



Austin-Bergstrom International Airport

Austin, Texas

Environmental Assessment

General Aviation Development and Ductbank Relocation

ABIA Project # A3231
D.O. Number: 12100900943
RS&H No. 2152613.003

Prepared for:
City of Austin Department of Aviation (DOA)
2716 Spirit of Texas Blvd
Austin, Texas 78719
Contact: Kane Carpenter
Phone: 512-530-6621

Prepared by:
RS&H
IMPROVING YOUR WORLD
8140 North Mo Pac Expressway
Building 2 Suite 100
Austin, Texas 78759

Submitted for Review: November 2013

This environmental assessment becomes a Federal document when evaluated, signed, and dated by the Responsible FAA Official

Tim Tandy - FAA

Date

TABLE OF CONTENTS

CHAPTER 1:	INTRODUCTION.....	1
1.1	<i>AIRPORT LOCATION AND STUDY AREA.....</i>	<i>1</i>
1.2	<i>LAND USE AND ZONING</i>	<i>4</i>
1.3	<i>PHYSICAL AND NATURAL ENVIRONMENT</i>	<i>4</i>
CHAPTER 2:	PURPOSE AND NEED	5
2.1	<i>PURPOSE</i>	<i>5</i>
2.2	<i>NEED.....</i>	<i>5</i>
CHAPTER 3:	ALTERNATIVES.....	7
3.1	<i>DESCRIPTION OF ALTERNATIVES.....</i>	<i>7</i>
3.2	<i>PROPOSED ACTION / PREFERRED ALTERNATIVE.....</i>	<i>13</i>
CHAPTER 4:	AFFECTED ENVIRONMENT	17
4.1	<i>INTRODUCTION.....</i>	<i>17</i>
4.2	<i>ENVIRONMENTAL RESOURCE CATEGORIES.....</i>	<i>17</i>
CHAPTER 5:	ENVIRONMENTAL CONSEQUENCES.....	23
5.1	<i>AIR QUALITY.....</i>	<i>24</i>
5.2	<i>COMPATIBLE LAND USE.....</i>	<i>26</i>
5.3	<i>CONSTRUCTION IMPACTS.....</i>	<i>28</i>
5.4	<i>FISH, WILDLIFE, AND PLANTS.....</i>	<i>29</i>
5.5	<i>FLOODPLAINS.....</i>	<i>31</i>
5.6	<i>HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION.....</i>	<i>36</i>
5.7	<i>HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES</i>	<i>38</i>
5.8	<i>LIGHT EMISSIONS AND VISUAL IMPACTS.....</i>	<i>40</i>
5.9	<i>NATURAL RESOURCES AND ENERGY SUPPLY.....</i>	<i>41</i>
5.10	<i>NOISE</i>	<i>43</i>
5.11	<i>SECONDARY IMPACTS.....</i>	<i>47</i>
5.12	<i>WATER QUALITY.....</i>	<i>48</i>
5.13	<i>WETLANDS.....</i>	<i>51</i>
5.14	<i>CUMULATIVE IMPACTS.....</i>	<i>52</i>
CHAPTER 6:	LIST OF PREPARERS	54
6.1	<i>LEAD AGENCY.....</i>	<i>54</i>
6.2	<i>PRINCIPAL PREPARERS.....</i>	<i>54</i>

LIST OF TABLES, FIGURES AND APPENDICES

TABLES

TABLE 1-1	PROJECT ELEMENTS	1
TABLE 3-1	DUCTBANK ALTERNATIVES EVALUATION PROCESS	14
TABLE 3-2	QUALITATIVE DUCTBANK ALTERNATIVES EVALUATION PROCESS.....	15
TABLE 4-1	COMPARISON OF PAST, PRESENT, AND FUTURE OPERATIONS	21
TABLE 4-2	THE NUMBER OF PRESENT AND FORECASTED GENERAL AVIATION, BASED AIRCRAFT AT AUSTIN-BERGSTROM INTERNATIONAL AIRPORT	22
TABLE 5-1	BASELINE AND PROPOSED ACTION CRITERIA POLLUTANT EMISSIONS	26
TABLE 5-2	PROPOSED AEM GENERAL AVIATION FLEET MIX	46
TABLE 5-3	AREA CHANGES WITHIN THE 2005 DNL 65 CONTOUR DUE TO CHANGING OPERATIONS.....	46

FIGURES

FIGURE 1-1	AIRPORT LOCATION.....	2
FIGURE 1-2	STUDY AREA.....	3
FIGURE 3-1	GENERAL AVIATION DEVELOPMENT ALTERNATIVE.....	8
FIGURE 3-2	CONNECTING TAXIWAY ALTERNATIVES	9
FIGURE 3-3	REQUIRED PROFILE TO CONNECT TO EXISTING FACILITY.....	10
FIGURE 3-4	DUCTBANK ALTERNATIVES.....	12
FIGURE 3-5	PREFERRED ALTERNATIVE	16
FIGURE 4-1	100-YEAR FEMA FLOODPLAIN	20
FIGURE 5-1	PROPOSED ACTION ENCROACHMENT ON 100-YEAR FLOODPLAIN	35

APPENDICES

APPENDIX A	DOCUMENTED COORDINATION	A-1
APPENDIX B	ABIA FAA DUCTBANK RELOCATION FEASIBILITY STUDY.....	B-1
APPENDIX C	NOISE ANALYSIS.....	C-1
APPENDIX D	BIOLOGICAL IMPACT ASSESSMENT	D-1

ACRONYMS

AC – Advisory Circular
ADG – Aircraft Design Group
ADO – Airports District Office
AOA – Airport Operations Area
ATCT – Air Traffic Control Tower
AUS/ABIA – Austin-Bergstrom International Airport
ALP – Airport Layout Plan
AV – Aviation Services District
BMPs – Best Management Practices
CEQ – Council on Environmental Quality
CoA / City - City of Austin
DoA – Department of Aviation
EA – Environmental Assessment
EDMS – Emissions Dispersion and Modeling System
EO – Executive Order
EPA - Environmental Protection Agency
ESA – Endangered Species Act
ESRI – Environmental Systems Research Institute
FAA – Federal Aviation Administration
FAR – Federal Aviation Regulation
FBO – Fixed Base Operator
FEMA – Federal Emergency Management Agency
FIRM – Flood Insurance Rate Map
FPPA – Farmland Protection Policy Act
FSA – Farm Service Agency
GA – General Aviation
MPU – Master Plan Update
MSA – Metropolitan Statistical Area
NAAQS – National Ambient Air Quality Standards
NEPA – National Environmental Policy Act
NHPA - National Historic Preservation Act of 1966
NO – Nitric Oxide
NO₂ – Nitrogen dioxide
NPL – National Priority List
NRHP – National Register of Historic Places
NRI – Nationwide Rivers Inventory
NWI – National Wetlands Inventory
O₃ – Ozone
RNAV – Area Navigation
SH – State Highway
SHPO – State Historic Preservation Officer
SIP – State Implementation Plan
SO₂ – Sulfur Dioxide
USACE – United States Army Corps of Engineers
USC – United States Code
USFWS – United States Fish and Wildlife Service
WSRS – National Wild and Scenic Rivers System

THIS PAGE INTENTIONALLY LEFT BLANK

1 CHAPTER 1 INTRODUCTION

Austin-Bergstrom International Airport (“AUS”; “Airport”) is located approximately five miles southeast of downtown Austin and is adjacent to two major transportation arteries, State Highway (SH) 71 to the north and U.S. 183 to the west. Airport facilities occupy approximately 4,242 acres of land. Existing facilities include Runway 17L/35R (9,000 feet long by 150 feet wide) and Runway 17R/35L (12,248 feet long by 150 feet wide). The Airport location is presented in **Figure 1-1**.

The City of Austin (CoA) Department of Aviation (DoA) has leased two parcels to private entities for general aviation (GA) development. Both parcels, one 20-acre parcel and one 21-acre parcel, are located south of the current GA fixed-based operator (FBO) facilities adjacent to Emma Browning Avenue. The development of the 21-acre parcel is dependent upon the relocation of a Federal Aviation Administration (FAA) ductbank located within the leased parcel (connected action).¹ This proposed development is referred to as the Proposed Action in this EA.

This Environmental Assessment (EA) describes and discloses the unavoidable environmental effects of those actions. This EA was prepared pursuant to the National Environmental Policy Act (NEPA) in accordance with the requirements of FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*; and FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*.

1.1 AIRPORT LOCATION AND STUDY AREA

The Airport is a public-use, commercial service aviation facility in central Texas serving the greater metropolitan Austin area. The Study Area, as shown in **Figure 1-2**, includes the portion of AUS that is likely to experience ground-disturbing activities associated with the project elements of the Proposed Action. See **Table 1-1** for a list of the project elements associated with each parcel aside from the FAA ductbank relocation. The potential environmental impacts of the Proposed Action (see **Chapter 4, Affected Environment and Environmental Consequences**) are evaluated herein.

Table 1-1
PROJECT ELEMENTS

20-acre Parcel	21-acre Parcel
<ul style="list-style-type: none"> • FBO facility • Vehicle parking • Access road • Apron • Corporate/conventional hangars • Fuel system (two 12,000-gallon tanks – one containing jet aviation fuel, otherwise known as Jet-A, and one containing aviation gasoline, otherwise known as 100LL) • Modification to stormwater structural control • Bridge connector to Taxiway B 	<ul style="list-style-type: none"> • FBO/Office space • Vehicle parking • Access road • Corporate/conventional hangars • Apron • Bridge connector to Taxiway B • Fuel System (two 12,000-gallon tanks – one containing jet aviation fuel, otherwise known as Jet-A, and one containing aviation gasoline, otherwise known as 100LL) • Water Quality Area

Source: RS&H, 2013

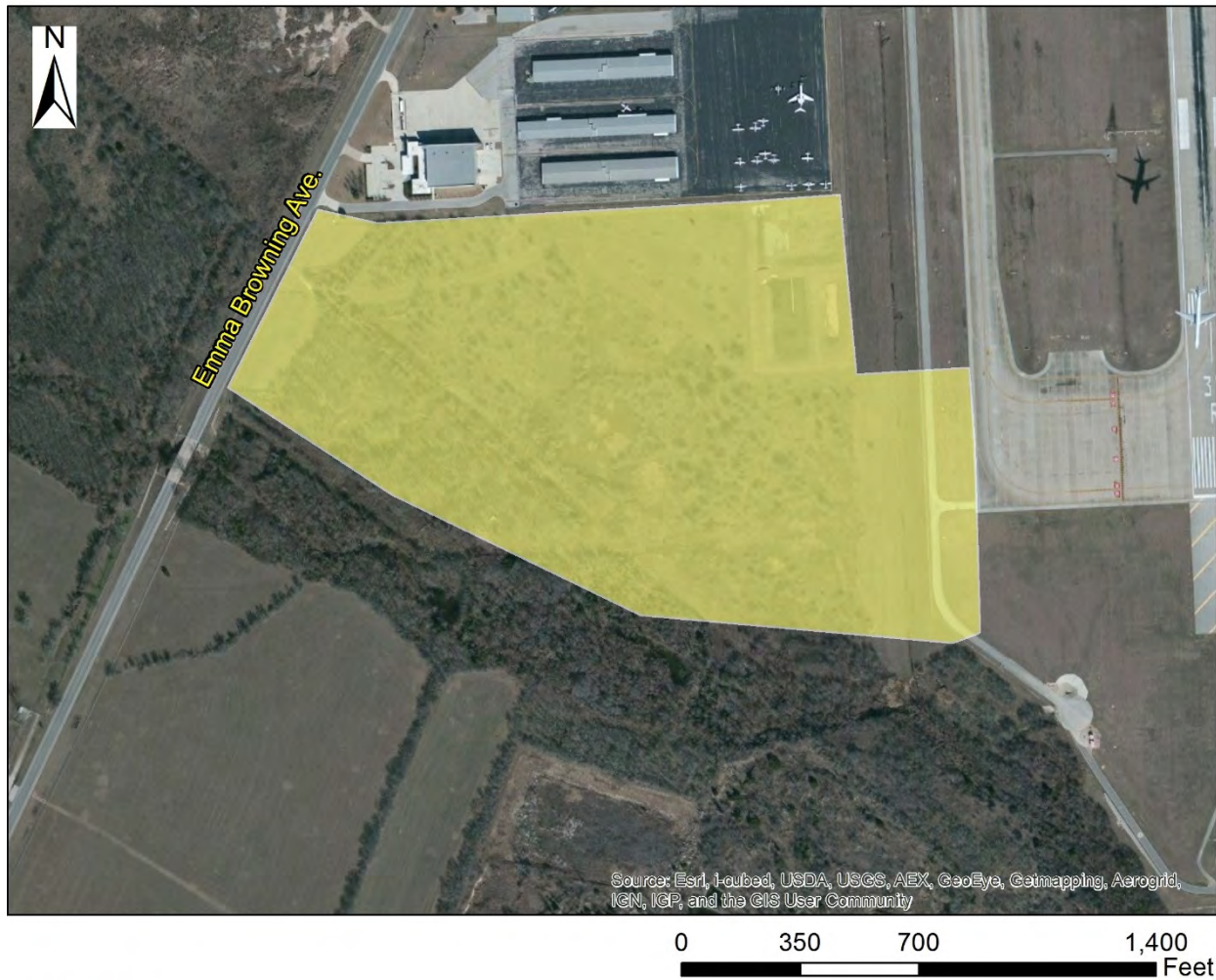
¹ A connected action is an interrelated segment of the same action which is a dependent action that would occur in the foreseeable future.

Figure 1-1
AIRPORT LOCATION




Source: RS&H, 2013

Figure 1-2
STUDY AREA



Legend

 Study Area

Source: RS&H, 2013

1.2 LAND USE AND ZONING

The Airport, including the Study Area, fall under the “special purpose” land use category of transportation (airports and aviation facilities). That category includes areas dedicated to vehicular, air, or rail transportation according to the *Land Use 2010 Study for the City of Austin*.²

The Airport is zoned as an “Aviation Services (AV)” Special Purpose Base District according to the Austin City Code. A description of this designation is as follows:

“Aviation services (AV) district is the designation for an airport-related use that requires direct access to airport facilities or that is compatible with or supports airport operations and services. An AV district designation may be applied to major public airport facilities, including airport-related uses on public lands and on private lands adjoining airport facilities.”³

1.3 PHYSICAL AND NATURAL ENVIRONMENT

The Study Area includes areas of pavement and previously disturbed vegetation. It is generally flat with topography having largely man-made changes in elevation due to adjacent general aviation development. The elevation gradually decreases from about 480 feet in the northern section adjacent to Emma Browning Avenue to about 465 feet in the southern end (toward the un-named tributary to Onion Creek). This area has minimal surface flow due to the arid climate conditions in this region.

² City of Austin, *City of Austin Neighborhood Planning*, Guide to Land Use Standards, available at: ftp://ftp.ci.austin.tx.us/npzd/website/Planning_Zoning/land_use_policy_guide.pdf. Accessed on April 2, 2013.

³ City of Austin, *Austin City Code*, Chapter 25-2 Zoning, available at: [http://www.amlegal.com/nxt/gateway.dll/Texas/austin/title25landdevelopment/chapter25-2zoning?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:austin_tx\\$anc=JD_25-2-32](http://www.amlegal.com/nxt/gateway.dll/Texas/austin/title25landdevelopment/chapter25-2zoning?f=templates$fn=default.htm$3.0$vid=amlegal:austin_tx$anc=JD_25-2-32). Accessed on April 2, 2013.

2 CHAPTER 2 PURPOSE AND NEED

This Chapter describes the purpose and need for general aviation development and FAA ductbank relocation at AUS (Proposed Action).

2.1 PURPOSE

The purposes of the Proposed Action are to:

- develop general aviation facilities to support future growth at AUS;
- improve the products and services available to the general aviation customers at AUS;
- increase revenue generation through the rental of unused compatible land; and
- relocate an FAA ductbank, which runs southeast across the 21-acre leased property from Emma Browning Avenue to the FAA localizer shelter.

