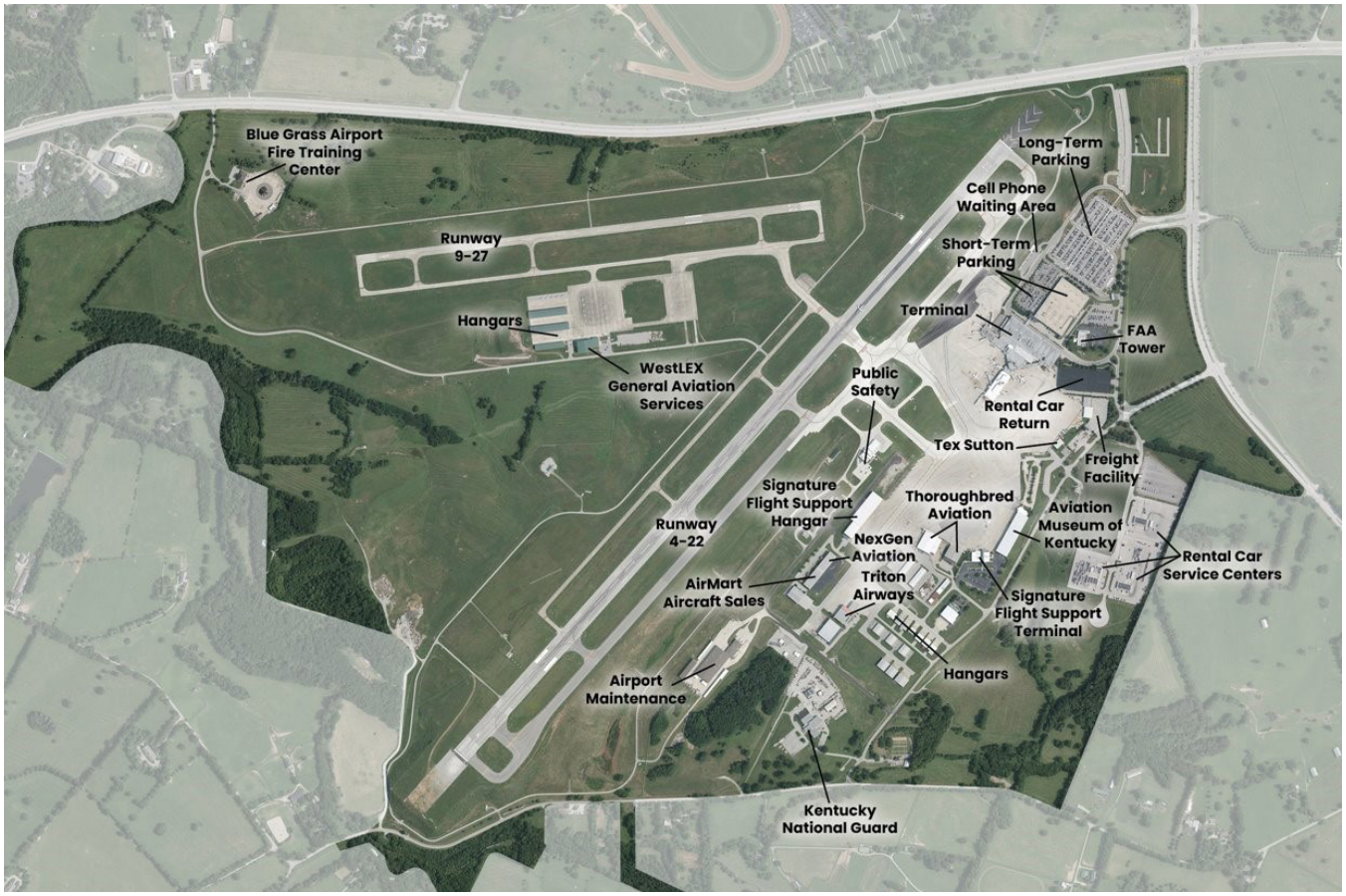
2 Inventory of Facilities and Existing Conditions

2.1 Airfield

An airport's airside and airfield facilities generally include the facilities located within the airport perimeter fence that are most closely associated with the movement and operation of aircraft, such as taxiing, takeoff, landing, and parking. Additional elements related to airfield activity and infrastructure include the runway and taxiway systems, aircraft parking aprons and hangars, airfield pavement, markings, signage, lighting, and navigational aids (NAVAIDs). Blue Grass Airport's (LEX or the Airport) existing airfield facilities, as well as its main functional elements, are depicted in **Figure 2-1**. An overview of the airfield is provided in **Figure 2-2**.

Figure 2-1
Existing Facilities



Source: Blue Grass Airport, 2022.

Figure 2-2
Airfield Overview

Source: CHA, 2022.

2.1.1 Airport Design Criteria

The Federal Aviation Administration (FAA) uses a classification system known as the Airport Reference Code (ARC) to signify an airport's highest Runway Design Code (RDC), which determines the design standards by which a runway is to be constructed or maintained. RDC consists of three components: Aircraft Approach Category (AAC), Airplane Design Group (ADG) relating to either the aircraft wingspan or tail height (whichever is more restrictive), and visibility minimums. An airport's ARC is determined by taking the highest RDC minus the visibility component. It affects runway and taxiway dimensions, separation standards, pavement marking standards, and other safety standards. Furthermore, it is used for planning and design only and does not limit the aircraft that may be able to operate safely at an airport. The relationship between the ARC and design standards is further described in the FAA's Airport Design Advisory Circular (AC) 150/5300-13B. The characteristics of the RDC are shown in **Table 2-1.**

Table 2-1
Airport Reference Code & Airplane Design Group Characteristics

Airplane Approach Categories (AAC)		
Approach Category	**VREF/Approach Speed (Knots)**	**Example Aircraft**
A	<91	Beechcraft-E33 Bonanza Cessna 152
B	91 ≤ 121	CRJ-200, ERJ-135/140/145
C	121 ≤ 141	B737-700W, MD-88
D	141 ≤ 166	A300, B757
E	166+	B-52H, B-2 Spirit

Airplane Design Group (ADG)			
Design Group	**Tail Height (Ft)**	**Wingspan (Ft)**	**Example Aircraft**
I	<20	<49	Beechcraft-E33 Bonanza, Cessna 152
II	20-<30	49 ≤ 79	CRJ-700, ERJ-145
III	30-<45	79 ≤ 118	A319, CRJ-900
IV	45-<60	118 ≤ 171	Boeing 757, MD 11
V	60-<66	171 ≤ 214	A300, B757
VI	66-<80	214 ≤ 262	B-52H, B-2 Spirit

Source: FAA AC 150/5300-13 Airport Design, CHA, 2022.

An airport's most demanding aircraft is commonly referred to as the 'critical' or 'design' aircraft, which makes regular use of the airport. According to FAA AC 150/5000-17, *Critical Aircraft and Regular Use Determination*, 'Regular use' aircraft are those that conduct a minimum of 500 annual operations, including both itinerant and local operations but excluding touch-and-go operations. The ARC consists of a letter designating the AAC and a Roman numeral designating the ADG (a classification of aircraft based on wingspan and tail height).

As shown in **Table 2-2**, the Airport facilitated more than 500 annual operations for AAC Category D and ADG Group III aircraft in 2021; therefore, based on the analysis of Traffic Flow Management System Counts (TFMSC) operations data, D-III represents the current ARC and current group of aircraft with similar characteristics, or the current critical aircraft grouping. An example of a D-III aircraft operating at LEX is the B737-800.

Table 2-2
LEX Operations by AAC Category and ADG Group (2021) – All Users

AAC & ADG		All Users (TFMSC Reported) 2021
Subtotal by AAC	A	5,218
	B	11,276
	C	3,906
	D	626
Subtotal by ADG	I	9,022
	II	11,482
	III	510
	IV	12

Source: FAA TFMSC, CHA, 2022.

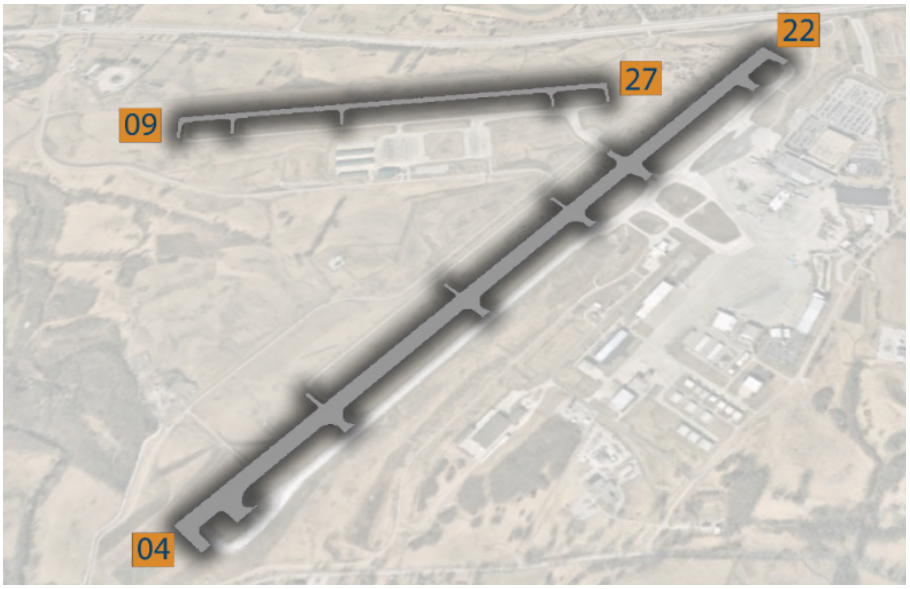
Chapter 3, *Forecasts of Aviation Activity*, will examine the future critical aircraft determination, and **Chapter 4**, *Facility Requirements*, will analyze future facility impacts.

Taxiway Design Group (TDG) relates to the undercarriage dimensions of an aircraft, such as outer main gear width (MGW) and center of nose gear to center of main gear (CMG) distance (also referred to as an aircraft's 'wheelbase'). The Boeing 737-800 is classified as a TDG of 3, which will be used to evaluate existing and future runway, taxiway, and apron fillet geometry.

2.1.2 Runway System

The Airport's existing airfield configuration is depicted in **Figure 2-3** and consists of two non-intersecting runways configured as an open 'V' shape, identified as Runways 4-22 and 9-27. Runways 4-22 and 9-27 are orientated in southeast/northwest and true east/west directions, respectively. **Table 2-3** presents the characteristics of both.

Figure 2-3
LEX Runway Configuration



Source: CHA, 2022.

Table 2-3
Existing Runway Specifications

	Runway 4-22	Runway 9-27
Runway Length (ft)	7,003	4,000
Displaced Threshold (ft)	N/A	N/A
Width (ft)	150	75
Runway End Elevation (ft above MSL)	Runway 4: 940 Runway 22: 972.7	Runway 9: 950.1 Runway 27: 973.7
Pavement Type	Asphalt/Grooved	Concrete
Pavement Load Bearing	140,000 lbs. (Single Wheel) 169,000 lbs. (Double Wheel) 275,000 lbs. (Double Tandem)	30,000 lbs. (Single Wheel)
Effective Runway Gradient	0.5%	0.6%
Aircraft Approach Category (AAC)	D	B
Airplane Design Group	III	II
Runway Markings	Precision	Non-Precision
Runway and Approach Lighting	HIRL, C/L **Runway 4:** TDZL, PAPI-4, MALSR **Runway 22:** PAPI-4	MIRL **Runway 9:** PAPI-4 **Runway 27:** PAPI-4
Navigational Aids	ILS/DME, RNAV (GPS)	VOR/DME, RNAV (GPS)
Visibility Minima (Decent Height/Visibility)	200-ft AGL/1,800-ft RVR	250-ft AGL/1-Mile
Runway Design Code (RDC)	D-III-1800	B-II-4000

Source: AirNav.com; FAA Form 5010-1, Airport Master Record-September 2022, CHA, 2022.

C/L – Centerline Lights
DME – Distance Measuring Equipment
GPS – Global Positioning System
HIRL – High Intensity Runway Lights
ILS – Instrument Landing System
MALSR- Medium Intensity Approach Lighting System with Runway Alignment Indicator
PAPI-4 – Four-Box Precision Approach Path Indicator
REIL – Runway End Identifier Lights
RNAV – Area Navigation
TDZL – Touchdown Zone Lights

The Airport's primary commercial service runway, Runway 4-22, is orientated parallel to the west of the terminal adjacent to Taxiway A. As **Table 2-3** indicates, Runway 4-22 is 150 feet wide, without paved shoulders, and is 7,004 feet long. Both ends of Runway 4-22 have declared distances with a landing distance available (LDA) of 6,604 feet or a reduction in landing distance by 400 feet. The reduction in runway landing distance is attributed to providing a standard 1,000-foot runway safety area (RSA) off the departure ends of Runway 4-22. The RSA is intended to protect life and property in the event of an aircraft undershoot or overshoot. The runway's load-bearing capacity is 140,000 pounds single wheel; 169,000 pounds double wheel; and 275,000 pounds double tandem. However, it is anticipated that LEX will install EMAS at both ends of this runway to maximize its capacity.

Situated farther northwest of the terminal is the Airport's secondary crosswind Runway 9-27, which is 75 feet wide, without paved shoulders, and has a usable length of 4,000 feet, without declared distances. The runway's load-bearing capacity is 30,000 pounds single wheel. Runway 9-27 is primarily designated as a general aviation (GA) runway for GA operators.

2.1.3 Taxiway System

An airport's taxiway system connects the runways to the terminal area, aircraft parking aprons, storage hangars and other facilities. The Airport has five operative taxiways (Taxiways A, B, C, F, and G). Taxiways A, B, and F each have connector taxiways to create access between aircraft entering or exiting a runway. **Table 2-4** provides the characteristics and specifications of each taxiway, and **Figure 2-4** illustrates the Airport's existing taxiway system.

Table 2-4
Existing Taxiway Specifications

Taxiway	Description	Width (Feet)	Airplane Design Group (ADG)	Taxiway Design Group (TDG)	Taxiway Shoulder Width (Feet)
A	Parallel to RWY 4-22 to the east; Connects to TWY 'C' and TWY 'G'; primary access point to/from the terminal and East GA Apron	75	IV	5	N/A
B	Parallel to Runway 4-22 to the west and provides access to RWY 4-22 and TWY 'G'	35	II	2B	N/A
C	Provides access from the East GA Apron to TWY 'A'	75	IV	5	N/A
F	Parallel to the south and provides access to both ends of RWY 9-27; provides access to the WestLEX GA Apron; provides access to TWY 'G'	35	II	2B	N/A
G	Provides access from TWY 'F' to TWY 'B'; provides access from RWY 4-22 to TWY 'A' and the East GA Apron	75	IV	5	N/A

RWY – Runway; TWY – Taxiway; GA – General Aviation; N/A – Not Available.

Source: FAA Airport Diagram. AC 150/5300-13B, CHA, 2022.

