for vacant parking spaces. Lastly, regional objectives to improve mobility and decrease congestion would be unmet resulting in fewer low-emission options available to passengers traveling to and from FLL.

3.2.4.2 Proposed Project

Operational Impacts

The Proposed Project does not include development actions that would result in a change in aircraft operations at the Airport. The Proposed Project would also not induce growth in passenger levels or vehicular travel in future years. Background growth trends in traffic volumes and passenger levels at FLL would continue to increase as forecast in the Master Plan Update. Therefore, the Proposed Project would not result in additional air quality impacts in 2033 or 2038.

The Proposed Project would provide air quality benefits at FLL by improving landside access options and facilities to meet existing and forecast passenger activity levels and parking demands while reducing congestion in the terminal area. The IMC, APM, hotel and commercial center would operate on electricity after construction and there would be no operational emissions associated with these facilities in 2033 and 2038. The APM would also reduce the number of idling vehicles on Terminal Drive and curbside by providing passengers with a low-emission mode of travel to and from the IMC. Further, the parking improvements included in the Proposed Project would enable the Airport to meet forecasted passenger levels and reduce emissions in the terminal area. Lastly, the supplemental curb allows vehicles to circumvent busy curbside thereby reducing congestion and associated idling emissions.

Construction Impacts

Construction associated with the Proposed Project elements is scheduled to start in 2026 and end in 2032. Construction has the potential to create air quality impacts due to use of heavy-duty construction equipment and vehicle trips generated from construction work. In addition, fugitive dust emissions would result from site preparation and grading activities. Mobile source emissions would result from the use of non-road construction equipment such as graders, backhoes, and dozers; on-road vehicles such as dump trucks and cement mixers; as well as passenger cars used in employee travel. During the finishing phase, paving operations and the application of asphalt, architectural coatings (i.e., paints), and other building materials would release VOCs. BCAD would work with construction contractors to employ best management practices (BMPs) to reduce construction emissions from the Proposed Project elements. BMPs are discussed in Section 3.2.6.

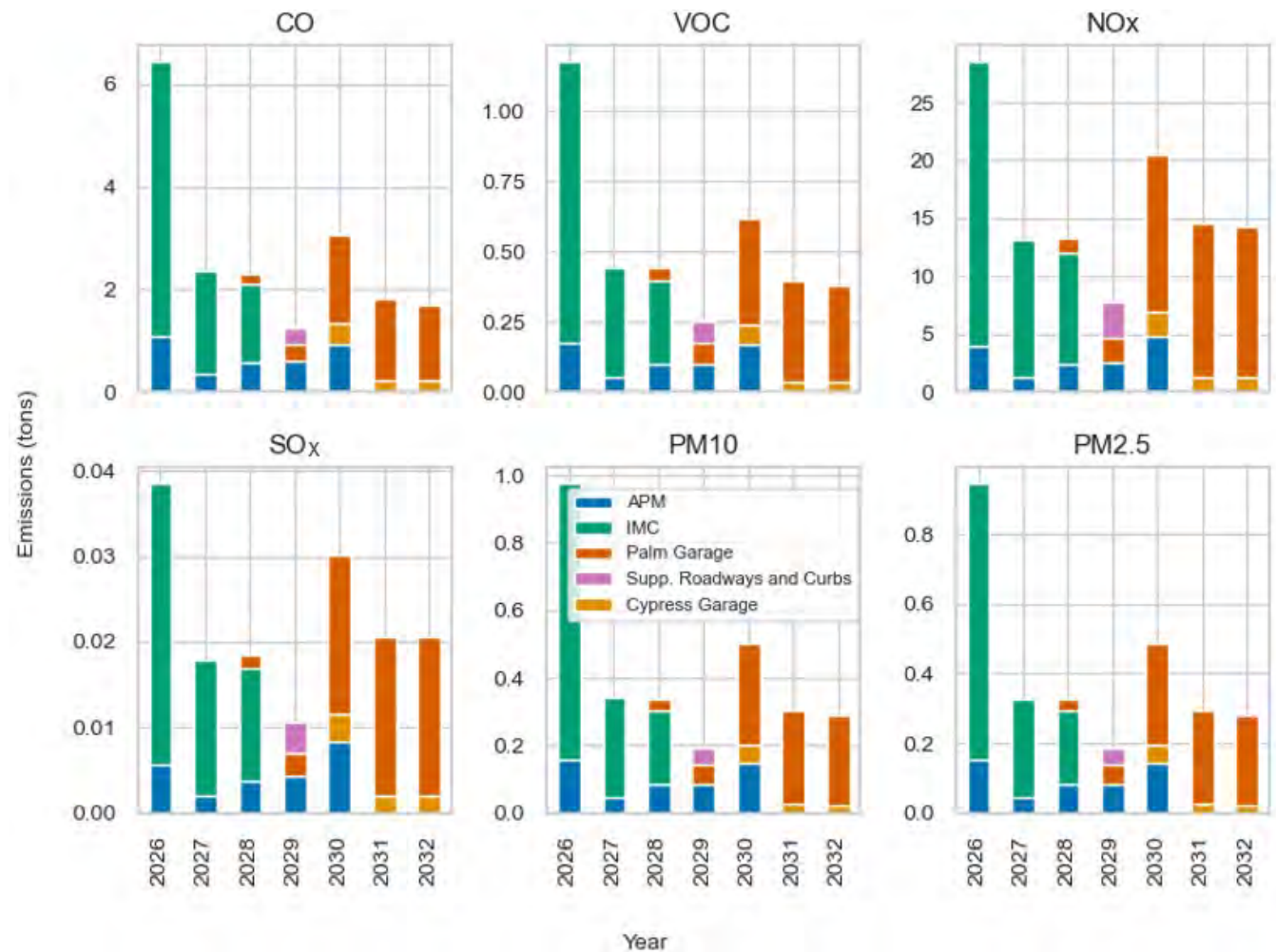
Construction emissions can vary substantially from day to day, depending on the phase of construction, the specific type of construction activities performed on a given day, and weather conditions. The estimated annual construction emissions inventory for the Proposed Project is presented in **Table 3-2**. The first year of construction (2026) represents the highest level of emissions associated with the start of site preparation work for the IMC and APM. Construction emissions associated with the IMC and APM continue into 2028 and 2029 at lower levels. Construction emissions reach their lowest levels in 2029 with the completion of the IMC in previous year. Emissions increase again in 2030 due to the Palm Garage Redevelopment along with the supplemental roadways and curbside, Cypress Garage Expansion, and completion of the APM. After 2030, emissions levels reduce substantially due to completion of the APM and IMC. Project-level emissions estimates by year are depicted on **Figure 3-1**. Estimated annual construction emissions for each element and phase of the Proposed Project are also presented in Table 3 of **Appendix B**.

Table 3-2 Proposed Project Annual Construction-Related Criteria Air Pollutant Emissions Inventory (tons)

YEAR	CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
2026	6.43	1.17	28.48	0.04	0.98	0.95
2027	2.37	0.44	13.14	0.02	0.34	0.33
2028	2.31	0.45	13.31	0.02	0.34	0.33
2029	1.23	0.25	7.75	0.01	0.19	0.19
2030	3.06	0.62	20.46	0.03	0.50	0.48
2031	1.82	0.40	14.51	0.02	0.31	0.30
2032	1.70	0.38	14.26	0.02	0.29	0.28
TOTAL (all years)	18.92	3.71	111.91	0.16	2.95	2.86

NOTES: CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; SO_x = oxides of sulfur; VOC = volatile organic compounds.

SOURCE: Data calculated and compiled by Environmental Science Associates (2024).

Figure 3-1 Annual Construction-Related Criteria Air Pollutant Emissions Inventory by Proposed Project Element (tons)


NOTES: CO = carbon monoxide; NO_x = oxides of nitrogen; PM_{2.5} = particulate matter less than or equal to 2.5 microns in diameter; PM₁₀ = particulate matter less than or equal to 10 microns in diameter; SO_x = oxides of sulfur; VOC = volatile organic compounds.

SOURCE: Created by Environmental Science Associates (2024).

3.2.5 SIGNIFICANCE DETERMINATION

As discussed in the FAA Order 1050.1F, Exhibit 4-1, significant air quality impacts would occur if “the action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the USEPA under the CAA, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.” Since the GSA is not located in an USEPA-designated nonattainment or maintenance area for any of the NAAQS, the General Conformity Rule (Section 176[c][1] of the CAA) *de minimis* thresholds are not applicable to the Proposed Project. Though not applicable, annual emissions from construction activity associated with the Proposed Project fall below General Conformity Rule *de minimis* thresholds for each criteria pollutant (see Table 4 of **Appendix B**). Therefore, the construction emissions associated with the Proposed Project when compared to the No Action Alternative for the same timeframe, would not cause or contribute to violations of the NAAQS for criteria air pollutants. Further the Proposed Project would not contribute to violations in the NAAQS in either 2033 or 2038. Therefore, the Proposed Project would not cause significant impacts to air quality.

3.2.6 BEST MANAGEMENT PRACTICES

Although the Proposed Project would not have significant air quality impacts and mitigation is not required, BCAD would work with contractors to implement the following standard construction BMPs: curtailing construction activities during periods of high wind conditions; reducing exposed erodible surface area through appropriate materials and equipment staging procedures; stabilizing stockpiles of raw materials and other temporarily disturbed areas with water or ground cover; stabilizing soils and establishing persistent ground cover as soon as possible after grading and construction activities; reducing equipment idling times and on-site vehicle speed; utilizing vapor-recovery systems for fuel-storage facilities; low- or zero-emissions equipment; and covered haul trucks during materials transportation.

3.3 Biological Resources

3.3.1 REGULATORY CONTEXT

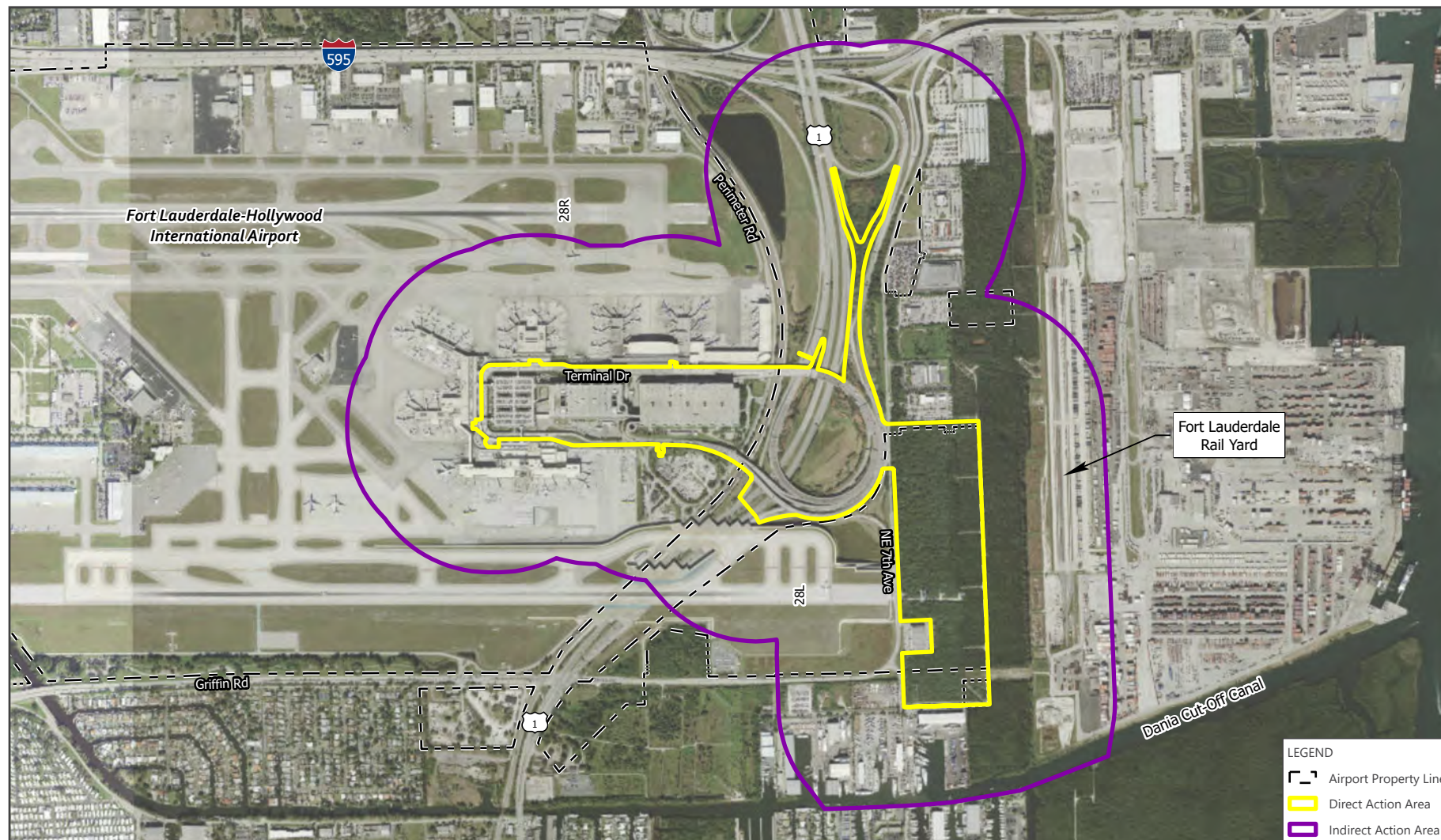
The Endangered Species Act of 1973 (16 U.S.C. §§ 1531–1544) requires the FAA to determine if a Proposed Project under its purview would affect a federally listed species or critical habitat designated for that species.⁵¹ In addition, candidate species (any species that either the U.S. Fish & Wildlife Service [USFWS] or National Oceanic and Atmospheric Administration Fisheries [NOAA Fisheries] is considering for listing as “endangered” or “threatened”), shall be identified to alert federal agencies of potential proposals or listings. Federally listed endangered or threatened species are also listed as such by the state of Florida.⁵² Many of the bird species referenced in this document are, collectively, also protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. §§ 703–711).

3.3.2 METHODOLOGY

As part of this EA, Action Areas were delineated for use in assessing potential impacts on biological resources. As indicated in 50 CFR § 402.02, the Action Areas are a distinct study area specific to the assessment of biological resources that encompasses all areas that may be affected directly or indirectly by the Proposed Project. The direct Action Area is the area proposed for development comprised of landside infrastructure that includes existing pavement, the proposed site of the IMC, stormwater infrastructure, and maintained disturbed land in between transportation development. The indirect Action Area includes an approximate quarter-mile buffer that borders the Proposed Project’s direct Action Area. Areas south of the Dania Cut-Off Canal were not included in the indirect Action Area because these lands would not be affected directly or indirectly by the Proposed Project. The direct and indirect Action Areas are depicted on **Exhibit 3-3**.

⁵¹ *Endangered Species Act*. 16 U.S. Code § 1531-1544. December 28, 1973. As amended 1976–1982, 1984, and 1988.

⁵² Pursuant to Florida Statute 379.411.



SOURCES: ESA, 2024.

LEGEND
 Airport Property Line
 Direct Action Area
 Indirect Action Area

EXHIBIT 3-3

Action Area Fort Lauderdale-Hollywood International Airport



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Potential impacts to biological resources, including terrestrial and aquatic plant and animal species, game and non-game species, special status species, and environmentally-sensitive or critical habitats, were evaluated (Exhibit 1-4). Potential impacts were assessed against the existing conditions, as described in Section 3.3.3, by overlaying the Proposed Project on the land use/vegetative cover map. The potential use of various habitats within the direct Action Area by special status species was evaluated and compared to any loss of habitat within the area of disturbance. The indirect Action Area was assessed for potential indirect impacts to biological resources within this area.

A thorough review of publicly available resources, prior studies, and known site conditions was conducted to characterize biological resources within the Action Areas and to provide a comprehensive listing of the potential for species occurrence, including any special status species. Multiple field reviews were also conducted within the Action Areas on March 31, 2023, and January 31, 2024. Database searches included: USFWS Information for Planning and Consultation (IPaC) database, Environmental Conservation Online System, and Critical Habitat Mapper; Florida Fish and Wildlife Conservation Commission (FFWCC) List of Florida's Endangered Wildlife Species (68A-27.003 Florida Administrative Code) and Species of Special Concern (68A-27.005 FAC); NOAA Fisheries Southeast Region (v2a), Endangered Species Act (ESA) Section 7 Mapper; and various USFWS, FFWCC, & Florida Natural Areas Inventory (FNAI) listed species occurrence data.

3.3.3 AFFECTED ENVIRONMENT

3.3.3.1 Land Cover, Vegetation, and Habitat

The direct Action Area includes a highly urbanized and industrial area of Broward County with very little open space and habitat. Most of the direct Action Area includes land that has been altered for transportation infrastructure (110 acres), including U.S. 1, arterial roadways (e.g., Perimeter Road, Northeast 7th Avenue, etc.), and the Airport. Open areas in the direct Action Area consist of grassy swales and stormwater features along roadways and in between Airport infrastructure. No pristine upland habitat is present within the direct Action Area.

Habitat within the direct Action Area is limited to a strip of undeveloped land that lies between commercial property along Northeast 7th Avenue and Fort Lauderdale Rail Yard. Approximately 25 acres is a part of a utility easement with disturbed habitat that is bordered on the eastern edge by an elevated haul / access road used to maintain the high voltage electrical power transmission lines. The unpaved road is currently subject to routine maintenance to facilitate access to the overhead utility lines and infrastructure. The remaining area (~34 acres) is composed of mangrove swamp that consists of red mangrove (*Rhizophora mangle*), black mangrove (*Avicennia germinans*), white mangrove (*Laguncularia racemosa*), and some buttonwood (*Conocarpus erectus*). The mangrove area contains several ditches that were excavated as part of the U.S. 1 drainage system and the area is entirely surrounded by existing uplands (access road), which act as a perimeter berm blocking free overland flow of stormwater runoff. Exotic wetland hardwoods such as Brazilian pepper (*S. terebinthifolius*) and Australian pine (*C. equisetifolia*) are interspersed with concentrations of these nuisance / exotics along the eastern and southern portions of the area at higher elevations and along the perimeter berm. This mangrove area is considered Essential Fish Habitat (EFH). This area is also considered coastal habitat; however, the direct Action Area does not include beach or barrier island habitat.⁵³

This entire mangrove area serves as the receiving body for stormwater from a section of the U.S. 1 drainage system adjacent to the Airport. Presently, a section of the U.S. 1 drainage system discharges stormwater runoff via a single 48-inch outfall pipe into this mangrove area and three 24x32-inch oval outfall pipes also discharge stormwater runoff from Northeast 7th Avenue into this same mangrove area. Stormwater flows through this mangrove wetland into a FDOT drainage channel via seven existing culverts under the FPL maintenance access road, which forms a barrier to overland flow. The drainage channel flows south ultimately discharging into the Dania Cut-Off Canal.

Habitat within the indirect Action Area includes undeveloped land between Northeast 7th Avenue and the Fort Lauderdale Rail Yard, and a portion of Dania Cut-Off Canal to the south. Within the indirect Action Area, approximately 21 acres are associated with the canal and 62 acres are classified as mangrove swamp. The 62 acres of mangrove swamp consist of conservation lands

⁵³ A barrier island is a constantly changing deposit of sand that forms parallel to the coast.

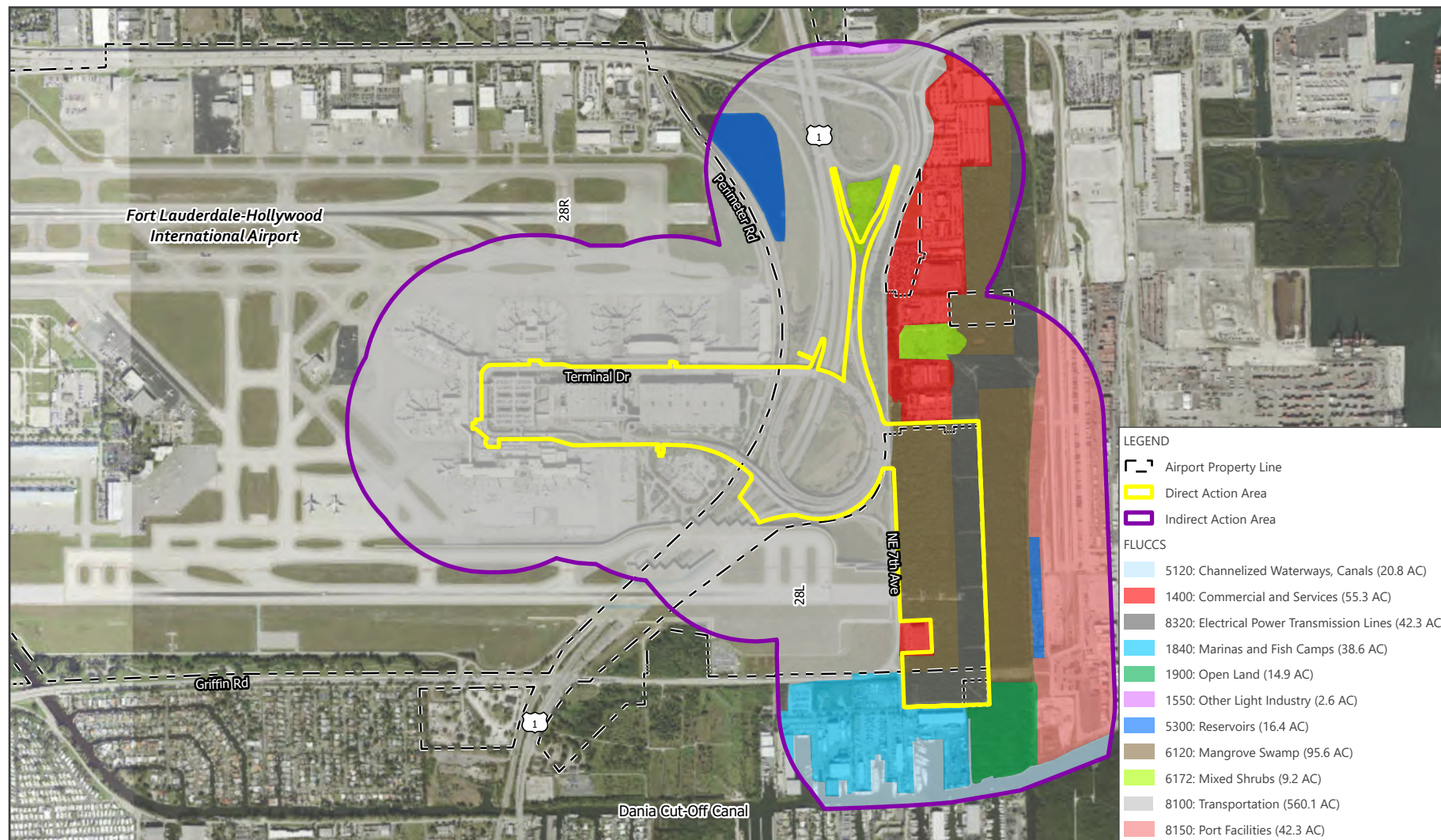
and undeveloped vacant property. The conservation area east of the FDOT drainage channel is identified as Site 97 and is held in preservation by the City of Dania Beach. The areas south of the Dania Cut-Off Canal, which include a conservation and recreation area identified as West Lake Park, would not be impacted indirectly by the Proposed Project. The FDEP Statewide Florida Land Use Cover and Forms Classification System (FLUCFCS) data was reviewed for the direct and indirect Action Areas. Land cover within the two Action Areas is depicted on **Exhibit 3-4** and **Table 3-3**.

Table 3-3 FDEP Land Use Cover within the Action Area (acres)

FLUCFCS NAME	FLUCFCS CODE	DESCRIPTION	AREA IN DIRECT ACTION AREA	AREA IN INDIRECT ACTION AREA	IMPACT AREA
Channelized Waterways, Canals	5120	This class includes artificially improved rivers, creeks, canals, and other linear water bodies flowing across the landscape with man-made (or substantially man-made or altered) channels. Channelized waterways and canals are often used for recreation, travel, irrigation, and shipping.	—	20.8	—
Commercial and Services	1400	Commercial areas are predominantly associated with the distribution of products and services. This category is composed of a large number of individual types of commercial land uses which often occur in complex mixtures.	0.6	43.7	—
Electrical Power Transmission Lines	8320	High-voltage power transmission lines for electric generation plants used to connect power stations and substations.	25.4	42.3	<1
Mangrove Swamp	6120	This coastal hardwood community is composed of red and/or black mangrove, which is pure mangroves dominant. The major associates include white mangrove, buttonwood, cabbage palm and sea grape.	33.6	95.6	<0.22
Marinas and Fish Camps	1840	Marinas include fresh water and marine harbors, yacht clubs, and boat launching sites that are primarily used for recreational marine craft. Fish camps include boat launching sites, docking facilities, fishing piers, bait houses and store facilities, and any lodging or camping facilities. Marinas and fish camps are shoreline uses that tend to occur in areas protected from storms by natural coves or bays, breakwaters, or inland areas connected by canals to an open water body.	—	38.6	—
Mixed Shrubs	6172	This type could be characterized as an early condition of old-field succession, and various shrubs, tree saplings, and lesser amounts of grasses and herbs dominate the community. Common species include wax myrtle, saltbush, sumac, elderberry, saw palmetto, blackberry, gallberry, fetterbush, staggerbush, broomsedge, dog fennel, together with oak, pine and other tree seedlings or saplings.	0.4	9.2	0.4
Open Land	1900	This category includes undeveloped land within urban areas and inactive land with street patterns but without structures. Open Land normally does not exhibit any structures or any indication of intended use.	—	14.9	—
Other Light Industry	1550	This includes steel fabrication, small boat manufacturing, electronic manufacturing and assembly plants are typical examples of light industrial enterprises.	—	2.6	—
Port Facilities	8150	Specific location in a port where passengers and/or commodities are transferred between land and water carriers. This can include wharves, piers, sheds, warehouses, yards, and docks.	—	75.2	—
Reservoirs	5300	Reservoirs are artificial impoundments of water. They are used for irrigation, flood control, municipal and rural water supplies, recreation and hydro-electric power generation. Dams, levees, other water control structures or the excavation itself usually will be evident to aid in the identification.	—	16.4	—
Transportation	8100	Transportation facilities are used for the movement of people and goods; therefore, they are major influences on land and many land use boundaries are outlined by them.	110.3	560.1	110.3
Total			170.3	931	112.7

NOTES: Areas within the indirect Action Area includes the direct Action Area.

SOURCE: Data compiled by Environmental Science Associates (2024).



SOURCES: FDEP Statewide Landuse/Landcover; ESA, 2024.

EXHIBIT 3-4

Land Cover Fort Lauderdale-Hollywood International Airport



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3.3.3.2 Wildlife

Common Species

As previously described, habitat available to support common wildlife species is limited to undeveloped open space near transportation infrastructure, the Dania Cut-Off Canal, and the mangrove area to the east of Northeast 7th Avenue. Birds, mammals, reptiles, amphibians, fish, and invertebrates considered relatively common within the vicinity of the Airport include those generally associated with and tolerant of highly developed, urban area, and natural areas throughout south Florida. Characteristic wildlife includes small to medium-sized mammals, such as rabbits (*Sylvilagus* spp.), raccoons (*Procyon lotor*), opossums (*Didelphis marsupialis*), white-tailed deer (*Odocoileus virginianus*), and various rodents. Common amphibians and reptiles include various frogs (*Hyla* spp. and *Rana* spp.), green anole (*Anolis carolinensis*), swamp snake species, water snakes, and cottonmouths (*Agkistrodon piscivorus*). Common species of birds include anhinga (*Anhinga anhinga*), boat-tailed grackles (*Quiscalus major*), common starling (*Sturnus vulgaris*), various heron species (*Ardea* spp.), American crows (*Corvus brachyrhynchos*), sparrows, swallows, and pigeons. Fish species common in mangrove swamps include jacks (*Caranx* spp.), sheepshead (*Archosargus probatocephalus*), grunts (*Haemulon* spp.), gobies (*Gobiosoma* spp.), schoolmasters (*Lutjanus apodus*), gray snappers (*Lutjanus griseus*), and small goliath grouper (*Epinephelus itajara*) as well as many other species.

Federally Listed Species

Based on the existing site conditions, species-specific habitat requirements, desktop review, and multiple field surveys, the Action Area has a potential to support 22 federally listed species and two federal candidate species (**Table 3-4**). Species listed as having no potential for occurrence are not carried forward for further review in the environmental consequences section. Several species were carried forward for further analysis, as identified in Table 3-4. The memorandum provided in **Appendix C-1.1** includes the IPaC and FNAI list of species with potential to occur in the Action Area.

Migratory Birds

The IPaC also lists migratory birds of concern that have been documented in the vicinity of the Action Area. The list of species protected by the MBTA was updated in February 2024 by incorporating the most current scientific information on taxonomy and natural distribution. Other species with the potential to occur within the Action Area are protected under other regulations include the bald eagle, which is protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d). The complete list of migratory bird species is included in memorandum provided in **Appendix C-1.1**.

Essential Fish Habitat

The direct Action Area includes mangrove and buttonwood wetlands adjacent to the FDOT drainage channel that discharges into the Dania Cut-Off Canal to the south which discharges to the Stranahan River to the east and ultimately into the Atlantic Ocean. The South Atlantic Fishery Management Council identifies mangrove and buttonwood wetlands as EFH for several species, including adult white grunt (*Haemulon plumieri*); juvenile and adult gray snapper (*Lutjanus griseus*); juvenile mutton snapper (*Lutjanus analis*); juvenile goliath grouper (*Epinephelus itajara*); and larval and juvenile pink shrimp (*Farfantepenaeus duorarum*). The mangrove area within the direct Action Area is also considered a Habitat Area of Particular Concern (HAPC) for several species within the snapper/grouper complex. As such, the mangrove area was evaluated for direct and indirect impacts.⁵⁴ Although the mangrove area is isolated from the FDOT drainage channel by the elevated perimeter berm / maintenance access road, there is tidal connectivity at seven culvert locations under the FPL maintenance access road. While mangroves provide habitat for fish species, this area is separated from open water by a perimeter berm that is hydrologically connected through the grated culvert pipes. Hatchlings could access through the culverts to the channels within the mangrove area; however, the culvert grates limit physical access to the mangrove area but do allow for hydrologic connection. The Dania Cut-Off Canal and nearshore habitats associated with the mangrove area is within the indirect Action

⁵⁴ NOAA Fisheries, 2024. *Inland EFH Mapper*. Available at: <https://efhtools.github.io/InlandEFH/Mapper.html> (accessed June 25, 2024).

Table 3-4 Federally Listed Species Potentially Occurring in the Action Area

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING	AGENCY	LIKELIHOOD OF OCCURRENCE WITHIN THE ACTION AREA	SPECIES ELIMINATED FROM FURTHER EVALUATION (YES/NO)	HABITAT PREFERENCE
Mammals						
Florida Bonneted Bat	<i>Eumops floridanus</i> *	Endangered	USFWS	Moderate – Low	No	Florida bonneted bat (FBB) habitat includes tropical hardwoods, pinelands, and mangrove habitats, as well as man-made areas such as golf courses, bridges, buildings, and neighborhoods. The Action Area includes potential foraging and roosting opportunities (man-made structures) and is in the USFWS South Florida Urban Bat Area.
Florida Panther	<i>Puma concolor coryi</i>	Endangered	USFWS	None	Yes	Suitable habitat includes large contiguous areas of forested habitat with dense understory vegetation, marsh shrub swamps, and prairie grasslands. Sometimes found near agricultural lands. Suitable habitat is not identified within the Action Area.
West Indian Manatee	<i>Trichechus manatus</i>	Threatened	USFWS	High	No	Manatees can be found in shallow, slow-moving waters of rivers, estuaries, saltwater bays, canals, and coastal areas throughout Florida. Suitable habitat includes the Dania Cut-Off Canal to the south of the Action Area and a small, cleared area to the south and east of the Action Area.
Birds						
Crested Caracara	<i>Caracara plancus audubonii</i>	Threatened	USFWS	None	Yes	Caracara habitat includes open and low-lying fields, including dry prairies and pasture lands with cabbage palm, cabbage palm/live oak hammocks, and shallow ponds and sloughs. Suitable habitat is not identified within the Action Area.
Piping Plover	<i>Charadrius melodus</i>	Threatened	USFWS	None	Yes	The Piping Plover prefers open sandy beaches, sand flats, mudflats, and coastal areas. Suitable habitat is not identified within the Action Area.
Eastern Black Rail	<i>Laterallus jamaicensis</i> ssp. <i>Jamaicensis</i>	Threatened	USFWS	None	Yes	Suitable habitat for this species includes salt, brackish, and freshwater herbaceous marshes that can be tidally or non-tidally influenced. Suitable habitat is not identified within the Action Area.
Everglade Snail Kite	<i>Rostrhamus sociabilis plumbeus</i> *	Endangered	USFWS	None	Yes	Everglades Snail Kite habitat includes large open freshwater marshes and lakes with shallow water, < 4 ft. (1.2 m) deep, and a low density of emergent vegetation are preferred foraging habitat. Forages on freshwater snails, such as the apple snail (<i>Pomacea paludosa</i>). Suitable habitat is not identified within the Action Area.
Wood Stork	<i>Mycteria americana</i>	Threatened	USFWS	Low	No	Wood Storks' habitat includes forested wetland systems for nesting and open, shallow freshwater and brackish wetlands and roadside ditches/ponds. Habitat may be found within the Action Area for foraging activities that includes areas within the dry ponds when water has been retained and along the shallow edges of the mangrove wetland systems within the Action Area.

