

SECTION 6

Environmental Consequences and Mitigation

6.1 Introduction

The environmental consequences section of the EA document provides analysis of the environmental categories that have the potential to be impacted by the ~~no action~~No Action, Proposed Action, or reasonable alternatives. CEQ states “that an EA is a “concrete document” that takes a “hard look” at expected environmental effects of a Proposed Action.”¹ Section 4, Alternatives, determined that the Proposed Action Alternative (Proposed Action) and the No Action Alternative were going to be carried forward for environmental analysis. This section will provide information on the regulatory setting, special purpose laws, and analysis of environmental consequences as identified in FAA Orders 1050.1E and FAA Order 5050.4B.

The analysis will be “concrete” in terms of providing the level of detail commensurate with the degree of potential environmental impact. FAA Order 1050.1E states, “to avoid excessive length, the effects section may incorporate by reference such background data as necessary to support its effects analysis.”² During the analysis of each applicable environmental impact category, significance thresholds are identified to determine if there is a significant impact. Significance, related to NEPA, is established by regulations of the CEQ and is detailed in 40 CFR 1508.27. The FAA establishes the significance thresholds for environmental categories within Appendix A of FAA Order 1050.1E. Once the analysis is complete, mitigation measures may be discussed to address potential environmental impacts. The environmental consequence determination for each impact category discussed in this section will have one of the following determinations:

- Significant Impact
- No Significant Impact with Mitigation Measures
- No Significant Impact

Under NEPA, the FAA is required to take a “hard look” at expected environmental impacts.³ If an environmental consequence is determined to have a significant effect and mitigation measures cannot be employed to reduce the effect below significance thresholds, FAA Order 1050.1E requires the FAA official to initiate the Environmental Impact Statement (EIS) process.⁴ If environmental

¹ FAA Order 5050.4B-700

² FAA Order 1050.1E-405F(1)

³ FAA Order 5050.4B-706f

⁴ FAA Order 1050.1E-400e

~~consequences are determined to have no significant effect or no significant effect with mitigation measures, FAA can proceed with preparing a Finding of No Significant Impact (FONSI).~~

~~Table 6.1-1 provides a list of the environmental impact categories that are included in this section. Each section includes~~

- ~~• information on the specific environmental impact category (special purpose laws are discussed when applicable)~~
- ~~• analysis of impacts;~~
- ~~• proposed mitigation and/or best management practices if applicable, and~~
- ~~• determination of significance if an impact is expected.~~

~~(Please refer to FAA Order 1050.1E Appendix A, and the FAA Environmental Desk Reference for Airport Actions detailed information on each category).~~

~~The environmental consequences section of the EA document provides analysis of the environmental categories that have the potential to be impacted by the No Action and Proposed Action alternatives. CEQ states “that an EA is a “concise document” that takes a “hard look” at expected environmental effects of a Proposed Action.”⁵ In Section 4, Alternatives, of this EA, it was determined that the Proposed Action and the No Action Alternatives were the only reasonable alternatives that would be carried forward for detailed environmental analysis.~~

~~Based on the guidance provided in FAA Orders 1050.1E and 5050.4B, this section of the EA provides detailed information on the analysis and evaluation of potential environmental impacts associated with the alternatives retained for detailed environmental evaluation. It also provides information on the applicable regulatory settings, and the special purpose laws, if any, associated with each impact category.~~

~~The analysis contained in this section is “concise” in terms of providing the level of detail commensurate with the degree of potential environmental impact. FAA Order 1050.1E states, “to avoid excessive length, the effects section may incorporate by reference such background data as necessary to support its effects analysis.”⁶ In the analysis of each environmental impact category, significance thresholds, if established, are identified to determine if the any of the Alternatives would result in a significant impact. Significance, in relation to NEPA, is established by CEQ regulations and is detailed in 40 CFR 1508.27. The FAA has established significance thresholds for most, but not all environmental categories. Those categories with significance thresholds are identified in Appendix A of FAA Order 1050.1E, and in the discussion of each environmental category in this section of the EA. If an alternative retained for detailed evaluation in this section of the EA would result in significant environmental impacts, mitigation measures are discussed to address the environmental impacts.~~

⁵ FAA Order 5050.4B 700

⁶ FAA Order 1050.1E 405F (1)

The environmental consequences determination for each impact category discussed in this section of the EA will result in one of the following outcomes: provides a table of the Significance Thresholds (if the environmental resource category has a stated Significance Threshold in FAA 1050.1E) and a determination of whether the alternatives meets or exceeds the Significance Threshold.

- Significant Impact
- No Significant Impact if Mitigation Measures are Implemented
- No Significant Impact

If a preferred alternative is determined to result in a significant environmental impact and mitigation measures cannot be developed and implemented such that the impacts would fall below the significance threshold. FAA Order 1050.1E requires the responsible FAA official to make a finding that an Environmental Impact Statement (EIS) would need to be conducted if the Airport Sponsor wishes to further pursue the proposed project.⁷ If the preferred alternative is determined to result in no significant impacts or there are significant impacts that can be off-set with the implementation of mitigation measures, the FAA would prepare a Finding of No Significant Impact (FONSI), or a Mitigated FONSI, and the Airport Sponsor can proceed with the proposed project as long as all of the required Federal, state and local approvals and permits are obtained.

Table 6.1-1 provides a list of the environmental impact categories that are evaluated in this section of the EA. Each section includes

- Information on the specific environmental impact category (special purpose laws are discussed when applicable)
- Analysis of potential impacts.
- Determination of significance if an impact is expected
- Proposed mitigation and/or best management practices if applicable.

(Please refer to FAA Order 1050.1E - Appendix A, FAA Order 5050.4b, and the FAA Environmental Desk Reference for detailed information on each environmental category).

**TABLE 6.1-1
ENVIRONMENTAL IMPACT CATEGORIES ~~WITHIN~~ EVALUATED IN SECTION 6.0^a**

Air Quality	Hazardous Materials
Biotic Resources	Historic and Archeological
Coast Zone Management	Induced Socioeconomics
Compatible Land Use	Light Emissions and Visual Effects
Construction	Noise
Section 4(f)	Social Impacts
Federally-listed Endangered and Threatened Species	Solid Waste
Energy Supplies, Natural Resources, and Sustainable Design	Water Quality

⁷ FAA Order 1050.1E 400c

Environmental Justice

Wetlands

Floodplains

Cumulative Impacts

a. [The following environmental impact categories are not analyzed for this project (not applicable): Coastal Barriers, Farmlands, and Wild and Scenic Rivers (see Section 5.1 for details)]

SOURCE: ESA Airports 2009, FAA Environmental Desk Reference for Airport Actions

Comment [VL1]: An explanation as to why these categories are not evaluated should be included, or the reader should be referred back to Section 5.

Comment [sbb2R1]: The foot note refers the reader back to Section 5.1 for details.

It is noted that the environmental analysis in this EA is for a conceptual plan of the 1,325 acre East Airfield area; further environmental review will be required when specific proposals are submitted to the FAA for review and approval. The type of environmental review will be based on project specifics and the timing of the proposal. The analysis of impacts in this EA is based on a 20 year (2030) total build-out of the ~~proposed action~~ Proposed Action area.

The following sections provide the environmental impact analysis for the categories listed in **Table 6.1-1**. Each section provides an overview of the applicable regulatory setting, the thresholds of significance under NEPA, the analysis methodology/description, and mitigation measures that are proposed (if applicable). An environmental determination table ~~is~~ has been prepared for each category that has defined significance thresholds. This includes a determination for both the No Action Alternative and the Proposed Action Alternative.

6.2 Air Quality

There are various sets of Federal guidelines that determine the need for, and define the type and extent of, an air quality assessment for airport-related actions and projects. These include FAA Order 1050.1E, FAA Order 5050.4B, and the Federal Clean Air Act (CAA) General Conformity Rule. Guidelines for preparing an air quality analysis under NEPA are also contained in the document titled *Air Quality Procedures for Civilian Airports and Air Force Bases* (commonly referred to as the “FAA Air Quality Handbook”) and the FAA’s Environmental Desk Reference for Airport Actions. These guidelines were followed in the preparation of the air quality analysis.

6.2.1 Impact Analysis

Under the Federal CAA, the United States Environmental Protection Agency (EPA) is charged with establishing and enforcing National Ambient Air Quality Standards (NAAQS) that are protective of human health as well as human and environmental welfare. The NAAQS establish the maximum level of “concentrations” of pollutants in the ambient air. EPA has instituted two types of NAAQS that fulfill these obligations relative to ambient (i.e. outdoor) air quality. Primary standards serve to protect human health, concentrating especially on the health effects of those that are sensitive such as children, asthmatics and the elderly. Secondary standards are designed to protect the welfare of the public including elements such as visibility and aesthetic quality, natural resources, and prevention of damage to natural resources and other commodities. For the purposes of NEPA analysis, FAA Order 1050.1E states, “potentially significant air quality

impacts associated with an FAA project or action would be demonstrated by the project or action exceeding one or more of the NAAQS for any of the time periods analyzed.”⁸

The EPA has established NAAQS for six “criteria” air pollutants – carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), ozone, (O₃), particulate matter (PM) and lead (Pb). There are separate NAAQS for PM with mean aerodynamic diameters measuring 10 micrometers (µg/m³) or less (PM₁₀) and PM with mean aerodynamic diameters measuring 2.5 micrometers or less (PM_{2.5}). Table 6.2-1 summarizes the current NAAQS for the six “criteria” air pollutants. Note that Particulate Matter is counted as one, not two pollutants in the table.

The EPA has established NAAQS for six “criteria” air pollutants – carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), ozone, (O₃), particulate matter (PM) and lead (Pb). There are separate NAAQS for PM with mean aerodynamic diameters measuring 10 micrometers or less (PM₁₀) and PM with mean aerodynamic diameters measuring 2.5 micrometers or less (PM_{2.5}). Table 6.2-1 summarizes the current NAAQS for the six “criteria” air pollutants.

**TABLE 6.2-1
NATIONAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	Threshold	Type of Standard ¹
CO	1-hour average	35 ppm	Primary
	8-hour average	9 ppm	Primary
NO ₂	Annual Arithmetic Mean	0.053 ppm	Primary and Secondary
SO ₂	Annual Arithmetic Mean	0.03 ppm	Primary
	24-hour average	0.14 ppm	Primary
	3-hour average	0.5 ppm	Secondary
O ₃ ²	8-hour average	0.075 ppm (2008 standard)	Primary and Secondary
	8-hour average	0.08 ppm (1997 standard)	Primary and Secondary
PM ₁₀	24-hour average	150 µg/m ³	Primary and Secondary
PM _{2.5}	24-hour average	35 µg/m ³	Primary and Secondary
	Annual Arithmetic Mean	15 µg/m ³	
Pb	Rolling 3-month average	0.15 µg/m ³	Primary

1 Primary standards protect human health; secondary standards protect human and environmental welfare, including aesthetic qualities and prevention of collateral damage.
2 Effective May 27, 2008.

ppm = parts per million
µg/m³ = micrograms per cubic meter

SOURCE: United States Environmental Protection Agency, 2009-3 Current as of April, 2011. NAAQS could change by the year 2030.

Comment [VL3]: Please use the correct sub- or super-scripts with all pollutants and quantities.

Comment [sbb4R3]: revised

Orange County, including the City of Orlando, is currently designated as an “attainment” area for all of the NAAQS. “Attainment” is a designation under the CAA that means air pollutant levels in an area meet the primary and secondary NAAQS. While the area is currently designated attainment, it should be noted that in the recent past, levels of O₃ have approached, and met, the NAAQS level for this pollutant. As presented in Section 5.4.1 of this EA, the three-year average O₃ concentration in Orange County for the years 2006 through 2008 was 0.075 ppm--a level that met but did not exceed the NAAQS.

⁸ FAA Order 1050.1E Appendix A 2.3

~~The NAAQS establishes the maximum level of “concentrations” of pollutants in the ambient air.~~

Comment [VL5]: This is where a discussion of the fact that an AQ Emissions analysis is not needed for the EA should be inserted. Need to state that the rest of this info is for informational / disclosure purposes only.

There are two types of potential air quality assessments for Federal actions at airports:

Comment [sbb6R5]: See revised text

1. Conformity Assessment; and

2. NAAQS Assessment.

A Conformity Assessment is not required for the Proposed Action because the area is designated attainment for all of the criteria air pollutants. A NAAQS Assessment is required if the enplanement level is forecast to be more than 180,000 annually (with proposed improvements). At a minimum, the NAAQS Assessment includes the preparation of an emissions inventory. For the purposes of the information included in this EA, an emissions inventory is provided.

The EPA has proposed a revision to the NAAQS which, if adopted, would lower the ozone standard (listed in Table 6.2-1). Adoption of this change in the NAAQS would require each state, including Florida, to revise its state implementation plan (SIP) to demonstrate how it would bring all areas of the state into compliance with the NAAQS. In order to evaluate the potential air quality impacts of the Proposed Action when compared to the No Action Alternative, Under the proposed NAAQS revisions directly to the NAAQS, a different and much more extensive type of analysis, dispersion analysis, would have to be performed. Further, due to the complicated nature of the pollutant, ozone (O₃), it would not be reasonable to perform dispersion analysis to evaluate the impact of the Proposed Action on concentrations of the air pollutant O₃. O₃ is a regional air pollutant and, as such, all sources within an area (e.g., the entire Orlando area) would have to be evaluated to provide an accurate accounting and, because the air quality computer models that perform such large-scale dispersion analysis are not sensitive enough to detect (register) a difference in predicted O₃ levels from a single-small project, it is not reasonable to assume that such analysis could be performed to evaluate the Proposed Action at the OIA.

Comment [VL7]: Replace this paragraph with a description of the SIP, and de minimus levels in order to explain to the reader how the emissions inventory is used to determine if there is a significant impact or not – see comment below on equating the NAAQS quantities of ppm and ug/m³ to the tons per year output of the EDMS. Also – please address the proposed upcoming change in the Ozone Standard –.

The information provided below regarding projected emissions areis provided for information purposes only.

Comment [sbb8R7]: See revised text.

Notably, because Orange County is designated in “attainment” for all of the criteria air pollutants, the General Conformity Rule of the CAA is not applicable to this project.

Comment [VL9]: See previous comment – this point needs to be much more clearly stated and described. Not only does General Conformity not apply, but an Air Quality Analysis itself is not required!

Aircraft Operational and Ground-Support Vehicle Emissions Equipment Modeling Assumptions

Comment [sbb10R9]: Noted.

To quantify and disclose the air pollutant/precursor emissions associated with the Proposed Action when compared to the No Action Alternative, the forecast aircraft operations in the 2008 TAF for the year 2030 were used. This data was then used as input for the Emissions and Dispersion Modeling System (EDMS-Version 5.1)–a computer model that facilitates the calculation of airport-related air pollutant/precursor emission inventories. The EDMS was developed by the FAA and is the FAA’s required model when performing air quality analyses of Federally funded airport development projects. To evaluate the resultant increase in air pollutant/precursor emissions from the

increase in operations, the forecast levels of aircraft operations in the year 2030 were used for the No Action Alternative and the Proposed Action Alternative. This data was then used as input for the Emissions and Dispersion Modeling System (EDMS Version 5.1) – a computer model that facilitates the calculation of airport related air pollutant/precursor emission inventories. The EDMS was developed by the FAA and is the FAA’s required model when performing air quality analyses of aviation sources.

As discussed in Section ~~XXXX~~6.16 it was assumed that the Proposed Action Alternative would result in an increase in the number of aircraft operations at OIA in 2030 when compared to the No Action Alternative. These additional aircraft operations would access the future land uses within the Proposed Action development area by taxiing to/from the runway/taxiway system and the facilities developed in the area. Using scaled airport diagrams, the taxi distances to/from each of the runway ends were measured and calculated assuming the shortest possible taxi path between points, for both the No Action Alternative and the Proposed Action Alternative. Average taxi times were then calculated by applying these measured distances to an aircraft speed of 17 miles per hour, which is the assumed ground speed employed by the EDMS. These taxi times were then weighted based on the forecast runway use percentage (number of aircraft using each runway end) with and without the Proposed Action.

It was also assumed that the additional aircraft with the Proposed Action would access the future land uses within the East Airfield Development Area by taxiing to/from the area. Using scaled airport diagrams, the taxi distances to/from each of the runway ends were measured and calculated assuming the shortest possible taxi path between points, with and without the Proposed Action. Average taxi times were then calculated by applying these measured distances to an aircraft speed of 17 miles per hour, which is the assumed ground speed employed by the EDMS. These taxi times were then weighted based on the forecast runway use (number of aircraft using each runway end) with and without the Proposed Action.

Auxiliary Power Units (APUs) are a component of a large aircraft and are essentially a small turbine engine. APUs generate electricity and compressed air to operate an aircraft’s instruments, lights, ventilation, and other equipment while the main aircraft engines are off. APUs are also used to provide power for starting the main engines of an aircraft. APUs are common on commercial aircraft but not common on air taxis and smaller civil aircraft. During a typical cycle, an APU is turned on as an aircraft taxis from the runway to the gate or parking space. The engine remains in use while the aircraft is parked, unless an alternative source of electricity and preconditioned air is made available.

Aircraft Auxiliary Power Units (APU’s).....

Ground support equipment (GSE)(~~includes such as~~ aircraft tugs and belt loaders) were also included in the air quality analysis. Where appropriate, the EDMS default assignments, and operating times, were assumed. Specific assignments, with respect to ~~ground support equipment~~GSE’s are discussed in the following impact analyses.

Comment [AN11]: Insert correct Section # - either Introduction or Purpose and Need – wherever the Forecasts are discussed.
Comment [sbb12R11]: Section added.

Comment [AN13]: Please insert a discussion of APU’s, since their emissions are disclosed in Table 6.2-2. Should be similar as discussion of GSE’s.
Comment [sbb14R13]: Text information added.

6.2.1.1 No Action Alternative

Based on the 2008 TAF, the 2030 No Action Alternative total annual aircraft operations at OIA are forecast to be ~~total~~ 536,995. The detailed aircraft fleet mix for the No Action Alternative is included in Appendix G (Noise Modeling) of this EA. The weighted average taxi-in time was modeled at 5.12 minutes and the average taxi-out time was modeled at 7.32 minutes. The No Action Alternative emission inventory results are shown in Table 6.2-2.

TABLE 6.2-2
~~2030 NO ACTION~~ ~~NO ACTION~~ ~~ALTERNATIVE~~ AIR POLLUTANT/POLLUTANT PRECURSOR EMISSION INVENTORIES

Source	Mode	TONS per Year ^a					
		CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Aircraft	Startup	--	96	--	--	--	--
	Taxi Out	687	72	120	42	6	6
	Takeoff	40	6	1,525	81	13	13
	Climb Out	22	3	719	41	6	6
	Approach	167	15	309	48	6	6
	Taxi In	492	52	149	37	5	5
	Total - Aircraft		1,408	244	2,822	249	36
Auxiliary Power Units		91	8	107	14	13	13
Ground Support Equipment		422	17	38	4	3	3
Total		1,921	268	2,967	268	52	52

a Values subject to rounding.
-- Emissions data are not included in the EDMS.
SOURCE: KB Environmental Sciences, 2009.

6.2.1.2 Proposed Action Alternative

Based on the 2008 TAF, the 2030 Proposed Action Alternative total annual aircraft operations at OIA are forecast to be 564,995, an increase of 28,000 compared to the forecast for the 2030 No Action Alternative. The detailed Proposed Action aircraft fleet mix is included in Appendix G of this EA. Because the additional aircraft operations associated with the Proposed Action Alternative would not be passenger-related, they would not require all of the various types of GSE and APU equipment associated with air carrier type aircraft. Therefore, the EDMS default assignments were modified for the additional Proposed Action Alternative operations to reflect equipment associated with non-passenger aircraft. Table 6.2-3 presents the assignments of ground support equipment, and the assumed minutes of use per aircraft operation that were used in the air quality analysis. The minutes in use per operation shown in the table are based on the default times included in the EDMS. In addition, the Proposed Action Alternative weighted average taxi-in time was modeled at 5.43 minutes and the average taxi-out time was modeled at 7.61 minutes. This represents an increase of ~~XXX.31~~ and ~~YYY.29~~ minutes, respectively, when compared to the No Action Alternative.

TABLE 6.2-3
2030 GSE ASSIGNMENTS FOR PROPOSED ACTION ALTERNATIVE AIRCRAFT

Equipment Type	Fuel Type	Horsepower	Minutes in Use per Operation
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Comment [AN15]: Calculate increased Taxi times

Comment [sbb16R15]: Calculated difference between No Action and Proposed Action times has been added.

Comment [VL17]: Either add APU times in operation to this table or create a new table and put in the minutes in use per operation for APU's.

Comment [sbb18R17]: EDMS default times were used for APU's this information has been added to the table.

			Arrivals	Departures
Fuel Truck	Diesel	300	N/A	20
Cargo Truck	Gasoline	133	20	20
Cargo Tractor	Gasoline	88	20	20
APU	Jet A	Varies depending on aircraft type	13	13

SOURCE: KB Environmental Sciences, 2009.

The Proposed Action Alternative emission inventory results are provided in Table 6.2-4. As shown, the Proposed Action Alternative would increase the emissions of CO, VOC, NOx, SOx, PM10 and PM2.5 by approximately 148, 21, 139, 15, 3, and 3 tons per year, respectively, when compared to the No Action Alternative. This increase would be directly attributable to the increase in aircraft operations (approximately 28,000 additional operations), the longer taxi distances, and the increased use of GSE's and APU's associated with the Proposed Action Alternative. The Proposed Action emission inventory results are provided in Table 6.2-4. As shown, the Proposed Action would increase the level of CO, VOC, NOx, SOx, PM10 and PM2.5 approximately 148, 21, 139, 15, 3, and 3 tons per year, respectively. This increase would be directly attributable to the additional aircraft operations (approximately 28,000 additional operations), the additional taxi distances, and the additional ground support equipment.

The increase in emissions due to the Proposed Action Alternative when compared to the No Action Alternative is not considered significant because the area is designated "attainment" for all of the criteria air pollutants. The analysis and the increase in emissions are provided for public disclosure purposes only; there are no regulatory requirements to do so. As explained in Section 6.2.1 above, a dispersion analysis is not required for the Proposed Action and the emissions inventory is provided for information purposes only (nor requirements to prepare a dispersion analysis). Notably, based on analyses performed at other airports, increases in emissions of this magnitude would result in little, if any, change in predicted concentrations of the pollutants identified by the NAAQS.

TABLE 6.2-4
2030 PROPOSED ACTION ALTERNATIVE AIR POLLUTANT/POLLUTANT PRECURSOR EMISSION INVENTORIES

Source	Mode	TONS per Year ^a					
		CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Aircraft	Startup	--	100	--	--	--	--
	Taxi Out	747	80	130	46	6	6
	Takeoff	42	6	1,591	84	13	13
	Climb Out	24	3	750	43	7	7
	Approach	177	16	323	50	7	7
	Taxi In	545	58	160	40	5	5
Total - Aircraft		1,535	264	2,955	264	38	38
Auxiliary Power Units		95	8	112	15	14	14
Ground Support Equipment		439	18	39	5	3	3
Total		2,069	289	3,106	283	55	55
Increase In Emissions With		148	21	139	15	3	3

Comment [AN19]: It is premature to make this statement here. The conclusion as to whether the impacts would be significant or not should be made after considering ALL sources – aircraft, GSE, APU, Surface Traffic, and Construction.

Comment [sbb20R19]: Statement deleted

Comment [VL21]: I don't understand this conclusion. How do we know that in 2030 the region will still be in attainment?

Comment [sbb22R21]: the analysis of future conditions always considers the current status of an airshed. We wouldn't predict that an area would be designated non-attainment.

Comment [AN23]: Need to "set-up" this conclusion by adding the language suggested in my comment #5, 6 and 7.

Comment [sbb24R23]: Statement deleted.

Comment [VL25]: I don't understand this one either, and I'm sure the public couldn't. The information you have presented per the NAAQS is in PPMs and the information presented for emissions is tons per year.

Comment [sbb26R25]: Tons per year is the inventory amounts for the NAAQS Assessment inventory. Dispersion modeling would result in values with ppm. Dispersion modeling was not required.

Proposed Action

- a Values subject to rounding.
 - Emissions data are not included in the EDMS.
- SOURCE: KB Environmental Sciences, 2009.

Surface Vehicle Emissions

The No Action Alternative assumes that no project would be built. Since the proposed area of development associated with the Proposed Action Alternative is currently undeveloped, there would only be minimal off-road surface vehicle emissions associated with the No Action Alternative.

The No Action Alternative assumes that no project is built and since the site is currently undeveloped there would be minimal surface vehicle emissions associated with the No Action Alternative.

For the Proposed Action Alternative, on-road motor vehicle emissions for the year 2030 were calculated using data from the EDMS. The total emissions attributable to this source were obtained by multiplying default EDMS emission factors for the year of analysis – 2030 - (in grams per vehicle-mile) by the forecast annual surface traffic volume and an assumed average trip length. EDMS derives motor vehicle emission factors from the integrated EPA emission rate model named MOBILE (Version 6.2). [The forecast level of traffic on a daily basis in 2030 was estimated to be 46,709 vehicles. The average round-trip length was estimated to be 20.72 miles, and the average vehicle speed was estimated to be 35 miles-per-hour. MOBILE’s default surface vehicle fleet mix (cars, trucks, busses etc.) was used (see Section 6.16 and associated appendix items for traffic forecasts used in this analysis). [The number of surface vehicles estimated for the analysis represents the increased number of surface vehicles/trips that are anticipated to occur with the Proposed Action Alternative at OIA. The result of this analysis is shown in Table 6.2-5.

Comment [VL27]: Again what forecasts are used. And there is no conclusion regarding where surface traffic would cause any air quality issues.

Comment [sbb28R27]: Traffic forecast reference has been added.

TABLE 6.2-5
2030 PROPOSED ACTION ALTERNATIVE AIR POLLUTANT/POLLUTANT
PRECURSOR EMISSION INVENTORIES/INVENTORY

Source	Mode	TONS per during year 2030 ^a					
		CO	VOC	NO _x	SO _x	PM ₁₀	PM _{2.5}
Roadways	na	1,901	121	122	4	11	5
Total		1,901	121	122	4	11	5

a Values subject to rounding.
SOURCE: KB Environmental Sciences, 2009.

Potential Facility Compliance Requirements

It should be noted that the Proposed Action Alternative is anticipated to include aviation manufacturing and maintenance facilities in the proposed ~~xxxx~~ 1,325 acre development area. Therefore, it is possible that these facilities will be required to comply with new and pending EPA rulemaking regarding greenhouse gases (GSGs) and O₃. New facilities in the Proposed Action Alternative development area would also have to comply with the so-called “Tailoring Rule” (also currently in the Proposed Rulemaking phase) if they emit 25,000 metric tons or more of CO₂ per year. This could be achieved by obtaining a permit to ensure the Best Available

Comment [AN29]: Add size of development area

Comment [sbb30R29]: Information added.

