

## 6. Environmental Overview

### 6.1 Introduction

The Environmental Overview (EO) summarizes environmental processing considerations for the recommended development projects and future land use plan proposed as part of this Master Plan Update, specifically as they relate to the requirements in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The intent of this EO is to provide decision-makers with an understanding of key environmental issues that have the potential to require further evaluation as part of development planning for future Master Plan Update projects. It also summarizes the opportunities for recycling and for minimizing the generation of Airport solid waste as BCAD embarks on the proposed development projects identified in the Master Plan Update.

An *Airfield Safety Enhancement and Geometry Study* (ASEG Study)<sup>1</sup> was completed in April 2017, the purpose of which was to examine the overall safety of the airfield geometry at the North Perry Airport (HWO). The ASEG Study's recommended airfield plan that was adopted by BCAD, which served as the baseline geometry layout for this Master Plan, is depicted on Exhibit 2.2-3. The ASEG Study included an inventory of existing environmental conditions in the Airport environs to support environmental review of the recommended airfield plan. The ASEG Study's environmental inventory, provided in Appendix B, served as the basis for this EO. The environmental information presented in Appendix B was based on 2016 data. This EO includes updated information for floodplains and water quality measurements, reflective of conditions in 2018.

**Exhibit 6.1-1** graphically depicts the projects anticipated to occur within the 20-year timeframe of the Master Plan Update. As shown, seven groups of projects are identified for HWO. For documentation purposes, these project groupings are referred to as Projects 1 through 7. Additionally, **Exhibit 6.1-2** illustrates the recommended land use plan for developable land that is currently vacant at HWO. As shown, five vacant parcels with airfield access are identified for future aeronautical development: Parcels 1B, 2, 3, 7, 10, and 11. These parcels could serve the general aviation needs projected for the 20-year planning horizon, which would include aircraft parking aprons, hangars, administrative offices, classrooms, and terminal facilities. Parcel 8 does not have airside access; therefore, it is designated for potential future non-aeronautical development. The remaining tracts of land include Parcels 5, 6, 9, and 12, which have airfield access and, therefore, could serve either aeronautical or non-aeronautical needs.

<sup>1</sup> Kimley-Horn and Associates, Inc., *North Perry Airport (HWO) Airfield Safety Enhancement and Geometry Study*, April 2017.



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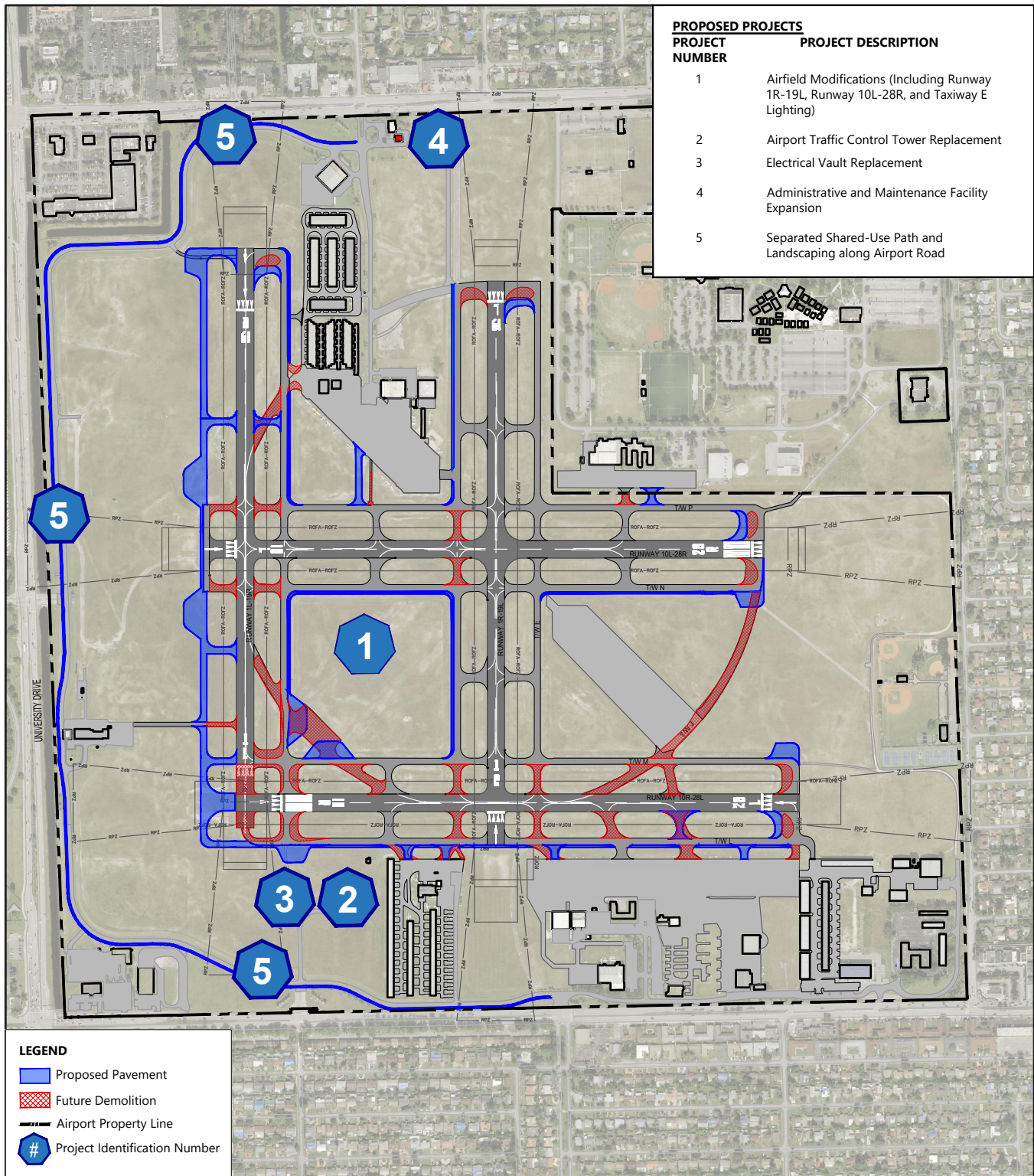