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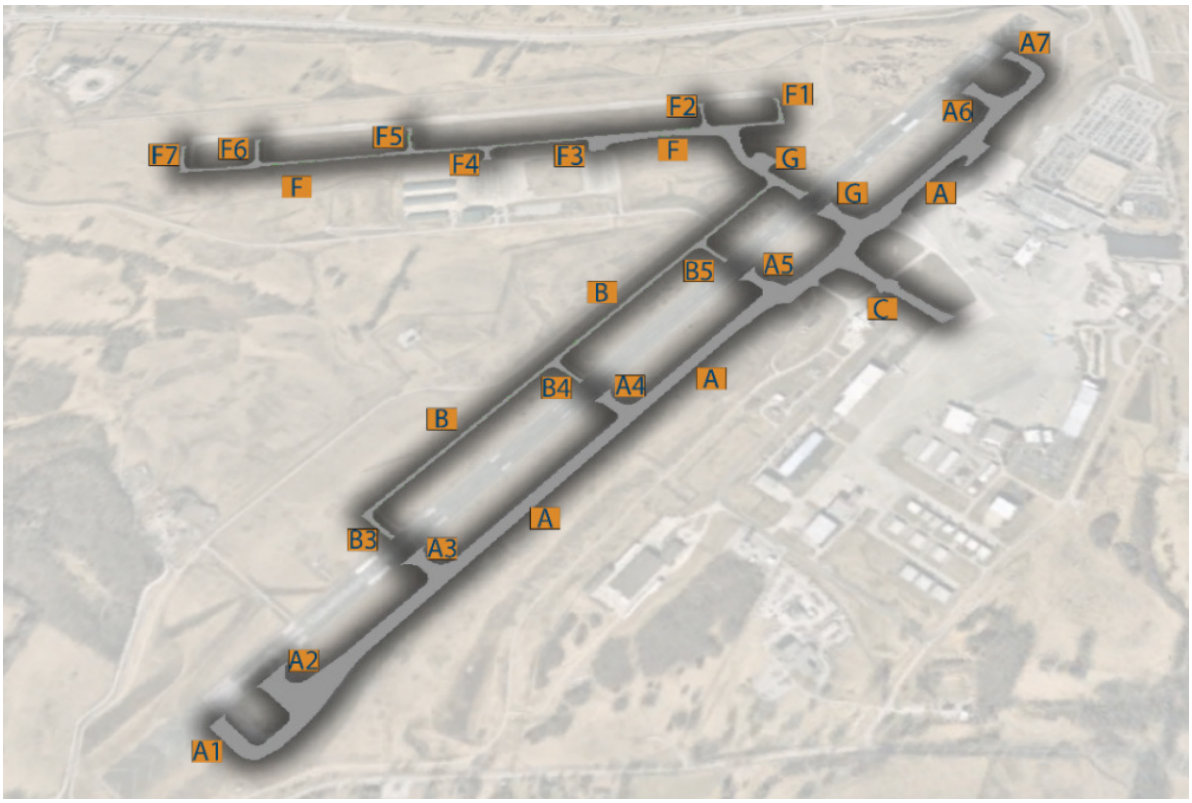
Figure 2-4
LEX Taxiway Configuration

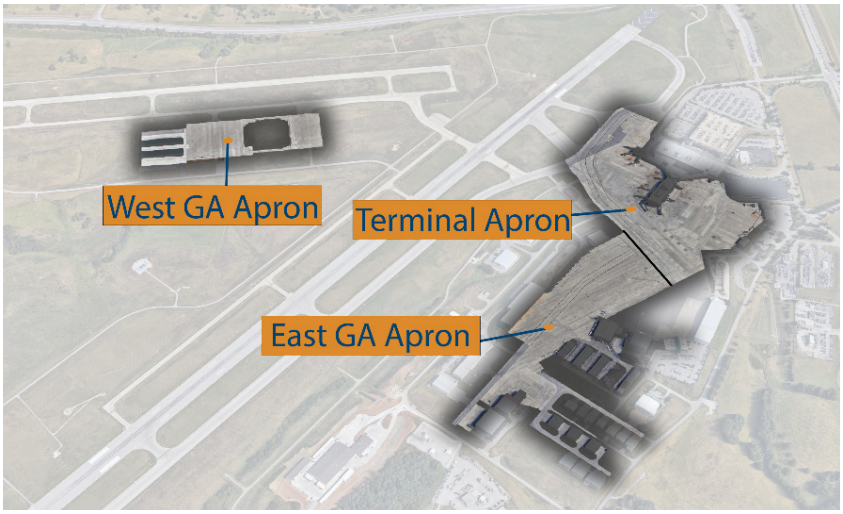


Source: CHA, 2022.

2.1.4 Apron Areas

Airport aprons, also referred to as 'ramps', provide space for short-term and long-term aircraft parking and deicing operations, as well as the loading/unloading of passengers and goods. The Airport contains three aprons: the West GA Apron (WestLEX), as well as two connecting aprons, the East GA Apron, and the Terminal Apron, which are depicted in **Figure 2-5** and described in the following paragraphs.

Figure 2-5
Aircraft Parking Aprons



Source: CHA, 2022.

Terminal Apron

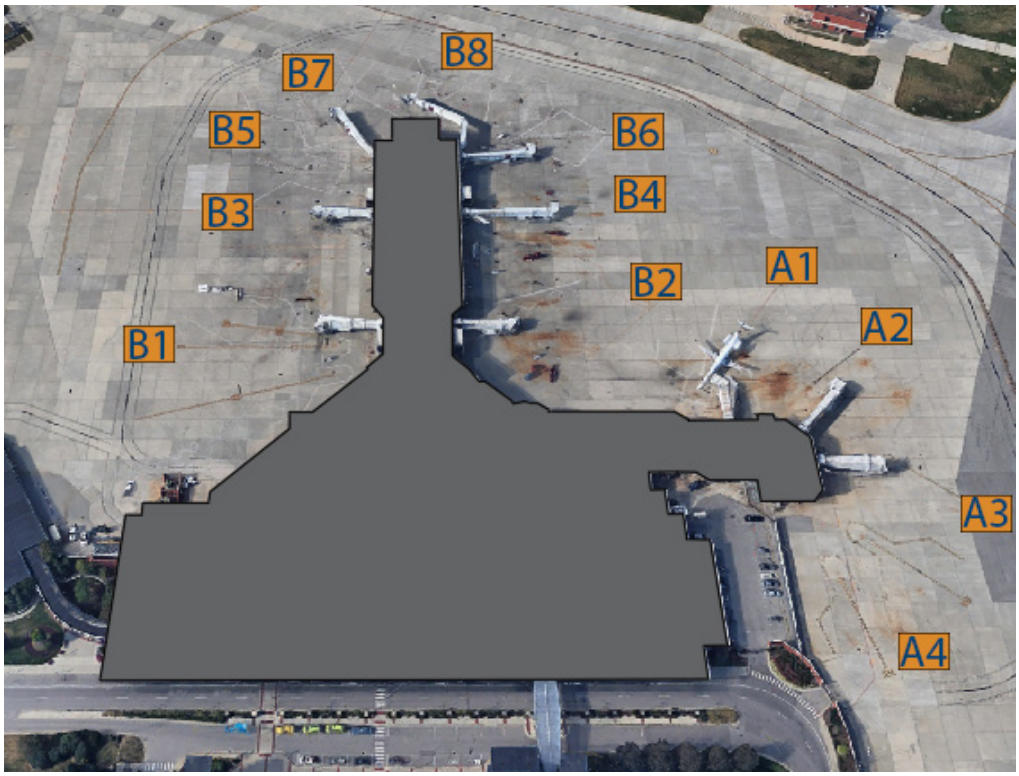
The Terminal Apron consists of approximately 124,000 square yards of Portland cement concrete (PCC) pavement. Terminal Apron operations primarily consist of passenger airline aircraft services and belly cargo loading and unloading. The Terminal Apron comprises 16 aircraft parking positions associated with 12 terminal holdroom gates: A1–A4 and B1–B8. Ten of the 12 terminal gates are equipped with passenger boarding bridges (PBBs); Gate B7 is not currently equipped with a PBB; however, this parking position is served by the Gate B6 PBB. **Table 2-5** provides gate specifications and **Figure 2-6** and **Figure 2-7** illustrate the current gate layout. The apron is utilized for gate parking at the concourse, aircraft maneuvering, pushback, Remain Overnight parking (RON), and aircraft deicing services.

Table 2-5
Gate Specifications

Gate	PBB Make/Model (Year)	Primary Airline	Aircraft Design Group
Gate A1	Open	United	N/A
Gate A2	Jetway/A3-58/110 (1984)	United	III
Gate A3	Jetway/A3-58/110 (1984)	Common Use	III
Gate A4	JBT/A3-68/141-125R (2020)	Allegiant	III
Gate B1	FMC/AD3-50/95-125R (2000)	American	III
Gate B2	FMC/AD2-553/17-12R (2000)	American	III
Gate B3	Thyssen-Krupp/TB25/16.0-2 (2006)	Allegiant	III
Gate B4	Thyssen-Krupp/TB37/22.5-2 (2006)	American	III
Gate B5	Thyssen-Krupp/TB37/22.5-2 (2006)	Delta	III
Gate B6	Thyssen-Krupp/TB33/20.0-2 (2006)	Delta	III
Gate B7	Open	Delta	III
Gate B8	Thyssen-Krupp/TB31/19.0-2 (2008)	Delta	III

ADG III (Example Aircraft): A320-200, Boeing 737-900w, EMB 170 STD.
ADG II (Example Aircraft): CRJ-700, ERJ 145.
Source: Blue Grass Airport, CHA, 2022.

Figure 2-6
Gate Layout (Plan View)



Source: Blue Grass Airport, CHA, 2022.

Figure 2-7
Gate Layout (Bird's Eye View)

Source: Blue Grass Airport, CHA, 2022.

General Aviation (GA) Use Aprons

The Airport contains two primary GA-use aprons, the East GA Apron and the WestLEX GA Apron, both of which are detailed in the following sections.

East GA Apron

The East GA Apron is connected to and located southwest of the Terminal Apron and contains most of the Airport's aircraft storage hangars as well as other facilities that serve the Airport's operational needs. Those GA facilities include flight schools, aircraft fuel storage, maintenance buildings, a fixed-base operator (FBO), aircraft charter and sales services, the Aviation Museum of Kentucky, and more. **Figure 2-1** presents specific companies and services provided on the East GA Apron as well as their locations on the airfield.

WestLEX GA Apron

The WestLEX GA Apron is located south of Runway 9-27 and Taxiway F. It is approximately 50,000 square yards and contains WestLEX, which provides services to airport hangar tenants of three T-hangars and one corporate hangar.

Remain Overnight (RON) and Diversion Ramp Parking

The eastern side of the terminal apron is currently reserved for RON aircraft, as well as parking for international operations being processed by the Airport's Federal Inspection Services (FIS). The RON area includes approximately 9,800 square yards near a cargo and shipment center. The Airport accommodates diverted aircraft in the RON parking area as needed on a case-by-case basis. The image in **Figure 2-8** highlights this area.

Figure 2-8
RON and Diversion Ramp Parking Area

Source: Blue Grass Airport, CHA, 2022.

2.1.5 Airfield Markings

The FAA's *Standards for Airport Markings,* AC150/5340-1M, provides the standards for surface markings used on airfield roadways and airfield pavements, such as runways, taxiways, and aprons, assuming the surfaces are built in accordance with the standard dimensions and layouts in FAA AC 150/5300-13B, *Airport Design*. *(This excludes privately owned apron areas.) These standards apply to all airports certified under* Title 14 CFR Part 139, which establishes certification requirements for airports serving scheduled air carrier operations in aircraft configured for more than nine passenger seats and unscheduled passenger-carrying operations of an air carrier operating aircraft configured for at least 31 passenger seats. Examples of airfield markings are provided in **Table 2-6, Figure 2-9, Figure 2-10**, and **Table 2-7**.

Table 2-6
Runway Markings

Type of Marking	Purpose of Marking
Designation	Numbers and letters are determined from approach direction; labeled according to Compass Rose
Centerline	Identifies the center of the runway; provides alignment guidance during takeoff and landings
Threshold	Delineates the beginning of the runway that is available for landing
Aiming Point	Serves as a visual aiming point for a landing aircraft, located approximately 1,000 feet from the landing threshold
Touchdown Zone	Identifies the touchdown zone for landing operations and is coded to provide distance information in 500 feet increments
Runway Edge Marking	Defines the edge of the usable, full-strength surface

Source: FAA AC 150/5340-1M, Standards for Airport Markings, CHA, 2022.

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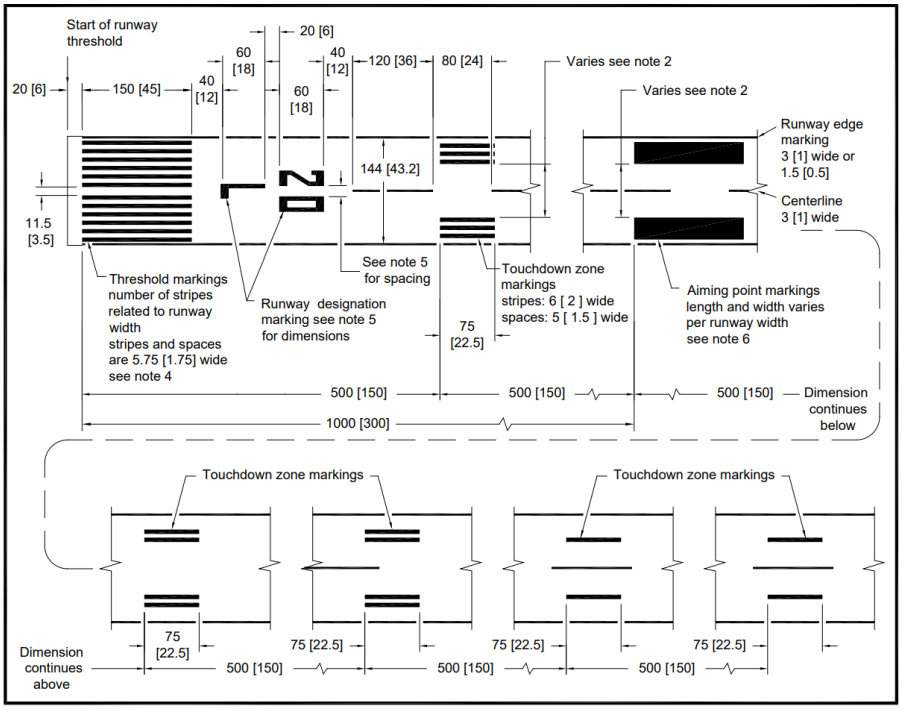
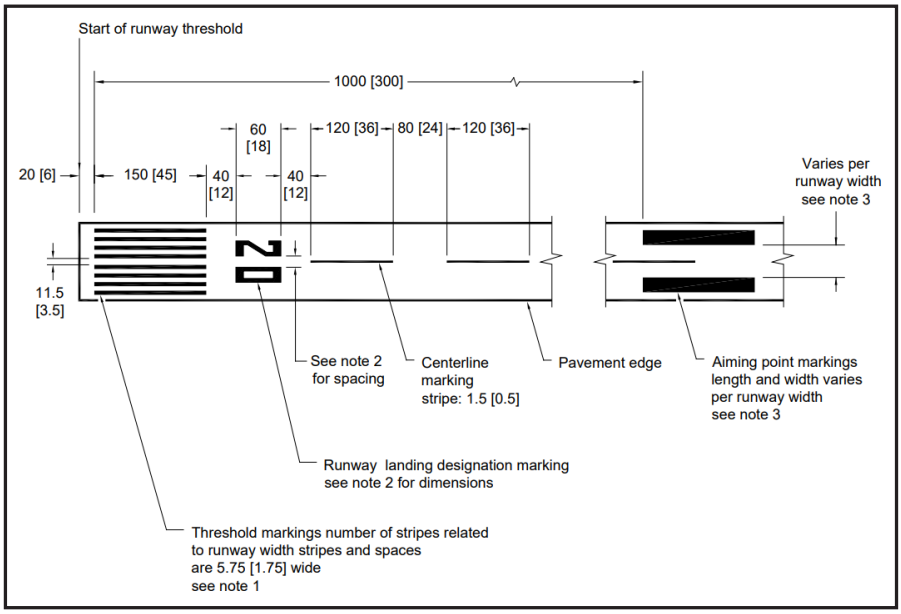
Figure 2-9
Precision Runway Markings (LEX's Runway 4-22)



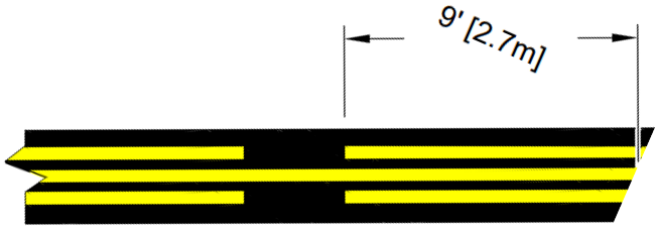
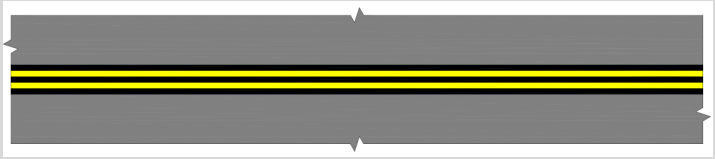
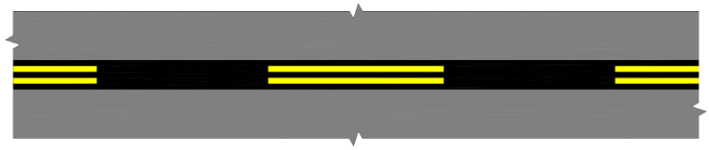
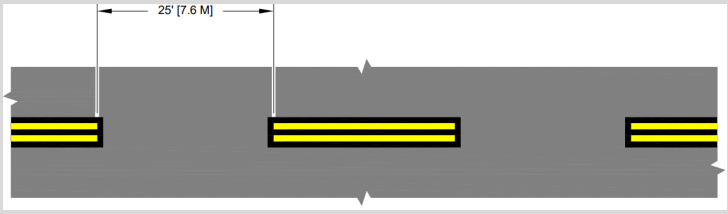
Source: Figure A-1 of FAA AC 150/5340-1M, *Standards for Airport Markings*, 2019.

