COLONEL JAMES
JABARA AIRPORT

Appendix B

COMMERCIAL SITE DEVELOPMENT STUDY

COLONEL JAMES JABARA AIRPORT

Commercial Site Development Study

COMMERCIAL SITE DEVELOPMENT STUDY

For

COLONEL JAMES JABARA AIRPORT (AAO)
Wichita, Kansas

Prepared for

The Wichita Airport Authority

By

Coffman Associates
Airport Consultants

In association with

GARVER

DECEMBER 2022

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INTRODUCTION

This study has been undertaken to examine three undeveloped parcel Areas at the Colonel James Jabara Airport (AAO) in anticipation of marketing these parcels for aeronautical and/or non-aeronautical development. The generalized parcel Areas are identified in **Figure 1** and will be refined based on the future development plans for the airport. The analysis undertaken in this study is meant as a deep dive that is not normally done in a more traditional airport planning study such as the recently completed Airport Layout Plan (ALP) update & narrative report or a master plan. The information collected for each parcel is intended to aid potential developers and airport administration in understanding factors that may be considered when assessing potential development of the parcels. This is a planning and informational document, and nothing contained herein should be used for design purposes.

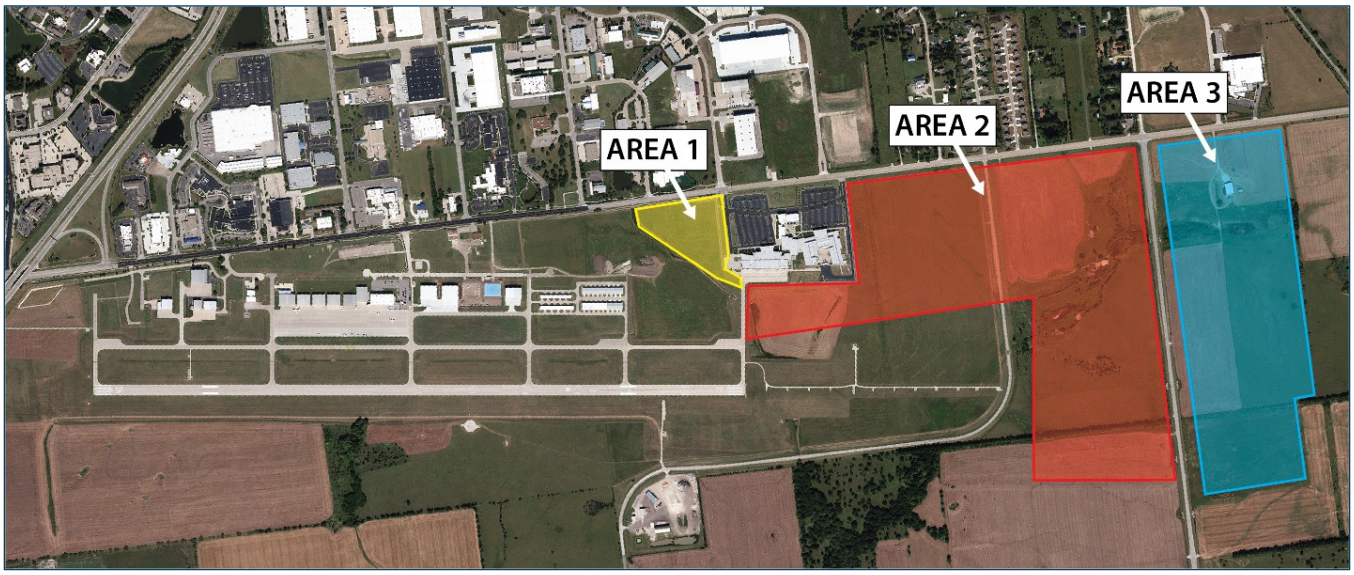

Figure 1 – Study Area Parcels (Generalized)

REFINED STUDY AREAS

Exhibit 1 – Airport Environs identifies the three parcel Areas under consideration which are labeled as Study Area 1, Study Area 2, and Study Area 3 and are described below:

Study Area 1 – South of WSU Tech: Study Area 1 is located along Webb Road on the west side of the airport immediately south of the Wichita State University Technology Campus of Applied Sciences and Technology – National Center of Aviation Training (WSU Tech). The south side of this parcel is defined by a drainage channel, a portion of which is a paved concrete stormwater conveyance channel. This Study Area is approximately seven acres.

Study Area 2 – North and East of WSU Tech: Study Area 2 is located to the immediate north and east of WSU Tech. It is bounded on the west by Webb Road, on the north by 45th Street North, on the east by the Runway 18 runway protection zone (RPZ), and on the south by Taxilane A1. This Study Area is

approximately 97 acres. This area includes a portion of the 43rd Street North right-of-way, a road that was closed in the summer of 2022 to bring the Runway 18 RPZ into full land use compatibility compliance. Future development of Study Area 2 may be considered with or without the roadway segment to provide access to navigational aids and emergency access. A potential future 1,000' runway extension to the north is also shown. This extension and its impact to the developable land available is discussed at length below.