EXHIBIT 6.1-1



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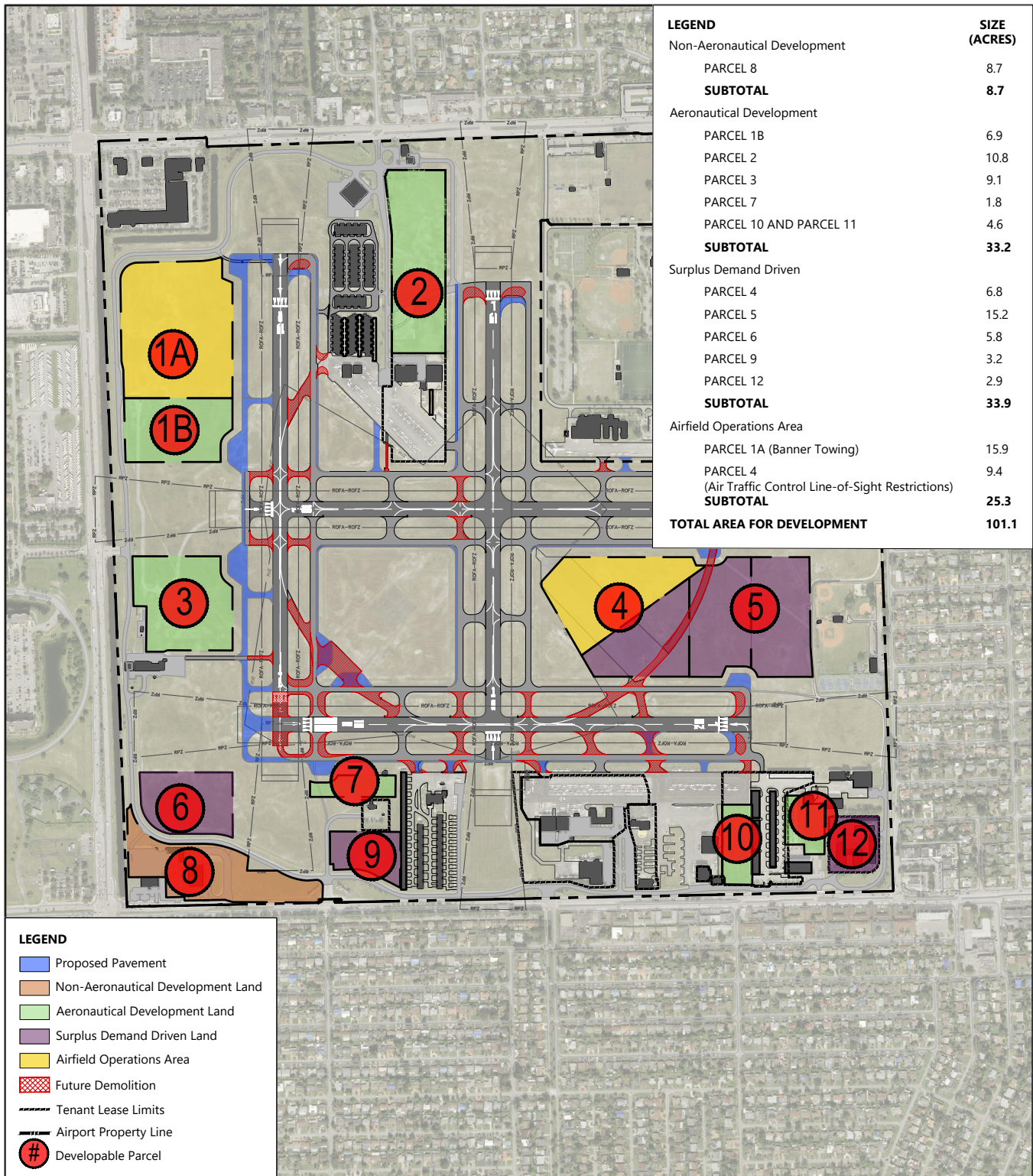
## Proposed 20-Year Development Plan Projects

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SOURCES: Broward County Aviation Department, 2015 (HWO Aerial Photograph); Broward County Aviation Department, June 2016 (Tenant Leasehold Boundary Map).  
PREPARED BY: American Infrastructure Development, Inc., April 2019.

EXHIBIT 6.1-2



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Preferred Land Use Plan

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Airport Master Plan Update  
Environmental Overview



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All projects that require a federal action, including receipt of federal funding, must comply with NEPA. Examples of actions include the use of Airport Improvement Program (AIP) funds or the approval of the ALP. Compliance with NEPA occurs through one of three levels of environmental review based on the potential significance of environmental effects and/or extraordinary circumstances, as defined in the FAA Orders previously cited. The three levels of environmental review are:

- **Categorical Exclusions** – The FAA has defined several types of projects/actions that do not individually or cumulatively have a significant effect on the environment; thus, they do not require the preparation of an Environmental Assessment (EA) or an Environmental Impact Statement (EIS).
- **Environmental Assessment** – This includes actions that are not categorically excluded, actions that would normally be categorically excluded but involve at least one extraordinary circumstance that may significantly impact the human environment, or actions that are not known to normally require an EIS. Generally, sufficient evidence and analysis suggest the action has the potential to significantly affect the environment, but mitigation measures can be implemented that would reduce the potential effects to levels below significance, resulting in a Finding of No Significant Impact.
- **Environmental Impact Statement** – Actions requiring an EIS include those for which one or more environmental impacts would be significant, and mitigation measures cannot reduce the impact(s) to levels below significance. Direct, indirect, and cumulative impacts need to be considered in determining level of significance.

Environmental resources were considered throughout the Master Plan Update process. The existing environmental conditions were identified and documented in the ASEG Study and then considered in the analysis of alternatives. The following sections describe the environmental issues and the processing needs associated with the Master Plan Update projects. The EO does not represent an environmental review under NEPA or a determination of the level of environmental review required; rather, it identifies potential resource issues to be considered during future environmental reviews pursuant to NEPA, and it provides a foundation for early project planning and coordination with the FAA to identify NEPA processing requirements.

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## 6.2 Environmental Considerations – Master Plan Update Projects

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Based on known environmental considerations at the Airport and preliminary information on Master Plan Update projects, several NEPA environmental resource categories (defined in FAA Order 1050.1F) may be affected and may require assessment during future NEPA compliance efforts, as summarized in **Table 6.2-1**. The table includes airfield improvements defined in the ASEG Study and incorporated into the Master Plan Update as well as additional Master Plan Update projects. To ensure consistency with the ASEG Study, these airfield projects have the same project descriptions.

Table 6.2-1 (1 of 3): Potential Environmental Issues Associated with Master Plan Update Projects

MASTER PLAN UPDATE PROJECT		POTENTIAL FOR PROJECT FOOTPRINT TO AFFECT RESOURCE						POTENTIAL FOR PROJECT CONSTRUCTION OR OPERATION TO AFFECT AIR QUALITY
#	NAME	BIOLOGICAL RESOURCES <sup>1/</sup>	U.S. DOT SECTION 4(F) RESOURCES	HAZARDOUS MATERIALS	CULTURAL RESOURCES <sup>2/</sup>	FLOODPLAINS	SURFACE WATERS	
1	Mitigate Hotspot 2 and Align Taxiways <sup>3/</sup>	Yes	No	No	Yes	No	Yes	No
1	Mitigate Hotspot 1 and Middle-Third Crossing <sup>3/</sup>	Yes	No	No	Yes	No	No	No
1	Mitigate Hotspot 3, Shift Taxiway L, and Reconfigure Taxiway L Connectors <sup>3/</sup>	Yes	No	No	Yes	No	No	No
1	Reconfigure Taxiways L3/M3 and Bypass between Taxiway I and Runway 28L <sup>3/</sup>	Yes	No	No	Yes	No	No	No
1	Bypass between Taxiway P and Runway 28R <sup>3/</sup>	Yes	No	No	No	No	No	No
1	Runway 1R-19L Lighting and Taxiway E North End Lighting	No	No	No	No	No	No	No
1	Mitigate Crossings for Runway 1L-19R and Extend Taxiway A <sup>3/</sup>	Yes	No	No	Yes	No	Yes	No
1	Runway 10L-28R Lighting <sup>3/</sup>	No	No	No	No	No	No	No
1	Taxiway N and Runway 28R Hold Pads, Runway 28R Entrance/Exit Width Reduction <sup>3/</sup>	Yes	No	No	No	No	No	No
1	Mitigate Middle-Third of Runway 10R-28L <sup>3/</sup>	No	No	No	No	No	No	No