Control Technology (BACT) for GHG emissions are implemented during construction (or as part of a major re-construction of such facilities). ~~It should be noted that the proposed development is projected to include aviation manufacturing and maintenance. If this is the case, it is possible that the facilities will be required to comply with new and pending EPA rulemaking regarding greenhouse gases (GSGs). Such monitoring and reporting applies to facilities emitting 25,000 metric tons of CO2 equivalents (CO2e) or more per year, and for facilities such as manufacturers of aircraft and other engines. New facilities in the East Airfield Development Area would also have to comply with the so-called "Tailoring Rule" (currently in Proposed Rulemaking) if they emit 25,000 metric tons or more of CO2e per year by obtaining a permit to ensure the Best Available Control Technology (BACT) for GHG emissions are implemented at construction (or as part of a major re-construction of such facilities).~~

6.2.2 Mitigation

No significant air quality impacts would occur in 2030 as a result of the Proposed Action Alternative, therefore no mitigation measures are warranted. No significant air quality impacts occur as a result of the Proposed Action; thus no mitigation is required. It should be disclosed that if the project area would be designated non-attainment in the future, the Proposed Action development would likely be required to provide this analysis or additional information related to the development of the project to be incorporated into the preparation of the area's Attainment Demonstration and the SIP.

6.2.3 Environmental Impact Determination

TABLE 6.2-6
SUMMARY OF AIR QUALITY IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a <u>Does alternative meet or exceed the significance Threshold</u>	<u>Does the alternative meet or exceed the Significance Threshold?</u>
No Action	Project exceeds one or more of the National Ambient Air Quality Standards (NAAQS) NO	No
Proposed Action	Project exceeds one or more of the National Ambient Air Quality Standards (NAAQS) NO	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.
SOURCE: ESA Airports, 2009

Comment [VL31]: Should this be before or after the Mitigation discussion? Also – the table is difficult to interpret - there needs to be another Column added that states the Alternatives' analysis results vs the Significance Threshold. A simple "Yes" and "No" should be inserted as appropriate. IE. Does the Alternative meet the stated Significance Threshold ? Yes = "X" under the Significant Impact or Significant Impact with Mitigation columns. No = an "X" under the No Significant Impact column.

Comment [sbb32R31]: The Environmental Impact Determination has been modified as directed. There is now a column that states "Does the alternative meet or exceed the significance threshold" with a response of "yes" or "no."

It should be noted that this determination includes the evaluation of the impact analysis and any proposed mitigation measures prior to the determination of whether the alternative meets or exceeds the significance threshold ("yes" or "no").

6.3 Biotic Resources

Biotic resources are described as "various types of flora (plants) and fauna (fish, birds, reptiles, amphibians, marine mammals, coral reefs, etc.) in a particular area."⁹ This section provides the analysis for the affect of the No Action Alternative and the Proposed Action Alternative on biotic resources. Wetlands ~~and~~; federally-listed species are addressed in Sections 6.20 and 6.8 respectively. ~~and state listed species that are also federally listed species are not included in this section. Wetlands are addressed in Section 6.20 while federally listed species and state listed species that are also federally listed are addressed in Section 6.8.~~

⁹ Environmental Desk Reference for Airport Actions Chapter 2 (1) (a), October, 2007

Applicable statutes for biotic resources include agency coordination mandates, guidance documents, and several Acts with their corresponding Code of Federal Regulation (CFR) sections for implementation. **Table 6.3-1** provides an overview of those regulations.

**TABLE 6.3-1
 FEDERAL STATUTES AND REGULATIONS APPLICABLE TO BIOTIC RESOURCES**

Applicable Statute	Oversight Agency	Description
16 USC Section 662(a) Fish and Wildlife Coordination Act (FWCA)	USFWS	FAA must coordinate with USFWS if a stream or body of water may be affected.
60 Federal Register (FR) 40837 or 60 FR 6183	US EPA	Provides guidance for implementing the Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federally Landscaped Grounds.
Executive Order 13112 Invasive Species, 64 FR 6183	DOI, USDA, DOT	Federal agencies should determine if actions will affect the status of invasive species and not authorize or fund projects that would introduce or spread invasive species.
49 USC Section 47106 (c) (1) (B)	FAA	Applies to the application of an airport to develop a new airport, new runway or major runway extension.
Magnuson-Stevens Fishery Conservation and Management Act of 1976m 16 USC Section 1855 (b)(2), and 50 CFR Part 600	NMFS	The National Marine Fisheries Service (NMFS) consultation is required when an action involves "essential fish habitat" and protected anadromous fish species.
Migratory Bird Treaty Act of 1918, 16 USC Sections 703-711, and 50 CFR Part 10	USFWS	Migratory bird species and their nests are protected under this regulation. Under these guidelines, a permit is required to take a migratory bird or nest from USFWS.
Marine Mammal Protection Act of 1972, 16 USC Sections 1361-1421, and 50 CFR Part 18	NMFS	Marine mammals are protected under this regulation and coordination with NMFS is required if an impact may occur.
Executive Order 13089, Coral Reef Protection, 63 FR 32701	NOAA	If the federal action would have an affect on the health, heritage, social, or economic value of the coral reef ecosystem, the FAA is required to coordinate with the National Oceanic and Atmospheric Administration (NOAA)

SOURCE: FAA Environmental Desk Reference for Airport Actions (October, 2007), ESA Airports, 2009

16 USC Section 662(a) Fish and Wildlife Coordination Act (FWCA) mandates that the FAA coordinate with the USFWS if water bodies, including wetlands, will be impacted. This coordination has been initiated through this EA process. GOAA's submitted an application to of the USACE for an individual permit on September 18, 2006 [Application No. SAJ-2006-2640 (IP-JSC)]. T and the USACE's published a subsequent public notice issued on February 5, 2007. The application and public notice initiated coordination with the USFWS. On February 6, 2007 the USACE submitted a request to the USFWS for consultation regarding the wood stork (*Mycteria americana*) under Section 7 of the Endangered Species Act. The USFWS issued its concurrence with the USACE determination of may affect not likely to adversely affect the wood stork on January 6, 2010. No other comments were received from the USFWS. the 404 permit process with the USACE. The USFWS comments on the 404 permit process. Further information related to federally listed species is presented in Section 6.8.

Comment [VL33]: Update
Comment [sbb34R33]: Information updated

The FAA is also tasked with coordinating with the appropriate state agencies for potential biotic resource impacts not associated with those water bodies. This coordination has occurred through the

submittal of the Early Notification Package to the Florida Department of Environmental Protection in 2009. Comments received from state agencies have been addressed and are provided in Volume 3 of this EA. In addition, an application for a Conceptual Environmental Resource Permit (Application No. 060331-11) was submitted to the South Florida Water Management District (SFWMD). The SFWMD coordinates with other state agencies through its permit review and requests comments on the application. The Florida Fish and Wildlife Conservation Commission (FWC) is the state agency with primary responsibility for fish and wildlife resources. The Florida Department of Agriculture and Consumer Services has primary responsibility for plant resources. will be conducted through the EA process. Specific to this project, GOAA has coordinated with Florida Fish and Wildlife Conservation Commission (FWCC) related to state listed wildlife species and the South Florida Water Management District relating to impact to water bodies (including wetlands). This coordination has occurred through the submittal of the South Florida Water Management District Environmental Resource Permit (ERP) conceptual permit application (Application No. 060331-11).

Comment [VL35]: update

Comment [sbb36R35]: Information updated

60 FR 40837 focuses on the sustainable design, implementation, and maintenance of landscaping material on federal grounds. Under NEPA, federal actions (approvals or funding) are mandated to consider the environmental effect of their actions. There is a Development of the landscaping component to this project of the Proposed Action which will need to include consideration and integration of applicable guidance associated with the Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federally Landscaped Grounds as noted in the above table. There are also local landscaping requirements found within the City of Orlando Design Criteria within Chapter 60 Subdivision and Landscaping. Within Chapter 60, Section 60.230 General Requirements state:

“Purpose of Landscape Design Standards. The Landscape Design standards are intended to protect the public health, safety and welfare by promoting the preservation of existing trees and native plant communities, furnishing an approved list of plants specifically adapted to Central Florida, promoting site specific placement of plant species, and incorporating xeriscape principles into landscape and irrigation design to conserve the potable water supply. All landscaping within the corporate limits of Orlando shall be designed, installed, and maintained in conformance with this Part.”

Executive Order 13112 Invasive Species requires the federal agencies to identify projects or actions that may introduce or promote the spread of invasive species. The Proposed Action area does contain multiple invasive species plant types that are currently scattered throughout the natural areas and pasture lands. There is not currently a requirement to eliminate or manage exotic species in this area. The Proposed Action Alternative would eliminate most if not all vegetation currently existing in the Proposed Action area.

The Magnuson-Stevens Fishery Conservation and Management Act of 1976, Marine Mammal Protection Act of 1972, Executive Order 13089, Coral Reef Protection, and their applicable implementation regulations are considered to be “not applicable” to this project. The Proposed Action area is not within the regulatory areas of marine habitats nor does the Proposed Action have the potential to affect tidally influenced areas.

49 USC Section 47106 (c) (1) (B) applies to new airports, runway, or major runway extensions and requires that the FAA make a determination regarding significant adverse impacts to natural resources. 49 USC Section 47106 (c) (1) (B) is not applicable to the Proposed Action since it does not involve any of these actions.

Under the Migratory Bird Treaty Act of 1918 (16 USC Sections 703-711), “any migratory bird, any part, nest, or eggs of any such bird” is afforded protection from “any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export...” There is a potential for occurrence of species protected under the Migratory Bird Treaty Act within the Proposed Action area.

The bald eagle is protected by the USFWS under provisions of the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (effective August 9, 2007). Recovery goals have been achieved for this species; therefore, the bald eagle is no longer listed or protected as a “threatened” species under the Endangered Species Act of 1973, as amended. The USFWS has implemented National Bald Eagle Management Guidelines (National Guidelines) (May 2007) to assist private landowners and others plan land-use activities in proximity to active bald eagle nests by using measures that will minimize the likelihood of causing “disturbance” to nesting bald eagles, as defined under the BGEPA. The FWC also removed the bald eagle from classification and protection as a “threatened” species under Florida Rule and implemented a Florida Bald Eagle Management Plan (Florida Plan) (effective May 9, 2008). The Florida Plan includes Florida Bald Eagle Management Guidelines (Florida Guidelines) and permit provisions.

6.3.1 Impact Analysis

This section provides an impact analysis of biotic resources for the Proposed Action and ~~no~~ [No Action](#) alternative. This section also includes the impact analysis for state and local-listed species. The impact analysis for Federally-listed species is provided within Section 6.8 of this document. Wetland impact analysis is detailed in Section 6.20.

FAA Order 1050.1E Appendix A establishes significance thresholds for biotic resources under Section 8 *Fish, Wildlife, and Plants*. The significant thresholds described in this order, under this section include both federally-listed species and non-federally-listed species. As it applies to non-federally-listed species, the significance thresholds for this section include consideration of the following:

- Action effect on population dynamics;
- Action effects on sustainability and reproduction rates;
- Natural and artificial mortality (aircraft strikes); [and](#)

- The minimum population size needed to maintain the affected populations.¹⁰

Biologists compiled data from the following databases and resources to determine the state listed protected species that could occur on the project site based on a record for the particular species reported for Orange County:

- Endangered and Threatened Species of the Southeast United States (The Redbook)
- Florida Endangered Species, Threatened Species, and Species of Special Concern, FWC (2004)
- Field Guide to the Rare Animals of Florida, Florida Natural Areas Inventory, FDOT (2001)
- Field Guide to the Rare Plants of Florida, Florida Natural Areas Inventory, FDOT (2001)
- Atlas of Florida Vascular Plants: <http://www.plantatlas.usf.edu>
- County Distribution and Habitats of Rare and Endangered Species in Florida, Florida Natural Areas Inventory (1997).
- The Birdlife of Florida. Stevenson, Henry M. and Bruce H. Anderson. 1994. University Press, Gainesville, FL.

Biologists then examined aerial photographs and Florida Land Use, Cover and Forms Classification System (FLUCFCS) maps and conducted on-site surveys to determine the likelihood that particular species utilized the project site. The likelihood of occurrence listed is based on a comparison of the known habitat used by the listed species and the habitats found within the overall project site, the quantity, quality, and adjacency of these habitats, as well as observations of any taxa during field reconnaissance. The likelihood for occurrence for listed species was rated as high, moderate, low, unlikely, or not applicable based on knowledge of a species' habitat preference and site conditions. A likelihood of occurrence given as "unlikely" indicates that no, or very limited, habitat suitable for this species exists on-site, but the site is within the documented range of the species; "not applicable" indicates that the habitat for this species does not exist on-site or adjacent to the site and/or the site is not within the documented range of the species. The likelihood of occurrence will be indicated in the threatened and/or endangered table as "Observed" for those listed species that were actually observed on the project site during field investigations. In addition, annual surveys for listed protected species are conducted on behalf of GOAA by Environmental Management & Design. The table listing the likelihood of occurrence also includes records of observations from those survey reports from 2003 – 2007.

No Action Alternative

The No Action Alternative would not change the existing conditions or habitats. Therefore, no biotic resource impacts would be expected.

¹⁰ Environmental Desk Reference for Airport Actions Chapter 2 (7) (a), October, 2007.

Proposed Action Alternative

Habitat

The land cover descriptions of the Proposed Action including habitat descriptions are found within Section 5.4.2. The Proposed Action would impact all existing land use covers and habitats within the project site. This includes permanent impacts to approximately 1,325 acres of airport property. As described in section 5.4.2, there are approximately 986 acres of uplands on the site which includes pasture areas, sod farming areas, disturbed airport areas, pine flatwoods, shrub and brushland, palmetto prairies, and hardwood-coniferous areas. The predominate upland areas are pasture areas that are actively used for cattle grazing (see **Figure 6.3-1 a & b**). The Proposed Action would also permanently impact all wetlands and surface water areas on-site (wetland impacts are discussed in Section 6.20). As described in section 5.4.2, wetland communities comprise approximately 337 acres of the site of which approximately 74 acres are considered to be surface waters. The predominate wetland area is comprised of approximately 170 acres of cypress which is located in the northeast and eastern portions of the Proposed Action area (see **Figure 6.3-1 a & b**). There are no designated rare or uncommon habitat types within the Proposed Action area.

Under the guidelines of FAA's Environmental Desk Reference for Airport Actions¹¹, a "major permanent habitat change determination" should be evaluated for the following criteria:

- Is the affected habitat critical to the area's ecological stability?
- Does the affected habitat support species or populations not commonly found in the affected or surrounding area?
- Does the affected habitat comprise a large percentage of a particular habitat type occurring in the affect or surrounding area?
- Will the action permanently remove the affected area's biotic community from a portion of the habitat it currently uses or will the community leave the affected habitat for a long-term (i.e., 8-10 years)?

The Proposed Action's impact to the upland and wetland habitats within the Proposed Action area would not affect habitat critical to the area's ecological stability ~~nor does it affect~~ species that are not commonly found in the surrounding area. Pasturelands, wetland systems (including numerous cypress systems), and surface water similar to those in the Proposed Action area are all found within close proximity to the Proposed Action site.

None of the land uses and habitat types in the Proposed Action area are unique in the regional setting, ~~and none nor do they~~ comprise a substantial percentage of the land use or habitat types available regionally. The largest percentage of land use type in the Proposed Action area is improved pasture which is primarily used for agricultural purposes and secondarily provides habitat for wildlife. Based on an assessment of on-site habitats, field observations of wildlife utilization of the Proposed Action area, and a comparison of on-site land use types with similar land use types occurring regionally (within 20 miles) along with other evidence, biologists have concluded that the Proposed Action will not exceed the significance thresholds for impact for non-federally listed species in accordance with FAA Order 1050.1E, Appendix A. (see **Table 6.3-2**)

¹¹ Environmental Desk Reference for Airport Actions Chapter 2 (6) (e) (1-4), October, 2007

**TABLE 6.3-2
ON-SITE HABITAT AND REGIONAL HABITAT COVERAGE COMPARISON**

FLUCFCS Code	Description	East Airfield Site		20 Mile Region		Percentage of East Airfield Land Area to 20 Mile Region
		Acreage	Percent Land Area	Acreage	Percent Land Area	Percent Land Area
211	Improved Pastures	661.06	49.9%	93,357.97	10.5%	0.7%
320	Shrub and Brushland	99.47	7.5%	17,284.01	1.9%	0.6%
411	Pine Flatwoods	126.39	9.5%	38,487.18	4.3%	0.3%
621	Cypress	170.91	12.9%	39,970.62	4.5%	0.4%
	Total	1,057.83	79.8%	892,348.50	21.2%	0.1%

a. Only major land use types are represented in this table
SOURCE: Breedlove Dennis & Associates, 2009

**Figure
6.3-1a SFWMD FLUCFCS Map**

Figure
6.3-1b SFWMD FLUCFCS Map

Plants

There are thirteen (13) state-listed plant species designated by the Florida Department of Agriculture & Consumer Services, Division of Plant Industry ([Chapter 5B-40 F.A.C.](#)) that have the potential to occur on site (see Table 5.4-2). Of these 13 species, no direct observations were made of these listed species during on-site inspections and various other surveys including listed wildlife species surveys and FLUCFCS mapping (29 field days between 2004-2007 by Breedlove, Dennis, and Assoc, Inc. and 21 field days between 2003-2007 by Environmental Management and Design). Each of the 13 listed plant species were deemed unlikely to occur within the project site.

Wildlife

There are twenty-seven (27) state-listed wildlife species that could potentially occur or utilize the Proposed Action area (see **Table 6.3-3**). State-listed species are designated under the Florida's State Endangered Species Act, FL ST § 379.2291 - 379.231 (formerly FL ST § 372.072 - 074). Rules and regulations related to the state-listed species are found within Florida Administrative Code Chapter 68A-27 (Updated [November 8, 2010](#)~~January 2009~~). Of the 27 state-listed species, there is one (1) amphibian, eighteen (18) avian, three (3) mammalian, and six (6) reptilian that have the potential to occur on site. Sixteen (16) of these species ~~that~~ have been determined to have a low or unlikely potential to occur on site. No further analysis will occur for those sixteen (16) species.

There are eleven (11) species that have been either observed or determined to have a moderate or high potential to occur in the Proposed Action area. Species that are [listed as federally endangered or threatened are state listed through designation by the FWC and federally listed by the USFWS](#) ~~will be~~ addressed in Section 6.8. [Species that listed as state threatened or species of special concern](#) ~~The species that are solely state listed~~ and have either been observed on the site or have a moderate or high potential to occur on the site are described below.

Limpkin, little blue heron, tricolored heron, white ibis, snowy egret are all wading birds found throughout Florida in and around wetland and surface water habitats like those found in or near the Proposed Action area. Under Florida's Endangered Species Act, these species are designated as Species of Special Concern (SSC).

The **limpkin** (SSC) is a relatively large, long-billed, long-legged wading bird found in a variety of wetland habitats including mangroves, freshwater marshes, swamps, springs, ponds, and river runs as well as lake margins. It may also be found in manmade features such as drainage canals and ditches. It utilizes a variety of nesting sites which include mounds of aquatic vegetation or marsh grasses as well as tree tops. The Limpkin has been observed in the Proposed Action area however, nesting has not been documented.

The **little blue heron** (SSC) is a medium sized heron which forages in shallow freshwater, brackish, and saltwater habitats. Nests are generally constructed in woody vegetation and ~~at this species~~ most commonly nests in mixed-species colonies. The Little Blue Heron has been observed in the Proposed Action area however, ~~at~~ nesting has not been documented.

**TABLE 6.3-3
LISTED WILDLIFE SPECIES THAT COULD OCCUR WITHIN THE PROPOSED ACTION AREA**

Common Name	Scientific Name	Habitat of Occurrence	Likelihood of Occurrence	Designation Status ¹	
				USFWS ²	FWC ³
Amphibians					
Gopher Frog	<i>Rana capito</i>	Sandhills with turkey and bluejack oaks; sand pine scrub, in and around gopher tortoise burrows.	Low		SSC
Birds					
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	Oak scrub with shrubs of live, myrtle, and Chapman's oaks, palmettos and sand pine.	Unlikely	T	<u>FT</u>
Limpkin	<i>Aramus guaranauna</i>	Slow moving freshwater streams and rivers, swamps, marshes and lakeshores.	Observed		SSC
Kirtland's warbler	<i>Dendroica kirtlandii</i>	Migrant in Florida in a variety of habitats.	Low	E	<u>FE</u>
Little blue heron	<i>Egretta caerulea</i>	Shallow freshwater, brackish, and saltwater habitats.	Observed		SSC
Snowy egret	<i>Egretta thula</i>	Ponds, stream banks, marshes, and pastures.	Observed		SSC
Tricolored heron	<i>Egretta tricolor</i>	Ponds, stream banks, marshes, and pastures.	Observed		SSC
White ibis	<i>Eudocimus albus</i>	Freshwater, brackish, and saline environment.	Observed		SSC
Southeastern American kestrel	<i>Falco sparverius paulus</i>	<i>Pine flatwoods, dry prairies.</i>	Low		<u>ST</u>
Florida sandhill crane	<i>Grus canadensis pratensis</i>	Wet prairies, marshy lake margins, and low-lying improved cattle pastures.	Observed		<u>ST</u>
Wood stork	<i>Mycteria americana</i>	Wetlands; nesting in cypress swamps.	Observed	E	<u>FE</u>
Red-cockaded woodpecker	<i>Picoides borealis</i>	Pinewoods with mature to overmature pines.	Unlikely	E	<u>FE</u> SSC
<u>Everglades</u> Snail kite	<i>Rostrhamus sociabilis plumbeus</i>	Marsh with distant horizon and low vegetative profile.	Low	E	<u>FE</u> /CH
Florida burrowing owl	<i>Athene cucularia floridana</i>	High sandy ground with little growth, particularly prairies, sandhills, and pastures, and on prairie-like expanses of airports, industrial plants, and campuses.	Low		SSC
Least tern	<i>Sterna antillarum</i>	Open, flat beach with coarse sand or shell. Nests seaward of vegetation.	Unlikely		<u>ST</u>
Bachman's warbler	<i>Vermivora bachmanii</i>	Variety of woodlands, usually in lowlands.	Unlikely	E	<u>FE</u>
Mammals					
Florida mouse	<i>Podomys floridanus</i>	Xeric sand pine scrub in early succession, and longleaf pine/turkey oak.	Low		SSC
Sherman's fox squirrel	<i>Sciurus niger shermani</i>	Sandhills in longleaf pine/turkey oak associations, sand pine scrub and live oak hammocks.	Low		SSC
Florida black bear	<i>Ursus americanus floridans</i>	Swamps, bays, and thickets.	Unlikely		<u>ST</u>
Reptiles					
American Alligator	<i>Alligator mississippiensis</i>	Wetlands, lakes, and streams	Observed	T(S/A)	<u>FT(S/A)</u> <u>SC</u>
Eastern indigo snake	<i>Drymarchon couperi</i>	Pine flatwoods, tropical hammocks.	Low to Moderate	T	<u>FT</u>
Gopher tortoise	<i>Gopherus polyphemus</i>	Xeric; sand pine, longleaf pine, turkey oak, and live oak hammocks and sand pine scrub.	Observed		<u>ST</u>
Sand skink	<i>Neoseps reynoldsi</i>	Loose sand on high elevation, central Florida ridges; sand pine scrub.	Unlikely	T	<u>FT</u>
Florida pine snake	<i>Pituophis melanoleucus mugitus</i>	Sandy habitats, particularly longleaf pine/turkey oak associations.	Moderate		SSC
Short-tailed snake	<i>Stilosoma extenuatum</i>	Longleaf pine/turkey oak association; occasionally in upland hammock and sand pine scrub.	Unlikely		<u>ST</u>

1 E= endangered, T= threatened, SSC= species of special concern, CH= critical habitat has been designated

2 US Fish and Wildlife Service

3 Florida Fish and Wildlife Conservation Commission

SOURCE: Breedlove Dennis & Associates, Environmental Management & Design

The **tricolored heron** (SSC) is a medium sized heron with a slender neck. It commonly feeds in permanently and seasonally flooded wetlands, mangrove swamps, tidal creeks, ditches, and pond and lake margins. Most nesting occurs in colonies on mangrove islands or in freshwater willow thickets. The Tricolored Heron has been observed in the Proposed Action area; however, nesting has not been documented ~~nor does~~ the preferred nesting habitat does not occur on the Proposed Action area.

The **white ibis** (SSC) is a medium sized wading bird with a long downward curving bill. It is found in a variety of habitats including freshwater and brackish marshes, salt flats, forested wetlands, wet prairies, swales, seasonally inundated fields, and man made ditches. Nesting sites are highly variable but are colonial. The White Ibis has been observed in the Proposed Action area however; nesting has not been documented.

The **snowy egret** (SSC) is a medium sized white wading bird with bright yellow feet. It is found in a variety of habitats including seasonally and permanently flooded wetlands, streams, lakes, swamps, man made ponds and ditches. Nesting sites are usually in woody shrubs especially mangroves or willows and most often over shallow water or on islands separated from the shoreline by water. The Snowy Egret has been observed in the Proposed Action area; however, nesting has not been documented.

The **Florida sandhill crane** (ST) is a resident, breeding, non-migratory subspecies of sandhill crane (*Grus canadensis*). The greater sandhill crane (*Grus canadensis tabida*) also occurs in Florida as a wintering migrant, arriving in Florida during October and November and beginning spring migration in late February.¹² Florida sandhill cranes nest in shallow, emergent palustrine wetlands, particularly those dominated by pickerelweed (*Pontederia cordata*) and maidencane (*Panicum hemitomon*). Core nesting territories within home ranges vary from approximately 300 acres to 625 acres and are aggressively defended from other cranes (*Grus* spp.).¹³ They feed in a variety of open, upland habitats, mostly prairies, but also human-manipulated habitats such as sod farms, ranchlands, pastures, golf courses, airports, and suburban subdivisions.¹⁴ Home ranges of individual pairs overlap with those of adjacent pairs; and average approximately 1,100 acres. Sandhill crane nests were documented in the Proposed Action area in 2004 and 2005; however, none were documented in the 2007 survey.

The **gopher tortoise** (ST) is a medium sized turtle fully adapted to life on land. It is typically found in dry upland habitats including sandhills, scrub, xeric oak and dry pine flatwoods. It also is commonly found in disturbed sites including pastures, old fields, and roadsides. The gopher tortoise excavates burrows used as refuge from predators, weather, and fire. Many other species are often found in association with gopher tortoise burrows. Gopher tortoises have been observed on the Proposed Action area in the pine flatwoods on site.

The **Florida pine snake** (SSC) is a large, stocky, tan or rusty colored snake with an indistinct pattern of blotches on a lighter background. It is found in open canopies and in relatively dry sandy

¹² Stys 1997

¹³ Wood 2001

¹⁴ Nesbitt 1996, Wood 2001

soil where it burrows. Its habit is primarily fossorial therefore, observations are rare. It has not been observed in the Proposed Action area however its presence is considered moderate in the pine flatwoods and adjacent uplands on the project area.

The **bald eagle**, while not state or federally-listed is protected under both the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The bald eagle is protected by the USFWS under provisions of the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (effective August 9, 2007). Mitigation/best management practices for species protected under the Migratory Bird Treaty Act are found in section 6.3.2. Recovery goals have been achieved for this species; therefore, the bald eagle is no longer listed or protected as a “threatened” species under the Endangered Species Act of 1973, as amended. The USFWS has implemented National Bald Eagle Management Guidelines (National Guidelines) (May 2007) to assist private landowners and others plan land-use activities in proximity to active bald eagle nests by identifying measures that will minimize the likelihood of causing “disturbance” to nesting bald eagles, as defined under the BGEPA. The FWC also removed the bald eagle from classification and protection as a “threatened” species under Florida Rule and implemented a Florida Bald Eagle Management Plan (Florida Plan) (effective May 9, 2008). The Florida Plan includes Florida Bald Eagle Management Guidelines (Florida Guidelines) and permit provisions.