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING	AGENCY	LIKELIHOOD OF OCCURRENCE WITHIN THE ACTION AREA	SPECIES ELIMINATED FROM FURTHER EVALUATION (YES/NO)	HABITAT PREFERENCE
Fishes						
Smalltooth Sawfish	<i>Pristis pectinata</i>	Endangered	NOAA Fisheries	Low	No	Smalltooth sawfish live in tropical seas and estuaries of the Atlantic Ocean, in shallow, coastal waters, and sometimes the lower reaches of freshwater river systems. A Minimal amount of suitable habitat exists within the Action Area, including the Dania Cut-Off Canal located south of the Action Area.
Reptiles						
American Alligator	<i>Alligator mississippiensis</i>	Protected due to similarity of appearance to other protected species	USFWS	Low	No	Alligators can be found in river swamps, lakes, marshes, bayous, and other open wetland habitats. The American alligator is federally listed as threatened due to similarity of appearance to the American crocodile (<i>Crocodylus acutus</i>), but only where their ranges overlap. The Airport is located in the habitat range of this species. A Minimal amount of suitable habitat exists within the Action Area, including the Dania Cut-Off Canal located south of the Action Area.
American Crocodile	<i>Crocodylus acutus</i>	Threatened	USFWS	Low	No	This species prefers coastal estuarine marshes, tidal swamps, and creeks along edges of mainland and islands. Usually associated with mangroves. Nests on beaches, stream banks, and levees. No suitable habitat exists within the impact area of the Action Area.
Eastern Indigo Snake	<i>Drymarchon couperi</i>	Threatened	USFWS	None	Yes	The Eastern indigo snake utilizes a variety of habitats including wet flatwoods, mesic hammocks, tidal swamps, sandhills, scrub & upland forests. No suitable habitat exists within the Action Area.
Gopher Tortoise	<i>Gopherus polyphemus</i>	Candidate species for listing under the ESA	USFWS	None	Yes	Gopher tortoises prefer xeric, flatwoods, disturbed/spoil areas and coastal habitats with loose, well-drained, sandy soil with herbaceous vegetation. A portion of the Action Area includes upland areas around two retention ponds. This area has been previously cleared and impacted due to the construction of roads, stormwater retention, and landscape plantings. This portion of the Action Area is completely enclosed by heavily traveled roadway features that would exclude the potential for tortoises to relocate to this area. Although it is unlikely tortoise burrows will be present within the Action Area, a 100 percent gopher tortoise burrow survey will still be required, at least 90 days from construction. Tortoise burrows are not likely due to previous construction activities within the Action Area and there is no potential for adjacent populations to relocate to this area.
Loggerhead Sea Turtle	<i>Caretta caretta</i>	Threatened	USFWS/ NOAA Fisheries	Low	No	The loggerhead sea turtle occurs in subtropical and temperate oceans and along coastal beaches. May be found hundreds of miles out to sea, as well as in inshore areas such as bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers. A minimal amount of suitable habitat exists within the Action Area, including the Dania Cut-Off Canal located to the south of the Action Area.

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING	AGENCY	LIKELIHOOD OF OCCURRENCE WITHIN THE ACTION AREA	SPECIES ELIMINATED FROM FURTHER EVALUATION (YES/NO)	HABITAT PREFERENCE
Green Sea Turtle	<i>Chelonia mydas</i>	Threatened	USFWS/ NOAA Fisheries	Low	No	The green sea turtle is also found in subtropical and temperate oceans, and nests along coastal beaches. Green turtles are found in inshore and nearshore waters. Important feeding areas in Florida include the Indian River Lagoon, the Florida Keys, Florida Bay, the Dry Tortugas, Homosassa, Crystal River, Cedar Key, and St. Joseph Bay. A minimal amount of suitable habitat exists within the Action Area, including the Dania Cut-Off Canal located to the south of the Action Area.
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Endangered	USFWS/ NOAA Fisheries	Low – None	No	This species prefers marine coastal and oceanic waters, commonly associated with coral reefs, keys, and mangroves. The greatest number of hawksbill nests are laid in Mexico, Cuba, and Barbados, but nesting occurs throughout the Insular Caribbean. Nesting in the U.S. is rare and is restricted primarily to the southeast coast of Florida and the Florida Keys. A minimal amount of suitable habitat exists within the Action Area, including the Dania Cut-Off Canal located to the south of the Action Area.
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Endangered	USFWS/ NOAA Fisheries	Low – None	No	Leatherback sea turtles are found in marine waters and nest on sandy beaches throughout Florida. Leatherbacks juveniles will travel to nearshore foraging grounds in shallow coastal habitats, where they mature to adulthood. A minimal amount of suitable habitat exists within the Action Area, including the Dania Cut-Off Canal located to the south of the Action Area.
Insects						
Bartram's Hairstreak Butterfly	<i>Strymon acis bartrami</i>	Endangered	USFWS	None	Yes	The Bartram's hairstreak butterfly prefers pine rocklands and associated habitat (i.e., hydric pine flatwoods), specifically those containing its larval host plant, pineland croton. Suitable habitat does not exist within the Action Area.
Florida Leafwing Butterfly	<i>Anaea troglodyta floralis</i>	Endangered	USFWS	None	Yes	This species is restricted to pine rocklands and associated habitat (i.e., hydric pine flatwoods), specifically those containing its larval host plant, pineland croton. Suitable habitat does not exist within the Action Area.
Miami Blue Butterfly	<i>Cyclargus (=Hemiargus) thomasi bethunebakeri</i>	Endangered	USFWS	None	Yes	The Miami Blue Butterfly prefers topical hardwood hammocks, tropical pine rocklands, and beachside scrub. Suitable habitat does not exist within the Action Area.
Monarch Butterfly	<i>Danaus plexippus</i>	Candidate species for listing under the ESA	USFWS	None	Yes	Monarchs lay eggs on their obligate milkweed host plants (primarily <i>Asclepias</i> spp.) during the breeding season, which could be all year in some geographic areas. The portion of the Action Area that could support monarch butterflies is the upland strip of land that supports the two dry retention areas. This area has previously been excavated and resodded for past construction activities and is heavily manicured and maintained. Suitable habitat does not exist within the Action Area.
Plants						
Beach Jacquemontia	<i>Jacquemontia reclinata</i>	Endangered	USFWS	None	Yes	Habitat includes dunes; disturbed openings in maritime hammock, coastal strand, and coastal scrub, often with sea grape, sand spurs, poisonwood, and prickly pear cactus. Suitable habitat does not exist within the Action Area.

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING	AGENCY	LIKELIHOOD OF OCCURRENCE WITHIN THE ACTION AREA	SPECIES ELIMINATED FROM FURTHER EVALUATION (YES/NO)	HABITAT PREFERENCE
Tiny Polygala	<i>Polygala smallii</i>	Endangered	USFWS	None	Yes	Open grassy pineland; sandy pine rockland, scrubby flatwoods, and sandhill. Often in disturbed areas. Suitable habitat does not exist within the Action Area.
Florida Filmy Fern	<i>Trichomanes punctatum</i> ssp. <i>floridanum</i>	Endangered	USFWS	None	Yes	Tree trunks in hammocks, edges of limesinks, and limestone boulders, often with mosses and liverworts. Suitable habitat does not exist within the Action Area.

SOURCES: Appendix C (Appendix B, Listed Species Table 1 [FNAI, 2024. Biodiversity Matrix; USFWS, 2024. IPaC]).

Area and includes habitat for four EFH species.⁵⁵ Dania Cut-Off Canal is generally designated EFH for South Atlantic EFH species: shrimp, spiny lobster, drum, and snapper / grouper. There is no designated EFH for migratory species within the direct or indirect Action Area.⁵⁶ The nearest EFH for Highly Migratory Species is located in the Stranahan River and Atlantic Ocean to the east of the Action Area. The direct and indirect Action Area also does not include EFH Areas Protected from Fishing.⁵⁷ For more information, please see the technical report in **Appendix C-2**.

3.3.4 ENVIRONMENTAL CONSEQUENCES

3.3.4.1 No Action Alternative

Under the No Action Alternative, BCAD would not develop the Proposed Project. The No Action Alternative would not affect terrestrial and aquatic plant and animal species, game and non-game species, special status species, or environmentally-sensitive or critical habitats. Stormwater would continue to drain to the wetland area to the east of Northeast 7th Avenue and eventually into the Dania Cut-Off Canal.

3.3.4.2 Proposed Project

Land Cover, Vegetation, and Habitat

The area that would be impacted by the construction activities associated with the Proposed Project is comprised of four FLUCFCS land cover classifications: Transportation (8100), Mixed Shrubs (6172), Electrical Power Transmission Lines (8320), and Mangrove Swamp (6120). Impacts to the Mangrove Swamp would be limited to replacement of seven existing culverts under the FPL access road to support the stormwater attenuation that would occur in that area. Areas to the east of the existing FDOT drainage channel would not be impacted by the Proposed Project.

The Action Area includes a number of stormwater features (swales, ponds, channels) that support the drainage from U.S. 1 and other impervious areas associated with FLL. The IMC is proposed to be developed inside the U.S. 1 interchange loop which is characterized as a stormwater drainage basin. Conversion of the U.S. 1 ROW stormwater basin to develop the IMC would decrease open greenspace that supports various species common to urban and disturbed areas. This area is maintained (mowed grass) and sloped to allow drainage. There is seasonal wetland vegetation in the lowest areas of the pond consisting of water hyssops (*Bacopa* spp.), cordgrasses (*Spartina* spp.), pennywort (*Hydrocotyle* spp.) and primrose (*Ludwigia* spp.). However, no listed species were observed during the recent site reviews.

The County-owned parcels to the east of FLL that are proposed to receive discharged stormwater are comprised of medium quality mangrove wetlands with intervening infrastructure to support electrical power transmission. These wetlands are completely surrounded by existing uplands including the FPL maintenance access road along the eastern and southern boundaries, Northeast 7th Avenue on the western boundary, and development to the north; these uplands are elevated and act as a perimeter berm blocking free overland flow of stormwater runoff. The Proposed Project would require replacing the seven existing culverts under the FPL maintenance access road but would not alter the FDOT drainage channel or any adjoining mangrove habitat. It is estimated that replacement of each culvert could temporarily impact up to 700 square feet of mangrove habitat on each side of the culvert/maintenance access road berm for a total of up to 1,400 square feet per culvert. To minimize the potential for adverse impacts outside of the culvert replacement construction areas, BMPs and preventative measures, in accordance with permit criteria, will be implemented to minimize effects on natural habitat, prevent pollution, and maintain water quality. These would include, but may not be limited to, the use of floating/staked turbidity barriers and silt fences to prevent sedimentation and turbidity outside of each limited construction area. Once the culverts are replaced, the haul road would be re-stabilized and the vegetation, including mangroves, would be allowed to re-establish. For the replacement of all seven culverts there would be a total potential impact to uplands, wetlands, and open water of up to 9,800 square feet or 0.22 acre (0.09 hectare).

⁵⁵ NOAA Fisheries, 2024. *Essential Fish Habitat*. Available at: https://www.habitat.noaa.gov/apps/efhmapper/?page=page_7 (accessed June 25, 2024).

⁵⁶ Ibid.

⁵⁷ Ibid.

Once the Proposed Project is operational, the mangrove area would continue to receive discharges of stormwater runoff from a section of the U.S. 1 drainage system with additional minor periodic discharge in wet conditions. Prior to stormwater entering the mangrove wetland, it would continue to be treated in accordance with state water quality standards and the newly ratified Clean Waterways Act.⁵⁸ Stormwater in the wetland would continue to ensure that water enters the canal system without adversely impacting water quality (temperature, salinity, and nutrient loads) of the receiving waterbody(s). Design of the stormwater management system would include the following measures: minimizing periodic stormwater discharge volumes into the mangroves; maximizing stormwater treatment within the interconnected drainage system prior to discharge into the mangroves; and retaining tidal connectivity between the mangrove wetlands and the Dania Cut-Off Canal.

The mangrove area within the direct Action Area is considered EFH and is ultimately hydrologically connected to other EFH habitat at the Dania Cut-Off Canal. Because the mangrove area is hydrologically connected through seven grated culverts to the FDOT drainage channel and ultimately to the Dania Cut-Off Canal, there is a potential for EFH species to access and utilize the mangrove area for various life cycle purposes. The Proposed Project does not include new in-water activities or activities that would affect substrate; however, minor (less than 0.22 acre) impacts during the construction phase could occur within the mangrove habitat. Once construction is complete, any impacted mangroves would be allowed to reestablish. While project development would require stormwater management, it is BCAD's intent to accommodate these improvements through previously described modifications (Section 1.2.1) to the existing FDOT stormwater system, adding minor, periodic discharges to the existing receiving waters and maintaining existing discharge locations. Further, BMPs would be used during construction to keep pollutants from migrating into the channel/canal.

Wildlife

Common Species

The Proposed Project would permanently impact previously-disturbed and developed areas within the Action Area. It is anticipated that resident wildlife would be displaced, likely concentrating in remaining on-site natural areas and stormwater management features, as well as utilizing adjacent natural areas as available in the fragmented urban landscape.

Federally Listed Species

Florida Bonneted Bat

The Florida bonneted bat (FBB) (*Eumops floridanus*) was listed endangered by the USFWS in 2008. The 2013 listing rule identified threats for the species, which includes habitat loss and degradation, as well as habitat modification. FBBs are thought to have a low reproduction capacity, one birth per breeding season; however, FBBs are reproductively active through most of the year.⁵⁹ FBBs have been detected foraging in a variety of habitats including semitropical forests with tropical hardwood, pineland, and mangrove habitats, as well as man-made areas such as golf courses and neighborhoods.⁶⁰ Since FBBs can use a variety of roosting areas, including man-made structures such as highway bridges and ramps, the USFWS *Florida Bonneted Bat Consultation Guidelines* were reviewed. The Action Area falls within the USFWS FBB Consultation Area and the South Florida Urban Bat Area.⁶¹ Early coordination with USFWS has identified that a Limited Roost Survey within the IMC footprint and any existing roadway bridges that would be affected by the Proposed Project is warranted for the Proposed Project. FAA consultation with USFWS resulted in the direction to complete a survey of suitable FBB roosting habitat, specifically inspection of suitable trees in the IMC footprint and existing roadway bridges that would be affected. The roosting surveys were completed on April 10 to 12, 2024, and followed the FBB Consultation Guidelines (2019 and Draft Revision to 2024). The survey produced no evidence of bat utilization in the areas of the proposed improvements or nearby features, the Proposed Project is not anticipated to impact the FBB. Based on the lack of evidence of roosting within the project area, an effect determination of "May Affect, Not Likely to Adversely Affect" has

⁵⁸ CS/HB 7053 Ratification of the Department of Environmental Protection's Rules Relating to Stormwater. March 5, 2024.

⁵⁹ Florida Fish and Wildlife Conservation Commission, 2024. *Florida Bonneted Bat*. Available at: <https://myfwc.com/wildlifehabitats/profiles/mammals/land/florida-bonneted-bat/> (accessed February 2024).

⁶⁰ Robson, M. 1989. Status survey of the Florida mastiff bat. Final Performance Report, Florida Game and Fresh Water Fish Commission, Tallahassee.

⁶¹ U.S. Fish and Wildlife Service South Florida Ecological Services Office, *Florida Bonneted Bat Consultation Guidelines*, October 2019.

been made. A copy of the FBB survey methodology and results can be found in the memorandum dated March 29, 2024, provided in **Appendix C-1.2**. The following standard BMPs to protect the FBB would be implemented:

- Avoid widespread use/application of pesticides and insecticides (e.g., mosquito control, agricultural pest control). Chemicals should not be used or applied within and adjacent to areas where FBBs are known or expected to forage or roost.
- Conduct roost surveys of potential roost trees prior to removal. If potential roost trees or structures need to be removed, trees, snags, and structures need to be visually surveyed within 30 days prior to removal. Any cavities must be peeped with a “treetop” camera, and any cavities that cannot be reached or fully viewed by camera should be surveyed at emergence. Trees, snags, or structures should not be removed from April 15 to August 15, ideally removal should occur January 1 through April 15. If evidence of use by any bat species is observed, discontinue tree removal efforts in that area and coordinate with the USFWS on how to proceed.

West Indian Manatee

The West Indian manatee (*Trichechus manatus*) has been listed as a protected mammal in Florida since 1967. Both federal and state laws protect the manatee in Florida. Federal law includes the *Marine Mammal Protection Act of 1972* and the ESA, as amended in 1973. Manatees occur in both freshwater and saltwater habitats in Florida. The distribution of manatees is related to the proximity to warm water during cold weather, the availability of aquatic vegetation, and the location of freshwater sources. The aquatic mammal is strictly herbivorous, feeding on both freshwater and marine vegetation. Although critical habitat has been designated for the manatee; none exists in Broward County.⁶² Both permanent and transient populations of manatees occur in Broward County. There have been no manatees spotted within the Action Area. Manatees have been spotted swimming and feeding in the Dania Cut-Off Canal to the south of the Airport.⁶³ The Dania Cut-Off Canal is located outside of the direct Action Area and would not be impacted by construction of the Proposed Project. The only surface water feature within the direct Action Area that connects to the Dania Cut-Off Canal is a FDOT drainage channel that drains the proposed IMC site (currently retention pond) east and then south along the FPL easement (eastern perimeter of the direct Action Area). A series of culverts under the FPL maintenance access road connect the mangrove area within the direct Action Area to the FDOT drainage channel. These culverts prevent manatees from accessing the mangrove area within the direct Action Area. This was previously reviewed in the South Runway Environmental Impact Statement (EIS)⁶⁴ which identified both manatees and smalltooth sawfish are restricted to the open water portions of the Dania Cut-Off Canal. No construction activities would occur in the Dania Cut-Off Canal and existing manatee grates we be replaced with the replacement of the existing stormwater outfall pipes. Further, the FDOT drainage channel would not be altered by the Proposed Project. While the Dania Cut-Off Canal would likely receive additional stormwater, the additional water would be treated and the quantity would not alter the hydrology or further impair the canal. Therefore, the Proposed Project is expected to have “No Effect” on this species.

Wood Stork

The Wood Stork (*Mycteria americana*) is listed as both endangered by the USFWS and FFWCC. Wood Storks nest primarily in cypress or mangrove swamps and feed in shallow freshwater marshes, narrow tidal creeks, or flooded tidal pools. The wood stork uses freshwater and estuarine habitats for nesting, roosting, and foraging. Wood storks forage most effectively in shallow-water areas with highly concentrated prey. Typical foraging sites consist of freshwater marshes and ponds; shallow, seasonally flooded roadside or agricultural ditches; narrow tidal creeks or shallow tidal pools; managed impoundments and depressions in cypress heads and swamp sloughs. Wood Storks construct their nests in medium to tall trees in stands located in swamps or on islands surrounded by relatively broad expanses of open water. The Action Area is located within the USFWS Core Foraging Area (CFA) for Wood Storks.⁶⁵ While individuals were not observed during field surveys, Wood Storks have been noted within the area. The Action

⁶² USFWS, 2024. *ECOS, West Indian Manatee (Trichechus manatus)*. Available at: <https://ecos.fws.gov/ecp/species/4469> (accessed February 2024).

⁶³ Broward County, 2024. *Broward County GeoHub, Manatee Sightings*. Available at: <https://geohub-bcgis.opendata.arcgis.com/maps/1db5e7bb4abd42289b7d592c1f75fc87/explore?location=26.064749%2C-80.128135%2C13.83> (accessed February 2024).

⁶⁴ Final Environmental Impact Statement (EIS) for the Development and Expansion of Runway 9R-27L and Other Associated Airport Projects for Fort Lauderdale-Hollywood International Airport (FLL). December 2008.

⁶⁵ FDEP, 2024. *Florida Wood Stork Foraging Areas*. Available at: <https://geodata.dep.state.fl.us/datasets/c3428d8d914c448ca27921388d443c5b> (accessed February 2024).

Area includes existing stormwater management features that are seasonally inundated and could provide limited seasonal Suitable Foraging Habitat (SFH) for wading birds, including Wood Stork, although the hydroperiod is not sufficient to sustain suitable habitat in most of these features.⁶⁶ Impacts to these features include modifications to increase storage as well as construction of the IMC and associated roadway improvements. The area within the IMC footprint that is seasonally inundated is limited to the area surrounding the drainage structures.

The Action Area includes an area of mangrove wetlands (~34 acres) which is immediately east of Northeast 7th Avenue. Further, that mangrove area is contiguous with a utility easement (~25 acres) which in addition to overhead powerline infrastructure and a perimeter unpaved, improved haul / access road, has areas of mangroves with mixed upland and nuisance / exotic vegetation. The mangrove habitat in both systems is medium to high quality with significant nuisance and exotic species (Brazilian pepper, Australian pine) around the perimeter and edges. It is acknowledged that mangrove habitat is considered suitable forage habitat for listed Wood Storks.

The Proposed Project would not have permanent impacts to mangrove habitat. The mangrove area presently serves as the receiving waters for a section of the U.S. 1 drainage system. Improvements to the system to accommodate new impervious associated with the development of the IMC would result in some additional periodic discharges through the existing system. This would require some upgrades to the existing drainage infrastructure, including the seven existing culverts at the perimeter of the mangrove / easement system(s). The proposed improvements are identified on Exhibit 1-7. As identified, the seven culverts to be replaced are located on the eastern boundary of the parcel underneath the existing haul road. The FPL maintenance access road is currently subject to routine maintenance to allow access to the overhead utility corridor and infrastructure. The physical impacts during construction would be limited to these culvert areas along that route. While these areas are primarily fill dirt and nuisance vegetation, it is acknowledged that due to the site conditions mangroves can grow and may occur at the culvert locations. As such, a conservative estimate of potential impacts to areas that could contain isolated mangroves is included in this addendum to clarify the potential for impact. It is estimated that replacement of each culvert could temporarily impact up to 700 square feet on either side of the culvert / access road. For the replacement of all seven culverts this would be a total potential temporary impact of up to 9,800 square feet or 0.22 acre. In accordance with the Wood Stork Effect Determination Key the Proposed Project: Could impact SFH greater than 0.76 kilometer from a colony site; and Proposed Project impacts to SFH are less than 0.20 hectare (one-half acre). Therefore, a “May Affect, Not Likely to Adversely Affect” determination is appropriate for the Wood Storks.

American Crocodile

The American crocodile (*Crocodylus acutus*) inhabits brackish or saltwater areas and can be found in ponds, coves, and creeks in mangrove swamps. American crocodiles occur in South Florida and also can be found in Hispaniola, Cuba, Jamaica, along the Caribbean coast from southern Mexico to Venezuela, and along the Pacific coast from Mexico to Peru. The northern end of the crocodile’s range is in South Florida. Occasionally, crocodiles are encountered inland in freshwater areas along the southern Florida coast.⁶⁷ The majority of impacts would occur within existing retention areas and developed land with only temporary impacts during construction for culvert replacement. The impact areas do not support suitable habitat therefore the Proposed Project is anticipated to have “No Effect” on this species.

American Alligator

The American alligator (*Alligator mississippiensis*) is a large semi-aquatic reptile that is considered an opportunistic feeder. Alligators occur throughout the southeast, ranging from southeast Oklahoma and east Texas to North Carolina and Florida in the east. While alligators prefer freshwater lakes and rivers, they can also inhabit brackish waters. In Florida, the American alligator is federally protected by the ESA as a threatened species, due to their similarity of appearance to the American crocodile. As mentioned above, it is anticipated that a majority of impacts would occur within the existing retention areas and developed land with only temporary impacts during construction for culvert replacement. Therefore, impacts to American crocodiles and their

⁶⁶ As SFH within active CFAs may be impacted by the Proposed Project, the Programmatic Wood Stork Effect Determination Key was consulted to arrive at an appropriate effect determination for this species.

⁶⁷ Florida Fish and Wildlife Conservation Commission, 2024. *American Crocodile*. Available at: <https://myfwc.com/wildlifehabitats/profiles/reptiles/american-crocodile/> (accessed February 2024).

habitat is not anticipated. Since impacts to American crocodiles and their habitats are not anticipated, impacts to American alligators are also not anticipated. As a result, it is anticipated that the Proposed Project would have “No Effect” on this species.

Smalltooth Sawfish

Smalltooth sawfish (*Pristis pectinate*) live in tropical seas and estuaries of the Atlantic Ocean. They are mostly at home in shallow, coastal waters, and sometimes enter the lower reaches of freshwater river systems. In the United States, they can be found in Florida’s coastal waters. In the United States, smalltooth sawfish are most often found off the southwest coast of Florida, from about Charlotte Harbor through the Everglades and Florida Keys region at the southern tip of the state. Smalltooth sawfish are restricted to the open water portions of the Dania Cut-Off Canal. There are no construction activities proposed in the Dania Cut-Off Canal. Grates on the existing stormwater outfall pipes would be replaced when the culverts are upgraded for this project. The Proposed Project is expected to have “No Effect” on this species.

Sea Turtles

Loggerhead Sea Turtle

Named for its large head, Loggerhead sea turtles (*Caretta caretta*) have heart-shaped top shells that are generally reddish-brown in color, with a pale-yellow bottom. Loggerheads feed on hard-shelled prey, such as conchs, and are the most abundant nesting sea turtle species found within the United States, where both juveniles and adults live in U.S. Coastal waters. Through their life stages, hatchlings and juveniles spend the first 7 to 15 years of their lives in the open ocean, then migrate to nearshore coastal areas where they would forage and continue to grow for several more years.⁶⁸

Green Sea Turtle

Green sea turtles (*Chelonia mydas*) are strictly herbivores that forage on vegetation such as sea grass and algae, which would typically give their fat a greenish appearance. Green sea turtles are known to be the largest hard-shelled of the sea turtles; and like the loggerhead sea turtles, hatchlings typically swim to offshore areas, where they live for several years in pelagic habitat. Juveniles would eventually leave the open ocean habitat and travel to nearshore foraging grounds in shallow coastal habitats, where they mature to adulthood and spend the remainder of their lives.⁶⁹

Hawksbill Sea Turtle

Known for their unique “tortoise shell” and beak-like mouth, the Hawksbill sea turtle (*Eretmochelys imbricate*) diet consists primarily of sponges, but would also forage on algae, corals, mollusks, sea urchins, and small fish. The hawksbill “largely inhabits nearshore foraging grounds, especially healthy coral reef habitats. Most hatchlings enter pelagic (open sea) habitat, where they take shelter in floating algal mats and drift lines of flotsam and jetsam for approximately 1 to 5 years. Eventually, juveniles migrate to shallower coastal feeding grounds, including their preferred coral reef habitats, where they mature to adulthood and spend the remainder of their lives.”⁷⁰

Leatherback Sea Turtle

Known for their rubbery looking skin, the Leatherback sea turtles (*Dermochelys coriacea*) are the largest sea turtles in the world and spend most of their lives in the ocean. The majority of nesting occurs in Florida, Puerto Rico, and the U.S. Virgin Islands; however, leatherbacks have been satellite tagged at sea on foraging grounds off Nova Scotia, Canada and tracked to nesting beaches in the Caribbean.⁷¹

While there have been no sea turtles spotted within the Action Area, juvenile and adult sea turtles could utilize the Dania Cut-Off Canal to the south of the Airport. The Dania Cut-Off Canal is located outside of the direct Action Area and would not be impacted by the Proposed Project. As previously stated, the only surface water feature within the Action Area that connects to the Dania Cut-Off Canal is a FDOT drainage channel that drains the proposed IMC site (current retention pond) east and then south along the FPL easement and access road (east of the Action Area). This ditch contains a series of culverts that contain exclusionary

⁶⁸ NOAA Fisheries, 2024. *Loggerhead Turtles*. Available at: <https://www.fisheries.noaa.gov/species/loggerhead-turtle> (accessed March 4, 2024).

⁶⁹ NOAA Fisheries, 2024. *Green Turtle*. Available at: <https://www.fisheries.noaa.gov/species/green-turtle> (accessed March 4, 2024).

⁷⁰ NOAA Fisheries, 2024. *Hawksbill Sea Turtle*. Available at: <https://www.fisheries.noaa.gov/species/hawksbill-turtle> (accessed March 4, 2024).

⁷¹ NOAA Fisheries, 2024. *Leatherback Sea Turtle*. Available at: <https://www.fisheries.noaa.gov/species/leatherback-turtle> (accessed March 4, 2024).

grates that prevent species such as manatees and smalltooth sawfish from accessing the Action Area. This connection was previously reviewed in the South Runway EIS which identified both manatees and smalltooth sawfish are restricted to the open water portions of the Dania Cut-Off Canal. Since both manatees and smalltooth sawfish are precluded from the FDOT drainage channel via existing exclusionary grates, it is anticipated that these grates would also restrict juvenile and adult sea turtles from the same area. Additionally, no construction activities would occur in the Dania Cut-Off Canal and existing manatee grates would be reinstalled with the replacement of the existing stormwater outfall pipes. Therefore, the Proposed Project is expected to have “No Effect” on these species.

Migratory Birds

The majority of the direct Action Area is completely disturbed and void of any vegetation or natural features that could potentially provide suitable nesting or foraging habitat capable of supporting any of the migratory bird species identified in the IPaC list. The mangrove swamp located to the east of Northeast 7th Avenue within the direct Action Area. The IPaC list includes hawks and raptors that could use the open areas between roadways for foraging. No Bald Eagle (*Haliaeetus leucocephalus*) nests were identified. The closest nest is approximately 5 miles east of the Action Area.⁷² There is no likelihood of this species occurring in the Action Area.

Essential Fish Habitat

The Proposed Project was evaluated to identify impacts to EFH and to determine if the impacts would be adverse.⁷³ The mangrove area east of Northeast 7th Avenue, which serves as the receiving waterbody for a section of the existing U.S. 1 drainage system, is designated as EFH. This wetland discharges through the FDOT drainage canal to the Dania Cut-Off Canal, which is also designated as EFH. As discussed in Section 3.3.4.2, *Land Cover, Vegetation, and Habitat*, the Proposed Project would require replacing seven existing culverts under the FPL maintenance access road on the eastern edge of the mangrove system; however, the Proposed Project would not alter the FDOT drainage channel, mangrove area, or other habitat designated as EFH. For the replacement of all seven culverts, there would be a total potential impact of less than 9,800 square feet or 0.22 acre (0.09 hectare). Once the culverts are replaced, the haul road would be re-stabilized and the substrate and vegetation, including mangroves, would be allowed to re-establish. The mangrove ecosystem would not be altered and would continue to receive treated stormwater from the U.S. 1 drainage basin. To minimize the potential for adverse impacts to EFH habitat, BCAD would implement industry standard BMPs and preventative measures in accordance with permit criteria during culvert replacement to minimize effects on natural habitat, prevent pollution, and maintain water quality. These practices would include floating/staked turbidity barriers and silt fences. BCAD would work with the FAA and NOAA Fisheries to develop detailed minimization and mitigation plans during the Proposed Project’s design and permitting process. While the affected portions of the mangrove area would likely revegetate after construction, BCAD would minimize any temporal loss of ecosystem services by planting mangroves at appropriate elevations. Therefore, construction of the Proposed Project would not directly or indirectly alter the physical, chemical, or biological components of the EFH habitat. Mitigation measures are discussed in the next section.

Although the Proposed Project would generate additional stormwater within the U.S. 1 drainage system, operation of the Proposed Project would not reduce the quantity of EFH habitat or impact the quality of EFH habitat. Further, the Proposed Project does not include new in-water activities or activities that would affect substrate. The mangrove area and other EFH habitat would continue to receive treated stormwater from a section of the U.S. 1 drainage system. Prior to stormwater entering the mangrove wetland, it would be treated in accordance with state water quality standards and the newly ratified Clean Waterways Act. Stormwater in the mangrove wetland would continue to ensure that water enters the Dania Cut-Off Canal without adversely impacting water quality (temperature, salinity, and nutrient loads) of the receiving waterbody(s). Preliminary modeling and analysis have identified that there would be only a minor increase in quantity within the area limited to periodic discharges and that there would be no significant impact to the mangrove habitat, including its waters or other ecosystem components. Further, design of the stormwater

⁷² National Audubon Society, 2024. *Audubon Florida EagleWatch Public Nest Map*. Available at: https://cbop.audubon.org/conservation/about-eaglewatch-program?_gl=1*ietkmu*_ga*MTYxNDM3NzQzMy4xNzA3NTAwMTU5*_ga_X2XNL2MWTW*MTcwNzUwNDYzOS4yLjAuMTcwNzUwNDYzOS42MC4wLjA (accessed February 2024).

⁷³ NOAA Fisheries, 2024. *Consultations for Essential Fish Habitat*. Available at: <https://www.fisheries.noaa.gov/national/habitat-conservation/consultations-essential-fish-habitat> (accessed July 1, 2024).

management system would include the following measures to minimize impacts to the greatest extent practicable including: minimizing periodic stormwater discharge volumes into the mangroves; maximizing stormwater treatment within the interconnected drainage system prior to discharge into the mangroves; and retaining tidal connectivity between the mangrove wetlands and the Dania Cut-Off Canal. After review and analysis, it was determined that the Proposed Project would not adversely affect EFH because the habitat would not be altered physically, chemically, or biologically, either directly or indirectly. For more information on the effects of the Proposed Project on EFH and measures to mitigate potential impacts, please see the technical report and mitigation provided in **Appendix C-2**. For more information on coordination with NOAA Fisheries, please see Section 3.3.5, *Protected Species and Section 7 Consultation*.