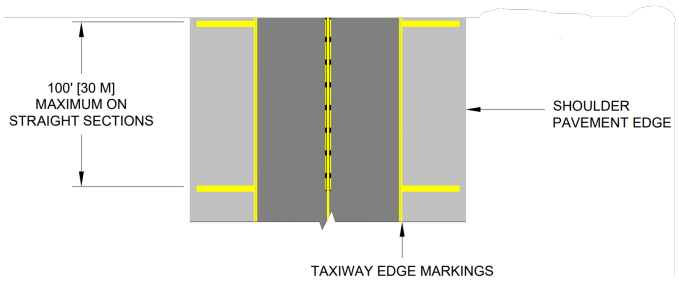
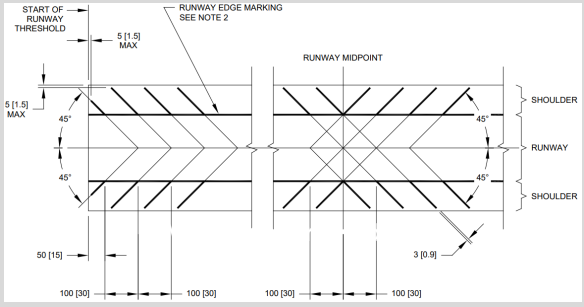
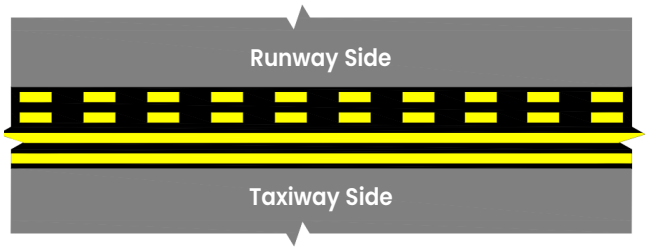
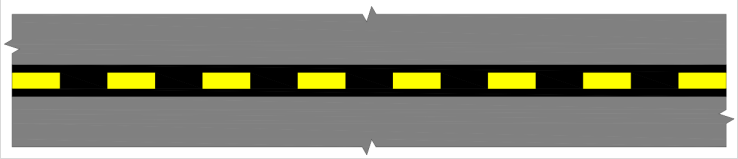
Figure 2-10
Non-Precision Runway Markings (LEX's Runway 9-27)

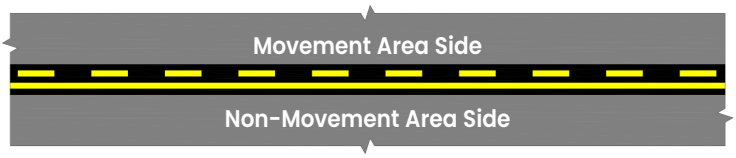
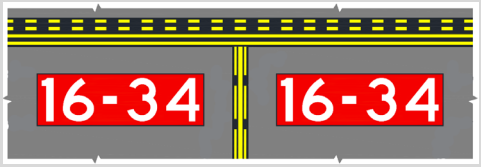


Source: Figure A-2 of FAA AC 150/5340-1M, *Standards for Airport Markings*, 2019.

Table 2-7
FAA Airfield Marking Standards

Type of Marking	Visual Representation of Marking Purpose of Marking
Normal Taxiway Centerline	
	Provides a visual cue to permit taxiing along a designated path
Enhanced Taxiway Centerline	
	Intended to alert pilots of an upcoming runway holding position marking to minimize the potential for runway incursions; required for Part 139 airport's taxiways that intersect a runway centerline
Continuous Taxiway Edge Line Marking	
	Defines the taxiway edge from the shoulder or other abutting paved surface not intended for use by aircraft
Dashed Taxiway Edge Line Marking	
	Defines the taxiway edge from adjoining pavement intended for use by aircraft (i.e., parking aprons)
Alternate Outlining Method for Dashed Taxiway Edge Line Marking	
	A secondary method to define the taxiway edge from adjoining pavement intended for use by aircraft

Type of Marking	Visual Representation of Marking Purpose of Marking
Taxiway Shoulder Markings	
	Identifies paved shoulders (areas intended to prevent blast and water erosion); not intended for use by aircraft (may not be full-strength pavement)
Runway Shoulder Markings	
	Intended to delineate a paved runway shoulder that pilots have mistaken as usable runway
Runway Holding Position	
	Indicates where aircraft are supposed to remain clear when approaching or departing a runway; required for all taxiways that intersect a runway at Part 139 airports
Intermediate Holding Position Marking for Taxiway/Taxiway Intersections	
	Indicates where aircraft are to be held when approaching an intersecting taxiway

Type of Marking	Visual Representation of Marking Purpose of Marking
Non-Movement Area	
	Delineates the movement areas under direct control by air traffic control (ATC) from non-movement areas that are not under ATC control
Surface Painted Holding Position Signs	
	Provides supplemental visual cues that alert pilots and vehicle drivers of an upcoming holding position location, intended to minimize the potential for runway incursions
Surface Painted Taxiway Direction Signs	
	Provides directional guidance to pilots at taxiway intersections. Black box with yellow letter indicates the taxiway that the aircraft is on, and the yellow box with black letter indicates the approaching taxiway being intersected. These markings are required when it is not possible to provide a taxiway directional sign in accordance with FAA AC 150/5340-18G.

Source: FAA AC 150/5340-1M, *Standards for Airport Markings*, CHA, 2022.

2.1.6 Airfield Signage

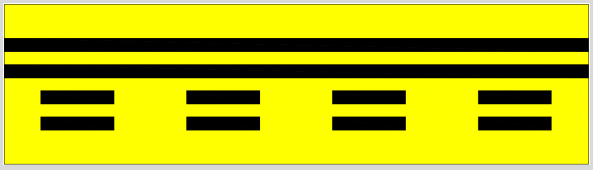
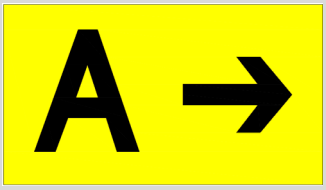
According to Title 14, CFR Part 139.311, *Marking, Signs and Lighting*, certificated airports, like LEX, must provide and maintain sign systems for their air carrier operations that are authorized by the Administrator and consist of at least the following:

- Signs identifying taxi routes on the movement area
- Holding position signs
- Instrument Landing System (ILS) critical area signs

The holding position signs, as well as the ILS critical area signs, must be internally illuminated. FAA AC 150/5340-18G, *Standards for Airport Sign Systems*, provides acceptable means of meeting the requirements pertaining to airfield signage for Part 139 airports, while specifications are contained in FAA AC 150/5345-44L, *Specification for Runway and Taxiway Signs*. A further description of typical airfield signage is included in **Table 2-8**. See FAA AC 150/5340-18G, *Glossary of Sign Types* for additional sign type descriptions.

Upon visual inspection, lighted airfield signage currently found on the Airport's airfield consists of all required signage for a Part 139 certificated airport, including airfield location signage, mandatory instruction signage, and runway hold position signage. Additional signage may be required to accommodate future improvements or additions to airfield pavements.

Table 2-8
Airfield Signage

Type of Sign	Sign Visual Description/Example Purpose of Sign
Mandatory Instruction Sign	
	Denotes taxiways and runway intersections, ILS critical areas, Precision Obstacle Free Zone (POFZ) boundaries, runway approach areas, CAT II/III operations area, military zones, and no entry zones
Runway/Taxiway Location Signs	
	Identifies the taxiway or runway upon which the aircraft is located
Boundary Sign	
	Identifies the boundary of the RSA/OFZ or ILS critical area for a pilot exiting a runway
Taxiway Ending Marker	
	Indicates that a taxiway does not continue beyond an intersection
Directional Sign	
	Indicates directions of other taxiways leading out of an intersection
Destination Sign	
	Indicates the direction to a remote location

Type of Sign	Sign Visual Description/Example Purpose of Sign
Runway Distance Remaining Sign	
	Provides distance remaining information to pilots during takeoff and landing operations; number represents how many thousands of feet of usable runway are available

Source: FAA AC 150/5340-18G, CHA, 2022.

2.1.7 Airside Pavement Condition

The Airport has established a pavement management plan (PMP) that provides a consistent and systematic procedure for making pavement maintenance and rehabilitation decisions. The load-carrying capacity of the pavement for unrestricted operations is expressed as a Pavement Classification Number (PCN) established by the International Civil Aviation Organization (ICAO). The PCN is a five-part number which includes a numerical PCN value [indicating the load-carrying capacity of a pavement (between 0 and 100)], pavement type (flexible-F and rigid-R), subgrade category (high-A, medium-B, low-C, ultra-low-D), allowable tire pressure (unlimited/no pressure-W, high/pressure limited to 254 psi-X, medium/pressure limited to 181 psi-Y, and low/pressure limited to 73 psi-Z), and the method used to determine the PCN (via technical study-T or evaluation based on using aircraft experience-U). The PCN for each runway at the Airport is shown in **Table 2-9**, while existing airfield pavement conditions are shown in **Figure 2-11**.

Table 2-9
Airside Pavement Condition

Runway	PCN Classification	Numerical Value (0-100)	Pavement Type	Subgrade Strength Category	Allowable Tire Pressure	Method
4-22	PCN 59/F/B/W/T	59	Flexible	Medium	Unlimited/No-Pressure	Technical Study
9-27	PCN 15/R/B/W/T	15	Rigid	Medium	Unlimited/No-Pressure	Technical Study

Source: FAA Airport Data and Information Portal, 2022.

Several airfield projects have been completed recently, including the following:

- Rehabilitation of Runway 4-22, Taxiway A, and the Runway 22 Departure Engineered Material Arresting System (EMAS)
  - Taxiway Safety Enhancement Program (TSEP)
  - Taxiway A North
    - Construction of FAA fiber loop
    - Construction of Taxiways A and A6
    - Construction of apron connection
    - Reconstruction of Taxiway A7
    - Associated drainage, edge lighting, and marking
- Construction of Taxiway C
- Reconstruction of Taxiway A South
- Construction of Airport Rescue and Fire Fighting (ARFF) pavements
- New ARFF building and associated site

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Figure 2-11
Existing Airfield Pavement Conditions

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NETWORK DEFINITION LEGEND

PAVEMENT CONDITION INDEX

applied pavement TECHNOLOGY
115 W. Main Street, Suite 400
Urbana, IL 61801
Tel: (217) 398-3977
Fax: (217) 398-4027

AGENCY: Blue Grass Airport			
LOCATION: Blue Grass Airport, Lexington, KY			
PAGE TITLE: 2022 Pavement Condition Index Map			
PROJECT DATE: APRIL 2022	CREATION DATE: APRIL 2022	PROJECT MANAGER: GEL	JOB NUMBER: 2020-030-AM01
DRAWING SCALE: NTS	LAST MODIFIED DATE: JUNE 2022	REVISED BY: ABF	DRAWN BY: ABF
FILENAME: LEX PMP.dwg		LAYOUT NAME/NUMBER: PCI	FIGURE NUMBER: 2-11

2.2 Navigational Aids (NAVAIDs) and Instrument Procedures

Pilots utilize a variety of NAVAIDs and instrument procedures, including Very High Frequency (VHF) Omni Directional Range (VORs), standard terminal arrival routes (STARs), instrument approach procedures (IAPs) and NAVAIDs, approach lighting systems (ALS), airfield lighting, and rotating beacons. By providing point-to-point guidance information or position data, NAVAIDs assist pilots in locating airports, landing aircraft, taxiing aircraft, and departing safely and efficiently from airports during nearly all meteorological conditions. **Table 2-10** summarizes the Airport's existing IAPs, by runway, and the NAVAIDs that support such.

Table 2-10
NAVAIDs, IAP Types, Runway Markings, Approach Minimal, & Airfield Lighting

Runway	Runway Markings	Navigational Aids	Lighting	Minimum Ceiling (AGL)/Visibility	IAP Types
04	Precision	ILS, GPS	HIRL, PAPI-4, MALSR, C/L, TDZL	200 ft./0.50 mile	ILS or LOC, RNAV (GPS)
22	Precision	ILS, GPS	HIRL, PAPI-4, C/L, REIL	300 ft./0.75 mile	ILS or LOC, RNAV (GPS)
09	Non-Precision	GPS, VOR/DME	MIRL, PAPI-2, REIL	300 ft./1 mile	RNAV (GPS), VOR/DME
27	Non-Precision	GPS, VOR/DME	MIRL, PAPI-2, REIL	400 ft./1.25 mile	RNAV (GPS), VOR/DME

Source: FAA Airport Master Record (Form 5010), Accessed 2022.

AGL – Above Ground Level
C/L – Centerline Lights
DME – Distance Measuring Equipment
GPS – Global Positioning System
HIRL – High Intensity Runway Lights
ILS – Instrument Landing System
MALSR - Medium Intensity Approach Lighting System with Runway Alignment Indicator
MIRL – Medium Intensity Runway Lighting
PAPI-4 – Four-Box Precision Approach Path Indicator
REIL – Runway End Identifier Lights
RNAV – Area Navigation
TDZL – Touchdown Zone Lights

2.2.1 En-Route Navigational Aids (NAVAIDs)

En-Route NAVAIDs assist pilots during navigation between airports. These facilities are usually ground-based and electronically emit signals that are received by aircraft on a specific radio frequency. They are almost always used in some manner by pilots operating on Instrument Flight Rule (IFR) flight plans but can also be used during Visual Flight Rule (VFR) flights for position information. Each of the Airport's runways is served by circling IAP 'LEX VOR-A,' which relies upon VOR/DME systems, which are ground-based en-route NAVAIDs.

2.2.2 Standard Terminal Arrival Routes (STARs)

STARs are preplanned IFR air traffic control arrival procedures published for pilot use. STARs serve as a critical form of communication between pilots and air traffic control (ATC) by providing a method and criteria for descent, routing, and communications when navigating to the destination after leaving the en-route structure. The STAR and approach procedures virtually connect to each other in such a way as to create a seamless transition.

Once a flight crew has accepted a clearance for a STAR, they have communicated with the controller what route, and in some cases what altitude and airspeed, they will fly during the arrival, depending on the type of clearance.

When aircraft approach the Lexington region, the Airport's ATC has one STAR procedure: *CLEGG FIVE. The CLEGG FIVE* arrival utilizes the *Cincinnati* and *Louisville VORTACs* and *Falmouth VOR-DME*, all of which aid traffic north and west of the Airport.

2.2.3 Instrument Approach Procedures (IAPs) and Navigational Aids (NAVAIDs)

Based on current FAA classifications, there are four types of instrument approach categories.

- Visual (V) – Approaches performed under VFR only when meteorological conditions include a cloud ceiling height of 1,000 feet or greater and visibility of three miles or greater. None of the runways at the Airport operate strictly under this category.
- Non-Precision Approach (NPA) – IAPs providing only lateral guidance with a ceiling minimum of 400 feet above the threshold. These can include VOR, non-directional beacon (NDB), area navigation (RNAV), lateral navigation (LNAV), localizer performance (LP), and localizer (LOC) equipment. Each of the Airport's runways has an NPA IAP.
- Approach Procedure with Vertical Guidance (APV) – IAPs providing vertical guidance minimums of 250 feet above the threshold and visibility minimums as low as .75 mile. These can include an ILS, LNAV/Visual Navigation Aids (VNAV), LP with Vertical Guidance (LPZ) or RNAV Required Navigation Performance (RNP). Each of the Airport's runways is equipped with this type of procedure.
- Precision Approach (PA) – IAPs providing vertical guidance less than 250 feet above the threshold and visibility minimums lower than 0.75 mile. These can include an ILS, LPV, and Global Navigation Satellite System (GNSS) Landing System (GLS). This category applies to Runways 4 and 22, both of which have ILS IAPs.