2.2 NEED

The Proposed Action is needed to accommodate future demand for general aviation development to serve the growing City/GA community. Austin continues to be one of the fastest growing Metropolitan Statistical Areas (MSA) in the nation, with a population increase of three percent in 2012, which was at the top of Forbes 2013 list of fastest growing cities.⁴

The City/Airport is quickly becoming an international destination with the recent addition of the “Circuit of the Americas Formula One” racetrack and several annual festivals such as “Austin City Limits” and “South by Southwest.” The continual influx of both new residents and visitors has created an opportunity for developers to capitalize on the increased need for general aviation facilities. The current lessees intend to create additional FBO facilities capable of serving the existing and projected demands within the general aviation community.

An FAA ductbank was installed in the past to serve surveillance, communications, and navigational aid equipment critical to Airport operations. However, a portion of the ductbank installation is not consistent with the original design drawing location, and was discovered upon survey for the proposed 21-acre parcel development. The presence of the ductbank on the parcel adversely affects the current lessee’s ability to implement proposed development plans. The ductbank needs to be relocated to a location that would not affect development options on the leased area. Additionally, relocation of the ductbank would provide the possibility of an easement agreement between the City and the FAA to allow unrestricted access to the facility. If left in its current configuration, future work and maintenance related to the ductbank would likely require tenant approval, tenant escort, and possible suspension of operations on the developed parcel, depending on the nature of maintenance activities.

⁴ Forbes, America’s Fastest –Growing Cities, available at www.forbes.com/pictures/mlj45hdfd/1-austin-texas/. Accessed on June 13, 2013.

THIS PAGE INTENTIONALLY LEFT BLANK

3 CHAPTER 3 ALTERNATIVES

The alternative analysis is divided into “General Aviation Development” and “Ductbank Relocation” for clarity. While GA development is the primary purpose and need for the Proposed Action, the ductbank alternatives are presented herein due to the connectivity of the two projects.

3.1 DESCRIPTION OF ALTERNATIVES

The following sections describe the reasonable alternatives considered for evaluation in the analysis. Since there are no unresolved conflicts concerning the uses of available resources, the range of alternatives evaluated in this EA is limited to the No Action and Proposed Action alternatives (FAA Order 1050.1E, paragraph 405d).

3.1.1 General Aviation Development Alternatives

3.1.1.1 No Action Alternative

The No Action Alternative would involve no construction or disturbance of 41 acres of land located just southeast of Emma Browning Avenue within the existing property boundary of AUS.

3.1.1.2 Build Alternative – GA Development

The Build Alternative would involve constructing two (2) FBO facilities, corporate/conventional hangars, office space, two aprons, access roads, vehicle parking areas, four double-walled above ground fuel system tanks (two-12,000-gallon Jet-A and two-12,000-gallon Avgas), modification of a stormwater structural control unit, and a taxiway connector/bridge connector (see **Section 3.1.1.3** for alternatives) on the 41 acres of land located just southeast of Emma Browning Avenue within the existing property boundary of AUS. The Build Alternative, without the taxiway bridge or connector, is presented in **Figure 3-1** with typical hangar dimensions.

3.1.1.3 Build Alternative – Connecting Taxiway Alternatives

The Build Alternative includes two options for constructing a connector taxiway to Taxiway B to provide airfield access to the GA development.

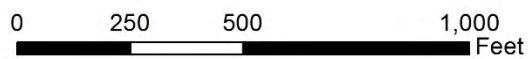
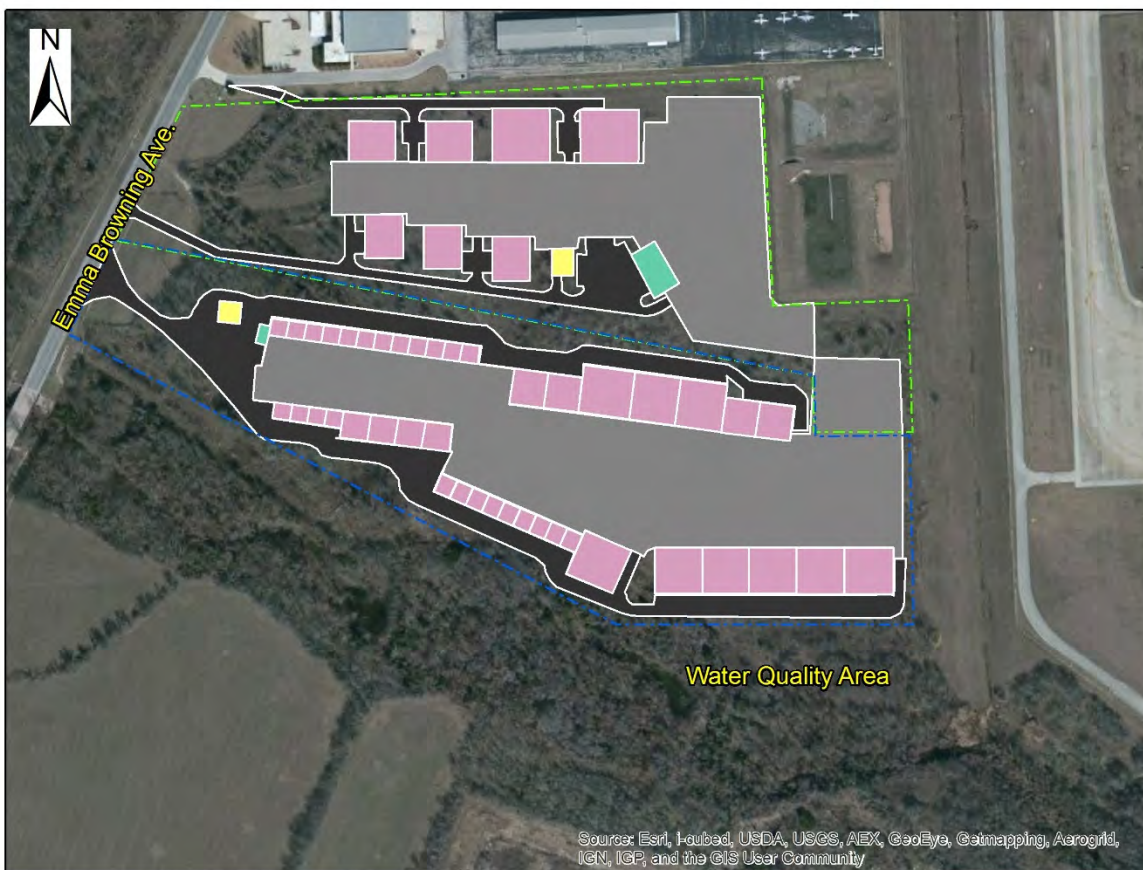
Connecting Taxiway Alternative 1: Connecting to Existing GA Development

Alternative 1 would include constructing a connecting taxiway to the existing GA Apron to the North of the Proposed Action (see **Figure 3-2**). Details associated with this Alternative are discussed below.

Taxi Distance

Alternative 1 would force tenants of both proposed GA facilities to taxi long distances to access the Runway 35R departure end. The 20-acre parcel tenants would have to taxi approximately three-quarters of a mile, and the 21-acre parcel tenants would have to taxi approximately 1.0 mile. Aside from this inconvenience and potential conflicts for taxing pilots, the long taxi distance would create more aircraft emissions, fuel usage, and burden on Air Traffic Control Tower (ATCT) than typical to coordinate the access along Taxiway B. The long taxi distance would likely cause confusion for GA pilots and subject them to performing a mid-field takeoff, increasing the potential for airfield incursions.

Figure 3-1
GENERAL AVIATION DEVELOPMENT ALTERNATIVE

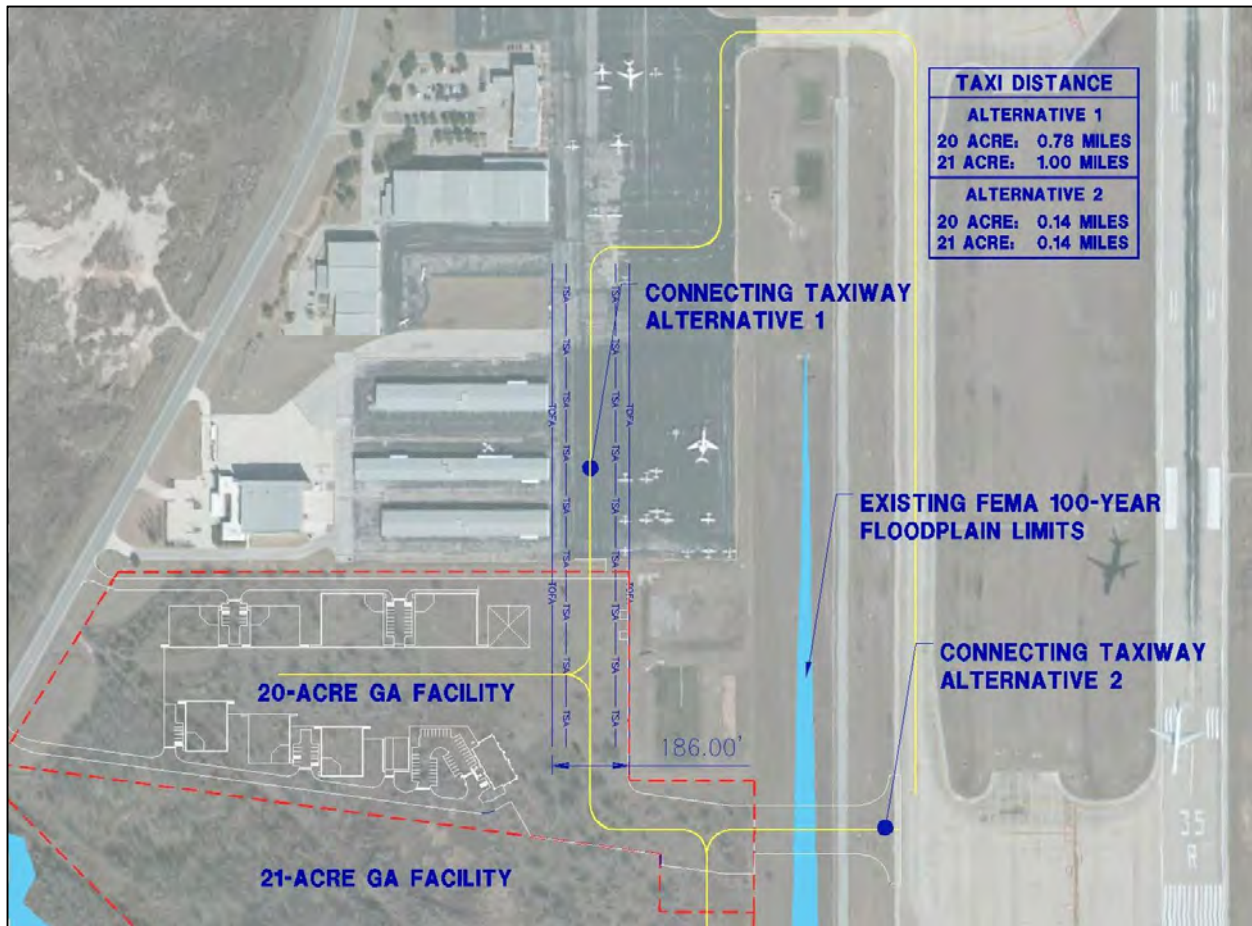


Legend

- 20-Acre Parcel
- 21-Acre Parcel
- Hangars
- Apron
- Office
- Fuel System (12,000 gallon JetA and 12,000 gallon Avgas tanks)
- Access Pavement

Source: RS&H, 2013

Figure 3-2
CONNECTING TAXIWAY ALTERNATIVES



Source: RS&H, 2013

Existing Facility Interaction

The Proposed Action is currently intended to serve larger aircraft than existing T-hangers located directly to the north. Therefore, the required 186 feet Taxiway Object Free Area (TOFA) needed to accommodate aircraft for the proposed facilities would reduce the number of tie-down spaces available on the existing apron and limit future storage capacity. Alternative 1 would also create a situation where tenants of the proposed facilities would have to taxi across the middle of the apron that is currently leased to other tenants.

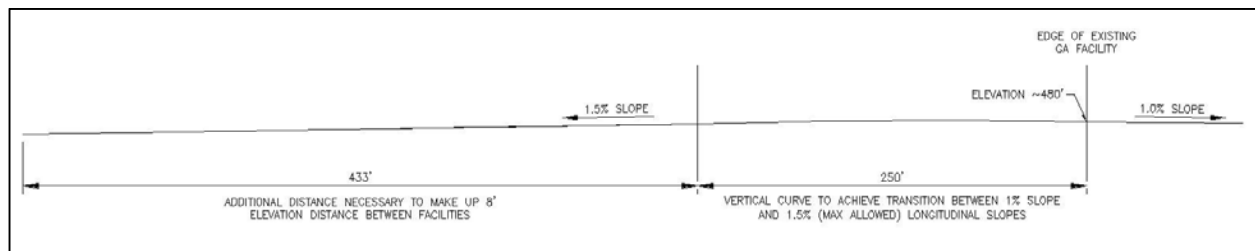
Proposed Facility Interaction

Alternative 1 would create a situation where tenants of the 21-acre parcel facility would have to taxi across the property leased to the 20-acre facility to access the airfield. Since each leaseholder is responsible for maintenance of their respective pavements within their lease limits, this arrangement has potential to create significant operational issues among lessees. The proposed facility owners each plan to implement access control infrastructure, which would not be conducive to this arrangement.

Existing Terrain Restrictions

Based on survey data, there is an approximate eight foot elevation difference between the existing facility and the proposed facility topography. In accordance with taxiway longitudinal grading criteria set forth in FAA Advisory Circular 150/5300-13A, Airport Design, Chapter 4 Section 418, the maximum longitudinal grade is 1.5% for Aircraft Design Group (ADG) C. ADG C is the expected aircraft group that would serve the proposed facilities. Based on FAA guidance, Alternative 1 would require an approximate distance of 683 feet to “bridge” the difference in topography. This topographical profile is illustrated in **Figure 3-3**.

Figure 3-3
REQUIRED PROFILE TO CONNECT TO EXISTING FACILITY



Source: RS&H, 2013

Also, due to transverse grading criteria for taxiway cross-sections of 1.5% maximum grade, Alternative 1 would require a large amount of fill material to make the adjacent apron area usable for taxiing aircraft. Thus, the majority of the site would have to be raised significantly to accommodate this Alternative.

Alternative 2: Connect to Existing Taxiway B

Alternative 2 includes constructing a connecting taxiway east of the Proposed Action to the existing Parallel Taxiway B (see **Figure 3-2**).

Taxi Distance

Alternative 2 would result in a limited taxi distance, approximately 0.14 miles, for both proposed facilities. This limited taxi distance would produce low aircraft emissions, not result in pilot confusion, and would have a limited potential for airfield incursions.

Existing Facility Interaction

Alternative 2 would cause no interaction between aircraft taxiing to and using the existing and proposed facilities. Thus, there would be no adverse impacts on the operational use of the apron space.

Proposed Facility Interaction

The two proposed GA facilities would share one common access point, but neither of the tenants would have to cross the other's property for airfield access.

Existing Terrain Restrictions

Since the proposed taxiway bridge connector would not be connected to an existing facility, the elevation difference to a neighboring facility is not a concern. However, this Alternative would cross a 100-year floodplain (discussed further in **Chapter 4**).

3.1.2 Ductbank Relocation Alternatives

For engineering purposes, eight ductbank relocation alternatives were analyzed as part of this EA. The source of the alternatives is the *ABIA FAA Ductbank Relocation Feasibility Study* (see **Appendix B**). This Study analyzed six options, Option 1, Option 2, Option 3A, Option 3B, Option 4, and Option 5. This EA refers to these options as alternatives and during the analysis added the No Action alternative as well as an alternative to the original Option 2. Consequently, this EA evaluates a total of eight alternatives as presented in **Figure 3-4**.

3.1.2.1 No Action Alternative

The No Action Alternative would involve retaining the existing ductbank at the current location and elevation. However, doing so could affect grading needed to develop the leased parcel for general aviation. This is because a 30-inch-deep cover restriction near the ductwork is needed to protect that facility's integrity.