In addition, a segment of Study Area 2 between WSU Tech and the 43rd Street N. alignment and adjacent to Webb Road is platted as open space. The original intent was to provide a buffer between airport activities and the residences on the west side of Webb Road.

Study Area 3 – North of 45th Street: Study Area 3 is physically separated from the primary airport property by 45th Street North. It is bounded to the west by Webb Road and to the north and east by private agricultural property**.** Study Area 3 is approximately 95 acres.

Currently none of the three Study Area parcels that are the subject of this study are served by a taxilane providing access to the runway system. The currently approved ALP includes two future taxilanes, one to serve Study Area 1 and one to serve Study Area 2. Study Area 3 is not planned to be served by a taxilane.

Exhibit 1 – Airport Environs shows the three Study Areas under consideration within a broad view of the overall airport environment. All three Study Areas are on airport owned land. The entirety of Study Areas 1 and 2 are in the City of Wichita. Approximately 75 acres of Study Area 3 are within the City of Wichita and the remaining 20 acres are in the City of Bel Aire. The parcel immediately north of Study Area 3 was annexed from Sedgwick County by the City of Bel Aire in 2022.

AIRPORT AMENITIES

While this study focuses on three specific parcel Study Areas, it is important to consider the capabilities of the airport. Colonel James Jabara Airport (AAO) is an FAA designated general aviation reliever airport. Reliever airports are planned to accommodate general aviation activity, including business jets, that might otherwise utilize nearby commercial service airports.

AAO offers a 6,101-foot-long concrete runway that is strength rated at 62,000 pounds for dual wheel landing gear which can accommodate repeated operations by nearly all general aviation aircraft including large business jets. There are multiple instrument approach systems. This includes an instrument landing system (ILS) approach to Runway 18 that provides visibility minimums of ½-mile and cloud ceiling minimums of 200 feet. This is the most sophisticated instrument approach available to general aviation airports. The airport is further supported by multiple RNAV (GPS) instrument approaches with weather minimums ranging from ½-mile visibility and 300-foot cloud ceilings (Runway 18) to 1-mile visibility and 400-foot cloud ceilings (Runway 36). This means the airport can remain open even in very poor meteorological conditions.

The airport has a full service fixed-base-operator that provides all typical FBO services. Numerous aeronautical businesses are based at the airport. There are 127 aircraft based at the airport including 35 business jets and 10 turboprops.

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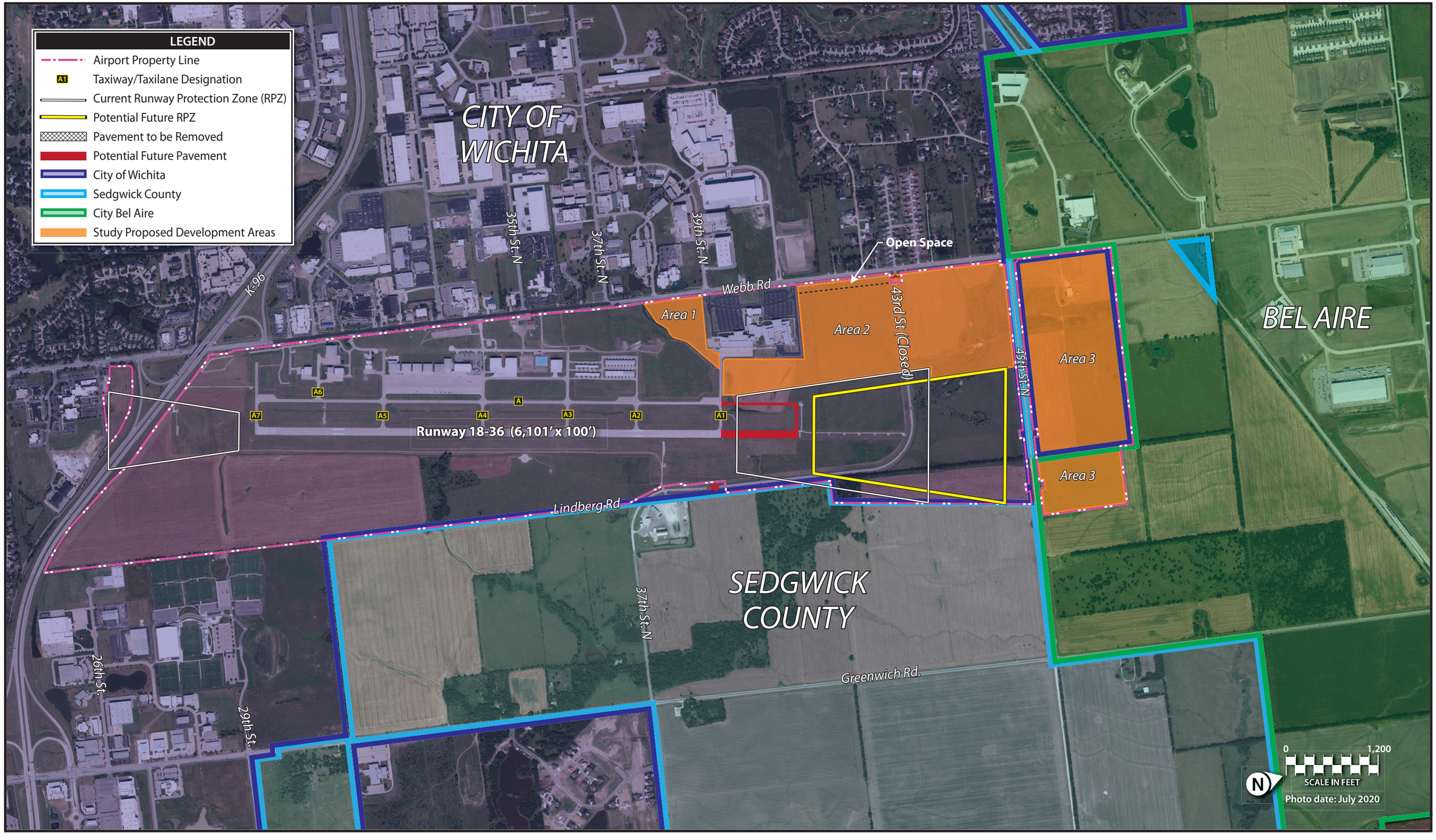