The precision level of an approach is one component that determines the minimum ceiling and visibility for each runway; other variables may influence the minimums, such as obstructions to the approach, buildings, terrain, etc. The NAVAIDs, which are comprised of the ground-based equipment required to perform the approach procedures, are divided into two categories: precision and non-precision. The NAVAIDs supporting traditional ground-based precision approaches are collectively called Instrument Landing Systems (ILS). According to FAA Order 6750.16E, *Siting Criteria for Instrument Landing Systems*, an ILS provides guidance to instrument-rated pilots of properly equipped aircraft to assist them in landing safely under conditions of reduced ceilings and lowered visibility. The Airport maintains ILS IAPs for Runways 4 and 22.

Two components of an ILS include a localizer (LOC) and a glide slope (GS). A localizer is typically situated 1,000 feet past the departure end of the runway that has an ILS approach and provides lateral positioning guidance to pilots. It utilizes radio frequencies (RF) to transmit signals to aircraft by focusing the RF beam down the centerline of the runway toward the approach end of the runway for approximately 10 miles, focusing within 35 degrees to the left or right of the runway centerline. The GS is located near the runway approach end at a distance from the threshold to provide optimum crossing height, with a preferred offset of 400 feet from the runway centerline. It transmits a signal for approximately 10 nautical miles, with a horizontal coverage of 8.0 degrees on each side of the localizer course, measured from the origin of the glide slope beam. The glide slope must be established between 2.0 and 4.0 degrees, typically with a glide path angle of 3.0 degrees.

Additionally, all runways at the Airport are equipped with RNAV, Global Positioning System (GPS) IAPs, based on technology to enable vertically guided instrument approach procedures with approach capabilities like ILS approaches without the need for the traditional ground-based ILS components.

Digital Airport Surveillance Radar (DASR)

The Airport is equipped with a Digital Airport Surveillance Radar-11 (DASR-11) tower, which is portrayed in **Figure 2-12** and is located northwest of the airport maintenance storage complex in the Airport's southeast quadrant. The ASR system consists of a primary surveillance radar secured to a tower frame and a secondary surveillance radar attached to the top of the primary surveillance radar. The primary surveillance radar measures the distance of aircraft in relation to the continuously rotating antenna. The secondary surveillance radar allows transmission of pertinent aircraft data to allow Air Traffic Controllers to verify the location of aircraft within a 60-mile radius, which is especially useful in the case of an aircraft emergency.

Figure 2-12
LEX DASR-11

Source: CHA Site Visit, March 17, 2022.

Figure 2-13
LEX LLWAS

Source: Google Earth Pro, 2022.

Low Level Windshear Alert System (LLWAS)

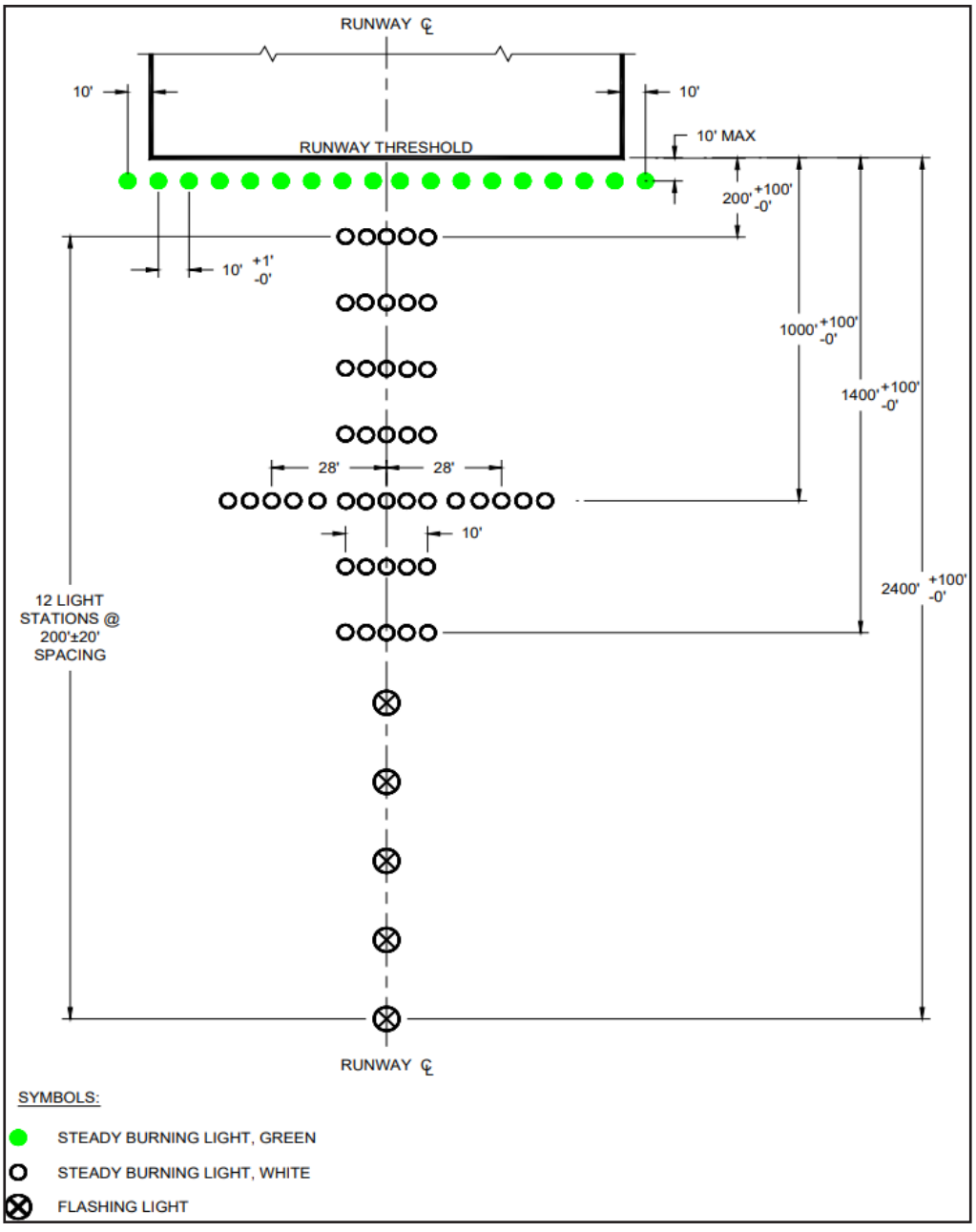
Figure 2-13 displays a picture of the Airport's low level windshear alert system (LLWAS) equipment north of the approach end of Runway 27. The remote sensor data received by an LLWAS system is transmitted to a master station, which generates warnings for pilots when windshear or microburst conditions are detected. Current wind data and warnings are displayed for approach controllers in the Terminal Radar Approach Control Facility (TRACON) and for ground controllers in the Air Traffic Control Tower (ATCT).

Approach Lighting Systems (ALS)

The third component of an ILS, in addition to the LOC and GS, is the approach lighting system (ALS). The ALS provides a lighted approach path along the extended centerline of the runway. Runway alignment indicator lights flash in sequence as a series of white lights moving toward the runway threshold, which emphasizes runway centerline alignment. Roll indication is emphasized by a single row of white lights located on either side of, and symmetrically, along the column of approach lights.

Typically, airports with non-precision approaches utilize Medium Intensity Approach Lighting Systems (MALS), along with Runway Alignment Indicator Lights (RAILS). Together, these systems form the Medium Intensity Approach Lighting Systems with Runway Alignment Indicator Lights (MALSR) utilized for precision runways, such as the Airport's Runway 4 and 22.

Figure 2-14
Typical MALSR Configuration



Source: Figure 2-4 of FAA Order 6850.2C, Visual Guidance Lighting Systems.

According to FAA Order 6850.2C, Visual Guidance Lighting Systems, the MALSR consists of a threshold light bar and seven five-light bars located on the extended runway centerline, the first bar being located 200 feet from the runway threshold, with the remaining bars each at 200-feet intervals out to 1,400 feet from the threshold. Two additional five-light bars are located on either side of the centerline bar, 1,000 feet from the runway threshold, to form a 66-foot-long crossbar known as a roll bar. The individual lights in all bars are approximately 2.5 feet apart and are aimed into the approach to the

runway, away from the runway threshold. All lights in the MALSR system are steady-burning white, except for the threshold lights, which have green filters. The threshold lights are a green row of lights on 10-foot centers located coincident with and within the runway edge lights near the threshold and extending across the runway threshold. The Airport contains one MALSR on the approach end of Runway 4.

2.2.4 Standard Instrument Departures (SIDs)

Standard Instrument Departure (SID) routes, also known as departure procedures, are published flight procedures followed by aircraft on an IFR flight plan immediately after takeoff from an airport. They provide a simple departure procedure to balance terrain and obstacle avoidance, noise abatement (if necessary), and other airspace management considerations. SIDs are always printed graphically rather than textually. The Airport does not currently have any SIDs.

2.2.5 Airfield Lighting

In addition to the visual aids previously described, airfield lighting systems include the airport rotating beacon, Precision Approach Path Indicator (PAPI) lights, runway threshold lighting, runway edge lighting, Runway End Identifier Lights (REILS), runway centerline lights, Runway Touchdown Zone Lights (TDZLs), taxiway edge lighting, and apron lighting. Each of the lighting systems/types are described in the following paragraphs:

Airport Rotating Beacon

An airport rotating beacon functions as the universal indicator for locating an airport during nighttime operations. For a civilian airport, it has one clear and one green lens located 180 degrees apart and is generally visible within 10 miles of its associated airport. According to the FAA's Aeronautical Information Manual (AIM), May 2022, at Class E airports, the operation of the Airport beacon during daylight hours indicates that ground visibility is less than three miles and/or the ceiling is less than 1,000 feet. The Airport's rotating beacon is located approximately 120 feet southeast of the ATCT, as shown in **Figure 2-15**.

Precision Approach Path Indicator (PAPI) Lights

A PAPI is a system of lights located near a runway end. It provides pilots with visual glide slope guidance information during an approach to the runway. PAPIs typically have an effective visual range of at least three miles during the day and up to 20 miles at night. They inform pilots if they are high, low, or on the correct approach descent path for the threshold. Each of the Airport's runway ends is equipped with a PAPI-4 (four-light unit) system.

Runway Threshold Lighting

Runway threshold lighting emits green light outward from the runway and red light toward the runway. The green lights indicate the landing threshold to arriving pilots, whereas the red lights indicate the end of the runway for departing aircraft. The red and green lights are usually combined into a single fixture, and special lenses or filters are used to emit the desired light in the appropriate direction. Each of the Airport's runways contains runway threshold lights.

Figure 2-15
LEX Rotating Beacon

Source: CHA Site Visit, March 17, 2022.

Runway Edge Lighting

Runway edge lights are white and used to outline the edges of a runway during periods of darkness or reduced visibility. Runway edge lights are positioned parallel to the runway centerline at least two feet from the edge of the full-strength pavement designated for runways not used by jet aircraft and 10 feet from the edge of the full-strength pavement designated for runways used by jet aircraft. The spacing of the light units must not exceed 200 feet. These systems are classified according to their intensity, or brightness: High Intensity Runway Light (HIRL), Medium Intensity Runway Light (MIRL), and Low Intensity Runway Light (LIRL). Some airports utilize a pilot-controlled system where the light intensity can be changed or stepped up or down by clicking a button located on the radio system inside the aircraft. Runway 4-22 is equipped with HIRL, while Runway 9-27 is equipped with MIRL.

Runway End Identifier Lights (REILs)

The primary function of REILs is to provide rapid and positive identification of a runway end. REILs consist of two synchronized, unidirectional flashing white lights positioned on each corner of the runway landing threshold, facing the approach area and aimed at an angle of 10 to 15 degrees. Runways 22, 09, and 27 are equipped with REILs.

Runway Centerline Lights

Runway centerline lights are required for Category (CAT) II and III precision approach runways, as well as CAT I approaches, where the Runway Visual Range (RVR) is less than 2,400 feet. The lighting system consists of embedded lights located along the centerline, equally spaced by 50 feet of longitudinal intervals. They are white, except for the last 3,000 feet; from 3,000 to 1,000 feet, the centerline lights consist of alternating red and white lights, and the last 1,000 feet are all red. Currently, Runway 4-22 is equipped with runway centerline lights.

Runway Touchdown Zone Lights (TDZL)

TDZLs indicate the touchdown zone when landing under adverse visibility conditions. They consist of two rows of transverse light bars disposed symmetrically about the runway centerline. The system consists of steady-burning white lights beginning 100 feet beyond the landing threshold and extending to 3,000 feet beyond the landing threshold or to the midpoint of the runway, whichever is less. Each of the Airport's runways has touchdown point markings, but only Runway 4 is equipped with TDZLs.

Taxiway Edge Lighting

Taxiway lighting delineates the taxiway's edge and provides guidance to pilots during periods of low visibility and at night. The most common type of taxiway lighting is a series of blue fixtures, which are sometimes supplemented by blue edge reflectors, set at 200-foot intervals along taxiway edges but not more than 10 feet outward from the edge of the full-strength pavement. The Airport's taxiways are each equipped with Medium Intensity Taxiway Lighting (MITL) systems. Its eastside taxiways are all new Light Emitting Diode (LED) fixtures, whereas the Airport's westside taxiways are incandescent, 35-watt fixtures.