Summary of Impacts and Mitigation

Construction Impacts

The effects of construction of the Proposed Project on endangered and threatened species, as well as critical habitat, were evaluated. Based on recent site visits and a review of previous studies performed in the area, construction of the Proposed Project would not adversely affect federally listed species or critical habitat. The Proposed Project would be constructed in previously developed areas and would have negligible impact to natural habitat and water quality within the stormwater attenuation area (i.e., mangrove area east of Northeast 7th Avenue). The replacement of all seven culverts would be a total potential impact of less than 9,800 square feet or 0.22 acre (0.09 hectare) of uplands, wetlands and open water. BMPs would be implemented during the construction phase to reduce impacts. After replacement of the culverts, any mangroves within the temporary construction limits for the culverts would be allowed to reestablish. There would be no direct impacts to the Dania Cut-Off canal as a result of construction.

To minimize and mitigate impacts associated with the installation of the seven culverts along the haul road, BCAD would provide the following mitigation measures to assure there would be no net loss of habitat function associated with up 0.22 acre of mixed habitat while the mangrove re-establish post construction:

- All construction access for the culvert replacements shall be via the existing FPL haul road, and any temporary staging areas would be confined to uplands, including the haul road, and would not be located within wetlands.
- Mats would be utilized to assure no rutting or secondary impacts and would not be placed in wetlands.
- During design of the culvert replacements, efforts will be made to reduce the footprint of construction to the extent possible to avoid mangrove impacts where possible. Recommendations will be made to employ construction methods that minimize impacts.
- Temporary water quality impacts will be minimized through the implementation of proper turbidity and perimeter controls, including silt fencing and floating barriers, throughout construction operations to ensure that State water quality standards are met. Silt fences are installed around construction areas and are the preferred method to prevent erosion and sedimentation from impacting wetlands or surface waters. Additionally, in-water turbidity barriers will be installed in a manner that protects mangroves outside the immediate construction area.
- Immediately following construction, the mangrove area(s) would be maintained free of exotic pest plants and nuisance species until mangroves reestablish. This is accomplished by conducting frequent surveys to identify and assess the presence of invasive species in mangrove areas, and promptly removing exotic plants before they can establish a stronghold through manual removal, cutting, or chemical treatments, depending on the species and extent of infestation.
- In addition to the maintenance activities, to foster re-establishment of EFH habitat and offset any potential for time-lag associated with regrowth, BCAD will coordinate the proposed mitigation, including planting plans, with NMFS and the FAA during the permitting process to identify areas to replant with native mangrove species.
- Consistent with anticipated permit requirements, the proposed mitigation will include development of a post-construction monitoring plan, inclusive of adaptive management, to assure that the <0.22 acre of temporary mangrove impacts are offset.
- Although it is not anticipated, if mitigation cannot be fully accomplished on-site, appropriate credits at a permitted mitigation bank could be utilized.

Operational Impacts

The operational effects of the Proposed Project were evaluated to assess the potential impacts to endangered and threatened species, as well as critical habitat. Impacts associated with operation of the Proposed Project are limited to the additional stormwater as a result of the development of the IMC in the existing U.S. 1 ROW stormwater basin. Based on recent site visits and a review of previous studies performed in the area, the Proposed Project would not adversely affect federally listed species or critical habitat. Although conversion of the U.S. 1 ROW stormwater basin to develop the IMC would decrease open greenspace that supports various species common to urban and disturbed areas, there would be no impacts to special status species or their habitats or substantial loss or fragmentation of native species' habitats or their populations. Stormwater treatment and storage from the U.S. 1 ROW that is displaced by the IMC would be accommodated through a combination of on-site and off-site drainage improvements. Therefore, there would be no significant water quantity or quality impacts to the mangrove area east of Northeast 7th Avenue or to the Dania Cut-Off Canal once the Proposed Project is operational. Table 3-3 summarizes the total direct impact area for the Proposed Project.

3.3.5 PROTECTED SPECIES, SECTION 7 CONSULTATION, AND ESSENTIAL FISH HABITAT

3.3.5.1 Protected Species and Section 7 Consultation

In accordance with Section 7 of *The Endangered Species Act of 1973* (16 U.S.C. §§ 1531–1544) and *Marine Mammal Protection Act (MMPA)* of 1972 (16 U.S.C. §§1361 et seq.), consultation with USFWS and NOAA Fisheries was initiated on March 15, 2024 (see **Appendix C-1.2** and **C-1.3**). USFWS responded to FAA on March 25 and March 28 with requests for additional information related to the Wood Stork and FBB. Additional evaluation and fieldwork were performed, including a limited roost survey for the FBB. The requested information was provided to USFWS on May 16, 2024. The USFWS concurred with FAA's determination the Proposed Project "May Affect, Not Likely Adversely Affect" the Wood Stork and FBB. On March 19, 2024, NOAA Fisheries acknowledged FAA's No Effect determination for protected species under NOAA's purview and noted that further consultation is not required.

3.3.5.2 Essential Fish Habitat Coordination

The Proposed Project will have minor construction impacts to up to approximately 0.22 acre of wetlands, uplands, and open water within mangrove habitat for replacement of seven culverts. Studies and analyses conducted during preparation of the EA show that EFH would not be adversely affected. FAA coordinated with NOAA Fisheries on EFH on July 31, 2024, as part of the EA public review process. Based on the research and analyses documented in this EA, no adverse effects to EFH are anticipated. On September 20, 2024, NOAA Fisheries provided comments on the evaluation of effects to EFH. Their comments have been incorporated within this EA. NOAA Fisheries had no EFH conservation recommendations. Coordination with NOAA Fisheries is documented in **Appendix C-1.3** and **C-2**. Please also see **Appendix C-2** for the proposed consultation summary and mitigation proposed to reduce or eliminate the potential for impacts to EFH as a result of the Proposed Project.

3.3.6 SIGNIFICANCE DETERMINATION

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

Determinations of effect for the protected species potentially present in the Action Area are summarized in **Table 3-5**. Due to the wetland impacts to mangrove habitat, the Wood Stork is listed with a determined effect of "May Affect, Not Likely to Adversely Affect." Based on the lack of evidence of roosting within the Action Area, a determination of "May Affect, Not Likely to Adversely Affect" has been made for the FBB. All other species have "No Effect" determinations. More information can be found in the technical memorandum provided in **Appendix C-1.1** and **C-1.2**. It is not anticipated that the Proposed Project would have the potential to significantly impact terrestrial and aquatic animal species, game and non-game species, special status species, and environmentally sensitive or critical habitats. No adverse impacts to federally listed species or their habitats or substantial loss or

fragmentation of native species' habitats or their populations is anticipated. The evaluation of EFH impacts showed no adverse effect. This EA and EFH impacts were coordinated with NOAA Fisheries on July 31, 2024. NOAA Fisheries' conclusion is documented in **Appendix C-2**.

Table 3-5 Summary of Effect Determination for Federally Listed Species

COMMON NAME	SCIENTIFIC NAME	FEDERAL LISTING	AGENCY	LIKELIHOOD OF OCCURRENCE WITHIN THE ACTION AREA	EFFECT DETERMINATION
Florida Bonneted Bat	<i>Eumops floridanus*</i>	Endangered	USFWS	Moderate - Low	May Affect, Not Likely to Adversely Affect No roosts identified during survey.
West Indian Manatee	<i>Trichechus manatus</i>	Threatened	USFWS	Low	No Effect Minimal in-water work limited to culvert replacement
Wood Stork	<i>Mycteria americana</i>	Threatened	USFWS	Low	May Affect, Not Likely to Adversely Affect Existing habitat does not have sufficient hydroperiod to support SFH.
Smalltooth Sawfish	<i>Pristis pectinata</i>	Endangered	NOAA Fisheries	Low	No Effect Minimal in-water work limited to culvert replacement
American Alligator	<i>Alligator mississippiensis</i>	Protected due to similarity of appearance to other protected species	USFWS	Low	No Effect Minimal in-water work limited to culvert replacement
American Crocodile	<i>Crocodylus acutus</i>	Threatened	USFWS	Low	No Effect Minimal in-water work limited to culvert replacement
Loggerhead Sea Turtle	<i>Caretta caretta</i>	Threatened	USFWS/ NOAA Fisheries	Low	No Effect Minimal in-water work limited to culvert replacement
Green Sea Turtle	<i>Chelonia mydas</i>	Threatened	USFWS/ NOAA Fisheries	Low	No Effect Minimal in-water work limited to culvert replacement
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Endangered	USFWS/ NOAA Fisheries	Low - None	No Effect Minimal in-water work limited to culvert replacement
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Endangered	USFWS/ NOAA Fisheries	Low - None	No Effect Minimal in-water work limited to culvert replacement

SOURCES: Data compiled by Environmental Science Associates (2024).

3.4 Climate

3.4.1 REGULATORY CONTEXT

Executive Order (EO) 13990, *Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis* (2021), establishes direction for federal agencies for improving climate preparedness and resilience strategies. EO 14057 *Catalyzing America's Clean Energy Economy Through Federal Sustainability* (2021) provides specific goals and management practices to be implemented by federal agencies. While there is currently no formal planning process established, federal entities generally consider adaptation to the effects of climate change in accordance with local, state, and federal planning initiatives. Broward County's Climate Change Element of the Broward NEXT 2.0 Comprehensive Plan includes a framework for integrating the economic, environmental, and social factors of climate change.⁷⁴ In accordance with policies outlined in this plan, Broward County departments shall strive to achieve a sustainable, climate resilient community by promoting energy efficiency and GHG reduction strategies; protecting and adapting public infrastructure, services, natural systems and resources from climate change impacts; and continuing to coordinate locally and regionally to monitor and address the changing needs and conditions of the community.

⁷⁴ Broward County, *Broward County Comprehensive Plan, Broward NEXT 2.0, Climate Change Element*, Adopted March 28, 2019. Available at: <https://www.broward.org/BrowardNext/Documents/CompPlanDocs/CCE-GOPs-March2019rev.pdf> (accessed December 2023).

3.4.2 METHODOLOGY

For airport actions, the study area for climate can be defined by the extent of the project changes. Given that the Proposed Project would result in multimodal transportation options, Broward County is used as the study area for assessing potential climate impacts in this EA. As such, a GHG analysis was performed in conjunction with the air quality analysis discussed in Section 3.2. The Proposed Project does not include development actions that would result in a change in aircraft operations at the Airport. The Proposed Project would also not induce growth in passenger levels or vehicular travel within the GSA. Therefore, emissions from aircraft and surface transportation were not modeled as part of this EA. Construction emissions associated with the Proposed Project were calculated using MOVES and methodologies prescribed in the FAA's Aviation Emissions and Air Quality Handbook.⁷⁵ Only the temporary emissions from construction activities are modeled because GHG emissions are anticipated to reduce once the Proposed Project is completed and operational. The emissions benefits from the Proposed Project's implementation and operations are discussed qualitatively in this EA. Please refer to Section 3.2.2. and **Appendix B** for additional details regarding methodology and model inputs (including the project list, modeling parameters, and complete construction modeling assumptions).

Climate resiliency, including measures considered in planning the Proposed Project that would protect facilities and infrastructure constructed as part of the Proposed Project, is analyzed qualitatively against local and state⁷⁶ planning initiatives and considers four elements associated with climate change predictions, including sea level rise, increased frequency of extreme temperatures, climate shift, and increase in storm events. Climate change predictions are provided in **Appendix D**. This analysis considers the potential impacts specific to protecting and maintaining the infrastructure associated with the Proposed Project in light of these anticipated changes.

The Broward County Land Development Code does not include any climate mitigation, adaptation, or resilience requirements.⁷⁷ The Broward County Comprehensive Plan includes a climate change goal with several objectives and policies that encourage strategies which increase community resiliency and protect property, infrastructure, and cultural and natural resources from the impacts of climate change which were considered in the analysis of potential climate impacts.⁷⁸ **Appendix D** includes a description of the potential effects of climate change and threats to airports.

3.4.3 AFFECTED ENVIRONMENT

The most recent available USEPA data (2024) indicates that the transportation sector accounted for approximately 1,810 million metric tons (MMT) (29%) of total GHG emissions nationally in 2021. The three largest sources of transportation GHG emissions were light-duty trucks (36.7%), medium- and heavy-duty trucks (22.7%), and passenger cars (20.6%).⁷⁹ This includes direct CO₂, CH₄, and N₂O emissions from fossil fuel combustion used in transportation, indirect emissions from electricity use, and emissions from non-energy use (i.e., lubricants) used in transportation. In Florida, transportation resulted in approximately 110 MMT (41%) of GHG emissions in 2021.⁸⁰ Based on information from Broward County Resilient Environment Department (RED), transportation accounted for approximately 33% of total GHG emissions in the County from 2015 to 2018. The average annual total GHG emissions in the County was approximately 15.2 MMT between 2015 to 2018.⁸¹

In 2020, the County created its Climate Change Action Plan (CCAP) consisting of nearly 125 strategic actions for addressing the economic, environmental, and social impacts of climate change.⁸² The CCAP is a County-wide strategy for local governments,

⁷⁵ FAA, Office of Environment and Energy, 2015. *Aviation Emissions and Air Quality Handbook*, Version 3/Update 1. January 2015.

⁷⁶ FDOT, *Resiliency Policy*. Available at: https://fdotwww.blob.core.windows.net/sitefinity/docs/default-source/planning/policy/resiliency/resiliency_policy_000-525-053.pdf?sfvrsn=4dae64fd_2 (accessed December 2023).

⁷⁷ Broward County, 2023. *Code of Ordinances, Chapter 5, Article IX, Land Development Code*. Available at: https://library.municode.com/fl/broward_county/codes/code_of_ordinances?nodeId=PTIICOOR_CH5BURELAUS_ARTIXBRCOLADECO (accessed December 2023).

⁷⁸ Broward County, 2019. *Broward County Comprehensive Plan, Broward NEXT 2.0, Climate Change Element*, Adopted March 28, 2019. Available at: <https://www.broward.org/BrowardNext/Documents/CompPlanDocs/CCE-GOPs-March2019rev.pdf> (accessed December 2023).

⁷⁹ U.S. Environmental Protection Agency, 2024. *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2022*.

⁸⁰ U.S. Environmental Protection Agency, 2024. *Inventory of U.S. Greenhouse Gas Emissions and Sinks by State*. Available at: <https://www.epa.gov/ghgemissions/state-ghg-emissions-and-removals> (accessed March 2024).

⁸¹ Broward County, Resilient Environment Department. *Climate Change, Greenhouse Gas Inventories*. Available at: <https://www.broward.org/Climate/Pages/GreenhouseGasInventories.aspx> (accessed March 2024).

⁸² Broward County, 2020 *Climate Change Action Plan*. Available at: https://www.broward.org/Climate/Documents/CCAP_2020_ADA.pdf (accessed March 2024).

community partners, and residents. The actions are focused on reducing local GHG emissions, increasing community resiliency, and planning necessary adaptation measures to address local impacts of climate change. Included in the CCAP are 20 Transportation Objectives aimed at reducing transportation emissions by 2% each year, among other goals. A key component of the Transportation Objective is to “Increase trips made by public transit by prioritizing intermodal centers/mobility hubs/ stations, first-and last-mile access and local bus/shuttle services. Provide high-capacity transit supported by complementary land use in and across communities.”

Additionally, FAA programs also target GHG reductions at airport landside facilities. FAA programs that target emission reductions include the Airport Sustainability Planning Program, which provides AIP grants to certain airports for Sustainability Master Plans or Airport Sustainability Plans that include GHG inventories and emission reduction initiatives.

3.4.4 ENVIRONMENTAL CONSEQUENCES

3.4.4.1 No Action Alternative

Under the No Action Alternative, the proposed IMC, APM, hotel and commercial center, and parking roadway enhancements would not be constructed, and no potential construction impacts would occur. The social cost of GHG emissions from construction would be zero dollars. However, under this alternative, there would be no benefits related to improved local mobility and decreased traffic congestion at FLL. Under the No Action Alternative, future background traffic would continue to grow in response to projected FLL passenger levels and traffic volumes in Broward County. Terminal curbside and roadways would continue to be congested with both transit buses and passenger vehicles, which would result in emissions from idling vehicles. Parking garages would be at capacity and unable to accommodate increasing passenger demand, leading to increased congestion at the terminal area. Lastly, the No Action Alternative would not support Broward County’s Transportation Objectives identified in the most recent CCAP. Therefore, regional objectives to improve mobility, decrease congestion, and reduce GHG emission would be lacking.

3.4.4.2 Proposed Project

Operational Impacts

The Proposed Project does not include development actions that would result in a change in aircraft operations at the Airport. The Proposed Project would also not induce passenger levels or vehicular travel in future years. Background growth trends in traffic volumes and passenger levels at FLL would continue to increase as forecasted in the Master Plan Update. Therefore, the Proposed Project would not result in additional climate impacts in 2033 or 2038.

The Proposed Project aligns with Transportation Objective #39 identified in Broward County’s CCAP by providing an intermodal center and mobility hub to increase resilience and reduce GHG emissions. The Proposed Project would reduce GHG emissions by improving landside access options and facilities to meet existing and forecast passenger activity levels and parking demands while reducing congestion in the terminal area. The IMC, APM, hotel and commercial center would operate on electricity after construction and there would be no operational emissions associated with these facilities in 2033 and 2038. The APM would also reduce the number of idling vehicles on Terminal Drive and curbside by providing passengers with a low-emission mode of travel to and from the IMC. Further, the parking improvements included in the Proposed Project would enable the Airport to meet forecasted passenger levels and reduce emissions in the terminal area. Lastly, the supplemental curb would allow for vehicles to circumvent busy curbside thereby reducing congestion and associated idling emissions. Therefore, the Proposed Project would align with development actions that facilitate the reduction in GHG emissions in 2033 and 2038.

Construction Impacts

Construction associated with the Proposed Project, scheduled to begin in 2026 and be complete in 2030, has the potential to create GHG impacts due to the use of heavy-duty construction equipment and vehicle trips generated from construction work. The estimated annual construction GHG emissions inventory for the Proposed Project is presented in **Table 3-6**. The first year of construction (2026) represents the highest level of GHG emissions associated with the start of site preparation work for the IMC and APM. Construction emissions associated with the IMC and APM continue into 2028 and 2029 at lower levels. Construction emissions reach their lowest levels in 2029 with the completion of the IMC in previous year. Emissions increase again in 2030 due to the Palm Garage Redevelopment along with the supplemental roadways and curbside, Cypress Garage Expansion, and

completion of the APM. After 2030, GHG emissions levels reduce substantially due to completion of the APM and IMC. Project-level emissions estimates by year are depicted in **Table 3-6** and **Figure 3-2**. Construction GHG emissions, by Proposed Project element and phase, are presented in Table 5 of **Appendix B**. BCAD would work with construction contractors to employ BMPs to reduce construction GHG emissions from the Proposed Project elements. BMPs are discussed in Section 3.2.6.

Table 3-6 Proposed Project Annual Construction-Related GHG Emissions Inventory (metric tons)

YEAR	CO ₂	METHANE (CH ₄)	NITROUS OXIDE (N ₂ O)	TOTAL CO ₂ E
2026	12,659.48	0.07	0.65	12,833.90
2027	5,881.52	0.03	0.31	5,965.59
2028	6,125.20	0.03	0.32	6,210.68
2029	3,583.18	0.02	0.17	3,629.31
2030	10,136.17	0.04	0.49	10,268.35
2031	6,934.39	0.03	0.34	7,026.36
2032	6,931.44	0.03	0.34	7,023.40
Total (all years)	52,251.38	0.25	2.62	52,958.00

NOTES: CO₂e = carbon dioxide equivalent. The IPCC Forth Assessment AR5 Global Warming Potential Values (28 for CH₄ and 265 for N₂O) are applied to determine CO₂e. Some rounding may have occurred that leads to slightly different totals if summed from the table directly.

SOURCE: Data collected and compiled by Environmental Science Associates (2024).

The social cost of the GHGs emitted during Proposed Project construction would total approximately \$6 million when quantified using 2020 United States government rates for individual GHGs.⁸³ This represents a one-time social cost attributed to the GHG emissions from construction of the Proposed Project. After construction of the Proposed Project, the project elements are anticipated to provide social benefits through reduced traffic congestion, improved passenger experience, and alternative modes of travel. Further, the Proposed Project and its elements coincide with the Broward CCAP which aims to reduce transportation emissions by prioritizing intermodal centers and providing high-capacity transit in the region. Therefore, it is anticipated that the Proposed Project would provide opportunities to reduce GHG emissions while enhancing the passenger experience at FLL and the associated economic benefits of the Airport, whose operations provided an estimated \$15.4 billion in economic impact in 2022.⁸⁴

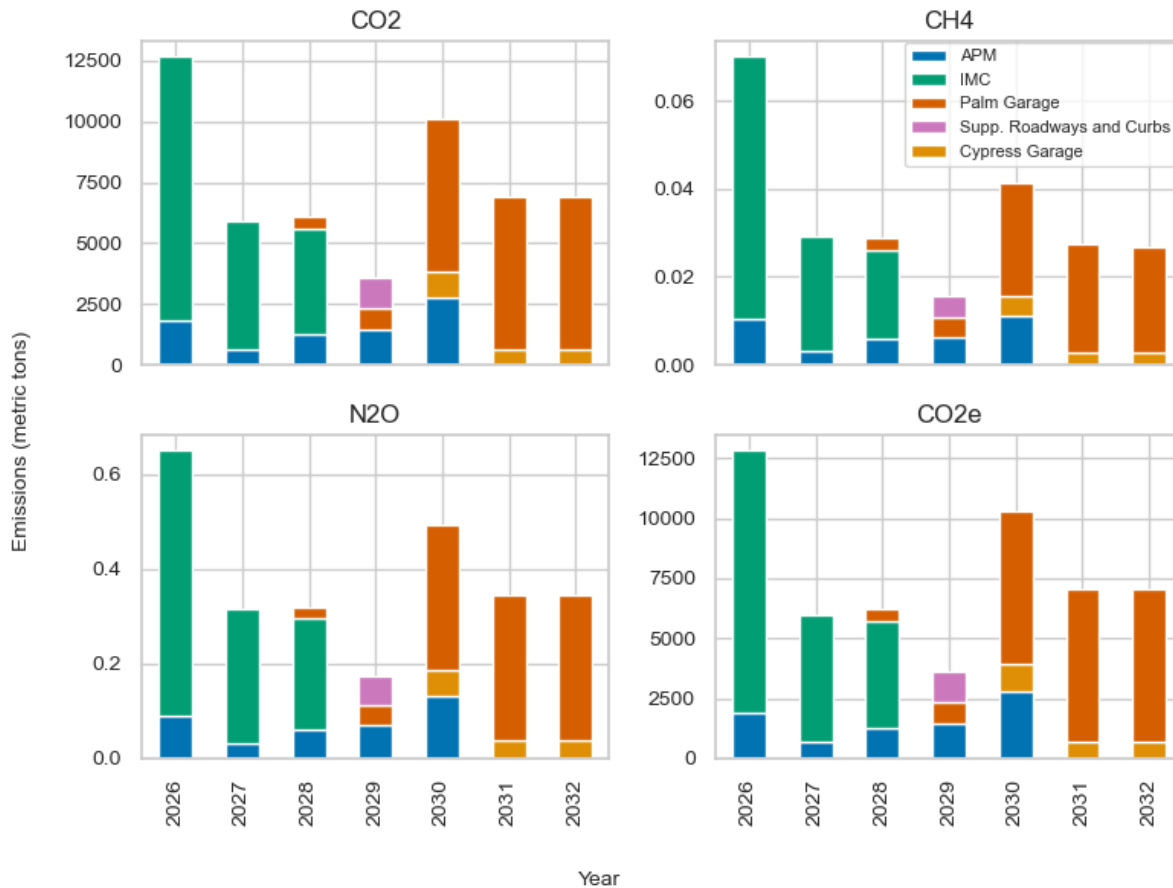
3.4.5 SIGNIFICANCE DETERMINATION

FAA Order 1050.1F does not establish a significance threshold for climate, nor does FAA Order 1050.1F identify specific factors to consider in making a significance determination for GHG emissions. Based on a consideration of several factors, it is not anticipated that GHG emissions associated with the Proposed Project would be significant. GHG emissions are expected to increase temporarily during construction. However, the Proposed Project would reduce GHG emissions from passenger vehicles by infrastructure and support for alternative modes of transportation and by reducing traffic congestion. BCAD would also adhere to all state and local plans to reduce GHG emissions and conform with applicable state and local climate change and resiliency plan initiatives. The Proposed Project would also consider best industry practices to further reduce the GHG emission footprint as the individual projects are designed, constructed, and operated.

⁸³ Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under EO 13990*, February 2021. A 3% average discount rate for 2035 was utilized for estimating the social cost of each GHG.

⁸⁴ FDOT, 2022. 2022 Florida Statewide Economic Impact Study.

Figure 3-2 Annual Construction-Related GHG Emissions Inventory by Proposed Project Element (metric tons)



Source: Created by Environmental Science Associates, 2024.

3.5 Coastal Resources

3.5.1 REGULATORY CONTEXT

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

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

3.5.2 METHODOLOGY

The GSA for assessing coastal resources includes the boundaries of the U.S. 1 drainage system, the mangrove areas between Northeast 7th Avenue and the Fort Lauderdale Rail Yard, and the northern shoreline of the Dania Cut-Off Canal. The study area is defined to evaluate the compatibility of the Proposed Project with coastal resources by including the review of coastal resources immediately adjacent or hydrologically connected to the GSA. The FAA evaluated the Proposed Project for consistency with the enforceable policies of the Florida Coastal Management Program.

3.5.3 AFFECTED ENVIRONMENT

The entire state of Florida is located within the coastal zone. FLL and the project site are located within Florida's coastal management zone and are subject to coastal consistency review, as designated by the state of Florida.⁸⁵ FLL is located approximately 1.5 miles from the Atlantic Ocean and is hydrologically connected to Areas of Special Management.⁸⁶ FLL is also approximately 11 miles to the north of the Biscayne Bay Aquatic Preserve.^{87,88} Additionally, nearly all of Broward County's beaches are critically eroded.⁸⁹ There are CBRS-identified Otherwise Protected Areas (OPA) and System Units within Atlantic Ocean coastal areas of eastern Broward County, including Birch Park, Lloyd Beach, and North Beach. Lloyd Beach is the closest OPA located approximately 1.5 miles directly east of FLL and the Proposed Project footprint.⁹⁰ However, since the Proposed Project would not occur upon or have any affect to CBRS resources, CBRS resources are not carried forward for further analysis.

3.5.4 ENVIRONMENTAL CONSEQUENCES

3.5.4.1 No Action Alternative

Under the No Action Alternative, there would be no affects to coastal resources. Current landside operations do not impact coastal resources, and it is anticipated that the No Action Alternative would not confer additional affects to coastal resources. Stormwater in the vicinity of the Proposed Project would continue to be managed on-site through existing retention and conveyance systems.

3.5.4.2 Proposed Project

Construction Impacts

The Proposed Project includes land disturbing activities to approximately 112.7 acres within the coastal zone. Approximately 110.3 acres of the land disturbance would take place in areas previously developed for transportation and related infrastructure. Direct impacts to coastal resources are limited to approximately 0.22 acre of temporary impacts to mangrove wetland areas currently receiving stormwater from a section of the U.S. 1 drainage system. The impacts to the mangrove area would be limited to the replacement of seven existing culverts located under the perimeter berm along the eastern boundary of the mangroves adjacent the FDOT drainage channel. The replacement of all seven culverts would temporarily impact up to 0.22 acre of mangrove wetlands.

Operational Impacts

Although the Proposed Project would generate additional stormwater within the U.S. 1 drainage system, the Proposed Project would not have permanent impacts to mangrove habitat or receiving waterbodies. The mangrove area would continue to receive treated stormwater from a section of the U.S. 1 drainage system through the existing drainage system with upgrades to individual culverts and periodic additional stormwater discharges through the existing system. For more information on stormwater, floodplains, and water quality, please see Section 3.14, *Water Resources (Wetlands, Floodplains, Surface Waters, and Groundwater Only)*.

Coastal Consistency Review

The State Clearinghouse Review (i.e., consistency review) was initiated on March 4, 2024, in accordance with Section 403.061(43), Florida Statutes (F.S.) and EO 12372. A consistency review is the requirement that Federal actions that affect any land, water, or natural resource of a state's coastal zone must be consistent with the enforceable policies of the state. Key elements of the consistency review include a network of 24 Florida Statutes (i.e., enforceable policies) administered by FDEP and a group of partner agencies responsible for implementing the statutes. The State Clearinghouse responded on May 2, 2024,

⁸⁵ As defined in the Florida Coastal Management Program Guide, FDEP 2024.

⁸⁶ The CZMA declares that certain areas within the coastal zone may be of special significance, and their preservation and development warrant particular attention, as detailed in CZMA § 306(d)(2)(C) (also known as 16 U.S.C. § 1455(d)[2][C]) and 15 C.F.R. 923.21.

⁸⁷ Florida Department of Environmental Protection, Office of Resilience and Coastal Protection, 2024. *Florida Coastal Management Program Guide*. April 2024.

⁸⁸ Florida Department of Environmental Protection, 2023. *Aquatic Preserve Program*. Available at: <https://floridadep.gov/rcp/aquatic-preserve> (accessed December 2023).

⁸⁹ Florida Department of Environmental Protection, Office of Resilience and Coastal Protection, 2023. *Critically Eroded Beaches in Florida*. July 2023.

⁹⁰ U.S. Fish and Wildlife Service, 2023. *Coastal Barrier Resources System, Lloyd Beach FL-20P, North Beach FL-P14A, and Birch Park FL-19P*. Available at: <https://fwsprimary.wim.usgs.gov/CBRSMapper-v2/#layersPanel> (accessed February 2024).

detailing the results of their consistency review and stating that the Proposed Project “is consistent with the Florida Coastal Management Program (FCMP).” A detailed table summarizing the project’s consistency with the FCMP is provided in **Appendix E**. More information on agency consultation and coordination can be found in Chapter 4, *Agency Coordination and Public Involvement*, and in **Appendix G-4**.

3.5.5 SIGNIFICANCE DETERMINATION

The FAA has not established a threshold that would indicate a significant impact to coastal resources; however, no significant impact to coastal resources is anticipated. The Proposed Project would be constructed in accordance with ongoing conservation of Florida’s coastal resources, would not result in direct or indirect impacts to coastal resources, and is determined to be consistent with the enforceable policies of the FCMP. The state of Florida’s final concurrence with this determination would be concluded through the environmental permitting process.

3.6 Department of Transportation, Section 4(f) and Section 6(f)

3.6.1 REGULATORY CONTEXT

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

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

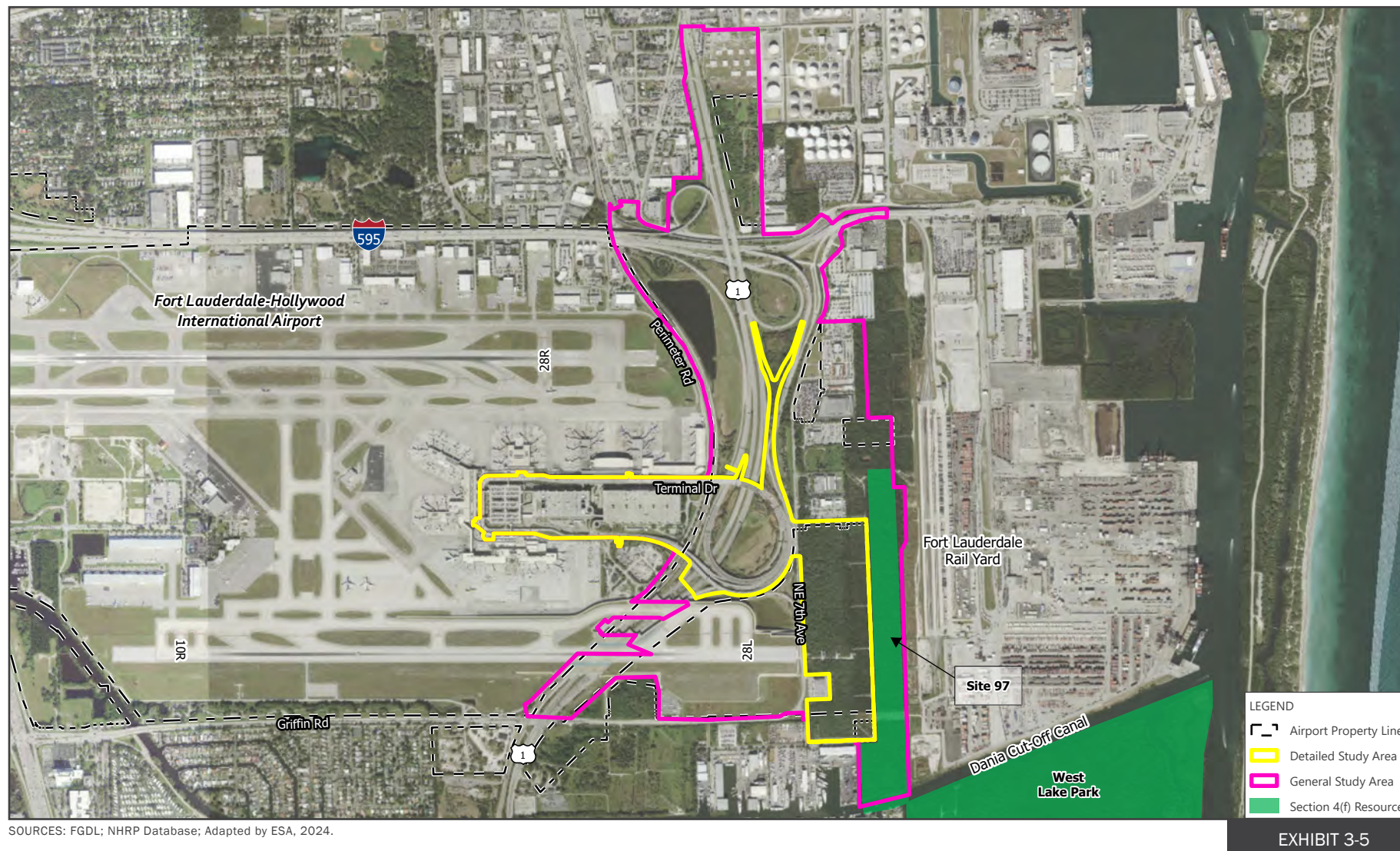
3.6.2 METHODOLOGY

Resources covered under Section 4(f) of the DOT Act were identified in the DSA and GSA, and analyzed for potential direct or indirect impacts by the Proposed Project and the No Action Alternative. The analysis uses publicly accessible data from federal, state, and local sources to identify potential Section 4(f) and 6(f) resources within the DSA and GSA. The term “Section 4(f) resource” in this evaluation refers to any specific site or property meeting DOT Act criteria, such as publicly owned land of a public park, recreation area; or wildlife and waterfowl refuge of national, state, or local significance; or land of an historic site of national, state, or local significance as determined by the officials having jurisdiction. Section 6(f) resources include parks and recreational lands that received matching grants from the LWCA for recreation planning, acquisition, and development. Section 4(f) and 6(f) resources were assessed for both “physical use” and “constructive use” of the property by the Proposed Project.⁹¹

3.6.3 AFFECTED ENVIRONMENT

The DSA does not contain any properties that meet the definition of a Section 4(f) or 6(f) resource, including public parks or recreation areas administered by federal, state, city, and county authorities. Further, there are no National Register-listed historic resources in the DSA. Section 4(f) and 6(f) resources within and surrounding the GSA are depicted on **Exhibit 3-5**.