The FWC Bald Eagle Nest Database was reviewed to determine the locations of all nests that occur on or in close proximity to the project site. The FWC database does not include any records of a bald eagle nest on or within 660 feet of the Proposed Action area. The nearest recorded bald eagle nest, is located approximately 1.52 miles west of the Proposed Action area (see **Figure 6.3-2**), and it was last active during the 2008-2009 nesting season. Project activities occurring beyond 660 feet from active bald eagle nests will be in compliance with both the National Guidelines and the Florida Guidelines. Given there are no recent records of bald eagle nests within 660 feet of the Proposed Action area, activities in the Proposed Action area are not expected to adversely affect bald eagles.

6.3.2 Mitigation

Based on the significance criteria established by the FAA, the impacts resulting from the Proposed Action would not be considered significant under NEPA. However, in coordination with agency requirements and to address public comments, GOAA commits to the following actions and best management practices (BMPs).

Gopher Tortoise GOAA holds a valid Incidental Take Permit (ORA-80) authorizing the take of gopher tortoises, their eggs and their burrows within its development boundaries. The permit states that the criteria of Rule 39-27.002(4), F.A.C. have been satisfied therefore the taking as conditioned in the permit will not be detrimental to the survival potential of the species. The eastern indigo snake, state-listed threatened, is closely associated with gopher tortoises and other burrowing animal species habitats since it may utilize their burrows. Since the eastern indigo snake is also a federally-listed species, more information regarding this species can be found in Section 6.8.

Figure
6.3-2 Bald Eagle Nest Location

Sandhill Crane Sandhill cranes have nested in the Proposed Action area in the past, therefore, prior to any proposed construction, a survey for active sandhill crane nests will be conducted. Should any nests be located, coordination with the FWC will be implemented to determine the appropriate management plan to avoid adverse impacts to sandhill cranes or their nests.

State-listed Wading Birds The state-listed species of special concern: limpkin, little blue heron, tricolored heron, white ibis, and snowy egret are all protected under state law (Chapter 68A-27.005 F.A.C.). No nests of these species have been previously documented in the Proposed Action area and activities on the Proposed Action area associated with development are not expected to result in the take of any listed wading birds, their parts, or the nests or eggs thereof, therefore no mitigation is proposed. Prior to construction a survey for active nests of these listed wading birds will be conducted. Should any active nests of listed species of wading birds be identified, coordination with the FWC will be implemented to determine the appropriate management strategy. Please see Section 6.8 for a discussion regarding mitigation for the federally listed and state listed wood stork.

Best Management Practices (BMPs) The following BMPs are proposed to avoid adverse impacts on the biotic resources for the Proposed Action:

- To the extent practicable, development activities in the Proposed Action areas will be undertaken outside the nesting season of listed wading bird species and Florida sandhill cranes that are nesting on the Proposed Action area unless otherwise provided by law.
- Prior to undertaking development activities in the Proposed Action area that could adversely affect listed protected species, a biologist familiar with the habitats and habits of the listed protected species will inspect areas proposed for development to determine if proposed development activity would take a listed species, the parts thereof, or their nests or eggs. Coordination with the FWC will be implemented as required by law.

6.3.3 Environmental Impact Determination

TABLE 6.3-4
SUMMARY OF BIOTIC RESOURCES IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	<u>Does the alternative meet or exceed the Significance Threshold?</u>
No Action	Action effect on population dynamics	No
	Action effects on sustainability and reproduction rates	No
	Natural and artificial mortality	No
	The minimum population size needed to maintain the affected populations	No
Proposed Action	Action effect on population dynamics	No
	Action effects on sustainability and reproduction rates	No
	Natural and artificial mortality	No
	The minimum population size needed to maintain the affected populations	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.

SOURCE: ESA Airports, 2009

6.4 Coastal Zone Management

The Coast Zone Management Program (CZMP) is administered by the FDEP under the Florida Coastal Management Program (FCMP). The FDEP has the authority to review federal actions within a coastal zone.

6.4.1 Impact Analysis

FAA Order 1050.1E states that the FAA is required to coordinate with the local Coastal Zone Management agency to review the consistency of the Proposed Action with the agency's CZMP. The entire state of Florida falls within the designated coastal zone of the FCMP. There are various elements of the Florida Statutes that require review to determine consistency with the FCMP.

There are no significance thresholds established under FAA Order 1050.1E for this environmental impact category.

No Action Alternative

The No Action alternative would not result in the construction of additional facilities; therefore, no impacts would be expected.

Proposed Action Alternative

Table 6.4-1 provides a list of applicable Florida Statutes that were reviewed for consistency in regards to FDEP's FCMP regulation.

**TABLE 6.4-1
 FCMP STATE STATUTE CONSISTENCY**

Statute	Consistency
Chapter 161 <i>Beach and Shore Preservation</i> authorizes the Bureau of Beaches and Coastal Systems within Florida Department of Environmental Protection (FDEP) to regulate construction on or seaward of the States' beaches.	Construction of the Proposed Action would not occur on or seaward of any state beach.
Chapter 163, Part II <i>Growth Policy: County and Municipal Planning; Land Development Regulation</i> requires the local governments to prepare, adopt and implement comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.	The Proposed Action would be implemented in accordance with local governments' comprehensive plans that encourage the most appropriate use of land and natural resources in a manner consistent with the public interest.
Chapter 186 <i>State and Regional Planning</i> Details State-level planning requirements, requires the development of special statewide plans governing water use, land development, and transportation.	The Proposed Action will be developed in accordance with any special statewide plans governing water use, land development, and transportation.
Chapter 252 <i>Emergency Management</i> provides for planning and implementation of the State's response to, efforts to recover from, and the control of natural and manmade disasters.	The Proposed Action does not increase the State's vulnerability to natural disasters. Emergency response and evacuation procedures would not be impacted.
Chapter 253 <i>State Lands</i> Addresses the State's administration of public lands and property of this State and provides direction regarding the acquisition, disposal, and management of all State lands.	Any impacts due to the Proposed Action would adhere to the State's direction regarding the management of all State lands.

**TABLE 6.4-1
FCMP STATE STATUTE CONSISTENCY**

Statute	Consistency
Chapter 258 <i>State Parks and Preserves</i> Addresses administration and management of state parks and preserves (Chapter 258). Chapter 259 <i>Land Acquisition for Conservation or Recreation</i> authorizes acquisition of environmentally endangered lands and outdoor recreation lands (Chapter 259). Chapter 260 <i>Recreational Trails System</i> Authorizes acquisition of land to create a recreational trails system and to facilitate management of the system (Chapter 260). Chapter 375 <i>Multipurpose, Outdoor Recreation, Land Acquisition, Management, and Conservation</i> Develops a comprehensive multipurpose outdoor recreation plan to document recreational supply and demand, describe current recreational opportunities, estimate need for additional recreational opportunities, and propose means to meet the identified needs (Chapter 375).	No direct impacts would occur to State parks, recreational areas, and aquatic preserves due to implementation of the Proposed Action. State tourism and outdoor recreation areas owned and operated by the State would not be affected. Opportunities for recreation on State lands would not be affected.
Chapter 267 <i>Historical Resources</i> Addresses management and preservation of the State's archaeological and historical resources.	The Proposed Action will not affect any historic properties that are eligible or potentially eligible for listing on the National Register of Historic Places (NRHP) as historic districts or individual structures. The Proposed Action will not adversely affect any archaeological resources that are eligible or potentially eligible for listing on the NRHP.

SOURCE: FAA, Orlando ADO, ESA, 2009, DMJM Aviation-AECOM, 2009

6.4.2 Mitigation

No impacts as a result of the Proposed Action are expected to occur; thus no mitigation is required. [The SFWMD ERP permit issued August 30, 2010 \(48-00063-S-03\) states the following \(SFWMD Permit Modification No. 48-00063-5-03\):](#)

[“The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.”](#)

6.4.3 Environmental Impact Determination

No significance thresholds have been established for Coastal Zone Management and the Proposed Action is expected to be consistent with the Florida State Statutes in Table 6.4-1. Upon review of the Draft EA document, the FDEP made the following statement: “Based on the information contained in the Draft EA and enclosed state agency comments, the state has no objections to the allocation of federal funds for the referenced project and therefore, the funding award is consistent with the Florida Coastal Management Program (FCMP) (FDEP correspondence received November 19, 2009) A copy of the November 19, 2009 FDEP correspondence is provided in Appendix KK Therefore, no impacts are expected for the No Action Alternative or the Proposed Action Alternative. [The state determines final consistency during permit review. As noted above, the FDEP in comments on the SFWMD ERP permit determined final consistency with the FCMP in August 2010.](#)”

6.5 Compatible Land Use

As identified in Order 1050.1E, the compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport's noise impact. The FAA acknowledges that land use decisions are made at a local level but stresses the importance of land use decision making and the creation of applicable land use zoning, when necessary, to assure compatible land use with noise associated with aircraft departure, arrival, and normal airport operations.¹⁵

FAA Order 1050.1E also states that "the Airport Development Grant Program (49 USC 47101 et seq.) requires that a project may not be approved unless the Secretary of Transportation is satisfied that the project is consistent with plans (existing at the time the project is approved) of public agencies for development of the area in which the airport is located (49 USC 47106(a)(1)).¹⁶ Please refer to Section 5.3 Land Use for information regarding current land use plans.

Comment [VL37]: Only required if the airport sponsor is filing a project grant application for development. This is not a project that is being funded by AIP funds.

Comment [sbb38R37]: Noted

6.5.1 Impact Analysis

FAA Order 1050.1E describes the significance threshold for compatible land use to be when "a significant noise impact will occur over noise sensitive areas within the DNL 65 dB contour..."¹⁷ For noise, a significant impact results when an action, compared to the ~~no action~~ No Action alternative for the same timeframe, would cause noise sensitive areas located at or above DNL 65 dB to experience a noise increase of at least DNL 1.5 dB.

This noise analysis for the No Action Alternative and the Proposed Action Alternative is detailed in Section 6.16. FAA Order 1050.1E identifies that airport development actions can alter aviation-related noise impacts and affect land uses subject to those impacts. In this context, if the noise analysis concludes that there is no significant impact, a similar conclusion may be drawn with respect to compatible land use. In addition, if a project would result in other significant impacts having land use implications, the effects on land use may be described under the appropriate impact sections, with cross-references to the Compatible Land Use section as necessary to avoid duplication.

FAA Order 1050.1E also indicates that for airport actions, the compatible land use section shall include the sponsor's documentation to support that action has been or will be taken to restrict the use of land in the immediate vicinity of the airport to ensure that the land remain compatible with the normal operation of the airport. Section 5.4.4 includes a description of the Noise Overlay Zone that was implemented by Orange County and the City of Orlando that places requirements on development to ensure land uses remain compatible with the future operation of the airport.

Comment [VL39]: Only required if the airport sponsor is filing a project grant application for development..

Comment [sbb40R39]: Noted

The Airport Development Grant Program requires that a project may not be approved unless it is deemed consistent with public agency development plans in the vicinity of the Airport. The Aviation Authority has consulted with the local agencies regarding the Proposed Action's consistency with the planned land uses surrounding the airport (see Section 7.0).

Comment [VL41]: Only required if the airport sponsor is filing a project grant application for development..

Comment [sbb42R41]: Noted

¹⁵ FAA Order 1050.1E 4.1a and 4.1b

¹⁶ ~~FAA Order 1050.1E 4.1e~~

¹⁷ FAA Order 1050.1E 4.3

The noise analysis in Section 6.16 developed DNL contours for the entire airport for both the No Action Alternative and the Proposed Action Alternative. These contours were ~~utilized-used~~ to determine if noise sensitive land uses were located within the 65 DNL. If noise sensitive uses were located within the 65 DNL, then further analysis was completed to determine if the impact was determined to be significant (noise sensitive areas within the 65 DNL that experience a DNL 1.5 dB increase).

No Action Alternative

Two residential land uses, an apartment complex and a manufactured home community, are located within the 2030 No Action 65 DNL noise contour. These residential uses are located north of the airport, along the extended Runway 36L centerline, in the proximity of the intersection of Conway Road and Hoffner Avenue. It is estimated that a total of approximately 230 individuals will live within the limit of the 65 DNL in these two residential uses in 2030. A detailed description about these areas is included in the noise section (Section 6.16).

Proposed Action Alternative

The Proposed Action is forecast to increase the number of operations off all runways at the airport, particularly the use of Runway 17L-35R at the airport¹⁸. Accordingly, the 2030 Proposed Action DNL noise contours are larger than the 2030 No Action Alternative. The larger contours increase the number of residential units within the 65 DNL. This increase occurs at the apartment complex and manufactured home community described above. Additional residential lands north of the airport along the extended Runway 35R centerline also fall within the limit of the Proposed Action 65 DNL. This area includes approximately 16 single family homes located on Gentian Street and Brentwood Drive near the intersection of Narcoossee Road. It is estimated that approximately 40 persons reside within the 65 DNL in this area. This addition of 40 individuals, compared to the 2030 65 DNL No Action Alternative, brings the total number of individuals residing within the Proposed Action 65 DNL to 270. A detailed description related to these residential land uses is included in the noise section (Section 6.16).

~~A detailed noise analysis has been undertaken to determine if any of these residential land uses will experience a significant noise impact as a result of the Proposed Action.~~ The noise analysis, included in Section 6.16, demonstrates that these residential areas will experience an increase of DNL ~~0.8-9~~ dB or less as a result of the Proposed Action. This increase is below the level of significance established by the FAA (an increase of DNL 1.5 dB).

Comment [VL43]: Where is this?

Comment [sbb44R43]: Referenced removed. Information is provided in section 6.16 as stated in text.

6.5.2 Mitigation

No residential or other noise sensitive use within the 65 DNL will experience a significant impact as a result of the Proposed Action; thus no mitigation is necessary.

¹⁸ The Proposed Action alternative 2030 operations activity increase by 28,000 operations (see section 6.16 for further details on noise modeling.)

6.5.3 Environmental Impact Determination

TABLE 6.5.1
 SUMMARY OF COMPATIBLE LAND USE IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	<u>Does the alternative meet or exceed the Significance Threshold?</u>
No Action	Same threshold as noise - A DNL 1.5 dB increase at a noise sensitive use within the DNL 65 dB	No
Proposed Action	Same threshold as noise – A DNL 1.5 dB increase at a noise sensitive use within the DNL 65 dB	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.

SOURCE: ESA Airports, 2009, (add source information of reports used in analysis to determine if threshold was met)

6.6 Construction

Construction impacts, as defined under FAA Order 1050.1E, can involve a wide range of potential impact categories that are separately discussed in this document. These impact categories include; water quality, hazardous materials, and biotic resources (please refer to these specific sections for further details). FAA is mandated to ensure compliance with 40 CFR Part 122 National Pollution Discharge Elimination System (NPDES). FAA Order 1050.1E requires, at a minimum, the incorporation of the construction guidance found within FAA Advisory Circular 150/5370-10C (September 29, 2007) Standards for Specifying Construction at Airports.

6.6.1 Impact Analysis

As stated in FAA Order 1050.1E, “Construction impacts alone are rarely significant pursuant to NEPA. Refer to the water quality, hazardous materials, and biotic resources, and other relevant impact categories for further guidance in assessing the significance of the potential construction impacts.”¹⁹

No Action Alternative

The No Action Alternative would not include construction activities. Therefore, no construction related impacts would be expected.

Proposed Action Alternative

The Proposed Action does include construction activity within the Proposed Action area. These activities will include such activities as land clearing, earth moving, dredge and fill, construction of surface areas, and construction of building facilities, roads and aircraft parking aprons. 40 CFR Part 122.26 (a) (1) requires an NPDES permit for stormwater discharges due to construction activities disturbing at least 5 acres of land. GOAA will obtain required NPDES permits prior to

¹⁹ FAA 10501E Appendix A Section 5 5.3 Significant Impact Threshold.

construction activities in addition to SFWMD and USACE permits. To address the guidance in FAA AC 150/5370-10C, GOAA will incorporate these specifications as applicable to the Proposed Action's construction activity/construction documents.

Following the FAA's "Air Quality Procedures for Civilian Airports & Air Force Bases", the computation of construction-related emissions would be accomplished for informational purposes only and, because the type/scope of specific development in the project area is not known at this time, estimates of the types of construction equipment required and the length of time the equipment would be required are not possible to predict. Further, because there are no requirements to compute pollutant concentrations by dispersion modeling, the estimates would not be meaningful. [Future environmental analysis will include an assessment of construction related emissions.](#)

Comment [VL45]: Note that future environmental analysis will include an assessment of construction related emissions.

Comment [sbb46R45]: Text added

Noise exposure will also result from construction vehicles on site. The construction noise handbook published by the Federal Highway Administration lists various types of construction equipment and the noise levels they generate at 50 feet from the vehicles. Typically the noisier pieces of equipment on site would range from 80-85 dBA at the 50 foot distance. Equipment in this noise range would include, but not limited to backhoe, concrete mixer truck, dozer, dump truck grader, paver and scraper. To indicate a range of noise levels expected in the closest noise sensitive area (residential community south of the Proposed Action site) a drop off rate of noise with distance was analyzed. This rate is 6dBA per doubling of distance. For example a backhoe generating noise of 80dBA at 50 feet would generate 74 dBA at 100 feet, 68dBA at 200 feet, 62 dBA at 400 feet and 56dBA at 800 feet etc. Thus, construction noise would be heard during construction of the airport support areas along Dowden Road but construction noise from the remaining site (high intensity district) would be predominately below typical community background levels. These estimates should be considered conservative as additional noise reduction would result from atmospheric absorption and where dense vegetation and buildings may be located between the source of the noise (equipment) and the receiver (community). It should be noted that construction noise is short term and would end with the completion of the construction phase.

6.6.2 Mitigation

No mitigation is necessary. Best Management Practices that are established by the NPDES construction permit obtained for the Proposed Action Alternative would decrease potential impacts related to construction. All on-site construction activities will be conducted in accordance with FAA AC 150/5370-10, Standards for Specifying Construction of Airports, and by using best management practices (BMPs).

6.6.3 Environmental Impact Determination

No significance thresholds are established for this impact category. By acquiring an NPDES permit prior to construction activities, the Sponsor will adequately address the construction associated impacts evaluated under NEPA requirements.

6.7 Section 4(f) Resources

Section 4(f) of the Department of Transportation (DOT) Act, which was re-codified and renumbered as section 303 (c) of 49 U.S.C., states that the Secretary of Transportation will not approve any program that requires the use of any publicly owned land or park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, unless there is no feasible and prudent alternative to the use of such land and such program, and the project includes all possible planning to minimize harm resulting from the use.

6.7.1 Impact Analysis

To determine the number and location of Section 4(f) resources in the vicinity of the Airport, a survey was conducted that included potential 4(f) properties within one mile of the Proposed Action area, as well as any potential properties that would be located within the 65 DNL contour associated with the Proposed Action.

Based on the results of the survey, potential Section 4(f) resources in the vicinity of OIA include four public schools, a golf course, and a park; as shown in **Table 6.7-1** and **Figure 6.7-1**. No state historic resources or properties, state wildlife areas, or national wildlife refuges are located in the vicinity of the Proposed Action. Public schools are included in the Section 4(f) inventory due to their recreational areas.

**TABLE 6.7-1
POTENTIAL SECTION 4(F) PROPERTIES IN THE OIA VICINITY**

Section 4(f) Property Type
Park
Warren Park
School
Shenandoah Elementary School
Vista Lake Elementary School
Northlake Park Community School
South Creek Middle School

SOURCE: ESA, 2009

Section 4(f) resources can be directly or indirectly affected by a Proposed Action. In Section 4(f) nomenclature, a direct impact would constitute a “use” of the property and an indirect impact would constitute a “constructive use” of the property.

“Use” within the meaning of Section 4(f) is generally considered to occur when a Proposed Action requires a physical taking or other direct control of the land for the purpose of the Proposed Action, and as a consequence the use is changed. For example, acquiring and developing a portion of a park to build a transportation project would be considered a “use.” This use would be considered a direct impact of a Proposed Action.

“Use,” however, includes not only the physical taking of such lands but also adverse indirect impacts, or “constructive use,” of such lands. The term “constructive use” is described in 23 Code of Federal Regulations (CFR) Part 771.135 as follows: “Constructive use occurs when a transportation project does not incorporate land from a Section 4(f) resource, but the project’s proximity impacts are so severe that the protected activities, features, or attributes that qualify a resource for protection under Section 4(f) are substantially impaired.” Substantial impairment occurs only when the protected activities, features, or attributes of the resources are substantially diminished. When there is no physical taking but there is the possibility of use or impairment of Section 4(f) lands, the FAA must determine if the activity associated with the Proposed Action conflicts or is compatible with the normal activity associated with these lands.

In accordance with FAA Order 1050.1E, a significant impact would occur when a Proposed Action either involves more than a minimal physical use of a Section 4(f) property or is deemed a “constructive use” substantially impairing the Section 4(f) property and mitigation measures do not eliminate or reduce the effects of the use below the threshold of significance²⁰. Substantial impairment would occur when impacts to Section 4(f) properties are sufficiently serious that the value of the site in terms of its prior significance and enjoyment are substantially reduced or lost.

No Action Alternative

The No Action Alternative would not require the acquisition of any Section 4(f) resources in the OIA vicinity, therefore, no direct use of a Section 4(f) resource would occur pursuant to NEPA. Under the No Action Alternative, none of the Proposed Action components would be constructed; however, the number of operations per year is anticipated to increase, extending the 65 DNL contours. As shown in Figure 6.7-1, none of the potential Section 4(f) properties would be located in OIA’s 2030 65 DNL contours associated with the No Action Alternative.

Proposed Action Alternative

The Proposed Action alternative would have no direct impacts ~~nor~~ and would not result in takings ~~occur~~ of potential Section 4(f) properties in the vicinity of OIA. No indirect (constructive) impacts would occur to identified 4(f) properties in the vicinity of OIA since they are not located within the 65 DNL 2030 Proposed Action Alternative noise contour (see Figure 6.7-1).

6.7.2 Mitigation

As there are no direct or indirect impacts to potential Section 4(f) properties as a result of the No Action or Preferred Action alternatives, no mitigation is necessary.

²⁰ FAA Order 1050.1E Appendix A 6.3

Figure (11x17)

6.7-1 Potential Section 4(f) Properties in the Vicinity of OIA

[Back](#)

6.7.3 Environmental Impact Determination

TABLE 6.7-2
SUMMARY OF SECTION 4(F) IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	<u>Does the alternative meet or exceed the Significance Threshold?</u>
No Action	Project constitutes a "use" or "constructive use" of potential Section 4(f) properties	No
Proposed Action	Project constitutes a "use" or "constructive use" of potential Section 4(f) properties	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.
SOURCE: ESA Airports, 2009

6.8 Federally-listed Endangered and Threatened Species

~~This section has been developed to meet the guidance of FAA's Office of Airports (ARP) within the FAA Environmental Desk Reference for Airport Actions.²¹~~ This section ~~will~~ describes impacts and analysis of impacts to federally-listed species under the Endangered Species Act of 1973 (ESA), as amended (state-listed species are addressed in Section 6.3.). It is the responsibility of the FAA to initiate coordination with the USFWS pursuant to the ESA if a federally-listed species or critical habitat may be impacted. ESA section 7(d) outlines the initiation and coordination procedures between the FAA and the USFWS regarding impacts to federally-listed species or designated critical habitat.

6.8.1 Impact Analysis

To determine impacts to federally-listed species or designated critical habitats under the ESA, biologists compiled data from several databases to determine whether threatened or endangered species listed pursuant to the ESA could occur on the project site based on a record for the particular species reported for Orange County. The following sources were used to collect this information:

- Endangered and Threatened Species of the Southeast United States(The Redbook);
- Florida Endangered Species, Threatened Species, and Species of Special Concern, FWC (2004);
- Field Guide to the Rare Animals of Florida, Florida Natural Areas Inventory, FDOT (2001);
- Field Guide to the Rare Plants of Florida, Florida Natural Areas Inventory, FDOT (2001);
- Atlas of Florida Vascular Plants: <http://www.plantatlas.usf.edu>;

²¹ ~~FAA Environmental Desk Reference for Airport Actions (2007) Chapter 8 Section 1-a~~

- County Distribution and Habitats of Rare and Endangered Species in Florida, Florida Natural Areas Inventory (1997); [and](#).
- The Birdlife of Florida. Stevenson, Henry M. and Bruce H. Anderson. 1994. University Press, Gainesville, FL.

Biologists examined aerial photographs and Florida Land Use, Cover and Forms Classification System (FLUCFCS) maps and conducted on-site surveys to determine the likelihood that particular species utilized the project site. The likelihood of occurrence listed is based on a comparison of the known habitat use by the listed species and the habitats found within the overall Proposed Action area, the quantity, quality, and adjacency of these habitats, as well as observations of any taxa during field reconnaissance. The likelihood for occurrence of listed species was rated as high, moderate, low, unlikely, or not applicable based on knowledge of a species’ habitat preference and site conditions. A likelihood of occurrence given as “unlikely” indicates that no, or very limited, habitat suitable for this species exists on-site, but the site is within the documented range of the species; “not applicable” indicates that the habitat for this species does not exist on-site or adjacent to the site and/or the site is not within the documented range of the species. The likelihood of occurrence will be indicated in the threatened and/or endangered table as “Observed” for those listed species that were actually observed on the project site during field investigations. In addition, annual surveys for listed protected species are conducted on behalf of GOAA by Environmental Management & Design. The table listing the likelihood of occurrence also includes records of observations from those survey reports from 2003 – 2007.

Table 6.8-1 provides a list of ten (10) federally-listed species that were identified as having the potential to occur on the Proposed Action area. Of these federally-listed species, seven (7) species have a low or unlikely potential to occur on site, and will not be analyzed further. Three (3) species have either been observed on site or have a moderate to high potential to occur on site. Below is a description of these species and an analysis of impacts.