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CLIMATE CONDITIONS

Wichita, Kansas gets approximately 34 inches of rain per year. The U.S. average is 38 inches of rain per year. Wichita gets 13 inches of snow per year, and the U.S. average is 38 inches per year. On average there are 221 sunny days per year. The U.S. average is 205 sunny days per year. Wichita gets some kind of precipitation 79 days per year. The monthly mean maximum temperature is 93°F, which occurs in July. The monthly mean low temperature is 25°, which occurs in January.

Wind Analysis

The prevailing winds in Wichita are from the south for nine months of the year and from the north during the months of February, March, and April. Wind speeds average approximately 10 knots annually. During the daytime hours (7:00 a.m. – 8:00 p.m.), wind speeds average less than 15 knots for 12.22 hours of the 14 hours during the daytime. Visibility is generally very good in Wichita. On average there are 24.6 days per year when visibility is less than five miles for more than five daytime hours. **Table 1** summarizes this wind analysis.

Table 1 | Airport Wind Analysis

Year	Average Daytime[1] Hours with Wind Speed <15 Kts	Days Per Year with Visibility Less Than 5 Miles for More than 5 Hours
2017	11.9	16
2018	12.19	18
2019	12.24	39
2020	12.36	29
2021	12.42	21
Average	12.22	24.6

[1]7:00am - 8:00pm

Source: Data is surface hourly global from NOAA for ASOS at AAO.

AERONAUTICAL v. NONAERONAUTICAL DETERMINATION

According to federal regulations, all airport property must be reserved for aeronautical purposes, first and foremost. If a federally obligated airport, such as AAO, has land that cannot or will not support an aeronautical purpose, then that land may be used for a non-aeronautical revenue producing purpose with FAA approval. Any revenue generated from airport land must be reserved for airport operation and capital improvement expenses. **Exhibit 2 – Study Area Land Use Classification** shows the recommended aeronautical and non-aeronautical classification for Study Areas 1, 2, and 3. For those areas identified for non-aeronautical purposes, the WAA will have to make a specific request to the FAA to remove that land from airport obligation; however, it will remain airport land that must comply with all other federal obligations because it was purchased with federal funds.

At its most basic level, there are three potential land use classifications for airport property:

- Airfield Operations
- Aeronautical Development
- Non-Aeronautical Revenue Support

Airfield Operations: This area includes the runway and taxiway system and the runway protection zones. The airfield operations area is intended for the safe and efficient movement of aircraft to and from the airfield. This land use designation includes the various object clearing areas, and only elements necessary for navigation can be located here.

When considering a possible north extension of the runway, the associated RPZ will extend into Study Area 2. Therefore, this portion of Study Area 2 is not considered for development purposes (consistent with RPZ design standards). There is a portion of Study Area 2 that is between the future RPZ and 45th Street North that encompasses approximately 9.4 acres. This area is included in the Airfield Operations area for the purpose of further protecting approach and departures to and from Runway 18. Technically, this 9.4 acres of land can be considered for compatible development that meets height restriction requirements; however, that is not currently considered in this study.