⁹¹ “Physical use” is an actual physical taking of a Section 4(f) or 6(f) property for a transportation project. “Constructive use” is a temporary occupancy of Section 4(f) property that is adverse.



SOURCES: FGDL; NHRP Database; Adapted by ESA, 2024.



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Section 4(f) Resources Fort Lauderdale-Hollywood International Airport

The GSA contains one potential Section 4(f) resource that is located immediately west of the Fort Lauderdale Rail Yard. This resource is designated by Broward County as “Site 97” and is protected as a local area of particular concern and natural resource area.⁹² The Site 97 conservation area is separated from the DSA by the FPL access road and FDOT drainage channel, which separates the two mangrove areas (County mangrove area and receiving wetland to the west and Site 97 to the east of the channel). Site 97 is owned by the Broward County Board of County Commissioners and is managed as a nature preserve that meets the conservation objective related to wildlife refuges. The area is composed primarily of mangrove swamp. As a part of the South Runway EIS, the Broward County Park and Recreation Division confirmed that there is no public access to this area.⁹³ There is high fencing around the property that restricts public access.⁹⁴ Further, this area does not include any developed recreational facilities such as trails, restrooms, parking areas, etc.

West Lake Park is the closest Section 4(f) property to the GSA with public access. West Lake Park, which is located outside of the GSA, south of the Dania Cut-Off Canal. The main entrance to West Lake Park is located along Sheridan Avenue, approximately 1.8 miles from the south portion of the GSA. West Lake Park received funds from the LWCF which qualifies the park as a Section 6(f) resource.⁹⁵ However, this resource is not within either of the study areas.

3.6.4 ENVIRONMENTAL CONSEQUENCES

3.6.4.1 No Action Alternative

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

3.6.4.2 Proposed Project

Construction Impacts

There are no Section 4(f) resources within the DSA. Construction-related activities would be limited to the DSA and would not result in the taking or physical use of any Section (4f) resource property. A conceptual representation of the construction footprint for the stormwater improvements is depicted on **Exhibit 3-6**. Construction activities associated with the replacement of several drainage culverts could produce minor and temporary effects to the nearby Site 97, such as emissions, noise, sedimentation, or minor leaks and spills from equipment that could be transported to the nearby waters. However, BMPs and siltation control methods would be employed to reduce the potential for construction-related impacts. These measures include, but are not limited to, silt fences and floating barriers. These and other BMPs are discussed in Sections 3.2, *Air Quality*; Section 3.3, *Biological Resources*; Section 3.7, *Hazardous Materials, Solid Waste, and Pollution Prevention*; and Section 3.14, *Water Resources (Wetlands, Floodplains, Surface Waters, and Groundwater Only)*.

Operational Impacts

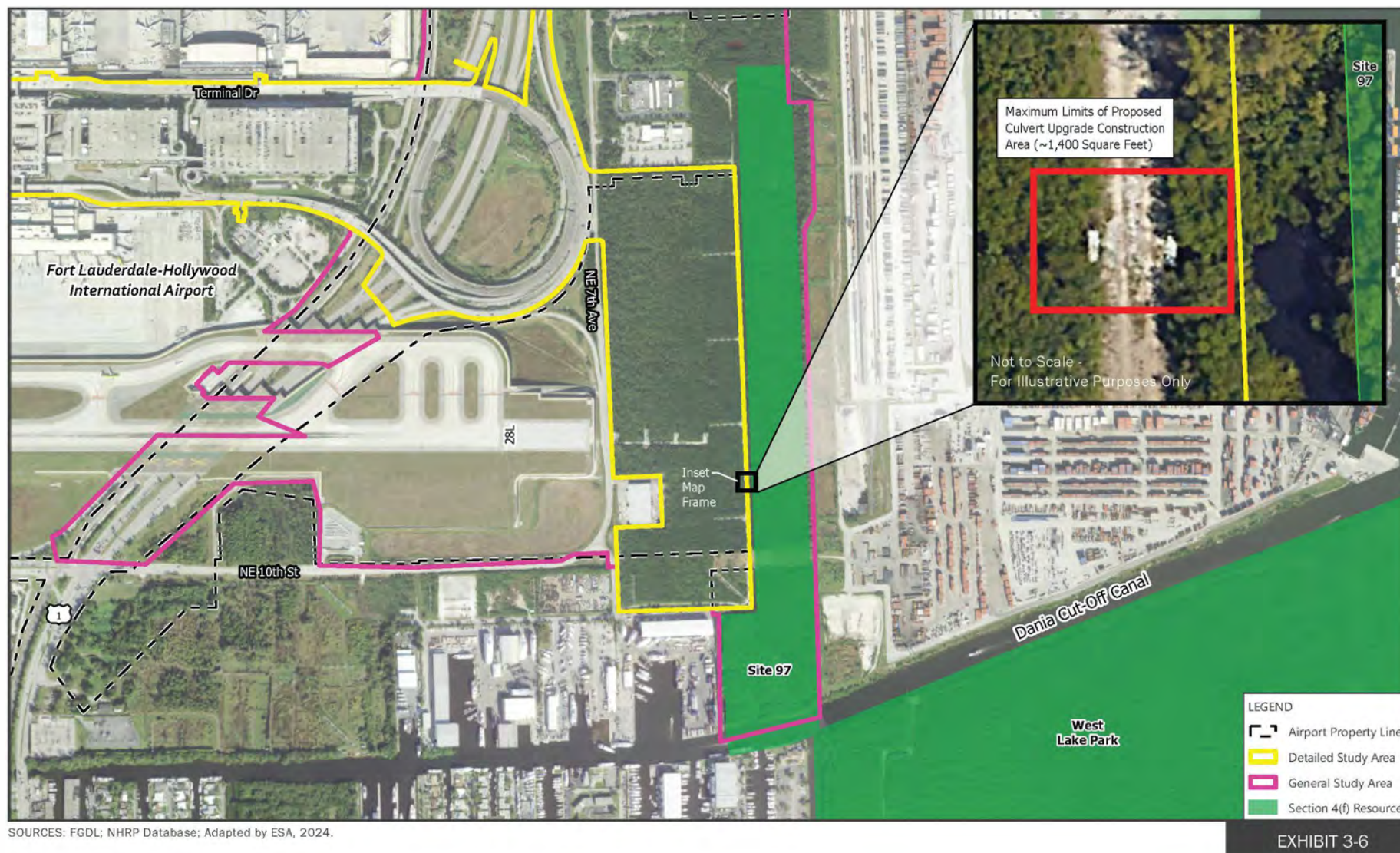
After construction, the Proposed Project is anticipated to result in an increase in treated stormwater discharge that meets state standards to the mangrove wetland immediately east of Northeast 7th Avenue. This mangrove system is hydrologically connected to an existing ditch that is connected to Site 97, but outside the property boundary of the conservation area. The stormwater from the mangrove area could indirectly affect Site 97 during periods of heavy rainfall which could result in mixing of waters in the mangrove area with those in Site 97. However, the Proposed Project includes improvements to maximize treatment within the stormwater drainage system prior to discharge into the mangrove wetland and before any water reaches the FDOT drainage channel outside of the boundary of Site 97. Further, the ditch is regularly maintained to ensure that waters from the mangrove wetland and Site 97 are conveyed south to the Dania Cut-Off Canal. Therefore, the extent of treated stormwater mixing with waters from Site 97 are likely to be restricted to the ditch and not within the Section 4(f) property boundary. Given that there

⁹² Broward County Natural Resources Planning and Management Division, 2020. Broward County Land Use Plan, III.B. Natural Resource Map Series: Environmentally Sensitive Lands.

⁹³ BCAD, 2008. *FLL South Runway EIS, Executive Summary*. Available at: <https://daniabeachfl.gov/DocumentCenter/View/3445/2008-EIS-EXECUTIVE-SUMMARY> (accessed May 3, 2024).

⁹⁴ The presence of high fencing was confirmed during site visits to the FPL maintenance access road and mangrove area on January 31, 2024.

⁹⁵ The Land and Water Conservation Fund, 2024. *Past Projects*. Available at: <https://lwcf.tplgis.org/mappast/> (accessed February 2024).



Section 4(f) Resources - West Lake Park Fort Lauderdale-Hollywood International Airport



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would be no regular mixing of waters within the property boundary of Site 97, the Proposed Project would not substantially impair Site 97 and there would not be a constructive use of this Section 4(f) resource. For more information on the impacts of stormwater, please see Section 3.14, *Water Resources (Wetlands, Floodplains, Surface Waters, and Groundwater Only)*.

The Proposed Project does not include development actions that would result in a change in noise exposure. The Proposed Project would not induce growth in passenger levels or vehicular travel within the study areas. The Proposed Project would be located in a highly trafficked transportation corridor and any noise from the operation of the Proposed Project would be compatible with existing and future land uses. Therefore, the Proposed Project's operation would not result in noise-related impacts to Site 97.

3.6.5 SIGNIFICANCE DETERMINATION

FAA Order 1050.1F provides the FAA's significance threshold for Section 4(f) properties which would occur when: the action involves more than a minimal physical use of a Section 4(f) resource or constitutes a constructive use based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. The Proposed Project would not involve the physical use or constructive use of any Section 4(f) resource. Construction impacts, potentially involving water quality during construction, are anticipated to be minimal and temporary. BMPs would be employed to reduce the potential for construction and operational impacts. Therefore, the Proposed Project compared to the No Action Alternative would not cause a significant impact to any Section 4(f) resource.

3.7 Hazardous Materials, Solid Waste, and Pollution Prevention

3.7.1 REGULATORY CONTEXT

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

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

3.7.2 METHODOLOGY

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

3.7.3 AFFECTED ENVIRONMENT

There are currently five sites permitted as generators of hazardous wastes and one toxic release inventory (TRI) site within the DSA. Five of these generators are located within Airport property. **Table 3-7** lists the RCRA and TRI sites located within the DSA. The facilities located on Airport property strictly manage the waste in accordance with federal and state hazardous material management protocols. BCAD has developed BMPs for the maintenance staff to follow according to State standards for staff to follow in the use, storage, and disposition of hazardous materials and wastes.⁹⁶ Staff also recycle fluorescent bulbs, waste oil, unused paints, tires, batteries, and spent solvents. Most of the hazardous wastes generated are in support aircraft operations and automotive maintenance. The substances managed include petroleum, oils, lubricants, and other materials. Active RCRA, cleanup, and institutional control sites are depicted on **Exhibit 3-7**.

Table 3-7 Active RCRA Sites within and directly adjacent to Detailed Study Area

USEPA ID	Name	Location	Type	Compliance/ Enforcement Issues	On Airport Property?
110070630854	Spirit Airlines	300 Terminal Dr Ste 51	SQG	N	Yes
110064385419	Flt3 - WP3 North Bumpout	200 Terminal Dr	SQG	N	Yes
110008330902	Delta Airlines Inc	100 Terminal Dr	VSQG	N	Yes
110031350419	Dollar Thrifty Automotive Group, Inc.	1600 Northeast 7th Ave	VSQG	N	No
110067183238	Allegiant Air	50 Terminal Dr	VSQG	N	Yes
110025331950	BCAD Consolidated Auto Rental	600 Terminal Dr	TRI	N	Yes

NOTES: Compliance and enforcement information available in the USEPA ECHO report is only available for the previous 5-year period.

VSQG = Very Small Quantity Generator

SQG = Small Quantity Generator

TRI = Toxic Release Inventory

SOURCE: USEPA, *Enforcement and Compliance History Online (ECHO)*, <<https://echo.epa.gov/>> (Accessed February 2024).

The review of USEPA data did not reveal any National Priorities List (NPL) sites (also referred to as “Superfund” sites) within the DSA. A review of FDEP data sources identified two institutional control and two cleanup sites within the DSA.⁹⁷ Four of the sites are located within the Airport property boundary while one is located along Northeast 7th Avenue. These consist primarily of contaminated groundwater and soil in a heavily trafficked transportation corridor. The sites are listed and described in **Table 3-8**. The Proposed Project also takes place within the Biscayne Sole Source Aquifer (SSA) below ground level. More information on the Biscayne SSA can be found in Section 3.14, *Water Resources (Wetlands, Surface Waters, Floodplains, and Groundwater Only)*.

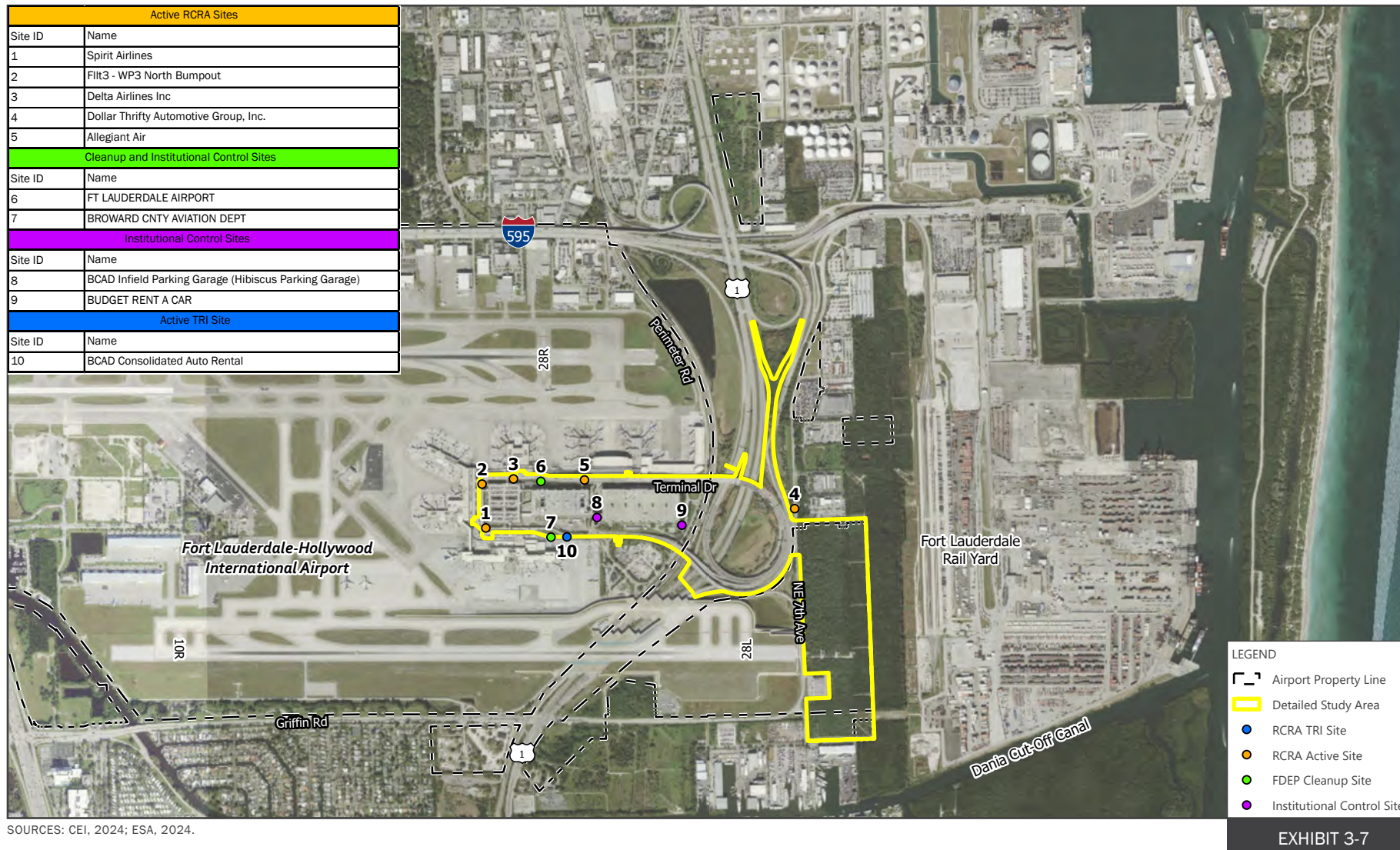
The *Pollution Prevention Act of 1990* (42 U.S.C. §§ 13101–13109) requires prevention and reduction of pollution at the source, when possible, so that waste has a reduced impact on the environment. Pollution reduction at the source includes practices to keep hazardous substances from being released into the environment prior to recycling, treatment, or disposal. As such, BCAD has prepared its Spill Prevention, Control, and Countermeasure (SPCC) Plan for FLL to prevent spills and reduce the potential for pollution entering the environment.

Broward County Solid Waste and Recycling Services administers waste disposal and recycling for county residents. Waste generated at the Airport is sent to the Broward County Landfill which is approximately 588 acres. The active landfill area is approximately 250 acres. As a result of Broward County’s integrated approach to solid waste management, the county is able to conserve landfill space and provide enough capacity to accommodate solid waste for the next 50 or more years, depending on the amount of waste that is being disposed.⁹⁸ There are 11 active hazardous material transfer facilities permitted to dispose of

⁹⁶ Michael Baker International, February 2016. Fort Lauderdale-Hollywood International Airport Sustainable Operations and Green Practices Guidance Manual.

⁹⁷ FDEP, *Florida Geographic Data Library - Contamination Locator Map*. Available at: <http://prodenv.dep.state.fl.us/DepClnup/> (accessed February 2024).

⁹⁸ Broward County Solid Waste and Recycling Services, 2024. *Frequently Asked Questions*. Available at: <https://www.broward.org/WasteAndRecycling/SouthwestRegionalLandfill/Pages/landfills.aspx> (accessed February 2024).



SOURCES: CEI, 2024; ESA, 2024.

Hazardous Materials and Waste Sites Fort Lauderdale-Hollywood International Airport



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Table 3-8 Cleanup and Institutional Control Sites within Detailed Study Area

FACILITY ID #	NAME	LOCATION	AFFECTED MEDIA	ON AIRPORT PROPERTY?	REGULATORY STATUS
Cleanup Sites					
FDEP ID ERIC_8651	FT LAUDERDALE AIRPORT	300 TERMINAL DRIVE	Soil and Groundwater	Yes	Construction Management Plan (CMP) (June 2017) provides general procedures for addressing any areas of known or unknown contamination. Memorandum of Agreement (MOA) for land use controls signed on 7/1/2015 was issued for soil and groundwater and implementation of CMP.
FDEP 06/9800427	BROWARD CNTY AVIATION DEPT	300 TERMINAL DR, ARPT S TERMINAL	Soil and Groundwater	Yes	Quarterly Sampling Report (QSR) was submitted on May 22, 2020. Broward County Environmental Protection & Growth Management Department (EPGMD) provided a response on June 11, 2020, stating that some practical quantitation limits (PQLs) are greater than the cleanup target limits (CTLs) and the tables may require revision/annotating. Additionally, the review letter stated that no assessment or remediation activities are required until state funding is made available for the site.
Institutional Control Sites					
FDEP 06/9800334	BCAD Infield Parking Garage (Hibiscus Parking Garage)	320 A TERMINAL DR	Soil and Groundwater	Yes	No Further Action Proposal review memo from Broward County Environmental Protection & Growth Management Department (EPGMD) dated 1/14/2021 stated that additional assessment of the groundwater quality in the area of the waste oil tank is required; however, the current PO is expired. The site will go back into the FDEP funding queue.
FDEP 06/8628480	BUDGET RENT A CAR	1655 N PERIMETER RD	Groundwater	Yes	Template Site Assessment Report review memo from EPGMD dated 11/10/2020 stated that additional assessment is required; however, the current PO is expired. The site will go back into the FDEP funding queue.

NOTE: Broward Environmental Protection & Growth Management Department = EPGMD.

SOURCE: FDEP, *Florida Geographic Data Library - Contamination Locator Map*. <http://prodenv.dep.state.fl.us/DepClnup/> (Accessed: February 2024).

hazardous waste in Broward County and greater region.⁹⁹ Three of these facilities are within 2 miles of the Airport and with access to facilities capable of storing and handling up to 75.6 million gallons annually.¹⁰⁰

3.7.4 ENVIRONMENTAL CONSEQUENCES

3.7.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and there would be no effects on the on-going management of hazardous materials or hazardous and solid wastes. Active cleanup and existing contaminated sites would remain within the DSA and any hazardous materials and solid waste would continue to be appropriately managed through existing infrastructure and protocols in accordance with federal, state, and local regulations.

3.7.4.2 Proposed Project

Construction Impacts

There are no NPL properties located within or adjacent to the Proposed Project. Two institutional control and two cleanup sites are within the DSA. The four sites within the DSA (Broward County Aviation Department, BCAD Infield Parking Garage, Budget Rent A Car, and Ft Lauderdale Airport) are on Airport property and located along Terminal Drive. The four sites within the DSA are located within, or in close proximity to, the proposed locations of the redeveloped Palm Garage, APM, Cypress Garage expansion, and supplemental curb and roadways. The construction of these elements of the Proposed Project could disturb soils

⁹⁹ Broward County Environmental Protection and Growth Management Department, Environmental Engineering and Permitting Division. *Hazardous Material Transfer Facilities*. Available at: <https://www.broward.org/Environment/WasteRegulation/Documents/HazardMats.pdf> (accessed May 2024).

¹⁰⁰ CBI, Waste Management, Disposal & Remediation. Available at: <https://cliffberryinc.com/services/waste-management-disposal-remediation> (accessed May 16, 2024).

contaminated with petroleum at three of the four sites (Broward County Aviation Department, BCAD Infield Parking Garage, Budget Rent A Car, and Ft Lauderdale Airport). There is no institutional control or cleanup site at the proposed location of the IMC. Therefore, construction of the IMC would not encounter or disturb any known soil or groundwater contamination.

While groundwater would not be used during construction, the Proposed Project may need to implement dewatering activities during construction which could disturb or encounter groundwater contamination from the four sites (Broward County Aviation Department, BCAD Infield Parking Garage, Budget Rent A Car, and Ft Lauderdale Airport). In the event contaminated soil or groundwater is discovered by BCAD during design and/or construction of the Proposed Project, BCAD would contain, handle, and dispose of the material per the federal, state and county regulations concerning contamination. Any hazardous waste generated during construction is unlikely to exceed the capacity of local hazardous material transfer facilities in the County. BCAD would also strictly adhere to all chapters of the CMP for FLL, and any institutional controls imposed on the four sites.^{101,102} Further, BCAD would continue to implement the BMPs included in Chapter 18 of the SPCC Plan for FLL to reduce the potential for releases of hazardous materials or waste into the environment. BMPs to be implemented during construction are outlined in Section 3.7.5. With the implementation of BMPs and the enforcement of all chapters of the CMP, it is not anticipated that the Proposed Project would violate applicable federal, state, or local laws; adversely affect human health or the environment; or further contaminate groundwater and nearby soils. More discussion on groundwater resources is included in Section 3.14, *Water Resources (Wetlands, Surface Waters, Floodplains, and Groundwater Only)*.

The Proposed Project would result in solid waste generated from construction of the Proposed Project. Construction waste would likely include wiring, insulation, rebar, wood, plaster, scrap metal, cement, bricks, and other materials used in the parking garages and roadways. All construction waste would be collected and transported to local landfills where the materials would be recycled or disposed. As referenced in the Affected Environment, the local landfill has enough capacity to accommodate waste disposal for the next 50 years.

Operational Impacts

Five RCRA and one TRI sites were identified within, or directly adjacent to, the DSA. Four of these sites support aircraft operations and two support automotive operations. The Proposed Project does not include any activities that would change the number or type of aircraft operating at the Airport. The handling, use, or disposal of hazardous materials associated with aircraft operations would not change as a result of the Proposed Project. There would be no increase in fueling and maintenance of aircraft, GSE, and Airport-dedicated vehicles, as well as use of fuel storage tanks. There would also be no activities that would affect waste removal activities as a result of the Proposed Project.

The Proposed Project would result in solid waste generated from operation of the Proposed Project. Solid waste generated would be collected and transported to local landfills where the materials would be recycled or disposed of. After construction, the Proposed Project may result in a minor increase in solid waste due to new food/beverage and retail concessions spaces in the IMC and expanded garages as well as by new employees operating the new and expanded facilities such as the APM. The minor increases in waste are anticipated to include everyday waste items such as plastic, paper, food waste, and cardboard. Any additional solid waste generated due to implementation of the Proposed Project would be minimal. Additionally, there is no likelihood of exceeding existing waste processing capacity offered by Broward County.

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

¹⁰¹ Sections 376.301 and 376.79, Florida Statutes (F.S.) define Institutional Controls as “the restriction on use or access to a site to eliminate or minimize exposure to petroleum products’ chemicals of concern, drycleaning solvents, or other contaminants. Such restrictions may include, but are not limited to, deed restrictions, restrictive covenants or conservation easements.” Other forms of controls that may be acceptable to FDEP include government controls such as permits, agency rules, delineated areas (under Chapter 62-524, F.A.C.), memorandum of agreements/understanding, and in limited circumstances some comprehensive land use planning and management or local ordinances.

¹⁰² BCAD, 2017. Construction Management Plan, Fort Lauderdale-Hollywood international Airport.

3.7.5 BEST MANAGEMENT PRACTICES

During construction of the Proposed Project, the following BMPs would be encouraged as a part of the CMP:

- Visually check all containers or hoses used for leaks.
- Monitor liquid levels while pouring to prevent overflow.
- Securely close all containers after use.
- Keep a spill kit on-site to handle any small spills.
- Store harmful materials and chemicals in covered areas, away from precipitation, runoff, and run-on.
- Ensure chemicals and drums are not directly stored on the ground.
- Ensure all drums and containers are properly labeled and kept closed at all times when not in use.
- Equipment should be refueled over paved areas and not over open ground.
- Comply with local fire codes when storing reactive, ignitable, or flammable liquids.
- Maintain an accurate and current inventory of all materials delivered and stored on-site.
- Train employees and subcontractors on-site on the proper handling of wastes and materials.
- Institute waste minimization procedures and practices.
- Ensure all solid waste is properly disposed of.
- Check that no spent harmful chemicals, hazardous wastes, or petroleum products are disposed of with regular solid waste.
- Institute a recycling program where possible.
- Check the general condition of all tanks, containments, and piping for appearance and cleanliness. Report any condition requiring immediate attention, e.g., plugged drainage and poor housekeeping.
- Immediately investigate any evidence of recent fuel spills.
- Ensure all gates and access doors are kept locked when these areas are unattended. All broken fences and gates should be repaired or replaced immediately.
- Check that all tank openings, valves, sump drains, fill caps, loading/unloading hoses, master electrical switches, and other accessible fittings are kept locked at all times when not in use.
- Verify that fire extinguishers, spill kits, and other emergency response equipment are properly located with unobstructed access for immediate use.

3.7.6 SIGNIFICANCE DETERMINATION

The FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention in FAA Order 1050.1F. However, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for this resource category. The factors to consider are included in FAA Order 1050.1F, Section 7.6.5. Based on the above information, the Proposed Project, when compared to the No Action Alternative, would not result in significant impacts to hazardous materials, solid waste, or pollution prevention. In the event contaminated soil is discovered by BCAD during design and/or construction of the Proposed Project, BCAD would handle and dispose of the material per the federal, state and county regulations concerning contamination. BCAD would employ strict adherence to the designated CMP for FLL and any institutional controls.

3.8 Historic, Architectural, Archaeological, and Cultural Resources

3.8.1 REGULATORY CONTEXT

Several laws and regulations require that possible effects on historic, archaeological, and cultural resources be considered during the planning and execution of federal undertakings, including the *National Historic Preservation Act* (NHPA), the *Archaeological Resources Protection Act*, and the *Native Graves Protection and Repatriation Act*. Section 106 of the NHPA requires a federal agency with jurisdiction over a proposed federal action (referred to as an “undertaking”) to take into account the potential effects of

the undertaking on historic properties as defined in 36 CFR 800.16(l)(1). As such, this EA was prepared in compliance with Section 106 and its implementing regulations. The Section 106 process is accomplished through consultation with the State Historic Preservation Office (SHPO), federally recognized Native American tribes, local governments, and other interested parties. Consultation with Native American tribes regarding issues related to Section 106 must recognize the government-to-government relationship between the federal government and tribes, as set forth in EO 13175, *Consultation and Coordination with Indian Tribal Governments* and the *Presidential Memorandum on Tribal Consultation* (2009).

3.8.2 METHODOLOGY

3.8.2.1 Area of Potential Effects

Section 106 of the NHPA requires definition of an APE. APEs define the areas within which the Proposed Project and its alternatives could directly impact or indirectly cause changes in the character or use of historic properties and/or archaeological resources. The FAA has delineated a direct and indirect APE for the proposed undertaking. The direct APE is where construction-related ground disturbance would occur and where additional stormwater runoff would be directed within an existing stormwater management treatment area. The indirect APE encompasses an area around the direct APE that would be indirectly impacted through either stormwater, light emissions, air emissions, or noise. The overall APE is approximately 603 acres in size and includes the proposed terminal access facilities at FLL, portions of U.S. Highway 1 between I-595 and Griffin Road, arterial roadways, and mangrove swamp between Northeast 7th Avenue and the Fort Lauderdale Rail Yard. The direct and indirect APEs are depicted on **Exhibit 3-8**.

3.8.2.2 Review

The Florida Master Site File (FMSF) is an inventory of archaeological sites; historical structures, cemeteries, bridges, districts, landscapes, and linear features; and archaeological and historical survey reports and other manuscripts relevant to history and historic preservation in Florida. An FMSF review for the APE was performed in February 2024. Likewise, the Florida SHPO was consulted specific to the Proposed Project on March 15, 2024.