**TABLE 6.8-1
LISTED SPECIES THAT OCCUR IN ORANGE COUNTY - LIKELIHOOD TO OCCUR ON PROJECT SITE**

Common Name	Scientific Name	Habitat of Occurrence	Likelihood of Occurrence	Designation Status ¹	
				USFWS ²	FWC ³
Amphibians					
none					
Birds					
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	Oak scrub with shrubs of live, myrtle, and Chapman’s oaks, palmettos and sand pine.	Unlikely	T	ET
Kirtland’s warbler	<i>Dendroica kirtlandii</i>	Migrant in Florida in a variety of habitats.	Low	E	EE
Wood stork	<i>Mycteria americana</i>	Wetlands; nesting in cypress swamps.	Observed	E	EE
Red-cockaded woodpecker	<i>Picoides borealis</i>	Pinewoods with mature to over mature pines.	Unlikely	E	FESS E
Snail kite	<i>Rostrhamus sociabilis plumbeus</i>	Marsh with distant horizon and low vegetative profile.	Low	E	EE/C H

**TABLE 6.8-1
 LISTED SPECIES THAT OCCUR IN ORANGE COUNTY - LIKELIHOOD TO OCCUR ON PROJECT SITE**

Common Name	Scientific Name	Habitat of Occurrence	Likelihood of Occurrence	Designation Status ¹	
				USFWS ²	FWC ³
Bachman's warbler	<i>Vermivora bachmanii</i>	Variety of woodlands, usually in lowlands.	Unlikely	E	<u>FE</u>
Mammals					
none					
Reptiles					
American alligator	<i>Alligator mississippiensis</i>	Wetlands, lakes, and streams	Moderate to high	T(S/A)	<u>FT(S/A)/SSC</u>
Eastern indigo snake	<i>Drymarchon couperi</i>	Pine flatwoods, tropical hammocks.	Low to Moderate	T	<u>ET</u>
Sand skink	<i>Neoseps reynoldsi</i>	Loose sand on high elevation, central Florida ridges; sand pine scrub.	Unlikely	T	<u>ET</u>

1 E= endangered, T= threatened, SSC= species of special concern, CH= critical habitat has been designated
 2 US Fish and Wildlife Service
 3 Florida Fish and Wildlife Conservation Commission
 SOURCE: Breedlove Dennis & Associates

Wood Stork (*Mycteria americana*) The wood stork is a large wading bird, primarily white in color with black in wings on a short black tail. Adults have bare, scaly, dark-gray heads and necks and long, heavy decurved bills. They prefer to forage in shallow open water areas where they probe the water with their bills in search of food, primarily small fish. Wood storks have been observed in the Proposed Action area. Wood storks commonly nest in colonies. There are three active wood stork nesting colony sites according to the USFWS records, colony 612037 (Lake Mary Jane), colony 61230 which was last confirmed as active in 1999, and colony 612042 (Lake Conlin) last confirmed as active in 1999. The (USFWS²²) uses a regulatory tool known as the Core Foraging Area (CFA) to determine the potential effects of project activities on wood stork colonies that have been active. The CFA for wood stork colonies in north Florida is an area with a radius of 15 miles and 18.6 miles in south Florida. The Proposed Action area falls within these CFA. ~~As such the As~~ part of the Section 404 permit process the USACE, requested consultation with the USFWS under Section 7 of the ESA with respect to wood storks. The USACE determined as part of the initial permit review, that development of the Site may affect wood storks (*Mycteria americana*). The USACE submitted a request to the USFWS on February 6, 2007, to initiate formal consultation pursuant to Section 7 of the ESA, as amended (16 U.S. Code 1531 *et seq.*). The USFWS subsequently requested additional information necessary to initiate consultation that included: (1) a biological assessment of potential impacts on wood stork foraging areas, and (2) proposed compensation measures for any impacts to wood stork foraging areas. In support of that request a Biological Assessment (BA) was prepared and submitted to the USACE²³ (see **Appendix H**). The conclusion in the BA was that the development of the Proposed Action area may affect but is not likely to adversely affect wood storks. The details of that assessment and basis for

²²U.S. Fish and Wildlife Service. 2007. *Florida Wood Stork Colonies Core Foraging Areas*. North Florida Ecological Services Office, Jacksonville, Florida. 1pp. pdf.

²³ Biological Assessment for the Wood Stork, Greater Orlando Aviation Authority, East Airfield Project Site, Orange County, FL.

the conclusion are contained in the BA. On January 6, 2010 the USACE revised their determination regarding the wood stork from “may affect” to “may affect not likely to adversely affect” the wood stork. On that same day the USFWS responded to the USACE concurring with the USACE determination of “may affect not likely to adversely affect” the wood stork (Appendix H)

Eastern Indigo Snake (*Drymarchon corais couperi*) The eastern indigo snake is the longest of the North American snakes, and it is listed as threatened due to over-collection and habitat loss.²⁴ Eastern indigo snakes are found in a variety of habitats throughout Florida, from mangrove swamps and wet prairies to sandhill and scrub habitats, and they often winter in the burrows of gopher tortoises. They have relatively large home ranges and apparently require a mosaic of habitats to complete their life cycle, often feeding along wetland edges. Eastern indigo snakes have not been observed on the project site, but they have the potential to occur based on the presence of a mix of habitats on and adjacent to the project and the presence of gopher tortoise burrows.

American Alligator (*Alligator mississippiensis*) The American alligator is a large primarily black crocodylian with a broadly rounded snout. Young alligators have yellow cross bands on the back, tail, and sides. The head is smooth with no front eyes and absence of a prominent visible tooth in the lower jaw when the mouth is closed. Alligators are found throughout Florida and are relatively common.

6.8.2 Mitigation

Wood Storks The 55.22 acres of habitat that could provide foraging opportunities for wood storks and which will be eliminated as part of project development will be offset through enhancement and preservation of wood stork foraging habitat at the Disney Wilderness Preserve (DWP) as compensatory wetland mitigation as required by the USACE permit. The DWP includes approximately 11,500 acres purchased in part by GOAA that are now owned and managed by The Nature Conservancy (TNC). The DWP is located near the downstream extent of the Lake Hatchineha basin, also known as the Reedy Creek/Lake Marion basin, within the Kissimmee Watershed (see Section 6.20 for location of the DWP). GOAA, through TNC, enhanced and restored wetland and upland communities on the purchased parcels for mitigation credit granted by the State and Federal regulatory agencies. The lands enhanced and preserved are connected to other larger tracts of preserved lands, which are consistent with the USFWS's wood stork goal to acquire, enhance, preserve, and recover natural hydro patterns within foraging habitat of the wood stork (USFWS 1997, 2007b). These parcels, collectively, represent a regionally significant mitigation site that has been shown to support wood storks for both foraging and nesting (see Appendix H).

Eastern Indigo Snakes The FWC and USFWS provide conservation measures for minimizing potential adverse effects to eastern indigo snakes. The FWC²⁵ has adopted a management plan and a relocation permit process for gopher tortoises, which provides guidance for conservation

²⁴ (Moler 1992).

²⁵ Florida Fish and Wildlife Conservation Commission. 2007. Gopher Tortoise Management Plan: Gopherus polyphemus. Tallahassee, Florida. 127 pp.

Florida Fish and Wildlife Conservation Commission. Gopher Tortoise Permitting Guidelines: Gopherus polyphemus. Tallahassee, Florida. 52 pp.

of commensals associated with gopher tortoise burrows such as the eastern indigo snake. The USFWS²⁶ provides *Standard Protection Measures for the Eastern Indigo Snake* (see **Appendix I**).

American Alligator No direct take of alligators will occur as a result of any habitat alterations, therefore no mitigation is proposed. Should it become necessary to relocate alligators to avoid a direct take, relocation will be undertaken in cooperation with the FWC and in accordance with the FWC policies, rules, and procedures relative to alligators.

6.8.4 Environmental Impact Determination

**TABLE 6.8-2
SUMMARY OF FEDERALLY LISTED SPECIES – SIGNIFICANCE THRESHOLDS**

Alternative	Significance Threshold ^a	<u>Does the alternative meet or exceed the Significance Threshold?</u>
No Action	USFWS or NMFS determines that the action would likely jeopardize the continued existence of a federally-listed species under the ESA	<u>No</u>
	Destruction or adverse modification of designated critical habitat under the ESA	<u>No</u>
Proposed Action	USFWS or NMFS determines that the action would likely jeopardize the continued existence of a federally-listed species under the ESA	<u>No</u>
	Destruction or adverse modification of designated critical habitat under the ESA	<u>No</u>

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.
SOURCE: ESA Airports, 2009

6.9 Energy Supplies, Natural Resources, and Sustainable Design

FAA 1050.1E requires the Proposed Action be “examined to identify any proposed major changes in stationary facilities or the movement of aircraft and ground vehicles that would have a measurable effect on local supplies of energy or natural resources.” It also notes that “The use of natural resources other than for fuel need be examined only if the action involves a need for unusual materials or those in short supply.” Since the Proposed Action does not require use of unusual materials or those in short supply, energy supply will be the primary item reviewed relative to significance.

Additionally, FAA 1050.1E notes that it is the policy of the FAA “to encourage the development of facilities that exemplify the highest standards of design including the principles of sustainability.” It is important to note that sustainable design is a guiding principle of the Southeast Sector Plan:

Comment [VL47]: Add discussion regarding natural resources and sustainable design.

Comment [sbb48R47]: See added discussion below.

26 U.S. Fish and Wildlife Service. 2004. Standard Protection Measures for the Eastern Indigo Snake. North Florida and South Florida Ecological Services Field Offices. Jacksonville and Vero Beach, Florida.

“The purpose of these land use and urban design guidelines and standards is to create a sustainable and balanced community in the Southeast Orlando Sector Plan area with the characteristics of traditional "Orlando": where streets are convenient and comfortable for walking, where parks are a focus for public activity, and where the life and vitality of a mid-sized town can be enjoyed by its residents and visitors.

The City identified Southeast Orlando as a Future Growth Center with the Orlando International Airport as the primary economic and employment generator. A full range of uses, services, amenities, and activities are planned in Southeast Orlando to fill the needs of the ultimate population of +65,000. In order to build and sustain a viable community, development shall feature a mixture of land uses which allow for increased accessibility, diversity, and opportunities for social interaction within the context of an integrated amenity framework. Utilizing the neighborhood as the basic community building unit, the City has developed a community framework based on Traditional Design principles. A hierarchy of places has been proposed, ranging from a Town Center that will serve as the primary destination and job center within the community, to Village and Neighborhood Centers that provide local shopping and civic spaces for residential area, to airport-related employment districts that include a variety of industrial and office uses. In the Southeast Plan area, centers will be compact and walkable, and residential neighborhoods shall be defined by public space and activated by locally-oriented civic and commercial facilities.
“
–

There are no significance thresholds for sustainable design.

6.9.1 Impact Analysis

FAA Order 1050.1E indicates that an impact in this category is considered significant if the demand exceeds the supply. It also identifies the need to ensure that any future airfield layout is efficient, and that surface transportation is appropriately addressed.

No Action Alternative

The No Action Alternative would not change the existing conditions. Therefore, no energy or natural resource impacts would be expected.

Proposed Action Alternative

The Proposed Action would result in additional aircraft operating at OIA and additional fuel usage. However, these aircraft would be using fuel regardless of the airport at which the facilities were located. The airfield layout provides direct access to nearly the full length of the easternmost runway, Runway 17L-35R. The available capacity on this runway and the direct access to the runway from the site will result in efficient use of the airfield by the additional aircraft using the airport. The Proposed Action is also consistent with the City's long term planning efforts for the

site in that it creates jobs in near proximity to future residential development. The City’s goal is to reduce the number of surface vehicles traveling outside of southeast Orlando by increasing the job base in this region of the City.

6.9.2 Mitigation

No significant energy or natural resource impacts are expected as a result of the Proposed Action, therefore, no mitigation is necessary.

6.9.3 Environmental Impact Determination

TABLE 6.9-1
 SUMMARY OF ENERGY SUPPLY, NATURAL RESOURCES, AND SUSTAINABLE DESIGN –
 SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	Does the alternative meet or exceed the Significance Threshold?
No Action	Project energy demands exceed available supply.	No
Proposed Action	Project energy demands exceed available supply.	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.
 SOURCE: ESA Airports, 2009, (add source information of reports used in analysis to determine if threshold was met)

6.10 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, requires all federal agencies to identify and address disproportionately high and adverse impacts on minority and low-income populations. U.S. Department of Transportation (DOT) Order 56102.2 presents DOT’s policy to promote the principles of environmental justice through the incorporation of those principles in all DOT programs, policies and activities. Included in the order is the disclosure of the effects on subsistence patterns of consumption of fish, vegetation, or wildlife, and effective public participation and access to this information. The DOT Order defines a low-income person as an individual whose median household income is at or below the poverty level. Minorities are defined as individuals or populations who are considered in the black, Asian/Pacific Islander, or American Indian/Alaskan Native racial categories, or individuals of Hispanic origins.

On April 15, 1997, the DOT issued a Final DOT Order to comply with Executive Order 12898 (U.S. Department of Transportation, 1996). The FAA refers to the DOT Final Order as a guideline for analyzing environmental justice concerns to minority and low-income populations. Although such an analysis is not required in an EA, the Presidential Memorandum that accompanied Executive Order 12898, as well as guidance set forth by the Council on Environmental Quality (CEQ) and the EPA encourage the consideration of environmental justice impacts during the preparation of an EA.

6.10.1 Impact Analysis

While no significance thresholds have been established for quantifying environmental justice impacts, as directed by Order 12898, federal agencies are to identify and address disproportionately high and adverse impacts on minority and low-income populations.

No Action Alternative

Under the No Action Alternative, none of the Proposed Action components would be constructed. Therefore, no disproportionately high and adverse impacts on minority and low-income populations would occur.

Proposed Action Alternative

As presented throughout Section 6, no significant impacts would occur as a result of the Proposed Action. No disproportionately high and adverse impacts on minority and low-income populations would occur.

6.10.2 Mitigation

No disproportionately high and adverse impacts on minority and low-income populations will occur as a result of the Proposed Action; therefore no mitigation is necessary.

6.10.3 Environmental Determination

There are no significance thresholds established for environmental justice and no impacts are anticipated for populations under this impact category.

6.11 Floodplains

Under Executive Order 11988, Flood Plain Management Act,²⁷ FAA Order 1050.1E requires FAA officials “to take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by the flood plains.”²⁸ Through review of Federal Emergency Management Agency (FEMA) flood plain maps, FAA can determine if a potential impact to the base floodplain is expected. If there are no impacts to the base floodplain, no further analysis is needed. However, if a potential impact is expected from the Proposed Action, this would constitute a floodplain encroachment and further analysis would be needed.

Comment [VL49]: Please provide information and address the following:

Per 1050.1E Appendix A, provide information to “indicate if the encroachment would be a “significant encroachment,” that is, whether it would cause one or more of the following impacts:
(1) The action would have a high probability of loss of human life.
(2) The action would likely have substantial, encroachment-associated costs or damage, including interrupting aircraft service or loss of a vital transportation facility (e.g., flooding of a runway or taxiway; important navigational aid out of service due to flooding, etc.); or
(3) The action would cause adverse impacts on natural and beneficial floodplain values.

Comment [sbb50R49]: See added text below.

²⁷ Executive Order 11988, Floodplain Management, May 24, 1977 (42 FR 26951).

²⁸ FAA Order 1050.1E Appendix A Section 9.9.1.

6.11.1 Impact Analysis

The significance thresholds for floodplain impacts are “when notable adverse impacts on natural and beneficial floodplain values would occur.”²⁹ ~~According to the Environmental Desk Reference for Airport Actions, a~~ floodplain is defined as the lowlands and relatively flat areas adjoining inland and coastal waters including flood prone areas of offshore islands, at a minimum, that are prone to the 100-year flood. The 100-year floodplain is considered the base floodplain in this evaluation. The objective of the EA is to determine if an action encroaches on the base floodplain.

FEMA defines floodplain management as the operation of a community program of corrective and preventative measures for reducing flood damage. Flood hazard mapping constitutes an integral part of floodplain management. In order to differentiate between differing levels of flood hazard, FEMA created an array of zones corresponding to a location’s actual flood risk. For this analysis, FEMA Flood Insurance Rate Maps (FIRM) are used as the primary information source.

Flood hazard areas identified on Flood Insurance Rate Maps (FIRM) are identified as Special Flood Hazard Area (SFHA). SFHA are defined as the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. SFHAs are assigned with various zone designations signifying their individual characteristics.

No Action Alternative

The No Action Alternative will not require construction or activities on the Proposed Action area. Therefore, no encroachment to base floodplains would be expected.

Proposed Action Alternative

Figure 6.11-1 depicts the FIRM Zone designations on the Proposed Action area. There are two FIRM Zones designations located on the Proposed Action area: Zone A and Zone X. Below are the descriptions of the zones found within the Proposed Action area.

Zone A (100-Year-Flood)- Areas subject to inundation by 1-percent-annual-chance flood event generally determined using approximate methodologies. Mandatory flood insurance purchase requirements and floodplain management standards apply.

Zone X and X500 = 500-Year-Flood - Moderate flood hazard areas, labeled Zone B or Zone X (shaded) are also shown on the Flood Insurance Rate Map (FIRM), and are areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-Year) flood.³⁰

Figure 6.11-1 shows that the 100 year floodplain ([Zone A](#)) is associated with the limits of the wetland areas on the proposed site. [As described in the alternatives analysis \(Section 4\), there are no reasonable alternatives to the Sponsor’s alternative \(Alternative 3 – East Airfield Development Area Concept B\). Additionally, as presented in the individual permit application to the USACE,](#)

²⁹ FAA Order 5050.4B Table 7.1-3 Floodplains.

³⁰ http://www.fema.gov/plan/prevent/floodplain/nfipkeywords/flood_zones.shtm

~~the Sponsor has determined that there are no practicable alternatives to the Sponsor's alternative. Since no practicable alternatives exist which are outside the base floodplain, further analysis of the proposed project is necessary to determine compliance with Executive Order 11988. Analysis of potential flooding as a result of implementing the project was analyzed through regulatory review of the proposed project by the SFWMD. The SFWMD is the state agency charged with ensuring that adverse impacts to people or property do not occur as a result of development that impacts stormwater discharges. The Sponsor received a conceptual ERP from the SFWMD on August 10, 2011³¹. The surface water management system has been designed to meet the full extent of the District's rules governing water quality and quantity. The project has been designed to avoid potential downstream flooding events. From a water quantity standpoint the conceptual ERP states that the surface water management system has been designed to avoid downstream flooding with the provision of compensating storage facilities and that no adverse impacts to floodplains are expected to occur as a result of the project. Development alternatives on the proposed site were evaluated to determine if these wetland/floodplain areas could be preserved and the Proposed Action remain viable (see Section 4.0 for alternatives analysis). To offset adverse impacts to account for the loss of natural values associated with the floodplain which are unavoidable, mitigation has been permitted through the SFWMD conceptual ERP and has been proposed to the USACE through the individual permit application. The USACE permit application provides a detailed functional analysis of impacts and a corresponding mitigation to fully offset those impacts. through permitting with the USACE and the SFWMD would occur. The conceptual design of the project's stormwater management system meets the requirements of SFWMD to address downstream flooding for the design storm event.~~

Impact analysis of Zone X (500 year floodplain) is not required. Zone A will be impacted with the implementation/ construction of the Proposed Action. Under the Zone A requirements, it may be required that flood insurance be purchased and site-related requirements associated with floodplain management standards be put in place. In lieu of the insurance, and because no detailed hydrologic analysis has been prepared, Base Flood Elevations (or flood depths) are shown in a Zone A floodplain. A Letter of Map Amendment (LOMA) or Letter of Map Revision (LOMR) can be completed if in fact it can be proven that the Zone A has been inadvertently included in the FIRM, or if fill is brought in to heighten the elevation of the Zone A parcel (the latter is referred to as a Letter of Map Revision Based on Fill (LOMR-F)).

6.11.2 Mitigation

Fill material and surface water management systems will impact base floodplain (Zone A) areas within the Proposed Action area. Prior to any encroachment activities associated with the Proposed

³¹ Chapter 40E-4, Florida Administrative Code (South Florida Water Management Districts -- Environmental Resource Permits)

40E-4.301 Conditions for Issuance of Permits.

(1) In order to obtain a standard general, individual, or conceptual approval permit under this chapter or Chapter 40E-40, F.A.C., an applicant must provide reasonable assurance that the construction, alteration, operation, maintenance, removal or abandonment of a surface water management system;

(b) Will not cause adverse flooding to on-site or off-site property

Comment [VL51]: This text needs to be revised based on revisions to Alternatives and if not included in the alternatives section then information addressing that "there is no practicable alternative outside the floodplain should be made in this section in order for the FAA to make a preliminary determination. See below:

When, after re-evaluating all impacts, factors, and public comments, the official determines that alternatives outside the base floodplain are not practicable, the environmental document must contain a discussion about the alternatives the official considered in reaching that determination. The discussion should state that FAA analyzed other alternatives and explain why locating the action in the floodplain is the only practicable alternative. The explanation should include how FAA balanced the environmental, social, economic and engineering factors when selecting the practicable alternative. When making this evaluation, the official may wish to use following information and include a discussion in the environmental document's floodplain section:

- (1) important factors FAA considered when selecting the Proposed Action as the practicable alternative;
- (2) reasons FAA intends to fund or approve an action in the base floodplain or in an area that would affect the floodplain;
- (3) each alternative considered and important factors that may make the alternative impractical;
- (4) how the Proposed Action would affect the floodplain's natural values and proposed measures to minimize potential floodplain harm; and
- (5) if National Flood Insurance Program (NFIP) criteria (44 CFR Part 60.3.) are applicable to the action.

Comment [sbb52R51]: See revised text.

Action, GOAA ~~will be~~ required to obtain a SFWMD ERP Construction permit. The SFWMD permit ~~will~~ requires a surface water management plan that ensures there are no net losses to floodplain storage and pre and post offsite discharges are equivalent. On August 30, 2010 the SFWMD issued a conceptual ERP permit for the Proposed Action. The issuance of a permit from SFWMD ensures the storm water management system adequately compensates for fill material placed within the existing floodplain (SFWMD Permit Modification No. 48-00063-5-03 Issued: August 30, 2010).

Figure
6.11-1 FEMA FIRM Map

6.11.3 Environmental Impact Determination

TABLE 6.11-1
 SUMMARY OF FLOODPLAIN IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	Does the alternative meet or exceed the Significance Threshold?
No Action	Notable adverse impacts on natural and beneficial floodplain values would occur	No
Proposed Action	Notable adverse impacts on natural and beneficial floodplain values would occur	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.
 SOURCE: ESA Airports, 2009

6.12 Hazardous Materials

Hazardous materials regulations cover a range of topics including, environmental contamination of land and water, storage or hazardous waste of substances, and materials, and how the FAA is required to review airport actions related to those items. Applicable regulations include:

- Resource Conservation and Recovery Act (RCRA);
- Comprehensive Environmental Response Compensation and Liability Act (CERCLA);
- Oil Pollution Act of 1990;
- Toxic Substances Control Act; [and](#)
- 40 CFR Part 761 – PCB disposal.³²

The EPA has federal regulatory oversight of hazardous material regulations. There are also various regulations and programs on the state level within FDEP.

6.12.1 Impact Analysis

Under NEPA level review, FAA Order 1050.1E states that “actions that involve property listed (or potentially listed on) the National Priority List (NPL) are considered significant pursuant to NEPA by definition.”³³ Other key factors in determining significance include determining if the airport action would not meet applicable state, local, or federal regulations related to hazardous materials or if there are any outstanding issues regarding hazardous materials or site contamination.³⁴

To determine if there are historical or current hazardous material issues related to the Proposed Action area, a Phase I Environmental Site Assessment was conducted. The assessment included a review of regulatory records associated with the Proposed Action area, field surveys (on and off-site reconnaissance), review of the NPL current and de-listed sites, along with various other databases

³² FAA Environmental Desk Reference for Airport Actions 13.2

³³ FAA Order 1050.1E Appendix A 10.3B

³⁴ FAA Environmental Desk Reference for Airport Actions 13 7

(full detail can be found in the Phase I Environmental Site Assessment September 15, 2008 (Nodarse & Assoc.) (on file with GOAA for review).

No Action Alternative

The No Action Alternative will not require construction or activities in the Proposed Action area. Therefore, no impacts to hazardous materials would be expected.

Proposed Action Alternative

The site clearing and construction of the Proposed Action Alternative would be conducted within the Proposed Action area. The subject property is not listed in any of the federal, state, or local government databases, environmental records, or enforcement lists related to hazardous materials. North of the Proposed Action area and the Beach Line, off airport property, the former Alamo Rent-A-Car location (8200 McCoy Rd) has been documented by FDEP to have soil and groundwater impacts related to petroleum products. The groundwater plume extends south of the Alamo site. The southern extent of the groundwater plume is unknown. The potential for this plume to extend under the Proposed Action categorizes the Alamo Rent-A-Car location as a “recognized environmental condition” related to the Proposed Action area.

There is a potential for the Proposed Action to involve the use of hazardous materials related to high intensity aviation uses or aviation support uses. The treatment, storage and disposal of regulated substances, including notification requirements, are governed by Federal, state and local statutes, regulations and ordinances. Tenants located on the property will be obligated to comply with all applicable Federal, state and local requirements. Federal regulations for reporting, monitoring, operational, and clean up requirements include:

- CERCLA, 42 USC Section 9601, et. seq. In particular, see Sections 101, 102, 103, 105, 107, 120;
- CERFA [P.L. 102-426](amended portions of CERCLA);
- Oil Pollution Act of 1990, 33 USC, Section 2701 et seq.;
- RCRA, 42 USC Section 6901 et seq., [P.L. 94 580] Sections 3001, 3010;
- Toxic Substances Control Act (TSCA) [15 USC, Sections 2601- 2692]; and
- 40 CFR Part 761 (use and disposal of PCB products).

To the extent that the groundwater plume from the former off-airport Alamo Rent-a-Car location extends onto the Proposed Action area the responsible party (Alamo Rent-a-Car) will be responsible for remediation. This off-airport site is identified on the Petroleum Liability Restoration Insurance Program (PLRIP) (ID # 488512629) and is currently ranked 29th on the state priority list for clean up.

The airport tenant leases require tenants adhere to all applicable environmental regulations and obtain any necessary permits associated with hazardous materials. In a compliance role, the

airport conducts semi-annual inspections that encompass hazardous materials and waste covered under RCRA and CERCLA.

6.12.2 Mitigation

No mitigation is required.

6.12.3 Environmental Impact Determination

TABLE 6.12-1
 SUMMARY OF HAZARDOUS MATERIALS IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	<u>Does the alternative meet or exceed the Significance Threshold?</u>
No Action	Action involves a property on or eligible for the National Priority List	<u>No</u>
	The sponsor would have difficulty meeting applicable local, state, or Federal laws and regulations hazardous materials.	<u>No</u>
	There is an unresolved issue regarding hazardous materials	<u>No</u>
Proposed Action	Action involves a property on or eligible for the National Priority List	<u>No</u>
	The sponsor would have difficulty meeting applicable local, state, or Federal laws and regulations hazardous materials.	<u>No</u>
	There is an unresolved issue regarding hazardous materials	<u>No</u>

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1 and FAA Environmental Desk Reference for Airport Actions (2007).
 SOURCE: ESA Airports, 2009

6.13 Historic and Archeological

This section provides the analysis of historical, architectural, archeological, and cultural resources within the Proposed Action area. Under Section 106 of the National Historic Preservation Act of 1966 (NHPA), the FAA is required to consider effects to property’s listed on the National Registry of Historic Places (NRHP) and coordinate with the appropriate State Historic Preservation Officer to substantiate findings of affect to these resources. Section 110(f) of the NHPA requires FAA to evaluate impacts to National Historic Landmarks (NHLs). There are numerous laws governing archeology and coordination with Native American Tribal Nations. These laws are listed within FAA Order 1050.1E Appendix A Section 11.

6.13.1 Impact Analysis

No Action Alternative

The No Action Alternative would not change or impact the existing conditions on the Proposed Action site. Therefore, no historic or archeological impacts would be expected.

Proposed Action Alternative

A cultural resource assessment survey (CRAS) of the Proposed Action area was performed by Archaeological Consultants, Inc. (ACI) in July 2008 (see **Appendix F**). The purpose of this investigation was to locate and identify any cultural resources within the Proposed Action area and to assess their significance in terms of eligibility for listing in the NRHP. The survey was conducted in compliance with NEPA, Section 106 of the NHPA, and the implementing regulations for NHPA (36 CFR 800). The survey and resulting report meet the requirements set forth in Chapter 267, Florida Statutes (F.S.), and implementing state regulations regarding possible impact to significant historic properties. All work was carried out in conformity with the specifications set forth in Chapter 1A-46, Florida Administrative Code (FAC) and the Florida Division of Historical Resources' (DHR) Cultural Resource Management Standards and Operational Manual (DHR 2003).

Background research, which included a review of the Florida Master Site File (FMSF) and the NRHP, indicated that no archaeological sites or historic resources were recorded previously within the Proposed Action area. Four previously recorded archaeological sites are located within two miles, and a review of relevant site location information for environmentally similar areas within Orange County and the surrounding region indicated a low to moderate probability for the occurrence of aboriginal archaeological sites. The background research also indicated that sites, if present, would most likely be small lithic or artifact scatters. The potential for historic period archaeological sites was considered likely since the proposed development property has been used as a farm since at least 1947. Examination of 1947 and 1954 aerial maps, as well as the Pine Castle, Fla. United States Geological Survey (USGS) quadrangle map, indicated eight potential historic structures and a series of drainage ditches on the property (PALMM 1947a, 1947b, 1954a, 1954b; USGS 1953).