3.1.2.2 Alternative 1

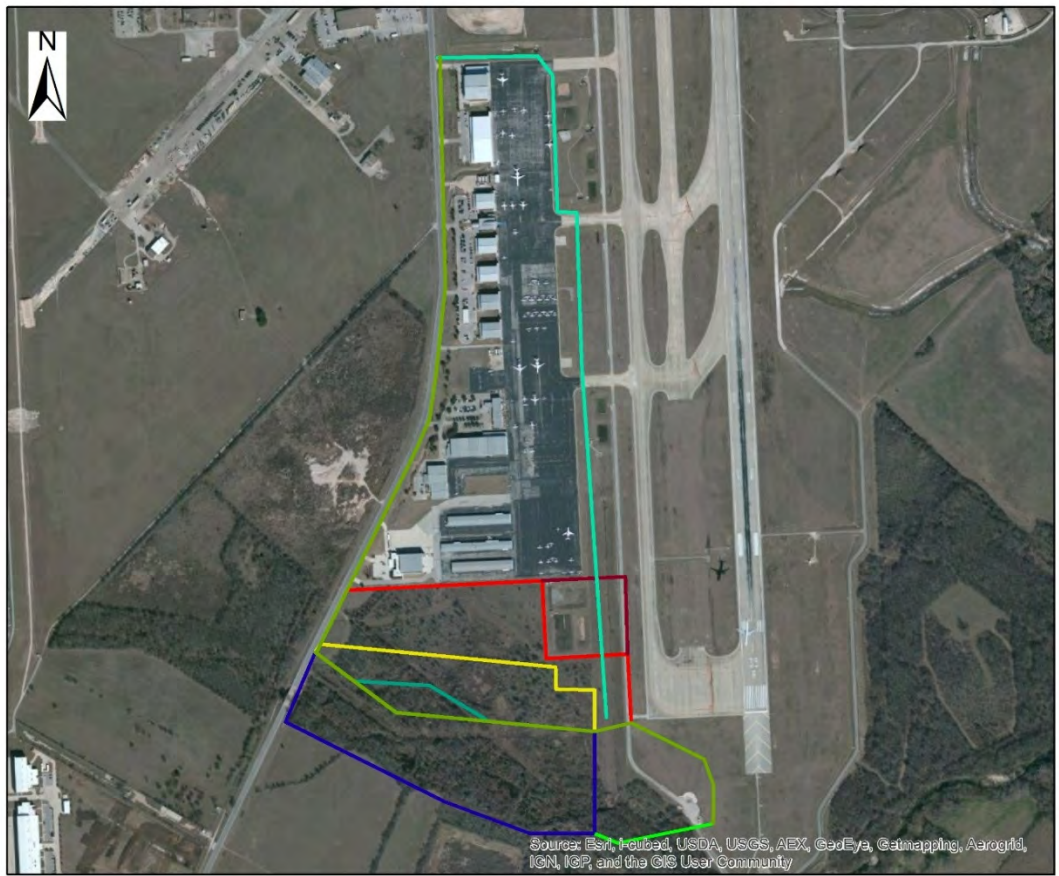
Ductbank Alternative 1 is consistent with "Option 1" of the Feasibility Study provided in **Appendix B**. It includes routing the FAA ductbank from existing FAA manhole TC-FAA-32 after it crosses the drainage channel toward the north, then turns to the west along the edge of the 21-acre parcel line as shown in **Figure 3-4**. Although there would be minimal tree clearing required with this alternative, it ultimately ranked second among the analyzed alternatives due to additional lease negotiations with the adjacent lessee, and potential issues with access to the manholes along the relocated line.

3.1.2.3 Alternative 2A/2B

Alternative 2A is consistent with "Option 2" of the Feasibility Study provided in **Appendix B** as shown in **Figure 3-4**. Alternative 2B includes a slight variation of "Option 2", as presented in **Appendix B**. Option 2 of the Feasibility Study included moving the ductbank so that it would extend from existing FAA manhole TC-FAA-31 to the north. It would then turn to the west (just south of the GA apron) and intercept the existing FAA ductbank along Emma Browning Avenue.

As detailed in the Feasibility Study, "Option 2" ranked first among the options considered, but requires caution due to the presence of pipes serving an adjacent water quality basin outlet. Upon further investigation, a slight modification to this Option is discussed here as Alternative 2B and is shown in **Figure 3-2**. Instead of routing the ductbank to the east and north of the existing basins, Alternative 2B includes relocating the ductbank to the south and west of the existing water quality basin. This modification may ultimately relieve the concerns regarding conflicts with existing outlet pipes and utilities. Determination of the final alignment (2A or 2B) will be made during the design process and will be dependent on economic, operational, and constructability variables coordinated with the FAA and the Airport.

Figure 3-4
DUCTBANK ALTERNATIVES



Legend

- Existing Ductbank / No Action Alternative
- Option 1
- Option 2A
- Option 2B
- Option 3A
- Option 3B
- Option 4
- Option 5

0 550 1,100 2,200
 Feet

Source: RS&H, 2013

3.1.2.4 Alternatives 3A and 3B

Alternatives 3A and 3B are consistent with “Options 3A and 3B” of the Feasibility Study provided in **Appendix B** and shown in **Figure 3-4**. Both of these options would include crossing an unnamed tributary to Onion Creek.

Due to the complexity of vegetative and tree clearing concerns, tributary crossings, extensive tree mitigation, potential permitting issues, required wetland delineation, exposure/serviceability considerations, and additional coordination necessary, Options 3A and 3B were dismissed. The cost and time implications for these options were also prohibitive. Additionally, these alternatives pose problems for future development south of the tributary.

3.1.2.5 Alternative 4

Alternative 4 is consistent with “Option 4” of the Feasibility Study provided in **Appendix B** and shown in **Figure 3-4**. With this alternative, the ductbank would remain within the 21-acre parcel. Existing FAA manholes would be adjusted to proposed grade and the ductbank would be encased in concrete for protection. Upon investigation of Option 4 as part of the Feasibility Study, it was eliminated due to its extensive impact on proposed development and future accessibility issues.

3.1.2.6 Alternative 5

Alternative 5 is consistent with “Option 5” of the Feasibility Study provided in **Appendix B** and shown in **Figure 3-4**. With this alternative, the ductbank would cross the existing ditch from the localizer shelter to existing FAA Manhole TC-FAA-32. The relocated ductbank would then turn north and stay inside the airport operating area (AOA) past the Atlantic Aviation hangar. Once beyond the hangar, the ductbank would turn to the west and intercept existing FAA Manhole TC-FAA-30-2. Although this option would not require vegetative or tree clearing and the relocated ductbank would stay within Airport property, this alternative was also eliminated due to extremely high cost and impacts to existing and potential future leaseholders.

3.2 PROPOSED ACTION / PREFERRED ALTERNATIVE

3.2.1 General Aviation Development

The Build Alternative and Taxiway Alternative 2 were selected as the Preferred Alternative for the GA development as it meets the defined purpose and need, and is in compliance with Section 3A of Floodplain Management, *Guidelines for Implementing Executive Order 11988*. Alternative 1 was dismissed as a practical alternative, even though it avoids any floodplain impacts, because of the following factors as discussed in **Section 3.1.1.3**:

- Alternative 1 is incompatible with airport purposes due to the elevation differences between the existing and proposed apron that would restrict ADG C aircraft from operating on the proposed apron.
- Alternative 1 is incompatible with legal requirements for access as it would cause operational limitations among lessees of the existing and proposed apron.

In considering site practicability for floodplain alternatives, the Airport should address the following factors outlined in *Executive Order 11988*:

1. compatibility for airport purposes (topography, wildlife habitat, aviation hazards, etc.);
2. social considerations, including aesthetics, historical or cultural importance, and land use patterns;

3. economic aspects, including the costs for buying the alternative site, the cost to complete the action there, and any associated relocated necessary for the action to proceed; and
4. legal requirements (e.g. deeds, leases, and other legal documents).

3.2.2 Ductbank Relocation

Table 3-1 lists the pros and cons of each ductbank alternative. The qualitative alternatives analysis from the *ABIA FAA Ductbank Relocation Feasibility Study* shown in **Table 3-2** indicates that Alternative 2A/2B had the best combination of cost, compatibility with future development, and lowest potential for adverse environmental effects. Therefore, Alternative 2A/2B is the preferred alternative. Design criteria will dictate which variation is constructed, as described in Section 3.1.2.3.

Figure 3-5 depicts the preferred alternative for this EA, combining the GA development and ductbank relocation.

Table 3-1
DUCTBANK ALTERNATIVES EVALUATION PROCESS

Alternatives	Pros	Cons
Alternative 1	<ul style="list-style-type: none"> • Low cost • Minimal tree clearing required 	<ul style="list-style-type: none"> • Located in future tenant space • Additional lease negotiations and potential access issues
Alternative 2A/2B	<ul style="list-style-type: none"> • Low cost • Minimal tree clearing required • Unlikely to be in tenant apron pavement 	<ul style="list-style-type: none"> • Located between tenant property lines • Must cross existing culvert
Alternative 3A &3B	<ul style="list-style-type: none"> • No tenant lease space routes 	<ul style="list-style-type: none"> • High cost • Ditch crossing requiring deep bore drill • Used bore drill thru wetlands to minimize impacts and environmental assessment • Bridge crossing • Environmental documentation required which may impact design • Requires most tree clearing
Alternative 4	<ul style="list-style-type: none"> • Low cost • Short construction duration • May be able to pull fiber back and re-install 	<ul style="list-style-type: none"> • Located in tenant property and under pavement areas • Will require additional negotiations • If left at current elevation, could dictate pavement grades
Alternative 5	<ul style="list-style-type: none"> • More secure route since inside AOA • No tree removal 	<ul style="list-style-type: none"> • High cost • Long construction duration

Source: ABIA FAA Ductbank Relocation Feasibility Study, 2012

Table 3-2
QUALITATIVE DUCTBANK ALTERNATIVES EVALUATION PROCESS^{/a/}

	Cost^{/a/}	Compatibility with Future Development	Potential for Adverse Environmental Effects	Total Score
Alternative 1	Low (3)	Medium (3)	Low (3)	9
Alternative 2A/2B	Low (3)	High (4)	Low (3)	10
Alternative 3A	High (1)	Medium (3)	Medium (2)	6
Alternative 3B	High (1)	Medium (3)	Medium (2)	6
Alternative 4	Low (3)	Medium (3)	Low (3)	9
Alternative 5	High (1)	Medium (3)	Low (3)	7
No Action Alternative	Lowest ^{/b/}	Lowest (1)	Lowest (4)	9

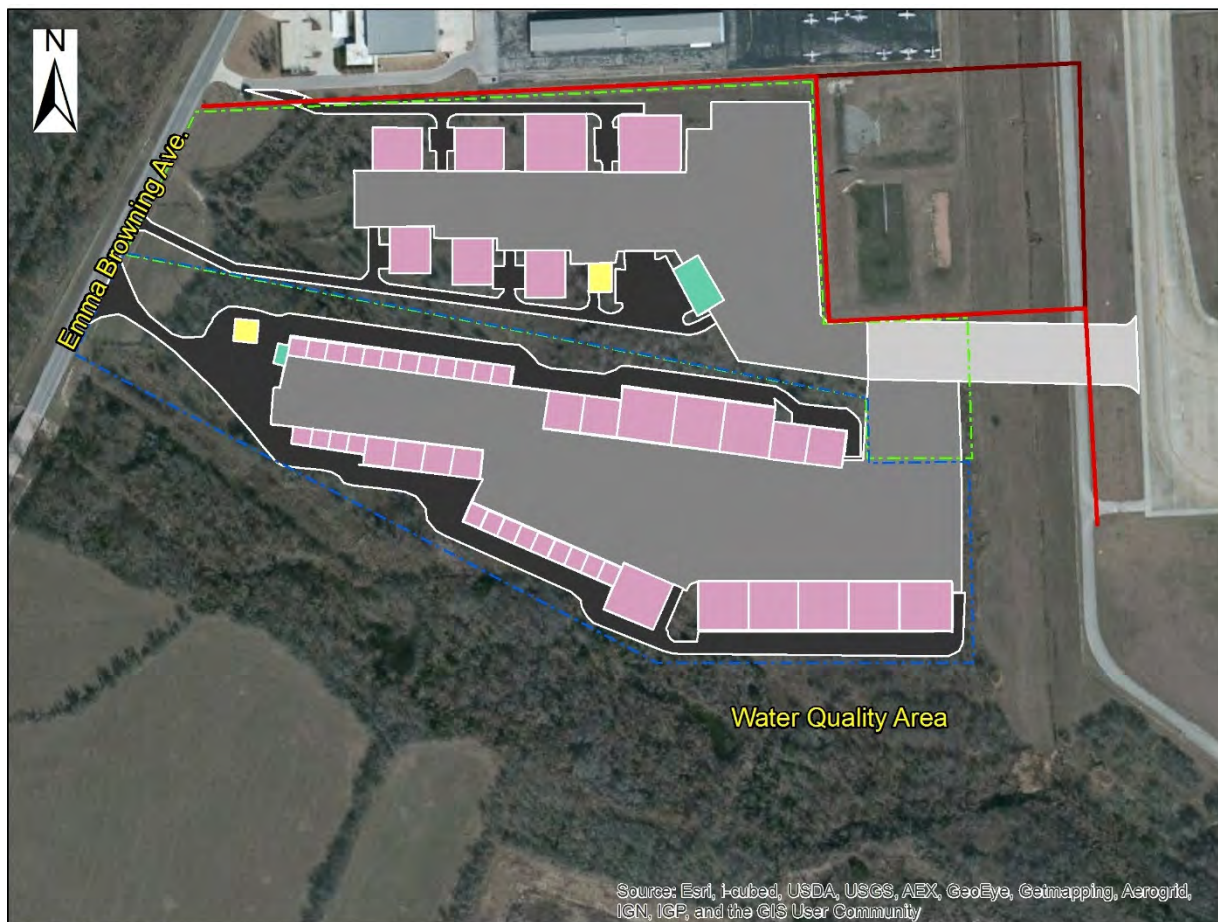
Value determines desirability of alternative: 1 (lowest desirability) – 4 (highest desirability).

^{/a/}: Numerical cost estimate values presented in thousands of dollars (example: \$400 = \$400,000)

^{/b/}: It is assumed that the No Action Alternative would be the least costly Alternative. However, it is possible that after re-design and construction changes the cost associated with implementing the No Action Alternative could be higher.

Source: ABIA FAA Ductbank Relocation Feasibility Study, 2012

Figure 3-5
PREFERRED ALTERNATIVE



0 250 500 1,000 Feet

Legend

- Option 2A
- Option 2B
- - - 20-Acre Parcel
- - - 21-Acre Parcel
- Hangars
- Apron
- Office
- Fuel System (12,000 gallon JetA and 12,000 gallon Avgas tanks)
- Taxiway Bridge Connector
- Access Pavement

Source: RS&H, 2013

4 CHAPTER 4 AFFECTED ENVIRONMENT

4.1 INTRODUCTION

This chapter provides a description of the existing conditions within the Study Area (see **Figure 1-2** for location of Study Area). The environmental resource categories are organized as identified in Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The potential environmental impacts of the No Action and Proposed Action alternatives retained for analysis of environmental consequences are presented in Chapter 5, Environmental Consequences.

In accordance with guidance provided in FAA Order 5050.4B and FAA Order 1050.1E, Change 1, the following environmental resources are not present within the Study Area, and, therefore, would not be affected by the No Action Alternative or the Proposed Action:

- *Coastal Resources.* Texas' coastal zone is generally the area seaward of the Texas coastal facility designation line which roughly follows roads that are parallel to coastal waters and wetlands generally within one mile of tidal rivers. The boundary encompasses all or portions of the 18 coastal counties.⁵ Travis County, the location of the Study Area, is not located in a coastal zone nor would it affect coastal zone.
- *Department of Transportation Section 4(f).* The Study Area is located on Airport property and no existing Section 4(f) lands are located on or near Airport property. The closest Section 4(f) land is Richard Moya Park, which is located 0.72 miles southwest of the Study Area.
- *Farmland.* The Study Area does not contain any prime, unique, or statewide and locally important farmlands. In addition, the Farmland Protection Policy Act (FPPA) excludes land dedicated to aviation use prior to 1982.
- *Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks.* Land acquisition would not be required for the Proposed Action and all construction would remain on existing Airport property.
- *Wild and Scenic Rivers.* The nearest Wild and Scenic River segment is the Rio Grande River, which is approximately 230 miles west of the Study Area. Thus, no Federal or State designated rivers are within or near the Study Area.