Table 6.2-1 (2 of 3): Potential Environmental Issues Associated with Master Plan Update Projects

MASTER PLAN UPDATE PROJECT		POTENTIAL FOR PROJECT FOOTPRINT TO AFFECT RESOURCE						POTENTIAL FOR PROJECT CONSTRUCTION OR OPERATION TO AFFECT AIR QUALITY
#	NAME	BIOLOGICAL RESOURCES <sup>1/</sup>	U.S. DOT SECTION 4(F) RESOURCES	HAZARDOUS MATERIALS	CULTURAL RESOURCES <sup>2/</sup>	FLOODPLAINS	SURFACE WATERS	
1	Taxiway B and Runway 19R Bypass <sup>3/</sup>	Yes	No	No	No	No	No	No
1	Shift Taxiways N, B, and D	Yes	No	No	Yes	No	No	No
1	Complete Taxiway A Extension	Yes	No	No	Yes	No	Yes	No
2	ATCT Replacement	Yes	No	Yes	No	No	No	No
3	Electrical Vault Replacement	Yes	No	No	No	No	No	No
4	Administrative and Maintenance Facility	Yes	No	No	Yes	No	Yes	Yes
5	Separate Shared-Use Path and Landscaping Along Airport Road	Yes	No	No	No	No	Yes	No
-	Aeronautical Development Parcel – 1B	Yes	No	Yes	Yes	No	Yes	No
-	Aeronautical Development Parcel – 2	Yes	No	Yes	Yes	No	Yes	Yes
-	Aeronautical Development Parcel – 3	Yes	No	Yes	Yes	No	Yes	Yes
-	Aeronautical Development Parcel – 7	Yes	No	No	Yes	No	Yes	No
-	Aeronautical Development Parcel – 10	Yes	No	Yes	No	No	No	Yes
-	Aeronautical Development Parcel – 11	Yes	No	Yes	No	No	No	Yes

Table 6.2-1 (3 of 3): Potential Environmental Issues Associated with Master Plan Update Projects

MASTER PLAN UPDATE PROJECT		POTENTIAL FOR PROJECT FOOTPRINT TO AFFECT RESOURCE						POTENTIAL FOR PROJECT CONSTRUCTION OR OPERATION TO AFFECT AIR QUALITY
#	NAME	BIOLOGICAL RESOURCES <sup>1/</sup>	U.S. DOT SECTION 4(f) RESOURCES	HAZARDOUS MATERIALS	CULTURAL RESOURCES <sup>2/</sup>	FLOODPLAINS	SURFACE WATERS	
-	Surplus Demand Driven Parcel – 4	Yes	No	No	Yes	No	Yes	Yes
-	Surplus Demand Driven Parcel – 5	Yes	No	No	Yes	No	Yes	Yes
-	Surplus Demand Driven Parcel – 6	Yes	No	No	Yes	No	Yes	Yes
-	Surplus Demand Driven Parcel – 9	Yes	No	No	Yes	No	Yes	Yes
-	Surplus Demand Driven Parcel – 12	No	No	Yes	No	No	No	Yes
-	Non-Aeronautical Parcel – 8	Yes	No	Yes	Yes	No	No	Yes

## NOTES:

ATCT = Air Traffic Control Tower

U.S. DOT = U.S. Department of Transportation

REIL = Runway End Identifier Light

Yes = Indicates a project may impact the resource based on the project footprint and/or known existing environmental conditions.

No = Indicates a project is not anticipated to impact the resource based on the project footprint and known environmental conditions.

1/ “Yes” under biological resources means the project occurs in an area with open grass areas present, which could thus provide potential habitat for Florida burrowing owls or gopher tortoises, but it does not necessarily indicate the project would result in an impact. Surveys should be conducted.

2/ “Cultural Resources” is an abbreviation of the historical, architectural, archeological, and cultural resources category defined in FAA Order 1050.1F. In addition to cultural resources effects identified in this table, it is anticipated that any project that disturbs soil would require coordination with the State Historic Preservation Office and Native American Tribes to evaluate the potential for archaeological effects.

3/ The Federal Aviation Administration categorically excluded the project from further environmental review under the National Environmental Policy Act as part of the Airfield Safety Enhancement and Geometry Study project, August 3, 2017.

SOURCES: Kimley-Horn and Associates, Inc., *Airfield Safety Enhancement and Geometry Study*, April 2017; American Infrastructure Development, Inc., March 2019; Ricondo & Associates, Inc., March 2019.

PREPARED BY: American Infrastructure Development, Inc., March 2019.

As shown, projects were identified as “yes” if the *potential to affect* the resource category exists; however, “yes” does not indicate a significant impact, just that detailed review of the resource category is likely required and the potential for an impact exists. Conversely, “no” indicates the project is not anticipated to affect the resource based on the project footprint and the known environmental conditions. The resource categories that would likely require detailed review in future environmental evaluations of Master Plan Update projects are:

- Air Quality
- Biological Resources
- Department of Transportation Act, Section 4(f) Resources and Immediate Parks
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Water Resources (Floodplains, Surface Waters, and Groundwater)

**Exhibit 6.2-1** shows specific aspects of the resources above that are known to be located on Airport property or within 1.5-miles of the Airport.