Archaeological and historical/architectural field surveys resulted in the discovery of one small archaeological site (8OR9849), a drainage ditch system (8OR9850), two windmills (8OR9852 and 8OR9853), and two cattle pens (8OR9854 and 8OR9855). This complex of historic features has been recorded as the East Airfield Development Area Resource Group (8OR9851). Although these resources provide some data regarding the historic use of the property, they are not considered eligible for listing in the NRHP, either individually or collectively as a potential historic district. There are no subsurface features and minimal cultural materials associated with the archaeological site. Windmills, cattle pens, and ditches are common throughout the region. Thus, all of these sites have a low research potential. Development of the Proposed Action will have no effect on any significant cultural resources, including archaeological sites and historic resources that are listed, determined eligible, or considered potentially eligible for listing in the NRHP.

A letter of concurrence with the CRAS findings from the Florida SHPO (dated Jan 14, 2009) is provided in **Appendix J**.

6.13.2 Mitigation

There are no impacts to historic or cultural resources expected to occur from the implementation of the Proposed Action, thus no mitigation measures are necessary.

6.13.3 Environmental Impact Determination

TABLE 6.13-1
SUMMARY OF HISTORIC AND ARCHEOLOGICAL IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	Does the alternative meet or exceed the Significance Threshold?
No Action	Action adversely affects a protected property under NHPA	No
	SHPO or THPO findings of adverse affects on protected property.	No
Proposed Action	Action adversely affects a protected property under NHPA	No
	SHPO or THPO findings of adverse affects on protected property.	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.
SOURCE: ESA Airports, 2009

6.14 Induced Socioeconomic Impacts

FAA Order 1050.1E, states that when a Proposed Action involves induced or secondary impacts to surrounding communities, the EA shall describe such factors in general terms.³⁵ 40 CFR Part 1508.27 (b) requires federal agencies to consider the Proposed Action’s significance related to the intensity and context of the impact. 40 CFR Part 1508.8 requires federal agencies to address reasonable and foreseeable indirect effects such as changes in patterns of land use, population density, population growth rate, and their indirect effects on air, water, natural systems, or ecosystems. The FAA Environmental Desk Reference for Airport Actions (2007) lists the following factors that should be considered in this section:

- Shifts in patterns of population movement and growth;
- Public service demands;
- Changes in business and economic activities; or
- Other factors identified by the public.

6.14.1 Impact Analysis

FAA Order 1050.1E and FAA Order 5050.4B do not provide specific NEPA thresholds of significance for evaluating changes in employment or housing demand.

For this analysis, the indirect affects of shift in patterns of population movement and growth will be analyzed. Issues related to public service demands and changes in business and economic activities are addressed in Section 6.16 Social Impacts. Factors identified by the public are discussed in Section 7.0 Public and Agency Coordination.

³⁵ FAA Order 1050.1E Appendix 16 16.2c

Shift in patterns of population movement and growth

The Proposed Action is not anticipated to shift populations from existing communities. Growth may be attributed to potential job creation associated with the Proposed Action Alternative. To identify potential impacts associated with employment and housing, the number of existing and projected jobs associated with the No Action and the Proposed Action alternatives, and the amount of required housing associated with the No Action and the Proposed Action alternatives were identified. In 2004, Orlando International Airport (OIA) employed approximately 16,600 employees across more than 150 business and government agencies within the airport community. **Table 6.14.1-1** presents OIA 2004 employment numbers broken down by ten areas of economic activity.

**TABLE 6.14-1
DIRECT EMPLOYMENT AT OIA**

Business Type	Employment
Non-GOAA Employment	
Airline Ticket Revenue	3,797
On Site, Off Site Parking	360
Commercial Ground Transportation	1,714
Rental Cars Sales On-Site	3,173
Rental Cars Sales Off-Site	1,250
Concessions	970
Terminal Hotel	350
On-Site Private Operations	2,055
Construction	2,200
GOAA Employees	
GOAA Employees	747
Total	16,616

SOURCE: GOAA, 2004

Direct employment at the airport also generates secondary employment, including indirect employment through firms that provide business supplies and services in support of airport operations and travelers. A 2004 economic impact study prepared for OIA estimated that the airport was also responsible for generating 45,500 jobs through indirect employment (GOAA, 2004).

Public Service Demands

Public service demands such as police protection, schools, and fire/rescue service needs of the community are addressed by the City of Orlando and Orange County through their respective local development approval processes, and for certain large scale developments through the DRI review process established under Florida Statutes Chapter 380.

Changes in Business and Economic Activities

Proactive planning by GOAA, the City of Orlando, and Orange County have provided the public with information regarding the future plans for the Proposed Action area and its vicinity within the City Orlando Southeast Sector Plan and Orange County's Innovation Way (corridor study). Section 5.3 provides detailed information on the planned land uses for these and identifies the Proposed Action area as it relates to economic and business development and job creation. The

Comment [VL53]: More information needs to be provided regarding the DRI process and how these demands would be addressed.

Comment [sbb54R53]: See added DRI information in Section 5.3.5

Comment [VL55]: The only information provided in 5.3 relates to land use and zoning. No information is provided regarding economic, business development or job creation.

Comment [sbb56R55]: Please see revised text.

[Proposed Action is within the SE Sector Plan and “\[t\]he City has identified Southeast Orlando as a Future Growth Center with the Orlando International Airport as the primary economic and employment generator. A full range of uses, services, amenities, and activities are planned in Southeast Orlando to fill the needs of the ultimate population of +65,000.”](#)³⁶ (Section 68.102 Orlando City Code.)

Other Factors Identified by the Public

Section 7.0 of this document provides information regarding public comment and input.

No Action Alternative

Under the No Action Alternative, none of the Proposed Action components would be constructed. Aircraft projections at OIA are forecasted to increase, even under the No Action Alternative. This growth in airport operations would likely lead to an increase in employees working at OIA in order to accommodate a larger number of passengers and the demand for additional services this would generate. This increase, however, would be limited relative to the significant population growth already occurring as a result of other planned development in the vicinity of the airport. Regional planning implemented through the City of Orlando’s Growth Management Plan (local comprehensive land use plan) and the SE Sector Plan have identified that the airport is critical to supporting the current and projected population growth in the region rather than driving this growth. Therefore, no impacts related to a shift or growth in population around OIA would be expected.

Proposed Action Alternative

Under the Proposed Action, a number of additional services and facilities would be constructed that have the potential to attract additional employers/employees to OIA. The most likely project components that would [result in](#) an increase in employees at the airport include the proposed aircraft manufacturing, aircraft maintenance/hangar facilities and the aviation-related offices and training centers. [As the Proposed Action Alternative is planned to occur in response to demand and the exact type of businesses that will inhabit the new facilities are unknown, it is difficult to estimate an exact number of employees that the additional facilities will generate. It is assumed that job creation will be a benefit to the area, utilizing existing labor forces in the surrounding Orlando area as contemplated in the SE Sector Plan. No impacts not otherwise accounted for in the SE Sector Plan related to a shift or growth in population around OIA would be expected.](#)

The Proposed Action area is entirely on OIA property and it is envisioned that all of the Aviation Use needs for services such as police and fire/rescue will be provided by GOAA. [However, some services may be provided through existing inter-local and mutual aid agreements with the City and Orange County respectively for police and fire services, or through inter-local agreements with adjacent precincts.](#) No impact to public service needs would be anticipated.

The Proposed Action is consistent with future land use plans for the Proposed Action area [and would be intended to](#) develop business and economic engine-type uses for the area [to increase](#)

³⁶ [Within the Southeast Sector Plan, “the ASD-1 and ASD-2 districts shall be the primary employment locations within the Southeast Plan area.”](#) (Section 68.208 Orlando City Code)

Comment [VL57]: Trip generation was based on 6.1 million square feet of building as provided by RERC ??? Also, this amount of development accounts for a 46,709 daily trips. Why can't employment be estimated?

Comment [sbb58R57]: Daily trips is based on monitored rates (see traffic section) and square footage. Square Footage was determined based on current entitlements granted through the existing Development Order. The SE Sector Plan contemplates the land uses set forth in the Proposed Action.

Comment [VL59]: Can you explain this statement? 6.1 million square feet is the size of approximately 3 regional malls. Although this development is not a mall it is a very large development area. Additional clarification needs to be provided regarding who is responsible for providing public services to this development in the future.

Comment [sbb60R59]: See revised text.

Comment [VL61]: What does this mean?

Comment [sbb62R61]: See revised text.

[potential job growth as outlined in the Southeast Sector Plan.](#)— There are no negative impacts anticipated due to changes in business and economic activities.

6.14.2 Mitigation

As there are no impacts resulting in a shift or growth in population caused by the No Action or Preferred Action alternatives, no mitigation is necessary.

6.14.3 Environmental Impact Determination

There are no significance thresholds established for this environmental impact category under NEPA. The above analysis focused on the potential for shift or growth in population within the vicinity of OIA. No impacts are anticipated.

6.15 Light Emissions and Visual Effects

FAA Order 5050.4B and FAA Order 1050.1E require project sponsors to identify the light emissions (e.g., strobe lights, high-intensity airfield or facility lighting) associated with a Proposed Action that could visually affect a light-sensitive area (including residential areas, parks, and recreational areas). FAA is also required to consider whether visual or aesthetic impacts would result from a Proposed Action. The FAA Environmental Desk Reference for Airport Actions, Chapter 16 (1) (b) (2007) [guidance](#) notes that

“Visual, or aesthetic, effects are inherently more difficult to define and assess because they involve subjectivity. Visual effects deal broadly with the extent to which airport development contrast with the existing environment, architecture, historic or cultural setting, or land use planning. It is important to determine if a community or a jurisdictional agency considers visual effects for the Proposed Action objectionable.”

6.15.1 Impact Analysis

There are no significance thresholds established under NEPA for light emissions and visual effects. ~~The FAA Environmental Desk Reference for Airport Actions lists~~ [guidance recommends](#) the following areas ~~to~~ be considered during the analysis:

- Light emissions that create an annoyance or interfere with normal activities; and
- If local, state, or federal agencies determine that visual effects are objectionable due to their contrast with existing environments.³⁷

Local development lighting standards in the City of Orlando reference compliance with standards contained in Orange County’s lighting ordinance (Ordinance No 2003-08) (see **Appendix K**).

³⁷ FAA Environmental Desk Reference for Airport Actions 16 7a.

No Action Alternative

The No Action alternative would not result in the construction of additional facilities; therefore, no impacts would be expected.

Proposed Action Alternative

Airports include several navigational aid facilities that produce light. Nighttime lighting facilities include those that aid in aircraft operations and security. Lighting includes runway approach lighting, runway and taxiway lighting, outside building and garage lighting, and high-level lighting in vehicle, aircraft parking, and air cargo parking areas. Light emission sources could also be associated with the development of building and parking areas not directly on the airfield.

The Proposed Action includes construction of high intensity airport support uses such as aircraft maintenance, manufacturing, hangar and cargo facilities which may include taxiway lighting for directional assistance while aircraft are maneuvering to and from the aircraft parking aprons. Additional lighting would be associated with the roadways, new facilities, signs, and parking areas to provide a safe and secure environment for employees or users of the aviation facilities. These areas would be designed and constructed to meet the requirements of Orange County Ordinance No 2003-08 (lighting ordinance) pending review to confirm that these standards would not interfere with aircraft operation or air traffic control.

The proposed construction also includes airport support areas for aviation business offices, flight training centers and air traffic control facilities. This functions as a land use buffer between high intensity airport-related uses and residential uses. Additional lighting associated with these facilities, signs and parking areas would be required. These areas would be designed and constructed to meet the requirements of Orange County Ordinance No 2003-08 (lighting ordinance) pending review to confirm that these standards would not interfere with aircraft operation or air traffic control.

To address the effect to land use planning and consistency with those efforts as they relate to visual effects, the effects on the closest residential area to the Proposed Action were reviewed. The area of residential use closest to the Proposed Action is the Northlake Park Subdivision located adjacent to the south boundary of the Proposed Action area. When GOAA purchased the property, the property was identified as “Aviation Support District – High Intensity” on the City of Orlando Future Land Use Map (FLUM) adjacent to the Northlake Park (see Figure 5.3-3 and discussion in section 5.3 Land Use). In 2006, GOAA submitted an amendment to the FLUM to reduce the intensity of use on the property adjacent to Northlake Park from “Airport Support District – High Intensity” to “Airport Support District – Medium Intensity” (see Figure 5.3-4 and discussion in section 5.3 Land Use). The reduction of land use intensity was put in place by GOAA to create a land use buffer between the Northlake Park residential area and high intensity uses. Currently, North Lake Park is approximately 1,500 feet (over a ¼ mile) south of proposed high intensity land use for aviation facilities and 400 feet south of medium intensity land use for airport support areas. In addition to residential areas, there are no significant historical, architecture, or cultural visual effects associated with the Proposed Action.

6.15.2 Mitigation

BMPs and Orange County design standards will be followed to lessen the impact of light emissions to light-sensitive areas. Lighting design and components will be selected to prevent potential glare from affecting residences, motorists, and aviation. Such mitigation measures as downward-facing lights, light shields, and amber lumens would be installed to lessen potential light emissions. All applicable state and local permits or regulations related to light emissions would need to be obtained or in compliance to construct and operate the facility. Lighting impacts associated with the Proposed Action are considered to be less than significant.

Visual effects to the Lake Nona community were mitigated through the reduction of intensity of land use directly adjacent to their property in 2006 by GOAA. An additional “buffer yard” located between the residential area (Lake Nona) and the Proposed Action area was established through a legal “Buffer Yard Agreement.” The “Buffer Yard Agreement” was entered into on March 6, 2000 between The City of Orlando, the Busch Properties of Florida, Inc, and Lake Nona Land Company (see **Appendix L**). At the time of the agreement, the portion of the property closest to the Lake Nona area was under the ownership of Busch Properties of Florida. This legal agreement was conveyed to GOAA when they purchased the property. Some of the key elements to the agreement in reference to this topic are included in summary below (please see full agreement for details and exhibits in Appendix L).

- The intent of the “bufferyard” is to provide a landscaped area and section of berm to “be used to buffer and screen the industrial/commercial uses that are anticipated to develop on the Busch Property from the residential uses to be developed on the Lake Nona Property.”
- The agreement includes the conveyance of easements on the Busch property to Lake Nona to allow the community to extend an access road from the community to Dowden Rd.
- The agreement includes landscape/buffer easements from both the Lake Nona property and the Busch Property that are to be conveyed to the City of Orlando (see exhibits E & F of the “Bufferyard Agreement”). Together, the landscape/buffer easements are referred to in the agreement as the “bufferyard.”
- The agreement further states that “Lake Nona shall, at its own costs and expense construct, install, maintain, operate, and repair all of the landscape improvements within the Bufferyard...” The Bufferyard Plan is depicted in Exhibit F of the agreement.
- There is also a stipulation to the Bufferyard Plan that allows Busch to locate retention ponds within the portion of the Bufferyard located on the Busch Property (with a “durable landscaped screen” described in the agreement).
- All landscape requirements identified in the Bufferyard Agreement have been completed by Lake Nona.

Visual effects will be further addressed both along Dowden Rd. and Narcoossee Rd. through compliance with the City of Orlando landscape requirements.

6.15.3 Environmental Impact Determination

There are no significance criteria established under NEPA for this impact category. However, through the mitigation measures, best management practices, local design requirements, and the implementation of the “Bufferyard Agreement” (described above), effects of light emissions and visual effects are being addressed by GOAA.

6.16 Noise

FAA Order 1050.1E, FAA Order 5050.4B and Title 14--Aeronautics and Space Chapter I--Federal Aviation Administration, Department Of Transportation Subchapter I -Airports Part 150- Airport Noise Compatibility Planning (FAR Part 150) provide the regulatory framework for noise related to aircraft operation. Order 1050.1E requires that a significant noise impact must be determined through the use of the Integrated Noise Model (INM) (or other FAA-approved noise model) along with local land use guidance and general guidance contained in Appendix A of FAR Part 150. FAR Part 150 establishes the means to determine the extent of noise exposure surrounding an airport and includes guidelines identifying compatible and incompatible land uses within various Day-Night Average Sound Level (DNL) contours. The following is included in Appendix A of FAR Part 150:

- a. To determine the extent of the noise impact around an airport, airport proprietors developing noise exposure maps in accordance with this part must develop DNL contours. Continuous contours must be developed for DNL levels of 65, 70, and 75 (additional contours may be developed and depicted when appropriate).
- d. For the purpose of compliance with this part, all land uses are considered to be compatible with noise levels less than DNL 65 dB. Local needs or values may dictate further delineation based on local requirements or determinations.

FAR Part 150 .101Section A Table 1 “Land Use Compatibility With Yearly Day-Night Average Sound Levels” identifies that residential land uses are not compatible with DNLs greater than 65 DNL dBA (see Section 5.4.6 for a DNL Noise Metric Overview).

6.16.1 Impact Analysis

FAA Order 1050.1E defines what is considered a significant noise impact as a result of a Proposed Action. The order identifies that:

“A significant noise impact would occur if analysis shows that the Proposed Action will cause noise sensitive areas to experience an increase in noise of DNL 1.5 dB or more at or above DNL 65 dB noise exposure when compared to the ~~no action~~[No Action](#) alternative for the same timeframe.”³⁸

³⁸ FAA Order 1050.1E Appendix A 14.3

The FAA has determined that the cumulative noise exposure resulting from aviation activity must be established in terms DNL. All detailed noise analyses must be performed using the most current version of the INM, Heliport Noise Model (HNM), or Noise Integrated Routing System (NIRS). The INM Version 7.0a, the most current version of the model when this analysis began, has been used for this EA. INM Version 7.0a incorporates the capability of the HNM to model helicopter noise. As a result, there is no need to use the HNM for this EA. NIRS is only used for assessing the change in aircraft exposure on FAA projects involving changes in aircraft routes above 3,000 feet above ground level.

The methodology for assessing potential noise impacts included preparing DNL contours for the No Action and Proposed Action Alternatives for the year 2030. The contours have been prepared to assess if any noise sensitive land uses would experience a significant increase in aircraft noise exposure as a result of the Proposed Action.

The 2008 FAA Terminal Area Forecast (TAF) was used to project aviation operations at the Airport. The 2025 operations by aircraft categories contained within the TAF were extrapolated out to the year 2030. The growth rate over this time period was equal to the TAF growth rate between the years 2020 and 2025. **Table 6.16-1** includes the forecast of operations by aircraft category used in the analysis.

**TABLE 6.16-1
NO ACTION FORECAST AIRPORT OPERATIONS**

Year	Air Carrier / Cargo	General Aviation / Air Taxi	Military	Total
2030	494,499	41,979	517	536,995

SOURCE: FAA 2008 TAF and ESA Airports, 2009

No Action Alternative

The runway use and flight track locations used to model the noise for the 2030 No Action Alternative were assumed to be the same as the existing 2008 condition. The runway use and flight track exhibits for the No Action Alternative are included in **Appendix G**. The airport operations identified in Table 6.16-1 (totaling 536,995 operations annually) have been used in modeling the aircraft noise exposure for the year 2030. The fleet mix of aircraft forecast to operate in 2030 is based in part on the fleet mix that occurred in 2008. However, adjustments have been made based on airline industry trends, and the age of the aircraft in 2030. Specifically, the MD-80 series of aircraft entered service in 1980 and included a number of variants produced over the decade. While aircraft that entered service in the 1980s are still flying today, by 2030 these aircraft will be approaching 50 years old. For this reason, the percentage of the MD-80 series aircraft forecast in 2030 has been significantly reduced from the percentage in 2008. In addition, newer aircraft have, or will enter service in the upcoming years. Two such aircraft, the Airbus A380 and Boeing 747-800, are forecast to be operating at the airport in 2030. It should be noted that neither of these aircraft are included in the current version of the INM. However, the 747-400 is the INM substitute aircraft used to model these aircraft. A detailed breakdown of the No Action Alternative aircraft operations by INM aircraft type is included in **Appendix G**.

The 2030 DNL contours for the No Action Alternative are shown on **Figure 6.16-1**. The 2030 contours are larger than the 2008 DNL contours due to the forecast increase in operations. The largest increase is on the west side of the airfield, north and south of Runways 18R-36L and 18L-36R. This is due to the fact that the majority of aircraft operations occur on these two runways.

Two residential areas are located within the 2030 No Action 65 DNL noise contour. Both are located north of the airport along the extended Runway 36L centerline. The Belle Isle apartment complex, built in 2005, is located northeast of the intersection of Conway Road and Cove Drive and a manufactured home community is located just east of the intersection of Conway Road and Hoffner Avenue.

Seven apartment buildings along the eastern side of the complex are within the limits of the 65 DNL. It is estimated that a total of 90 people reside within these seven buildings based on an average household size of 2.6 people per residence within Orange County.

Fifty-three manufactured homes are located within the 2030 No Action 65 DNL noise contour. It is estimated that a total of 140 individuals are within the limit of the 65 DNL in this area.

In all, it is estimated that a total of 230 individuals reside within the 2030 No Action 65 DNL noise contour.

Proposed Action Alternative

The Proposed Action Alternative is forecast to result in additional aircraft operations and a change in the runway use at the airport. Land use acreages, building square footages, and current aircraft operations associated with similar high intensity aviation development that currently exists at OIA were reviewed. The ratio of aircraft operations to acreage/square footage was established. This ratio was then applied to the acres/square footage of high intensity use anticipated with the Proposed Action in order to forecast the increase in aircraft operations. Based on this analysis, it is forecast that the Proposed Action 2030 annual airport operations will total 564,995, which is an increase of 28,000 annual operations compared to the No Action Alternative.

This is a 5.2% increase over the No Action Alternative. The 2030 Proposed Action forecast of operations by aircraft category is shown in **Table 6.16.2**. A detailed breakdown of the Proposed Action Alternative aircraft operations by INM aircraft type is included in **Appendix G**.

**TABLE 6.16-2
PROPOSED ACTION FORECAST AIRPORT OPERATIONS**

Year	Air Carrier / Cargo	General Aviation / Air Taxi	Military	Total
2030	515,499	48,979	517	564,995

SOURCE: FAA 2008 TAF and ESA Airports, 2009

The Proposed Action is also forecast to result in a change in the runway use at the airport. It is expected that the greatest change will be that a majority of the additional aircraft will be operating on Runway 17L-35R, as it is the closest runway to the Proposed Action.

Runway use for the Proposed Action Alternative was developed with representatives from the FAA Orlando Air Traffic Control Tower (ATCT). These coordination efforts resulted in the overall runway use at for the airport for the Proposed Action Alternative as shown in **Table 6.16.3**.

**TABLE 6.16-3
PROPOSED ACTION ESTIMATED RUNWAY USE**

Flow	Operation Type	Runway	Use	Change from No Action
North	Departures	36L	8%	-
		36R	19%	-
		35L	29%	-1%
		35R	2%	+1%
		Total	58%	-
	Arrivals	36L	5%	-
		36R	18%	-
		35L	9%	-2%
		35R	12%	+2%
		Total	44%	-
South	Departures	18R	8%	-
		18L	23%	-
		17R	10%	-1%
		17L	1%	+1%
		Total	42%	-
	Arrivals	18R	16%	-
		18L	15%	-
		17R	10%	-2%
		17L	15%	+2%
		Total	56%	-

SOURCE: FAA ATC and ESA Airports, 2009

The 2030 DNL contours for the Proposed Action Alternative are shown on **Figure 6.16-2**. The Proposed Action contours are larger than the No Action DNL contours due to the addition of the 28,000 annual operations forecast as a result of the Proposed Action. The largest increase in the DNL contours is off the ends of Runway 17L-35R as this is the runway that is forecast to accommodate the majority of the additional operations (see Appendix M for additional details). The increase in the DNL contours north of Runway 17L-35R results in 16 single-family residences within the 65 DNL. These residences, located on Gentian Street and Brentwood Drive, are shown on **Figure 6.16-3**. A detailed noise analysis w/A comparison of noise contours with and without the project was performed in this area to determine if any of these residences will be exposed to a 1.5 DNL increase as a result of the Proposed Action. These residences are exposed to 64.3 DNL with the 2030 No Action Alternative. With the Proposed Action Alternative, these residences are exposed to 65.2 DNL, an increase of 0.9 DNL. While the Proposed Action results in an increase in noise exposure at these areas within the 65 DNL, the increase is below the threshold that results in a significant impact.

Comment [VL63]: Where is this study? I don't see it in the appendix.

Comment [sbb64R63]: Text was modified to clarify the statement. The reader is pointed to Appendix M for more details.

Figure (11x17)
6.16-1 2030 Noise Contours – No Action

Figure (11x17)

6.16-2 2030 Noise Contours – Proposed Action

Figure (11x17)
**6.16-3 2030 Noise Contours – No Action /
Proposed Action Comparison**

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The Belle Isle Apartment Complex and manufactured home community, described in the No Action Alternative, remain in the Proposed Action 65 DNL. A [detailed noise analysis comparison of noise levels](#) was also performed at both these locations to determine if any residence would experience a 1.5 or greater DNL increase as a result of the Proposed Action. The apartment complex and manufactured home community are exposed to 65.9 and 65.4 DNL respectively with the No Action Alternative. With the Proposed Action Alternative, these areas are exposed to 66.0 and 65.5 DNL respectively, an increase of 0.1 DNL. While the Proposed Action results in an increase in noise exposure at these areas within the 65 DNL, the increase is below the threshold that results in a significant impact. The total population within the Proposed Action 65 DNL contour is estimated to be 270.

Comment [VL65]: Where is this study?

Comment [sbb66R65]: Text was modified to clarify and the Appendix reference was added to an earlier section.

6.16.2 Mitigation

Based on 2030 aircraft operations, it does not appear that any noise sensitive areas will experience a significant noise impact as a result of the Proposed Action. However, additional noise analysis may be required depending on the type of future development or changes in aircraft operation forecast. While it does not appear at this time that future mitigation would be required, additional analysis at the time of proposed development would be necessary to determine mitigation requirements; thus no mitigation is necessary.

Comment [VL67]: Until we see the "detailed noise study" this conclusion is not substantiated. Also, need to discuss with legal regarding the acceptability of "2030 noise impacts".

Comment [sbb68R67]: Text has been clarified to address this comment.

6.16.3 Environmental Impact Determination

TABLE 6.16.4
SUMMARY OF NOISE IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	Does the alternative meet or exceed the Significance Threshold?
No Action	A DNL 1.5 dB increase at a noise sensitive area within the DNL 65 dB	No
Proposed Action	A DNL 1.5 dB increase at a noise sensitive area within the DNL 65 dB	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.
SOURCE: ESA Airports, 2009

6.17 Social Impacts

The FAA [Environmental Desk Reference for Airport Actions guidance](#) states:

“FAA must evaluate proposed airport development actions to determine if they would cause social impacts. This evaluation should include effects on health and safety risks to children, and socioeconomic impacts. Those impacts include moving homes or businesses; dividing or disrupting established communities; changing surface transportation

patterns; disrupting orderly, planned development; or creating a notable change in employment.”³⁹

6.17.1 Impact Analysis

Significance thresholds identified in FAA 1050.1E include the following:

- The action would cause extensive relocation, but sufficient replacement housing is unavailable;
- The action would cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;
- Disruption of local traffic patterns that ~~Substantial~~ substantially reduction reduce in the Level of Service for roads serving the airport area and its surrounding communities; and
- Substantial loss in community tax base.