Aeronautical Development: The aeronautical development land use category includes those areas that are reserved for development that requires access to the airfield operations area, such as taxilanes, aircraft hangars, and aeronautical businesses. Generally, lands adjacent to the runway should be reserved for future aeronautical development to such a depth that it allows for future taxiways, taxilanes, aprons, hangars, and access roads. This land use category will also include airport support elements that may not require taxiway access, such as drainage infrastructure. Both Study Areas 1 and 2 are planned to have a taxilane extended from Taxilane A1; thus, both are designated for future aeronautical development.

Non-Aeronautical Revenue Support: Any non-aeronautical development must also be compatible with airport operations but does not have to be aeronautical in nature. Compatible land uses might include warehousing, laboratories, manufacturing, certain educational facilities (i.e., aeronautical higher education), or office buildings. Land uses that are incompatible with airports include homes, churches, and medical facilities. Study Area 3 is bounded on the south side by 45th Street North; therefore, it will never be able to connect to the runway system via a taxilane. As a result, Study Area 3 is available to serve in a non-aeronautical revenue generating capacity. The portion of Area 2 north of the 43rd Street alignment is distant from the runway/taxiway system and extension of a taxilane this far north may be cost prohibitive. As a result, Area 2 is shown on Exhibit 2 as available for either aeronautical or non-aeronautical uses.

TERRAIN CONDITION

Exhibit 2 – Study Area Land Use Classification also provides the ground contours for the airport including the three Study Areas. In relation to the runway system each of the Study Area parcels is relatively flat except for drainage channels. The south portion of Study Area 2 has a large drainage basin. The Upper Dry Creek bed passes through the north portion of Study Area 2. Extending a taxilane into Area 2 will require passage through the drainage basin, and a significant amount of fill will be needed. The Upper Dry Creek bed is planned to be avoided by the taxilane extension. Study Area 3 is also bisected by the Upper Dry Creek bed.

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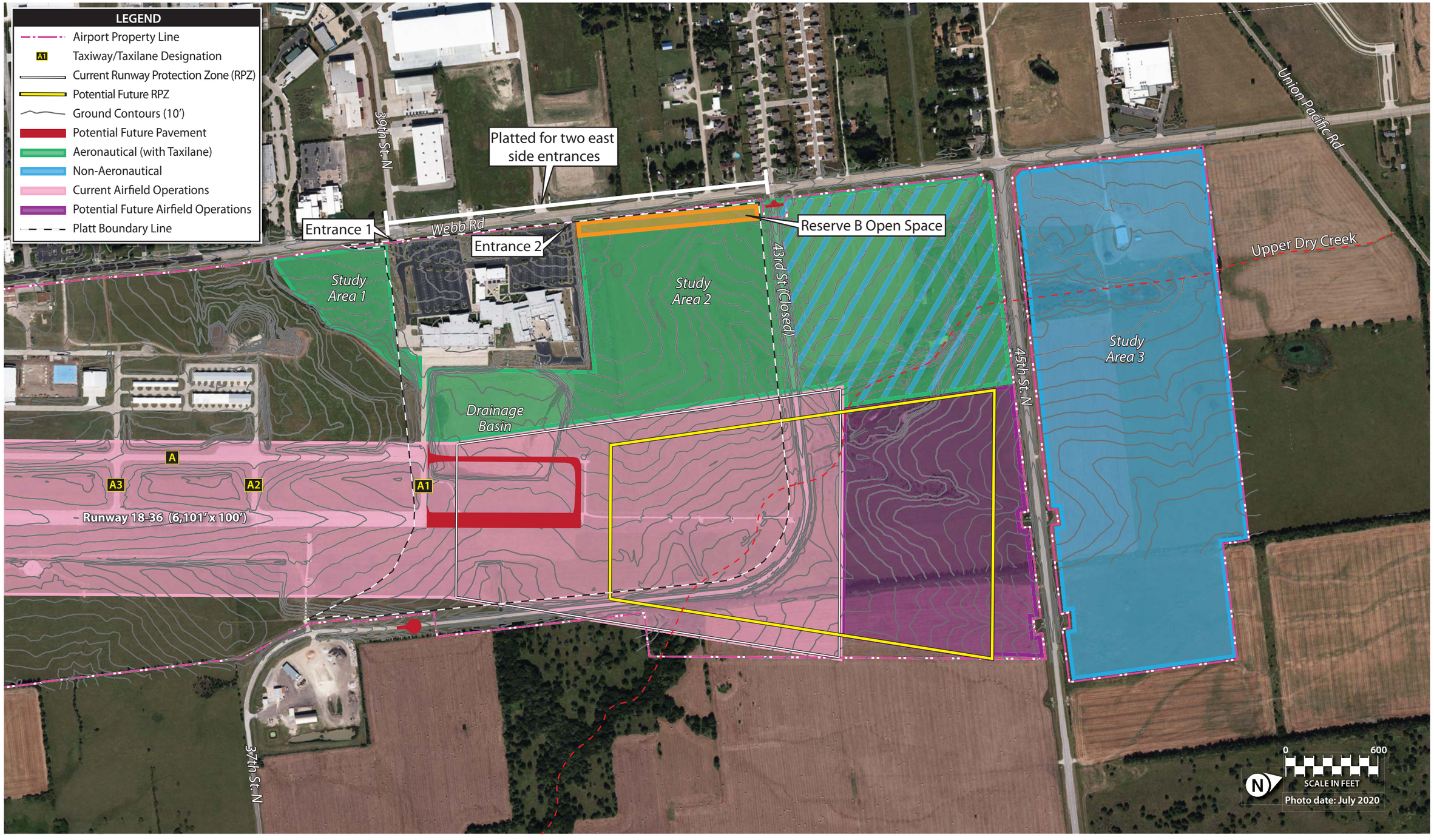