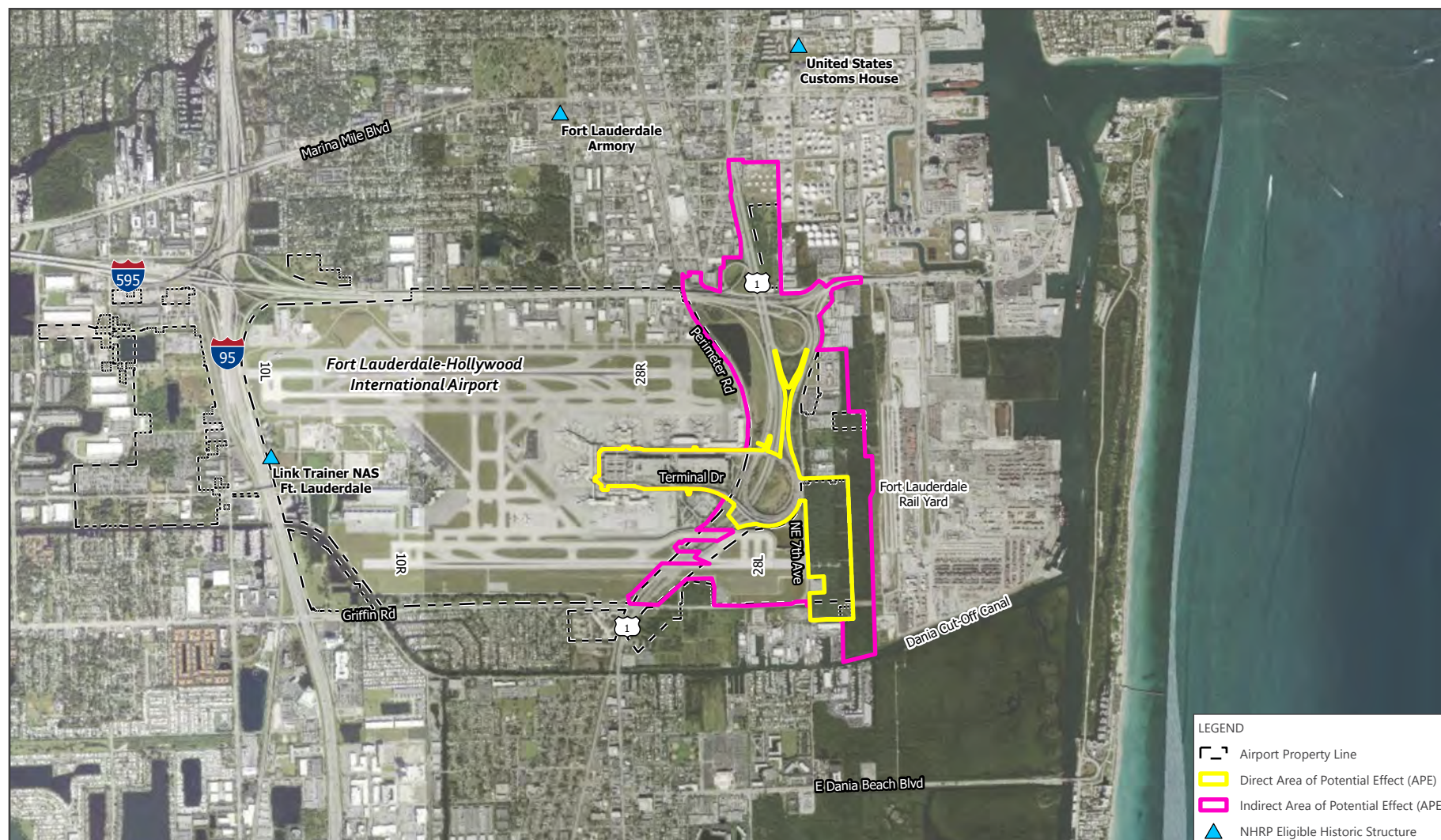
The location of undertaking has also been extensively studied as a part of previous development actions. For the *Final Environmental Impact Statement (EIS) and Record of Decision (ROD) for the Development and Expansion of Runway 9R-27L and Other Associated Airport Projects*, the FAA concluded that in accordance with Section 106 of the National Preservation Act of 1966 that there would be no effect of the Preferred Alternative on any properties either listed or eligible to be listed on the NRHP and the SHPO concurred with that determination.¹⁰³ In 2019 resources were evaluated as part of the EA for the Jetscape Westside Development project¹⁰⁴ that included intensive research and review of Phase 1 survey reports and related information. The research did not indicate a high probability for cultural resources for that project; however, the potential for encountering unexpected discoveries was recognized. The EA was approved under the conditions that construction activities would cease if historic, cultural, and/or archaeological artifacts were encountered.

In support of the 2009 Project Development & Environmental (PD&E) Study for the Broward County IMC and People Mover System, a Cultural Resource Assessment Survey (CRAS) was conducted and coordinated with the SHPO. The 2007 CRAS to support the 2009 PD&E Study confirmed that the preferred alternative would have no impact on National Registered Properties.¹⁰⁵ The study area for the 2009 PD&E Study encompassed almost the entirety of the direct and indirect APE for the current proposed undertaking. Further, the location of the IMC has not changed since the publication of the 2009 PD&E Study.

¹⁰³ Final Environmental Impact Statement (EIS) for the Development and Expansion of Runway 9R-27L and Other Associated Airport Projects for Fort Lauderdale-Hollywood International Airport (FLL). December 2008.

¹⁰⁴ Environmental Assessment for the Relocation, Construction and Operation of the Jetscape Fixed Base Operator (FBO). April 2019.

¹⁰⁵ A Phase I Cultural Resource Survey of the Sunport Parcel, Broward County, Florida. November 2007.



SOURCES: FGDL; NHRP Database; Adapted by ESA, 2024.

EXHIBIT 3-8



Areas of Potential Effect and Historical Resources Fort Lauderdale-Hollywood International Airport

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3.8.3 AFFECTED ENVIRONMENT

The indirect and direct APE consists of extensively disturbed and modified land to support transportation infrastructure, including U.S. 1, arterial roadways, and the Airport. Areas within the indirect and direct APE that are undeveloped consist of grassy swales and stormwater features along roadways and in between Airport infrastructure. Background research revealed no recorded archaeological sites or historic resources within the indirect or direct APE. Further, the FMSF review determined that no archaeological sites or known eligible resources listed on the NRHP are within the indirect or direct APE. Therefore, there are no known historic, architectural, archaeological, or cultural resources present within the indirect or direct APE.

Past development and construction in the indirect and direct APE during the last century have been intensive and almost all current soils have been re-deposited over native soils and include large amounts of fill material from off-site sources. The only area with mostly intact soils is the existing stormwater management area, where there is no planned ground disturbance. The indirect and direct APE also does not contain any buildings or structures over 50 years old. A comparison of historical U.S. Coast and Geodetic Survey and U.S. Geological Survey (USGS) topographic maps (1883, 1884, 1935, 1949, 1962, 1973) and current aerial photographs of the area indicates that the only extant historic structure is the railroad spur from the Florida East Coast Railway mainline to Port Everglades. That railroad spur passes through the northern edge of the indirect APE and would not be adversely affected because there is no proposed construction in this area. The nearest National Register-eligible resources are the Customs House (8BD210), Fort Lauderdale Armory, and Link Trainer Naval Air Station Ft. Lauderdale (BD02562), located over a mile from the direct and indirect APE. Historical resources around the indirect and direct APE are depicted on Exhibit 3-8.

The area within the direct APE have been previously disturbed during the development of the Airport and U.S. 1. The only area with intact soils and undisturbed land within the direct APE includes an existing mangrove swamp area where treated stormwater runoff from the U.S. 1 stormwater management system is released for attenuation. The treated stormwater enters the mangrove swamp through several drainage culvert pipes located adjacent to U.S. 1 and along Northeast 7th Avenue. The water in the mangrove swamp connects to an FDOT drainage channel via seven culvert pipes located under an existing FPL maintenance access road. From the FDOT drainage channel, stormwater flows south toward the Dania Cut-Off Canal.

3.8.4 ENVIRONMENTAL CONSEQUENCES

3.8.4.1 No Action Alternative

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

3.8.4.2 Proposed Project

There are no known historic, architectural, archaeological, or cultural resources present within either the direct or indirect APE. Results from FMSF search listed no recorded archaeological sites or historic resources within the direct or indirect APE. The direct or indirect APE also does not contain any buildings or structures over 50 years old. The only area with mostly intact soils is the existing mangrove area that currently acts as stormwater management for a section of the U.S. 1 drainage system. However, there are no structures in that area. The Proposed Project includes replacing seven culverts under the FPL maintenance access road. The culvert replacements would involve only minor and temporary effects on mangrove habitat during construction at each of the seven culvert locations. The total area of mangrove swamp affected for the undertaking would be approximately 9,800 square feet (0.22 acre). Further, there is low potential for stormwater runoff to impact archaeological sites in that area. Therefore, the proposed undertaking is anticipated to have no direct or indirect effect on known historic, archaeological, or cultural resources. In the event evidence of cultural material or prior occupation is uncovered, a stop work order would be issued to accommodate an appropriate archaeological survey.

3.8.4.3 Section 106 Consultation

The Florida SHPO was consulted specifically for the Proposed Project on March 15, 2024. Consultation with Native American tribes was initiated on April 22, 2024. The letters initiating consultation included descriptions of the proposed undertaking (Proposed Project), the APE, and the potential historic and archaeological resources in the APE. The initiation letters disclosed the

FAA's determination that the proposed undertaking would not affect any historic properties. The Florida SHPO responded on October 9, 2024, with concurrence that no historic properties would be affected by the Proposed Project. Coordination with the State Clearinghouse also included comments from the SHPO's office (**Appendix G-4**). More information on SHPO and Tribal consultation can be found in Chapter 4, *Agency Coordination and Public Involvement*. Two Native American Tribes - Seminole Tribe of Florida and Seminole Nation of Oklahoma - were contacted and invited to participate in the Section 106 consultation process on April 22, 2024. The Seminole Tribe of Florida responded on May 2, 2024, and requested copies of the maps referenced in the consultation letter and information package and noted they had no objections or comments on the Proposed Project. FAA provided the requested copies of the maps.

3.8.5 SIGNIFICANCE DETERMINATION

The FAA has not established a significance threshold for this impact category. However, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for historical, architectural, archeological, and cultural resources. The NHPA regulations at 36 CFR § 800.8(a) state that an Adverse Effect finding is not necessarily significant under NEPA. The FAA makes the determination on the level of impact under NEPA. The Section 106 consultation process and advice from the SHPO assist the FAA in making this determination. Resolution of adverse effects under 36 CFR § 800.6 may be sufficient to avoid significance. There are no archaeological sites or materials anticipated to be encountered during construction. Further, there are no NRHP-listed buildings within the APE; nor are there any buildings over 50 years old. There is no finding of Adverse Effect through Section 106 Consultation for the Proposed Project. Therefore, there will be no significant impact to historic, architectural, archaeological, or cultural sites.

3.9 Land Use

3.9.1 REGULATORY CONTEXT

Under NEPA, discussion of environmental impacts associated with a proposed action must include consideration of "possible conflicts between the proposed action and the objectives of federal, regional, state, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." The Airport is located in Broward County and is subject to the land use controls and zoning regulations established by the County. Planned land use for areas around the Airport is addressed in the Land Use Plan of Broward County's Comprehensive Plan.¹⁰⁶ Zoning in Broward County is addressed in Broward County's Land Development Code (LDC).

3.9.2 METHODOLOGY

The GSA was used as the study area to assess the potential for the Proposed Project to affect existing and future land use. Conflicts with land uses may occur when a Proposed Project creates impacts that are incompatible with existing and/or future planned land uses. Section 1506.2(d), *Environmental Consequences*, requires NEPA documents to discuss any inconsistency with approved state and/or local plans and laws. This analysis evaluates the compatibility of the Proposed Project with surrounding land uses, potential changes in land use that would degrade airport services or safety; or land use changes that would be inconsistent or in conflict with the environmental goals, objectives, or guidelines of the Broward County Comprehensive Plan or LDC. The Broward County GIS Parcel Data Set was adapted for use in presenting the existing land uses proximate to FLL. The data set used to depict the planned future land uses originated from the University of Florida GeoPlan Center¹⁰⁷ and obtained from the Florida Geographic Data Library.

3.9.3 AFFECTED ENVIRONMENT

Land in and around the GSA is largely developed and urbanized. The predominant land uses within the GSA consists of transportation and parking, utilities, commercial and office, and industrial and manufacturing. Existing commercial and industrial developments are found along U.S. 1, SR A1A, and I-595, the major arterial roadways within the GSA. There are no land uses classified as residential or public facilities (e.g., schools and hospitals) within the GSA. The nearest residential areas are located

¹⁰⁶ Broward County, 2017. *Land Use Plan*. Approved April 2017. Available at: <https://www.broward.org/PlanningCouncil/Documents/LandUsePlan/Broward%20County%20Land%20Use%20Plan.pdf> (accessed December 2023).

¹⁰⁷ University of Florida, 2024. *University of Florida GeoPlan Center*. Available at: <https://www.geoplan.ufl.edu/> (accessed May 2024).

approximately 0.7 mile to the south of the location of the Proposed Project and are outside of the GSA. Parks, open space and agriculture land uses are within the southeastern corner of the GSA. These lands are associated with Site 97, as described in Section 3.6. Generalized existing land uses in areas surrounding the Airport are depicted on **Exhibit 3-9**. The planned future land uses within the GSA include Industrial, Commercial, Mixed Use, and Conservation Land Uses. The Planned Future Land Uses are depicted on **Exhibit 3-10**.

3.9.4 ENVIRONMENTAL CONSEQUENCES

3.9.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and there would be no potential for any impacts that would be incompatible with existing or future land uses. The No Action Alternative would also conflict with the plans to improve the traffic congestion at the Airport and within the GSA.

3.9.4.2 Proposed Project

The Proposed Project would not impose changes to existing or future land use within the GSA. The Proposed Project would be consistent with the existing land uses of transportation and parking, industrial and manufacturing, and commercial and office. Additionally, the Proposed Project would be compatible with future land use designations of commercial and industrial. While the GSA includes mixed use and conservation land uses planned for the future, The mixed-use area located at the south-southeast corner of the GSA is currently an FPL easement used for electrical power transmission lines (See Exhibit 3-4) and this area does not contain any development actions as a result of the Proposed Project. Further, the boundary of Site 97 does not encroach upon the construction footprint of the Proposed Project and the conservation land use would not be altered during or after construction of the Proposed Project, as detailed in Section 3.6. Therefore, the Proposed Project would not result in a change in planned land use and would be compatible with the County's long range transportation plan to increase mobility and accessibility in the region by providing multimodal transportation options and decreasing vehicular traffic.

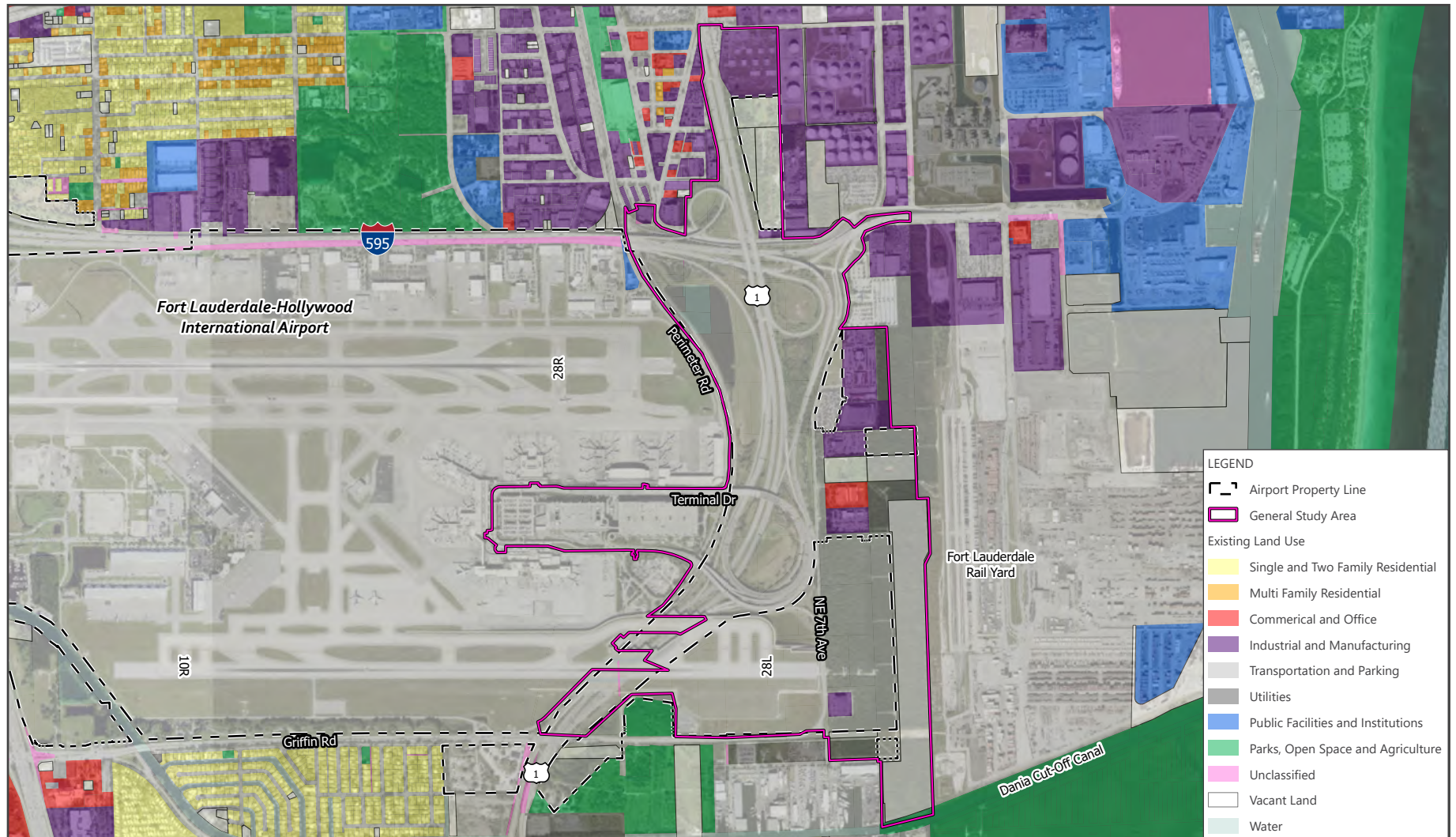
3.9.5 SIGNIFICANCE DETERMINATION

The FAA has not established a significance threshold for land use. An inconsistency with state and/or local plans by itself does not automatically result in a significant impact determination. The determination that significant impacts exist in the land use impact category is normally dependent on the significance of other environmental or socioeconomic impacts. The Proposed Project is consistent with local plans and objectives to improve traffic flow at the Airport and provide multi-modal transportation in the County. Additionally, no conflicts between the Proposed Project and the objectives of federal, regional, state, and local plans and policies have been identified. Since the Proposed Project is consistent with the existing and future zoning for Broward County, it would not cause any significant impacts to land use when compared to the No Action Alternative.

3.10 Natural Resources and Energy Supply

3.10.1 REGULATORY CONTEXT

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



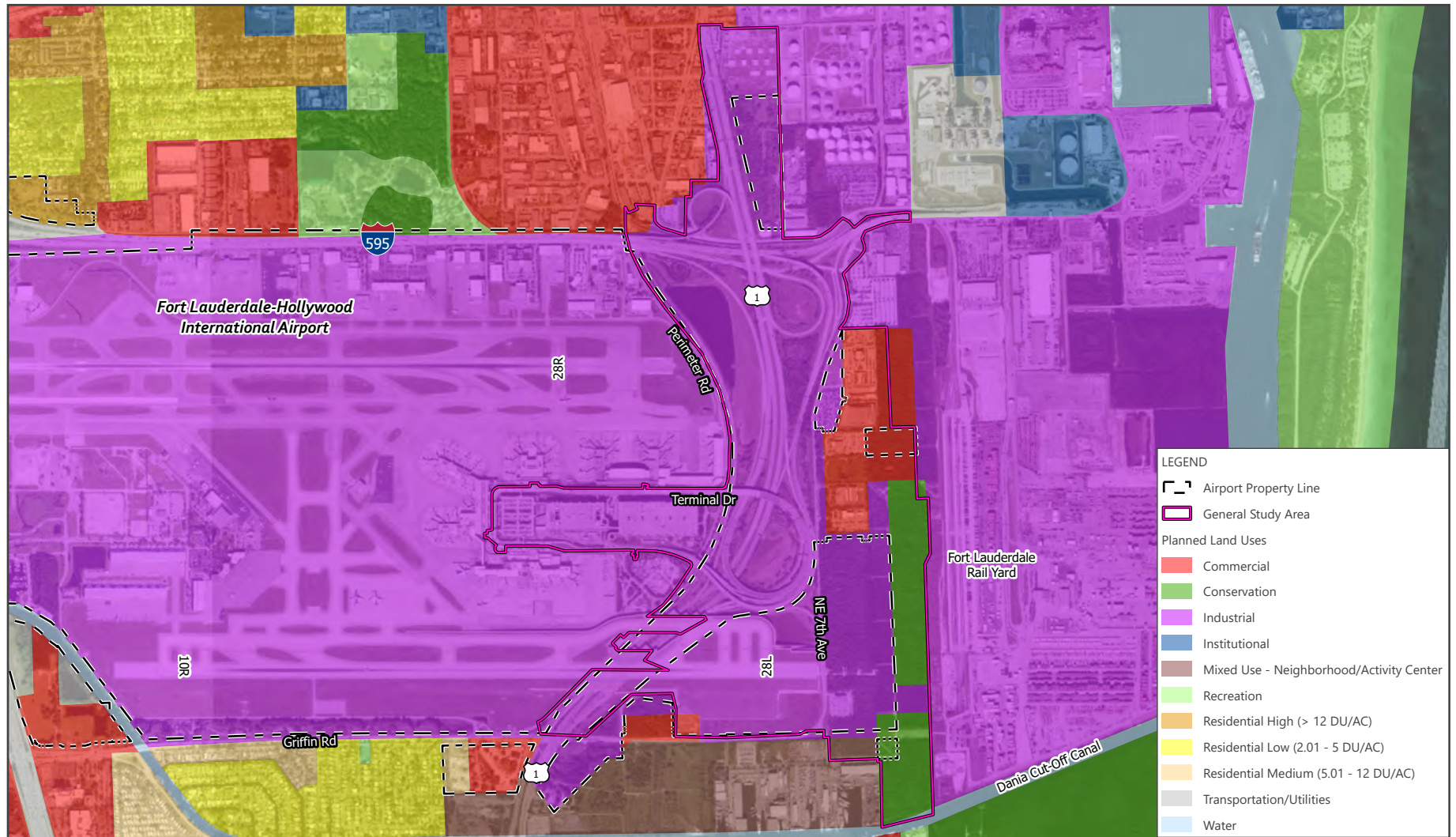
SOURCES: Broward County GIS Parcel Data Set, 2017; Adapted by ESA, 2024.

EXHIBIT 3-9

Existing Land Use Fort Lauderdale-Hollywood International Airport



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SOURCES: FGDL (UF GeoPlan Center data), 2020-2022; Adapted by ESA, 2024.

EXHIBIT 3-10

Planned Future Land Use Fort Lauderdale-Hollywood International Airport



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3.10.2 METHODOLOGY

The analysis evaluates the Proposed Project's demand for energy and natural resources. FAA Order 1050.1F, Exhibit 4-1, provides criteria for analyzing the effects of a project on energy and natural resources. For this analysis a study area is not defined but considers whether the Proposed Project would generate demand that would exceed available or future supplies of natural resources. Natural resources refer to the raw materials that would be committed to a proposed project, such as water, asphalt, aggregate, and wood, etc. The analysis should also analyze whether the Proposed Project, when compared to the No Action Alternative, would have the potential to exceed the local energy supply. Energy supply refers to the coal, natural gas, and fuel available to support the construction, operation, and maintenance of an action.

3.10.3 AFFECTED ENVIRONMENT

3.10.3.1 Natural Resources

The water distribution system that serves FLL is owned and operated by Broward County Water and Wastewater Services (BCWWS). The Airport lies within the District 3A BCWWS service area. The BCWWS purchases the water supply for this district through the City of Hollywood, through an inter-local resale water services agreement. District 3A has an approximate average daily water demand of 4.4 million gallons per day. The resale agreement covers current demand and allows for increased future demand. In addition to water, common construction materials used in developing roadways and structures can be provided by local vendors. These materials include, but are not limited to, fill material, aggregate, steel, glass, wood, and concrete and/or asphalt sourced from local suppliers. It is not anticipated that any of the resources required for construction would be considered unusual, scarce, or in short supply.

3.10.3.2 Energy Supply

Electricity is provided to the Airport by FPL and natural gas is provided by Peoples Gas System. FPL generates electricity through a combination of solar arrays and natural gas fired power plants. The Port of Everglades includes fuel storage tanks that supply fuel in the region. Fuel for vehicles and heavy construction equipment would be acquired through local gas stations and fueling stations surrounding the Airport.

3.10.4 ENVIRONMENTAL CONSEQUENCES

3.10.4.1 Natural Resources

No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and there would be no impacts attributable to construction. Normal airport maintenance activities, including pavement maintenance, would continue to be implemented. Although there would still be steady increase of forecasted operational growth at FLL, the impacts of additional aviation activity on natural resources would be minimal.

Proposed Project

Construction Impacts

The primary natural resources that would be utilized as part of the Proposed Project are water, aggregate, asphalt, and fill material (e.g., clean dirt and/or rock). Water would be used during construction activities for the purpose of reducing dust and cleaning equipment; however, once construction is complete, there would be minimal increased demand for water resources and treatment associated with the Proposed Project. There would be sufficient water resources available to meet the minimal increase in demand.

The Proposed Project would require concrete and/or asphalt, and clean fill material. The location of the borrow site(s) is undetermined at this time; however, there are several site options in proximity to the Proposed Project area. It is not anticipated that the demand for concrete, aggregate, or fill material associated with this project would overwhelm the selected supplier(s) of material or restrict regional supply for other actions in the area, now or in the future.

Operational Impacts

After completion of the Proposed Project, there would be a minor increase in demand for water resources and treatment that is in proportion to operation of restrooms and the utility/maintenance of the IMC, Palm Garage Redevelopment, and Cypress Garage Expansion. However, the increased demand for water resources and treatment after completion of the Proposed Project is not anticipated to exceed local supplies now or in the future. Newly constructed buildings would be outfitted with low-flow technology to reduce overall water consumption.

3.10.4.2 Energy Supply

No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built and there would be no impacts to energy supplies. Construction activities would continue to occur to support BCAD's airport capital improvement plan (ACIP). As a result of the projects included in the ACIP, the No Action Alternative would still result in an increase in fuel and electricity use at FLL.

Proposed Project

Construction Impacts

While there may be a temporary increase in the use of electricity and other utility services at FLL during construction, the increase in demand during construction is temporary and would be minimal. The Proposed Project is anticipated to result in a short-term increase in demand for fuel due to construction. Fuel usage for construction of the Proposed Project would be primarily attributable to non-road construction equipment such as graders, backhoes, and other large construction machinery, as well as on-road vehicles such as cars used in employee travel and transportation of materials to and from the site. The demand for fuel during and after construction activities would not exceed existing or anticipated fuel supplies or storage capacity (i.e., fuel available for use by equipment). Therefore, the Proposed Project would have no effect on local energy supply or fuel reserves.

Operational Impacts

After construction, there is anticipated to be increased demand for electricity associated with the Proposed Project. This includes operation of the APM as well as lighting and signage. Further, electricity would be utilized for heating and cooling of interior spaces of the IMC and proposed hotel and commercial space in the Redeveloped Palm Garage. Overall, the increased demand would be minor and would not exceed current or future local supplies of electricity. BCAD has an ongoing an Energy Master Plan and is assessing energy needs for all of the Proposed Project elements to identify needs and ensure that expected electricity demands are evaluated and can be accommodated. BCAD is actively coordinating with FPL to ensure that supply is available and that the energy demands of the Proposed Project would not exceed electricity supplies or cause undue stress on the infrastructure. BCAD would continue to coordinate with FPL on energy needs, timing and strategy to allow sufficient time to plan and implement any necessary upgrades. Further, BCAD is implementing several sustainability initiatives aimed at reducing airport electricity demand and integrating solar energy technologies into current and future development, where feasible. The IMC would incorporate solar / alternative energy into its design to minimize electric consumption from the local grid to the greatest extent practical. BCAD's efforts are intended to reduce the Airport's energy demands on the electrical grid to provide sustainable alternative energy as well as support long-term resiliency. It is anticipated that the Proposed Project would not have a significant impact on electricity demand.

3.10.5 SIGNIFICANCE DETERMINATION

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

3.11 Noise and Noise-Compatible Land Use

3.11.1 REGULATORY CONTEXT

The FAA requires preparation of a noise exposure analysis when a project may result in a change in cumulative noise exposure to noise sensitive areas around an airport.¹⁰⁸ Common development actions that may result in a change to the noise environment include runway reconfiguration, changes in aircraft operations and/or movements, changes to aircraft types using an airport, or changes to aircraft tracks and profiles.

3.11.2 METHODOLOGY

The Proposed Project does not include development actions that would result in a change in the type or operation of aircraft at FLL. Further, the Proposed Project would not induce passenger activity at FLL. Therefore, an aircraft noise exposure analysis was not prepared and an evaluation of aircraft noise exposure relative to land use compatibility thresholds is not included in this EA. Rather, this analysis identifies potential changes in noise from construction activities and operational changes relative to nearby land uses within the GSA.

3.11.3 AFFECTED ENVIRONMENT

The GSA is largely developed and urbanized consisting of Transportation and Parking, Utilities, Commercial and Office, and Industrial and Manufacturing land uses (see Exhibit 3-9). Ambient noise levels are compatible with the existing land uses within the study areas. There are no residential areas within the GSA. The nearest residential areas are located approximately 0.7 mile to the south of the Proposed Project and are outside of the GSA. Further, Site 97 within the eastern portion of the GSA, is not considered noise sensitive.¹⁰⁹ This area is fenced and has no public access and is managed for conservation with no restricted activities with regards to noise. For more information on Site 97, please see Section 3.6, *Department of Transportation, Section 4(f) and Section 6(f)*.

3.11.4 ENVIRONMENTAL CONSEQUENCES

3.11.4.1 No Action Alternative

Under the no action alternative, the Proposed Project would not be constructed. However, BCAD would still implement various Airport improvement projects that would likely introduce construction-related noise that would temporarily increase ambient noise levels at FLL.

3.11.4.2 Proposed Project

Construction Impacts

Construction activities would be limited to the DSA and result in a temporary increase in ambient noise levels in the immediate vicinity of work areas at FLL, U.S. 1, and terminal roadways. The greatest increase in noise would occur during site preparation, grading, and paving operations. The noisiest types of construction equipment anticipated to be used range between 85 decibels (e.g., dozer) and 90 decibels (e.g., concrete saw) as measured at 50 feet.¹¹⁰ Equipment in this noise range would include but may not be limited to concrete/asphalt mixer trucks, dozers, excavators, pavers, rollers, cranes, scrapers, and concrete saws. A detailed list of construction equipment used during each construction phase of the Proposed Project is presented in the attachments found in **Appendix B**. The nearest residential land use is approximately 0.7 mile away from the Proposed Project area. With attenuation, temporary, intermittent noise from construction would be approximately 52 decibels at this residential area.¹¹¹ When multiple pieces of equipment are operating concurrently in near proximity, the noise generated would increase by approximately 3 decibels for each doubling of the number of pieces of equipment. However, due to operational safety

¹⁰⁸ According to Paragraph 11-5.b.(8) of FAA Order 1050.1F, a noise sensitive area is “[a]n area where noise interferes with normal activities associated with its use. Normally, noise sensitive areas include residential, educational, health, and religious structures and sites, and parks, recreational areas, areas with wilderness characteristics, wildlife refuges, and cultural and historical sites.”

¹⁰⁹ BCAD, 2019. FLL 14 CFR Part 150 Study (Final Noise Exposure Map Report).

¹¹⁰ FHWA, 2024. *Construction Noise Handbook, Chapter 9*. Available at: https://www.fhwa.dot.gov/environment/noise/construction_noise/handbook/handbook09.cfm (accessed March 2024).

¹¹¹ Sound decreases by 6 decibels per doubling of distance.

requirements and project phasing it's anticipated the concurrent operation of the noisiest equipment at a location in nearest proximity to the community would be unlikely or infrequent. The residential areas are also separated from the Proposed Project by Runway 10R-28L and other transportation infrastructure. Temporary and intermittent construction noise from the Proposed Project is unlikely to be distinguishable from surface traffic and aircraft operations at FLL. Further, construction noise is unlikely to impair or degrade Site 97 because construction would be temporary and intermittent. Site 97 also does not contain any developed public recreation facilities and is already subject to noise from aircraft operations to the east and industrial uses (the Fort Lauderdale Rail Yard) to the west. Any biological species located within this area are already acclimated to the ambient and intermittent noise levels associated with transportation activities.

Equipment used in construction would include semi-trucks with flatbed trailers. The Proposed Project would also require concrete and/or asphalt, and clean fill material which would be transported using concrete trucks and dump trucks. The location of the borrow site(s) is undetermined at this time; however, there are several site options in proximity to the Proposed Project area. Haul routes would be established to maximize use of heavily traveled roadways such as I-95, I-595, and U.S. 1. Noise generated with these activities would be consistent with current roadway use.

Operational Impacts

The Proposed Project would reduce vehicle trips and surface traffic congestion in the terminal area. Additionally, use of the APM would facilitate movement of passengers between terminals and parking. It's anticipated that operation of the APM would be quieter than the passenger vehicles and buses currently using the terminal roadways. The Proposed Project would result in moving some passenger vehicle traffic east of the terminal area to the new IMC, but there are no residential communities or noise sensitive uses in that area. The Proposed Project would be in a highly trafficked transportation corridor and any noise from the operation of the Proposed Project would be compatible with existing and future land uses. Further, the Proposed Project would not induce growth in passenger levels or vehicular travel. There are also no residential land uses within the GSA. While Site 97 is within the GSA, this area does not have public access or any developed recreational facilities that would be affected by the Proposed Project's operation. Any biological species located within this area are already acclimated to the ambient and intermittent noise levels associated with surface vehicles and aircraft.

3.11.5 COMPARISON TO SIGNIFICANT IMPACT THRESHOLDS

The Federal Highway Administration (FHWA) sets official noise standards for highway projects. These standards are outlined in Title 23 CFR Part 772. The Proposed Project does not include development actions that would result in an increase in the passengers or volume of surface traffic using FLL or a shift in surface traffic closer to residential areas. Accordingly, there would be no noise sensitive areas that would experience an increase in noise as a result of the Proposed Project when compared to the No Action Alternative. Given that the location of the Proposed Project is in a highly trafficked transportation corridor, subject to high levels of ambient noise, any temporary construction noise is unlikely to significantly impact the compatibility of noise sensitive land uses. Therefore, no significant noise impact would occur if the Proposed Project was implemented.