4.2 ENVIRONMENTAL RESOURCE CATEGORIES

4.2.1 Air Quality

The Airport is located in an "attainment" area for all NAAQS. Therefore, the No Action Alternative or Proposed Action is not subject to requirements addressing the State Implementation Plan (SIP) or General Conformity provisions under the Clean Air Act.

⁵ NOAA State Coastal Zone Boundaries, February 2012.

4.2.2 Compatible Land Use

The Airport and Study Area fall under the “special purpose” land use category of transportation (airports and aviation facilities). That category includes areas dedicated to vehicular, air, or rail transportation according to the *Land Use 2010 Study for the City of Austin*.⁶

The Airport is zoned as an “Aviation Services (AV)” Special Purpose Base District according to the Austin City Code. A description of this designation is as follows:

“Aviation services (AV) district is the designation for an airport-related use that requires direct access to airport facilities or that is compatible with or supports airport operations and services. An AV district designation may be applied to major public airport facilities, including airport-related uses on public lands and on private lands adjoining airport facilities.”⁷

4.2.3 Fish, Wildlife, and Plants

Trees within the Study Area range in height from 10 to 30 feet, and exhibit canopy coverage ranging from 0 to 80 percent depending upon the location. Dominant tree species observed within the Study Area include: honey, netleaf hackberry, pecan, western soapberry, and Chinaberry.

Dominant vegetation within the shrub layer includes: Roosevelt weed, Texas prickly pear, annual ragweed, mustang grapevine, poison ivy, and saw greenbriar. The dominant herbaceous species observed include: broomweed, tall goldenrod, croton, Bermuda grass, silver bluestem, night-shade and various other grasses and forbs.

A habitat survey was conducted in accordance with Land Development Code Section 25-8-695 and the City of Austin (COA) Environmental Criteria Manual (see **Appendix D**). The following endangered and threatened species could potentially exist in Travis County: bracted twistflower, canyon mock-orange, black-capped vireo (BVCI), golden-cheeked warbler (GCWA), whooping crane, red wolf, barton springs salamander, karst invertebrates. However, none of the species with the potential to occur in Travis County were observed at the Airport.

4.2.4 Floodplains

The Study Area includes a FEMA designated 100-year floodplain, Zone AE (see **Figure 4-1**). This area is subject to inundation by the one-percent-annual-chance flood event determined by detailed methods where Base Flood Elevations (BFEs) are shown. This floodplain in relation to the Study Area is presented in **Figure 4-1**.

⁶ City of Austin, *City of Austin Neighborhood Planning*, Guide to Land Use Standards, available at: http://ftp.ci.austin.tx.us/npzd/website/Planning_Zoning/land_use_policy_guide.pdf. Accessed on April 2, 2013.

⁷ City of Austin, *Austin City Code*, Chapter 25-2 Zoning, available at: [http://www.amlegal.com/nxt/gateway.dll/Texas/austin/title25landdevelopment/chapter25-zoning?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:austin_tx\\$anc=JD_25-2-32](http://www.amlegal.com/nxt/gateway.dll/Texas/austin/title25landdevelopment/chapter25-zoning?f=templates$fn=default.htm$3.0$vid=amlegal:austin_tx$anc=JD_25-2-32). Accessed on April 2, 2013.

4.2.4.1 Base Flood Elevations

A BFE is in reference to the flood that has a one percent chance of being equaled or exceeded in any given year; sometimes called the "100-year flood". A BFE is the elevation of the water surface of the base flood.

The location for a BFE value is portrayed as a line across the width of a Special Flood Hazard Area, notably Zone AE (shown in blue on **Figure 4-1**). The lines are symbolized to identify the vertical datum from which the BFE is measured.

4.2.5 Historical, Architectural, Archaeological, and Cultural Resources

Cultural resources are defined in this EA as buildings, sites, structures, or objects, each of which may have historical, architectural, archaeological, cultural, or scientific importance. In 1966, Congress passed the National Historic Preservation Act (NHPA), which required all federal agencies to assess the effects of any agency-sponsored undertaking on cultural resources. Under NEPA⁸, federal agencies are required to consider potential environmental impacts and appropriate mitigation measures for projects with federal involvement. The FAA process for consultation is established by regulations outlined in 36 CFR Part 800, as identified in 36 CFR § 60.4.

There are four evaluation criteria to determine a resource's eligibility for inclusion into the National Register of Historic Places (NRHP). These evaluation criteria, listed in Section 4.3.9 of this EA, are used to assist the federal agency in determining what properties, if any, should be considered for protection from destruction or impairment resulting from project related activities.⁹

4.2.6 Hazardous Materials, Solid Waste, and Pollution Prevention

Various activities and storage areas at the Airport have the potential to release hazardous materials into the Study Area. These activities and areas include, but are not limited to:

- aircraft refueling;
- aircraft maintenance;
- aircraft washing;
- vehicle maintenance;
- waste disposal; and
- historic leaks and spills.

Four landfills are within a 20 mile radius of the Airport. The FAA recommends a site distance of at least six statute miles between an Airport and a Municipal Solid Waste Landfill Facility (MSWLF) per guidance AC 150/5200-33B, *Hazardous Wildlife Attractants on or near Airport*. The closest landfill to the Study Area, and the only one within six miles, is the Travis County Landfill, located approximately two miles to the southwest. This landfill is classified as a Type IV facility and only accepts construction debris. Type IV facilities are less likely to act as wildlife attractants due to type of waste material accepted. Since this landfill is near the Airport, it is likely they will receive solid waste resulting from the proposed project's construction. However, this landfill does not pose any existing wildlife hazards nor is it anticipated that hazards would occur in the future.

⁸ 42 U.S.C. Sections 4321 through 4327

⁹ 36 CFR § 60.2

Figure 4-1
100-YEAR FEMA FLOODPLAIN



Source: FEMA FIRM Panel 48453C06205, 2008

4.2.7 Light Emissions and Visual Impacts

The Study Area currently comprises vacant land with vegetative habitat. There are no light sources within the Study Area from any buildings or airfield features. The visual landscape includes native trees, shrubs, and grasslands. As an existing facility, AUS is a fully-lighted airfield providing 24-hour-a-day service.

4.2.8 Natural Resources and Energy Supply

The proposed GA development areas are currently vacant. The only existing development in the Study Area includes an existing electrical ductbank that runs from Emma Browning Blvd. to FAA localizer building adjacent to the Runway 35R approach end.

4.2.9 Noise

The 2003 Master Plan Update (MPU) includes approved forecast figures for total operations and based aircraft through 2020. That year the MPU projected high-growth, long-term operations would reach 372,670.

Like all airport noise contours, the contours contained in the MPU are based on numbers of operations, the times of day those operations occur, fleet mix, and operational stage lengths. The noise contours depicted in MPU (see **Appendix C**) show the magnitude and areal extent of noise expected to occur at and near the Airport in 2019. The proposed general aviation (GA) facilities would lie within the 2019 70 DNL contour.

Table 4-1 is a comparison of past, present, and future operations at AUS as stated in the 2003 MPU and the FAA’s Terminal Area Forecast (TAF). As shown in the table, total operations in 2020 would be substantially greater than those that occurred in the past and that are projected to occur in the next five years, the period this EA addresses. However, the percentage of general aviation operations during those periods has been and will remain fairly constant.

Table 4-1
COMPARISON OF PAST, PRESENT, AND FUTURE OPERATIONS

YEAR	AIR CARRIER OPS	GEN. AV. OPS ^{/a/}	OTHER OPS ^{/b/}	TOTAL OPS	% GA OPS
2005 ^{/c/}	99,804	79,252	33,954	213,010	37.2
2007 ^{/c/}	101,950	73,803	35,434	211,187	34.9
2012 (ACTUAL) ^{/d/}	98,357	51,827	22,311	172,495	30.0
2012 (TAF) ^{/e/}	96,823	50,864	21,793	169,480	30.0
2018 (TAF) ^{/e/}	112,797	46,977	22,973	182,747	25.7
2020 ^{/f/}	222,902	104,000	45,768	372,670	27.9

^{/a/} General Av Ops includes itinerant general aviation and local civil activities.

^{/b/} Other Ops include Air Taxi, Commuter and Regional, and Military activities.

^{/c/} Data for 2005 and 2007 from Air Traffic Activity System (See “Conditions Used for the Area Equivalent Method” in **Appendix C**).

^{/d/} Data for 2012 (Actual) from Airport IQ 5010 Master Record for Austin-Bergstrom International Airport, March 7, 2013.

^{/e/} Data for 2012 (TAF) and 2018 (TAF) from FAA’s Terminal Area Forecast Detail Report (TAF), Issued January 2013.

^{/f/} Data for 2020 from 2003 Master Plan Update for Austin-Bergstrom International Airport, October 2003, pg. 3-14.

Table 4-2 shows the number of general aviation aircraft (i.e., single-engine piston; multi-engine piston; jet; helicopter) based at AUS. As the number of based aircraft increases it is likely that the Airport’s operations would increase as well. The 2019 MPU noise contours included and accounted for these additional operations. **Table 4-2** also indicates the number of general aviation aircraft based at AUS would not surpass the TAF’s estimates until 2024, a timeframe that is outside the period this EA analyzes.

Table 4-2

THE NUMBER OF PRESENT AND FORECASTED GENERAL AVIATION BASED AIRCRAFT AT AUSTIN-BERGSTROM INTERNATIONAL AIRPORT

YEAR	NUMBER OF BASED AIRCRAFT
2012 (ACTUAL) ^{/a/}	187
2012 (TAF) ^{/b/}	197
2014 (TAF) ^{/b/}	204
2016 (TAF) ^{/b/}	214
2018 (TAF) ^{/b/}	227
2020 (TAF) ^{/b/}	239
2020 (MPU) ^{/c/}	266
2022 (TAF) ^{/b/}	264
2024 (TAF) ^{/b/}	267

^{/a/} Data for 2012 (Actual) from Airport IQ 5010 Master Record for Austin-Bergstrom International Airport, March 7, 2013.

^{/b/} Data for 2012 through 2024 (TAF) are from FAA's Terminal Area Forecast Detail Report (TAF), Issued January 2013.

^{/c/} Data for 2020 from 2003 Master Plan Update for Austin-Bergstrom Airport, pg. 3-14. October 2003.

4.11.10 Water Quality

The Airport is located within the Onion Creek, Carson Creek, and Colorado River watershed. The nearest sole source aquifer is located approximately eight miles to the southwest of the Study Area.¹⁰

4.11.11 Wetlands

No areas exhibiting wetland characteristics (hydrology, hydrophytic vegetation, and/or hydric soils) as defined by the United States Army Corps of Engineers (USACE) and the City of Austin (COA) were identified with the Study Area. See **Appendix D** for the eleven data points that were observed for wetland habitat.

¹⁰ Environmental Protection Agency, *Texas Sole Source Aquifers*.

5

CHAPTER 5 ENVIRONMENTAL CONSEQUENCES

This Section of the EA discusses impacts associated with the No Action and Proposed Action as they relate to the environmental impact categories outlined in FAA Orders 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*

The remainder of the chapter discusses the following environmental impact categories that may be affected by the Proposed Action (i.e., general aviation development and ductwork relocation):

- Air quality
- Compatible Land Use
- Construction impacts
- Fish, wildlife, and plants
- Floodplains
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Historic, Architectural, Archaeological, and Cultural Resources
- Light Emissions and Visual Impacts
- Natural Resources and Energy Supply
- Noise
- Secondary (Induced) Impacts
- Water Quality
- Wetlands
- Cumulative Impacts

The following resource categories have been eliminated from further evaluation as discussed in **Chapter 4**:

- *Coastal Resources.* Texas' coastal zone is generally the area of seaward of the Texas coastal facility designation which roughly follows roads that are parallel to coastal waters and wetlands generally within one mile of tidal rivers. The boundary encompasses all or portions of the coastal counties.¹¹ Travis County, the location of the Study Area, is not located in a coastal zone nor would it affect coastal zone.
- *Department of Transportation Section 4(f).* The Study Area is located on Airport property and no existing Section 4(f) lands are located on or near Airport property. The closest Section 4(f) land is Richard Moya Park, which is located 0.72 miles southwest of the Study Area.
- *Farmland.* The Study Area does not contain any prime, unique, or statewide and locally important farmlands. In addition, the Farmland Protection Policy Act (FPPA) excludes land dedicated to aviation use prior to 1982.
- *Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks.* Land acquisition would not be required for the Proposed Action and all construction would remain on existing Airport property.

¹¹ NOAA State Coastal Zone Boundaries, February 2012.

- *Wild and Scenic Rivers.* The nearest Wild and Scenic River segment is the Rio Grande River, which is approximately 230 miles west of the Study Area. Thus, no Federal or State designated rivers are within or near the Study Area.

5.1 AIR QUALITY

This section describes the existing air quality in the Study Area. It also describes the laws and regulations applicable to the No Action and Proposed Action alternatives, how those actions would unavoidably affect air quality, and measures to mitigate those effects.

5.1.1 Background

The National Environmental Policy Act (NEPA)¹² requires the analysis of project-related effects on the human environment. In meeting NEPA, FAA examines those effects relative to the six National Ambient Air Quality Standards (NAAQS) the U.S. Environmental Protection Agency (EPA) has set to protect public health throughout the Nation. To do so, EPA has set a standard for the following air pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), 8-Hour, particulate matter (PM₁₀ or PM_{2.5}), and sulfur dioxide (SO₂). Although EPA establishes the NAAQS for each of those pollutants, the responsibility for developing plans to meet the NAAQS (State Implementation Plans) lies with the states.

If one of the six criteria pollutants in a geographic area exceeds the respective NAAQS, the area is classified as “a nonattainment area.” Areas where concentrations of all the criteria pollutants are below non-attainment threshold levels are considered “attainment areas.” The Airport is located in an “attainment” area for all NAAQS.

On January 12, 2012, FAA issued a memo on how to consider and evaluate greenhouse gases (GHG) and climate in a NEPA document.¹³ FAA did so after the Council on Environmental Quality (CEQ) affirmed that NEPA and its implementing regulations (40 CFR 1500 *et. seq.*) apply to GHGs and climate. GHGs include carbon dioxide (CO₂), methane (CH₄) NO₂, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF₆). CEQ instructs Federal agencies (e.g., FAA) to disclose a project’s contribution to GHGs in a study area even though there are no aviation-related GHG emission standards.

5.1.1.1 Regulatory Context

This EA addresses regulations at 40 CFR 1500 *et. seq.*, and information from EPA and the State of Texas, air quality standards to address project-related impacts. The EA also uses the information in FAA’s January 12, 2012 guidance memo to address GHGs.

5.1.1.2 Methodology

NAAQS: This EA uses information in Appendix 2 of FAA Order 1050.1E, Change 1, and information from the EPA and the State of Texas to determine the scope of the air quality assessment addressing the NAAQS. The analysis examines the changes in the NAAQS due to the No Action Alternative and Proposed Action. This EA uses the information in FAA Guidance to determine project-related effects on air quality in the Study Area.

¹² 42 U.S.C. 4321-4347.

¹³ FAA Order 1050.1E, Change 1, Guidance Memo #3, *Considering Greenhouses Gases and Climate Under the National Environmental Policy Act (NEPA): Interim Guidance*, January 12, 2012.

In addition, because AUS has more than 1.3 million annual enplanements, the Emissions Dispersion and Modeling System (EDMS) was run per the requirements of the Air Quality Assessment Process for Airports in the FAA Air Quality Handbook.

GHGs: This EA uses instructions in FAA's January 12, 2012 memo to determine project-related effects on GHGs in the Study Area. The EA also uses information in that memo to disclose and explain those effects.

5.1.1.3 Thresholds of Significance

NAAQS: FAA Order 1050.1E, Change 1, Appendix A2.3 provides the following air quality significance threshold:

“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.”

GHGs: None. FAA's January 12, 2012 memo notes there are no current Federal standards or significance thresholds for aviation-related GHG emissions.