Some resource categories are not expected to require detailed environmental reviews based on the implementation of the 20-year Master Plan Update projects. The following resource categories are not anticipated to require detailed review because the resource is not present at the Airport or it is not anticipated to be impacted by Master Plan Update projects:

- Farmlands
- Wild and Scenic Rivers
- Visual Effects

Finally, an environmental review of all Master Plan Update projects would likely need to consider the following resource categories, but it is anticipated that environmental evaluation would not likely require more than a general discussion of the effects:

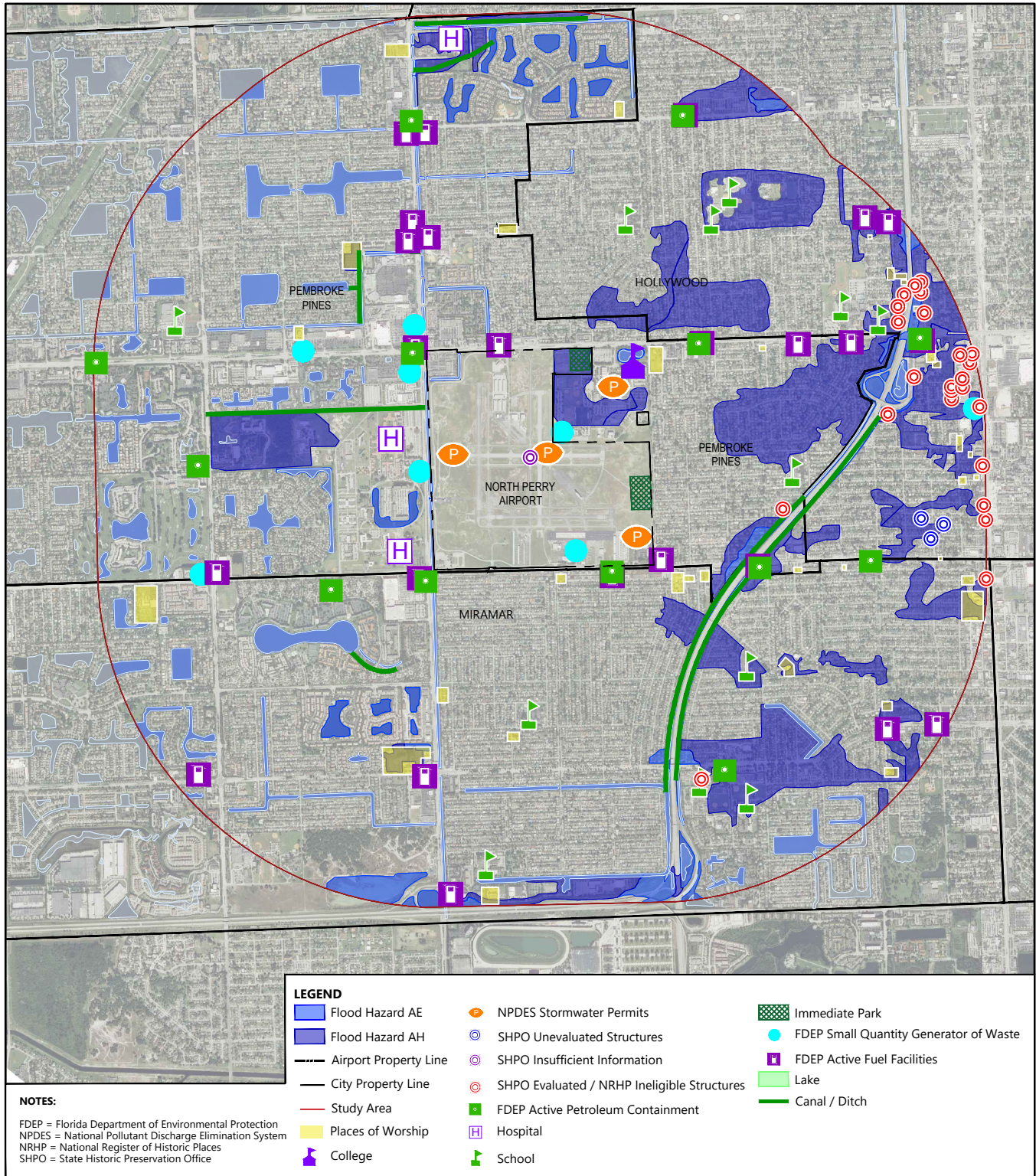
- Climate
- Land Use
- Aircraft Noise and Compatible Land Use
- Natural Resources and Energy Supply
- Socioeconomics, Environmental Justice, and Children’s Health and Safety Risk (includes surface transportation effects)
- Historical, Architectural, Archaeological, and Cultural Resources

Of these categories with effects that would need to be considered, the following are discussed further in this section to summarize key issues for future consideration: air quality; biological resources; Department of Transportation Section 4(f); hazardous materials, solid waste, and pollution prevention; aircraft noise and compatible land use; historical, architectural, archaeological, and cultural resources; and water resources.



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SOURCES: Broward County Aviation Department, 2015 (HWO Aerial Photograph). Nova Consulting, Inc., August 30, 2016 (Environmental Resources).  
 PREPARED BY: American Infrastructure Development, Inc., April 2019.

EXHIBIT 6.2-1



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## Consolidated Environmental Considerations

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### 6.2.1 AIR QUALITY

As identified in Section 2.1 of Appendix B, the Airport is in attainment for all National Ambient Air Quality Standards (NAAQS). Currently, the Broward County Air Quality Division (BAQD) monitors Broward County's air quality. The closest monitor to HWO, monitoring station 34, which is located 4 miles north of the Airport at the intersection of Griffin Road and South University Drive in Davie, shows maximum concentrations readings were all below the standards established by the NAAQS in 2018. Additional information on existing air quality conditions is provided in Appendix B.

Under NEPA, projects that would result in temporary emissions from construction activities, as well as long-term changes in operational emissions (e.g., operation of new buildings or other changes that affect aircraft and vehicle emissions), would be subject to a review for conformity with the NAAQS. It is anticipated that each of the preferred concept projects would result in temporary emissions from construction activities, and, as such, each project would likely require the evaluation of air quality effects under NEPA.

### 6.2.2 BIOLOGICAL RESOURCES

The Airport is located in a well-developed area of Broward County. A major canal runs along the western Airport boundary. A desktop review of critical habitats conducted as part of the ASEG Study did not identify any critical habitats in the immediate vicinity of the Airport. Although no critical habitats were identified, potential effects on endangered and threatened species must be considered. **Table 6.2-2** lists the endangered and threatened species present in Broward County, as identified in the U.S. Fish and Wildlife Service database, that could potentially be present at the Airport.

**Table 6.2-2: Broward County Endangered and Threatened Species**

COMMON NAME	SCIENTIFIC NAME	STATUS
Everglade snail kite	<i>Rostrhamus sociabilis plumbeus</i>	Endangered
Wood stork	<i>Mycteria americana</i>	Threatened
Audubon's crested caracara	<i>Polyborus plancus audubonii</i>	Threatened
Red knot	<i>Calidris canutus</i>	Threatened
Okeechobee gourd	<i>Cucurbita okeechobeensis</i> ssp. <i>okeechobeensis</i>	Endangered
Beach jacquemontia	<i>Jacquemontia reclinata</i>	Endangered
Tiny polygala	<i>Polygala smallii</i>	Endangered
Florida panther <sup>1/</sup>	<i>Puma concolor coryi</i>	Endangered
Southeastern beach mouse	<i>Peromyscus polionotus niveiventris</i>	Threatened
Puma (mountain lion) <sup>1/</sup>	<i>Puma concolor</i> (all subsp. except <i>coryi</i> )	Similarity of Appearance (Threatened)
American alligator	<i>Alligator mississippiensis</i>	Similarity of Appearance (Threatened)
Eastern indigo snake	<i>Drymarchon corais couperi</i>	Threatened
Gopher tortoise	<i>Gopherus polyphemus</i>	Candidate

NOTE:

<sup>1/</sup> Species may be present in Broward County, but it is unlikely to be present at North Perry Airport.