2.3 Terminal Facility

An assessment of the Airport's terminal was completed based on site visits and tenant interviews. The intention of this effort is to develop a general understanding of the existing terminal facility. Tenants Interviewed:

- American Airlines
- Delta Air Lines
- Hertz Car Rental
- Enterprise/Alamo/National Car Rental
- Cork & Barrel (concessionaire)
- Customs and Border Protection (CBP)
- Republic Parking System
- Transportation Safety Administration (TSA)

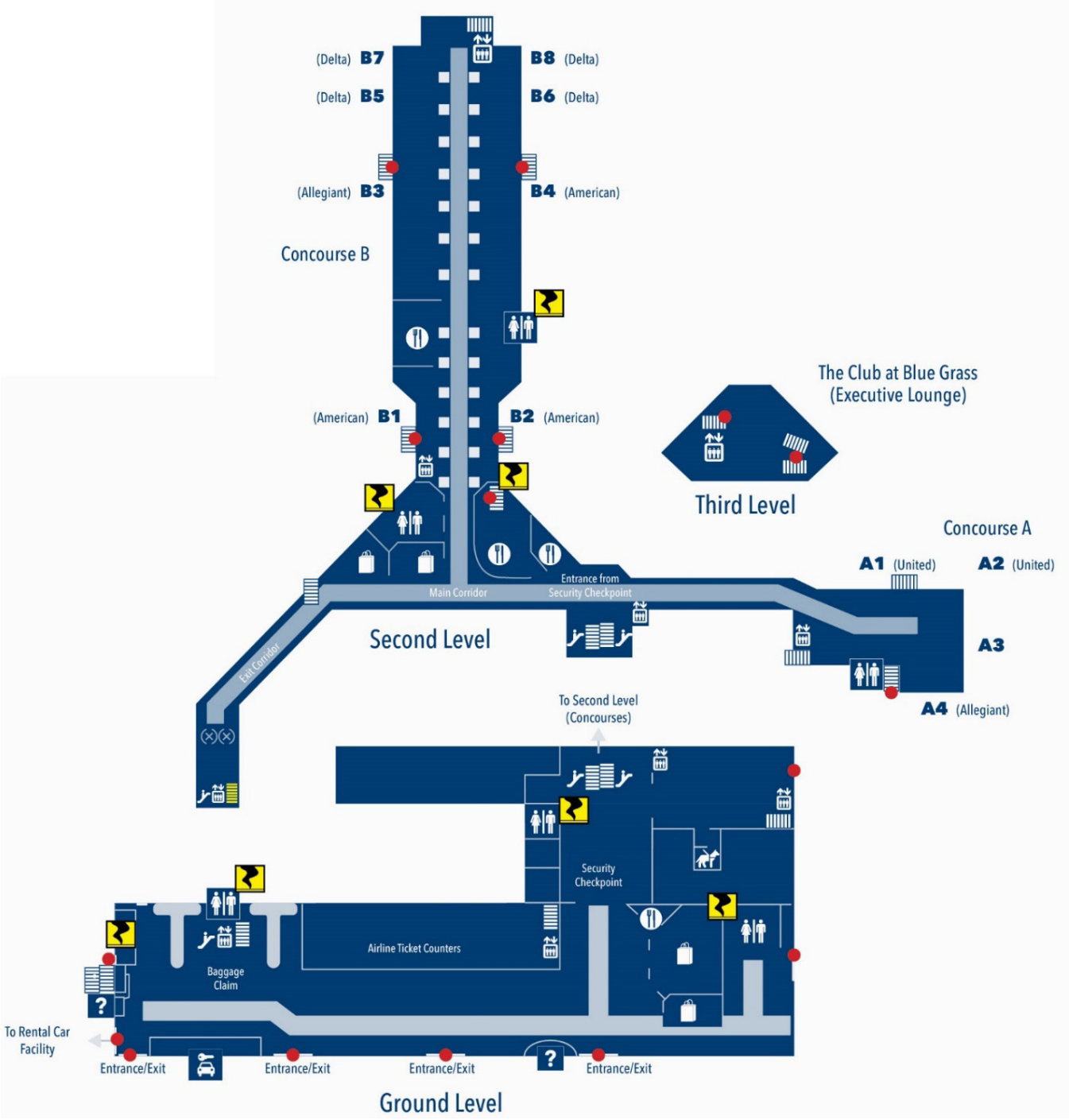
2.3.1 Terminal Facility Layout

The Airport's terminal layout is separated into three levels: the ground level, the second level, and a small third level. The ground level acts as the terminal's main entrance and exit and is where all passenger processing and screening is conducted before leading to the second level, where passengers traverse to their respective concourse and gate holdroom or other functions of the terminal, such as concessions, restaurants, restrooms, etc. Deplaning passengers travel from the second level to the ground level to claim their baggage and visit the rental car and transportation network companies, if necessary. The second level also includes airport administration and TSA office space. The terminal's third floor is accessed via the second-level concourses near the intersections of Concourses A and B. It contains "The Club at Blue Grass," the Airport's business lounge. **Figure 2-16** depicts the terminal's three levels in their entirety and the locations of some of its major functions.

2.3.2 Main Passenger Terminal Building and Arrivals Building Functional Areas

The Airport's terminal is comprised of several areas, each accommodating multiple stakeholder functions, including law enforcement, airline services, administrative services, concessions, ground transportation services, and TSA security screening and administrative offices.

Figure 2-16
LEX Terminal Map



Source: Blue Grass Airport, 2022.

2.3.3 Airline Ticketing Lobby

The Airport's airline ticketing lobby is located on the ground level of the terminal and serves as the primary space for departing passengers to check-in for departing flights, obtain boarding passes, and drop off baggage to be checked and screened prior to enplaning.

As **Figure 2-17** depicts there are four main passenger entrances to the airport terminal's curbside, all of which are located on the terminal's ground floor; there are no second or third-floor entrances to the terminal. The first entrance, when approaching along Terminal Drive, leads directly to the Information Center and the TSA security checkpoint. The second entrance is near the midpoint of the terminal's façade on the curbside and leads directly to the airline ticketing lobby.

The ticketing lobby contains twenty-five commercial air carrier ticketing counters designated to five separate airline queues. If fully staffed, each counter can service approximately two passengers simultaneously. As such, the airlines' ticket counters have the capacity to collectively service approximately 50 passengers simultaneously. Delta's six counters are located nearest to the TSA security checkpoint. Behind their counters, Delta occupies approximately 3,130 square feet of office space. American Airlines also has six check-in counters, located between Delta and United's counter areas. American Airlines occupies approximately 1,970 square feet of office space behind its counter area. United Airlines utilizes three counters and has approximately 1,720 square feet of office space behind them. Allegiant Air uses four counters and has approximately 1,920 square feet of office space. If an additional air carrier were to introduce service at LEX, it could utilize the Airport's six common-use ticket counters and associated office space of approximately 1,560 square feet located adjacent to the baggage claim area. **Figure 2-17** depicts these areas.

Airlines also provide passengers with access to self-serve, automated kiosks. The kiosks offer passengers capabilities and amenities, including checking in for flights, printing boarding passes, and modifying aircraft seat assignments.

Figure 2-17
Airline Ticketing Lobby

Source: CHA Site Visit, March 17, 2022.

2.3.4 Checked Baggage Screening

To accommodate federally mandated requirements, all checked baggage must go through the sort-controlled Checked Baggage Inspection System (CBIS). Bags are screened by one of the two CT-80 Explosive Detection System (EDS) machines, which are owned and operated by the TSA. The in-line checked baggage processing system begins behind the airline counters on fixed belt loaders that automatically transport the luggage to the inside baggage screening area, which is approximately 3,830 square feet. After being screened through the EDS machines, the luggage continues its journey to the 'outside baggage screening' carousel, where airline personnel load bags onto luggage carts to be tugged out to their respective aircraft.

Each airline has its own baggage makeup space, which will be further explained in **Section 2.3.11**.

2.3.5 Passenger Security Screening

The Airport has a single TSA passenger screening checkpoint that serves both Concourse A and B, as seen portrayed in **Figure 2-18** and **Figure 2-19**. Prior to accessing either concourse, all enplaning passengers must pass through the TSA security screening checkpoint (SSCP). The checkpoint has two pre-screening stands where passengers have their travel documents verified prior to proceeding through the SSCP. TSA pre-check passengers and employees/crews have separate lanes at the checkpoint that offer expedited access to one of the pre-screening stands.

Figure 2-18
Passenger Security Screening Queue

Source: CHA Site Visit, March 17, 2022.

Figure 2-19
TSA Security Screening Checkpoint

Source: CHA, Site Visit, March 17, 2022.

The passenger security screening area consists of three passenger screening lanes (space constraints prohibit expansion) containing one walk-through metal detector and one Advanced Imaging Technology (AIT) scanner. There are currently two different EDS machines (CT80s) in the area utilized to detect threats in carry-on baggage by providing a high-definition X-ray image. Once on the sterile side, passengers circulate to their respective gate areas. Passengers then go up the escalator to access Concourse A or B to reach their respective gates.

A current limitation with passenger screening security is available space. The current layout and space are considered to be adequate, although space for expansion is limited. As demand increases, capacity to screen passengers may be an issue in the future.

A current limitation with passenger screening security is available space....As demand increases, capacity to screen passengers may be an issue in the future.

2.3.6 Airline Gates and Holdrooms

The Airport currently has 12 air carrier gates available to commercial service airlines. The existing gates are dispersed in two different concourses, A and B. Concourse A contains four gates that are utilized by Allegiant, Avelo, and United. Concourse B contains the other eight gates, and they are currently utilized by Allegiant, American and Delta. All active gates are located on the second level of each concourse and are equipped with passenger boarding bridges. The active gates are equipped with a conveyance system to carry gate-checked baggage from the gate area to the ramp level. **Table 2-11** presents the current air carrier gate assignments based on their existing lease agreements, and **Figure 2-20** portrays holdrooms in Concourse A.

Table 2-11
Air Carrier Gate Assignments

Concourse A Holdroom/Gate	Airline
Gate A1	United
Gate A2	United
Gate A3	Avelo*
Gate A4	Allegiant

Concourse B Holdroom/Gate	Airline
Gate B1	American
Gate B2	American
Gate B3	Allegiant
Gate B4	American
Gate B5	Delta
Gate B6	Delta
Gate B7	Delta
Gate B8	Delta

*Scheduled to begin service in October 2022.
Source: CHA, 2022.

Figure 2-20
Concourse A Holdrooms

Source: CHA, Site Visit, March 17, 2022.

2.3.7 Terminal Concessions and Amenities

Existing concessions throughout the terminal facility provide various goods and services for passengers, employees, and meeters and greeters. Concessionaires include food and beverage services, cafés, and retail shops with magazines, books, and gifts.

Paradies Lagardère currently operates retail concessions throughout the Airport. Paradies operates three different gift shops/retail stores. Before screening, Paradies operates the Blue Grass Marketplace, a gift/retail store that passengers can visit, as well as the Blue Grass Xpress, which serves food and beverages. After going through security, passengers can visit the LEX News & Gifts retail store, which sells food/beverages passengers may carry onto their flight, as well as entertainment items like magazines and newspapers.

Delaware North LEX LLC operates the Airport's food and beverage concessions, all three of which are on the terminal's second floor, post the passenger screening area. After passengers complete the TSA screening process and continue to the second floor, they enter the terminal's main corridor, which contains two food and beverage concessions operated by Delaware North LEX; the Bourbon Library, which is a full-service bar and restaurant, and Dunkin'. Sir Veza's Kitchen & Kantina is another full-service food and beverage concessionaire located in Concourse B. **Table 2-12** depicts the current concessions and amenities within the Airport's terminal facility, including their various locations.

Table 2-12
Current Concessions

Concession/Amenity	Type	Operator	Location
Ground Level of Terminal (Pre-Security)			
Blue Grass Marketplace	Retail Store	Paradies Lagardère	To the right of TSA
Blue Grass Xpress	Concessionaire	Paradies Lagardère	To the right of TSA
Second Floor: Main Corridor to Concourses (Post Security)			
The Bourbon Library	Full-Service Food/Beverage	Delaware North LEX LLC	Right side of Main Corridor
Cork & Barrel	Liquor Retailer	Wines Vines & Corks LLC	Left side of Main Corridor
Dunkin'	Café	Delaware North LEX LLC	Right side of Main Corridor
Sir Veza's Kitchen & Kantina	Full-Service Food/Beverage	Delaware North LEX LLC	Concourse B
LEX News & Gifts	Retail/News	Paradies Lagardère	Left side of Main Corridor

Source: CHA, 2022.

Figure 2-21
Airport Concessions

Source: CHA, Site Visit, March 17, 2022.

Additional Amenities

Additional amenities at the Airport include a business lounge, nursing station, children's play area, animal relief area, and art gallery.

The business lounge is located on the terminal's third floor, above the Main Corridor, past the screening area. This lounge offers guests an opportunity to relax and unwind with complimentary snacks and beverages. It also offers a conference room to rent for an hourly fee. Complimentary admission is provided to guests who are members of the different airline clubs that provide air carrier service at the Airport and to active-duty military members.

The animal relief area facilities, portrayed in **Figure 2-22**, is located on the ground floor, adjacent to the TSA security checkpoint and is available for all service and other animals that may be boarding aircraft at the Airport.

Figure 2-22
Pet Relief Area

Source: CHA Site Visit, March 17, 2022.

The Paddock Gallery, also located on the terminal's ground level, exhibits purchasable art, emphasizing Lexington's rich horse racing history.

The Airport also operates an Information Center, which provides passengers with valuable information on flights, facilities, and travel options in and around the Airport. In addition, there are two on-site ATM cash machines in the terminal: one at the entrance on the ground level and another outside 'The Club at Blue Grass' entrance on the second level in Concourse B.

2.3.8 Baggage Claim

The baggage claim area, depicted in **Figure 2-23**, is located on the ground level of the terminal and serves as the location for deplaning passengers to retrieve their checked baggage. Arriving passengers can access the baggage claim area by going down the stairs on the second floor in the Main Corridor to the Exit Corridor. Once entering the ground floor of the terminal, the baggage claim area is located across from the rental car counters and next to the airline ticketing counters. Currently, there are two baggage claim carousels. The carousels are identified numerically: carousel 1 and carousel 2.

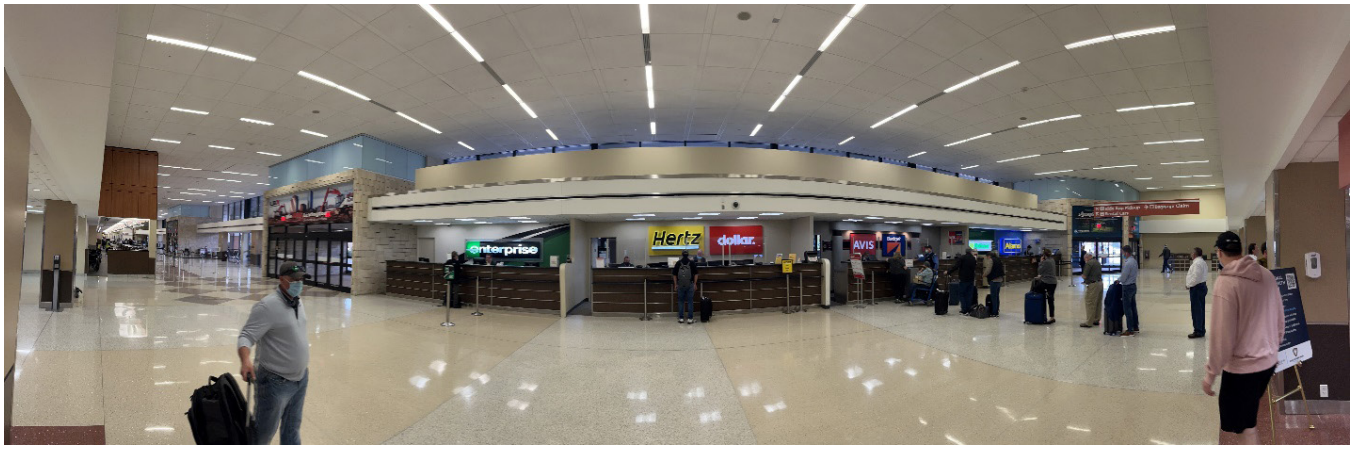
Figure 2-23
Baggage Claim Area

Source: CHA, Site Visit, March 17, 2022.

2.3.9 Rental Car Counters

The Airport's rental car counters are on the ground level of the terminal on its east end, across from the baggage claim area. Currently, seven rental car companies operate at the airport, and all of them share counter space with another rental car company, except for Enterprise. Each counter is approximately 22 linear feet long and is shown in **Figure 2-24**.

Figure 2-24
Rental Car Counters



Source: CHA Site Visit, March 17, 2022.

2.3.10 Airport Administrative and Support Areas

Airport administration is located on the second level of the terminal building. This area includes administrative offices, conference centers, break rooms, and restroom facilities. The TSA administrative offices are also included in this area.

2.3.11 Back-Office Spaces

The Airport's terminal tenants, such as airlines, concessionaires, and rental car providers, each utilize back-office space within the terminal. Airline and concessionaire storage space is in the secured area. However, the airlines have offices in the terminal's secured and non-secured areas. Rental car offices are in the non-secured area of the terminal and are sometimes shared depending on lease agreements. The TSA administrative office space is located on the terminal's second level. Only employees have access to their corresponding company's back-office space.

A main contributor to customer and passenger satisfaction is effective wayfinding, which creates a sense of comfort and security.

2.3.12 Terminal Signage and Wayfinding

A main contributor to customer and passenger satisfaction is effective wayfinding. Therefore, the terminal's signs and wayfinding should be clear, concise, and intuitive. Effective wayfinding systems create a sense of comfort and security. However, abundant signage and information can create confusion. Airport wayfinding systems include directional, identification, informational, and regulatory signs. Signage and wayfinding regarding vehicular circulation and parking are discussed later in this chapter.

Once inside the terminal, additional signage illustrates information pertaining to the terminal's relative functions. Enplaning passengers utilize signage to locate the airline ticketing counters, airport security, and their gate departure areas. The signage also depicts directions and information for various concessions and amenities, including food and beverage providers, technology charging stations, ATM machines, conference centers, restrooms, etc. The terminal's signage also includes regulatory information depicting prohibited areas. Deplaning passengers utilize airport signage to find the nearest route for baggage claim or ground transportation when exiting the concourse.