5.1.2 Environmental Consequences

5.1.2.1 No Action Alternative

No GA development or FAA ductbank realignment would occur under the No Action Alternative. Therefore, the No Action Alternative would not alter the airport's existing air quality emissions or cause significant adverse air quality effects.

5.1.2.2 Proposed Action

Construction Emissions

Implementation of the Proposed Action would result in temporary and localized air emissions that are typically associated with construction activities. These emissions would originate from the operation of equipment needed for cut and fill operations and the operation of equipment for construction of the Proposed Action. Heavy construction equipment used at the site would emit exhaust containing carbon monoxide (CO), nitrous oxide (NO_x), volatile organic compounds (VOCs), and particulate matter. Operation of this equipment would also result in increased dispersion of dust and particulate matter during ground disturbing activities.

To minimize temporary, construction-related adverse air quality effects, the contractor would be required to implement Best Management Practices (BMPs). The BMPs would include seeding disturbed soils, maintaining construction vehicles appropriately, using reduced speeds on unpaved roads, suspending certain construction activities during high wind conditions, and covering disturbed areas with stabilizing materials, as needed dependent on ambient meteorological conditions. These BMPs would help ensure the Proposed Action would not cause significant, construction-related air quality effects.

Operational Emissions

Implementation of the general aviation development component of the Proposed Action would result in increased operational activity. An Emission Dispersion and Modeling System (EDMS) analysis was performed for this EA to determine if this operational increase would significantly affect air quality. **Table 5-1** outlines the baseline operational criteria pollutant emissions at the

Airport, the contribution of the Proposed Action, and the net increase associated with implementation of the Proposed Action.

Table 5-1
BASELINE AND PROPOSED ACTION CRITERIA POLLUTANT EMISSIONS^{/a/}

Criteria Pollutant	Baseline Conditions ^{/a/}	Proposed Action ^{/a/}	Net Increase ^{/a/}	Significance Threshold
Carbon Monoxide (CO)	0.721	1.201	0.48	100
Ozone Precursors ^{/b/}	0.214	0.243	0.029	100
Oxides of Nitrogen (NOx)	0.073	0.077	0.004	100
Oxides of Sulfur (SOx)	0.015	0.016	0.001	100
PM10	0.003	0.003	0.0004	100
PM2.5	0.003	0.003	0.0004	100
CO ₂ ^{/c/}	33.552	38.080	4.991	N/A

^{/a/}: In metric tons per year

^{/b/}: Calculated ozone precursors include both VOCs and NOx.

^{/c/}: Carbon Dioxide is not a criteria pollutant but is a necessary component of a GHG analysis.

NOTE: Under Title V of the CAA, any source that emits or has the potential to emit 100 tons per year or more of any criteria air pollutant is a major source and must obtain a Title V operating permit.

Source: RS&H, 2013; EDMS 5.1.3

Based upon the information above the Proposed Action would not cause short-term or long-term significant adverse air quality effects.

Greenhouse Gases (GHG) are gasses that contribute to the retention of heat in the atmosphere and drive the greenhouse effect. Primary sources of GHG emissions in the United States include hydrocarbon combustion resulting from electricity production, transportation, industry, commercial and residential land uses, and agricultural land uses. GHG emissions are not necessarily criteria pollutants, but can be considered both (for example, oxides of nitrogen).¹⁴

It is estimated that the Proposed Action would increase GHG emissions slightly when compared to the No Action Alternative due to the corresponding increase in GA operations at the airport (see **Table 5-1**).¹⁵ This minor increase is expected to comprise less than one percent of the total airport GHG emissions and far less than a percentage point of the overall U.S.-based total of aviation-related GHG emissions. When compared to GHG emissions worldwide, the effect is expected to be even smaller.

5.2 COMPATIBLE LAND USE

This section describes existing land uses and zoning conditions within the Study Area that the No Action Alternative and Proposed Action could potentially affect. It also describes the regulations applicable to those actions, how those actions would affect land uses in the Study Area, and measures to mitigate those effects.

¹⁴ EPA, Sources of Greenhouse Gas Emissions, available at: <http://www.epa.gov/climatechange/ghgemissions/sources.html>. Accessed July 9, 2013.

¹⁵ EPA, Overview of Greenhouse Gases, available at: <http://www.epa.gov/climatechange/ghgemissions/gases.html>. Accessed July 9, 2013.

5.2.1 Background

Land use and zoning authority is the right and responsibility of local and/or state governments, not Federal agencies. As a result, this EA examines and discloses how the No Action Alternative and Proposed Action would affect those land use or zoning regulations. FAA will not approve a project that conflicts with land use or zoning requirements (See FAA Order 5050.4B, paragraph 1203.a(1)).

Airport development activities that may alter an airport's noise levels and that affect land uses typically involve:

- fleet mix changes;
- changes in the number of aircraft operations; or
- air traffic changes or new approaches to a new airport or new runway;
- new or modified airport buildings or facilities that may require changes in aircraft operations; or
- new or relocated navigational aids.

5.2.1.1 Regulatory Context

FAA Order 1050.1E, Change 1, Appendix A.4.1(a), states that 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 impacts. As a result, when a noise analysis indicates there is no significant noise impact, one could make a similar conclusion about a project's compatible land use effects as they relate to airport noise. However, if analyses of other resource categories that have land use implications show the effects on that resource exceed applicable thresholds of significance, then the effects should be analyzed in the context of the affected resource. For example, if a project disrupts a community, the effects of relocating residents should be discussed in the Social Impacts chapter of a NEPA document to avoid duplication. The Compatible Land Use Chapter should indicate that effect and direct the reader to the Social Impact Chapter.

5.2.1.2 Methodology

This EA evaluates and discusses various regional and local agency land use plans and regulations. In doing so, the EA examines and discloses the consistency of the No Action Alternative and Proposed Action with those plans and regulations. As noted above, a major portion of that examination summarizes how project-induced noise changes would potentially affect noise sensitive land uses in the Study Area (e.g., homes, schools, churches, hospitals, and businesses).

4.2.1.3 Threshold of Significance

FAA Order 1050.1E, Change 1, Appendix A.14, notes a significant land use impact would occur:

“...if analysis shows that the Proposed Action will cause noise sensitive areas to experience an increase in noise of Day-Night Average Sound Level (DNL) 1.5 dB or more at or above DNL 65 dB noise exposure when compared to the No Action Alternative for the same timeframe.”

5.2.2 Environmental Consequences

5.2.2.1 No Action Alternative

No GA development or FAA ductbank realignment would occur. As a result, no effects on land uses or zoning adjacent to the Airport would occur.

5.2.2.2 Proposed Action

Implementation of the Proposed Action would provide future space for GA development and move the existing ductwork to avoid conflicts with that development. Since both of these components are related to airport operations, the Proposed Action would be compatible with land uses on Airport property.

Implementation of the Proposed Action would not affect land uses or zoning adjacent to the Airport. In addition, the Proposed Action would not cause temporary or permanent increases in noise or interrupt normal Airport operations. As a result, no noise-related compatibility issues would occur, see **Section 5.9, Noise**, for additional detail.

5.3 CONSTRUCTION IMPACTS

This section discusses the effects of project-related construction on the various environmental resources in the Study Area, regulations applicable to construction, and measures to mitigate construction-related effects.

5.3.1 Background

Construction activities, although short-term in duration, have the potential to cause substantial environmental effects. Unavoidable, construction-related air quality emissions, noise, changes in surface traffic density and flow, water quality degradation, soil erosion, habitat loss, use of natural resources and energy, and exposure of workers to hazardous materials are examples of such effects.

5.3.1.1 Regulatory Context

The regulations the EA addresses depend upon the various regulations protecting the affected environmental resources (e.g., 40 CFR Part 122 addressing National Pollutant Discharge Elimination Permit System (NPDES) requirements or Executive Order requirements on floodplains or wetlands). In addition, construction specifications associated with the selected alternative will incorporate:

- the provisions of Advisory Circular 150/5370-10C¹⁶;
- required mitigation; and
- applicable Federal, State and local regulations to reduce those effects.

¹⁶ Federal Aviation Administration. Advisory Circular 150/5370-10C, *Standards for Specifying Construction at Airports*, Item P-156 *Temporary Air and Water Pollution, Soil Erosion and Siltation Control*, current edition.

5.3.1.2 Methodology

The EA uses information from FAA Guidance to further evaluate and disclose construction impacts on particular environmental resources such as air quality or water quality. The information is consistent with the requirements of the laws and regulations noted above and the applicable portions of FAA Order 1050.1E, Change 1, Appendix A.

5.3.1.3 Threshold of Significance

This EA uses the significance thresholds in FAA Order 1050.1E, Change 1, Appendix A, that apply to each environmental resource construction would affect.

5.3.2 Environmental Consequences

5.3.2.1 No Action Alternative

No GA development or FAA ductbank realignment would occur as a result of the No Action Alternative. Therefore, no adverse construction effects are associated with the No Action Alternative.

5.3.2.2 Proposed Action

A discussion on the potential for adverse construction effects as a result of the Proposed Action is discussed within the sections of this chapter addressing each affected resource category.

Temporary noise increases due to operating construction vehicles and machinery would be limited to the immediate vicinity of the construction work and would remain on the Airport. Those noise levels would not cause significant noise levels due to the nature of proposed work and the absence of sensitive land uses in the vicinity of the Proposed Action and the Airport in general.

5.4 FISH, WILDLIFE, AND PLANTS

This section describes the fish, wildlife, and plant species within the Study Area. It also describes the laws and regulations applicable to the No Action and Proposed Action, how those actions would unavoidably affect those species, and measures to mitigate those effects.

5.4.1 Background

As noted below, a number of Federal laws, regulations, and Executive Orders protect many of the biotic communities in the Study Area.

- The National Environmental Policy Act (NEPA);¹⁷
- Airport and Airways Development Act, Section 47106(c)(B);¹⁸
- The Endangered Species Act¹⁹
- Executive Order 13112, Invasive Species;²⁰
- Migratory Bird Treaty Act of 1981;²¹
- The Fish and Wildlife Coordination Act;²² and

¹⁷ 42 U.S.C. Sections 4321–4347. See Chapter 1, Section 2 of the *Desk Reference*.

¹⁸ 49 U.S.C. Section 47106(c)(B).

¹⁹ 16 U.S.C. Sections 1531-1544. See Chapter 8, Section 2 of the *Desk Reference*.

²⁰ Vol. 64 *Federal Register*, page 6183, Feb. 1999.

²¹ 16 U.S.C. Sections 703-711.

²² 16 U.S.C. Section 661 *et. seq.*

- Presidential Memorandum on Environmentally and Economically Beneficial Landscape Practices on Federally Landscaped Grounds.²³

5.4.1.1 Regulatory Context

Numerous regulations that implement the Federal Acts are listed in **Section 5.4.1**.

- 40 CFR 1500-1508 provide the regulations implementing NEPA. Those regulations require Federal agencies to analyze and disclose the effects of major Federal actions affecting the environment to the public and to seek public input on those effects;
- 50 CFR Part 402 provide instructions on Federal agency consultation with the U.S. Fish and Wildlife Service (USFWS) and preparing biological assessments to determine project-related effects on Federally-listed endangered and threatened species.
- 50 CFR Parts 10 and 10.13 discuss the taking and protection of the listed migratory birds, respectively.

5.4.1.2 Methodology

This EA uses the information in FAA Guidance to determine project-related effects on biotic communities and Federally-protected species in the Study Area. The information is consistent with the requirements of the laws and regulations noted above and FAA Order 1050.1E, Change 1, Appendix A.8.

Habitat surveys were conducted in accordance with the COA Endangered Species Ordinance, as well as for species of concern (SOC), to determine the potential of the Proposed Action to have adverse effects on protected fish, wildlife, and plants and their respective habitats within 54 acres of the Study Area (see **Appendix D**).

5.4.1.3 Threshold of Significance

A significant impact is likely to occur when the project would jeopardize the continued existence of fish, wildlife, and plants in the Study Area, or destroy or adversely change Federally-protected or state-designated critical habitats in the Study Area. FAA Order 1050.1E, Change 1, Appendix A8.3 and FAA Order 5050.4B, Table 7-1, note a significant impact to fish, wildlife, and plants is associated with factors affecting population dynamics and sustainability (e.g., reproductive success rates, natural mortality rates, non-natural mortality) and minimum population levels required for population maintenance.

5.4.2 Environmental Consequences

5.4.2.1 No Action Alternative

No GA development or FAA ductbank realignment would occur as a result of the No Action Alternative. Therefore, there are no adverse biotic effects associated with the No Action Alternative.

5.4.2.2 Proposed Action

The Proposed Action would involve cut and fill procedures and vegetation clearing within the Study Area. Trenching for the new ductbank (approximate depth of 36 inches) would be restricted to an area of Airport property that has been cleared and graded as a result of previous

²³ Vol. 60 *Federal Register*, page 40837, Aug. 1995.

construction activities. The results of the Zephyr Corporation Environmental Assessment, completed as a part of this EA, indicated that the wildlife habitat within the Study Area did not contain any of the protected species or species of concern with the potential to occur in Travis County. (see **Appendix D**).

Coordination with the United States Fish and Wildlife Service (USFWS) indicated that implementation of the Proposed Action would not adversely affect species protected under the Endangered Species Act of 1973 (see **Appendix A** for USFWS concurrence). However, per correspondence with Texas Parks and Wildlife Division, the DOA would implement the applicable measures to mitigate any potential impacts to state-listed species and habitats below.

- In-kind on-site replacement/restoration of the native vegetation wherever practicable.
- Use of stormwater BMPs to reduce any potential adverse impacts on the unnamed tributary of Onion Creek.

See **Appendix A** for a list of all the drafted recommendations from the Texas Parks and Wildlife Department.

Based on the above findings, the Proposed Action would not significantly affect any fish, wildlife, or plant species.

5.5 FLOODPLAINS

This section discusses the floodplains located within the Study Area and the potential impacts the No Action and Proposed Action Alternatives would cause. It also describes the laws and regulations applicable to those actions, how those actions would unavoidably affect the natural and beneficial values of the Study Area's floodplains, and measures to mitigate those effects.

5.5.1 Background

Floodplains are areas adjacent to rivers, creeks, ditches, lakes, or other surface waters that periodically flood. The flooding normally occurs during or after large storm events or rapid snowmelt because downstream constrictions or obstructions prevent unobstructed flood flows. In other instances, storm surges, like those that occurred during Hurricanes *Katrina* and *Sandy*, overwhelm coastal areas.

According to the Federal Emergency Management Agency (FEMA), floodplain boundaries are based on the likelihood that a specific area will flood. FEMA, often with assistance from the USACE determines the boundaries of floodplains based on hydraulic modeling. The results of this modeling are published as Flood Insurance Rate Maps (FIRMs). The 100-year floodplain (Zone A) is the area that statistically has a one percent chance of becoming flooded each year.

Local and Federal agencies regulate construction in the 100-year floodplain. This is because development has an impact on the amount of flood storage the floodplain can provide and other natural and beneficial functions (e.g., aquatic and wildlife habitat, farmland). In addition, such development often puts human life and property at risk.

Executive Order 11988, *Floodplain Management*, directs Federal agencies to preserve and restore floodplain values and functions.²⁴ As a result the Order requires an intensive analysis of alternatives to avoid approving actions in the 100-year floodplain when possible.

5.5.1.1 Regulatory Context

FEMA, often assisted by the U.S. Army Corps of Engineers (USACE), determines the boundaries of floodplains based on hydrologic modeling. The results of this modeling are published as Flood Insurance Rate Maps (FIRMs). Areas within the 100-year floodplain (Zone A) have a one percent chance of becoming flooded each year.

In addition to the risk and safety concerns for property and human life, development in the floodplain has an impact on the amount of flood storage the floodplain can provide. As a result, local, State, and Federal agencies regulate construction in the 100-year floodplain. Executive Order 11988 – *Floodplain Management*²⁵ provides policy guidance for Federally-approved or funded airport projects that encroach on floodplains. Department of Transportation (DOT) Order 5650.2, *Floodplain Management and Protection*, requires FAA, as a U.S. Department of Transportation (USDOT) agency, to meet the Executive Order's requirements. Information in FEMA's Floodplain Management Guidelines provides information on how to meet those requirements.