SOURCES: Kimley-Horn and Associates, Inc., *Airfield Safety Enhancement and Geometry Study*, Environmental Review, April 2017.

PREPARED BY: American Infrastructure Development, Inc., March 2019.



The 2009 Master Plan Update for HWO reported 18 burrowing owls' nests within the vicinity of the Airport and on Airport property. While burrowing owls are not threatened or endangered, they are considered a Species of Special Concern. For that reason, walk-through site surveys should be conducted by a qualified wildlife biologist prior to constructing Master Plan Update projects on undeveloped parcels. The Florida Fish and Wildlife Conservation Commission (FFWCC) recommends preconstruction surveys for the Florida burrowing owl and the gopher tortoise. These species could potentially occur on Airport property and would need to be assessed on a project-by-project basis. FFWCC Rule 68A-9.012, *Take of Wildlife on Airport Property*, allows for the destruction of burrows within safety areas (as defined in 14 CFR § 139.5) after or while all existing burrowing owls and gopher tortoises within the burrow are flushed or live captured. State-listed species are also disclosed by the FAA in NEPA documentation. The South Florida Water Management District (SFWMD) consults with FFWCC during Environmental Resource Permitting to determine if state-listed species are affected. Burrowing owls and gopher tortoises, if present, can be addressed under the state rule and are not considered a significant environmental issue that could affect Master Plan Update projects.

As part of future environmental reviews (i.e., NEPA processing, environmental permitting), current lists of federally and state-listed species should be obtained, and coordination should be conducted with FWS and FFWCC, as appropriate.

### 6.2.3 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

U.S. Department of Transportation (U.S. DOT) Section 4(f) provides protection for designated properties, including publicly owned parks, recreation areas, wildlife and waterfowl refuges, and significant historic sites. Under Section 4(f), the approval of proposed federal actions that require the direct or indirect use of these properties is not permitted, unless no feasible and prudent alternatives exist, and then only if the action includes measures to mitigate such impacts. According to the Fish and Wildlife Refuge database, the nearest wildlife refuge is 36 miles northwest of the Airport.

Two parks are located on and in the immediate vicinity of Airport property. Maxwell Park is located on the eastern Airport boundary, and Pines Recreation Center is located immediately northeast of the Airport adjacent to Broward College. As identified in Table 6.2-1, the potential for effects to Maxwell Park should be considered during environmental evaluation of:

- development at Parcel 4 (Surplus Demand Driven) given adjacency of this parcel to the park, and
- access routes to development at Parcels 4 and Parcel 5 (Surplus Demand Driven) given the location of the park relative to these parcels and the surface roadway network.

Pines Recreation Center and other parks located farther from Airport property<sup>2</sup> would not be directly affected by the Recommended Master Plan Update projects. Additionally, as discussed in Section 6.2.6, the Recommended Master Plan Update projects will not change runway utilization, aircraft flight paths, or the aircraft fleet mix operating at the Airport, and thus would not result in indirect effects (such as aircraft noise) to area parks.

<sup>2</sup> The 1.5-mile radius of environmental features does not identify additional parks beyond those in immediate vicinity of Airport property.



#### 6.2.4 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

As listed in the ASEG Study Table 5 (page 14 in Appendix B), five historical contamination sites are documented on Airport property. None of these sites are currently contaminated, and they are no longer considered areas of concern by the Florida Department of Environmental Protection (FDEP). As presented in the ASEG Study Table 4 (page 11 in Appendix B), over 20 existing contamination sites were identified within 1.5 miles of the Airport. Many of these areas were designated due to types of chemicals or hazardous materials required for the type of business being conducted in those areas. The status of these sites, as well as the identification of any potential new sites, must be considered as part of future environmental reviews to identify potential hazardous materials impacts. Site locations with petroleum contamination and locations of small quantity generators of waste are shown on Exhibit 6.2-1.

Additionally, the ability to handle solid waste, especially associated with construction and demolition activities, as well as pollution prevention strategies must be documented for all Master Plan Update projects.

#### 6.2.5 HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

According to the Florida Geographic Data Library database, 48 properties in the cities of Hollywood and Pembroke Pines have been identified as potentially significant historic resources. Table 9 of the ASEG Study in Appendix B summarizes the structures evaluated by the State Historic Preservation Office (SHPO) within a 1.5-mile radius of the Airport, which are depicted on Exhibit 6.2-1. One site is located on Airport property at the intersection of Runways 10L-28R and 1R-19L. The SHPO has identified the site as having insufficient information to determine eligibility for inclusion on the National Register of Historic Places; however, no Master Plan Update projects or other land development are proposed or would affect this location.

While only one known site has insufficient information for a SHPO determination, the Florida Department of State, Division of Historical Resources (DHR) has listed the Airport as a resource group; it is listed under the Florida Master Site File as a historical resource due to the facility's connection with World War II. Therefore, an environmental review of Master Plan Update projects, including the future development of parcels presented in Table 6.2-1, should include coordination with DHR.

#### 6.2.6 NOISE AND COMPATIBLE LAND USE

Aircraft noise is a common concern of communities surrounding airports. To address impacts related to noise compatibility around airports, the FAA has adopted land use guidelines for compatible land uses within noise levels exceeding day-night average sound level (DNL) 65 decibels (dB). The FAA guidelines specify the acceptable noise levels for residential, public use, commercial, manufacturing, production, and recreational land uses. At HWO, residential land uses surround the Airport on all four sides. The immediate vicinity of the Airport includes one college, one school, two places of worship, and two hospitals/medical facilities. Table 7 of Appendix B lists noise-sensitive receptors within a 1.5-mile radius of the Airport, which are depicted on Exhibit 6.2-1.

While several sensitive receptors are located within the 1.5-mile radius area around the Airport, further noise and compatible land use analysis is not anticipated to be required for projects identified in Table 6.2-1. Recommended Master Plan Update projects will not change the runway utilization, the aircraft flight paths, or the aircraft fleet mix operating at the Airport. Master Plan Update projects include taxiway reconfiguration and the construction of the parallel Taxiway A extension that will have minimal impacts on aircraft taxiing. Additionally, the development of Parcel 1 (Aeronautical Development) and Parcel 3 (Aeronautical Development), to be served by the extended Taxiway

A, is not anticipated to introduce aircraft activity that would significantly increase noise exposure to residential development, the closest of which is located 0.3 miles west of the Airport property boundary.

## 6.2.7 WATER RESOURCES

### 6.2.7.1 Surface Waters, and Groundwater

A canal runs along the western boundary of the Airport property line between Airport Road and University Drive. The canal extends approximately 2 miles north of the Airport and just over 2 miles south of the Airport. Project 5 (Separated Shared-Use Path and Landscaping Along Airport Road) is near this canal. Temporary impacts to the canal would be limited to construction activities. Projects that have the potential to affect this surface water resource are identified in Table 6.2-1. These projects would likely require permits from Broward County, the SFWMD, and the U.S. Army Corps of Engineers.