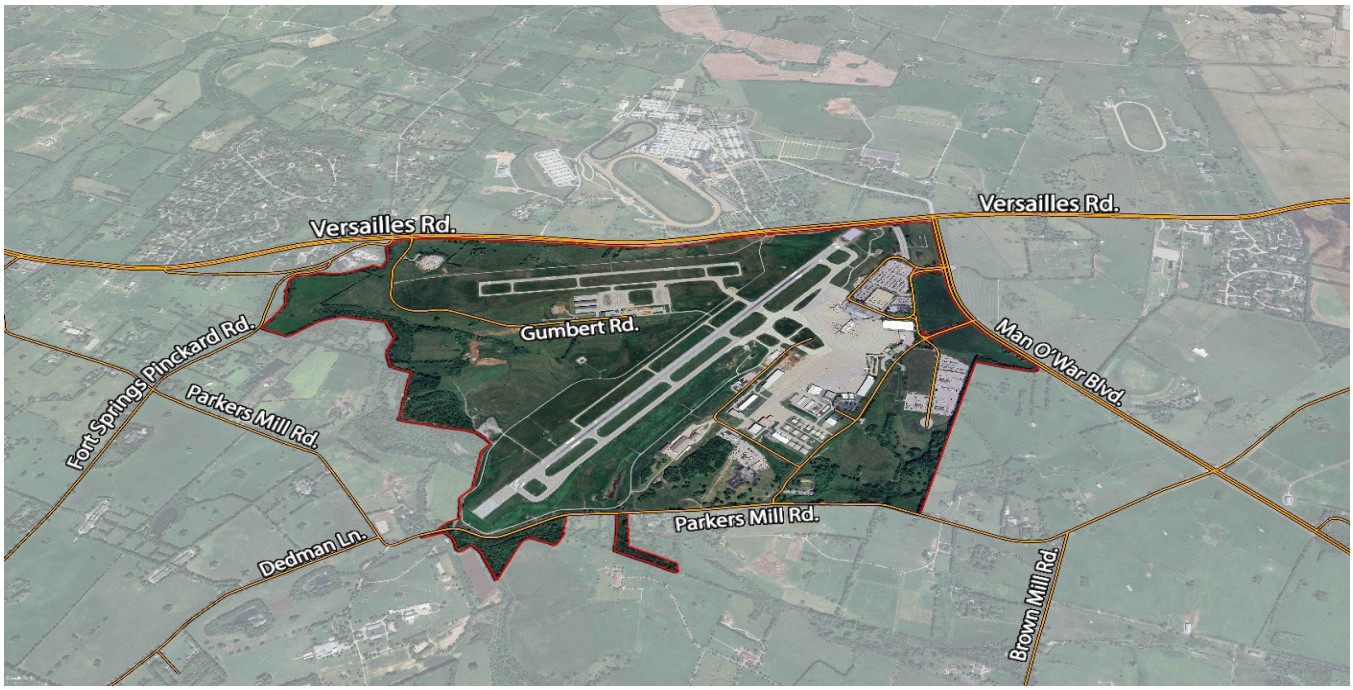
2.4 Parking and Access

This section details the Airport's existing vehicular parking facilities inventory and the existing traffic conditions along the terminal's curbside, according to previous airport studies, public data sources, and the Airport's parking operator (Republic Parking System).

2.4.1 Roadway Access to Terminal

Figure 2-25 depicts the Airport's access roads. The Airport is located on Man O' War Boulevard, which is accessed by Versailles Road. Man O' War Boulevard is used to access Terminal Drive, where long-term, short-term, and curbside parking is available. The terminal area allows for passenger pick-up and drop-off, car rental returns, and exiting the Airport. The East GA Apron area can be accessed via Man O' War Boulevard and then Airport Road. The WestLEX GA Apron can be reached via Gumbert Road from Versailles Road to the north.

Figure 2-25
Airport Access Roads



Source: CHA, 2022.

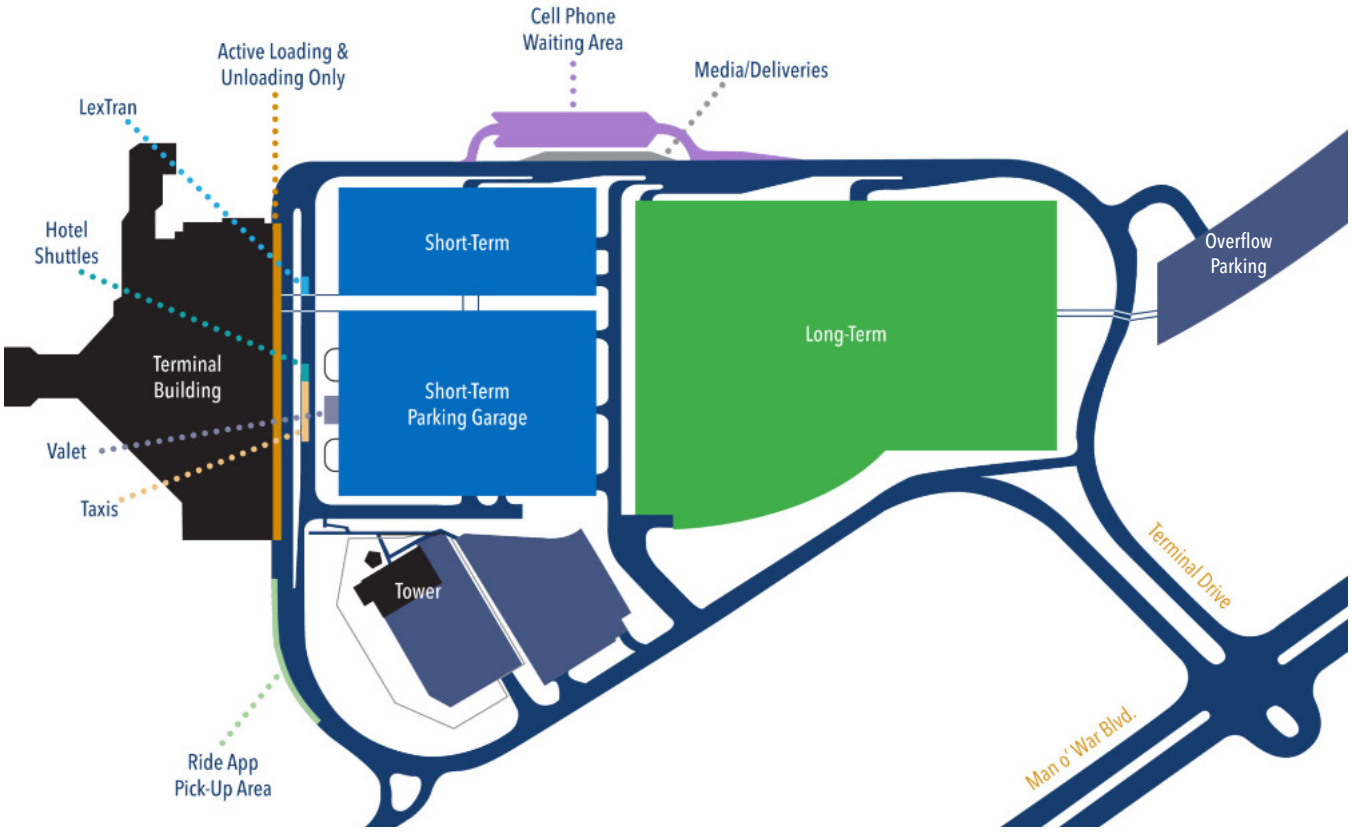
2.4.2 Public Parking

Short- and Long-Term Parking

Republic Parking System is contracted to handle public parking at the Airport, which includes long-term and short-term parking options. Short-term parking is the closest to the terminal and consists of a surface lot and parking garage. The Airport offers a shuttle service from the overflow portion of the long-term parking area.

Valet services are also provided, with vehicle drop-off occurring near the short-term parking garage. Electric vehicle (EV) charging is also available at the valet parking area, enabling passengers with EVs to drop off their car at valet parking and return from their trip with a fully charged vehicle. The Airport's parking system is depicted in **Figure 2-26**, while the number of spaces available by parking area and corresponding charges are depicted in **Table 2-13.**

Figure 2-26
Airport Parking System



Source: Blue Grass Airport, 2022.

Table 2-13
Airport Parking System

Airport Parking Area	Parking Spaces	Parking Rates			
		0-30 Minutes	31-60 Minutes	Additional Hours	Daily Maximum
Short-Term (Surface Lot)	226	Free	$2.00	$1.00/Hour	$16.00
Short-Term (Garage)	1,016	Free	$2.00	$1.00/Hour	$16.00
Long-Term (Surface Lot)	986	Free	$2.00	$1.00/Hour	$13.00
Valet Parking	–	–	–	–	$22.00
Electric Vehicle Charging	4	–	–	–	$22.00

Source: Blue Grass Airport, CHA, 2022.

2.4.3 Additional Parking Functions

In addition to public parking locations, the Airport provides parking for employees, shuttle services, and rental car companies. Flight Crew parking is in the Long-Term Parking Lot, which is comprised of 986 parking spaces. A cell phone lot is also available at the Airport's entrance on Terminal Drive. This lot enables patrons to park free of charge while waiting to pick up arriving passengers.

2.4.4 Curb Front Traffic

Terminal Drive is the main road that passes by the Airport's terminal and connects to the parking shuttle and garage. It has two active lanes that available for passengers loading/unloading luggage. Multiple transportation services are available to the passengers at the curb front, including hotel shuttles, valet, taxis, rideshare (i.e., Uber or Lyft), and LexTran Bus Services.

2.4.5 Rental Car Services

The Airport's rental car service counter is in the baggage claim area on the ground level of the terminal. The Airport's rental car services provide pick-up and drop-off locations for rental cars. The authorized rental companies include Alamo, Avis, Budget, Dollar, Enterprise, Hertz, and National. Additional ground transportation services consist of shuttles, taxis, limousines, and hotel courtesy vans.

2.5 Support Facilities

Support facilities provide essential functions related to airport operations and include facilities such as the Airport Traffic Control Tower (ATCT), aircraft fueling, Aircraft Rescue and Fire Fighting (ARFF), and snow and ice removal. Details of each are provided in the following sections.

2.5.1 Air Traffic Control Tower

The FAA maintains an ATCT facility at the Airport, as depicted in **Figure 2-27**, which is located east of the terminal building. The ATCT was reconstructed in 1969, just 20 years after the first tower had been built. It is operated year-round, 24 hours a day. Pilots can communicate with the ATCT, known as 'Lexington Tower,' via frequency 119.1, 257.8, or with ground control, 'Lexington Ground,' via frequency 121.9.

Figure 2-27
Air Traffic Control Tower

Source: CHA Site Visit, March 17, 2022.

2.5.2. Aircraft Fueling

The airport's fueling facilities consist of a fuel farm owned by the airport and operated by Signature, located on Aviator Road, southwest of the terminal. Signature Flight Support performs commercial fueling operations at the Airport. All commercial aircraft receive fuel at the Airport, and no carriers are known to transport fuel onboard from the airport of origin. Signature also provides Avgas for two self-serve tanks owned by the airport in separate general aviation areas. The fuel farm facilitates the Airport's current fuel uptake needs, which consist of Signature's receipt of three to five daily Jet-A fuel truck deliveries. Each truck provides 8,000 gallons per delivery. The Airport's fuel farm consists of six vertical tanks and three horizontal tanks, detailed in **Table 2-14** and portrayed in **Figure 2-28.** The Airport's current Jet-A storage capacity is 90,000 gallons. See **Appendix A** for the fueling inventory analysis performed by POND & Company.

Table 2-14
Airport Fuel Tanks

Tank	Product	Volume	Usable Volume	Orientation	In Service (Yes/No)
A30	Jet-A	10,000-gal	10,000-gal	Vertical	Yes
1A31	Jet-A	20,000-gal	16,666-gal	Vertical	Yes
2A31	Jet-A	20,000-gal	16,666-gal	Vertical	Yes
3A31	Jet-A	20,000-gal	16,666-gal	Vertical	Yes
4A31	Jet-A	20,000-gal	16,666-gal	Vertical	Yes
A32	Avgas	10,000-gal	10,000-gal	Vertical	Yes
A33	Diesel	800-gal	800-gal	Horizontal	Yes
A80	Waste Avgas	300-gal	300-gal	Horizontal	Yes
A81	Waste Jet-A	300-gal	300-gal	Horizontal	Yes

Source: Pond & Co., 2022.

All tanks located at the fuel facility exhibit failing coatings, and corrosion is visible. Except for diesel Tank A33, all tanks were last inspected on October 1, 2011. Inspections were performed on STI SP001 by Tetra Tech. All tanks currently appear to have the same issues indicated in the October 1, 2011 inspection reports. Listed deficiencies were failing coatings, visible corrosion, loose anchor bolts, and cracks in the containment dike. While cracks in the containment walls appear to have been addressed, corrosion and failing coatings have not been addressed.

Figure 2-28
Airport Fuel Tanks

Source: Pond & Co., 2022.

2.5.3 Aircraft Rescue and Fire Fighting (ARFF)

ARFF vehicles are available to provide an important service to the commercial and private users of the Airport and the passengers they transport. The Airport is reliant on fire and rescue services during aircraft emergencies. These services include fire containment and suppression, airframe and cargo preservation, and passenger and crew rescue. They must be designed to perform certain tasks and fit the Airport's specific needs, as well as be constructed for longevity. The Airport's ARFF vehicle fleet inventory is provided in **Table 2-15**, and the ARFF building is depicted in **Figure 2-29.**

Within three minutes from the initial alarm, a minimum of one required ARFF vehicle must be able to reach the midpoint of the furthest runway serving air carrier aircraft from its assigned post or must reach any other specified point of comparable distance on the movement area that is available to air carriers and begin application of the extinguishing agent. Within four minutes from the initial alarm, all other required vehicles must be able to reach the previously stated location(s) and begin the application of extinguishing agents. The Airport has one ARFF facility that is northeast of the airfield and east of the terminal building. The location of the ARFF facility allows firefighting equipment to access any airfield pavement within the required time established by federal regulations.

Table 2-15
ARFF Vehicle Fleet Inventory

Year	Make	Model	Codition
1986	Pierce	Arrow	Poor
1993	Oshkosh	1500	Fair
1994	International	Command/Rescue	Good
1999	Oshkosh	3000	Fair
2006	Oshkosh	3000	Good
2014	Dodge	Ram	Fair
2018	Oshkosh	Stryker 1500	Excellent

Source: Blue Grass Airport, 2022.

Figure 2-29
LEX ARFF Building

Source: CHA Site Visit, March 17, 2022.

The document used to determine an airport's ARFF index is Title 14 CFR Part 139.315, *Aircraft Rescue and Firefighting: Index Determination*. Per that regulation, the Airport is assigned an ARFF Index C, as it serves air carrier aircraft between 126 and 159 feet in length. The requirements for ARFF vehicles to transport a specific quantity and type of firefighting agents are established by Title 14 CFR Part 139.317, *Airport Rescue and Firefighting: Equipment and Agents*. According to the criteria in that document, the Airport's ARFF is required to provide either of the following:

- Three vehicles:
  - One vehicle carrying at least:
    - 500 pounds of sodium-based dry chemical, halon 1211, or clean agent
    - 450 pounds of potassium-based dry chemical and water with a commensurate quantity of aqueous film forming foam (AFFF) to total 100 gallons for simultaneous dry chemical and AFFF application
  - Two vehicles carrying an amount of water and the commensurate quantity of AFFF so the total quantity of water for foam production carried by all three vehicles is at least 3,000 gallons
- Two vehicles:
  - One vehicle carrying at least 500 pounds of sodium-based dry chemical, halon 1211, or clean agent and 1,500 gallons of water and the commensurate quantity of AFFF for foam production
  - One vehicle carrying water and the commensurate quantity of AFFF, so the total quantity of water for foam production carried by both vehicles is at least 3,000 gallons

The Airport's ARFF training facility is portrayed in **Figure 2-30.**

Figure 2-30
LEX ARFF Training Area

Source: CHA Site Visit, March 17, 2022.