5.5.1.2. Methodology

This EA uses information in FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, Appendix A.9 and FAA Airports Desk Reference, Chapter 12, Floodplains. That information is consistent with the requirements of the laws and regulations noted above and:

- identifies alternatives;
- discloses floodplain effects and evaluates alternatives;
- develops conceptual measures to mitigate unavoidable floodplain effects;
- determines if an airport action would cause a significant floodplain encroachment (i.e. examines whether the action would have a high likelihood of loss of human life; whether the action would likely have substantial encroachment-associated costs or damage including interrupting aircraft service or loss of vital transportation facility; or whether there is a notable, adverse effect on the affected floodplain's natural and beneficial values); and
- if applicable, after balancing related social, environmental, economic and engineering considerations, explains why placing the proposed facility in the 100-year floodplain is the only practicable alternative.

The FAA is coordinating with the floodplain administrator regarding the impacts associated with the Proposed Action and reasonable alternatives (see **Appendix A**). The floodplain analysis is within the FAA correspondence. A response from the floodplain administrator has not been received at the time of this writing. Based on coordination with the floodplain administrator and public review and comment, a final floodplain finding and determination will be disclosed in the Final EA.

However, it is important to note that this project was submitted to the City of Austin (City) as part of the construction plan development process on November 16, 2012 (SP-20112-1000C.04 –

²⁴ Vol. 42, *Federal Register*, page, 26951, May 1977.

²⁵ Federal Emergency Management Agency, Order 11988, *Floodplain Management*, current edition.

However, it is important to note that this project was submitted to the City of Austin (City) as part of the construction plan development process on November 16, 2012 (SP-20112-1000C.04 – JetStar FBO and Private Hangars) and comments received by the City of Austin Permit Review Team (Review Team). As part of the review, the Review Team determined that the development would have no adverse effect on the floodplain (see **Appendix A** for e-mail correspondence). The only condition included in the approval of the development was that the City will maintain control of the floodplain area via a memorandum of understanding (MOU) prior to issuance of the certificate of compliance.

5.5.1.3 Threshold of Significance

FAA Order 1050.1E, Change 1,²⁶ states:

“...floodplain impacts would be significant pursuant to NEPA if they cause notable adverse impacts on natural and beneficial floodplain values. Mitigation measures for base floodplain encroachments may include committing to special flood-related design criteria, elevating facilities above base flood level, locating nonconforming structures and facilities out of the floodplain, or minimizing fill placed in floodplains.”

5.5.2 Environmental Consequences

5.5.2.1 No Action Alternative

No GA development or FAA ductbank realignment would occur as a result of the No Action Alternative. Therefore, the No Action Alternative would result in no adverse effects to floodplains.

5.5.2.2 Proposed Action

The Proposed Action includes encroachment on a small portion of the FEMA designated 100-year floodplain Zone AE as shown in **Figure 5-1**.

The flow-line of the existing man-made ditch is approximately 458 feet. The BFE, as dictated by FEMA, reaches an elevation of 464 feet. The banks of the existing man-made ditch containing the floodplain extend to an elevation of 470 feet, which is six feet higher than the BFE and 12 feet higher than the flow-line.

Although the Proposed Action encroaches on the 2-dimensional limits of the floodplain, the developer intends to construct two (2) – 8’x7’ box culverts to maintain capacity of the existing floodway/ditch, and to mitigate any adverse impact to the 100-year floodplain elevation. The flow-line of the proposed culverts would be at approximately 458’, with an inside-top elevation of 465’ (one foot higher than the BFE). The developer used the HY-8 Culvert Modeler software to size the box culverts in an effort to maintain the existing floodplain capacity. Additionally, the ditch has capacity to hold significantly more volume than necessary for the 100-year-storm. Therefore, the Proposed Action would have little to no adverse effect on the existing BFE, and would not cause negative impact upstream of the crossing.

The developer also plans to increase the size of the adjacent sedimentation and filtration basins in order to eliminate any surge in runoff to the ditch/floodplain. The impervious area within the facility would have a net-zero impact on surface runoff due to these improvements.

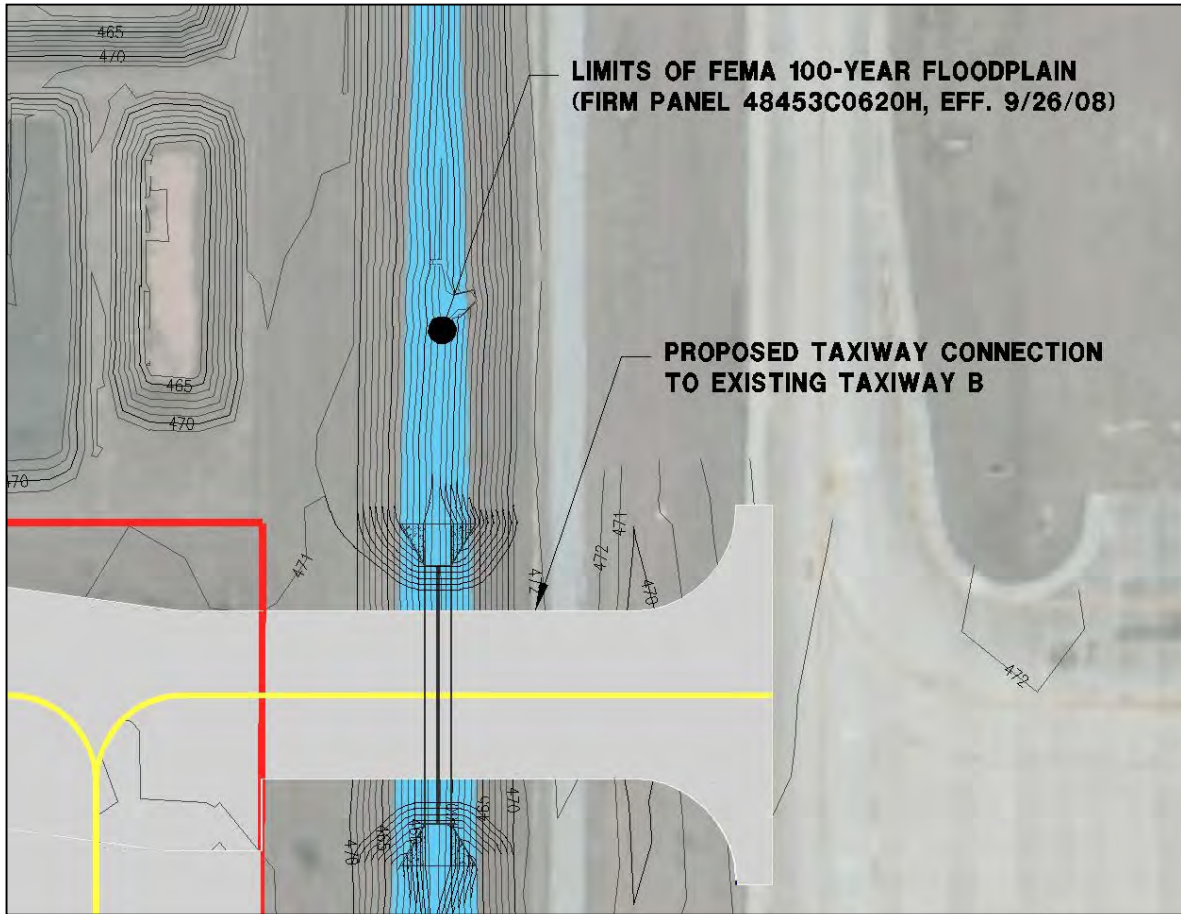
²⁶ FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, Appendix A.9

The Authority Having Jurisdiction (AHJ) for development within the floodplain is the City of Austin. Impacts are evaluated and managed locally by the City of Austin Permit Review Team. As noted previously, the development shown in the Proposed Action has been submitted to the Review Team as part of the construction plan development process. As part of the review, the City determined that the development would have no adverse effect on the floodplain. The only condition included in the approval of the development was that the City will maintain control of the floodplain area via MOU prior to issuance of the certificate of compliance. A note will be placed on the cover sheet of the development plans to ensure that this condition is met. The correspondence for this coordination has been included in **Appendix A**.

In compliance with Executive Order 11988 and the U.S. Department of Transportation Order 5650.2, *Floodplain Management and Protection*, a preliminary floodplain alternatives analysis was conducted as part of the coordination between the FAA and floodplain administrator (see **Appendix A**). This analysis concluded that the Proposed Action would not result in a “significant encroachment” because it would not:

- result in a high likelihood of loss of human life;
- have substantial, encroachment-associated costs or damage including interrupting service or loss of a vital transportation facility; or,
- result in notable adverse impacts on natural and beneficial floodplain values.

Figure 5-1
PROPOSED ACTION ENCROACHMENT ON 100-YEAR FLOODPLAIN



Source: FEMA & RS&H, 2013

5.6 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

This section describes the hazardous materials that are used at, stored at, or transported to the Airport. It also describes the laws and regulations applicable to the No Action and Proposed Action, how those actions would unavoidably affect hazardous materials at the Airport, and measures to mitigate those effects.

5.6.1 Background

An airport's airside and landside operations use, transport, or generate various kinds of hazardous materials. For example, hazardous materials such as jet fuels are transported to the Airport by ground vehicles and on the airport by aircraft fueling trucks or via hydrant systems. In addition, airport construction and maintenance activities often use chemicals classified as hazardous materials.

Various Federal, State, and local laws regulate the use, storage, transportation, or disposal of hazardous materials. These laws may extend to past, present, and future landowners of properties containing these materials. In addition, disrupting sites containing hazardous materials may create pathways that allow contaminants to effect human health and the environment. Applicable Federal requirements used to assess hazardous waste effects include:

- the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA);²⁷
- the Oil Pollution Prevention Act of 1990;²⁸
- the Toxic Substances Control Act of 1976 (TSCA);²⁹
- the Resource Conservation and Recovery Act (RCRA);³⁰
- the Clean Water Act (CWA);³¹
- Executive Order 12088, *Federal Compliance with Pollution Control Standards*;³²
- Executive Order 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements*;³³ and
- Executive Order 12580, *Superfund Implementation*.³⁴

5.6.1.1 **Regulatory Context**

Generally, the terms "hazardous wastes," "hazardous substances," and "hazardous materials" are associated with industrial wastes, petroleum products, dangerous goods or other contaminants. But, in a regulatory context, these terms have very precise and technical meanings that are used for consistency and legal purposes. The following paragraphs discuss some of those terms.

Hazardous Wastes

Subpart C of RCRA defines this term. Hazardous wastes (sometimes called characteristic wastes) are solid wastes that are ignitable, corrosive, reactive, or toxic. Examples include waste

²⁷ 42 U.S.C. Section 9601.

²⁸ 33 U.S.C. Section 2701.

²⁹ 15 U.S.C. Sections 2601-2692.

³⁰ 42 U.S.C. Section 6901 *et. seq.*

³¹ 33 U.S.C. Sections 1251-1387.

³² No. 48 *Federal Register*, page 47707, Oct. 1987.

³³ No. 58 *Federal Register*, page 41981, Aug. 1987.

³⁴ No. 52 *Federal Register*, page 2923, Oct. 1987.

oil, mercury, lead or battery acid. In addition, Subpart D of RCRA contains a list of specific types of solid wastes that the EPA has deemed hazardous (sometimes called listed wastes). Examples include degreasing solvents, petroleum refining waste, or pharmaceutical waste.

Hazardous Substances

Section 101(14) of CERCLA defines this term broadly. It includes hazardous wastes, hazardous air pollutants, or hazardous substances designated as such under the CWA and TSCA and elements, compounds, mixtures, or environmental resources. It should be noted that, pursuant to CERCLA, hazardous substances do not include any petroleum or natural gas substances and materials. Examples include ammonia, bromine, chlorine, or sodium cyanide.

Hazardous Materials

According to 49 CFR Part 172, hazardous materials are any substances commercially transported that pose unreasonable risk to public health, safety, and property. These substances include hazardous wastes and hazardous substances as well as petroleum and natural gas substances and materials. As a result, hazardous materials represent hazardous wastes and substances. Examples include household batteries, gasoline, or fertilizers.

5.6.1.2 Methodology

This EA uses the information in FAA's guidance to determine project-related effects relative to hazardous materials in the Study Area. That information is consistent with the requirements of FAA Order 1050.1E, Change 1, Appendix A.10.

5.6.1.3. Thresholds of Significance

FAA Order 1050.1E, Change 1, Appendix A.10, indicates that the significance threshold for determining adverse effects due to hazardous materials and hazardous wastes includes the following:

- If the Proposed Action or reasonable alternative involves a property on or eligible for the National Priority List (NPL),³⁵ the FAA recommends that any NEPA document disclose if presence of contamination within the within boundaries of the *entire* NPL site. This helps the decision maker (and reader) determine if there are areas within the site that are not contaminated (i.e., "clean").
- If an airport would have difficulty meeting applicable, state, or Federal laws and regulations addressing hazardous wastes or hazardous materials, then the FAA recommends that any NEPA document disclose that difficulty. This helps the decision maker (and reader) determine if extraordinary measures are needed to mitigate project-related disturbances of contaminates that would endanger the health and/or safety of citizens (e.g., connecting the project area to a new water supply or moving local residents to avoid contamination).
- If there is an unresolved issue regarding hazardous materials, then FAA recommends that any NEPA document discuss how the Proposed Action or reasonable alternative would affect a site known or suspected to be contaminated. This informs the decision maker (and reader) that the effects of the contamination are not fully understood, but necessary corrective actions may be needed.

³⁵ The National Priorities List (NPL) is the list of areas throughout the United States and its territories that have had releases or threatened releases of hazardous substances, pollutants, or contaminants. The NPL's primary purpose is to guide the EPA in determining those sites warranting further investigation.

5.6.2 Environmental Consequences

5.6.2.1 No Action Alternative

There would be no change in the amount of hazardous material used or stored at the Airport under the No Action Alternative nor would it generate any solid waste. Therefore, there are no hazardous material or solid waste effects associated with the No Action Alternative.

5.6.2.2 Proposed Action

Hazardous Materials

The Proposed Action would involve the installation of a two 12,000-gallon Jet-A above ground fuel tanks and two 12,000-gallon above ground Avgas tanks, as shown in **Figure 3-1**. All four tanks would be double-walled self-contained breach fuel tanks placed on concrete pads to contain any incidental fuel spillage. The transportation/storage of fuel, and the handling of any excavated/construction material deemed hazardous, will be governed by standard engineering controls and the use of BMPs. As a result, the Proposed Action would not cause any hazardous material-related effects.

The fuel tanks associated with the fuel farm will involve in-depth oversight and will be permitted by the Texas Commission on Environmental Quality (TCEQ), CoA, and the Austin Fire Department (AFD). The fuel tanks will be included in a Spill Prevention, Control and Countermeasure (SPCC) plan and a Storm Water Pollution Prevention Plan (SWPPP) which describe routine inspections and structural controls.

Constructing the Proposed Action would require the temporary storage and use of hazardous materials. The predominant materials would be diesel fuel and oils which are necessary to operate construction equipment. However, due to the relative size of construction efforts associated with the Proposed Action, this increase in storage and use would not result in an unnecessary risk to workers or individuals on or in the vicinity of the Airport. All hazardous materials would be stored and handled according to accepted practices and legislation.

Solid Waste

Implementation of the Proposed Action would not result in a continued increase in solid waste generation. Solid waste will be generated during construction due to grading, tree removal, and construction activities; however, the amount of solid waste anticipated will not be significant. GA operations would generate waste, but not the levels that would adversely affect the capacity of local landfills to serve the Austin area. Therefore, the Proposed Action would not result in adverse solid waste effects at the airport or in local landfills.

5.7 HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

5.7.1 Background and Methodology

Historic, architectural, archaeological, and cultural resources are districts, sites, buildings, structures, objects, and landscapes significant in American history, prehistory, architecture, archaeology, engineering and culture. For the purposes of this EA, cultural resources include existing and/or potential historic and prehistoric archaeological sites, historic buildings and structures, and Native American Traditional Cultural Properties (TCPs).