Construction activities that disturb soil have the potential to reduce sediment into downstream bodies of water via stormwater runoff. For development that would disturb more than 1 acre of land, a General Permit for Stormwater Discharge from Large and Small Construction Activities must be obtained from the FDEP. The FDEP permitting process requires the development of a Stormwater Pollution Prevention Plan for construction-related stormwater impacts. Additionally, the continued development of airside and landside facilities has the potential to increase the amount of impervious surface (pavement) on the Airport, resulting in the increase in stormwater runoff. Stormwater should be considered during the design phase of any project identified in Table 6.2-1 that increases the amount of pavement on the Airport. Best Management Practices should be defined and implemented during construction and operation to address possible effects associated with reduced stormwater infiltration. An Environmental Resource Permit and coordination with SFWMD would be required prior to construction. If a potential groundwater impact is identified, then Section 1424(e) of the Safe Drinking Water Act would require the FAA to coordinate impact evaluation with the EPA.

### 6.2.7.2 Floodplains

The extents of the 100-year floodplain (identified as Flood Hazard Zones AE and AH) are shown on Exhibit 6.2-1, which illustrates areas in the vicinity of the Airport designated as 100-year floodplain by the Federal Emergency Management Agency (FEMA). Zones AE and AH designate areas subject to a 1.0 percent annual chance of a flood event, and are referred to as the 100-year floodplain. Most of the Airport's property is categorized as Flood Hazard Zone X, which designates minimal flooding up to a 0.2 percent annual chance of flooding (or the 500-year floodplain). The canal that runs along the western boundary of the Airport property line is identified as Zone AE. If the development footprint of a project was identified within the 100-year floodplain, then the potential for an effect on floodplains was identified in Table 6.2-1. As indicated in the table, no projects involve direct effects to floodplains.

One project, Non-Aeronautical Parcel 8, abuts the western boundary of Airport property, along which a major canal runs, as discussed in Section 6.2.7.1. The canal should be maintained to support discharge of a 100-year flood. Future planning and program associated with this parcel should consider means to: (1) avoid affects to the floodplain associated with the canal; (2) if avoidance is not achievable, minimize effects to the floodplain; and then (3) mitigate effects if avoidance and minimization of effects are not achievable. Per FAA Order 1050.1F, if the project is within a floodplain, then it must be determined whether the encroachment is significant based on the intensity of the encroachment and its impacts on the floodplain's natural and beneficial values.

A significant floodplain encroachment, however, is not necessarily considered a significant environmental impact under NEPA. The FAA may approve a project involving a floodplain encroachment if a finding can be made that there is no practicable alternative to placing a project in the floodplain and that all measures to minimize harm are included in the project. The NEPA document should identify other alternatives analyzed; justify locating the project in the floodplain as the only practicable alternative; and incorporate mitigation measures into the project to minimize potential harm to or within the floodplain. Advanced planning and design of projects that have the potential to affect floodplains should explore the ability to avoid or minimize floodplain impacts, if possible. If a floodplain effect cannot be avoided, and the project encroaches on a 100-year floodplain, then notification of a floodplain encroachment would be required as part of the NEPA analysis in compliance with U.S. DOT Order 5650.2, *Floodplain Management and Protection*.

## 6.3 Environmental Strategy

### 6.3.1 MASTER PLAN UPDATE PROJECTS WITH ENVIRONMENTAL CLEARANCE

As discussed in the ASEG Study, Section 9 (pages 144–145), the FAA Orlando Airports District Office (ADO) was consulted as part of the ASEG Study to review the level of NEPA evaluation required for the recommended airfield improvements. Based on feedback from the FAA, BCAD submitted documentation to support categorical exclusion of airfield geometric improvements and safety enhancements. In August 2017, the FAA determined that the following airfield geometric improvements included in the near- and mid- term planning periods were categorically excluded from further NEPA review pursuant to FAA Order 1050.1F paragraphs 5-6.3.b and 5-6.4.e:

- Project 1 – Mitigate Hot Spot 2 and Aligned Taxiways
- Project 2 – Mitigate Hot Spot 1 and Middle-Third Crossings of Runways 10L-28R and 1R-19L
- Project 3 – Mitigate Hot Spot 3 and Reconfigure FBO Apron Connectors to Taxiway L
- Project 4 – Reconfigure Taxiways L3/M3 and Add Bypass Between Taxiway L and Runway 28L
- Project 5 – Add Bypass Between Taxiway P and Runway 28R
- Project 6 – Install Edge Lighting for Runway 10L-28R
- Project 7 – Add Crossfield Connector Between Taxiways N and M
- Project 8 – Mitigate Crossings in the Middle-Third of Runway 10R-28L
- Project 9 – Mitigate Crossings in the Middle-Third of Runway 1L-19R and Extend Taxiway A
- Project 10 – Create Bypass Between Taxiway B and Runway 19R

### 6.3.2 NATIONAL ENVIRONMENTAL POLICY ACT REQUIREMENTS FOR MASTER PLAN UPDATE PROJECTS

During consultation with the FAA Orlando ADO as part of the ASEG Study, FAA advised that the long-term recommendations defined in the ASEG Study would require separate environmental approvals closer to the timing of their implementation. The proposed long-term projects to shift the centerlines of Taxiways L, N, B, and D away from the runway would likely be eligible for categorical exclusion. While this Master Plan includes the airfield recommendations identified in the ASEG Study, additional projects have been identified as part of the master planning process, as listed in Table 6.2-1 (and described in the Capital Improvement Program Implementation Plan

chapter). The level of NEPA review needed for these projects should be reviewed with the FAA to evaluate the level of environmental review anticipated and confirm the appropriate timing for NEPA review.

In general, Master Plan Update projects are not well defined at the master plan level, particularly regarding the development of undeveloped parcels identified as Aeronautical Development or Surplus Demand Driven. Other projects, as indicated in **Table 6.3-1**, generally align with definitions for actions that are eligible for categorical exclusion as long as no extraordinary circumstances, as defined in FAA Order 1050.1F, exist. However, the dependencies and connections among projects must be considered when determining eligibility for categorical exclusion. The Council on Environmental Quality regulations require that connected projects be considered in the same environmental document. Projects may be connected either because one project enables another or because one project would not happen without a second. In addition, projects occurring in a similar location and/or timeframe should be considered in the same environmental document. When proceeding with environmental review and approval of projects that have the potential to be connected to other projects, independent utility must be demonstrated if those potentially connected actions are not considered.