2.5.4 Airport and Aircraft Maintenance/Equipment Storage

The Airport's maintenance facility was constructed in 2015 on an approximately 5.5-acre site west of the Airport's main GA aircraft storage hangars, near the DASR-11. The site consists of three fully enclosed, warehouse-style structures with a combined space of approximately 62,500 square feet. Elements of the facility are depicted in **Figure 2-31** and **Figure 2-32.**

The site also consists of five open, shade-style structures with a combined storage capacity of approximately 14,150 square feet. As such, the Airport's maintenance facility has an overall covered or in-door storage capacity of approximately 76,650 square feet.

As seen in **Figure 2-33**, the facility also contains a lit, four vehicle refueling station that can provide unleaded gasoline or diesel fuel to the Airport's maintenance and support vehicles.

Figure 2-31
Airport Maintenance and Warehouse Facility Entrance

Source: CHA Site Visit, March 17, 2022.

Figure 2-32
Airport Maintenance Storage Structures

Source: CHA Site Visit, March 17, 2022.

Figure 2-33
Airport Maintenance and ARFF Vehicle Fuel Facility

Source: CHA, Site Visit, March 17, 2022.

According to Title 14 Code of Federal Regulations (CFR) Part 139.313, *Snow and Ice Control*, each Part 139 airport located where snow and icing conditions occur must prepare, maintain, and carry out a snow and ice control plan. The Airport's snow and ice control vehicle fleet inventory is provided in **Table 2-15** and **Table 2-16**. A sample of those vehicles parked in their storage building is depicted in **Figure 2-34**.

Table 2-16
Airport Snow & Ice Control Vehicle Fleet Inventory

Vehicle	Year	Type	Usage	Condition
Truck 3	2010	Ford 450	Plow/Spreader/Pre-wet	Fair
Truck 4	2019	Ford Explorer	Control Vehicle	Excellent
Truck 6	2015	Dodge RAM 3500	Plow/Control Vehicle	Good
Truck 8	2017	Dodge RAM 3500	Plow/Spreader	Good
Tractor 20	2013	John Deere 7230	8' Broom	Good
Tractor 23	2014	John Deere 614JM	Loader/Grader	Good
Backhoe 34	1995	John Deere 310B	Backhoe/Loader	Poor
Trailer 37	1999	Batts 1100	Pre-wet 1,100 Gallons	–
Bobcat 40	2015	A770	8' Broom/Snow Pusher	Fair
Truck 42	2012	Chevy 3500	Plow/Spreader	Poor
Cart 70	2013	Bobcat Cart	Snow Blower	–
Truck 39*	1998	Oshkosh P Series	22' Plow	Good
Truck 14*	1999	Oshkosh P Series	22' Plow	Good
Truck 12*	1990	International	14' Plow	Fair
Truck 30*	2018	MB 5 Multitasking Vehicle	24' Plow/22' Broom	Excellent
Truck 31*	2018	MB 5 Multitasking Vehicle	24' Plow/22' Broom	Excellent
Truck 16*	2013	MB 22' Broom	22' Broom	Good
Truck 41*	2006	Kodiak SMD-22	20' Broom	Poor
Truck 10*	1994	Oshkosh H Series	18' Broom	Poor
Truck 35*	1997	Oshkosh H Series	Rotary Blower	Poor
Truck 29*	2014	International	Liquid De-Ice 2,000 Gallons	Excellent
Loader 75*	2005	John Deere JD744	Wheel Loader	Good
Backhoe	2019	John Deere JD6130	Backhoe/Loader	Excellent

*AIP funded.
Source: Blue Grass Airport, 2022.

Figure 2-34
Airport Snow & Ice Control Equipment/Storage Building

Source: CHA, Site Visit, March 17, 2022.

Thoroughbred Aviation serves a crucial role at the Airport as the primary contributor of aircraft maintenance. The Thoroughbred Aviation maintenance hangar is located adjacent to and west of the Airport's full-service FBO. **Figure 2-35** presents a picture of the interior of their hangar. The services provided there include avionics installations, inspections, and repairs. Other service abilities provided there include annual/100-hour inspections, belt testing, routine turbine maintenance, battery capacity, and whole engine installs. Thoroughbred Aviation carries parts for all major aviation brands. This includes quality service to fixed-wing aircraft and helicopters. The company also has accessibility to provide continuous on-call airline service to provide a technician at the Airport within a 30-minute notification.

Figure 2-35
Thoroughbred Aviation Hangar

Source: Google Earth Pro, 2022.

2.5.5 General Aviation Processing Facility

The Airport is home to a General Aviation Processing facility located outside the terminal in the air freight building. US Customs and Border Protection (USCBP) personnel conduct customs, immigration and agriculatural inspections on international general aviation flights. USCBP charges a fee that varies based on an aircraft's maximum gross landing weight and weight class.

2.6 Aircraft Deicing

Aircraft are only allowed to perform deicing activities at approved gates, which includes B-1 through B-8 and A-1 through A-6, as well as at apron areas designated within the Airport's Snow and Ice Control Plan.

2.7 General Aviation (GA) Facilities and Activities

GA functions and activities at the Airport occur at the East and West General Aviation Aprons. The East GA Campus is the larger of the two and offers a multitude of services from several different entities for the Airport's GA community. The East GA Campus is also home to the Airport's only FBO, Signature Flight Support. The other surrounding facilities include Thoroughbred Aviation Maintenance, Wings Flight Training, ETL Aviation, Lexington Flying Club and NexGen Aviation.

The West GA campus is home to WestLEX General Aviation Services, which provides three T-hangars and one corporate hangar for the storage of GA aircraft. WestLEX offers a variety of services, including aircraft fueling and storage, heated hangar space for aircraft warming, and towing services to and from the hangars on the West GA campus.

WestLEX offers many services, including aircraft fueling and storage, heated hangar space for aircraft warming, and towing services to and from the hangars on the West GA campus.

2.7.1 Fixed-Base Operator (FBO)

As previously mentioned, Signature Flight Support is the Airport's only FBO, providing all aviation services and amenities to the Airport's GA users and pilots. The FBO terminal is 12,000 square feet, which includes an exercise facility, wireless printing, showers, pilots' lounges with sleep rooms, and two conference rooms. The services are offered 24 hours a day and include de-icing, Avgas and Jet-A fueling, hangar space, full-service avionics and maintenance, and corporate aircraft catering. The FBO also offers Hertz rental car service, limo services, and complimentary ram wireless service.

2.7.2 Aircraft Storage

A mix of public and private buildings serve the Airport's various aircraft storage and maintenance needs. Several hangars also include office space. **Table 2-17** lists the Airport's hangar facilities, along with their respective building number and approximate area (square feet).

Table 2-17
Hangar Facilities

Building	Building Number	Year Built	Approximate Area (Sq Ft)
Aviation Museum	Hangar 13	1988	42,000
Thoroughbred Hangar	Hangar 15	1982	16,000
Signature/Thoroughbred	Hangar 16	1970	44,000
4345 Hangar Dr (3 Units)	Hangar 18	1977	6,550 (Total)
4337 Hangar Drive (8 T Hangars)	Hangar 19	1977	9,150 (Total)
4325 Hangar Drive (8 T Hangars)	Hangar 20	1977	9,150 (Total)
4317 Hangar Drive (5 T Hangars)	Hangar 21	1968	9,550 (Total)
4311 Hangar Drive (5 Units)	Hangar 22	1968	10,000
4300 Hangar Drive (DGY Hangar)	Hangar 23	1998	16,314
4203 Airport Rd	Hangar 26	1995	3,500
4205 Airport Rd	Hangar 27	1995	3,850
4209 Airport Rd	Hangar 28	1995	2,500
4217 Airport Rd	Hangar 29	1995	3,600
4225 Airport Rd	Hangar 30	1995	4,050
4233 Airport Rd	Hangar 31	1995	4,300
4245 Airport Rd	Hangar 33	2006	5,600
4249 Airport Rd	Hangar 34	2006	5,600
4253 Airport Rd	Hangar 35	2006	5,600
4261 Airport Rd	Hangar 36	2008	6,400
4263 Airport Rd	Hangar 37	2007	6,400
4265 Airport Rd	Hangar 38	2006	8,100
4160 Aviator Rd	Hangar 41	2006	21,000
4170 Aviator Rd	Hangar 42	2007	13,000
4148 Aviator Rd	Hangar 44	2003	15,000
4144 Aviator Rd, Signature Hangar	Hangar 45	1983	15,000
4132 Aviator Rd	Hangar 46	2010	46,500
4480 Gumbert Rd	Hangar 106	2015	20,000
4476 Gumbert Rd	Hangar 107	2015	20.,000
4472 Gumbert Rd	Hangar 108	2015	20,000
4464 Gumbert Rd	Hangar 109	2018	15,000

Source: Blue Grass Airport, CHA, 2022.

2.8 Military Facilities and Activities

The Kentucky National Guard (KyNG) Armory is located outside the airfield and south of the Airport's terminal. However, KyNG does not have airside facilities or based aircraft at the Airport. The KyNG is a military component of the United States Army that serves the safety of the community and country. The National Guard is trained to defend and protect the Commonwealth of Kentucky and the nation while also responding to natural disasters.

2.9 Non-Aeronautical Activities

Aviation Museum of Kentucky

The Aviation Museum of Kentucky, located on the east side of the airfield, opened in 1995. The museum displays approximately 16 historic aircraft and has exhibits that change annually to continuously attract new students and patrons. **Figure 2-36** portrays some of the aircraft on static display at the museum.

TEX Sutton Equine Air Transportation

Figure 2-37 portrays TEX Sutton Equine Air Transportation, which provides equine air transport services for race and show horses. Its facilities are east of the terminal and accessible via Airport Road.

Figure 2-36
The Aviation Museum of Kentucky

Source: Google Earth Pro, 2022.

Figure 2-37
TEX Sutton Equine Air Transportation

Source: Google Earth Pro, 2022.

2.10 Airspace Environment

The National Airspace System (NAS) is comprised of airports, technology, air navigation facilities, and ATC facilities, along with appropriate rules and regulations for operating the system. The FAA created the NAS to protect persons and property on the ground and to establish a safe and efficient airspace environment for civil, commercial, and military aviation within the United States. The NAS comprises a network of air navigation facilities, ATC facilities, airports, technology, and appropriate rules and regulations to operate the system. Airspace is divided into two categories: regulatory and non-regulatory. The regulatory airspace category consists of two types: controlled and uncontrolled. Categories and types of airspace are defined based on the complexity or density of aircraft movements or the nature of the operations conducted within the airspace, which dictates the level of safety required and the level of national and public interest.

2.10.1 Airspace Classification

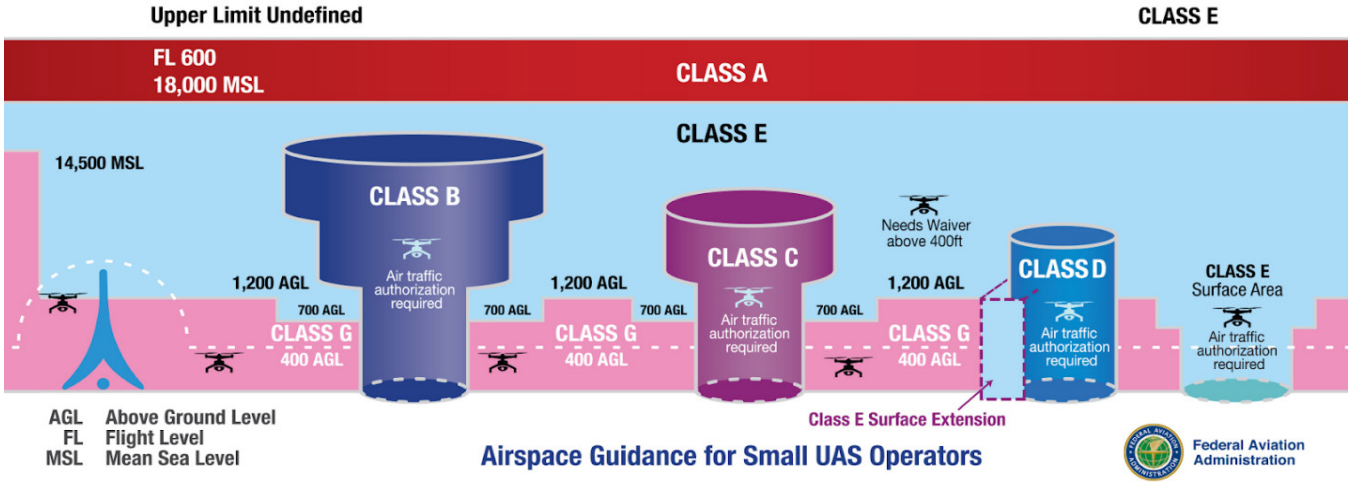
The purpose of controlled airspace is to provide adequate separation between IFR and VFR aircraft. IFR services are available but are not required within all controlled airspace. Airspace designated as Class A, B, C, D, and E are controlled airspaces, and Class G is uncontrolled airspace in which IFR services may or may not be available.

VFR aircraft operating in Class B, C, or D airspace must be in contact with ATC, which gives ATC the authority to manage VFR traffic in the proximity of busy airports. This essentially protects IFR aircraft from VFR aircraft. Controlled airspace designations do not affect IFR traffic, as it is continuously cleared through controlled airspace by ATC.

Large sections of controlled and uncontrolled airspace have been designated as special use airspace. Special use airspace is further defined as prohibited, restricted, warning, military operations, and alert areas. Civil operations within special use airspace may be limited or even prohibited, depending on the area, as operations within these areas are considered hazardous to civil aircraft.

The Airport is located within Class C airspace, extending from the runway surface up to 5,000 feet above mean seal level (AMSL) for a 5-nm radius and from 2,200 feet MSL to 5,000 feet AMSL for a 10-nm radius. Pilots are required to establish two-way radio communications with 'Lexington Tower' prior to entering their Class C airspace and are required to maintain those communications while inside the Class C boundaries. The Airport is also enveloped by a 7-nm radius of Class G airspace which extends from the surface up to 10,000 feet AMSL. Although not under the direct control of ATC while in the bounds of that Class G airspace, pilots are required to maintain various visibility minimums and separation distances from clouds depending on their flight altitude and time (day or night). **Figure 2-38** depicts a graphic of the US Airspace Classification Profiles.

Figure 2-38
FAA NAS Airspace Classification Profiles



Source: Federal Aviation Administration.

2.10.2 Aeronautical Charts

The National Aeronautical Charting Office (NACO) of the FAA publishes special aeronautical charts used by pilots to navigate through the NAS, known as sectional charts. A sectional chart provides detailed information on airspace classes, ground-based NAVAIDs, radio frequencies, longitude and latitude, navigational waypoints, and routes. It offers topographical features, such as terrain elevations and ground features important to aviators, such as landmarks identifiable from a given altitude. The Airport and its features are depicted on both the Cincinnati and St. Louis sectional charts, as depicted in **Figure 2-39**.

[Intentional Page Break]

Figure 2-39
FAA Aeronautical Sectional Chart

Source: https://aeronav.faa.gov/visual/09-08-2022/PDFs/St_Louis.pdf, 2022.

2.11 Meteorological Conditions

Precipitation, temperature, and winds influence decisions pertaining to NAVAIDs, runway orientation, and required runway length.

Meteorological conditions affect airport operations in many ways. Precipitation, temperature, and winds influence decisions pertaining to NAVAIDs, runway orientation, and required runway length. The Airport is equipped with an Automatic Surface Observation System (ASOS), a highly sophisticated weather data sensing, processing, and dissemination system that is designed to support weather forecast activities and aviation operations. While meteorological readings are taken every minute, 24 hours a day, for the entire year, these systems generally report at hourly intervals but also report special observations if weather conditions change rapidly and cross aviation operation thresholds. Maintained, controlled, and operated by the FAA and the National Weather Service, the ASOS automatically observes, formats, archives, and transmits observations.

When weather conditions exceed predetermined weather element thresholds, a special report is transmitted through an automated VHF air band radio frequency (126.30 MHz) to pilots operating at or near the Airport. These messages are also available via phone at 859.281.5700.