5.7.1.1 Thresholds of Significance

Section 106 of the NHPA requires that a federal agency having direct or indirect jurisdiction over a proposed federal or federally-assisted undertaking, or issuing licenses or permits, must consider the effect of the proposed undertaking on historic properties. An historic site or property may include a prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the NRHP.

Pursuant to FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, the FAA determines whether the Proposed Action is an “undertaking” as defined in 36 CFR 800.16(y). The FAA also determines whether the Proposed Action is a type of activity that has the potential to cause adverse effects on historic properties eligible for or listed on the NRHP.

A significant impact would occur if the Proposed Action results in an adverse effect to a property that is listed in or eligible for inclusion in the NRHP. The specific Criteria of Effect and Adverse Effect, as defined in 36 CFR 800.9, used to evaluate an undertaking’s effect on an historic property, are as follows:

- An undertaking has an effect on an historic property when the undertaking may alter the characteristics of the property that qualify the property for inclusion in the NRHP. For the purpose of determining effect, alteration to features of the property’s location, setting, or use may be relevant depending on a property’s significant characteristics and should be considered.
- An undertaking is considered to have an adverse effect when the effect on an historic property may diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:
 - (1) physical destruction, damage, or alteration of all or part of the property;
 - (2) isolation of the property from or alteration of the character of the property’s setting when that character contributes to the property’s qualification for the NRHP;
 - (3) introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
 - (4) neglect of a property resulting in its deterioration or destruction; and
 - (5) transfer, lease, or sale of the property.

5.7.2 Environmental Consequences

5.7.2.1 No Action Alternative

Under the No Action Alternative, no construction would occur in areas with identified resources; however, surface maintenance activities (i.e., mowing) would continue as required. Thus, the No Action Alternative would not affect any known historic, architectural, archaeological, or cultural resources.

5.7.2.1 Proposed Action Alternative

Based on correspondence between the City of Austin and the Texas Historical Commission (THC), the SHPO officer concurs with the FAA that the Proposed Action Alternative would not adversely affect historic, architectural, archaeological, and cultural resource within the Study Area (see **Appendix A**).

5.8 LIGHT EMISSIONS AND VISUAL IMPACTS

This section describes the light emissions and visual effects that the No Action Alternative and the Proposed Action would cause. The section also discusses regulations addressing light emissions and visual effects and ways to reduce those effects on the Study Area's visual characteristics.

5.8.1 Background

Lighting required for airfield and terminal areas, obstruction marking, navigational aids, and automobile parking facilities are the chief contributors to light emissions from an airport. Airport-related light emissions are considered to have a noticeable adverse impact if light is directed toward residential areas. An analysis is necessary when the Proposed Action includes the introduction of new airport lighting facilities that may affect residential or other sensitive land uses. However, this typically occurs only in unusual circumstances when high-intensity strobe lights shine directly into residential areas.

Visual, or aesthetic impacts, are inherently more difficult to define than light emission impacts because of the subjectivity involved, and because they deal more broadly with the extent that the proposed development contrasts with the existing environment and whether the jurisdictional agency considers this contrast objectionable.

5.8.1.1 **Regulatory Context**

Design standards for light emissions within the City of Austin are governed by Subchapter E, and impacts will be evaluated by the City permitting process upon application for development. Also, lights must be installed and designed per guidance in AC 150/5340-30G, *Design and Installation Details for Airport Visual Aids*.

5.8.1.2 **Methodology**

Light emissions: FAA Order 1050.1E, Change 1, Appendix A.12, paragraph 12.2a states that a lighting analysis should focus on the levels of annoyance citizens in the Study Area would experience due to project-related changes in light emissions. Emissions that would annoy one person may not annoy another person. However, if an annoyance occurs, it may affect people differently. Therefore, to determine project-related lighting effects, this EA compares and discloses the potential glare and intensity of new sources to the glare and light intensity the No Action alternative presently causes. This EA does not include results of special study to reduce glare emissions because the proposed actions do not involve high-intensity strobe lights that shine directly into a light sensitive land use such as a home.

Visual effects: FAA Order 1050.1E, Change 1, Appendix A.12, paragraph 12.2b notes visual or aesthetic effects are difficult to determine due to the level of subjectivity involved when evaluating those effects. According to paragraph 12.3, that is because such effects: "...deal more broadly with the extent that the development contrasts with the existing environment and whether the jurisdictional agency considers this contrast objectionable." Therefore, this EA contrasts potential visual effects with the Study Area's existing landscape and architectural characteristics. It discusses and discloses how the design, architecture and landscaping characteristics of the proposed terminal changes would affect existing views in the Study Area. To do so, the EA uses information in FAA Order 5100.38, paragraph 304.³⁶

³⁶ *Airport Improvement Program Handbook*, http://www.faa.gov/airports/aip/aip_handbook/.

5.8.1.3 Thresholds of Significance

Light emissions: The potential for annoyance is the primary criterion. FAA Order 1050.1E, Change 1, Appendix A.12, paragraph 12.3a states FAA will:

- consider the severity and intensity of lighting associated with the Proposed Action or reasonable alternative; and
- determine if the severity and intensity of those actions cause annoyance levels that would interfere with typical activities in the Study Area.

Visual effects: FAA Order 1050.1E, Change 1, Appendix A.12, paragraph 12.3b states FAA applies design, art, architectural, and landscape architectural principles to determine the severity and intensity of project-related visual effects.

5.8.2 Environmental Consequences

5.8.2.1 No Action Alternative

Under the No Action Alternative, no additional lighting installation would occur. Accordingly, no light emission, visual or aesthetic impacts would occur under the No Action Alternative. In addition, no changes to visual quality would occur. Thus, the No Action Alternative would not result in visual effect impacts

5.8.2.2 Proposed Action

Light Emissions

The Proposed Action would include appropriate lighting for general aviation development including apron and vehicle parking lighting. Final airfield lighting design would be in accordance with FAA Advisory Circular (AC) 150/5340-30, *Design and Installation Details for Airport Visual Aids*, latest edition. Each needed lighting fixture would be designed to emit light only in specific directions. Because no light sensitive land uses occur near the Proposed Action location, light emission impacts would not be significant.

Visual Effects

The Proposed Action would involve the construction of GA infrastructure on Airport property. The Proposed Action would be surrounded by other Airport facilities to the north, Emma Browning Avenue to the west, and native shrub and forest habitat to the south. These changes would not result in any adverse visual effects to the Study Area or surrounding areas. Thus, the Proposed Action would not alter the visual quality of the Study Area or surrounding areas.

5.9 NATURAL RESOURCES AND ENERGY SUPPLY

This section describes the natural resource and energy supply needs associated with the No Action Alternative and the Proposed Action.

5.9.1 Background

The Federal government encourages airport development that minimizes the use of consumable natural resources and minimizes demands on energy supplies. FAA policy also encourages developing facilities that use the highest design standards and that incorporate sustainable designs.

5.9.1.1 Regulatory Context

To comply with Council of Environmental Quality (CEQ) regulations at 40 CFR 1502.16(e) and (f), this EA evaluates project-related potential effects on energy supplies and natural resources in the Study Area, respectively.³⁷ Sustainable design practices should be considered to reduce natural resource and energy supply demands.

5.9.1.2 Methodology

Natural resource and energy supplies: FAA Order 1050.1E, Change 1, Appendix A13, paragraph 13.2a, notes that FAA NEPA documents must examine natural resource and energy usages only when an action, "...involves a need for unusual materials or those in short supply." Examples of this would be:

- an airport terminal that would use large volumes of water to serve passenger needs; or
- constructing a runway that would require large volumes of concrete that would strain local or regional concrete supplies.

Fuel supply: Paragraph 13.2a notes that an exception to the above guidance is appropriate when a project would change an airport's use of fuel. Therefore, changes in the volumes of jet fuel or aviation fuel must be examined for projects involving changes in airside operations. This examination provides the information needed to properly disclose how those changes would alter existing jet fuel demands and supplies.

Sustainable design: Various references discuss sustainable design and sustainable practices to reduce aviation-related demands on natural resource and energy supplies. Two of the most useful references FAA recognizes are:

- The Airports Cooperative Research Program Synthesis 10, *Airport Sustainability Practices*; and
- The Sustainable Aviation Guidance Alliance Database.

5.9.1.3 Threshold of Significance

FAA Order 1050.1E, Change 1, Appendix A13, paragraph 13.2b notes that if a project would require natural resource or energy supplies that would exceed supplies, a significant impact would likely occur.

5.9.2 Environmental Consequences

5.9.2.1 No Action Alternative

Under the No Action Alternative there would be no increase in fuel or power consumption at the Airport. Thus, the No Action Alternative would not result in impacts to natural resources and energy supply.

5.9.2.2 Proposed Action

Implementation of the Proposed Action would not adversely affect local or regional natural resource usage or supplies or energy demands. The Proposed Action would require minor increases in fuel consumption to power construction equipment. Construction materials,

³⁷ 40 U.S.C. Sections 1502.16(e) and (f).

pavement, and other natural resource-based products would be needed to build the proposed development and move the ductbank. Due to the size and design of the proposed development, the proposed construction would not adversely affect local or regional construction material or natural resource supplies.

The new fuel systems associated with the proposed general aviation, fixed base development would increase the volumes of Jet-A and aviation fuel used at the Airport. However, neither of those activities would strain local or regional fuel supplies.

5.10 NOISE

This section describes the existing noise conditions in the Study Area and the laws and regulations addressing airport noise. It also discusses the effects the No Action and Proposed Action alternatives would have on existing noise levels in the Study Area and measures to mitigate the effects.

5.10.1 Background

Airport development projects that alter an airport's runway configurations, flight paths, flight procedures, ground operations, or fleet mix may cause noise changes in an airport's area. When analyzing project-related noise effects, FAA has found those effects are often the most highly controversial effects associated with airport development. This is because noise affects resources on and off the airport. Noise modeling data are used to determine:

- noise effects on noise sensitive land uses to determine which uses are or are not compatible with project-related airport operations;
- noise effects on parkland use, recreational area use, or settings of historic properties; and
- which of the above land uses will receive noise mitigation and which will not.

The U.S. Congress has determined that aviation noise effects fall under FAA's purview. Three of the most important Federal laws addressing these effects are:

- The National Environmental Policy Act of 1969 (NEPA);³⁸
- The Aviation Safety and Noise Abatement Act of 1979 (ASNA);³⁹ and
- The Airport and Airway Improvement Act of 1982 (AAIA).⁴⁰

NEPA: NEPA requires the analysis of project-related effects on the man-made environment. In meeting this requirement, FAA examines project-related noise effects resulting from proposed aviation projects and actions.

ASNA: This law requires the Secretary of Transportation (Secretary) to issue regulations establishing a system to measure and assess airport-related noise effects. The law also required the Secretary to identify land uses that are normally compatible with airport operations and the noise levels those operations cause. FAA, as the U.S. Department of Transportation agency responsible for maintaining safe and efficient air traffic in the United States, met these

³⁸ 49 U.S.C. Sections 4321 – 4347.

³⁹ 49 U.S.C. Sections 47501 – 47507.

⁴⁰ 49 U.S.C. Section 47101.

requirements on the Secretary's behalf. Regulations at 14 CFR Part 150 address the ASNA requirements.

AAIA: Even though airports and airport improvements are needed to maintain the nation's aviation system, reducing noise from those improvements on land uses near airports is also critical. This law required the Secretary to set a national policy to reduce current and projected airport-related noise effects on communities.

5.10.1.1 Regulatory Context

This EA addresses regulations at 40 CFR 1500 *et. seq.* to describe and disclose project-related noise effects.

Aviation noise. Although regulations at 14 CFR Part 150 discuss noise compatibility planning, the guidelines in Part 150 serve as guidance in determining the severity and intensity of noise effects this project would cause (e.g., Threshold of Significance) under NEPA. As a result, Part 150 and FAA's Significance Threshold for Noise, use the day-night sound level metric (DNL). To meet ASNA's requirements, FAA and EPA (in 1981) determined the DNL metric is the metric FAA would use to assess cumulative, aviation-related noise impacts on humans. In 1992, the Federal Interagency Committee on Noise (FICON) verified that determination. FICON did so after finding the DNL metric accurately predicts those noise levels that cause community annoyance. FAA's and FICON's findings support Schultz's widely-accepted 1978 research.⁴¹ That research indicated that the level of transportation noise to which a community is exposed is directly related to the community's health, welfare, and annoyance. Schultz's work, and FICON's reassessment of that work, showed cumulative noise levels above DNL 65 decibels (dB) cause community annoyance levels that make noise sensitive land uses (i.e., residences, schools, churches, and certain businesses) incompatible with airport operations.

5.10.1.2 Methodology

This EA uses information in FAA Guidance to assess project-related aviation noise. That information is consistent with the requirements of FAA Order 1050.1E, Change 1, Appendix 14.

Aviation noise. FAA requires the use of the Integrated Noise Model (INM) for all aviation-related noise analyses (FAA Order 1050.1E, Change 1, paragraph 14.2b)).

The INM output predicts the 24-hour average noise levels that would occur in the Study Area during existing, normal airport operations. The INM also predicts the noise that would occur in that area when the Proposed Action or reasonable alternatives would change those operations.

To do so, the INM uses data that accurately reflect the Airport's current fleet mix, stage lengths (i.e., the distance each aircraft flies from the airport to its next destination), number of operations, and the times of day those operations occur. Although those input data are important, the times of day the operations occur are especially critical. This is because the DNL metric automatically adds a 10-dB penalty to each operation occurring between 10:00 p.m. and 7:00 a.m. The metric does so to reflect people's heightened sensitivity to noise during the quieter hours of a day.

FAA guidance provides details on the noise analysis this EA presents. However, the following information highlights the INM output that is critical in determining project-related noise effects:

⁴¹ *Journal of the Acoustical Society of America*, 1978. No. 64, pgs. 377 - 405.

- existing noise levels to reflect existing, baseline noise levels (i.e., (No Action));
- future noise levels without the project to reflect future, short-term, baseline noise levels (i.e., future No Action);
- future noise levels with the Proposed Action to reflect future, project-related, short-term noise impacts; and
- noise levels 5 or 10 years from the year the selected project would be completed to reflect project-related, long-term noise effects.

For all of those periods, the analysis must include DNL contours showing the 65, 70, and 75-dB levels.

If the above analysis indicates a project would cause a significant noise effect (see **Section 5.10.1.3** below), FAA Order 1050.1E, Change 1, paragraph 14.4c, requires FAA NEPA documents to include supplemental noise information. FAA does so to meet FICON's (1992) recommendation to help the public better understand a project's noise effects. FICON recommended reporting a:

- DNL increase of 3 dB or more in areas between DNL 60 and 65 dB; and
- DNL increase of 5 dB or more in areas between DNL 45 and 60 dB.

For this project, the Area Equivalent Method (AEM) was used to determine if further, detailed analysis using the INM was necessary. The AEM is a mathematical procedure that provides an estimate in the areal change of existing noise contours at a specific airport give aircraft types and the number of operations for each aircraft. If a project causes the area of the DNL 65-dB contour to increase by 17 percent or more, FAA requires the use of the INM to determine the project's noise impacts.

5.10.1.3 Thresholds of Significance

The Threshold of Significance for aircraft noise noted in FAA Order 1050.1E, Change 1, Appendix A14.3, states:

"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 alternative for the same timeframe. For example, an increase from 63.5 dB to 65 dB is considered a significant impact."

5.10.2 Environmental Consequences

5.10.2.1 No Action Alternative

The No Action Alternative would not result in any temporary or permanent noise increases at the Airport. Thus, no noise impacts would occur under the No Action Alternative

5.10.2.2 Proposed Action

As noted below, the Proposed Action's general aviation traffic would not substantially change the shape or areal extent of the 2003 MPU's 2019 contours.

For purposes of this EA, 2020 operations and their 2019 contours represent the "worst case scenario." This scenario overestimates noise that would occur at and near AUS due to the

Proposed Action because the number of operations producing the future contours is far greater than the number of operations that would occur when the Proposed Action begins operating and would remain so for the period this EA analyzes (2013-2018).

To verify the above conclusions, the results of FAA's Area Equivalent Method (AEM, Version 7.0) completed in December 2011 were examined. Review of that analysis shows it accurately reflects the general aviation fleet mix that would use the Proposed Action's facilities (see **Table 5-4** and **Appendix C**).