3.12 Socioeconomics and Environmental Justice

3.12.1 REGULATORY CONTEXT

FAA Order 1050.1F describes socioeconomics as "an umbrella term used to describe aspects of a project that are either social or economic in nature." A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the proposed action and alternatives (FAA, 2015). EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (1994), directs federal agencies to identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations. DOT Order 5610.2 (1997), *Environmental Justice in Minority and Low Income Populations*, implements EO 12898. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risk*, requires federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children and ensure that its actions address any disproportionate risks. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs federal agencies to analyze their policies, programs, activities, and standards for any environmental health or safety risks that may disproportionately affect children. EO 14096, *Revitalizing Our Nation's Commitment to*

Environmental Justice for All (April 21, 2023), made changes to federal policy regarding environmental justice including an update of the definition of environmental justice, an expansion of what constitutes an environmental justice impact, and a broadening of what constitutes a community with environmental justice concerns.

3.12.2 METHODOLOGY

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

3.12.3 AFFECTED ENVIRONMENT

3.12.3.1 Socioeconomics

The socioeconomic analysis evaluates how the Proposed Project potentially affects the human environment, including elements such as population, employment, housing, and public services. The GSA is used as the study area for the analysis and includes non-populated portions of four census block groups: 120110433021, 120110801025, 120110802001, and 120110901021. Census block groups are depicted on **Exhibit 3-11**.

Population and Housing

The U.S. Census Bureau estimated the 2022 population of Broward County to be 1,940,907 persons.¹¹² This represents approximately 9% of Florida's population of 21,634,529. As shown in **Table 3-9**, population among the census block groups surrounding the GSA varies. Although the four census block groups intersected by the GSA are populated, no populated residential areas actually occur within the GSA.

Table 3-9 Population and Housing Data (5-Year Estimates 2018–2022)

CENSUS BLOCK GROUP	POPULATION	TOTAL HOUSING UNITS	VACANCY RATE (%)
Broward County	1,940,907	859,621	14
120110433021	649	238	15
120110801025	1,013	644	25
120110802001	1,321	781	33
120110901021	1,792	1,355	39

SOURCE: U.S. Census Bureau, 2018–2022 American Community Survey 5-year survey estimates.

Employment and Economics

Table 3-10 identifies the labor force, civilian unemployment rate, and median household income in the study area. For point of comparison, the same data for Broward County is also provided. Unemployment rates in the study area census tracts range from 2% in census block group 120110433021 to 16% in census block group 120110901021. All census block groups in the GSA have unemployment rates that are lower than those of Broward County except for census block group 120110901021.

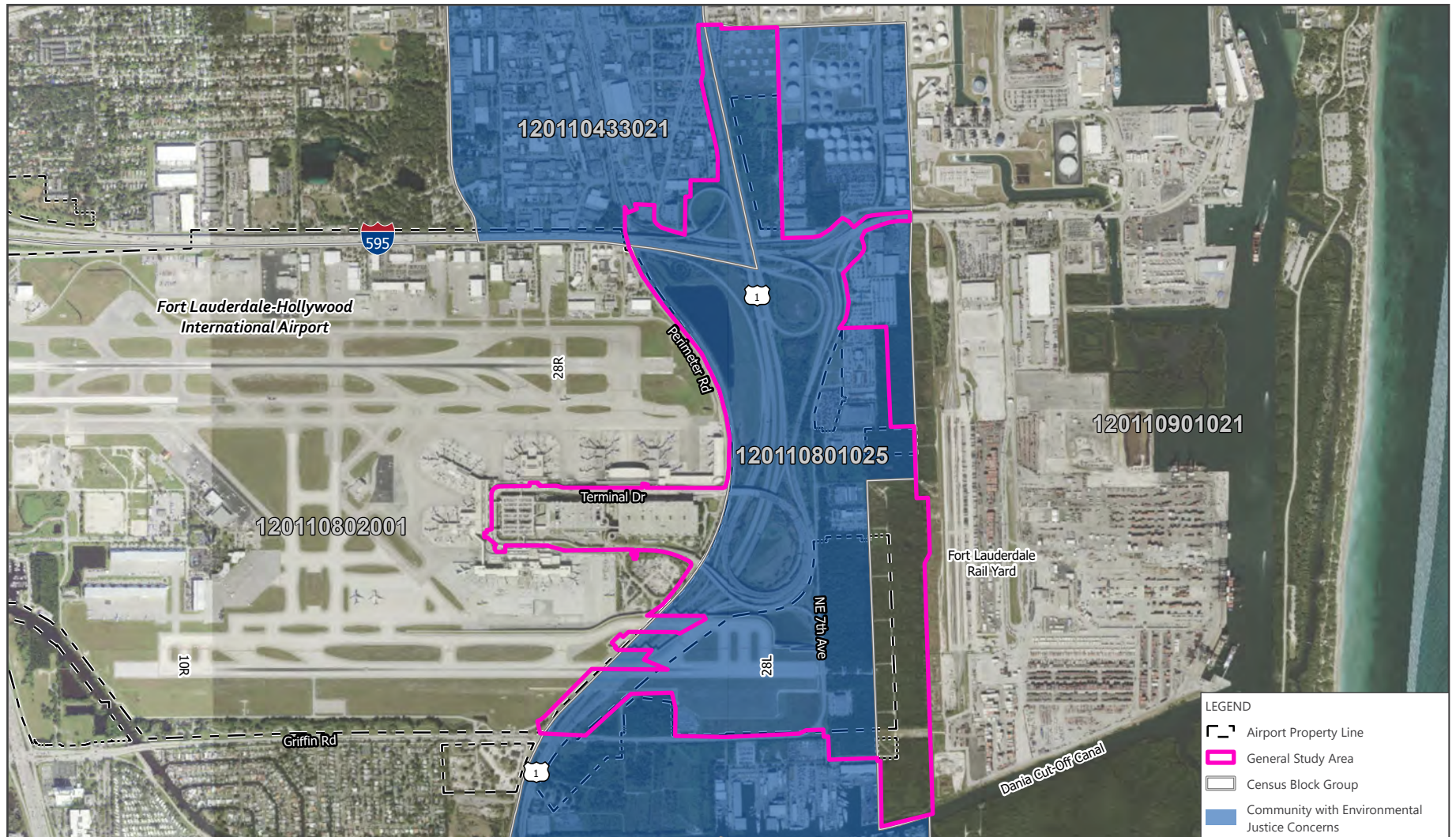
Table 3-10 Labor Force, Unemployment, and Median Household Income (5-Year Estimates 2018–2022)

CENSUS BLOCK GROUP	TOTAL LABOR FORCE	CIVILIAN UNEMPLOYMENT RATE* (%)	MEDIAN HOUSEHOLD INCOME (\$)
Broward County	1,047,061	6	70,331
120110433021	360	2	89,875
120110801025	592	5	51,591
120110802001	730	5	77,851
120110901021	1,268	16	120,772

NOTES: *not seasonally adjusted.

SOURCE: U.S. Census Bureau, 2018–2022 American Community Survey 5-year survey estimates.

¹¹² U.S. Census Bureau, 2022. *American Community Survey Demographic and Housing Estimates*. Available at: <http://data.census.gov> (accessed February 2024).



SOURCES: ESA, 2024; US Census Bureau, 2024.

EXHIBIT 3-11

Census Block Groups Fort Lauderdale-Hollywood International Airport

Median household incomes in the study area are higher than for Broward County as a whole, and range from \$51,591 in census block group 120110801025, to \$120,772 in census block group 120110901021. Based on the U.S. Census Bureau's American Community Survey five-year estimates for 2022, 12% of the population of Broward County had income below poverty level. In comparison, 13% of the total population of Florida had income below poverty level.

The Airport generated approximately \$15.4 billion in total economic output in 2022. At that time, the Airport resulted in about 110,047 jobs with labor payroll of approximately \$5.0 billion. The Airport is principally used for commercial activity, providing over 700 daily flights to 130 nonstop destinations globally. Further, the Airport had approximately \$8.8 billion of value added to the local economy.¹¹³

Surface Transportation

Per FAA Order 1050.1F, an EA must evaluate if the proposed action has the “potential to disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities.” Level of Service (LOS) is a metric used in transportation planning to describe operating conditions at intersections and along roadway segments. LOS typically includes six levels of service: A through F. LOS A indicates free flowing traffic with no congestion, whereas LOS F represents overcapacity or a breakdown or unstable flow conditions.¹¹⁴ The FHWA has not promulgated regulations establishing specific minimum LOS values for federal highways.¹¹⁵

As depicted on Exhibits 1-2 and 1-3, the GSA includes terminal area roadways, Airport access roadways, and sections of US -1 and local roads. The Airport access roadway system serves as the landside interface between the regional roadway system and the terminal curbside facilities. The Proposed Project involves roadway segments on and off airport property and BCAD has been coordinating traffic conditions with FDOT for all segments that are within FDOT right-of-way or connecting to FDOT managed roadways. An Interchange Modification Report (IMR) was developed for the proposed IMC. The IMR¹¹⁶ was prepared by BCAD and submitted to FDOT in July 2024. The IMR evaluates the future traffic volumes for the corresponding anticipated growth in the region and associated increase in transportation demand for no-build alternative and build alternative under future year conditions. In addition to the analysis in the IMR, a separate analysis of the on-airport roadway segments was conducted as part of the Landside Modeling and Traffic Study¹¹⁷ Existing and future roadway Levels of Service from these two studies were compiled and summarized in Appendix A-2.

Traffic impacts were evaluated for segments of highways and local roads located off airport property, including I-595, U.S. 1, associated on- and off-ramps, and arterial roadways, Northeast 7th Avenue and 10th Avenue (see Exhibit A-2.1 and Table A-2.1 in Appendix A-2). Traffic volumes on these roadways are high, as they serve a densely developed urban area. Current LOS for the roadway segments within the study area range from A (Excellent) to D (Fair), with three segments operating at a level D and the remainder at C (Good) or better. However it is anticipated that traffic will continue to increase and the LOS on the road segments within the study area will deteriorate over time, even if the Proposed Project is not implemented. The terminal area roadways are located on Airport property and include Perimeter Road which is a two-lane road that serves as an urban major traffic collector that runs adjacent to the perimeter of the entire Airport. The north segment passes under I-595 and the south segment remains closed to public access. The west segment provides access to the Commercial Ground Transportation Holding Lot and the Aircraft Observation Area, and the east segment provides access to both levels of the terminal area. The curbside includes Terminal Drive which is a two to six lane circulator road connecting I-595 and U.S. 1 to FLL's terminal facilities. This roadway provides landside access to the passenger terminals, public and employee parking lots, rental car facilities, commercial vehicle holding areas, and Airport support/ancillary facilities. It includes an upper level that provides curbside for departing passenger drop-off and a lower

¹¹³ Florida Department of Transportation, 2023. *2022 Florida Statewide Economic Impact Study*. Available at: <https://www.fdot.gov/aviation/economicimpact22.shtm> (accessed December 2023).

¹¹⁴ National Academies of Sciences, Engineering, and Medicine, 2022. *Highway Capacity Manual 7th Edition: A Guide for Multimodal Mobility Analysis*. Washington, DC: The National Academies Press.

¹¹⁵ U.S. Department of Transportation, Federal Highway Administration, Memorandum, 2016. *Level of Service on the National Highway System*. May 6, 2016.

¹¹⁶ Broward County Aviation Department, 2024. Interchange Modification Support (IMR), Fort Lauderdale-Hollywood International Airport Intermodal Center (IMC) Broward County, FL.

¹¹⁷ Broward County Aviation Department, 2024. Landside Modeling and Traffic Study, Technical Report (DRAFT)

level for arriving passenger pick-up by commercial and private vehicles. The upper curbside operates at an LOS of B whereas lower curbside, primarily due to the variety of travel modes using it, has an LOS of D and is expected to deteriorate in the future. Further, Terminal Drive has multiple merge points from the entrances and exits to and from parking garages which creates weaving of vehicles causing congestion in some cases gridlock. Traffic along Terminal Drive often overflows to Perimeter Road during times of peak demand.¹¹⁸

3.12.3.2 Environmental Justice

The socioeconomic and minority characteristics of the population within the GSA are based on the U.S. Census Bureau's 2018–2022 American Community Survey 5-Year Data Release. Minority and low-income populations were identified using U.S. Census Bureau geospatial and demographic data. Census block groups immediately surrounding the GSA with populations meeting thresholds for minority presence and poverty were identified as communities with environmental justice concerns. Census block groups whose percentages of minority populations were greater than 50% of the total population were identified as communities with environmental justice concerns, as were census block groups whose percentage of people living below the federal poverty level exceeded the 12% poverty rate for Broward County. Under these parameters, two communities with environmental justice concerns were identified as intersected by the GSA. Census Block Group 120110433021 has a minority composition of 64% and Census Block Group 120110801025 has a poverty rate of 15%. Summarized statistics for the GSA environmental justice communities are listed in **Table 3-11**. No migrant housing for agricultural workers or any concentration of other individuals historically subject to discrimination was identified in the GSA. As discussed in Section 3.12.3.1, no populated areas within the census block groups identified as communities with environmental justice concerns are intersected by the GSA or DSA.

Table 3-11 Communities with Environmental Justice Concerns within GSA, 2018–2022

CENSUS BLOCK GROUP	TOTAL POPULATION	MINORITY COMPOSITION (%)	PEOPLE LIVING BELOW POVERTY LEVEL (2022) (%)
Broward County	1,940,907	67	12
120110433021	649	64	9
120110801025	1,013	46	15
120110802001	1,321	25	7
120110901021	1,792	48	8

NOTES: Bolded numbers indicate that these census tracts are identified as minority or low-income populations.

SOURCE: U.S. Census Bureau 2018–2022 American Community Survey 5-year survey estimates.

3.12.3.3 Children's Environmental Health and Safety Risks

The nearest school is the AMIkids Greater Fort Lauderdale school located in census block group 120110433021, approximately 2,300 feet outside of the GSA. This location is well outside of the area susceptible to indirect effects for the Proposed Project. There are also no child daycare facilities, or other public facilities in the GSA where children might congregate. Furthermore, no residences are located within the GSA or anywhere direct or indirect effects would occur.

3.12.4 ENVIRONMENTAL CONSEQUENCES

3.12.4.1 Socioeconomics

No Action Alternative

Population and Housing

Under the No Action Alternative, the proposed IMC, APM, hotel and commercial center, and parking roadway enhancements would not be constructed, and no potential construction impacts or socioeconomic benefits related to improved local mobility would occur. The No Action Alternative would not include any physical development that would disrupt or divide the local community. Furthermore, it would not cause relocation of employees or place a strain on local housing stocks.

¹¹⁸ Broward County Aviation Department, 2020. 2020 Master Plan Update, Appendix D, Fort Lauderdale-Hollywood International Airport. November 2020.

Employment and Economics

Under the No Action Alternative, there would be no potential employment benefits related to construction and operation of new facilities. While the Airport provides direct and indirect economic benefits to the community and region, the No Action Alternative would not result in an increase in economic benefits, and no new significant adverse impacts affecting socioeconomic conditions would be introduced.

Surface Transportation

The No Action Alternative assumes that the Proposed Project would not be constructed and that there would be only routine maintenance and no major improvements to roadway segments within the study area during the study period. Under the No Action Alternative, traffic on the airport and access roadways would continue to increase in response to the projected FLL passenger levels and urban growth trends in Broward County. The LOS at the terminal area roadways and Airport access roadways would experience a decreasing LOS by at least one grade for all but one segment as depicted in Table A-2.1 in Appendix A-2, and current operational inefficiencies and traffic congestion would persist. Perimeter Road (terminal area roadway) would continue to experience overflowing traffic. Five road and ramp segments of U.S. 1 and I-595 (Airport access roadways) would operate below LOS D by 2035 (Table A-2.1). Further, the terminal roadway would operate at or at LOS D to LOS E for all Airport terminal areas. Lastly, regional transportation objectives to improve mobility and decrease congestion would not be met.

Proposed Project

Population and Housing

Construction Impacts

Under the Proposed Project, an IMC, APM, hotel and commercial center, and parking and roadway improvements would be constructed. The physical development associated with the Proposed Project would occur in existing highway corridor ROW and on Airport property and would not disrupt or divide any existing local communities.

Operational Impacts

The IMC and APM would operate as a node and corridor linking multiple modes of transportation and transit infrastructure to improve local and regional mobility. The Proposed Project would result in some employment growth associated with the IMC, APM, hotel, and commercial center. However, the employment growth associated with the Proposed Project would be consistent with anticipated regional background growth and would not induce extensive relocation of employees that would place a strain on local housing stocks.

Employment and Economics

Construction Impacts

The Proposed Project would not result in relocation of community businesses that would produce economic hardship, as construction of the Proposed Project elements would occur on land primarily dedicated to transportation uses. Further, construction of the Proposed Project would likely provide employment opportunities and economic benefit to the area.

Operational Impacts

Redevelopment of existing facilities, such as the Palm Garage, would not result in economic hardship for local communities, nor would the Proposed Project result in a substantive change in economic activity. The Proposed Project would increase employment at the IMC, APM, hotel, and commercial center.

Surface Transportation

Construction Impacts

Construction activities associated with the Proposed Project would occur in planned phases and construction vehicle trips (hauling, workers) would primarily use major highway corridors away from local surface streets. The increase in vehicle trips related to construction activities in the GSA would be limited to major roadways and would not include residential roads. Therefore, construction haul routes would avoid populated areas, local roads, and residential neighborhoods. Further, the demand for concrete, aggregate, or fill material associated with this project would not significantly disrupt the flow of traffic near borrow site(s).

Operational Impacts

To implement the Proposed Project, changes to the on and off-airport roadway segments are required to provide access to the IMC. The Proposed Project will not increase traffic; however, the proposed access improvements will address many of the existing and projected (No Action) traffic conditions and LOS and will be designed to accommodate future traffic demands. The Proposed Project would provide access to/from the IMC and terminals, as well as improve landside access options and facilities to enhance the overall travel experience at FLL and meet existing and forecast passenger activity levels and parking demands while reducing congestion in the terminal area. Development of the IMC will reduce the passenger vehicle, Transportation Network Company¹¹⁹ (TNC) vehicle, bus, and internal shuttle bus traffic on the terminal roadways and reduce the delays associated with passenger drop-off along those roadway segments. Terminal area roadways (Perimeter Road) would become less congested and would experience decreased shuttle bus and passenger vehicle volumes as a result of parking garage enhancements, APM, supplemental curbsides, and multimodal development. Additionally, the two proposed at-grade supplemental curb areas would address terminal curbside capacity deficiencies, and the proposed supplemental roadway will alleviate traffic congestion at the terminals. The supplemental curb areas would be provided at the lower levels of Terminals 1 and 3 (Exhibit A-2) and would include a raised curb and sidewalk, consistent with existing FLL terminal curbside design. In addition to the improvements to the terminal roadways and additional curbside, the Proposed Project includes improvements to the intersection of SR-5/US-1 and SR-818/Griffin Road/NE 10th Street as well as access ramps from the IMC to US-1. The one Airport roadway that was projected to have a LOS of D in 2035 is the IMC Level 2 Entry Ramp. However, all new IMC connecting ramps were previously assumed to be a single lane under initial traffic modeling assumptions.¹²⁰ Based on more recent traffic studies, these ramps would have two lanes to increase capacity and assure they can operate at an acceptable LOS. Overall, the Proposed Project is expected to improve traffic on terminal area roadways and airport access roadways with projected LOS equal to or better than the No Action Alternative for all roadway segments within the study area resulting in an improved roadway and access system.

The Proposed Project includes on-airport roadway segments and off-airport roadway segments within the FDOT right-of-way. While the Proposed Project is anticipated to alleviate congestion within terminal area roadways and curbside without increasing traffic volumes on off-airport segments, projections indicate that five road and ramp segments on U.S. 1 and I-595 (airport access roadways) will operate at LOS D or below by 2035, irrespective of the Proposed Project's implementation. Two of these segments are along U.S. 1 and three are I-595 ramps (Exhibit A-2). FDOT is evaluating conducting a separate study that would determine the approximate failure years for these road segments / ramps and determine future improvements, after implementation of the Proposed Project. BCAD will continue to work with FDOT in regard to future improvements to the roadway segments in the vicinity of FLL.

In addition to the Proposed Project, there are a number of additional studies and projects being evaluated and developed in support of improved regional transportation, of which the IMC is a key element. Ongoing studies include a potential north-south corridor east of FLL for multi-modal connections across the region and the Broward Commuter Rail South which is anticipated to extend commuter rail service along the FEC Railway corridor running alongside FLL, including a station at FLL.¹²¹ Future studies also include a potential for light rail connections between the Airport, Port Everglades cruise port, and the Broward County Convention Center, and a next phase extension to downtown Fort Lauderdale.¹²² The Proposed Project is not expected to increase traffic and is unlikely to result in any significant impacts to surface transportation. The Proposed Project would improve access and through the accommodation of passenger vehicles, buses and TNC vehicles at the IMC, would improve LOS on the majority of roadway segments within the study area.

3.12.4.2 Environmental Justice

No Action Alternative

As described in Section 3.12.3.2, there are four census block groups within the GSA which have been identified as communities with environmental justice concerns. The four census block groups are depicted on Exhibit 3-11. Census Block Group

¹¹⁹ A Transportation Network Company (TNC) is a company that connects passengers with drivers using a digital platform to arrange transportation services.

¹²⁰ Broward County Aviation Department, 2020. 2020 Master Plan Update, Appendix D, Fort Lauderdale-Hollywood International Airport. November 2020.

¹²¹ Broward County Transit and Florida Department of Transportation, 2023. Broward Commuter Rail (BCR) South, Project Development & Environmental (PD&E) Study, Broward Commuter Rail South Newsletter Update #2, November 2023.

¹²² Broward County, 2023. Broward County Transit Systemwide Study, Planning, and Preliminary Design, Premium Mobility Plan. August 2023.

120110433021 features a percentage of minority populations (64%) representing a preponderance of its total population. Census Block Group 120110801025 has a poverty rate of 15% which is higher than that of Broward County (12%). Under the No Action Alternative, the proposed IMC, APM, hotel and commercial center, and parking roadway enhancements would not be constructed, and no potential construction impacts or socioeconomic benefits related to improved local mobility or employment would occur.

Proposed Project

Construction Impacts

Under the Proposed Project, an IMC, APM system, parking garage redevelopment with hotel and commercial center, and roadway improvements would be constructed. Transportation of construction materials and debris would primarily take place on major highway corridors away from local surface streets through residential areas. Emissions associated with construction would not cause significant impacts to air quality. Further, temporary and intermittent construction noise from the Proposed Project is unlikely to be distinguishable from surface traffic and aircraft operations at FLL. Although the four census block groups intersected by the GSA are populated, no populated residential areas actually occur within the GSA.

Operational Impacts

As discussed throughout this chapter, no significant adverse impacts associated with operation of the Proposed Project have been identified. Therefore, the Proposed Project would not result in disproportionate and adverse human health or environmental effects to the identified communities with environmental justice concerns. Environmental justice communities could receive some economic benefit because of activity associated with construction or operation of any of the Proposed Project elements.

3.12.4.3 Children's Environmental Health and Safety Risks

No Action Alternative

Under the No Action Alternative, the proposed IMC, APM, hotel and commercial center, and parking roadway enhancements would not be constructed. Thus, no potential construction or operational impacts to the surrounding communities would occur.

Proposed Project

As discussed in Section 3.12.3.3, *Children's Environmental Health and Safety Risks*, there are no children's schools, child daycare facilities, or other public facilities where children congregate located within the GSA. As stated in Sections 3.2.4 and 3.11.4, the Proposed Project would not result in any significant adverse air quality or noise impacts that might affect the health of children. Per Section 3.7.4.2, there is no indication of potential for release of identified hazardous materials during construction that would be harmful to children.

3.12.5 SIGNIFICANCE DETERMINATION

Considering the socioeconomic factors discussed above, all potential impacts associated with the Proposed Project would produce benign or positive socioeconomic effects. The Proposed Project is, therefore, unlikely to result in any significant adverse socioeconomic impacts when compared to the No Action Alternative. When compared to the No Action Alternative for the same timeframe, the Proposed Project would not result in any significant environmental justice impacts to either of the identified communities with environmental justice concerns. Nor would the Proposed Project alter the physical environment in a manner that would uniquely affect any members of the identified communities with environmental justice concerns. As there would be no new adverse impacts, there would also be no effect on children's health or safety.

3.13 Visual Effects

3.13.1 REGULATORY CONTEXT

FAA Order 1050.1F states that an assessment of potential visual effects of light emissions and impacts to visual resources is required to consider to what extent a Proposed Project could produce light emissions with potential to interfere with activity or cause annoyance or otherwise degrade the visual character of an existing environment. The evaluation of visual effects is performed in accordance with applicable federal regulations and local requirements for certain properties, viewsheds, and building codes.

3.13.2 METHODOLOGY

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

3.13.3 AFFECTED ENVIRONMENT

As described in Section 3.9, *Land Use*, the GSA is in a largely developed, urban area, surrounded by major highways and railroads, as well as industrial and manufacturing, and commercial developments. There are no residential, institutional, public facilities (e.g., schools), or publicly accessible parks within the GSA. Existing light emissions are consistent with the designated land uses within the GSA. Light sources within the GSA primarily include highway and traffic lighting, vehicular lights, and airport lighting (e.g., airfield directional signage, and light from navigational equipment, approach lighting, etc.). All major area roadways including Highway U.S. 1, SR A1A, Terminal Drive, Northeast 7th Avenue, as well as all access ramps and connecting roadways are lighted with overhead streetlights. Other light sources include lighting on the terminal area buildings, hangars, aircraft parking aprons, and multiple landside parking structures.

The visual character of the area surrounding the GSA is consistent with transportation infrastructure, which consists of multi-level airport parking structures, elevated access roadways, and industrial development. Further, the GSA is in an area that is overflowed by thousands of aircraft annually, and the visual character of the areas considered is already densely developed within limited to no unobstructed views. There are also no scenic resources, viewsheds, or historic properties within the GSA.

3.13.4 ENVIRONMENTAL CONSEQUENCES

3.13.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be built. Therefore, there would be no new sources of light emissions or effects to the visual character of the areas surrounding the Airport. Light emissions would remain limited to the existing airport buildings, parking areas, and roadway lighting. The visual resources and character of the Proposed Project environs would remain unchanged and continue to reflect the nature of the largely industrial and developed transportation facilities in an urbanized area.

3.13.4.2 Proposed Project

Construction Impacts

The Proposed Project includes elements that are located on Airport property and within the U.S. 1 ROW. Light emissions would result from both construction and operation of the Proposed Project. During the construction of the Proposed Project, lighting would result from portable lighting to aid in concrete pouring, operating machinery, and general construction activities. Construction lighting would be limited to the work area and would not spill over into areas outside the GSA or create a source of glare on roadways adjacent to the Airport. Further, the nearest residential developments are approximately 0.7 mile south of the Proposed Project. There are also no scenic resources, viewsheds, or historic properties within the GSA. Therefore, no light emissions would be introduced to residential communities or scenic resources during construction of the Proposed Project.

Operational Impacts

After construction, lighting from the Proposed Project elements that occur along Terminal Drive would be consistent with current light emissions at the Airport and would be shielded by the passenger terminals that surround the area. For example, the development of Palm and Cypress Garages would include lighting that is consistent with existing parking structures. Supplemental curbside fronts would also be outfitted with streetlights and signage that is consistent with the existing curbside front. The Airport hotel (associated with the Palm Garage Redevelopment) may introduce additional light sources. However, the hotel would be located

in an area that is already densely lit and would likely be indistinguishable from existing light sources. Further, the parking garages, airport hotel, and supplemental curb would be surrounded by the terminal buildings which would likely make additional lighting in this area unnoticeable. Lastly, since there are no residential properties within the GSA, no communities would be affected by additional lighting from the development within the terminal area of the Airport.

New light sources would result after construction of the APM and IMC. Additional lighting would be constructed along the elevated APM track and within each stations/platform connected to the FLL terminal area and IMC. The IMC would also include lighting on each parking level and along roadway connections to and from U.S. 1 to aid vehicular movement. The IMC and APM would be visible from surrounding roadways and from the Airport property. Northbound and southbound lanes of U.S. 1 would go through the bottom level of the IMC parking structure, much like the same roadway goes under Runway 28L immediately south of the Proposed IMC location. BCAD has a task underway focused on aesthetics for the proposed IMC. As the future gateway to the Airport, the IMC would be designed to complement the design of existing facilities as well as design continuity with the new Terminal 5. It is BCAD's intent to design the IMC and other project elements to complement and enhance the Airport and serve as a welcoming gateway to FLL. Therefore, the IMC and APM would not degrade the visual character of the surrounding area. Further, the nearest residential developments are approximately 0.7 mile south of the Proposed Project, and there are no scenic resources, viewsheds, or historic properties within the GSA. Therefore, no light emissions would be introduced to residential communities or scenic resources after construction of the Proposed Project.

3.13.5 SIGNIFICANCE DETERMINATION

FAA Order 1050.1F Section 13.3.3 provides information on FAA's significance determination. The FAA has not established a threshold of significance for visual effects in FAA Order 1050.1F. The FAA has identified factors to consider when evaluating potential environmental impacts for visual effects. If these factors exist, there is not necessarily a significant impact. The FAA must evaluate these factors considering context and intensity to determine if there are significant impacts. When compared to the No Action Alternative, the Proposed Project would result in substantial change to an already densely developed transportation corridor. However, the Proposed Project would be constructed to complement the existing and future area and would not result in significant impacts to visual effects. The visual impact introduced by development of the Proposed Project, in particular the IMC, while significant, would be designed to aesthetically align with the existing airport facilities and serve as a gateway to the Airport. The distance between the Proposed Project and the nearest residential development makes disruption due to visual impact unlikely both during and after construction.

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

3.14.1 REGULATORY CONTEXT

The *Clean Water Act of 1972* (33 U.S.C. §§ 1251–1387), the *Safe Drinking Water Act of 1972* (42 U.S.C. §§ 300[f]-300j-26), the *Rivers and Harbors Act of 1899* (33 U.S.C. § 401 and 403), and the *Water Quality Act of 1987* (42 U.S.C. §§ 300[f]-300j-26) are the primary federal laws protecting the nation's waters. EO 13690, *Federal Flood Risk Management Standard*, directs federal agencies to improve the resilience of communities and federal assets against the impacts of flooding. EO 11988 *Floodplain Management* addresses potential development in the nation's floodplains. EO 11990, *Protection of Wetlands*, directs federal agencies to take action to minimize the destruction, loss, or degradation of wetlands on their property and mandates review of proposed actions on wetlands through procedures established by NEPA. EO 11988, *Floodplain Management* (1977) and Department of Transportation Order 5650.2, *Floodplain Management and Protection* require that actions avoid floodplains, and if no practicable alternative exists, to design actions to minimize risk of loss of human life, damage to property, or interruption of the natural and beneficial values of floodplain resources.

The Clean Water Act (CWA) (33 U.S.C. §§ 1251–1387), as amended, establishes the basic structure for regulating discharges of pollutants or fill material into the Waters of the U.S. and regulating quality standards for surface waters. Section 404 of the Clean Water Act regulates discharge of dredge or fill material into waters of the U.S., including wetlands, and a permit is required from the Department of the Army, Corps of Engineers (USACE), or the responsible state agency, for discharges of these materials into

those waters/wetlands. The FDEP is the delegated authority for Florida NPDES stormwater discharge from construction activities. Further, a state Environmental Resource Permit (ERP) is also required from South Florida Water Management District (SFWMD) before work can begin within state jurisdictional wetlands and/or other surface waters.¹²³ The Safe Drinking Water Act (SDWA) authorizes the USEPA to set national health-based standards for drinking water to protect against both naturally occurring and man-made contaminants that may be found in drinking water.

3.14.2 METHODOLOGY

Water resources include wetlands, surface water, groundwater, public water supply, and floodplains. On-site field surveys were conducted on 26, 2023 and January 31, 2024, to characterize the environmental resources that may be affected by the Proposed Project. The GSA was used in the field surveys and includes areas that would be directly and indirectly impacted by the Proposed Project. To identify overall wetland habitats and surface waters within the DSA, the USFWS NWI database and the SFWMD Land Cover Land Use database were reviewed. The SFWMD Environmental Monitoring web map, SFWMD DBHYDRO Database, and the USEPA's Sole Source Aquifers for Drinking Water were reviewed to determine the presence of water quality sensitive areas near the Airport. Floodplain resources within the affected environment are evaluated against the Federal Emergency Management Agency (FEMA) Flood Insurance Maps (FIRMs) for the Airport.

3.14.3 AFFECTED ENVIRONMENT

3.14.3.1 Wetlands

The FWS NWI database, the SFWMD Land Cover Land Use database, and field surveys identified two wetlands within the DSA. Wetland #1 is a 3.91-acre freshwater forested/shrub wetland located in between U.S. 1 and the I-595 interchange from northbound U.S. 1. Wetland #1 is approximately 1,300 feet to the north of the proposed IMC location.

Wetland #2 is approximately 34 acres of mangroves and is located in the southeastern portion of the DSA. This wetland is bounded by Northeast 7th Avenue on the west, development on the north, and an FPL access road on the east and south, which act as barriers to any overland flow from this existing wetland area. This wetland acts as a receiving water body for stormwater from a section of the U.S. 1 drainage basin. The canopy stratum of Wetland #2 is composed of red mangroves (*Rhizophora mangle*), black mangroves (*Avicennia germinans*), and white mangroves (*Laguncularia racemose*) with minor inclusion by green buttonwood (*Conocarpus erectus*). Plant cover in the groundcover stratum is limited due to dense canopy cover throughout these County owned wetland areas to the east of Northeast 7th Avenue. Species present in the groundcover stratum include leather fern (*Acrostichum danaeifolium*), coin vine (*Dalbergia ecastaphyllum*), and red, black, and white mangrove seedlings. The area is also bounded by a perimeter berm and is vegetated with nuisance and exotic species including Brazilian pepper, Australian pine and other common species.