No Action Alternative

The No Action alternative would not result in the construction of additional facilities. No impacts would be expected that involve housing relocation, community business relocations that would cause severe economic hardship or substantial loss in community tax base. However, due to projected growth of the region there is a potential for portions of the roadway systems to fall below acceptable Levels of Service under the No Action Alternative.

Proposed Action Alternative

The Proposed Action Alternative does not require any relocation or significant impact on housing or business in the Proposed Action vicinity.

There will be no loss in community tax base associated with the implementation of the Proposed Action Alternative.

The City has adopted Growth Management Plan Policies and Objectives (GMP) and has codified the Southeast Sector Plan (Sector Plan) within the Orlando City Code which both specifically anticipate the land uses set forth in the Proposed Action Alternative (Appendix 2B). The Sector Plan provides development guidelines and standards for Southeast Orlando, including the EADA, envisioned to provide a full range of uses, services, amenities, and activities to fill the needs of the ultimate population of roughly 65,000. The Sector Plan provides:

- The Orlando International Airport is a strong and growing economic engine within the region. The Greater Orlando Aviation Authority, GOAA, plans to construct a fourth runway, expand terminal facilities, build new onsite roadways, pursue regional rail transit linkages, and actively market airport-related industrial, office and commercial

³⁹ FAA Environmental Desk Reference for Airport Actions 18 a

development. The Southeast Orlando area is directly adjacent to this significant regional center and has the potential to benefit by serving as a prime location for new office and industrial development. In addition, the Southeast Orlando area's location can capitalize on traffic to the airport through strategically placed commercial/lodging activities, and by providing a full range of housing that is both affordable and convenient for airport employees. (Southeast Orlando Sector Plan Development Guidelines and Standards, May 10, 1999.)

- The Sector Plan Master Plan Map adopted by the City contemplates Airport Support High Intensity as the land use for the EADA. Section 68.105 Orlando City Code

It can be seen that Proposed Action (East Airfield Development Area) in Southeast Orlando represents the fulfillment of a well conceived plan, and the Proposed Action aligns with and is a crucial component of the Sector Plan.

In reaction to changes in the growth management laws in Florida the City has also revised its GMP by adopting a City wide Transportation Concurrency Exception Area (TCEA) and mobility strategies. The City also has adopted GMP objectives and policies regarding access to the airport. The City of Orlando Transportation Element of the GMP provides the following:

- The City of Orlando's Transportation Concurrency Exception Area (TCEA) shall be the corporate limits of the City of Orlando as of July 7, 2010. GMP Transportation Element Policy 1.8.2.
- Developments inside the TCEA shall be deemed to meet the State requirements to achieve and maintain LOS standards for transportation. Id.
- Access to the Orlando International Airport shall be improved through a combination of improvements (including enhanced transit service and implemented roadways system expansion) implemented by the City of Orlando, adjacent jurisdictions, the Central Florida Regional Transportation Authority (dba Lynx), the Florida Department of Transportation, and the Greater Orlando Aviation Authority. GMP Transportation Element Policy 1.6.1
- The City shall advocate the provision of better access to the Orlando International Airport from Downtown Orlando and the northern half of the urban area. This access may be highway, rail and/or bus. GMP Transportation Element Policy 1.6.3
- The City shall support the growth of aviation facilities needed to keep up with the increased demand of business, tourism and conventional travel. GMP Transportation Element 1.17.1
- The City shall permit development, consistent with the applicable mobility area requirements described in Objective 2.4, that will support the Future Land Use Element

which will further goals, objectives and policies of the GMP. GMP Transportation Element Objective 2.1

- Mitigation of roadway deficiencies may include solutions designed to improve transportation modes other than roadways.

The Proposed Action is within the City limits and therefore is within the TCEA. Modifications to the GMP relating to the TCEA and mobility strategies were adopted by the City in January of 2011. A traffic analysis was conducted in October of 2008 by GOAA's traffic consultant, HDR Engineering, Inc. (HDR). As a result of the newly adopted GMP strategies the 2008 traffic analysis required revisions. In addition to the GMP changes, on August 12, 2009, the local Metropolitan Planning Organization (MPO), MetroPlan Orlando, adopted the MetroPlan Orlando 2030 Cost Feasible Long Range Transportation Plan (Transportation Plan). The Transportation Plan includes widening of each of the three segments of Narcoossee Road that were identified in the 2008 analysis. A revised memorandum was completed by HDR which included the revised GMP policies, the Transportation Plan and the Sector Plan which is included in Appendix N along with letter's from the City of Orlando dated November 16, 2009 and June 6, 2011 which provide the City's comments relating to the traffic impacts associated with the EADA.

Trip generation calculations and roadway segment analyses along with an analysis of the revised GMP (Appendix M) have been conducted to evaluate a variety of different development scenarios related to the Proposed Action Alternative including final build out. This analysis was conducted using monitored trip generation rates for existing facilities at OIA that are consistent with the potential types of development that would occur on this site. This approach was taken because these rates most accurately reflect the actual potential trip generation of the Proposed Action Alternative. The monitored rates were established using approved Institute of Transportation Engineers (ITE Trip Generation, 7th Edition) methodologies, with said approach supported by the City of Orlando.⁴⁰ Trip generation rates from the Institute of Transportation Engineers (ITE Trip Generation, 7th Edition) were also used for comparison but are not regarded as truly applicable to the Proposed Action Alternative because they do not accurately represent the aviation support uses contemplated for development. The analysis indicated that at full build out approximately 46,000 daily trips would be generated by the Proposed Action Alternative. Based on application of the new information, the analysis concludes that no roadway segments will experience a disruption in local traffic patterns that substantially reduce the LOS as a result of the Proposed Action.⁴¹ Based on this analysis, the Proposed Action Alternative impacts four (4) roadway segments under the maximum development program. It should be noted that each of these four segments are projected to operate deficiently even without the development of the Proposed Action Alternative based on the projected increase in background, non project traffic. Appendix M provides a summary table of the trip generation analysis.

Comment [VL69]: Does the MPO or the City of Orlando agree that the monitored trip generation rates are consistent with the potential types of development and do they agree that these rates accurately reflect the actual potential trip generation?

Comment [sbb70R69]: See revised text and Appendix Item. See City of Orlando Letter dated June 6, 2011 that is part of the revised Appendix M.

Comment [VL71]: There is no support or concurrence provided for this statement.

Comment [sbb72R71]: See revised information

Comment [VL73]: Or this one.... this is based on monitored rates. Need concurrence from the MPO/PC or City of Orlando that they accept these rates. Also in reading information provided in Appendix M, it does not appear that there has been any discussion with the MPO/PC regarding whether trip entitlements would transfer, therefore the amount of development proposed may not be able to be built.

Comment [sbb74R73]: See revised information.

⁴⁰ See City of Orlando letter dated June 6, 2011 in Appendix M.

⁴¹ See City of Orlando letter dated November 16, 2009 in Appendix KK.

6.17.2 Mitigation

Because there is no significant impact no mitigation measures are proposed as part of the EA. However, transportation mitigation for potential external roadway and/or intersection impacts will be addressed through the Notice of Proposed Change (NOPC) or DRI Substantial Deviation requirements per Chapter 380.06, F.S as warranted or through local concurrency requirements. It is important to note that in accordance with the FAA Revenue Policy and Procedures Concerning use of Airport Revenue; Notice, 64 Fed. Reg. 7,696, 7,720 February 19, 1999) (Revenue Use Policy), GOAA has never participated in off-airport improvements for aviation-related projects at the airport. GOAA has conducted traffic impact studies to evaluate off-airport roadway conditions pursuant to DRI requirements and has identified roadway segments that merit widening or new construction. This has been followed by GOAA working with other government agencies to advocate completing the projects. GOAA has not been precluded from advancing or constructing airport projects because an off-airport transportation project has not been completed by another local government agency. In its role as advocate GOAA's has facilitated the following completed projects as examples:

- Goldenrod Road Extension and new interchange at SR 528 (with connection to Heintzelman Boulevard)
- Conway Road widening from 2 to 4 lanes
- SR 436 widening from 4 to 6 lanes
- Modified interchange at SR 436 and SR 528
- Widening of Narcoossee Road (multiple segments)

Comment [VL75]: FAA cannot issue a FONSI based on this information. We need concurrence from local jurisdiction that transportation impacts are not considered significant or that significant impacts will be mitigated to below levels of significance.

Comment [sbb76R75]: See revised information.

6.17.3 Environmental Impact Determination

TABLE 6.17-1
 SUMMARY OF SOCIAL IMPACTS – SIGNIFICANCE THRESHOLDS

Alternative	Significance Threshold ^a	<u>Does the alternative meet or exceed the Significance Threshold?</u>
No Action	The action would cause extensive relocation, but sufficient replacement housing in unavailable	<u>No</u>
	The action would cause extensive relocation of community businesses that would cause severe economic hardship for affected communities.	<u>No</u>
	Disruption in local traffic patterns that substantially reduces the Level of Service for roads serving the airport and its surrounding communities	<u>No</u>

	Substantial loss in community tax base.	No	
Proposed Action	The action would cause extensive relocation, but sufficient replacement housing in unavailable	No	
	The action would cause extensive relocation of community businesses that would cause severe economic hardship for affected communities.	No	
	Disruption in local traffic patterns that substantially reduces the Level of Service for roads serving the airport and its surrounding communities	No	
	Substantial loss in community tax base.		

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1 and FAA Environmental Desk Reference for Airport Actions (2007).

SOURCE: ESA Airports, 2009, HDR, 2008

6.18 Solid Waste

FAA 1050.1E identifies that “a preliminary review should indicate if the projected quantity or type of solid waste generated or method of collection or disposal will be appreciably different than would be the case without the action.”

6.18.1 Impact Analysis

The Solid Waste Disposal Act of 1965 identifies that “the disposal of solid waste in or on the land without careful planning and management can present danger to human health and to the environment.” The City of Orlando Solid Waste Management Bureau oversees the pick-up and transfer of solid waste. Orange County is responsible for the disposal of solid waste at the Orange County Landfill. Both the City and County are responsible for adhering to all applicable Federal, state and local laws related to the proper handling and disposal of solid waste.

No Action Alternative

The No Action Alternative would not change the existing conditions. Therefore, no additional solid waste would be generated.

Proposed Action Alternative

The Proposed Action is forecast to increase the number of aircraft operations, building space, and people at the airport. However, waste generation volumes for this airport are projected to be primarily driven by the high volumes of passenger traffic which will not change as a result of the Proposed Action Alternative. According to the Orlando International Airport Office of Public Affairs, the Airport currently has over 6 million square feet of terminal space, and accommodates over 30 million passengers on an annual basis.

It is anticipated that the Orange County Landfill has the capacity to hold the solid waste volumes for both the construction and operation of a project this size. In addition, the solid waste handled

by the City and County would meet all applicable laws and regulations including those applicable to the minimization of the effect to the environment.

6.18.2 Mitigation

No mitigation measures are proposed.

6.18.3 Environmental Impact Determination

No significant impact is anticipated for solid waste. No impacts are anticipated for solid waste.

6.19 Water Quality

The Federal Water Pollution Control Act, as amended by the Clean Water Floodplains and Floodways Act of 1977 (CWA and 1987 amendment) provides the regulatory framework for the water quality requirements for waters of the United States.⁴² Under Section 33 U.S.C. Sections 1341 and 1362, Section 401 of the CWA, and 40 C.F.R section 121.1(e), the Governor of the State of Florida designated the Florida Department of Environmental Protection (FDEP) as the lead agency responsible for state water quality standards in 1998. The FDEP oversees permitting processes and the issuance or denial of water quality certifications. Water management districts in Florida were delegated concurrent authority to issue, deny, or waive water quality certification under FS Part IV Chapter 373. The SFWMD is delegated the authority, for this type of project, to issue, deny, or waive a water quality certification. Issuance of a “standard general, individual, or conceptual approval of environmental resource permits, and individual wetland resource permits issued under FS Part IV of Chapter 373”⁴³ by the SFWMD constitute the granting of water quality certification and compliance with state water quality standards and the CWA unless specifically stated differently in the permit. On August 30, 2010 the SFWMD issued a final conceptual environmental resource permit to GOAA (see Section 6.20 for details regarding the SFWMD Permit), therefore water quality certification for the project pursuant to Section 401 of the CWA has been issued.

Section 402 of the CWA regulates the issuance of National Pollution Discharge Elimination Systems (NPDES) related to industrial activities and any land disturbing activity or construction that could affect surface water quality. The delegation of NPDES permitting has been conveyed to the FDEP from the EPA. FDEP's authority to administer the NPDES program is set forth in FS Section 403.0885. A Stormwater Pollution Prevention Plan (SWPPP) is required to be submitted and implemented in association with construction activity NPDES permits.

The CWA, Section 311, as amended by the Oil Pollution Act requires spill response plans for facilities that store oil-based or oil products.⁴⁴ The Proposed Action alternative has a planned fuel

⁴² 33 USC Chapter 26

⁴³ Operating Agreement Between US USACE, FDEP, and the Water Management Districts Concerning Regulatory Programs for Activities in Wetlands and Other Surface Waters (November, 1998)

⁴⁴ FAA Environmental Desk Reference for Airport Actions Chapter 20 2a

farm in the conceptual design and there may be auxiliary-type storage oil or oil-based storage facilities associated with the aviation development area for the Proposed Action alternative.

The EPA regulates sole source aquifers and primary drinking water supplies under the Safe Drinking Water Act, as amended and 40 CFR Parts 142 and 149. There are no anticipated sole source aquifer or primary drinking water supply issues associated with the Proposed Action area.

6.19.1 Impact Analysis

As stated in FAA Order 5050.4B Table 7.1, a significant impact to water quality would occur

“When an action would not meet water quality standards. Potential difficulty in obtaining a permit or authorization may indicate a significant impact.”⁴⁵

No Action Alternative

The No Action Alternative would not disturb the land or water on the Proposed Action site. No impacts to water quality would be anticipated.

Proposed Action Alternative

The Proposed Action alternative includes land clearing activity, the construction of a surface water management system, the discharge of dredged and filled material to waters of the United States, and construction of major aviation support facilities as described in the conceptual plan discussed in Section 3.0 Proposed Action. GOAA has received a ~~final~~ conceptual environmental resource permit (ERP) from the SFWMD which constitutes water quality certification for the project pursuant to Section 401 of the CWA and demonstrates that the project will comply with water quality standards. GOAA will be required to submit a “Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities” (Rule 62-621.300 (4), F.A.C.) to the FDEP prior to land clearing activities on site. A SWPPP will also be required for the NPDES permit process.

The fuel farm and any other regulated oil or oil-based storage areas will be subject to the Oil Pollution Act requirements and all applicable state, local, and federal regulations. A Spill Prevention Control and Countermeasure Plan (SPCC) will be developed for these facilities. All required plans will be prepared prior to construction and operation of these facilities.

6.19.2 Mitigation

Through the best management practices and stormwater design criteria that are required by the SFWMD ERP permitting process, a water quality certification will be obtained at the time of issuance of the permit. ~~No mitigation measures are necessary.~~ [The SFWMD ERP permit issued on August](#)

⁴⁵ FAA Order 5050.4B Table 7.1-6

30, 2010 (48-00063-S-03) states the following (SFWMD Permit Modification No. 48-00063-S-03):

“Issuance of this Permit constitutes certification of compliance with state water quality standards where necessary pursuant to Section 401, Public Law 92-500, 33 USC Section 1341,....”

6.19.3 Environmental Impact Determination

**TABLE 6.19-1
 SUMMARY OF WATER QUALITY IMPACTS – SIGNIFICANCE THRESHOLDS**

Alternative	Significance Threshold ^a	<u>Does the alternative meet or exceed the Significance Threshold?</u>
No Action	Action would not meet water quality standards.	No
Proposed Action	Action would not meet water quality standards.	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1.
 SOURCE: ESA Airports, 2009

6.20 Wetlands

This section discusses impacts to federal, state, and locally regulated wetlands associated with the Proposed Action area. Wetlands addressed in this section include jurisdictional wetlands, non-jurisdictional wetlands, and other “waters of the U.S” designated under Section 404 of the Clean Water Act. The FAA Environmental Desk Reference for Airport Actions discusses Executive Order 11990, Protection of Wetlands and DOT Order 5660.1A Preservation of Wetlands which direct federal agencies to avoid wetland impacts if a practicable alternative exists. To address the NEPA alternatives discussion and the analysis that was utilized to select the Proposed Action alternative, see Section 4.0. Further analysis under the Section 404 program of the Clean Water Act of potential configurations of the Proposed Action was conducted concluding that there was not a practicable alternative configuration that met the overall project purpose and need and resulted in less adverse impacts to wetlands (Appendix-N 4A). Appendix 4AN provides discussion and analysis for the on-site wetland impact avoidance and minimization through retaining wetland systems while trying to accommodate the purpose and need for the project. Appendix 4AN states reasons why impacts to on-site wetland systems could not be avoided.

Comment [VL77]: See comments this section.

Comment [sbb78R77]: Noted

Comment [VL79]: See comments this appendix.

Comment [sbb80R79]: Please see Appendix 4A USACE Application

The Clean Water Act (CWA) implemented by the EPA and USACE “maintains and restores the physical, biological, and chemical integrity of the nation’s water.”⁴⁶ Under CWA Section 404, the USACE regulates the discharge of dredged or fill material to “waters of the United States,” including wetlands, rivers, streams, and natural ponds. The USACE and the EPA define wetlands as, “Those areas that are saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically

⁴⁶ FAA Environmental Desk Reference for Airport Actions (October 2007) Chapter 21 2 Applicable Statutes and Implementing Regulations

adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Additionally, based on the Supreme Court ruling in *Solid Waste Agency for Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC) concerning the Clean Water Act jurisdiction over isolated waters (January 9, 2001), non-navigable, isolated, intrastate waters based solely on the use of such waters by migratory birds are no longer defined as waters of the United States. Following the ruling, jurisdiction of non-navigable, isolated, intrastate waters may be possible if their use, degradation, or destruction could affect other waters of the United States, or interstate or foreign commerce. Jurisdiction over such other waters should be analyzed on a case-by-case basis. Impoundments of waters, tributaries of waters, and wetlands adjacent to waters should be analyzed on a case-by-case basis.

A more recent Supreme Court case, *Rapanos v. United States* (June 19, 2006), has raised the question of the jurisdictional status of wetlands in relation to navigable waters. Among the unresolved issues are whether “only those wetlands with a continuous surface connection to bodies that are ‘waters of the United States’” are covered by the Clean Water Act and fall under Corps jurisdiction, or whether a given wetland could be determined to be jurisdictional if a “significant nexus” were established, such that the wetland exhibits significant affect on “the chemical, physical, and biological integrity of other covered waters more readily understood as ‘navigable.’” A recent ruling by the United States Court of Appeals for the Ninth Circuit has applied the “significant nexus” standard (*Northern California River Watch v. City of Healdsburg*; August 10, 2006).

The Rivers and Harbors Act of 1899 provides the regulatory guidelines for federal actions that impact navigable waters used for commerce or include building structure in those navigable waters. The Proposed Action area does not include navigable waters used for commerce applicable to this federal regulation.

6.20.1 Impact Analysis

As stated in FAA Order 1050.1E, a significant impact to wetlands would occur if any of the following occurred:

- Adversely affect a wetland’s function to protect the quality or quantity of a municipal water supply, including sole source aquifers and a potable water aquifer.
- Substantially alter the hydrology needed to sustain the affected wetland’s values and functions or those of a wetland to which it is connected.
- Substantially reduce the affected wetlands’ ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare. The last term includes cultural, recreational, and scientific public resources or property.
- Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically-important timber, food, or fiber resources of the affected or surrounding wetlands.

- Promote development that causes any of the above impacts.
- Be inconsistent with applicable State wetland strategies.⁴⁷

No Action Alternative

The No Action Alternative would not disturb the land or water on the Proposed Action site. Continued use of the site for cattle grazing and sod farming may further degrade the existing wetlands on-site.

Proposed Action Alternative

The Proposed Action Alternative analysis for wetland impacts is separated into three sections; federal, state, and local to address specific regulatory issues of each and expedite review. All three levels of review consistently apply the quantity of anticipated impact to wetlands and water bodies. The Proposed Action Alternative would impact ~~the majority~~ of all wetlands and water bodies within the approximate 1,325 acre Proposed Action area. ~~Avoidance of impacts to 11.79 acres of jurisdictional wetlands adjacent to Lake Nona was deemed practicable and has been incorporated into the preferred alternative configuration. To meet the project purpose and need and further minimize adverse wetland impacts other on-site wetland avoidance and minimization was determined impracticable (Appendix N).~~

Comment [VL81]: Shouldn't this be "all"?

Comment [sbb82R81]: There will remain a small wetland area south of Dowden Road and north of Lake Nona. No impacts are proposed for this area although the SFWMD permit acknowledges that mitigation for the functional loss has been provided. Could leave as is or say "almost all" .

Federal Level Review

The USACE has lead regulatory responsibility for review and permitting of jurisdictional wetland impacts. Section 404(b)(1) of the Clean Water Act sets forth the criteria for review of wetland impacts including avoidance and minimization of impacts. ~~As referenced above, avoidance and minimization beyond the 11.79 acres of wetlands adjacent to Lake Nona was determined to be impracticable (Appendix N).~~

Comment [VL83]: Still in

Comment [sbb84R83]: Text deleted.

In addition, FAA Advisory Circular 150/5200-33B "Hazardous Wildlife on or Near Airports" provides guidance on certain land uses that have the potential to attract hazardous wildlife on or near public-use airports. It provides that guidance with respect to airport development projects (including airport construction, expansion, and renovation) (see **Appendix O**) Section 2-4 of the Advisory Circular identifies wetlands as a land use which is normally attractive to many types of wildlife, including many which rank high on the list of hazardous wildlife species. Wetlands are among the land uses on the East Airfield identified by the U.S. Department of Agriculture (USDA) as potential wildlife hazards following a one year study by USDA and provided to GOAA in January 2010 (**Appendix P**). Section 1 of the Advisory Circular provide separation criteria for hazardous wildlife attractants on or near airports (see Appendix O). FAA AC 150/5200-33B states the following in Section 1-1:

When considering proposed land uses, airport operators, local planners, and developers must take into account whether the proposed land uses, including new development projects,

⁴⁷ FAA Order 1050.1E Appendix A 18.3

will increase wildlife hazards. Land-use practices that attract or sustain hazardous wildlife populations on or near airports can significantly increase the potential for wildlife strikes.

The FAA recommends the minimum separation criteria outlined below for land-use practices that attract hazardous wildlife to the vicinity of airports. Please note that FAA criteria include land uses that cause movement of hazardous wildlife onto, into, or across the airport's approach or departure airspace or air operations area (AOA).

Specific to the location of the Proposed Action Alternative, the entire project site is located within the 10,000 foot (Perimeter B) area described within the advisory circular. FAA AC 150/5200-33B states the following in Section 1-3:

AIRPORTS SERVING TURBINE-POWERED AIRCRAFT. Airports selling Jet-A fuel normally serve turbine-powered aircraft. Notwithstanding more stringent requirements for specific land uses, the FAA recommends a separation distance of 10,000 feet at these airports for any of the hazardous wildlife attractants mentioned in Section 4 or for new airport development projects meant to accommodate aircraft movement. This distance is to be maintained between an airport's AOA and the hazardous wildlife.

Coordination with the USACE has been conducted by GOAA through an on-site inspection on July 21, 2006 to determine the extent of jurisdictional wetlands under Section 404 of the CWA. Individual Permit Application No. SAJ-2006-2640 (IP-JSC) was submitted to the USACE on September 18, 2006 and is currently under review by the USACE. [The application was revised and information was resubmitted to the USACE in November 2010.](#) The information in this section reflects the quantification of wetland impacts within the [revised](#) USACE permit application.

The project site consists of approximate 256.88 acres of jurisdictional wetlands or "waters of the United States" (defined under Section 404 of the CWA) (See **Figure 6.20-1**). The Proposed Action would discharge dredged and fill material to ~~245.09~~[256.88](#) acres of jurisdictional wetlands through the

Figure
6.20-1 ACOE Wetland Map

discharge of dredged or filled material. The functions and value of the on-site jurisdictional wetlands were assessed in December 2005 and February 2006 utilizing the Modified Wetland Rapid Assessment Procedure (M-WRAP) (per South Florida Water Management District [SFWMD] Technical Publication REG-001, updated August 1999, and the Joint State/Federal Mitigation Back Review Team Process for Florida). ~~The functional assessment was revised in May 2010 to reflect the avoidance of 11.79 acres of wetland impact.~~ The variables assessed by the M-WRAP methodology include wildlife utilization, wetland overstory/shrub canopy, wetland vegetative groundcover, adjacent upland/wetland buffer, field indicators of wetland hydrology, and water quality input and treatment. This method was used since the basis for mitigation credits to be used to offset wetland functional loss was M-WRAP.

Data sheets utilized in the MWRAP assessment can be found in the USACE Individual Permit Application No. SAJ-2006-2640 (IP-JSC) (on file with GOAA and USACE for review). ~~A summary of the MWRAP scoring is provided as Appendix Q.~~ According to the MWRAP analysis detailed in the USACE permit application, the direct impact to ~~245.09256.88~~ acres of jurisdictional wetlands will result in a loss of ~~145.35153.92~~ MWRAP functional wetland units. Mitigation is proposed off-site at an already established mitigation area (see Section 6.20.2).

State Level Review

~~Coordination on a state level, with the~~ The South Florida Water Management District (SFWMD) ~~has occurred and is ongoing. has issued a conceptual Environmental Resource Permit a (ERP) permit for the Proposed Action.~~ An ERP ~~permit~~ considers the following elements:

An ERP covers activities such as dredging and filling in wetlands, constructing flood protection facilities, providing stormwater containment and treatment, site grading, building dams or reservoirs, and other activities affecting state waters. The ERP combines wetland resources permitting with management and storage of surface waters permitting into a single permit, to streamline the permitting process.⁴⁸

~~On The SFWMD conceptual ERP permit was issued on~~ August 30, 2010 ~~the SFWMD issued a conceptual ERP to GOAA (see Appendix R).~~ The conceptual ERP identifies 319.89 acres of wetlands and other surface waters (see **Figure 6.20-2**). ~~The 319.3889 acres consists of 247.77 acres of wetlands and 72.1272.12 acres of surface waters. Of those 319.89 acres 72.12 acres are surface waters and 247.77 are considered to be wetlands (FLUCFCS). The Proposed Action will impact 52.27 of the 72.12 acres of surface waters. The conceptual ERP permit identifies 247.77 acres of wetland impacts and 52.27 of surface waters impacts. There are~~ There are ~~remaining~~ 19.85 acres of surface waters ~~not impacted by the Proposed Action are~~ located within Lake Nona (the existing lake natural lake) at the southern limits of the Proposed Action area ~~that will not be impacted.~~

~~As discussed above, the~~ conceptual ERP ~~permit~~ identifies a total of 247.77 acres of state jurisdictional wetlands. ~~As discussed above, the adverse impacts to 11.79 acres of wetlands were eliminated as determined through the avoidance and minimization process.~~ Adverse impacts to

⁴⁸https://my.sfwmd.gov/portal/page?_pageid=734,1456589,734_1456634&_dad=portal&_schema=PORTAL&navpage=environmentalresource

Comment [VL85]: What will be required prior to construction because i.e. because this is a "conceptual permit"? Or is all that is required per the following noted in the water quality section?

