

KANSAS CITY
Aviation

Airport Master Plan

KANSAS CITY DOWNTOWN AIRPORT – WHEELER FIELD

Chapter 1
Existing Conditions



The inventory of existing conditions is the initial step in the preparation of the Kansas City Downtown Airport – Wheeler Field (MKC) Master Plan. The inventory will serve as an overview of the airport's physical and operational features, including the runways, taxiways, aircraft aprons, hangar facilities, as well as specific information related to the airspace, air traffic activity, and the role of the airport. Finally, a summary of socioeconomic characteristics and review of existing environmental conditions on and adjacent to the airport are thoroughly detailed, which will provide further input into the study process.

Information provided in this chapter serves as the baseline for the remainder of the master plan, which is compiled using a wide variety of resources, including: applicable planning documents and financial reports; on-site visits; interviews with airport staff, tenants, and users; aerial and ground photography; federal, state, and local publications; and project record drawings.



South View from MKC



Airport Terminal Entrance

AIRPORT SETTING

LOCATION

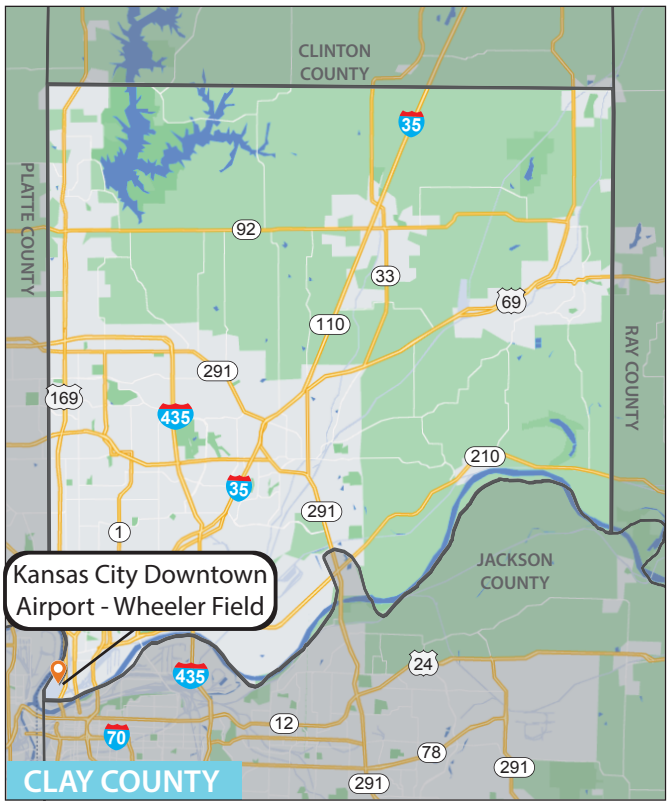
Located in the northwestern portion of Missouri, the City of Kansas City encompasses 319 square miles and boasts a population of 508,090 residents,[1] making it the largest city in the state in terms of both area and population. The city is primarily located within Jackson County; however, portions of the city proper extend into Clay, Cass, and Platte Counties. The city is the principal municipality in the Kansas City metropolitan area, which includes cities in both Missouri and Kansas. The metropolitan area has a population of 2,192,035.[2] Culturally, the city is well known for its contributions to jazz and performing arts centers, its world class barbeque, and sports franchises, including the Royals and Chiefs.