Exhibit 2
STUDY AREA LAND USE CLASSIFICATION

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PROXIMITY TO OTHER TRANSPORTATION INFRASTRUCTURE

Often an important factor for commercial developers is the proximity of the site to other modes of transportation. Obviously, all three parcels are part of the Colonel James Jabara Airport so the proximity to general aviation is immediate. In fact, with AAO having a 6,101-foot-long runway, most general aviation aircraft, including the largest business jets, can and do operate at the airport. AAO has a significant level of services available including a full service FBO and ample aircraft ramp space for transient and local parking.

Surface Roads/Interstate Highways

The main access road to the airport is from Webb Road on the west side. Webb Road is an arterial road. On the immediate south side of the airport is State Highway K-96. Via K-96, it is four miles to the south to Interstate 35 and five miles to the west to Interstate 135. Webb Road can also be taken north approximately two miles to the intersection with highway K-254.

Surface Road Access to Study Area 2

Standard City of Wichita street entrance guidance indicates that entrances should be at least 400 feet apart. The platted portion of Study Area 2, which includes the WSU Tech campus and extends north to the 43rd Street intersection, restricts the number of entrances to Webb Road to two over a length of 2,720 feet. Currently, there are two entrances from Webb Road from this platted area, both of which serve the WSU Tech campus.

Certain administrative actions can be taken to permit additional entrances to Webb Road to serve Study Area 2. The area could be re-platted with the restriction removed or the Access Control portion of the current platting could be vacated. If the Access Control portion is vacated, then two entrances could be considered to Study Area 2 north of the WSU Tech campus.

Railroads

A Union Pacific freight railroad mainline crosses Webb Road approximately 800 feet north of the northwest corner of Study Area 3. There is not currently a spur leading into airport property.

Commercial Service Airport

The Wichita Dwight D. Eisenhower National Airport (ICT) serves the greater Wichita and Sedgwick County area. It is located on the west side of downtown Wichita and is a 20-minute drive time from AAO. The airport is served by six airlines: Alaska, Allegiant, American, Delta, Southwest, and United. There are 14 non-stop destinations. The airport recently had more than 850,000 passenger enplanements.

RUNWAY EXTENSION/SHIFT CONSIDERATION

Colonel James Jabara Airport is a National General Aviation Reliever airport as classified by the FAA. This is the highest classification for a general aviation (GA) airport. There are only 92 National GA airports among 2,908 general aviation airports in the country that are included in the FAA's National Plan of Integrated Airport Systems (NPIAS). National GA Reliever airports are to be developed to be able to accommodate all general aviation aircraft including the largest business jets.

The current runway length can accommodate the largest business jets to some degree, however under certain conditions, such as very hot days and under heavy loading conditions, additional runway length could be needed. As a result, this study will consider the future possibility of extending the runway by 1,000 feet to the north for a total length of 7,100 feet. This is an important consideration because the extension and the various safety surfaces surrounding the extended runway will impact the three Study Areas under consideration. It would be extremely shortsighted to permit development that would eliminate the possibility of extending the runway in the future. For this study, the development capability of all three Study Areas will consider reserving the land necessary to accommodate the future runway extension. NOTE: The extension considered in this study could include shifting the runway to the north.

To preserve the feasibility of a future 1,000-foot runway extension or shift, the Airport Layout Plan (ALP) will need to be updated to reflect the extension. The revised ALP will then need an airspace review by FAA. While the airport can protect airport land based on consideration for a future extension, FAA protection surfaces do not officially apply until the ALP is updated.

FAA RUNWAY SURFACES

There are numerous imaginary surfaces surrounding runways and on the approach to runway ends that must be clear of obstructions to optimize the capability of the runway. The applicable surfaces that may impact the study parcels are described in detail in FAA AC 150/5300-13B, *Airport Design*, and in Federal Regulations Title 14 Part 77, *Objects Affecting Navigable Airspace*. **Exhibit 3 – FAA Surfaces (Current)** shows the two-dimensional extent of these surfaces with the current runway environment. **Exhibit 4 – FAA Surfaces with Runway Extension** shows these surfaces when applied to a runway environment that includes a 1,000-foot extension. These surfaces are described in more detail below including the height limitations, where applicable.