2.11.1 Local Climate

The climate data for Lexington, Kentucky, was obtained from the US Climate Data, which records that its average annual temperature is 55.5 degrees Fahrenheit (F). The average annual high and low temperatures are 65 degrees F and 46 degrees F, respectively. The hottest month in Lexington is July, with an average temperature of 76 degrees F. The average high temperature in July and August is 86 degrees F. The average monthly precipitation is 3.76 inches of rain, while the average annual precipitation is 45.17 inches. The average snowfall between the months of December to March is 13 inches. The local climate requires the Airport to support snow removal and aircraft deicing services, as previously reported in **Section 2.5.4.**

2.11.2 Wind Coverage

In addition to climate data, the Airport's ASOS collects wind speed and direction data, which can influence airfield development decisions on runway length and orientation. An airport's local wind conditions are key to determining runway use. Aircraft operational safety and performance are enhanced when aircraft depart and land into the wind. Therefore, runways that are not oriented to take advantage of the prevailing wind patterns are not utilized as frequently. According to FAA AC 150/5300-13B, *Airport Design*, the desirable wind coverage for an airport is at least 95 percent of the time based on the total number of weather observations recorded for at least 10 consecutive years. Wind coverage is calculated using the highest crosswind component acceptable for the type of aircraft that is expected to use the runway system. Larger aircraft have a higher tolerance for crosswinds than smaller aircraft due to their size, weight, and operational speed.

Table 2-18 provides the standard crosswind component by aircraft size. **Table 2-19** outlines the weather classification criteria and the number of recorded observations at the Airport from the beginning of 2011 through the end of 2020.

Table 2-18
Crosswind Components

Runway Design Code (RDC)	Maximum Crosswind Component
A-I and B-I Aircraft	10.5 Knots
A-II and B-II Aircraft	13.0 Knots
A-III, B-III	16.0 Knots
C-I through D-III	
D-I through D-III	
A-IV, B-IV	20.0 Knots
C-IV through C-VI	
D-IV through D-VI	
E-I through E-VI	20.0 Knots

Source: FAA AC 150/5300-13B, *Airport Design*, CHA, 2022.

Table 2-19
Weather Classification Criteria

Weather Class	Recorded LEX Observations (2011-2020)
All Weather	127,581
VFR Conditions	99,073
IFR Conditions	18,459

VFR – Visual Flight Rules, IFR – Instrument Flight Rules.
Source: NOAA, National Climate Center; Station 725080 (2011-2020), CHA, 2022.

The combination of the crosswind and the weather classification allows for the calculation of the Airport's wind coverage for 'All Weather' (AW), VFR, and IFR weather conditions, which is presented in **Table 2-20**. Wind coverage is the percentage of time crosswind components are below the acceptable velocity. The 95 percent wind coverage is computed based on crosswinds not exceeding 10.5 knots for RDC A-I and B-I; 13 knots for RDC A-II and B-II; 16 knots for RDC A-III, B-III, and C-I though D-III and 20 knots for RDC A-IV through D-VI. The Airport's calculated wind coverage shows all runways exceed the 95 percent threshold when the crosswind speed is 13 knots, 16 knots, or 20 knots. The combined IFR wind coverage of Runways 4-22 and 9-27 does not meet the 95 percent threshold when the wind speed is 10.5 knots; however, both runways are much wider than the required RDC A1 and B1 width; therefore, the lack of wind coverage for those smaller aircraft is mitigated by extra runway width. Runway 9-27 does meet the 95 percent threshold when the wind speed is 10.5 knots in VFR conditions.

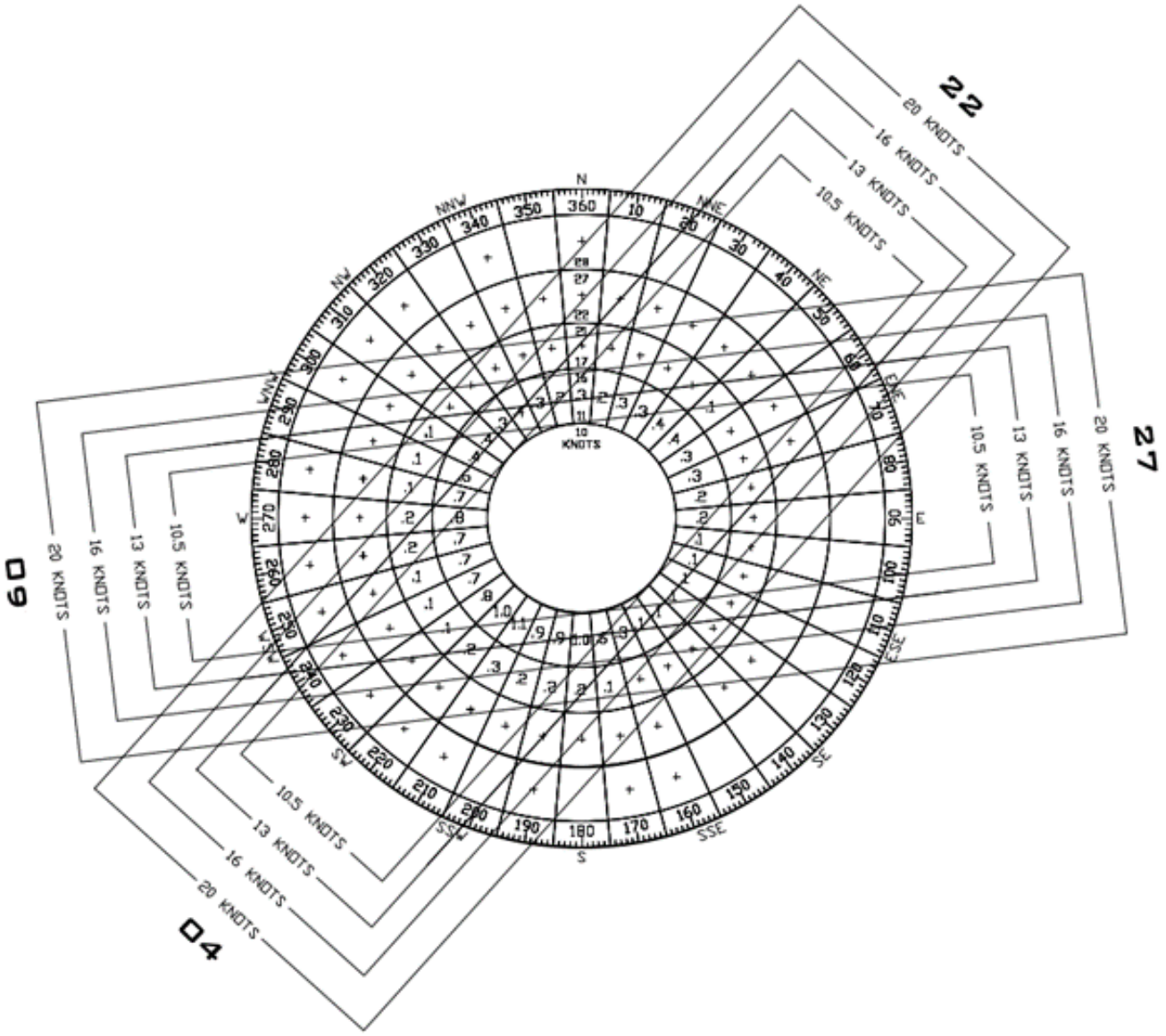
Table 2-20
LEX Wind Coverage

	Runway	10.5 Knots	13 Knots	16 Knots	20 Knots
AW	4-22	93.78%	97.02%	99.33%	99.89%
	9-27	91.30%	95.27%	98.68%	99.73%
	All Combined	97.03%	98.92%	99.77%	99.97%
VFR	4-22	94.21%	97.30%	99.42%	99.91%
	9-27	91.27%	95.24%	98.64%	99.73%
	VFR Combined	97.22%	99.02%	99.81%	99.98%
IFR	4-22	90.50%	94.99%	98.66%	99.70%
	9-27	90.55%	94.99%	98.77%	99.72%
	IFR Combined	95.58%	98.18%	99.52%	99.94%

Source: NOAA, National Climate Center; Station 724220 (2011-2020).

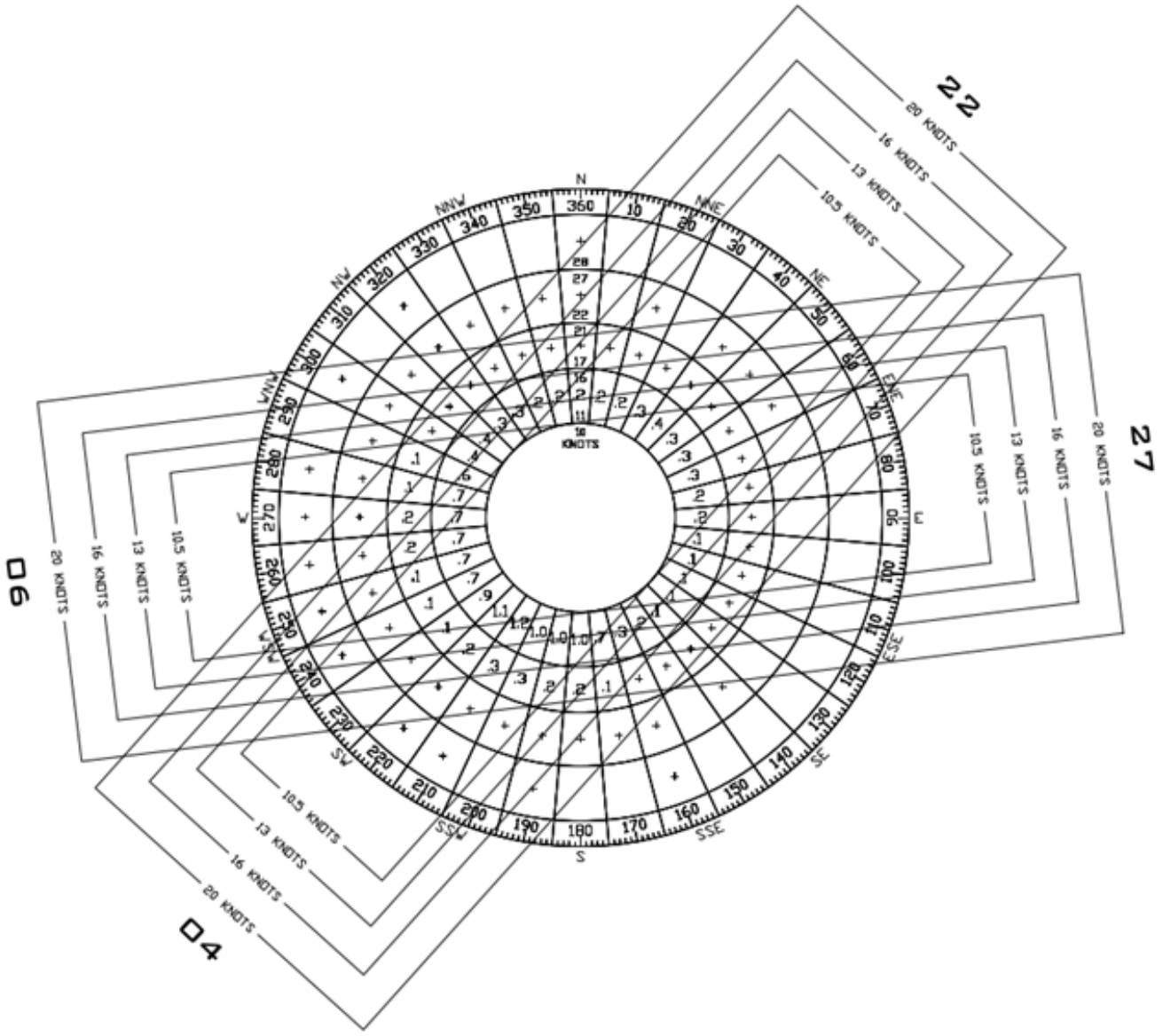
Weather observations are presented in a format that is specifically designated by the FAA to be useful for evaluating weather conditions at an airport. Wind direction is grouped according to a 16-point compass rose (N, NNE, NE, ENE, E, SE, SSE, S, SSW, SW, WSW, W, WNW, NW, and NNW). Wind speed is tabulated into groups of 0-3, 4-12, 13-15, 16-18, 19-24, 25-31 and 32 knots or greater. This data is typically displayed on a 'wind rose' for each weather classification.

Figure 2-40
LEX All Weather Wind Rose



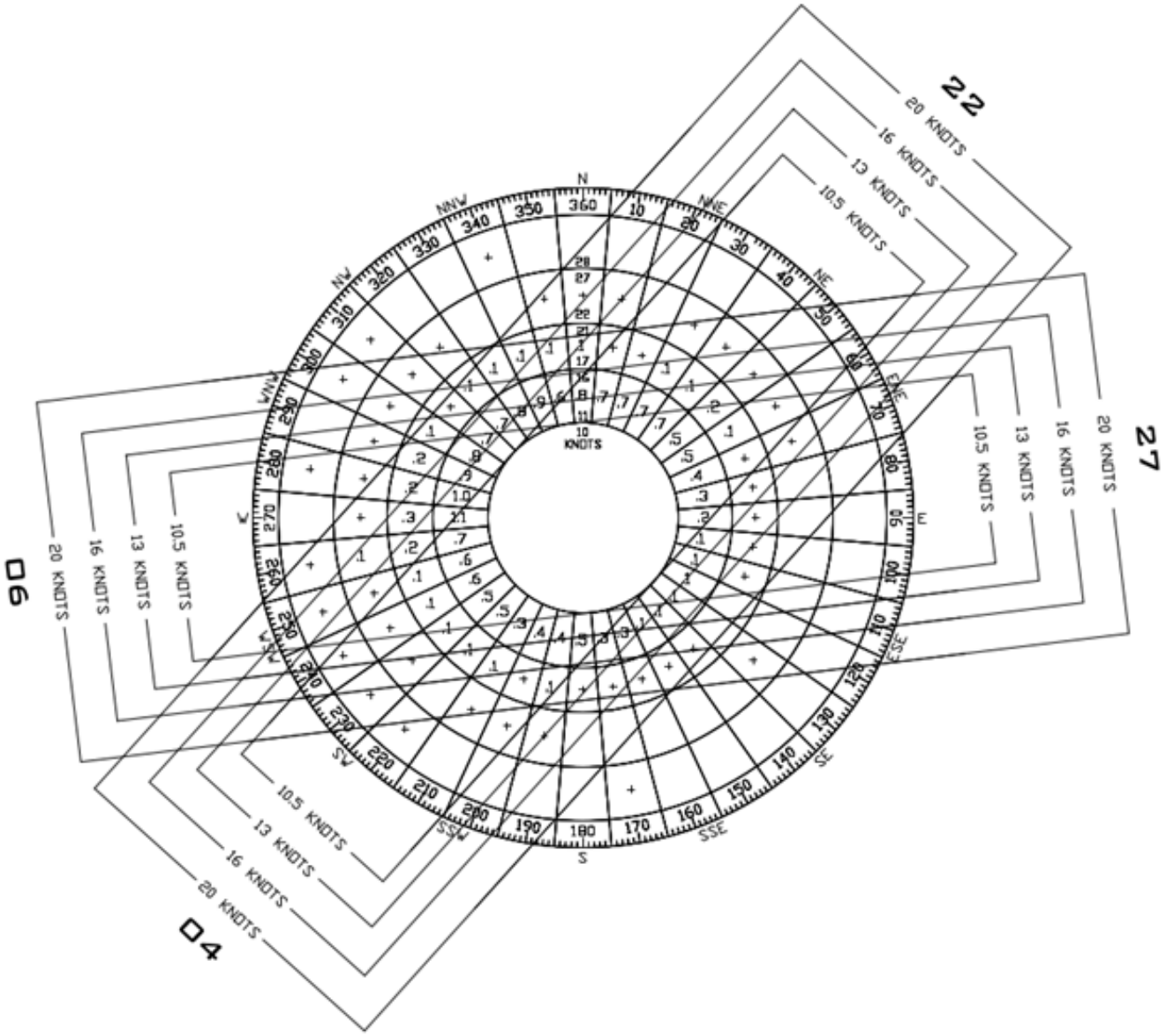
Source: NOAA, National Climate Center; Station 724220 (2011-2020).

Figure 2-41
LEX Visual Flight Rules (VFR) Wind Rose



Source: NOAA, National Climate Center; Station 724220 (2011-2020).

Figure 2-42
LEX Instrument Flight Rules Wind Rose



Source: NOAA, National Climate Center; Station 724220 (2011-2020).