As the anticipated timing for undertaking Master Plan Update projects (other than those listed in Section 6.3.1 that have already been categorical excluded from further NEPA review) is further refined through advanced planning and design, the issues identified in the EO, as well as other emerging environmental issues and conditions, should be reflected in the NEPA processing strategy. Ongoing collaboration with the FAA regarding updates and refinements to future project assumptions, such as timing and anticipated impacts, will be critical to refining a NEPA processing strategy and associated timeline for Master Plan Update projects.

### 6.3.3 STATE ENVIRONMENTAL REQUIREMENTS FOR MASTER PLAN UPDATE PROJECTS

In addition to an environmental review of Master Plan Update projects at the federal level pursuant to NEPA, projects that are funded through the FDOT, Aviation Department, will require the preparation of a State Environmental Impact Report. Refer to Section 8, *Capital Improvements Program Implementation Plan*, for a list of projects that are anticipated to involve state environmental processing based on current funding strategies identified in the Master Plan Update.

### 6.3.4 LOCAL ENVIRONMENTAL REQUIREMENTS FOR MASTER PLAN UPDATE PROJECTS

The following environmental permitting requirements were identified as potentially required for Master Plan Update projects:

- Each Master Plan Update project would require a General National Pollutant Discharge Elimination System Permit from the FDEP for construction.
- Each Master Plan Update project would require a South Florida Water Management District Environmental Resource Permit and a Broward County Stormwater License.
- FDOT permits may be required for roadway improvements associated with the Separated Shared-Use Path and Landscaping along Airport Road (Project 5).



Table 6.3-1: Identification of Projects Potentially Eligible for Categorical Exclusion

MASTER PLAN UPDATE PROJECT		POTENTIALLY ELIGIBLE FOR CATEGORICAL EXCLUSION (CITATION) <sup>1/</sup>
#	NAME	
<b>Airfield</b>		
1	Mitigate Hotspot 2 and Align Taxiways	Categorically Excluded <sup>2/</sup>
1	Mitigate Hotspot 1 and Middle-Third Crossing	Categorically Excluded <sup>2/</sup>
1	Mitigate Hotspot 3, Shift Taxiway L, and Reconfigure Taxiway L Connectors	Categorically Excluded <sup>2/</sup>
1	Reconfigure Taxiways L3/M3 and Bypass between Taxiway I and Runway 28L	Categorically Excluded <sup>2/</sup>
1	Bypass between Taxiway P and Runway 28R	Categorically Excluded <sup>2/</sup>
1	Runway 1R-19L Lighting and Taxiway E North End Lighting	Yes (5-6.3.b)
1	Mitigate Crossings for Runway 1L-19R and Extend Taxiway A	Categorically Excluded <sup>2/</sup>
1	Runway 10L-28R Lighting	Categorically Excluded <sup>2/</sup>
1	Taxiway N and Runway 28R Hold Pads, 28R Entrance/Exit Width Reduction	Categorically Excluded <sup>2/</sup>
1	Mitigate Middle-Third of Runway 10R-28L	Categorically Excluded <sup>2/</sup>
1	Taxiway B and Runway 19R Bypass	Categorically Excluded <sup>2/</sup>
1	Shift Taxiways N, B, and D	Yes (5-6.4.e)
1	Complete Taxiway A Extension	Yes (5-6.4.e)
<b>Support Facilities</b>		
2	ATCT Replacement	--
3	Electrical Vault Replacement	Yes (5-6.3.b)
4	Administrative and Maintenance Facility	Yes (5-6.4.f)
5	Separate Shared-Use Path and Landscaping Along Airport Road	--
<b>Aeronautical Development Parcel</b>		
	Aeronautical Development Parcel – 1B	--
	Aeronautical Development Parcel – 2	Yes (5-6.4.f)
	Aeronautical Development Parcel – 3	--
	Aeronautical Development Parcel – 7	Yes (5-6.4.e)
	Aeronautical Development Parcel – 10	--
	Aeronautical Development Parcel – 11	--
<b>Surplus Demand Driven Parcel Development</b>		
	Surplus Demand Driven Development Parcel – 4	--
	Surplus Demand Driven Development Parcel – 5	--
	Surplus Demand Driven Development Parcel – 6	--
	Surplus Demand Driven Development Parcel – 9	--
	Surplus Demand Driven Development Parcel – 12	--

## NOTES:

-- Not typically eligible for categorical exclusion or insufficient information to confirm potentially applicable categorical exclusion (CATEX) citation.

ATCT = Airport Traffic Control Tower

5-6.3.b – Establishment, installation, upgrade, or relocation of any of the following on designated airport or Federal Aviation Administration (FAA) property: airfield or approach lighting systems, visual approach aids, beacons, and electrical distribution systems, as described in FAA Order 6850.2, Visual Guidance Lighting Systems, and other related facilities. (ATO, ARP)

5-6.4.e – Federal financial assistance, licensing, or Airport Layout Plan (ALP) approval for the following actions, provided the action would not result in significant erosion or sedimentation, and will not result in a significant noise increase over noise-sensitive areas or result in significant impacts on air quality: (1) construction, repair, reconstruction, resurfacing, extending, strengthening, or widening of a taxiway, apron, loading ramp, or runway safety area (RSA), including an RSA using Engineered Material Arresting System (EMAS); or (2) reconstruction, resurfacing, extending, strengthening, or widening of an existing runway. This CATEX includes marking, grooving, fillets, and jet-blast facilities associated with any of the above facilities. (ARP, AST)

5-6.4.f – Federal financial assistance, licensing, Airport Layout Plan (ALP) approval, or FAA construction or limited expansion of accessory on-site structures, including storage buildings, garages, hangars, t-hangars, small parking areas, signs, fences, and other essentially similar minor development items. (ATO, ARP, AST)

1/ Citations reference paragraphs in U.S. Department of Transportation, Federal Aviation Administration, Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 16, 2015. Applicability of Categorical Exclusion citations is subject to FAA review for the potential for extraordinary circumstances (i.e., factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that requires further analysis in an Environmental Assessment or an Environmental Impact Statement) before finalizing a decision to categorically exclude a proposed action.

2/ The Federal Aviation Administration categorically excluded the project from further environmental review under the National Environmental Policy Act as part of the Airfield Safety Enhancement and Geometry project, August 3, 2017.

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

PREPARED BY: American Infrastructure Development, Inc., April 2019.

## 6.4 Recycling, Reuse, and Waste Reduction Plan

This section evaluates the opportunities for recycling and minimizing the generation of Airport solid waste, consistent with FAA guidance,<sup>3</sup> as BCAD embarks on the proposed development projects identified in the Master Plan Update.

### 6.4.1 BACKGROUND

Approximately 581,000 square feet of building space has been developed at the Airport, including the following facilities:

- BCAD administration and maintenance facilities
- Broward County Highway and Bridge Maintenance Division, Mosquito Control Buildings
- four tenant-operated FBOs
- aircraft storage hangars
- tenant-operated helicopter facility
- contract ATCT
- retail shopping / restaurant plaza

In addition to the on-Airport facilities, Broward College operates its South Campus adjacent to the northeast side of the Airport, and its facilities maintain direct access to the airfield.