Runway Protection Zone (RPZ): The RPZ is a trapezoidal shaped protection zone that extends from the end of the runways. Its purpose is to enhance the protection of people and property on the ground. The RPZ only covers the ground and does not have a height component. The primary goal for RPZ land is for it to be clear of incompatible objects and activities. The ideal method for the RPZ to meet the standards is for the airport to own RPZ land and to maintain it clear of any development. Therefore, the RPZ serving Runway 18 (both current and future) is considered to be undevelopable.

13B Approach Surface #5: FAA AC 150/5300-13B, *Airport Design,* describes two Approach Surfaces that apply to runway ends that support a precision approach, such as Runway 18. Approach Surface #5 begins 200 feet from the runway end with an inner width of 400 feet as centered on the extended runway centerline. It extends outward and upward to a length of 10,000 feet, an outer width of 3,400 feet, with

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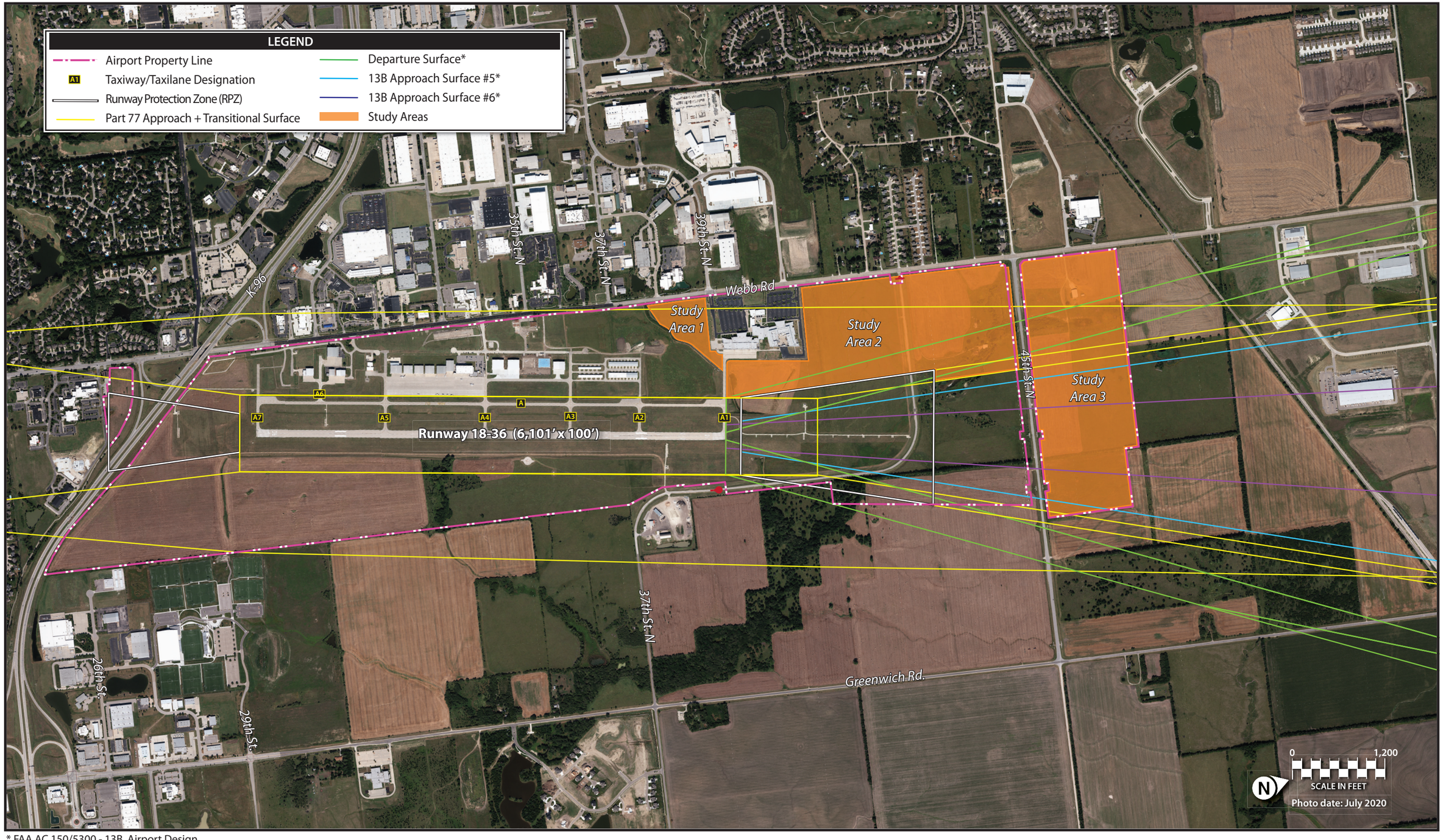

* FAA AC 150/5300 - 13B, Airport Design

Exhibit 3
FAA RUNWAY SURFACES (Current)