3.14.3.2 Surface Waters

Stormwater from impervious surfaces in urban environments conveys contaminants to surface water bodies, wetlands, and groundwater. Runoff may contain dissolved or suspended anthropogenic contaminants, of which metals, nutrients, volatile organics, petroleum hydrocarbons, bacteria, pesticides/herbicides, and suspended solids are the most common. The greatest concern regarding maintaining the quality of the County's surface waters continues to be pollutant discharges in the watershed and nonpoint source discharges of stormwater runoff in the canal systems. The study areas are located within the Boca Raton Inlet-Port Everglades watershed (HUC12 #030902061300). The GSA includes primarily artificial water impoundments and conveyance structures (e.g., other surface water ponds and ditch features) utilized for stormwater detention, flow, and treatment. There are three waterbodies present within the study areas.¹²⁴ Each waterbody is designated as an impaired resources on the

¹²³ Pursuant to Chapter 373, Florida Statutes, Section 373.406.

¹²⁴ FDEP, 2024. *FDEP Geospatial Open Data, Waterbody IDs (WBIDs)*. Available at: <https://geodata.dep.state.fl.us/datasets/FDEP::waterbody-ids-wbids/explore?location=26.060698%2C-80.130055%2C13.07> (accessed February 2024).

USEPA's 303(d) list of impaired and threatened waters in Florida.¹²⁵ This is important because impaired waters have limitations on pollutants allowed to be discharged. The status of these water bodies is summarized in **Table 3-12** and the area of the impairment is depicted on **Exhibit 3-12**. The SFWMD DBHYDRO Database does not indicate any active or inactive water quality monitoring stations within the study areas.¹²⁶

Table 3-12 Waterbodies within the GSA

WATERBODY	STATE WATERBODY ID	303(D) LISTED	YEAR REPORTED	IMPAIRED PARAMETERS
Dania Cut-Off Canal	FL3277E	Yes	2020	Metals, Bacteria
New River Canal (South)	FL3277A	Yes	2020	Metals, Bacteria
ICWW (Broward County Southern Segment)	FL3226G3	Yes	2020	Metals, Bacteria

SOURCE: U.S. EPA, 2024. *Assessment and TMDL Tracking System (ATTAINS)*. <https://mywaterway.epa.gov/> (Accessed February 2024); FDEP, 2024. *Impaired Waters, TMDLs, and Basin Management Action Plans Interactive Map*. <https://floridadep.gov/dear/water-quality-restoration/content/impaired-waters-tmdls-and-basin-management-action-plans> (Accessed February 2024).

Other surface waters (OSWs) within the GSA include man-made stormwater reservoirs and drainage features, such as upland-cut ditches and swales, designed and constructed to convey stormwater from the Airport, U.S. 1, I-595, and other arterial roadways. The existing stormwater management system at FLL is divided into seven primary system basins. The study areas include System 1, System 2, and the U.S. 1 Drainage System. The drainage systems consist of a series of interconnected dry retention areas and wet ponds throughout the GSA. These stormwater management areas provide storage volume for stormwater runoff for flood attenuation and water quality purposes. Under the existing conditions, all stormwater runoff generated within System 2 serving the eastern portion of the FLL terminal area and within the U.S. 1 System eventually flows into the existing dry retention area located within the footprint of the proposed IMC before discharge off-site to a ditch that conveys stormwater to the Dania Cut-Off Canal and to the mangrove area to the east of Northeast 7th Avenue which serves as a receiving waterbody for the system. Stormwater from System 1 does not flow into the same retention area as System 2 and the U.S. 1 drainage system.

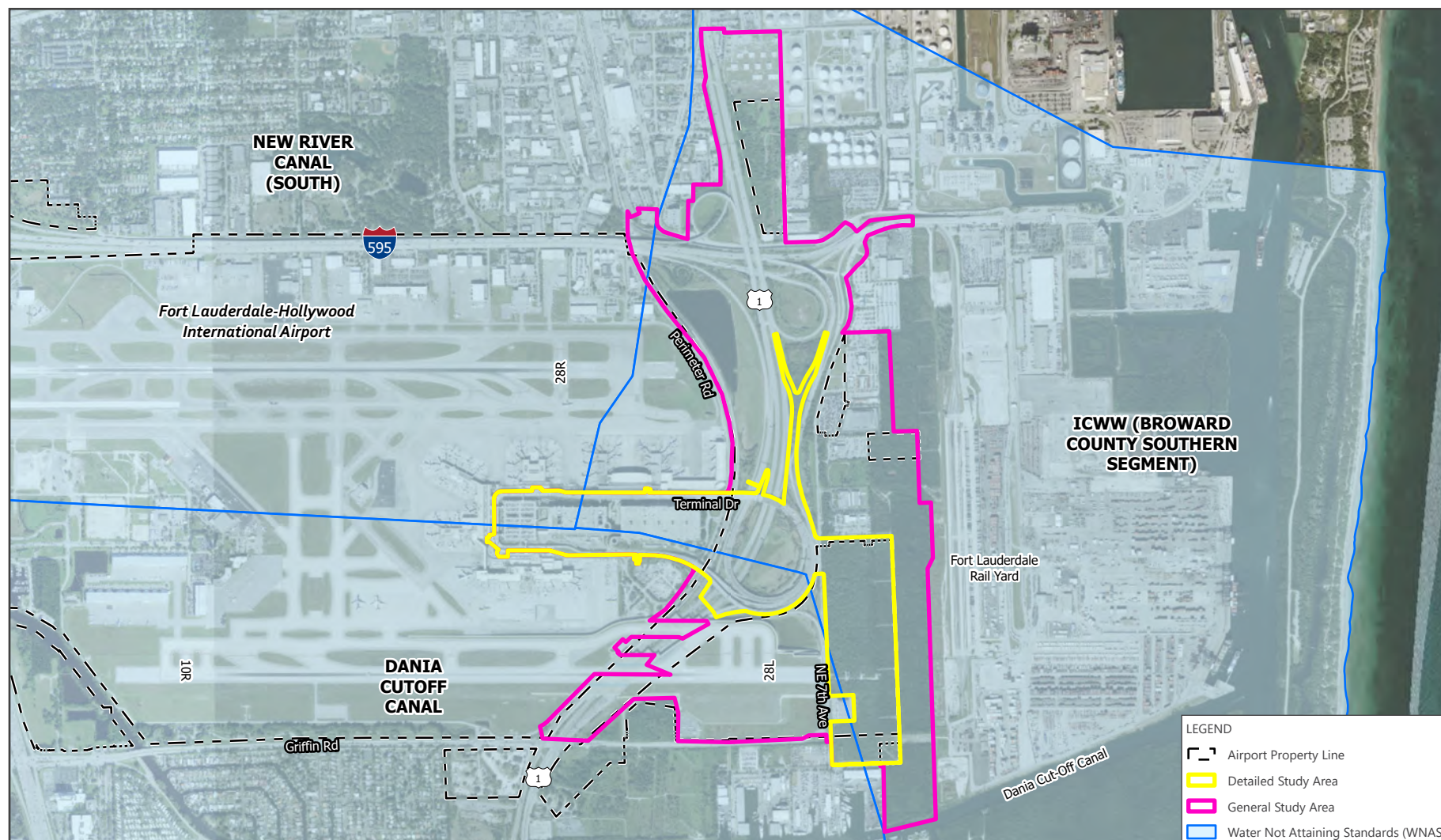
The Proposed Project would result in additional stormwater which would be managed through modification of the existing U.S. 1 stormwater system. In 2024, Chen Moore & Associates, Incorporated (CMA), performed an analysis of existing storage capacity within the System 2 and U.S. 1 drainage system. Based on this analysis, it was determined that the dry retention areas and wet ponds throughout the U.S. 1 drainage system provide minimal surplus water quality treatment volume under the existing conditions, however with improvements to existing culverts, retention of the IMC drainage on-site, and through increased periodic discharge of pre-treated stormwater to the current receiving waterbody/mangrove system east of Northeast 7th Avenue, the stormwater associated with the Proposed Project can be accommodated within the existing system (see the section titled, *Recommended Conceptual Stormwater Improvements*, in **Appendix F**). The stormwater would be managed through a series of modifications which include:

- Maximizing the stormwater storage volume provided on-site within the footprint of the IMC and within the U.S. 1 system prior to discharge.
- Upsizing various existing drainage connections throughout the U.S. 1 system.
- Upsizing culverts under the existing FPL maintenance access road on the eastern boundary of the existing receiving wetland.

The U.S. 1 drainage system discharges stormwater runoff via a single 48-inch outfall pipe from Basin US1-14 into the mangrove swamp east of Northeast 7th Avenue that acts as the receiving water body. There are also three 24x32-inch oval outfall pipes that discharge stormwater runoff from the Northeast 7th Avenue right of way into this same mangrove area. Stormwater flows from this existing wetland area through seven existing culverts under the FPL maintenance access road, which forms a barrier to

¹²⁵ Section 303(d) of the CWA authorizes USEPA to assist states, territories and authorized tribes in listing impaired waters and developing Total Maximum Daily Loads (TMDLs) for these waterbodies. A TMDL is important because it establishes the maximum amount of a pollutant allowed in a waterbody and serves as the starting point or planning tool for restoring water quality.

¹²⁶ SFWMD, 2024. *DBHYDRO (Environmental Data)*, *SFWMD Environmental Monitoring web map*. Available at: <https://apps.sfwmd.gov/WAB/EnvironmentalMonitoring/index.html> (accessed February 2024).



SOURCES: FDEP, 10/2022; Adapted by ESA, 2024.

EXHIBIT 3-12



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overland flow, into the existing FDOT drainage channel that flows south toward the Dania Cut-Off Canal.¹²⁷ The County-owned mangrove wetland area to east of Northeast 7th Avenue is entirely surrounded by an upland access road, which act as a perimeter berm blocking free overland flow of stormwater runoff.

3.14.3.3 Floodplains

In accordance with EO 13690, in order to determine whether the action is located in a floodplain, shall be based on the best available information and the FEMA's effective FIRM. According to the FEMA FIRM for the GSA, the Proposed Project is located within Special Flood Hazard Area Zones where there is a 1% annual chance of a flood (i.e., 100-year flood). The FEMA FIRM flood zones are depicted on **Exhibit 3-13**. Both AE and AH areas are considered as being within the 100-year floodplain. Federal floodplain management regulations and mandatory flood insurance purchase requirements apply in these zones. The Airport also has areas of moderate or minimal hazard zones that could be affected by severe, concentrated rainfall coupled with inadequate local drainage systems. While local stormwater drainage systems are not normally considered in a community's flood insurance study, the failure of a local drainage system can create areas of high flood risk within these zones.

3.14.3.4 Groundwater

The Airport is located within the Biscayne Sole Source Aquifer (Biscayne Aquifer) Streamflow and Recharge Source Zone.¹²⁸ The SSA are designated by the USEPA under section 1424(e) of the SDWA of 1974. An SSA supplies at least 50% of the drinking water consumed in the areas overlying the aquifer. These areas may have no alternative drinking water source(s) that could physically, legally, and economically supply those who depend on the aquifer for drinking water.¹²⁹ The Biscayne Aquifer underlies an area of approximately 4,000 square miles. It is located just below ground level and is comprised of porous rock and soil which allow for the water levels in the aquifer to rise and recharge rapidly in response to rainfall.¹³⁰ However, given that the Biscayne aquifer is highly permeable and lies at shallow depths, it is susceptible to contamination from activities above its location. As the Proposed Project would increase impervious land cover, the additional stormwater could impact the Biscayne aquifer, which is close to the surface and extremely porous.

There are seven groundwater contamination sites within the GSA. Three sites are located outside the DSA and would not be impacted by the Proposed Project. The other four sites are on Airport property and located along Terminal Drive within the DSA. These four sites could be impacted by the Proposed Project with the construction of the Palm Garage, APM, and Cypress Garage. More information on groundwater contamination can be found in Section 3.7, *Hazardous Materials, Solid Waste, and Pollution Prevention*.

There are no private or public water supply wells within the GSA.¹³¹ The nearest public water supply well is over 4 miles away from the GSA at the City of Hollywood Water Treatment facility.¹³² Further, the Proposed Project is not within a Floridian Aquifer Protection Zone or Wellfield Protections Zone.^{133,134}

¹²⁷ Chen Moore and Associates, Inc., 2024. FLL Intermodal Center PDD Stormwater Planning Technical Report (Preliminary DRAFT). February 2024.

¹²⁸ U.S. Environmental Protection Agency, *Map of Sole Source Aquifer Locations*. Available at: <https://www.epa.gov/dwssa/map-sole-source-aquifer-locations> (accessed November 8, 2022).

¹²⁹ U.S. Environmental Protection Agency, *Sole Source Aquifers in the Southeast*. Available at: <https://archive.epa.gov/region4/water/groundwater/web/html/r4ssa.html#biscayne> (accessed February 2024).

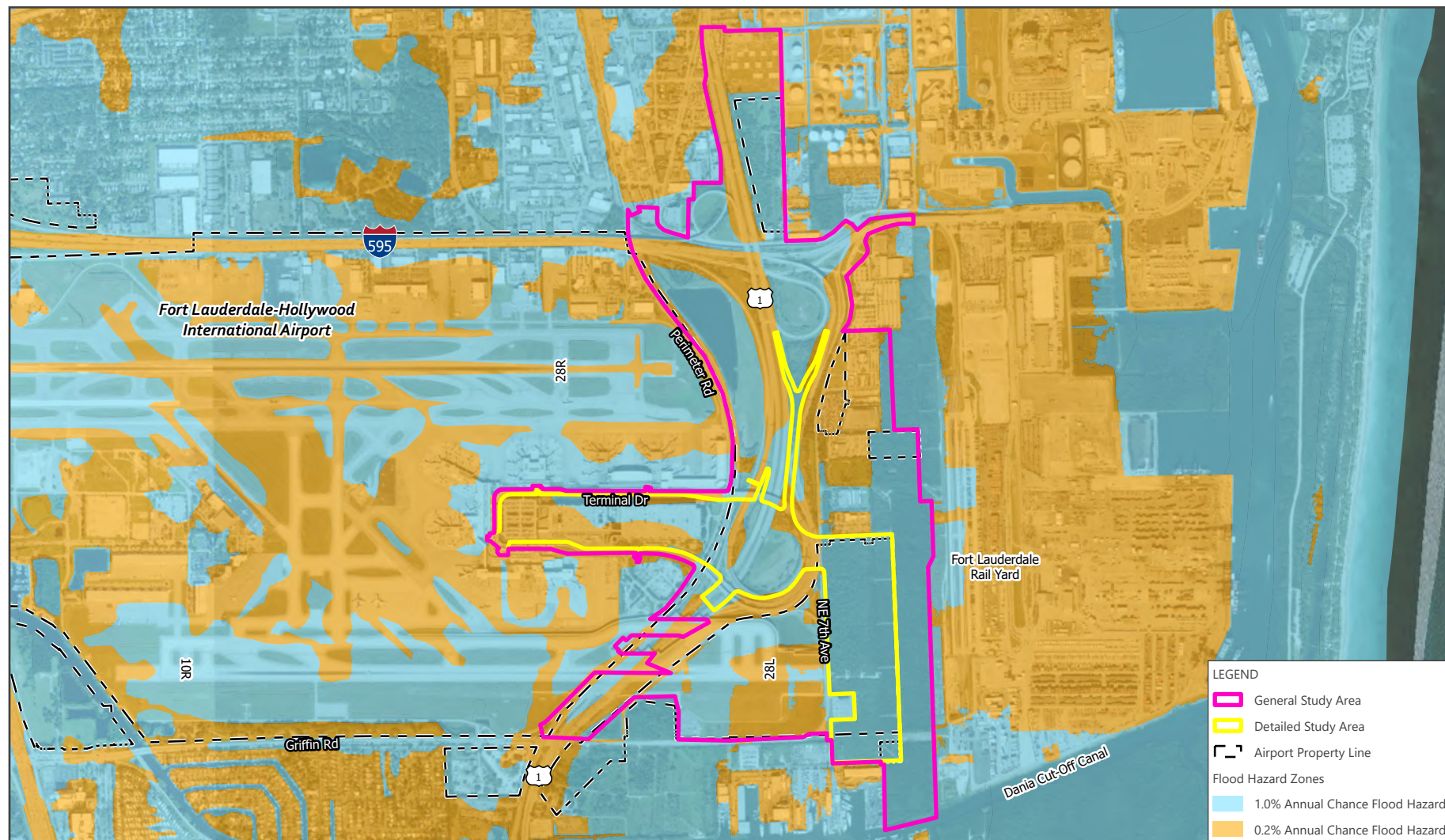
¹³⁰ U.S. Geologic Survey, 1990. Groundwater Atlas of the United States, Segment 6, Alabama, Florida, Georgia, South Carolina HA 730-G. Available at: <https://pubs.usgs.gov/ha/730g/report.pdf>.

¹³¹ FDEP, 2024. *Private Wells from Generalized Well Information System (GWIS)*. Available at: https://geodata.dep.state.fl.us/datasets/d7073d7088424625be4b4d4d39cb1b03_1/explore?location=26.063399%2C-80.146591%2C13.17 (accessed May 14, 2024).

¹³² FDEP, 2024. *Public Water Supply (PWS) Wells (Non-Federal)*. Available at: <https://geodata.dep.state.fl.us/datasets/e0b832a3c8ca45598c79a9b290653bd7/explore?location=26.061622%2C-80.151151%2C12.47> (accessed May 14, 2024).

¹³³ Broward County Wellfield Protection Program establishes protected areas around public and private wellfields. The program's responsibility is to regulate the storage, handling, use, and production of regulated substances at facilities within the wellfield protected areas.

¹³⁴ Broward County Environmental Permitting Division, 2024. *Broward County Wellfields*. Available at: <https://experience.arcgis.com/experience/d086d6f8b24c490b98b1658d15d81a38/?draft=true> (accessed May 14, 2024).



SOURCES: FEMA NFHL Online Viewer, accessed 2024-05-09; ESA, 2024.

EXHIBIT 3-13

Flood Hazard Zones Fort Lauderdale-Hollywood International Airport



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3.14.4 ENVIRONMENTAL CONSEQUENCES

3.14.4.1 No Action Alternative

Under the No Action Alternative, the Proposed Project would not be constructed. There would be no potential impacts to wetlands, surface waters or floodplains. The IMC would not be built and add impervious surface and the existing stormwater retention basin at the U.S. 1 ROW would remain. There would be no increase in the volume of stormwater discharged to surface waters. The U.S. 1 drainage system would continue to provide minimal surplus water quality treatment volume.

3.14.4.2 Proposed Project

Wetlands

Construction Impacts

The Proposed Project would result in minor (less than 0.22 acre) temporary impacts to a mangrove swamp wetland (Wetland #2) to maintain treated stormwater attenuation functions and water levels within the wetland. The mangrove swamp wetland is presently bounded on all four sides by developed areas (e.g., U.S. 1 and an FPL service road). The wetland receives rainfall and treated stormwater discharge from U.S. 1 and is connected to adjoining waters by seven culverts located under the FPL service road. Construction within the mangrove wetland area would be limited to replacing the seven existing culverts located under the FPL access road. Construction activities will be limited to the areas of berm and immediate adjoining wetland areas. Construction plans will seek to minimize work in the adjoining wetland areas and include measures to minimize impacts to water quality and substrate (i.e., silt fences/sediment barriers). Habitat impacts would be minimal and temporary. Other than replacing culverts, this existing berm would not be modified.

Operational Impacts

Once the Proposed Project is operational, the mangrove wetland area would remain in place and continue to function as natural wetland habitat and as an attenuation area for treated stormwater from a section of the U.S. 1 drainage system in wet conditions. This is consistent with agency requirements to avoid and minimize impacts to wetlands.

Surface Water

Construction Impacts

Construction of the Proposed Project would take place within the limits of the three impaired waterbodies: Dania Cut-Off Canal, New River Canal (South), ICWW (Broward County Southern Segment). Surface waters within the Proposed Project area are limited to OSWs used to convey stormwater from portions of the U.S. 1 drainage system to Dania Cut-Off Canal which is outside of the study area. Most of the construction would be redevelopment of existing structures and transportation infrastructure on Airport property. As such, heavy equipment staging for project elements on Airport property would take place on paved surfaces and would not impact surface waters. Construction staging of the IMC would take place within the U.S. 1 ROW and arterial roadways. For the stormwater improvements, construction staging for the temporary culvert upgrades would be limited to the FPL maintenance access road. The only project-related construction impacts to the existing mangrove wetland area are limited to replacing the existing drainage culverts and discharge pipes routed under the FPL maintenance access road located along the eastern and southern perimeter of the existing wetland site. The construction sites would employ measures to protect water quality and control siltation and sedimentation. Use of the existing mangrove wetland site for stormwater will continue and preliminary modeling and analysis has identified that there would be only a minor increase in periodic discharge quantity within the area and that there would be no significant impact to the mangrove habitat. Prior to stormwater entering the mangrove wetland, it would be treated in accordance with state water quality criteria and the newly ratified Clean Waterways Act. Stormwater in the wetland would continue to ensure that water enters the canal system without adversely impacting water quality (temperature, salinity, and nutrient loads) of the receiving waterbody(s). Design of the stormwater management system would include the following measures:

- Minimizing periodic stormwater discharge volumes into the mangroves.
- Maximizing stormwater treatment within the interconnected drainage system prior to discharge into the mangroves.
- Retaining tidal connectivity between the mangrove wetlands and the Dania Cut-Off Canal.

During the construction phase for all project elements, BCAD would employ BMPs consistent with those detailed in the CMP.

Operational Impacts

Once operational, the Proposed Project is anticipated to increase the volume of surface water produced within the U.S. 1 drainage system as a result of IMC development. All other project elements are primarily within the Airport property boundary and would be redevelopment on existing impervious surfaces. The increase volume of surface water (stormwater) from the IMC would be managed through modifications to the existing drainage system. Stormwater improvements including in-situ treatment of the IMC stormwater, improvements to culverts throughout the system and periodic additional discharges to the receiving waterbody / mangrove area east of Northeast 7th Avenue would be implemented to compensate for the impacts on existing stormwater facilities and to handle additional stormwater runoff generated by the Proposed Project. These treatment modifications would ensure that TMDLs for the nearby impaired waters would not be exceeded. CMA is currently developing a Stormwater Planning Technical Report evaluating stormwater improvements required to accommodate the additional volume of surface water as a result of the IMC development. CMA conducted a hydraulic modeling analysis of the proposed stormwater concept for the IMC to develop preliminary recommendations on the potential sizing and configuration of stormwater improvements needed to ensure no adverse impacts occur. The preliminary modeling identified that stormwater can be fully addressed within the existing system and no additional land is required for stormwater treatment. There are a number of specialized surveys and technical studies that need to be completed before the stormwater report can be finalized; however, the preliminary modeling has demonstrated that there would be no significant impact to surface water quality or quantity as a result of the Proposed Project.

Floodplains

Construction Impacts

Construction of the Proposed Project would take place within the 100-year floodplain. Most of the construction would take place within Airport property on land that has already been developed and altered for transportation use. All staging on Airport property would take place on existing transportation infrastructure and no temporary access roads would be built. For construction of the IMC, staging would occur along existing roadways and within the transportation ROW for U.S. 1. Construction for the replacement of the seven culverts in the stormwater attenuation area to the east of Northeast 7th Avenue would take place along the FPL maintenance access road. To ensure no impacts occur outside of the construction areas, BMPs, in accordance with permit criteria, would be employed during culvert replacement. These would include, at a minimum, floating / staked turbidity barriers to prevent sedimentation and turbidity outside of the limited construction areas. Similarly, all construction within Airport property would employ BMPs to protect surface and groundwaters.

Operational Impacts

After completion of the Proposed Project, there would be encroachment on the floodplain as the majority of the project lies within the 100-year floodplain. Potential impacts to the natural and beneficial values of the floodplain in the Proposed Project area would be minimized to the greatest extent practicable. The Proposed Project would not impact any agricultural or aquacultural activities (as none occur within the Proposed Project area). The Proposed Project would not create any permanent human-inhabited areas or other critical assets that would increase the risk of loss of human life in the event of a 100-year flood. However, it is possible that some structures associated with the Proposed Project would be located in areas that may make them vulnerable to damage from elevated floodwater or significant storm surge. To mitigate this risk of potential damage, all proposed construction would be designed in consideration of land development codes for Broward County and floodplain management and Low Impact Design strategies (such as elevating structure foundations; locating electrical, heating, ventilation, plumbing and air conditioning equipment to prevent water from entering or accumulating within the equipment; and designing and anchoring structures to prevent flotation).

The Proposed Project is not anticipated to create or worsen existing flood hazard conditions or increase flood risk to people or structures, including transportation infrastructure, within or surrounding the DSA. The Proposed Project would include the development of adequately designed stormwater management features that are intended to manage all stormwater within the existing U.S. 1 drainage system and to facilitate floodwater flow to the extent possible in the event of a major storm event. The IMC is being designed to minimize impacts to the floodplain and accommodate on-site stormwater retention and treatment. The implementation of storage chambers under the IMC along with combination of dry retention, swales, surface filter, and/or

exfiltration trench around the perimeter of the IMC would compensate for floodplain impacts and provide the necessary additional floodplain storage volume. These design features would also ensure that the IMC is designed to mitigate potential flood risks and increase flood resilience. While installing impervious surfaces in a floodplain has the potential to displace floodwater in a way that may intensify flooding elsewhere in the floodplain, the Proposed Project seeks to develop the IMC in a way that would not decrease floodplain capacity or change floodwater flow. With these design considerations, it is not anticipated that the IMC would impact the floodplain capacity of the greater system, and no measurable impacts to adjacent land uses would be expected from floodwater displacement within the Proposed Project footprint.

Overall, the Proposed Project is not expected to (1) have a high probability of loss of human life, (2) have substantial encroachment-related costs or damage and would not cause interruption of aircraft service or loss of a vital transportation facility, and (3) have an adverse impact on natural and beneficial floodplain values. The proposed expansion of the air cargo facility is not expected to result in notable adverse impacts on natural and beneficial floodplain values. Based on the analysis in the EA and proposed mitigation, the FAA Proposed Action and overall Proposed Project would not significantly affect floodplains.

Groundwater

Construction Impacts

During construction, there is potential for groundwater disturbance associated with the development of the Proposed Project. While groundwater would not be used during or after construction, the Proposed Project may need to implement dewatering activities during construction which could disturb or encounter groundwater contamination from the four sites. In the event contaminated groundwater is discovered during design and/or construction of the Proposed Project, BCAD would contain, handle, and dispose of the material per the federal, state and county regulations concerning contamination. BCAD would also strictly adhere to all chapters of the CMP for FLL, and any institutional controls imposed on the four sites. Further, the Proposed Project would require the use of clean fill material on top of cleared surfaces and BMPs, consistent with those detailed in Section 3.7.5, would be implemented to reduce the potential for spills during construction. With the implementation of BMPs, clean fill, and the enforcement of all chapters of the CMP, it is not anticipated that the Proposed Project would further contaminate groundwater.

Operational Impacts

After construction, the Proposed Project would not utilize groundwater for drinking water. However, the Proposed Project would result in the addition of impermeable surfaces within the U.S. 1 ROW. While most of the Proposed Project elements would be constructed on existing impermeable surfaces, the completion of the IMC would add additional impermeable surface that could alter local superficial recharge characteristics to groundwater. However, the Biscayne Aquifer is approximately 4,000 square miles in size. Any potential changes as a result of the Proposed Project would be localized to the Airport and would be unlikely to result in a significant change to recharge characteristics of the Biscayne Aquifer.

3.14.5 SIGNIFICANCE DETERMINATION

3.14.5.1 Wetlands

FAA Order 1050.1F Section 14.1.3.1 provides the FAA's significance threshold for wetlands. A significant impact would occur when: (1) Adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers; (2) Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected; (3) Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public); (4) Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands; (5) Promote development of secondary activities or services that would cause the circumstances listed above to occur; or (6) Be inconsistent with applicable state wetland strategies. The wetland impacts as a result of the Proposed Project would be minor and temporary, limited to upsizing existing culverts to support periodic minor increases to stormwater attenuation within an existing receiving wetland. Any vegetation impacted during replacement of the culverts would be allowed to reestablish after culvert replacement. The existing wetland would remain in place and continue to serve as the receiving waterbody for treated stormwater discharged from a section of the U.S. 1 drainage system.

3.14.5.2 Surface Water

FAA Order 1050.1F states that surface water impacts are significant if the proposed action would: (1) exceed water quality standards established by federal, state, local, and tribal regulatory agencies, or (2) contaminate public drinking water supply such that public health may be adversely affected. Implementation of erosion control BMPs and pollution prevention measures would minimize the potential for substantial water quality impacts during construction. Further, after construction of the Proposed Project, stormwater improvements to the existing drainage system would include enough water quality storage volume to accommodate and treat the increase in stormwater before being discharged to surface waters. More information on mitigation and BMPs can be found in Section 3.14.6, *Mitigation and Best Practices*.

3.14.5.3 Floodplains

Exhibit 4-1 of FAA Order 1050.1F provides the FAA's significance threshold for floodplains. Floodplain impacts would be significant 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*. The Proposed Project includes stormwater improvements to the existing drainage system to reduce the potential for flooding. More information on mitigation and BMPs can be found in Section 3.14.6, *Mitigation and Best Practices*.

3.14.5.4 Groundwater

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

3.14.6 MITIGATION AND BEST PRACTICES

The Proposed Project would include the implementation of BMPs in accordance with SFWMD and FDEP permit requirements during the construction and operational phases. BCAD would comply with NPDES permits and requirements and utilize extensive construction BMPs that would be designed to minimize erosion and sedimentation and prevent spills. Collectively, erosion control measures and pollution prevention plans would be expected to preclude substantial water quality impacts and any significant potential for the Proposed Project to contribute to the degradation of nearby waters. Specific measures and practices that may be implemented include Stormwater Pollution Prevention Plan; Construction Sequencing and Erosion Control Measures; Structural Controls to Minimize Sediment Transport; and Pollution Prevention and Control. Impacts to wetland habitats would be *de minimis* and mitigation is not expected to be required. If it is determined that localized impacts to habitat would occur, mitigation through habitat management and/or at a permitted wetland mitigation bank would be warranted.

The Proposed Project includes stormwater improvements to reduce the potential for adverse impacts to surface waters and floodplains. These improvements would ensure that the IMC does not cause adverse stormwater impacts within U.S. 1 drainage system and the Drainage System 2. These improvements also ensure that stormwater is treated before being discharged into the ditch connected to the Dania Cut-Off Canal. Preliminary recommendations on the proposed stormwater improvements that are under review include: construction of stormwater storage chambers beneath the IMC; implementation of dry retention areas around the perimeter of the IMC; an on-site stormwater piping network; upsized pipe connections and outfalls within U.S. 1 drainage system; and FPL maintenance access road improvements, including upsized culverts, control structures, and roadway modifications.

3.15 Cumulative Impacts

A NEPA analysis requires the consideration of cumulative impacts. Pursuant to NEPA and FAA Orders, cumulative impacts are those impacts that may result from an action "when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7 [1978, as amended

in 1986 and 2005]). This section describes past, present, and reasonably foreseeable¹³⁵ future projects in the vicinity of the Airport and their effects, which when combined with the impacts associated with the Proposed Project or its alternatives may produce cumulative impacts.

3.15.1 METHODOLOGY

Table 3-13 lists past, present, and reasonably foreseeable projects within the vicinity of the Airport that were considered for purposes of the cumulative impacts analysis. The GSA represents the area in which the Proposed Project would have potential for direct and indirect impacts to the environment. However, projects within the vicinity of the Airport beyond the GSA for one statute mile were identified and considered for inclusion in the analysis. The temporal basis for identifying past, present, and reasonably foreseeable projects was approximately 10 years before the Existing Conditions (2023) Study Year (i.e., 2023) and five years beyond the 2033 opening of facility operations. (i.e., 2038). The Proposed Project, in combination with other past, present, and reasonably foreseeable future projects can contribute to cumulative impacts. Major transportation and development projects in the vicinity of FLL that could have some effect within the GSA were identified and would be considered in the assessment of cumulative impacts.

3.15.2 PAST, PRESENT, AND REASONABLY FORESEEABLE FUTURE ACTIONS

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

3.15.2.1 Past Actions

FAA Order 1050.1F defines past actions as “actions that occurred in the past and may warrant consideration in determining the environmental impacts of an action.”¹³⁶

3.15.2.2 Present Actions

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

3.15.2.3 Reasonably Foreseeable Future Actions

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

3.15.3 REGULATORY CONTEXT

A NEPA analysis requires evaluation of cumulative impacts defined as those impacts that may result from an action “when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.”¹³⁷

3.15.4 AFFECTED ENVIRONMENT

Recent and on-going off-Airport projects proximate to the GSA primarily consist of a mix of commercial, industrial, residential, and transportation projects. This is consistent with existing local land development patterns and uses. Recent and on-going on-Airport development activities include utility and infrastructure upgrades and rehabilitations.