BCAD occupies two buildings at the Airport, which combined represent less than 1 percent of the total square footage of built space at HWO:

- The Administrative Building is a 2,800-square-foot office and storage building for BCAD staff. The Master Plan Update identifies the future need for an additional 1,400 square feet of space to support four new offices.
- The Maintenance Building is a 1,600-square-foot structure that provides covered storage for maintenance equipment, bays for trucks, and office space for BCAD maintenance staff. The Master Plan Update identifies the future need for a 3,100-square-foot maintenance building that has surface and airside access.

Waste from the BCAD-occupied buildings is managed by Broward County; waste composition from these facilities comprises typical office waste (e.g., paper, cardboard, and limited plastic, glass, and metals) and waste associated with light maintenance activities (e.g., fluids, metals). Recycling and composting services are not currently offered at

<sup>3</sup> U.S. Department of Transportation, Federal Aviation Administration, "ACTION: Guidance on Airport Recycling, Reuse, and Waste Reductions Plans," September 30, 2014.

BCAD-occupied buildings. Waste from tenant facilities is contracted separately and managed individually by the tenants.

Broward County is responsible for the collection of solid waste from HWO, and waste from the Airport is managed under the County's contract with Wheelabrator, which includes terms for renewal through 2033.<sup>4</sup> Waste is transported to the Wheelabrator South Broward waste-to-energy facility, which can produce 66 Megawatts (MW) of electricity and can process as much as 2,250 tons of municipal solid waste (MSW) daily. The waste-to-energy facility reduces nonrecycled waste volumes by 90 percent, and the ash is disposed at Wheelabrator's South Broward ash monofill, which is adjacent to the waste-to-energy facility.<sup>5</sup>

Although recycling services are not provided at BCAD's HWO facilities, the County has a goal of 75 percent recycling by 2020. Solid waste used to produce renewable energy counts toward the recycling goal. Additionally, Broward College maintains a recycling program, which includes<sup>6</sup>:

- Designated blue bins for the collection of single-stream recyclables (i.e., metal cans, plastic bottles, glass bottles and jars, cardboard, and paper) at the point of disposal.
- Guidance on disposing other items, such as rechargeable batteries and compact fluorescent lamp and fluorescent bulbs.
- Disposal of computer equipment, lamps, ballasts, batteries, and other electronics through the Campus Facilities office.
- Partnership with TerraCycle, which provides innovative recycling programs for hard-to-recycle waste. Since 2008, Broward College has collected over 2.2 million units of waste for TerraCycle, which has earned over \$38,000 that has been awarded to students in the form of scholarships. Current items accepted through the TerraCycle partnership include food and beverage packaging (e.g., snack and cereal bags), household and health product packaging, and personal care packaging.

Based on a review of recycling practices in Broward County, introducing a recycling program at BCAD's HWO facilities is viable, as discussed in the following subsection.

#### 6.4.2 PLAN TO MINIMIZE SOLID WASTE

A plan to minimize solid waste at HWO has been prepared as part of this EO. Shown in **Table 6.4-1**, this plan is based on BCAD operations as well as recycling services available. Additionally, given the proportionate significance of tenant operations at HWO, opportunities to extend these initiatives to tenant facilities are also identified in the table.

<sup>4</sup> Broward County, Solid Waste and Recycling Services, "Broward County Solid Waste and Recycling Update," presentation, <http://www.broward.org/Commission/Documents/SolidWasteWorkshop.pdf> (accessed March 21, 2019).

<sup>5</sup> Wheelabrator Technologies, Wheelabrator South Broward, <https://www.wtienergy.com/plant-locations/energy-from-waste/wheelabrator-south-broward> (accessed March 21, 2019).

<sup>6</sup> Broward College, Recycling, <http://www.broward.edu/teamgreen/Pages/Recycling-and-TerraCycle.aspx> (accessed April 3, 2019).

Table 6.4-1: Plan to Minimize Solid Waste

INITIATIVES		BCAD STRATEGIES	TENANT STRATEGIES
<b>Design</b>			
1	Support recycling operations in new and expanded development	Consider space for recycling/reuse collection, sortation, and circulation needs during design of new and expanded BCAD facilities.	Work with tenants to incorporate appropriate space for recycling and reuse in new and expanded tenant facilities.
2	Manage construction waste	Require contractors to develop waste management plans for construction projects at HWO. Plans should identify project goals for waste reduction, recycling, and reuse, as well as methods to track and report performance to BCAD. Integrate the new requirement into BCAD design and construction bid documents.	Encourage tenants to prepare waste management plans for construction projects at HWO.
3	Evaluate waste minimization strategies in design	As part of the County's LEED certification program, evaluate waste minimization points for new BCAD buildings.	Encourage tenants to consider waste minimization strategies (such as those defined in LEED) for new tenant buildings.
4	Evaluate low-maintenance landscaping options for new development	Evaluate low-maintenance landscaping options for HWO in BCAD-managed areas, especially for new landscaped areas, to minimize the amount of green waste generated at HWO. Consider strategies (e.g., plant lists) defined in the Florida Friendly Landscaping Program guidelines.	Engage tenants during design of tenant facilities to consider opportunities to reduce or eliminate landscaping waste and to adopt the Florida Friendly Landscaping Program guidelines.
<b>Operations</b>			
5	Deploy single-stream recycling infrastructure	Contact Broward County Solid Waste and Recycling Services (BCGovtRecycles@broward.org) to request recycling bins for the Administration Building and the Maintenance Building through the County's Government Recycling Program.	Survey tenants (may be informal survey during a tenant meeting) to identify tenant barriers to recycling and opportunities for waste minimization.
6	Conduct a workplace assessment	Contact Broward County Solid Waste and Recycling Services (BCGovtRecycles@broward.org) to request a workplace assessment, in which County staff review BCAD facilities, make recommendations, and share best practices to support the development of a sustainable recycling program.	Share recommendations and best practices with tenants to support the refinement of their recycling programs.
7	Explore a partnership	Explore a partnership with Broward College to enhance waste minimization practices at HWO (e.g., periodic workplace assessments of BCAD or tenant facilities, training, recycling awareness posters).	
8	Collaborate with tenants	Share recycling, reuse, and reduction successes among BCAD and tenants operating at HWO: <ul style="list-style-type: none"> <li>• If tenant meetings are regularly convened, add a waste minimization agenda item to meetings to encourage tenants to share best practices and to celebrate successes.</li> <li>• Include a discussion of waste minimization during periodic tenant site visits to evaluate opportunities.</li> <li>• Share tenant successes in a tenant newsletter, in a community newsletter, or on an Airport webpage to recognize successes and to encourage waste minimization practices at HWO.</li> </ul>	

## NOTES:

BCAD = Broward County Aviation Department

HWO = North Perry Airport

SOURCE: Ricondo &amp; Associates, Inc., March 2019.

PREPARED BY: Ricondo &amp; Associates, Inc., March 2019.