Table 5-2
PROPOSED AEM GENERAL AVIATION FLEET MIX

AIRCRAFT TYPE	SUGGESTED AIRCRAFT	AIRCRAFT MODELED IN AEM
PISTON	BARON 58, CESSNA 172/414/421, PIPER 28,	BARON 58P, CESSNA 172, PIPER 28
SMALL JET	KING AIR 200, CITATION MUSTANG, CITATION I/II, ECLIPSE	DASH 6/PT6A-27, CESSNA 500
TURBOPROP	KING AIR 200/300/350	DASH 6/PT6A-27, CESSNA 441
MID-SIZED JET	HAWKER 800, FALCON 50, LEAR 35/45, CITATION EXCEL	LEAR 25/35, ASTRA IA1125
LARGE JET	CHALLENGER 604, FALCON 900, GULFSTREAM IV, GLOBAL EXPRESS	GULFSTREAM IV, CHALLENGER 600,
AIRLINE CLASS JET	BOEING 737-300	BOEING 737B2

NOTE: Data from the Information in Appendix C, entitled, "Conditions Used for the Area Equivalent Method (AEM)."

The results of the AEM, which are summarized in **Table 5-3**, show that AUS operations would not change the area within the DNL 65 noise contour by more than 1.3 percent. Because the changes in the DNL contours are less than the 17-percent threshold noted in FAA Order 1050.E, Appendix A, paragraph 14.4 a, the following conclusions can be made:

- there is no need to conduct a detailed noise analysis using the INM; and
- the Proposed Action would not cause significant noise impacts.

Table 5-3
AREA CHANGES WITHIN THE 2005 DNL 65 CONTOUR DUE TO CHANGING OPERATIONS

DNL level (measured in A-Scale decibels)	Percent Change in DNL Contour Area
65	1.3
70	1.6
75	1.9

NOTE: See Appendix C for more detailed information.

5.11 SECONDARY (INDUCED) IMPACTS

This section addresses the secondary or induced effects of the No Action and Proposed Action alternatives. Those effects typically include shifts in patterns of population movement and growth, changes in the demand for public services, and changes in business and economic activity.

5.11.1 Background

Most airport development projects cause some level of secondary effects. Those effects may be beneficial or adverse. Examples of beneficial effects include:

- buying construction and operating supplies from local vendors;
- providing local artists on-airport areas to display their works;
- improvements in mass transit opportunities to and from the airport; or
- offering permanent and part-time jobs to local citizens.

Examples of adverse effects include:

- degrading the levels of service of roads serving the airport and its surrounding areas;
- placing demands on local emergency, school, or police services due to sudden influxes of transient workers; or
- causing changes in population patterns that reduce local taxes.

In most cases, secondary effects are linked to other environmental resource categories. An example of such a “cause-and-effect” pattern would be significant noise effects on a residential area. To properly mitigate the effect, the purchase of homes and relocating their residents would alter local taxes, lead to abandoned areas that may cause economic effects on local businesses, and create new demands for goods and services in areas where displaced residents relocate.

5.11.1.1 Regulatory Context

NEPA requires a Federal agency like FAA to conduct interdisciplinary, comprehensive evaluations of a project’s effects on the human environment (natural, cultural, social). As a result, 40 CFR 1508.8 of Council on Environmental Quality’s NEPA implementing regulations (40 CFR 1500 *et. seq.*) requires FAA to consider project-induced indirect effects in its NEPA evaluations. Indirect effects occur at a later time than a project’s direct effects, or the effects may occur at a distance from the project’s direct, physical impacts. For example, FAA must examine projected increases in population density that a project could cause when new businesses and their corresponding employment opportunities (e.g., service employees for hotels or restaurants, etc.) arise to serve the needs of people using an airport.

5.11.1.2 Methodology

Timely coordination with local or regional officials is critical to properly analyzing this impact category if impacts are anticipated. Planning authorities, housing commissions, chambers of commerce, public utilities, emergency and police services, transportation departments, and metropolitan planning organizations provide valuable insight and data on goods, services, roadway capacities, and gas, water, and electrical supplies. Knowing that information is critical to evaluating how a proposed project would affect community-based issues (e.g.,

demographics, zoning changes, job opportunities, real estate availability, police/fire protection, school enrollments, taxes, etc.). Analysts should pay particular attention to project-related noise, land use, and social impacts as they prepare this section of a NEPA document. Those environmental categories provide valuable information on determining how a project would affect critical, community-based issues.

5.11.1.3 Thresholds of Significance

FAA Order 1050.1E, Change 1, does not provide a significance threshold for secondary effects. Instead, Appendix A, Section 15 states:

“Induced impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use or direct social impacts.”

5.11.2 Environmental Consequences

5.11.2.1 No Action Alternative

Under the No Action Alternative, GA development and FAA ductbank realignment would not occur. Therefore, implementation of the No Action Alternative would not result in adverse secondary impacts.

5.11.2.2 Proposed Action

Implementation of the Proposed Action would not directly or indirectly result in shifting population or growth, public service demands, or changes in business or economic activity. The construction work needed to install the ductbank and construct the GA development would not cause an appreciable influx of construction workers. Local construction-related businesses and electrical supply companies would benefit from the Proposed Action. No adverse effects to local traffic condition or demands on local services would result due to the size and nature of the proposed facilities. Therefore, implementation of the Proposed Action would not result in adverse secondary or induced effects of significance.

5.12 WATER QUALITY

This section describes the existing water quality of surface and ground water in the Study Area. It also describes the laws and regulations applicable to the No Action Alternative and Proposed Action, how those actions would unavoidably affect water quality, and measures to mitigate those effects.

5.12.1 Background

Many airports were built years ago near waterbodies. Often, this was because land near water was flat, cheap, and relatively isolated from other activities. As a result, airport construction projects often affect water quality.

Several laws and presidential Executive Orders address and regulate Federal airport activities and their effects on water quality. The following paragraphs list and summarize the requirements of the laws most applicable to airport projects.

- The Federal Water Pollution Control Act, as amended by the Clean Water Act (CWA)⁴²;
- CWA, as amended by the Oil Pollution Act of 1990 (OPA);
- The Safe Drinking Water Act, as amended; (SWDA)⁴³; and
- The Fish and Wildlife Coordination Act of 1980 (FWCA)⁴⁴.

CWA: The law's purpose is to maintain and restore the biotic, chemical, and physical characteristics of the nation's waters. As a result, Congress mandated the EPA and each state to develop procedures and standards that prevent, reduce, and remove water pollution in the navigable waters of the United States. Various sections of the Act address the array of water quality issues affecting those waters. For example, two sections that often apply to airport development are:

- Section 402, which established the National Pollutant Discharge Elimination System (NPDES). The NPDES regulates waters flowing through pipes, ditches, or other conveyances that discharge as "point sources" to waters of the U.S. Point sources include discharges from construction sites disturbing more than one acre and stormwater from airfields.
- Section 404 addresses the unavoidable dredging and filling of navigable waters. Airport projects often affect those waters because FAA design standards require placing certain aviation facilities (i.e., runways, taxiways, aprons, navigational aids) at certain locations to promote safe, efficient air transportation.

OPA: This amendment to the CWA (Section 311) requires owners and operators of facilities that store petroleum or petroleum-based products to prepare plans to respond to spills of oil or oil-based products.

SWDA: This Act protects sole source aquifers and areas recharging them. EPA must review certain projects within designated areas to ensure that Federally-financed projects within those areas do not endanger the water source.

FWCA: The Act requires a Federal agency to coordinate with the U.S. Fish and Wildlife Service (USFWS) when a project under an agency's purview would control (i.e., impound, divert, drain) a stream or other waterbody.

5.12.1.1 Regulatory Context

The Federal regulations noted below guide the management of water quality in the State of Texas and the Nation. They are based on the laws noted in **Section 4.11.1.1**.

- 40 CFR Part 122 implements the NPDES portion of the CWA to control the discharge of point source pollutant discharges (i.e., aircraft deicing fluid runoff; sewage; chemical waste);
- 33 CFR Part 323 implements the portion of the CWA addressing the dredging or filling of waters of the United States. These regulations would apply to an airport project that must meet FAA design standards unavoidably require the dredging or filling of waters of the United States.

⁴² 33 U.S.C. Chapter 26.

⁴³ 42 U.S.C. 300.f.

⁴⁴ 16 U.S.C. Section 661 *et. seq.*

- 40 CFR Part 110 addresses the prohibition of oil or oil-based products into waters of the United States or shorelines adjacent to those waters. The regulations address discharges that would violate water quality standards, cause discoloration or sheens on those waters, or cause sludge to form under the water surface.

5.12.1.2 Methodology

The *Stormwater Drainage Master Plan Update Report* was reviewed to assess project-related water quality impacts.⁴⁵ In addition, this EA uses FAA guidance to further determine project-related effects on water quality in the Study Area. That guidance is consistent with the requirements of the laws and regulations noted above and FAA Order 1050.1E, Change 1, Appendix A, Section 17.

5.12.1.3 Threshold of Significance

FAA Order 1050.1E, Change 1, Appendix A, Section 17.3 states a significant water quality effect would occur if the EA and early consultation:

- show that there is a potential to exceed water quality standards;
- identify water quality effects that cannot be avoided or satisfactorily mitigated; or
- indicate difficulties in obtaining required permits.

5.12.2 Environmental Consequences

5.12.2.1 No Action Alternative

Under the No Action Alternative, GA development and FAA ductbank realignment would not occur. Therefore, implementation of the No Action Alternative would not result in adverse effects to existing water quality.

5.12.2.1 Proposed Action

The Proposed Action would include the development of one new water quality area located immediately south of the proposed hangar development (based on current design concept).

Building the Proposed Action has the potential to result in temporary, construction-related effects to water quality due to the proximity of an unnamed tributary of Onion Creek. Construction activities related to the project components could cause temporary increases in suspended solids or petroleum-based chemicals in runoff.

BMPs to minimize water quality effect due to the Proposed Action's storm water runoff would be employed during construction and operation of the Proposed Action. These BMPs include using hay bales in drainage ways to filter suspended solids from runoff and use of silt fences and stabilizing materials as necessary. Construction activities would be subject to requirements of the State of Texas Storm Water Permit for Construction and the Airport's established SWPPP, which is included in the *Austin-Bergstrom International Airport Stormwater Master Plan Update-Final Report*.⁴⁶

⁴⁵ ABIA, *Stormwater Drainage Master Plan Update Final Report*, May 2011

⁴⁶TCEQ, *Stormwater Permits for Construction*. Guide to Stormwater Permits for Construction, Available at: http://www.tceq.texas.gov/permitting/stormwater/wq_construction.html. Accessed March 3 2013.

As depicted in the Airport's *Stormwater Drainage Master Plan Update Report*, the Proposed Action site is designed to contain a water quality basin to serve as both the water quality control and a two-day detention facility for Project Area 3, as shown in the *Stormwater Drainage Master Plan Update Report*.⁴⁷ This water quality area would alleviate any possible drainage issues related to the increased impervious surfaces associated with the general aviation development. Thus, the Proposed Action would not result in substantial additional storm water discharge rates or volumes or degrade water quality. Additionally, implementation of the Proposed Action would not involve impounding, diverting, filling, draining, or controlling waters of the State. Therefore, operation of the Proposed Action would have no direct or indirect adverse environmental effects on existing water quality.

5.13 WETLANDS

5.13.1 Background and Methodology

Wetlands are productive elements of the landscape that are important to watershed health. Wetlands absorb floodwaters, supply base flow, protect shorelines, trap sediments, recharge groundwater, and provide habitat for fish and wildlife. The Clean Water Act (CWA) defines wetlands as "...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."⁴⁸

5.13.1.1 Methodology

On August 1, 2013, Zephyr Environmental Corporation conducted field investigations within the Study Area to determine the presence of wetland habitats. The field investigations were performed by traversing all portions of the Study Area. USACE data forms were completed for 11 sites across the Study Area in accordance with the USACE 1987 Wetland Delineation Manual and Regional Supplement to the USACE Great Plains Region (Version 2.0).

5.13.1.2 Thresholds of Significance

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures*, indicates that a significant impact would occur when the Proposed Action would cause any of the following:

- adversely affect the function of a wetland to protect the quality or quantity of municipal water supplies, including sole source, potable water aquifers;
- substantially alter the hydrology needed to sustain the functions and values of the affected wetland or any wetlands to which it is connected;
- substantially reduce the affected wetland's ability to retain floodwaters or storm associated runoff, thereby threatening public health, safety or welfare (this includes cultural, recreational, and scientific resources important to the public, or property);
- adversely affect the maintenance of natural systems that support wildlife and fish habitat or economically -important timber, food, or fiber resources in the affected or surrounding wetlands;
- promote development of secondary activities or services that would affect the resources mentioned in items (1) through (4) in this bulleted section; or
- be inconsistent with applicable State wetland strategies.

⁴⁷ ABIA, *Stormwater Drainage Master Plan Update Final Report*, May 2011.

⁴⁸ Environmental Laboratory, *Corps of Engineers Delineation Manual*, Technical Report 87-1, 1987.

5.13.2 Environmental Consequences

5.13.2.1 No Action Alternative

No ground disturbance would occur with the implementation of the No Action Alternative. Thus, the No Action Alternative would have no wetland impacts.

5.13.2.2 Proposed Action Alternative

Field investigations performed by Zephyr Environmental Corporation indicated no wetland areas within the Study Area (see **Appendix D** for the wetland report). Thus, any ground disturbance associated with the Proposed Action would have no wetlands impacts.

5.14 CUMULATIVE IMPACTS

This section discusses how the selected alternative would contribute to cumulative impacts on environmental resources in the Study Area and measures to mitigate those effects.

5.14.1 Background

The selected alternative would occur in an area where other development has occurred, where it is occurring, and where it would occur in the reasonably foreseeable future. As a result, this EA must evaluate and disclose the degree to which the selected alternative would contribute to the cumulative effects on the environmental resources those actions have or will affect.

5.14.1.1 Regulatory Context

The Council on Environmental Quality (CEQ) at 40 CFR 1508.7 defines a cumulative impact as:

“...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.”⁴⁹

5.14.1.2 Methodologies

CEQ regulations implementing NEPA require the analysis and disclosure of the selected alternative’s potential cumulative effects (40 CFR 1508.25.(a)(2) and (3)). CEQ and NEPA do so to tell the public if the selected alternative, when considered with other projects occurring within the Study Area during specific time frames (i.e., “past, present, and reasonably foreseeable actions”⁵⁰) would cause a significant environmental effect.

To determine cumulative impacts, the incremental effects the selected alternative would cause on a particular environmental resource were considered relative to the effects on the same resource due to past, present, and reasonably foreseeable actions.

5.14.1.3 Thresholds of Significance

The significance thresholds used in the cumulative analysis vary with the resources affected. However, FAA does not have significance thresholds for cumulative impacts. As a result, this

⁴⁹Council on Environmental Quality. 40 U.S.C., Section 1508.7.

⁵⁰FAA Order 5050.4B, paragraph 9.q. defines “reasonably foreseeable actions.”

EA's cumulative analysis uses the thresholds of significance in FAA Order 1050.1E, Change 1, Appendix A that FAA has developed for each individual impact category

5.14.2 Environmental Consequences

There are no other identified projects that have or will occur within proximity to the Study Area. Thus, it is unlikely that the Proposed Action would directly, indirectly, or cumulatively cause significant impacts on any of the environmental resources addressed in this EA. As noted in sections 5.1 through 5.13 of this EA, the Proposed Action would affect:

- Air quality
- Compatible Land Use
- Construction impacts
- Fish, wildlife, and plants
- Floodplains
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Light Emissions and Visual Impacts
- Natural Resources and Energy Supply
- Noise
- Secondary (Induced) Impacts
- Water Quality

As a result, this cumulative analysis considers the Proposed Action's incremental effects on the above resources relative to the effects that past and present actions have had on the same resources.⁵¹ Evaluation of the incremental effects of the Proposed Action shows that no significant, cumulative effects would occur.

⁵¹ This cumulative analysis does not include the effects that reasonably foreseeable actions would have on the resources noted above, since no such actions have been identified within the Study Area.