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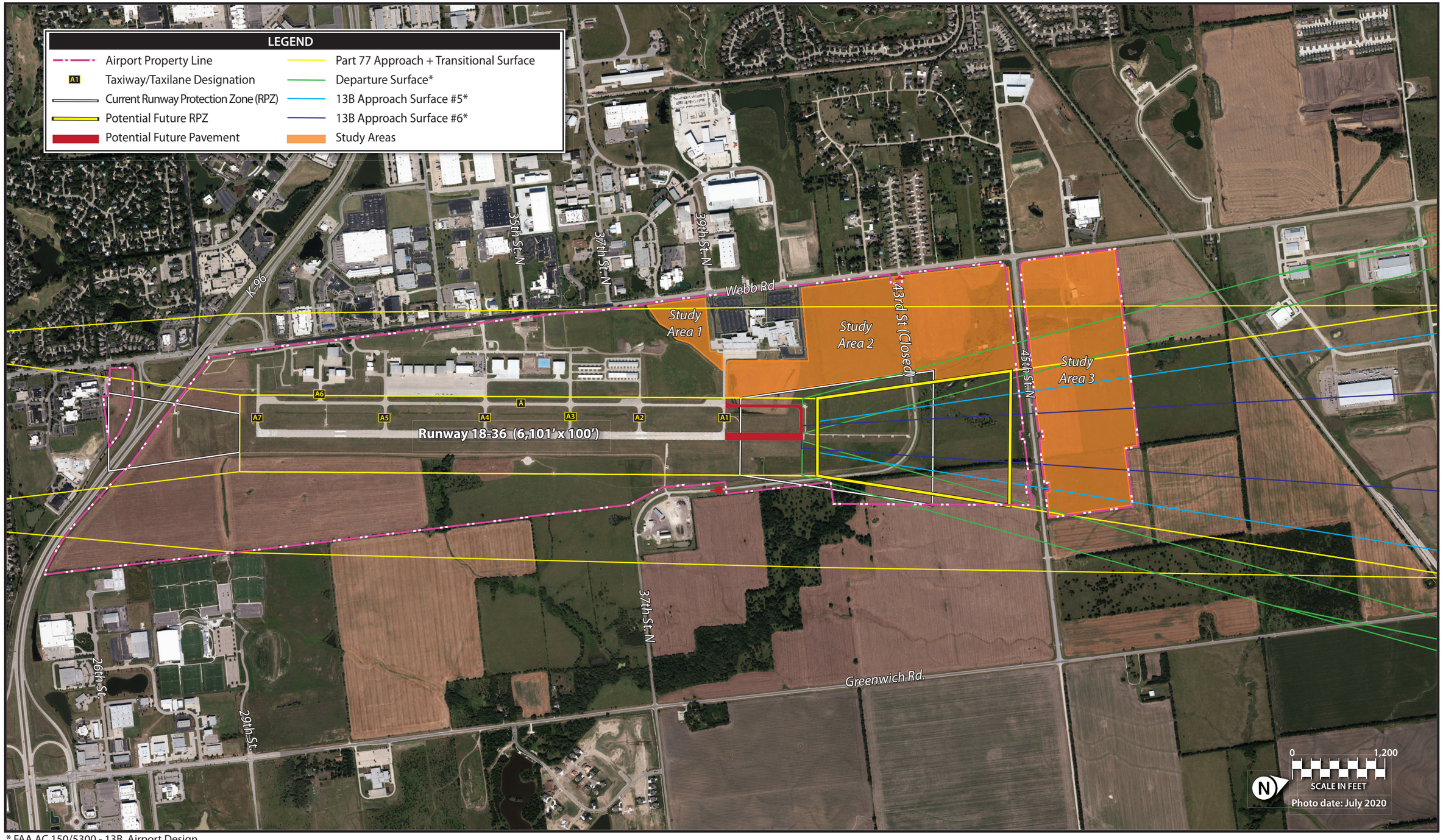

* FAA AC 150/5300 - 13B, Airport Design

Exhibit 4
FAA RUNWAY SURFACES WITH RUNWAY EXTENSION

a slope of 34:1. **Exhibit 5 – 13B Approach Surface 5** shows this surface in isolation and the height limitations of this surface in relation to the Study Area parcels. Surface 5 extends over a portion of Study Area 3. On the south side of the impacted area, the height limitation is approximately 70 feet. On the north side the height limitation is approximately 100 feet.

This exhibit assumes the presence of a 1,000-foot runway extension. An exhibit showing the current condition is not provided because development within the 13B Approach Surface fan should remain below the future height restrictions so that development constructed before the future height limitations apply do not preclude extension of the runway.