"GOAA will be required to submit a "Notice of Intent to Use Generic Permit for Stormwater Discharge from Large and Small Construction Activities" (Rule 62-621.300 (4), F.A.C.) to the FDEP prior to land clearing activities on site. A SWPPP will also be required for the NPDES permit process".

QUESTION FOR FAA LEGAL: Should the EA disclose the time limits of the conceptual permit issued by SFWMD? GOAA please explain to Anne.

Comment [sbb86R85]: Noted

isolated wetlands less than 0.50 acre do not require mitigation according to the SFWMD Basis of Review Section 4.2.1.⁴⁹ The combined acreage of isolated wetlands located on the project site total 0.99 acres. ~~Therefore, of the 247.77 acres of jurisdictional wetlands, 234.99 acres will require mitigation.~~

Figure
6.20-2 SFWMD Wetland Map

⁴⁹ Chapter 40E-4 Florida Administrative Code. Basis of Review For Environmental Resource Permit Applications within the South Florida Water Management District. Section 4.2.2.1

The conceptual ERP ~~permit~~ includes a functional assessment of ~~the remaining 234.99~~^{247.77} acres of jurisdictional wetlands calculated in accordance with the Florida Unified Mitigation Assessment Method (UMAM). UMAM, as outlined in Chapter 62-345, Florida Administrative Code, which was utilized to quantify the function and values of the wetland functional loss. UMAM provides a standardized procedure for assessing the functions provided by wetlands, the amount by which those functions are reduced by a proposed impact, and the amount of mitigation (in units) required to offset that loss. UMAM analyzes three (3) categories of indicators of wetland function. The three categories are: location and landscape support, water environment, and community structure.

Data sheets utilized in the UMAM analysis can be found in the SFWMD conceptual ERP ~~permit~~ (Appendix R). According to the UMAM analysis detailed in the conceptual ERP ~~permit~~, the wetland impacts described above will result in a loss of ~~143.25~~^{151.29} functional units. The SFWMD has reviewed these assessments and adjustments to the functional loss assessments have been incorporated into the permit. For mitigation measures see Section 6.20.2.

Local Level Review

The City of Orlando incorporates goals and policies related to wetlands with the City of Orlando Growth Management Plan which is part of the state mandated comprehensive planning process. ~~There are two elements, the Conservation Element and the Future Land Use Element, where wetlands on Orlando International Airport property are specifically addressed. The City of Orlando wetland review for this project is complete once the SFWMD issues an ERP permit. This is explicitly explicitly stated under the Under the~~ Conservation Element of the Orlando Growth Management Plan, Policy 1.4.4. The Policy -states:

“The City acknowledges the unique role that the Orlando International Airport plays in the economic health and well-being of the Central Florida area. In order to protect this role, and the public investment in the airport, it is necessary to allow expansion of airport facilities consistent with reasonable protection of existing wetland systems and mitigation or necessary impacts. Therefore, on Orlando International Airport property, issuance of a permit by the Department of Environmental Protection and/or the South Florida Water Management District for impacts to wetlands shall be sufficient to demonstrate compliance with the City wetland regulations.”

~~Figure LU 2A “Southeast Orlando Sector Plan” of the Future Land Use Element of the City of Orlando Growth Management Plan identifies the future land use designations for the Proposed Action area (see Figure 6.20-3). The solid green areas within the Proposed Action area are designated under the heading of “Primary Conservation Network/Wetlands” (PCN). In regards to the PCN areas identified within the OIA property boundary, the City of Orlando’s Future Land Use Element Policy 4.1.11 provides GOAA the ability to remove the PCN land use from their property after SFWMD permits are obtained. Policy 4.1.11 states the following:~~

~~The Conservation Use future land use designation shown on the Orlando International Airport property may be removed after satisfactory completion of all permitting processes~~

~~of the appropriate environmental regulatory agencies, and consistent with Conservation Element Policy 1.4.4. Conservation Element Policy 1.4.4 states that on Orlando International Airport property, issuance of a permit by the Department of Environmental Protection and/or the South Florida Water Management District for impacts to wetlands shall be sufficient to demonstrate compliance with the City wetland regulations. In order to foster efficient development of the Orlando International Airport, the City Planning Official shall be authorized to alter the Southeast Orlando Sector Plan map, the Official Future Land Use Map, the Official Zoning Map and GMP Conservation Element Figure C-2B, consistent with the terms of the approved environmental permits without the need to process a GMP amendment.~~

Upon issuance of the SFWMD conceptual ERP ~~permit~~ on August 30, 2010 (No. 48-00063-5-03), ~~the~~ the City of Orlando issued a “Planning Official Determination” letter to GOAA on October 25, 2010 to address the provisions stated above regarding the wetland land use areas on airport property. A copy of the letter is provided in **Appendix S**. The Determination included in this letter states:

“The Planning Official hereby determines that staff (including the Zoning Official) may proceed to administratively revise the Official Future Land Use Map, the Official Zoning Map, the Southeast Orlando Sector Plan Map (GMP Future Land Use Figure LU-2A), and GMP Conservation Element Figure C-28 to accurately reflect wetland impacts authorized in the South Florida Water Management District’s Environmental Resource Permit Modification No. 48-00063-S-03 for the Greater Orlando Aviation Authority’s OIA East Airfield Development Area.”

The City of Orlando’s Zoning and Future Land Use Maps have been updated to reflect this information. Figures for both items are found in Section 5.0 (see Figure 5.3-1 and Figure 5.3-2).

6.20.2 Mitigation

Wetland mitigation for both federal and state permits will occur off-site in accordance with FAA AC 150/5200-33B Section 2-4 Wetlands which includes the following (see Appendix O):

- c. **Mitigation for wetland impacts from airport projects.** Wetland mitigation may be necessary when unavoidable wetland disturbances result from new airport development projects or projects required to correct wildlife hazards from wetlands. Wetland mitigation must be designed so it does not create a wildlife hazard. The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4.
 1. **Onsite mitigation of wetland functions.** The FAA may consider exceptions to locating mitigation activities outside the separations identified in Sections 1-2 through 1-4 if the affected wetlands provide unique ecological functions, such as critical habitat for threatened or endangered species or ground water recharge, which cannot be replicated when moved to a different location. Using existing

airport property is sometimes the only feasible way to achieve the mitigation ratios mandated in regulatory orders and/or settlement agreements with the resource agencies. Conservation easements are an additional means of providing mitigation for project impacts. Typically, the airport operator continues to own the property, and an easement is created stipulating that the property will be maintained as habitat for state or Federally listed species.

Figure (11x17)

~~6.20-3 Local Wetland Designations – City of
Orlando FLUM~~

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Mitigation must not inhibit the airport operator's ability to effectively control hazardous wildlife on or near the mitigation site or effectively maintain other aspects of safe airport operations. Enhancing such mitigation areas to attract hazardous wildlife must be avoided. The FAA will review any onsite mitigation proposals to determine compatibility with safe airport operations. A wildlife damage management biologist should evaluate any wetland mitigation projects that are needed to protect unique wetland functions and that must be located in the separation criteria in Sections 1-2 through 1-4 before the mitigation is implemented. A WHMP should be developed to reduce the wildlife hazards.

2. **Offsite mitigation of wetland functions.** The FAA recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4 unless they provide unique functions that must remain onsite (see 2-4c(1)). Agencies that regulate impacts to or around wetlands recognize that it may be necessary to split wetland functions in mitigation schemes. Therefore, regulatory agencies may, under certain circumstances, allow portions of mitigation to take place in different locations.
3. **Mitigation banking.** Wetland mitigation banking is the creation or restoration of wetlands in order to provide mitigation credits that can be used to offset permitted wetland losses. Mitigation banking benefits wetland resources by providing advance replacement for permitted wetland losses; consolidating small projects into larger, better-designed and managed units; and encouraging integration of wetland mitigation projects with watershed planning. This last benefit is most helpful for airport projects, as wetland impacts mitigated outside of the separations identified in Sections 1-2 through 1-4 can still be located within the same watershed. Wetland mitigation banks meeting the separation criteria offer an ecologically sound approach to mitigation in these situations. Airport operators should work with local watershed management agencies or organizations to develop mitigation banking for wetland impacts on airport property.

Off-site wetland mitigation and/or mitigation banking will be provided to offset the Proposed Action alternative's wetland impacts. [There is a federal agency MOA between the US Air Force, US Army, US EPA, USFWS, and USDA to address aircraft to wildlife strikes that was also utilized as a guidance tool for developing off-site wetland mitigation strategies \(see Appendix T\)](#)

Mitigation plans for wetland impacts on the Federal level, through the USACE permitting process and on a State level, through the SFWMD, are described below. [Since a State conceptual ERP wetland permits have been obtained and a mitigation plans have been accepted, local level wetland mitigation needs have been satisfied, as described above in the City of Orlando's Growth Management Plan. Once Federal and State wetland permits are obtained and mitigation plans are accepted, local level wetland mitigation needs will be satisfied, as described above in the City of Orlando's Growth Management Plan. There is a federal agency MOA between the US Air Force, US Army, US EPA, USFWS, and USDA to address aircraft to wildlife strikes that was also utilized as a guidance tool for developing off-site wetland mitigation strategies \(see Appendix T\)](#)

Federal

USACE Individual Permit No. 1989000232 issued to GOAA on July 21, 1999, approved mitigation credits for eight off-site parcels located on or adjacent to the Disney Wilderness Preserve (see **Figure 6.20-4**). GOAA purchased and funded wetland and upland enhancement, restoration, and preservation on these eight parcels. Six of the parcels including the Brevard Engineering – Southern Lakes parcel,

Figure

6.20-4 Location of Mitigation Area / Disney Wilderness Preserve

which GOAA proposes to use for mitigation for the East Airfield project, are managed by the Nature Conservancy, the other two parcels are managed by the SFWMD. All wetland restoration and enhancement has been completed on these parcels. Together these parcels total 4,953 acres and constitute a regionally significant mitigation project. The mitigation site is greater than 20 miles from the Orlando International ~~Airport, Airport~~; therefore the site will be in compliance with FAA AC 150/5200-33B Section 2-4 Wetlands. The mitigation area was evaluated under the MWRAP methodology pursuant with the Joint State/Federal Mitigation Bank Review Team Process for Florida (October 1998). A total of 994.33 MRAP credits were granted for these eight parcels under the USACE permit (see Appendix Q for the ACOE Mitigation Credit information).

Currently 182.59 mitigation credits are available for use on the Brevard Engineering – Southern Lakes parcels. The M-WRAP analysis for impacted wetlands associated with Proposed Action alternative resulted in a debit of ~~145.35~~153.92 MWRAP functional units. All of the ~~145.35~~153.92 credits needed to offset wetland impacts will be deducted from the remaining MWRAP mitigation credits at the Brevard Engineering – Southern Lakes (USACE Permit No. 1989000232). The USACE Mitigation Ledger associated with the USACE permit is on file with the USACE and is found in Appendix E of the USACE Individual Permit Application No. SAJ-2006-2640 (IP-JSC) (on file with GOAA and USACE for review).

State

The Proposed Action alternative is expected to result in impacts to 247.77 acres of jurisdictional wetlands, of which ~~234.99~~247.77 will require mitigation, ~~including 113.82 acres within the Boggy Creek drainage basin and 121.17 acres in the Lake Hart drainage basin.~~ GOAA⁵⁰~~Breedlove, Dennis & Associates (BDA)~~ has used the Uniform Mitigation Assessment Method (UMAM) specified in Chapter 373.414(18), Florida Statutes, to determine the wetland functional loss associated with the adverse impacts to these wetlands. Based on that assessment, the Proposed Action alternative will result in ~~143.25~~151.29 UMAM debits, ~~67.95 associated with the Boggy Creek drainage basin, and 75.31 associated with the Lake Hart drainage basin.~~

As mentioned above, a conceptual ERP has been issued by the SFWMD. The SFWMD permit constitutes conceptual approval for the surface water management system to serve future development of approximately 1,325 acres within the Proposed Action area and serves as the Section 401 water quality certification for the project. The conceptual approval is a modification of a previous conceptual approval permit which was issued for the “build out” of OIA covering approximately 2,743.6 acres. The Proposed Action area was not covered by the “build out” permit.

In order to obtain a conceptual ERP from the SFWMD for impacts to ~~234.99~~247.77 acres of jurisdictional wetlands specifically in the East Airfield, GOAA submitted a mitigation plan to the SFWMD that identified the mitigation necessary to fully offset the wetland functional loss associated with full development of the East Airfield. Based on that plan, which was approved by the SFWMD,, GOAA will purchase a sufficient number of Uniform Mitigation Assessment

Comment [VL87]: What does “in another location” mean i.e. another planned development on airport now does not have mitigation credits?

What was this “previous conceptual approval” for specifically? Was mitigation areas set aside? Why were these not adequate?

Comment [sbb88R87]: The “build out” permit provided conceptual authorization for the surface water management system to serve OIA with the exception of the East Airfield Development Area.

⁵⁰ GOAA’s wetland consultant, Breedlove, Dennis & Associates (BDA)

Method (UMAM) credits to fully offset wetland impacts associated with the East Airfield development [and purchase a 29 acre off-site parcel referred to as “Hampton Bay parcel.”](#); GOAA has executed contracts to purchase up to a specified number of mitigation credits from each of three entities. An initial purchase of 22.28 UMAM credits was completed on October 1, 2010 (Appendix U).

Local

[As stated previously, under the Conservation Element of the Orlando Growth Management Plan, Policy 1.4.4 states](#)

[“The City acknowledges the unique role that the Orlando International Airport plays in the economic health and well being of the Central Florida area. In order to protect this role, and the public investment in the airport, it is necessary to allow expansion of airport facilities consistent with reasonable protection of existing wetland systems and mitigation or necessary impacts. Therefore, on Orlando International Airport property, issuance of a permit by the Department of Environmental Protection and/or the South Florida Water Management District for impacts to wetlands shall be sufficient to demonstrate compliance with the City wetland regulations.”](#)

As noted above the SFWMD issued a conceptual ERP on August 30, 2010. Therefore, no further approval is required from the City of Orlando for wetland impacts. In addition, on October 25, 2010 the City of Orlando authorized staff to administratively revise the Official Land Use Map, the Official Zoning Map, the Southeast Orlando Sector Plan Map, and the Growth Management Conservation Element to reflect wetland impacts authorized by the SFWMD conceptual ERP (Appendix S). 6.20.3

6.20.3 Environmental Impact Determination

**TABLE 6.20-1
 SUMMARY OF WETLAND IMPACTS – SIGNIFICANCE THRESHOLDS**

Alternative	Significance Threshold ^a	Does the alternative meet or exceed the Significance Threshold?
No Action	Adversely affect a wetland’s function to protect the quality or quantity of a municipal water supply, including sole source aquifers and a potable water aquifer.	No
	Substantially alter the hydrology needed to sustain the affected wetland’s values and functions or those of a wetland to which it is connected.	No
	Substantially reduce the affected wetlands’ ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare. The last term includes cultural, recreational, and scientific public resources or property.	No
	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.	No

**TABLE 6.20-1
SUMMARY OF WETLAND IMPACTS – SIGNIFICANCE THRESHOLDS**

Alternative	Significance Threshold ^a	Does the alternative meet or exceed the Significance Threshold?
	Promote development that causes any of the above impacts.	No
	Be inconsistent with applicable State wetland strategies.	No
Proposed Action	Adversely affect a wetland's function to protect the quality or quantity of a municipal water supply, including sole source aquifers and a potable water aquifer.	No
	Substantially alter the hydrology needed to sustain the affected wetland's values and functions or those of a wetland to which it is connected.	No
	Substantially reduce the affected wetlands' ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare. The last term includes cultural, recreational, and scientific public resources or property.	No
	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.	No
	Promote development that causes any of the above impacts.	No
	Be inconsistent with applicable State wetland strategies.	No

a Significance Thresholds are established in FAA Order 1050.1E Appendix A and FAA Order 5050.B Table 7-1 and FAA Environmental Desk Reference for Airport Actions (2007).

SOURCE: ESA Airports, 2009

6.21 Cumulative Impacts

Cumulative Impacts are impacts the Proposed Action would have on a particular resource when added to impacts on that resource due to past, present, and reasonably foreseeable actions within a defined time and geographical area. These actions could include actions FAA itself undertakes as well as those actions of other public or private entities that FAA may be ~~are~~ responsible for to review and/or approve.

6.21.1 Impact Analysis Methodology

FAA's [Environmental](#) Desk Reference for Airport Actions provides guidance for analyzing Cumulative Impacts. The guidance indicates that cumulative impact analysis is resource specific and generally addresses environmental resources, ecosystems or human community impacts resulting from the Proposed Action and other actions included in that analysis. The Desk Reference also indicates that the analysis should ~~also~~ consider qualitatively the impacts related to the sustainability of environmental resources, ecosystems or human communities. Mitigation identified for the Proposed Action should also be documented in the cumulative analysis section for each

Comment [VL89]: Need to discuss this section.

Comment [sbb90R89]: This section has been revised for your review. The previous draft language has been deleted and removed starting in section 6.21.1 "Impact Analysis" (insertion of new text is noted in track changes).

topic analyzed. The guidance indicates that the cumulative analysis should focus on meaningful impacts, not inconsequential ones.

In conducting the cumulative analysis, a baseline (or series of baselines) is established by defining a geographical area for the resource under evaluation and the time frame in which the cumulative analysis for that resource would be analyzed.

[For each environmental resource category analyzed in Section 6.0 of the EA, cumulative effects were considered. Table 6.21-1 provides a list of the environmental resource categories that were analyzed in Section 6.0 and the potential for cumulative impacts.](#)

**TABLE 6.21-1
 ENVIRONMENTAL RESOURCE CATEGORIES – POTENTIAL FOR CUMULATIVE IMPACTS**

EA Section No.	Environmental Resource Category	Potential for Cumulative Impacts
6.2	Air Quality	Yes
6.3	Biotic Resources	Yes
6.4	Coastal Zone Management	No
6.5	Compatible Land Use	No
6.6	Construction	No
6.7	Section 4 (f) Resources	No
6.8	Federally-listed and Threatened Species	No
6.9	Energy Supplies, Natural Resources, and Sustainable Design	No
6.10	Environmental Justice	No
6.11	Floodplains	No
6.12	Hazardous Materials	No
6.13	Historic and Archeological	No
6.14	Induced Socioeconomic Impact	No
6.15	Light Emissions and Visual Effect	No
6.16	Noise	No
6.17	Social Impact	Yes
6.18	Solid Waste	No
6.19	Water Quality	No
6.20	Wetlands	Yes

[Environmental resource categories that are not expected to have cumulative impacts as a result of the Proposed Action or No Action alternatives in conjunction with past, present and future projects in the surrounding area are discussed in the following section.](#)

Coastal Zone Management

Coastal zone management cumulative impacts are not anticipated. As described in Section 6.4, the FDEP administers the CZMP under the FCZMP. On August 30, 2010, the SFWMD issued an conceptual ERP permit (Modification No. 48-00063-5-03) which stated:

“The issuance of this permit constitutes a finding of consistency with the Florida Coastal Management Program.”

Chapter 40 E-4 F.A.C. requires the issuance of an ERP to construct a project’s surface water system unless the activity is otherwise exempt. According to rule 40 E-4, 303 F.A.C., an ERP application constitutes a request for state consult and hence the project is consistent with the FCZMP. This same rule provision provides that the issuance of an ERP constitutes the state’s concurrence of such consistency. Past and future projects have obtained or will be required to obtain an ERP to construct their surface water management system, and such permits when issued constitute the stat’s concurrency that such projects are consistent with the FCZMP.

Compatible Land Use

Section 6.5 describes the FAA’s significance thresholds related to noise for compatible land use analysis. As described in both Section 6.5 and 6.16 “Noise,” the Proposed Action and the No Action alternative do not meet FAA’s significance threshold for incompatible land use based on noise exposure. GOAA has developed noise overlay zones (a local government planning tool) as a proactive mechanism to avoid potential incompatible land uses developing in noise sensitive areas in the future. Since there are no other existing or planned airport facilities in the surrounding area that could contribute to a cumulative impact for FAA’s significance threshold related to noise exposure, it is expected that there would be no cumulative impact for compatible land use for past, present, or future projects in the surrounding area.

Construction

As stated in FAA Order 1050.1E, “Construction impacts alone are rarely significant pursuant to NEPA. Refer to the water quality, hazardous materials, and biotic resource, and other relevant impact categories for further guidance in assessing the significance of the potential construction impacts.” These impact categories are discussed as part of this cumulative impact. In general, construction impacts are viewed as temporary during constructing activities. Past projects in the surrounding area would not add to a cumulative effect for the construction of the Proposed Action alternative or the No Action alternative. Present or future projects may occur simultaneously with the Proposed Action but through compliance with local regulations and state permitting requirements related to construction activities, outlined in Section 6.6, cumulative impacts related to construction are not anticipated.

Section 4(f) Resources

FAA Oder 1050.1E describes the NEPA significance threshold for Section 4 Resources to be “the project constitutes the “use” or “constructive use” of potential Section 4(f) properties. The terms “use” and “constructive use” are defined in Section 6.7 of the EA document. Section 4(f) resources include publicly owned land or park, recreation areas, wildlife and waterfowl refuge of

national, state, or local significance. The EA impact analysis for the Proposed Action (Section 6.7.1) defined the geographic area for evaluation of potential impacts for Section 4(f) Resources (the Proposed Action 65 DNL contour limits) which include on and off airport areas. This analysis concluded that no direct or indirect impacts would occur to Section 4(f) resources within this area. Neither the Proposed Action alternative nor the No Action alternative in conjunction with past, present, or reasonably foreseeable future projects would impact the Section 4(f) resources (four public schools, one golf course, and one park) that were identified within the geographic area analyzed for potential impacts. Therefore, it is reasonable to expect that no significant cumulative impacts to Section 4(f) resources would occur as a result of the Proposed Action.

Federally-listed Endangered and Threatened Species

Section 6.8 of the EA provides the analysis of potential impacts to federally-listed and threatened species. The No Action alternative would not have impact to federally-listed and threatened species. The Proposed Action alternative analysis identified three potential federally-listed species with a moderate to high potential to occur on the Proposed Action site or that were observed (see Table 6.8-1). These three federally listed species included that American alligator (federally-listed threatened), eastern indigo snake (federally-listed threatened), and the wood stork (federally-listed endangered). For the Proposed Action, the EA discuss the defined mitigation strategies to minimize impacts to these species (see Section 6.8.2).

Past, present, and reasonably foreseeable future projects within the surrounding area are or will be required to comply with federal, state, and local regulatory and permitting requirements to address impact to Federally-list Endangered and Threatened Species. Therefore, it is reasonable to expect that no significant cumulative impacts to such species would occur as a result of the Proposed Action.

Energy Supplies, Natural Resources, and Sustainable Design

FAA 1050.1E requires that the Proposed Action alternative and No Action alternative be “examined to identify any proposed major changes in stationary facilities or the movement of aircraft and ground vehicles that would have a measurable effect on local supplies of energy or natural resources.” It also notes that “The use of natural resources other than for fuel need be examined only if the action involves a need for unusual materials or those in short supply.” It is not anticipated that past, present, or future projects would have a measurable effect on local supplies of energy or natural resources. Section 6.9 of the EA provides that analysis for the Proposed Action alternative and No Action alternatives.

Additionally, FAA 1050.1E notes that it is the policy of the FAA “to encourage the development of facilities that exemplify the highest standards of design including the principles of sustainability.” The Southeast Orlando Sector Plan provides planning guidance for land use and development with the Southeast Orlando Sector Plan area (see Section 5.3.4 for further details) Sustainable design is a guiding principle of the Southeast Sector Plan:

“The purpose of these land use and urban design guidelines and standards is to create a sustainable and balanced community in the Southeast Orlando Sector Plan area with the characteristics of traditional "Orlando": where streets are convenient and comfortable for walking, where parks are a focus for public activity, and where the life and vitality of a mid-sized town can be enjoyed by its residents and visitors.

The City identified Southeast Orlando as a Future Growth Center with the Orlando International Airport as the primary economic and employment generator. A full range of uses, services, amenities, and activities are planned in Southeast Orlando to fill the needs of the ultimate population of +65,000. In order to build and sustain a viable community, development shall feature a mixture of land uses which allow for increased accessibility, diversity, and opportunities for social interaction within the context of an integrated amenity framework. Utilizing the neighborhood as the basic community building unit, the City has developed a community framework based on Traditional Design principles. A hierarchy of places has been proposed, ranging from a Town Center that will serve as the primary destination and job center within the community, to Village and Neighborhood Centers that provide local shopping and civic spaces for residential area, to airport-related employment districts that include a variety of industrial and office uses. In the Southeast Plan area, centers will be compact and walkable, and residential neighborhoods shall be defined by public space and activated by locally-oriented civic and commercial facilities.
“

Considering the relationship and effect of planning principles established in the City of Orlando’s Southeast Sector Plan, the past, present, and reasonably foreseeable future projects, including the Proposed Action and No Action alternatives, it is reasonable to expect that, no cumulative impacts related to sustainable design will result from the Proposed Action alternative in the surrounding area described above.

Environmental Justice

Section 6.10 of the EA provides that the Proposed Action alternative and No Action alternative will not have adverse impacts on minority and low-income populations. Past and reasonably foreseeable future projects within the surrounding area were and are required to be consistent with the City of Orlando GMP which includes the City of Orlando Southeast Sector Plan. Therefore, it is reasonable to expect that no significant cumulative effects are anticipated as a result of the Proposed Action.

Floodplains

Section 6.11 of the EA provides an analysis of potential floodplain impacts associated with the no action alternative and the proposed action alternative. The no action alternative would not contribute to cumulative effects of floodplain impacts. The propose action alternative would result in construction of a surface water management system within the 100 year floodplain delineated on the FEMA FIRM (see Section 6.11 for details). Pursuant to Chapter 40E-4, Florida Administrative Code, an ERP issued by the SFWMD is required to construct a surface water management system. According to Rule 40E-4.301(1)(b), Florida Administrative Code, an

applicant must demonstrate that the proposed surface water management system will not cause adverse flooding to on-site or off-site property, and Section 6.6 of the SFWMD Basis of Review for Environmental Resource Permit Applications within the South Florida Water Management District, net encroachments into the 100-year floodplains are not permissible. On August 10, 2010, SFWMD issued an ERP conceptual approval for the proposed action determining that the surface water management system (a) would not cause adverse flooding to on-site or off-site property, and (b) would not result in any net encroachment into the 100-year floodplain. The SFWMD permit also authorized the adverse impacts to the ecological value of the on-site 100-year floodplain, requiring compensatory mitigation which has been fully completed in advance of any construction associated with the Proposed Action (See Section 6.19).

Past, present and reasonably foreseeable future projects within the surrounding area have either obtained or will be required to obtain an ERP from the SFWMD to construct their surface water management system, and such permits when issued will reflect the SFWMD determination that such projects would not cause adverse flooding to on-site or off-site property, and would not result in any net encroachment into the 100-year floodplain. Therefore, it is reasonable to expect that no significant cumulative impact to floodplain values would occur as a result of the Proposed Action.

Hazardous Materials

During the Hazardous Materials impact analysis, Section 6.12, there was one “recognized environmental condition” in the surrounding area of the Proposed Action. This area is located north of the Proposed Action area and the Beach Line, off airport property (the former Alamo Rent-A-Car location - 8200 McCoy Rd) has been documented by FDEP to have soil and groundwater impacts related to petroleum products. This off-airport site is identified on the Petroleum Liability Restoration Insurance Program (PLRIP) (ID # 488512629) and is currently ranked 29th on the state priority list for clean up. This past project is being address through the PLRIP and would not be anticipated to contribute to cumulative impacts once remediated.