¹³⁵ FAA Order 5050.4B, Sec. 9, para. q.

¹³⁶ Department of Transportation, Federal Aviation Administration, Order 1050.1F.

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

Table 3-13 Past, Present, and Reasonably Foreseeable Future Actions

PLAN/PROJECT NAME	DESCRIPTION	SOURCE	RELATED IMPACTS	MITIGATION
Past Projects (10+ years)				
FLL Expansion of Runway 9R-27L	Runway 9R-27L expansion and other associated projects	Department of Transportation-Federal Aviation Administration, <i>Fort Lauderdale-Hollywood International Airport Written Re-Evaluation of the June 2008 Final EIS for the Development and Expansion of Runway 9R-27L and Other Associated Airport Projects</i> , July 2011.	Temporary impacts to Section 4(f) resources- limited to restoration activities for wetland mitigation at West Lake Park Minor Impacts to Biological Resources (listed species) through loss of habitat (wetlands and other surface waters) Impacts to compatible land use (Noise) Impacts to wetlands (17.46 acres direct and 39.39 acres secondary) Temporary construction phase air quality and GHG emissions. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G. A less than significant increase in emissions during operation of the new runway Construction phase noise impacts. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	None Installed manatee exclusion grates on outfalls at discharges to Dania Cutoff Canal and adhere to manatee protection BMPs during construction. Surveys for burrowing owl prior to construction 1. Apply long-term/ultimate contour 2. Establish mitigation areas based on neighborhoods 3. Acquisition of mobile home parks in the 65 DNL contour 4. Soundproofing and easements 5. Purchase assurance / sales guarantee 6. Voluntary acquisition of residentially zoned vacant parcels 7. Provide noise mitigation in excess of minimum federal guidelines. 1. Acquired 7.97 functional units of mitigation at West Lake Park 2. Shortened approach lighting system to minimize impacts No mitigation required – in attainment. No mitigation required – in attainment. No mitigation required.

PLAN/PROJECT NAME	DESCRIPTION	SOURCE	RELATED IMPACTS	MITIGATION
			Construction phase water quality / water resources. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	No mitigation required.
Ft. Lauderdale Terminal 3 Concourse E and F Modernization	Excavations associated with storm/sanitary sewer installation including installation of new manholes and an open trench to install new sewer pipe	South Florida Water Management District, e-Permitting. Available at: https://apps.sfwmd.gov/WAB/ePermittingWebApp/index.html (accessed May 10, 2024)	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	No mitigation required.
Terminal 4 Gate Replacement and Apron Expansion	Gate improvement and apron slab expansion	South Florida Water Management District, e-Permitting. Available at: https://apps.sfwmd.gov/WAB/ePermittingWebApp/index.html (accessed May 10, 2024)	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	No mitigation required.
Fort Lauderdale-Hollywood International Airport Exit Road	Construction of two exit lanes along the southern end of the Hibiscus Garage at FLL.	South Florida Water Management District, e-Permitting. Available at: https://apps.sfwmd.gov/WAB/ePermittingWebApp/index.html (accessed May 10, 2024)	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	Groundwater contamination controls and monitoring program in place.
West Side Jet Center/ Sheltair Westside Development	Hangar and apron construction on the west side of FLL.	South Florida Water Management District, e-Permitting. Available at: https://apps.sfwmd.gov/WAB/ePermittingWebApp/index.html (accessed May 10, 2024)	Temporary minor Construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	No mitigation required.
Port Everglades Wetland Construction and Planting	Wetland restoration / construction and mangrove tree planting	South Florida Water Management District, e-Permitting. Available at: https://apps.sfwmd.gov/WAB/ePermittingWebApp/index.html (accessed May 10, 2024)	None – restoration project	No mitigation required.
Relocation, Construction and Operation of the Jetscape Fixed Base Operator (FBO)	Relocating FBO facilities from the north side of the airfield to a 25-acre mid-field site, access remained unchanged.	Department of Transportation-Federal Aviation Administration, Fort Lauderdale-Hollywood International Airport Relocation, Construction and Operation of the Jetscape Fixed Base Operator (FBO), Finding of No Significant Impact and Record of Decision, April 18, 2019.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	No mitigation required.
Southport - 18.8 Acres	Installation of a stormwater management system	South Florida Water Management District, e-Permitting. Available at: https://apps.sfwmd.gov/WAB/ePermittingWebApp/index.html (accessed May 10, 2024)	Construction phase water quality / water resource. Impacts minimized by use of construction BMPs.	No mitigation required.
FEC Intermodal Container Transfer Facility (ICTF)	ICTF construction at the Port of Everglades	2009 Port Everglades Master/Vision Plan	Temporary construction phase impacts associated with air quality, GHG, noise and	

PLAN/PROJECT NAME	DESCRIPTION	SOURCE	RELATED IMPACTS	MITIGATION
			water quality / water resources. Impacts minimized by use of construction BMPs.	
			Aerial imagery suggests that wetland habitat was likely directly impacted.	It is assumed that mitigation for direct wetland and/or related impacts was obtained in accordance with permit or other requirements.
			Environmental benefits provided through reduced emissions of GHG and criteria air pollutants by reducing congestion on interstate highways and local roadways.	
All Aboard Florida Passenger Rail Project	New tracks, stations, and platforms between West Palm Beach and Miami, FL. Rail corridor was ~235 miles across the eastern part of Florida.	All Aboard Florida, <i>Environmental Assessment for the All Aboard Florida Passenger Rail Project</i> , October 31, 2012.	Impacts to water resources and biological resources. Minor wetland impacts and temporary impacts at bridge crossings. None of the impacts requiring mitigation were located in the immediate vicinity of FLL.	In-kind compensatory mitigation at a federally approved mitigation bank. Purchase in-kind credits from mitigation bank.
			Construction phase impacts on historic properties.	Consulted with SHPO in the design and construction of replacement and updated crossing gates at grade crossings within historic districts abutting the Florida East Coast Railroad Historic District or in proximity to historic properties. Developed website focusing on and highlighting the contributions of Henry Morrison Flagler as well as the history of the Florida East Coast Railway and its passenger rail service along the corridor.
FLL International Airport Exit Rd and Valet Rt Improvement	Road Improvements	South Florida Water Management District, e-Permitting Web App, (accessed May 10, 2024)	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	No mitigation required.
FLL Perimeter Road Enhancements	Roadway improvements to include the removal of a roundabout and provide an elongated connection between Terminal Drive and Perimeter Road along with a dry detention area on the north side of the existing roundabout.	South Florida Water Management District, e-Permitting Web App, (accessed May 10, 2024)	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	No mitigation required.
Present Projects				
Taxilane T8 Widening	Reconstruct and widen Taxilane T8 to a dual Airplane Design Group (ADG) III taxilane.	Broward County Aviation Department, Capital Budget FY2023-FY2027.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will	None identified

PLAN/PROJECT NAME	DESCRIPTION	SOURCE	RELATED IMPACTS	MITIGATION
			be minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	
Terminal 5 Expansion	Construction of a 3-level passenger terminal building ~600 ft east of T4. This project was evaluated in the 2008 FEIS and reevaluated in 2023.	Written Re-Evaluation of the 2008 Final EIS for Proposed Terminal 5 Development (2023)	Noise and Compatible Land Use	Impacts consistent with FLL Expansion of Runway 9R – 27L project (2008 FEIS and ROD).
Reasonably Foreseeable Future Projects (future 5 years)				
Off- Airport Projects				
Broward Commuter Rail (BCR) South Project	Implementation of 11.5 miles of commuter rail along the Florida East Coast Railway (FECR) corridor from the passenger station in the City of Aventura to the City of Fort Lauderdale. Stations are recommended to connect to the City of Hollywood, Fort Lauderdale-Hollywood International Airport, and South Fort Lauderdale. Project includes a station that connects to the APM and proposed IMC. Construction is anticipated to start in 2025. Operation is expected in 2028. The project will reduce surface traffic by improving intermodal connectivity in the community and access to FLL.	FDOT, Broward Commuter Rail South PD&E Study. Available at: www.BrowardCommuterRailStudy.com	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G. Preliminary studies identify the project will enhance social resources, economics, and mobility and have minor impacts on land use (south station – not at FLL), aesthetics, and potential contamination. No impacts to wetlands, water resources, floodplains, biological resources, noise, air quality, cultural or archaeological resources or Section 4(f).	Mitigation (if applicable) to be determined during Planning, Design and Environmental study.
Airport-Seaport-Convention Center Connector LRT	Elevated guideway Light Rail Transit (LRT) connecting FLL / BCR station, Port Everglades, and the Broward County Convention Center. Project opening is expected in 2028.	Broward County, Premium Mobility Plan, August 2023. Available at: https://www.broward.org/BCT/PREMO/Documents/CorridorTransitTypeAndImplementationStrategy.pdf (accessed May 3, 2024)	Over 90% of impacted right of way is government owned (primarily Broward County) with no relocations anticipated. Construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	None identified
Airport Projects				
Gate 100 Relocation and Expansion	Construction, relocation and expansion of the main Air Operations Area (AOA) access gate on the north side of FLL. Intended to improve traffic congestion.	Broward County Aviation Department, Capital Budget FY2023-FY2027.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	None identified

PLAN/PROJECT NAME	DESCRIPTION	SOURCE	RELATED IMPACTS	MITIGATION
G&G Warehouse Improvements/Replacement	Repair and code compliance improvements to the G&G Building	Broward County Aviation Department, Capital Budget FY2023-FY2027.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	None identified
Utility Improvements Phase 1 - Terminal 4	Construction of a consolidated utility duct bank	Broward County Aviation Department, Capital Budget FY2023-FY2027.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	None identified
Taxilane ADG III Serving Westside Parcels (Previously Taxiway M)	Taxiway Design Group (TDG) 3 Connector extending from Taxiway C to Taxiway L	Broward County Aviation Department, Capital Budget FY2023-FY2027.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G. Operational efficiency improvements will reduce emissions.	None identified
Consolidated BCAD Operations Facility (Public Safety Building)	Construction of a consolidated BCAD Operations facility to accommodate airport operations, security, and sheriff's department personnel and activity	Broward County Aviation Department, Capital Budget FY2023-FY2027.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	None identified
Central Chiller Plant	Construction of a central chiller plant used to chill water for each terminal's air handling units	Broward County Aviation Department, Capital Budget FY2023-FY2027.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G. Improvements to natural resources / energy supply with upgrades.	None identified
Terminal Expansion Phase 1	Expansion of Terminal 4 (Concourse G) to the west to provide eleven additional gates	Broward County Aviation Department, Capital Budget FY2023-FY2027.	Temporary minor construction phase impacts associated with air quality, GHG, noise and water quality / water resources. Impacts will be minimized by use of construction BMPs, specifically those in AC 150/5370-10G.	None identified

SOURCES: Full references listed in the "Sources" column above (Broward County Aviation Department, 2024; Broward County, Construction Management Division, 2024; City of Dania Beach, 2021; City of Fort Lauderdale, Development Services, 2024; City of Hollywood, 2021; Florida Department of Transportation, 2024).

Future development activities to occur on-Airport and not associated with the Proposed Project include terminal expansions and infrastructure projects. A new public safety building to accommodate security and law enforcement operations is also proposed.

3.15.5 CUMULATIVE IMPACT DISCUSSION

The analysis of cumulative impacts is summarized in **Table 3-14**.

Table 3-14 Analysis of Cumulative Impacts

RESOURCE CATEGORY	IMPACT(S) ANALYSIS
Air Quality	Per Section 3.2.5, the Proposed Project would not cause or contribute to violations of the NAAQS for criteria air pollutants in either 2033 or 2038, and the Proposed Project would not cause significant impacts to air quality. The past, present, and reasonably foreseeable future projects identified in Table 3-13, while many include minor construction phase increases in emissions, do not include actions that would result in significant negative impacts to air quality in the GSA. Prior airfield projects at FLL (South Runway) were evaluated for operational emissions and the impacts were minor with all projects presumed to conform with applicable air quality regulations. The Proposed Project will have minor increase in emissions during construction, but is not anticipated to contribute to any significant cumulative impacts to air quality in combination with other past, present and reasonably foreseeable future projects since the impact is de minimis.
Biological Resources	Per Section 3.3.5, consultation with the USFWS has confirmed a “May Affect, Not Likely to Adversely Affect” for the Florida bonneted bat and wood stork. Past, present and reasonably foreseeable future projects identified have minor impacts to biological resources that were mitigated. The Proposed Project will not permanently impact habitat for listed species and will not have a cumulative impact on biological resources in combination with other stated projects.
Climate	Per Section 3.4.5, It is not anticipated that GHG emissions associated with the Proposed Project would be significant. Construction emissions would contribute to aggregate GHG emissions; however, this would be temporary and represent a small portion of overall GSA emissions. Similarly, past, present, and reasonably foreseeable future projects identified in Table 3-13 may experience minor construction phase increases in GHG emissions, however post construction, the Proposed Project is anticipated to reduce overall GHG emissions in the GSA by reducing congestion and reliance on automobiles. Thus, no contribution to a cumulatively significant impact is anticipated.
Coastal Resources	Florida is subject to review under for consistency under the CZMA therefore all projects within Table 3-13 are subject to review. Although located in a coastal zone, none of the reviewed projects had, or are anticipated to have, identified impacts to coastal zone resources. Per Section 3.5.5, the Proposed Project is not anticipated to result in any significant adverse impact to any coastal resource. The Proposed Project construction would occur in already developed areas and would be consistent with the enforceable policies of the Florida Coastal Zone Management Program, as is the case for most of the other projects. Therefore, the Proposed Project and other projects would not result in a cumulative impact.
Department of Transportation, Section 4(f) Resources	None of the projects identified in Table 3-13 had identified impacts to Section 4(f) resources. Per Section 3.6.5, the Proposed Project would not involve the physical use of any Section 4(f) resource. BMPs would be employed to reduce the potential for indirect impacts associated with construction, and potential stormwater impacts to the Site 97 would be avoided due to stormwater conveyance infrastructure. Thus, the Proposed Project is not anticipated to contribute to any cumulative impacts associated with past, present, or reasonably foreseeable future projects.
Hazardous Materials, Solid Waste, and Pollution Prevention	Per Section 3.7.5, the Proposed Project would not result in significant impacts to hazardous materials, solid waste, or pollution prevention. In the event contaminated soil is discovered by BCAD during design and/or construction of the Proposed Project, BCAD would handle and dispose of the material per the federal, state and county regulations concerning contamination. BCAD would also employ strict adherence to the designated CMP for FLL and any institutional controls. For the projects identified in Table 3-13, hazardous materials and pollution prevention were identified as having potential for occurrence during construction and operation (of some) projects. For all identified projects, the impacts were not significant and were addressed through the implementation of BMPs during construction and the implementation of SPCC plans and through stormwater management. The Proposed Project is not anticipated to contribute to any cumulative impacts associated with any past, present, or reasonably foreseeable future projects.
Historic, Architectural, Archaeological, and Cultural Resources	None of the projects identified in Table 3-13 had impacts on these resources in the vicinity of the Proposed Project except for the evaluation of the Florida East Coast Railroad (All Aboard Florida). That evaluation led to mitigation measures that included documentation and development of educational resources. Per Section 3.8.5, the Proposed Project would not affect historic, architectural, archaeological, or cultural sites, and construction procedures for the Proposed Project and the other cumulative projects to address any unidentified buried finds. As such, the Proposed Project would not be expected to contribute to any cumulative impacts associated with past, present, or reasonably foreseeable future projects.
Land Use	The land use(s) in the vicinity of FLL are primarily commercial and industrial with rail, port and transportation elements. The projects in Table 3-13 are mostly improvements and expansions of existing facilities and consistent with designated land uses. Per Section 3.9.5, the Proposed Project would not result in impacts to land use when compared to the No Action alternative, as it is consistent with all applicable plans and ordinances guiding land use in the GSA. As the Proposed Project would not negatively impact any surrounding land uses or applicable plan objectives, it is not anticipated to contribute to any cumulative impacts to land use.

RESOURCE CATEGORY	IMPACT(S) ANALYSIS
Natural Resources and Energy Supply	FPL is the primary energy supplier for FLL and the local consumers. FPL's 10-year plan ¹³⁸ outlines the utilities coordination and development efforts to meet projected incremental resource needs to ensure a reliable, economic, and clean electric system for 2024 through 2033. Per Section 3.10.5, the Proposed Project will require a sizeable increase in energy consumption, however, coordination with FPL is ongoing and will assure that the project demands will not adversely affect energy supply. As such, the Proposed Project would not result in significant impacts to natural resources or energy supplies and is not anticipated to contribute to any cumulative impacts associated with any past, present, or reasonably foreseeable future projects.
Noise and Noise-Compatible Land Use	Most of the projects in Table 3-13 identified some level of localized noise impacts associated with project construction ranging from construction equipment to noise and vibration from pile driving. These impacts are temporary and limited to construction. The projects that identified operational impacts were primarily on-airport with the most notable being the development of the south runway at FLL. That program required implementation of noise mitigation measures which have been implemented by BCAD. Per Section 3.11.5, the Proposed Project would not affect aviation operations or any associated aircraft noise with the only noise associated with the Proposed Project limited to temporary construction activities. Construction would occur in an existing ground transportation corridor with high levels of ambient noise. The nearest noise sensitive receptors (i.e., residences) are approximately 0.7 mile away where construction noise would not be discernible from ambient noise. There are several foreseeable future projects with potential to overlap construction phasing for the FLL Landside projects, most notably the BCR and possibly the Airport – Seaport connector (in latter construction years). Because of this potential ESA evaluated the cumulative impact of all future projects. The cumulative construction phase noise did not represent a significant impact. Therefore, the Proposed Project, in combination with the cumulative projects, would not contribute to any significant cumulative noise impact.
Socioeconomics and Environmental Justice	The projects in Table 3-13 did not identify adverse impacts on socioeconomics, children's health and safety, or communities with environmental justice concerns. A number of the projects, including BCR and LRT identified enhancements to mobility, economics and social resources. Per Section 3.12.5, the Proposed Project would have no significant adverse impacts on socioeconomics, children's health and safety, or communities with environmental justice concerns. As the past, present, and reasonably foreseeable future projects identified in Table 3-13 would not result in any negative impacts to socioeconomics, communities with environmental justice concerns, or children, the Proposed Project would not contribute to any associated cumulative impact.
Visual Effects	All of the projects identified in Table 3-13 contribute to some change in the visual character of the projects' vicinity. Most of the projects involved either redevelopment or improvement of existing developed land within primarily airport, seaport, commercial or industrial development, rail or other transportation corridors. The projects were consistent with the pre-project and surrounding land uses and did not significantly impact viewsheds or protected resources or communities. Per Section 3.13.5, the Proposed Project would alter the visual landscape with the development of a facility (IMC) in the center of the U.S. 1 ROW, however the project is being designed to minimize impacts and aesthetically align with the facilities at FLL. The visual elements or light emissions introduced by the Proposed Project are consistent with the surrounding area and are unlikely to have cumulative impacts associated with past, present, or reasonably foreseeable future projects.
Water Resources (Wetlands, Surface Waters, Floodplains, and Groundwater Only)	Of the projects identified in Table 3-13 only All Aboard Florida and the south runway at FLL identified wetland impacts requiring mitigation and only the south runway project had impacts in the project basin. As mitigation was completed within the impact basin(s), the impacts were determined not to have cumulative impacts. Per Section 3.14.5, the Proposed Project would result in temporary impacts to wetland resources. Wetland resources would remain in place and continue to attenuate treated stormwater. As FLL is located in an area with an SSA (Biscayne Aquifer) it is acknowledged that most projects in the area have the potential to interact with the near-surface aquifer during construction or operation of the designed stormwater management systems. The projects identified did not include wellfields or other regulated activities that could impact aquifer recharge and therefore did not have disclosed impacts. The Proposed Project would require the use of clean fill material on top of cleared surfaces, and follow construction protocols and spill prevention plans to protect groundwater. While the Proposed Project is anticipated to increase the volume of surface water discharged to the Dania Cut-Off Canal, the project includes stormwater improvements to the existing drainage system which would include enough water quality storage volume to accommodate and treat the increase in stormwater before being discharged to surface waters. The implementation of stormwater improvements would also reduce the potential impacts to floodplains. The cumulative projects either have received or will require permits to comply with water quality treatment and water quantity (storage and floodplain) prior to construction. In combination with other past, present, and reasonably foreseeable future projects the Proposed Project is unlikely to have cumulative impacts on water resources.

SOURCE: Data compiled by Environmental Science Associates (2024).

¹³⁸ FPL Ten Year Power Plant Site Plan 2024–2033, submitted to Public Utility Commission, April 2024.

4. Agency Coordination and Public Involvement

4.1 Early Agency Coordination

Early agency coordination was performed by engaging with federal, state, and local agencies that have an interest in the Proposed Project. In coordination with the FAA, BCAD notified several agencies of the intent to prepare a Draft EA for proposed parking and intermodal access improvements at FLL. On behalf of the FAA, BCAD sent a notice of preparation to (1) inform agencies of the preparation of the Draft EA, (2) request any information relevant to project's environmental setting to be considered in the Draft EA, and (3) to obtain an understanding of any interest, issues, concerns an agency may have regarding the Proposed Project. Coordination was conducted with five Federal, four state, twelve local agencies with two recognized Native American tribes. A letter providing notice of preparation of the Draft EA was distributed by e-mail to all agencies by April 2024. Please see **Appendix G** for more information on agency coordination performed as part of this EA, including an example of the Notice of Preparation (**Appendix G-2.1**) and a list of the agencies notified (Table G-1 in **Appendix G-1**).

4.2 Agency and Tribal Consultation

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

4.2.1 FEDERAL AGENCY CONSULTATION

4.2.1.1 U.S. Fish and Wildlife Service

The FAA initiated consultation with the USFWS through email transmittal on March 15, 2024. USFWS reviewed the information provided. USFWS responded on March 25th and March 28th with requests for additional information and guidance on the two species, wood stork and FBB. Subsequently, limited roost surveys for FBB were conducted and there was no evidence of roosting. On May 17, 2024, the USFWS provided concurrence with the determination of "May Affect, Not Likely to Adversely Affect" for the Florida bonneted bat and wood stork. More information on USFWS and NOAA Fisheries consultation is provided in **Appendix G-1** and Section 3.3.4, *Protected Species and Section 7 Consultation*, of this EA.

4.2.1.2 U.S. National Marine Fisheries Service

The FAA initiated consultation with the NOAA Fisheries through email transmittal on March 15, 2024. NOAA Fisheries responded on May 29, 2024, stating that Section 7 consultation for protected species is not necessary since a no adverse effect determination was made. FAA coordinated with NOAA Fisheries on EFH on July 31, 2024, by providing a technical report in conjunction with the Draft EA review process. Based on the research and analyses documented in the technical report and Draft EA, no adverse effects to EFH are anticipated. On September 20, 2024, NOAA Fisheries provided comments on the evaluation of effects included in the technical report. Their comments confirmed the presence of EFH and HAPC within the study areas for the Proposed Project. NOAA Fisheries also confirmed the proposed mitigation for the proposed culvert replacements. NOAA Fisheries had no EFH conservation recommendations. An evaluation of the effects of the Proposed Project on EFH habitat is provided in **Appendix C**. More information on the effects of the Proposed Project on EFH and protected species can be found in Section 3.3, *Biological Resources*, of this EA. Also see **Appendix C-1.2** and **C-1.3**, and Section 3.3.4, *Protected Species and Section 7 Consultation*, of this EA for more information on USFWS and NOAA Fisheries consultation.

4.2.2 STATE AGENCY CONSULTATION

4.2.2.1 Florida Division of Historic Resources – SHPO

Consultation with the Florida SHPO was initiated on May 15, 2024. The letter initiating consultation under Section 106 of the NHPA is provided in **Appendix G-5.1**. Notification of the availability of the Draft EA was also provided to the SHPO on August 5, 2024. A response from the SHPO was received on October 9, 2024, stating that the office concurs with the finding of no historic properties affected. Coordination with the State Clearinghouse also included comments from the SHPO's office (**Appendix G-4**). The State Clearinghouse commented that the Proposed Project should stop all activities involving subsurface disturbance in the vicinity of any cultural or historical resources discovered within the study areas. More information on SHPO consultation is provided in **Appendix G-1** and Section 3.8.4.3, *Section 106 Consultation*, of this EA.

4.2.2.2 Florida Department of Transportation

Coordination with the FDOT has taken place throughout the development of the EA. Notice of preparation was sent to representative Michael Melendez on April 9, 2024. The notice requested any new information relevant to the environmental setting to be considered in the Draft EA; interests, issues, or concerns regarding the Proposed Project; and any updates related to the progress of the PD&E study for the commuter rail project, including project schedule or modifications. Notification of the availability of the Draft EA was provided to FDOT on July 26, 2024. FDOT provided comments on the Draft EA on September 5, 2024. FDOT's comments were informational, addressing existing environmental permits and the preliminary stormwater study (**Appendix F**). FDOT's submittal stated that a "written response is NOT required." Information on coordination with FDOT can be found in **Appendix G-3**.

4.2.2.3 Florida State Clearinghouse

Consultation with the Florida State Clearinghouse was initiated on April 9, 2024. The State Clearinghouse responded on May 2, 2024, stating that based on the information submitted and minimal project impacts, the state has no objections to the subject project and, therefore, it is consistent with the FCMP. The state's final concurrence of the project's consistency with the FCMP will be determined during any environmental permitting processes, in accordance with Section 373.428, Florida Statutes. More information on coordination with the State Clearinghouse can be found in **Appendix G-1** and **G-4**, and Section 3.5, *Coastal Resources*.

4.2.3 TRIBAL CONSULTATION

Consultation with the Seminole Tribe of Florida (STOF) and Seminole Nation of Oklahoma (SNO) was initiated on April 22, 2024. The STOF confirmed that the Proposed Project is within their Area of Interest and had no objection. The STOF requested copies of the maps referenced in the consultation letter. The maps were provided to STOF. The FAA has not received a response from the SNO. Copies of correspondence are provided in **Appendix G-5.2**. More information on consultation is provided in Section 3.8.4.3, *Section 106 Consultation*.

4.3 Public Involvement

Under NEPA and FAA Orders, federal agencies are required to involve environmental agencies, applicants, and the public, to the extent practicable, in the preparation of EAs. Keeping the public informed and gathering their input is an essential component of any environmental study. A summary of the public involvement program for this EA is summarized below and provided in **Appendix H-1**.

4.3.1 AVAILABILITY OF DRAFT ENVIRONMENTAL ASSESSMENT

Public notice of the availability of the Draft EA was provided in newspapers on July 22, 2024. Copies of the notices are provided in **Appendix H-2**. The Draft EA and its appendices were available for public review on the BCAD's website at <https://www.broward.org/Airport/Business/Community/MasterPlan/Pages/default.aspx>. Printed copies of the Draft EA were also available for review during regular business hours at the following locations:

- Dania Beach-Paul DeMaio Library: 1 Park Avenue East, Dania Beach, Florida 33004.
- Davie/Cooper City Branch Library: 4600 SW 82nd Avenue, Davie, Florida 33328.
- Broward County Main Library: 100 S Andrews Ave, Fort Lauderdale, FL 33301.

4.3.2 DRAFT ENVIRONMENTAL ASSESSMENT WORKSHOP

A Public Workshop was held to discuss the proposed development projects, the analyses presented in the Draft EA, and to answer questions from the public. The Public Workshop was held between 5:30 P.M. and 8:30 P.M. on August 27, 2024, at Ann Kolb Nature Center, 751 Sheridan Street Hollywood, Florida, 33019. Comment cards were available at the workshop for those wishing to record their comments. The Public Workshop was an Open House style workshop; there was no formal presentation. The workshop included boards describing the NEPA process, alternatives considered, the Proposed Action, and an overview of the analyses and results of the Draft EA environmental analysis. The Study Team was also available to answer questions. There were approximately 35 attendees primarily comprised of consultants and contractors. Very few members of the public and local agencies attended the workshop. Those who attended the workshop were mainly interested in finding out more information on the Proposed Project. There were no issues, major concerns, or objections raised by attendees on the environmental analysis of the Proposed Project. **Appendix H-3** includes sign-in sheets and copies of materials used to support the public workshop.

4.3.3 PUBLIC AND AGENCY COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT

The comment period started on July 22, 2024, and ended on September 4, 2024, at 5:00 P.M. EDT. Anyone wishing to submit written comments were able to do so at any time during the comment period. Written comments on the Draft EA were accepted by mail at: William Castillo, Capital Program Management Administrator, Broward County Aviation Department, 320 Terminal Drive, Suite 200, Fort Lauderdale, FL 33315. Comments were also accepted electronically (by e-mail) at FLLLandsideEAComments@esassoc.com. Comments had to be electronically submitted or postmarked no later than 5:00 P.M. EDT by September 4, 2024. Commenters were advised to be as specific as possible and address the adequacy of the information presented and the analysis of potential environmental impacts.

The FAA and BCAD reviewed and considered the two comments received during the comment period. One local agency provided comments in overall support of the Proposed Project. The other comment was from the public stating that they could not attend the public workshop and requested the information presented in the workshop. There were no other comments received on the Draft EA. FAA and BCAD's response to each comment is provided in **Appendix H-4** of this EA.

4.3.4 FINAL ENVIRONMENTAL ASSESSMENT

The FAA will independently review the Final EA to determine its adequacy under NEPA and FAA Orders 1050.1F and 5050.4B. If the Final EA is determined to be adequate, the FAA will decide whether to either issue a Finding of No Significant Impact/Record of Decision (FONSI/ROD) or prepare an EIS.

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5. List of Preparers

Tables 5-1 and 5-2 list the preparers of this EA. In addition to the list of preparers and reviewers provided in this chapter, the document was prepared under the supervision of the FAA. The FAA also provided input, conducted reviews of preliminary and draft materials, and conducted agency consultations.

Table 5-1 List of Preparers – Broward County Aviation Department

NAME	TITLE	PROJECT RESPONSIBILITY
William Castillo	Capital Program Management Administrator	Project Manager
Winston Cannicle	Environmental Compliance Coordinator	Technical Support
Alejandro Lopez Velez	Expansion Project Administrator	Technical Support
Mike Pacitto	Chief Development Officer	QA/QC

Table 5-2 List of Preparers – Consultant Team

NAME	TITLE	PROJECT RESPONSIBILITY	EDUCATION	YEARS EXPERIENCE
Environmental Science Associates				
Mike Arnold	Sr. Vice President	Project Director; QA/QC.	B.S., Civil Engineering	32
Julie Sullivan	Senior Vice President	Project Manager; Project management; QA/QC; agency coordination.	M.S., Biology; B.S., Zoology	25
Jeffrey Covert	Aviation Specialist	Deputy Project Manager; NEPA documentation; agency coordination.	M.S., Environmental Science; M.P.A.; B.S., Ecology and Environmental Biology; B.A., Spanish	12
Patrick Hickman	Managing Planner	NEPA documentation.	M.U.R.P., Urban and Regional Planning; B.L.A., Landscape Architecture	14
Joseph Halisky	Aviation Planner	NEPA documentation.	B.S., Aviation Management	6
Sean Burlingame	Senior Airport Specialist	GIS.	B.S., Aviation Management	16
Susan Shaw	Program Manager / Senior Scientist	Habitat and listed species evaluations; technical writing; QA/QC.	B.S., Limnology	23
Dominic Scarano	Senior Noise and Air Quality Analyst	NEPA documentation.	B.S., Atmospheric Science	8
Tim Sturtz	Regional Air Quality Director	Air quality and climate evaluation.	Ph.D., M.S., B.S., Civil & Environmental Engineering	18
Amir Mousavi	Senior Air Quality Analyst	Air quality and climate evaluation.	Ph.D., M.S., B.S., Environmental Engineering	5
Evan Tudor Elliott, MA, RPA	Senior Archaeologist	Cultural resources review and Section 106 Compliance.	M.A., Cultural Resources Management; B.A., Anthropology	18
James Clark	Senior Archaeologist	Cultural resources review and Section 106 Compliance.	M.A., Museum Studies; B.A., Ancient Near Eastern Civilizations, minor in Anthropology	24
Ricondo & Associates				
Lisa M. Reznar, ENV SP	Vice President	QA/QC; Purpose and Need; Alternatives.	B.A., Geography and Political Science	28
Shane P. Ingolia	Director	QA/QC; Project management; Purpose and Need; Alternatives	B.S., Aviation Management and Planning; M.P.A., Aviation	16
Estelle M. S. Boudassou, CM	Managing Consultant	Project management.	B.S., Aviation Engineering; M.S., Airport Management and Development; M.S., Aviation Engineering	7
Brendan O. Cahill	Senior Consultant	Mapping; Purpose and Need; Alternatives.	B.S., Aviation Management	8
Hannah C. Choe	Consultant	Purpose and Need; Alternatives	B.A., Environmental Policy; M.S., Environmental Science and Sustainability	1
CEI				

NAME	TITLE	PROJECT RESPONSIBILITY	EDUCATION	YEARS EXPERIENCE
Danielle Goveia	Project Manager	Hazardous Materials, Solid Waste, and Pollution Prevention.	M.S., Environmental Studies; B.S., Environmental Studies; B.A., Geology	9
Paula Sessions	Director of Environmental Services	Hazardous Materials, Solid Waste, and Pollution Prevention.	B.S., Geology	35
Chen Moore & Associates				
Jason McClair, PE, CFM, LEED AP	Senior Vice President of Operations	Stormwater.	B.S., Civil Engineering	28