13B Approach Surface #6: Approach Surface #6 begins at the runway end and has an inner width of 300 feet. It extends outward and upward to a length of 10,200 feet, an outer width of 1,520 feet, with a slope of 30:1. **Exhibit 6 – 13B Approach Surface 6**, is slightly narrower than Surface 5 and has a less restrictive height limitation. On the south end of Study Area 3 the height limitation is approximately 90 feet, and it is approximately 120 feet on the north end. This exhibit also considers the presence of a future runway extension.

Departure Surface: Clear departure surfaces allow pilots to follow standard instrument departure procedures, which assist pilots in avoiding obstacles during the initial climb after takeoff. As applied to the Runway 18 end, the departure surface consists of two parts: Section 1 and Section 2. Section 1 begins at the end of the runway and is the width of the runway. It extends upward and outward at a 40:1 slope to a length of 12,152 feet and an outer width of 7,512 feet. Section 2 of the Departure Surface are "wings" on the outer edges of Surface 1 that rise at a slope of 3:1 to a length of 450 feet. **Exhibit 7 – Departure Surface (Current)** shows in detail, the height limitations of this surface in areas where it extends over parts of Study Area 2 and Study Area 3 under current conditions. **Exhibit 8 – Departure Surface with Runway Extension** shows the height limitations with a runway extension.

Part 77 Approach and Transitional Surfaces: The Part 77 surfaces consist of the Primary, Horizontal, Conical, Transitional, and Approach Surfaces. It is the Approach and Transitional surfaces that will impact Study Areas 1, 2, and 3 with height restrictions. The Part 77 Approach Surface begins 200 feet from the runway end where it is 1,000 feet wide. It extends upward and outward at a 50:1 slope for the first 10,000 feet then at 40:1 for an additional 40,000 feet. The outer width is 16,000 feet. The Part 77 Approach Surface is the most restrictive surface on the extended runway centerline. The Transitional Surface extends from the sides of the runway Primary Surface (500 feet from centerline) and the Part 77 Approach Surface. The Transitional Surface rises at a 7:1 slope. **Exhibit 9 – Part 77 Approach & Transitional Surfaces (Current)**, shows the height limitation that these surfaces present over all three parcel areas in the current condition. **Exhibit 10 – Part 77 Approach & Transitional Surfaces with Runway Extension** shows the future condition.

ENVIRONMENTAL SENSITIVITIES

An additional consideration is the potential environmental sensitivities that will need to be considered by any development project. Construction on airport property will require compliance with the *National Environmental Policy Act* (NEPA) *of 1969*, as amended. This includes privately funded projects and those

projects receiving federal funding. For projects not categorically excluded under FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, compliance with NEPA is generally satisfied through the preparation of an environmental assessment (EA). In instances where significant environmental impacts are expected, as determined by the FAA, an environmental impact statement (EIS) may be required.

This Environmental Sensitivities section is focused on potential environmental impacts to the three Study Area parcels; however, a much more detailed analysis is available in the 2022 Airport Layout Plan & Narrative Report. There are 14 NEPA categories to be considered which are discussed briefly in relation to each Study Area. **Exhibit 11 – Environmental Sensitivities** shows a graphic representation of the environmental sensitivities in direct relation to Study Areas 1, 2, and 3. Once a development project is defined, then would be the time to complete any of the recommended studies and analysis.

Air Quality: Construction projects likely result in additional emissions; however, Sedgwick County currently meets federal requirements under the *Clean Air Act*. For construction emissions, a qualitative or quantitative emissions inventory under NEPA may be required, depending on the type of environmental review needed for new development adjacent to Webb Road.

Biological Resources: The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) report identified three threatened or endangered species: Northern long-eared bat (threatened mammal), the least tern (endangered bird), and the whooping crane (endangered bird) that should be considered when evaluating development in the area. The presence of trees on the three parcel areas could be a habitat for the northern long-eared bat. The presence of both the least tern and whooping crane is unlikely because both species prefer creek and river habitat for nesting activities.

Climate: An increase in greenhouse gas (GHG) emissions could occur due to a specific development project. A project-specific analysis may be required per the FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, based on the parameters of the individual projects.

Coastal Resources: The airport is not located within a coastal resource zone.

Department of Transportation Act, Section 4(f): Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance; and publicly or privately owned land from an historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished. There are no Section 4(f) land uses on any of the three parcels.

Farmlands: According to the Natural Resources Conservation Service (NRCS) Web Soil Survey, over 99 percent of the airport is either “Prime Farmland” or “Farmland of Statewide Importance. Important farmlands include pastureland, cropland, and forest considered to be prime, unique, or statewide or locally important land. Form AD-1006 is used by the NRCS to assess impacts under the *Farmland Protection Policy Act* (FPPA) and will need to be completed prior to development of any of the three parcels.

Hazardous Materials, Solid Waste, and Pollution Prevention: Fueling, aircraft maintenance, and other airport activities could involve fossil fuels or other types of hazardous materials. These operations are regulated and monitored by the appropriate regulatory agencies, such as the U.S. EPA and the Kansas