There is a potential for hazardous materials to be utilized on site (for the Proposed Action alternative) by tenants and end users (tenants and end users are unknown at this time). The use or production of hazardous materials would need to meet all regulatory and permitting requirements. Compliance with hazardous materials rules and regulations would apply to all past, present, and reasonably foreseeable future projects in the surrounding area or would be subject to the federal, state, or local programs governing the storage, handling, generation, and disposal of hazardous materials. Therefore, it is reasonable to expect that no cumulative impact would be anticipated.

Historic and Archeological

Section 6.13 provides information regarding the cultural resource assessment survey (CRAS) for the Proposed Action site. The CRAS was coordinated with the Florida State Historic Preservation Officer (SHPO). The Florida SHPO submitted a letter of concurrence with the assessment findings of no effect on any significant cultural resources, including archeological sites and historic resources that are listed, determined eligible for listing in the National Registry

of Historic Places (NRHP). The No Action alternative would have no cumulative effect on the surrounding area. Past projects in the area that require state permits for development or were considered developments of regional impact (DRIs) (see Section 5.3-6 for planned surrounding development) would have coordinated potential historic and archeological impacts with the Florida SHPO. Future projects, similar to the types of development described directly above including roadway project, on-airport projects, and planned development areas such as DRIs, would need to coordinate with the Florida SHPO for potential impacts. Through this coordination and compliance it is reasonable to expect that no significant cumulative impacts would occur as a result of the Proposed Action.

Induced Socioeconomic Impact

Section 6.14 of the EA provides analysis of potential shifts in patterns of population movement and growth, public service demands, changes in business and economic activities, or other factor identified by the public. The Proposed Action has been planned and integrated into the City of Orlando Southeast Sector Plan. A portion of this plan's vision statement includes the following:

“The City of Orlando has identified the Southeast Orlando Sector Plan area as a Future Growth Center with the Orlando International Airport as the primary economic and employment generator. In the near future, the Greater Orlando Aviation Authority plans to construct a fourth runway, expand terminal facilities, build new on-site roadways, pursue regional rail transit linkages, and actively market airport-related office and industrial development on the airport property.”

The City of Orlando Southeast Sector Plan provides the incorporation of past projects and planning for current and future projects in regards to growth, public service demands, business and economic activities, and has been developed through public input. Past, present, and reasonably foreseeable future projects within the limits of the City or Orlando Southeast Sector Plan must be consistent with the City GMP. Therefore it is reasonable to expect that no significant cumulative induced socioeconomic impacts will occur as a result of the Proposed Action.

Light Emissions and Visual Effect

Section 6.15 of the EA includes the impact analysis for the Proposed Action and No Action alternatives related to light emissions and visual effect. Through the City of Orlando's local development process, which has standards for lighting (Orange County Lighting Ordinance No 2003-08) and the City of Orlando's Southeast Sector Plan's Development Guidelines and Standards, which address visual effect elements, there is a review process in place at a local level to avoid potential cumulative effects of light emissions and negative visual effects. These rules and guidelines would apply to the Proposed Action, past actions and reasonably foreseeable future actions within the surrounding area. Therefore it is reasonable to expect that no significant cumulative impacts will occur as a result of the Proposed Action.

Noise

Significant noise impacts would occur under when there is a DNL 1.5dB increase at a noise sensitive area within the DNL 65 dB. Section 6.16 provides the analysis of the Proposed Action and No Action alternatives potential noise impacts. The project horizon was set for the year 2030. The aircraft fleet mix and annual operations were developed and the FAA approved Integrated Noise Model (INM) was used to develop 65 DNL contours. From this information, further analysis was completed to determine if there was a 1.5 db increase at a noise sensitive area within the DNL 65 db. It was concluded that there was not a significant increase, as defined above, resulting from either the No Action or the Proposed Action alternatives. Past projects at the airport were included in the Terminal Area Forecast (TAF) data utilized in this analysis. Present and future projects were included in the forecast as well. Since there are no other planned airports in the area to contribute noise effects to future projects, cumulative noise impacts are not anticipated.

Solid Waste

It is anticipated that the Orange County Landfill has the capacity to accommodate the Proposed Action (see Section 6.18). The No Action would not generate waste. The surrounding area of the City of Orlando's Southeast Sector Plan provides guidance on public service and requires concurrency with landfill policies of the City of Orlando Growth Management Plan – Solid Waste Element which states: Objective 1.1 The City shall throughout the planning period continue to identify ways of maximizing the efficient use of Orange County's existing solid waste facilities based upon land use patterns projected through 2030. In addition, the City shall coordinate with the County, and shall build upon the success of its current education programs to encourage recycling. (Amended May 16, 1994, Effective July 28, 1994, Doc. No. 27538; Amended June 8, 2009, Effective August 25, 2009, Doc. No. 0906081103. Through the implementation of this policy, it is reasonable to expect, no significant cumulative impacts would occur for past, current, or reasonably foreseeable future projects as a result of the proposed action.

Water Quality

Section 6.19 of the EA provides the analysis of potential water quality impacts associated with the no action alternative and the proposed action alternative. The threshold for significance for water quality stated in FAA Order 5050.4B Table 7.1, is the "action would not meet water quality standards." As reflected in Section 6.19, the Proposed Action does not meet that standard and is not considered a significant impact. Pursuant to Chapter 40E-4, Florida Administrative Code, an ERP issued by the SFWMD is required to construct a surface water management system. According to Rule 40E-4.301(1), Florida Administrative Code, an applicant must demonstrate that the proposed surface water management system will not cause or contribute to violations of water quality standards. By issuance of the SFWMD ERP permit (issued on August 30, 2010 (48-00063-S-03)) the state of Florida determined the following:

"Issuance of this Permit constitutes certification of compliance with state water quality standards where necessary pursuant to Section 401, Public Law 92-500, 33 USC Section 1341...."

Past, present and reasonably foreseeable future projects within the surrounding area have either obtained or will be required to obtain an ERP from the SFWMD to constructed their surface water management system, and such permits when issued will reflect the SFWMD determination that such projects would not cause or contribute to violations of water quality standards. Therefore, it is reasonable to expect that no significant cumulative impact to water quality would occur as a result of the Proposed Action.

6.21.2 Cumulative Impacts Analysis

There were four (4) environmental resource categories that were determined to have the potential to have cumulative impacts identified in Table 6.21-1. These include air quality, biotic resources, social impacts (traffic), and wetlands. This section provides an analysis of potential cumulative effects for the specific resource that would occur in a specific study area boundary

6.21.2.1 Air Quality

As described in section 6.2, the project area is designated as an “attainment” area for all of the NAAQS. “Attainment” is a designation under the CAA that means air pollutant levels in an area meet the primary and secondary NAAQS. Emission inventories for the Proposed Action and No Action alternatives were provided for the 2030 build out year for information purposed only. No dispersion modeling is required because the Proposed Action is located in an “attainment” area. However, it was noted that in the recent past, levels of O₃ have approached, and met, the NAAQS level for this pollutant. The EPA has proposed to revise the O₃ standard (lowering the current NAAQS). It is possible that by the year 2030 the designation of the area may change. If these change occur, the State of Florida will be required to update their State Implementation Plan (SIP) and evaluate projects with potential emissions sources (past, present, and future) as they related to specific regulated emissions. The emissions for the Proposed Action would be included in the emissions inventory and would need to comply with new state programs to address air quality, as may be required by law. Cumulative impacts are not reasonably expected within the project’s airshed at this time since the area currently designated as an “attainment” area.

6.21.2.2 Biotic Resources – Natural Area Cover Types

Section 6.3 of the EA provides the biotic resource impact analysis for the No Action alternative and the Proposed Action alternative. While neither of these alternatives were determined to have a significant impact as defined in FAA Order 1050.1E, the Proposed Action does propose to impact approximately 1,325 acres of areas which consists of uplands, wetlands and open water areas. In order to determine the potential cumulative impact of the removal of cover types found in the Proposed Action site (improved pasture, shrub and brushland, pine flatwoods, and cypress), an analysis the existence of similar cover types within a 20 mile region surrounding the proposed project area was evaluated. The project cover type impact acres was compared to the existing cover types in the 20 mile region. This information is provided in Table 21.2-1.

**TABLE 21.2-1
 ON-SITE COVER TYPES AND REGIONAL COVER TYPES COVERAGE COMPARISON**

FLUCFCS Code	Description	East Airfield Site		20 Mile Region		Percentage of East Airfield Land Area to 20 Mile Region
		Acreage	Percent Land Area	Acreage	Percent Land Area	Percent Land Area
211	Improved Pastures	661.06	49.9%	93,357.97	10.5%	0.7%
320	Shrub and Brushland	99.47	7.5%	17,284.01	1.9%	0.6%
411	Pine Flatwoods	126.39	9.5%	38,487.18	4.3%	0.3%
621	Cypress	170.91	12.9%	39,970.62	4.5%	0.4%
-	Total	1,057.83	79.8%	892,348.50	21.2%	0.1%

a. Only major land use types are represented in this table
 SOURCE: Breedlove Dennis & Associates, 2009

For all cover types analyzed in Table 21.2-1, the Proposed Action has less than 1% impact for each habitat type within a 20 mile region. It would be anticipated that present and future projects such as roadways, residential, commercial, and other types of development would likely have some impact on some of these habitat types. However, through open space requirements in the City of Orlando's Land Development Code, preservation of wetlands and/or mitigation of wetlands within a defined basin required by the applicable federal, state and local regulatory programs governing wetland impacts, and through existing open space, parks, or conservations areas, it is reasonable to expect that the Proposed Action alternative and No Action alternative, considering past, present, or reasonably foreseeable future projects would not cause a significant cumulative impact on the cover types listed above.

6.21.2.3 Social Impacts (traffic)

Section 6.17 of the EA provides the details and analysis related to potential traffic impacts associated with the No Action alternative and the Proposed Action alternative (Appendix M provides supporting information to the traffic analysis). At the local level, the City of Orlando concurred with the Airport's traffic analysis that the Proposed Action did not cause any disruption in local traffic patterns which substantially reduced the level of service of roadways serving the airport or its communities. The geographic area for potential cumulative impacts related to traffic includes the City of Orlando Southeast Sector Plan area and roadways serving the airport and its surrounding communities.

The potential for past or current roadway projects in the City of Orlando Southeast Sector Plan area to have cumulative impacts is not anticipated due to the requirements of development approvals at the State and local levels. These approvals would include DRI Development Orders, Planned Development zoning ordinances or other local approvals consistent with local transportation concurrency management or mobility strategies. Although development regulations may change, the potential for future projects within the geographic area described above to have

cumulative impacts are minimized because any future projects likely will be subject to similar State and local development approvals.

In addition to State and local development approval process, future traffic impacts for the region are analyzed and addressed as part of the Metropolitan Planning Organization's long range transportation plan. The organization charged with developing long range transportation plans for the region is Metro Plan Orlando (the "MPO"). The following information is provided to describe the role, mission, and vision of the organization

"MetroPlan Orlando is the metropolitan planning organization (MPO) for Orange, Osceola and Seminole Counties – the Orlando Urban Area. As a regional MPO, MetroPlan Orlando provides the forum for local elected officials, their staff, citizens, and industry experts to work together to improve transportation in Central Florida.

A key responsibility under federal law is the development of a long range transportation plan for the region. The process begins with a vision and mission.

Regional Transportation Vision

A system that safely and efficiently moves people and goods through a variety of transportation options to support the region's desire to preserve natural lands, create community centers, conserve energy and maintain a strong economy

Mission

To provide leadership in planning a transportation system consistent with the Regional Transportation Vision by engaging the public and fostering effective partnerships

*The MetroPlan Orlando Board is ultimately responsible for implementing transportation plans. With 25 members, the MetroPlan Orlando Board includes representation from three counties, the largest cities in the region, officials from transportation operating agencies and representatives from several advisory committees. This composition provides an inclusive and deliberative planning process to determine how federal and state transportation dollars are spent in the three-county area."*⁵¹

Currently, the MetroPlan Orlando 2030 Cost Feasible Long Range Transportation Plan and the City of Orlando adopted amendments to its transportation policies in the Growth Management Plan address future traffic impacts for the Geographic Area as well as the entire Central Florida Region. Appendix M provides further details on the MetroPlan Orlando 2030 Cost Feasible Long Range Transportation Plan and the City of Orlando GMP amendments. Appendix 6A provides the MetroPlan 2030 Cost Feasible Long Range Transportation Plan for the Central Florida Region and specifically identifies (highlights) reasonably foreseeable projects in the Geographic Area. The identified projects in Appendix 6A are future planned traffic projects to address future development within the geographic area described above. Through the implementation of the MetroPlan 2030 Cost Feasible Long Range Transportation Plan and required State and local development approval processes it is reasonable to expect that no cumulative impacts related to

⁵¹ <http://www.metroplanorlando.com/about/>

past, present, or reasonably foreseeable future projects will occur as result of the Proposed Action.

6.21.2.4 Wetlands

GOAA conducted a cumulative analysis of wetland impacts in accordance with Section 4.2.8 of the SFWMD Basis of Review for Environmental Resource Permits as part of its application for a SFWMD ERP conceptual approval of the surface water management system associated with the Proposed Action issued August 30, 2010 (No. 48-00063-5-03).

Pursuant to Section 4.2.8 of the SFWMD Basis of Review, the applicant is required to provide reasonable assurance that the construction of the surface water management system will not cause unacceptable adverse cumulative impacts upon wetlands or other surface waters within the same drainage basin as the system for which a permit is sought. If a project's adverse impacts are fully offset by providing compensatory mitigation in the same drainage basin(s) as the impacts, the project will have no unacceptable adverse cumulative impacts to wetlands or surface waters. If a project's impacts cannot be offset in the same drainage basin(s) as the project, then an analysis of potential cumulative impacts must be conducted.

Previous OIA Projects

Since the mid 1990's, GOAA has provided compensatory mitigation for wetland functional loss associated with OIA projects at offsite locations and generally out of the drainage basin in which the wetland functional loss has occurred, including the 1997 modification to SFWMD permit 48-00063-S, known as "The Buildout Permit". Throughout this period and continuing to present, the SFWMD has determined that the permitted system, including the offsite and out-of-basin compensatory mitigation, provided reasonable assurance that unacceptable adverse cumulative impacts would not occur within the Boggy Creek drainage basin. These SFWMD determinations were based on several factors including: the prospect for similar like impacts occurring in the future would not occur given the unique nature of OIA; the Boggy Creek basin has been largely built out, and the remaining wetlands within the basin are largely protected from impact through conservation easements (including 621 acres of wetlands and surface waters at OIA); relatively low function provided by some wetlands impacted; and, that the proposed systems would not cause or contribute to water quality violations.

Mitigation Outside The Drainage Basins

The operation of OIA is subject to FAA Advisory Circular No. 150/5200-33B. This Advisory Circular provides guidance on certain land uses that have the potential to attract hazardous wildlife which present threats to aviation safety. Section 2-4c(2) of the Advisory Circular "recommends that wetland mitigation projects that may attract hazardous wildlife be sited outside of the separations identified in Sections 1-2 through 1-4 unless they provide unique functions that must remain on-site (see 2-4c(1))." Since the wetlands on site do not provide critical habitat for threatened or endangered species and do not provide groundwater recharge functions that will not be replaced on site, the exception criteria in Section 2-4c(1) are not met, therefore the separation

criteria in Sections 1-2 through 1-4 apply to any proposed compensatory mitigation required to off-set the wetland functional loss associated with the Proposed Action.⁵²

Section 1-2 recommends a separation distance of 5,000 feet between the airport's Air Operations Area (AOA) and the hazardous wildlife attractant (wetland mitigation). Section 1-4 provides for protection of approach, departure, and circling airspace by recommending a distance of five statute miles between the farthest edges of the airport's AOA and the hazardous wildlife attractant. Compliance with this Advisory Circular effectively precludes the use of most of both Boggy Creek and Lake Hart basins as locations for compensatory mitigation (see **Figure 6.21-1**).

In addition, there are no currently permitted mitigation banks in either Boggy Creek or Lake Hart drainage basins with credits available to GOAA. Similarly, there are no large tracts of land in either basin that are available and suitable for a large scale Regional Offsite Mitigation Area which could offset wetland functions loss associated with the Proposed Action. In light of the above factors, GOAA expanded its search for appropriate mitigation options to offset the wetland function loss associated with the Proposed Action outside of the Boggy Creek and Lake Hart drainage basins. According to the SFWMD conceptual ERP approval of the Proposed Action's surface water management system, GOAA would require mitigation credits from three entities (Southport Mitigation Bank LLC., TLC Mitigation LLC., and Habitat Restoration, Inc.) that are permitted to establish and operate the Southport Ranch Mitigation Bank, Bullfrog Bay Mitigation Bank, and Quickdraw Mitigation Bank. Each of these mitigation banks are located outside the separation criteria listed above, but are located in the same watershed (Upper Kissimmee River) as the Proposed Action. S noted in Section 6.19, all of the compensatory mitigation for the Proposed Action required by the SFWMD permit has been completed and has been completed well in advance of any adverse impacts to wetlands associated with the Proposed Action.

OIA occupies approximately 13,302 acres in Orange County serving over 36,000,000 passengers annually. It is unique in terms of its size and function and there are no other similarly situated airports within Orange County or the Boggy Creek or Lake Hart drainage basins⁵³. GOAA is not aware of any plans by FAA, Orange or Osceola Counties, or the City of Orlando to construct any airports of similar type or function within either the Boggy Creek or Lake Hart basins.

Unlike traditional residential, commercial or mixed use projects, the design, construction and operation of aviation facilities and aviation support facilities are subject to a variety of design constraints, including:

1. Airfield Geometry – Aircraft design group based on size of equipment, runway length and width, taxiway length and width, apron parking and taxilanes, separation distances, distances from centerline to fixed or moveable objects

⁵² Please note that according to the United States Department of Agriculture (USDA) Wildlife Hazard Assessment for East Airfield (Appendix P), these wetlands have been designated as wildlife hazards independent of the pending applications for the East Airfield project. According to the USDA Assessment, the wetlands should be managed to reduce attractiveness to wildlife. The USDA Assessment provides that to control vegetation, it may be necessary to chemically treat or mechanically remove vegetation several times a year.

⁵³ The Proposed Action is located within the Boggy Creek and Lake Hart drainage basins.

2. [ATCT Considerations – Maintain clear line of sight to edge of all active airfield pavements](#)
3. [Airspace Geometry – Part 77, TERPS, ASR-9 surface, departure surfaces such as OEI](#)
4. [Navaid Geometry and Clearances – ILS, Approach lighting systems, radar, LLWAS, RR/RT \(comm. equip.\), etc](#)
5. [Security – Fence height, Locations and clearances, manual vs staffed gate locations and configurations \(All SSI info\)](#)
6. [Grading – Max horizontal and vertical grades for all forms of airfield pavement, grading for navaid critical areas and runway overruns](#)
7. [FAA Advisory Circular No. 150/5200-33B which addresses hazardous wildlife attractants on airports and surrounding areas.](#)

[These design constraints limit and often preclude meaningful reduction and elimination of adverse wetland impacts. This is reflected in a review of historical projects at OIA which have been approved by the SFWMD and the USACE. In most OIA projects, the percentage of wetland acres impacted by the OIA project is high in comparison to a similarly sized residential or mixed use project which are not subject to similar design constraints and can design project components around existing wetlands.](#)

[In addition, GOAA is in a unique position with regard to where mitigation can be located. There has been a concerted effort since the late 1990s beginning with the 1997 modification to SFWMD permit 48-00063-S to complete mitigation at offsite locations and to move mitigation from OIA property to offsite locations. In order to comply with the separation criteria recommended in FAA AC 150/3200-33B, GOAA pursues offsite locations for the provision of compensatory mitigation. This same constraint does not apply to other types of wetland impacts which may be reasonably anticipated to occur in the future on the remaining wetlands not currently protected by conservation easement. It is reasonable to assume that future wetland impacts, which would occur on smaller \(<500 acre\) parcels would not be of the same magnitude as Proposed Action and would be mitigated within the basin thus preserving the wetland functions within the basins.](#)

[Therefore, it is reasonable to conclude that there will not be any similar types of adverse impacts as those associated with the East Airfield.](#)

[As discussed above and as shown on Figure 6.21-1, Boggy Creek and Lake Hart basins are largely built out, entitled for development, or preserved under conservation easements. There are six other parcels of land greater than 1,000 acres which have wetlands and surface waters. According to SFWMD data all of these parcels are either in conservation or have an existing ERP or application pending. The same is true for the seven parcels of land greater than 500 acres with one of those sites being the Orlando Executive Airport. Therefore, it is reasonable to conclude that there will not be any future projects within the Boggy Creek and Lake Hart drainage basins with a similar type and scale of impact as the Proposed Action.](#)

The Proposed Action will impact 235.98 acres of on-site wetlands. The wetland functional loss associated with Proposed Action has been determined in accordance with the UMAM procedure as required by Chapter 40 E-4 F.A.C.. Impacts will occur in the Boggy Creek Basin (102.03 acres; -68.03 UMAM units) and the Lake Hart Basin (132.96 acres; -75.31 UMAM units).

Boggy Creek drainage basin, which is part of the Upper Kissimmee River watershed, includes approximately 55,600 acres (see Figure 6.21-1). Currently, approximately 11,882 (21%) acres of the Boggy Creek basin are wetlands (6296 acres) or surface waters (5586 acres). Of the 6,296 acres of wetlands in Boggy Creek approximately 4,095 (65%) acres are encumbered by conservation easements, including 621 (15%) acres at OIA. Exclusive of the Proposed Action there are 107 acres of wetlands remaining in the basin that are not already in conservation, public lands, or part of an existing or pending SFWMD permit. The Proposed Action will impact 114.81 acres of wetlands in the Boggy Creek drainage Basin, representing 2% of the remaining wetlands in the drainage basin and 5% of the remaining wetlands not protected under conservation easement.

The Lake Hart drainage basin is also part of the Upper Kissimmee River watershed. The Lake Hart basin includes approximately 36,578 acres. Approximately 15,681 acres (43%) of the Lake Hart basin are wetlands (11,217 acres) or surface waters (4464 acres) (Figure 6.21-1). Of the 11,217 acres of wetlands, approximately 7,332 (65%) acres are either encumbered by conservation easements or are on Public Lands. Exclusive of the Proposed Action site there are 734 acres of wetlands in the basin that are not already in conservation, public lands, or covered by a SFWMD permit. The Proposed Action project will impact 121.17 acres of wetlands within the Lake Hart drainage basin, representing 1% of the remaining wetlands in the drainage basin and 3% of the remaining wetlands not protected under conservation easement.

The functions provided by the wetlands located on the Proposed Action site are not unique within the Boggy Creek, Lake Hart or Upper Kissimmee River drainage basins, and have and will continue to degraded for a number of reasons. Due to alterations in the hydrology related to adjacent and regional development as well as the current existing land use for cattle production and sod farming. The wetlands located on the Proposed Action site consist primarily of cypress strands, cypress domes, freshwater marsh, and wet prairie. These wetland types are typical throughout the Boggy Creek, Lake Hart, or the Upper Kissimmee River drainage basins. The Proposed Action site has historically and continues to be used for cattle grazing and sod farming. The historical surface hydrology on the Proposed Action site has been altered through ditching and cross ditching, as well as the construction of ditches along three perimeter sides of site. In addition, wetlands located on the Proposed Action site are surrounded on all sides by existing and permitted residential, commercial and mixed use projects, including the Lake Nona Development of Regional Impact to the south, SR 15A, the Ball Bay Planned Development (PD), Lavinia PD, Randall Park PD, and East Park PD to the east, SR 528 and residential and commercial development to the north, and OIA to the west.

There are no natural surface waters on the Proposed Action. Surface waters within the site consist of either excavated drainage ditches, interceptor canals or borrow pits. The wetlands and surface waters provide unremarkable habitat for fisheries within the wetlands and surface waters themselves.

Documented wildlife utilization of the wetlands and surface waters located on the Proposed Action site consists primarily of generalist species which are adapted to urban settings.

There has been some utilization of wetlands and surface waters by listed species (e.g., foraging in manmade ditches). However, the USFWS has concluded that the Proposed Action will not likely adversely affect the only species which the USFWS determined might be affected by the Proposed Action. A Section 7 consultation under provisions of the Endangered Species Act was initiated by the USACE regarding the occurrence of suitable foraging habitat for wood storks on the Proposed Action site. A Biological Assessment was prepared and submitted to the ACOE who determined that the East Airfield Proposed Action may affect but is not likely to adversely affect wood storks with concurrence from the USFWS (Appendix H). No comments or concerns have been articulated by the Florida Fish and Wildlife Conservation Commission (FWC). Given these factors⁵⁴, the loss of the remnant wetland functions given their relative size, condition, hydrologic connection, uniqueness, and location within the drainage basin(s) it is reasonable to expect that the Proposed Action will not result in adverse cumulative impacts to wetlands in the drainage basin taken or watershed.

The stormwater management system that will serve the Proposed Action has been designed in accordance with the requirements of the SFWMD rules Chapter 40 E-4 F.A.C., including the provision of additional dry pre-treatment for runoff. The current land use on the site is agriculture (cattle grazing and sod production) and the stormwater discharge from the existing site is neither treated nor controlled. The system that will serve the Proposed Action has been designed and will be constructed in accordance with SFWMD rules is expected to reasonably improve water quality in the post development condition.

In summary, the wetlands located on the Proposed Action site constitute less than 2% and 1% percent of the total remaining wetlands within Boggy Creek and Lake Hart drainage basins. 65% of the wetlands in both Boggy Creek and Lake Hart drainage basins are either encumbered by a conservation easement or under public ownership. The acreage of wetland which are not located on public lands, encumbered by a conservation easement or located within a permitted development within the Boggy Creek and Lake Hart drainage basin is less than 107 acres and 734 acres, respectively, exclusive of the wetlands located on the Proposed Action site. The wetlands located within the Proposed Action site provide no unique functions within the drainage basins, have been impacted by an existing urban setting which has and is increasing in density and

⁵⁴ Please note that according to the United States Department of Agriculture Wildlife Hazard Assessment for East Airfield (Appendix P), these wetlands have been designated as wildlife hazards independent of the pending applications for the Proposed Action. According to the USDA Assessment, the wetlands should be managed to reduce attractiveness to wildlife. The USDA Assessment provides that to control vegetation, it may be necessary to chemically treat or mechanically remove vegetation several times a year.

intensity, and have been physically isolated by such urban settings. The wildlife utilization is limited to species adapted to urban environment. The adverse impacts to the wetlands will not likely adversely affect the wood stork. There are no un-entitled parcels within the drainage basins between 500 and 999 acres or 1,000 acres or more. Furthermore, given the unique design constraints of constructing aviation facilities, it is not probable that if there were un-entitled tracts of land, there would be no projects with similar types of adverse impacts to that presented by an airport.

For reasonably foreseeable future projects that are not subject to the same design constraints imposed upon GOAA, which could adversely affect wetlands in the Boggy Creek and Lake Hart basin, it is reasonable to conclude that such projects would be capable to reduce and eliminate wetland impacts to a percentage of impacts to total wetlands typically permitted by SFWMD in these basins and would provide compensatory mitigation with the basin or watershed.

6.21.3 Summary

Cumulative impacts were assessed for four environmental resource categories; air quality, biotic resources (land cover types), social impacts (traffic), and wetlands. The analysis of these resources was performed in section 6.21.2 and based upon this analysis is reasonable to conclude that the Proposed Action alternative, considering past, present and reasonably foreseeable future projects in the above described surrounding areas, would not cause cumulative impacts for these resources.