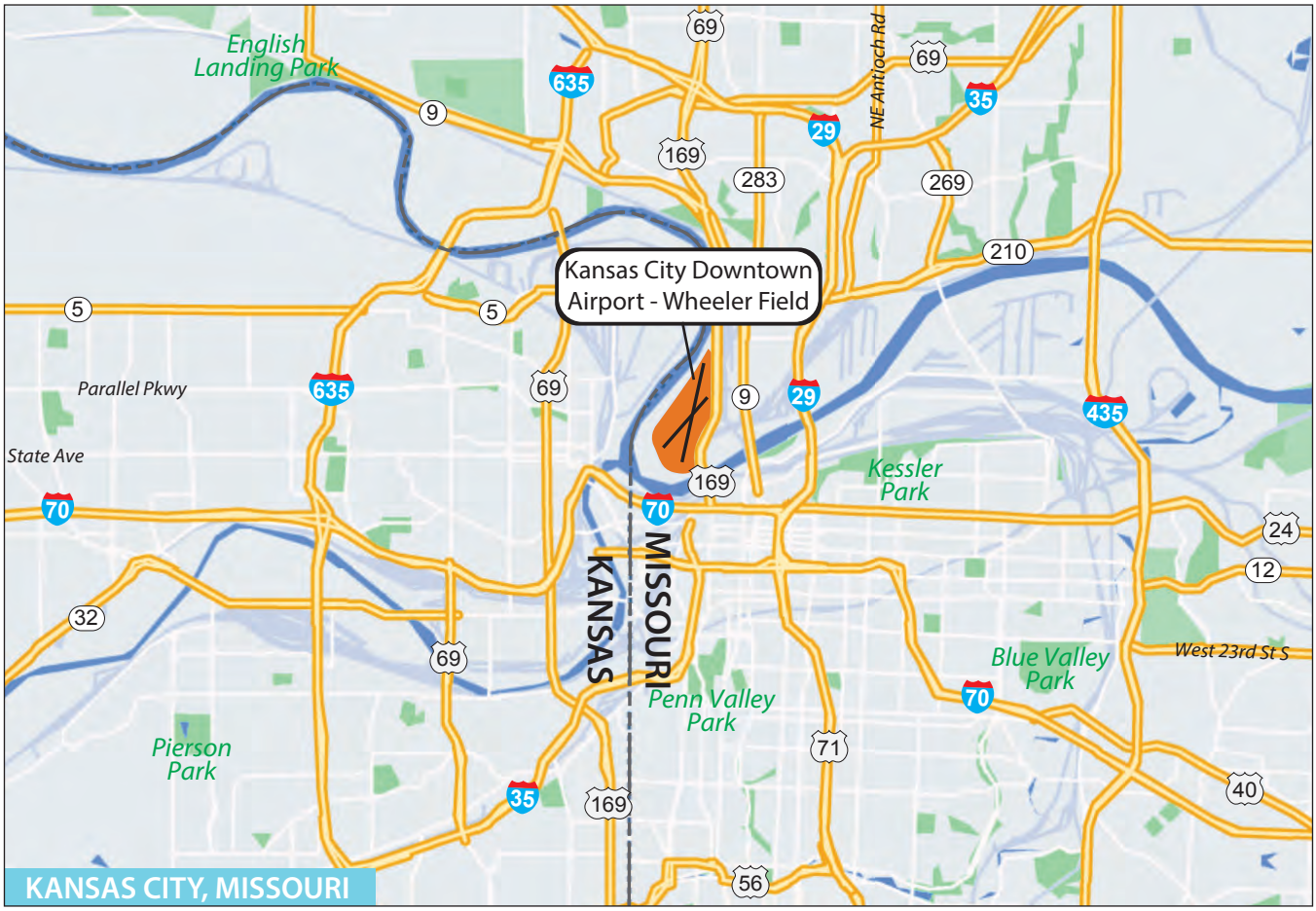
MKC, situated at the confluence of the Missouri and Kansas Rivers, is just north of downtown in Clay County, Missouri. MKC encompasses approximately 590 acres at an elevation of 756.8 feet above mean sea level (MSL). Access to the airport is provided from U.S. Highway 169, which runs along the east side of the airport and connects to Interstate 29 to the north and Interstates 35 and 70 to the south. The general aviation terminal is accessed from NW Lou Holland Drive. **Exhibit 1A** depicts the airport's regional setting.



[1] U.S. Census Bureau, 2020 Decennial Census (https://data.census.gov/all?q=Kansas+City+city,+Missouri)
[2] U.S. Census Bureau, 2020 Decennial Census (https://data.census.gov/all?g=310XX00US28140)


IOWA
NEBRASKA
ILLINOIS
KANSAS
OKLAHOMA
ARKANSAS
TENNESSEE
Maryville
Kirksville
Saint Joseph
Kansas City Downtown Airport - Wheeler Field
Kansas City
Columbia
Jefferson City
Wildwood
St. Louis
Arnold
Lebanon
Farmington
Springfield
Joplin
Jackson
Nixa
Sikeston
Poplar Bluff
Kennett
MISSOURI


CLINTON COUNTY
PLATTE COUNTY
RAY COUNTY
JACKSON COUNTY
Kansas City Downtown Airport - Wheeler Field
CLAY COUNTY


English Landing Park
NE Antioch Rd
Kansas City Downtown Airport - Wheeler Field
Parallel Pkwy
State Ave
Kessler Park
Blue Valley Park
West 23rd St S
Penn Valley Park
Pierson Park
KANSAS
MISSOURI
KANSAS CITY, MISSOURI

CLIMATE

Climate and local weather conditions are an important consideration in the master planning process as they can significantly impact an airport's operations. For example, high surface temperatures and humidity increase runway length requirements, and runway orientation is dependent upon predominant wind patterns for the area. Cloud cover percentages and frequency of other climatic conditions also determine the need for navigational aids and lighting.

Kansas City experiences a wide variation in weather, with four distinct seasons. **Exhibit 1B** details the climate patterns of the area. Summers are generally hot, humid, and mostly clear, while winters are cold and mostly dry, with occasional snowfall. The warmest month is July, with an average high temperature of 90.2° Fahrenheit (F), while January is the coolest month, with an average low temperature of 22.2° F. Approximately 49.1 inches of precipitation fall annually, including snowfall, with late spring accounting for the majority of precipitation received. Kansas City is also known to experience weather extremes and is located in an area of the U.S. known as "Tornado Alley," where severe weather, including tornadoes, are most frequent. In the winter, ice storms can occur.

Table 1A indicates that visual meteorological conditions (VMC) occur 90.31 percent of the time. When under VMC conditions, pilots can operate using visual flight rules (VFR) and are responsible for maintaining proper separation from objects and other aircraft. Instrument meteorological conditions (IMC) account for all weather conditions less than VMC conditions that still allow for aircraft to safely operate under instrument flight rules (IFR). Under IFR, pilots rely on instruments in the aircraft to accomplish navigation. IMC conditions occur 7.30 percent of the time. Less than IMC, or poor visibility conditions (PVC), are present 2.39 percent of the time. Pilots of properly equipped aircraft can land at the airport in PVC conditions if the visibility is not lower than ¾-mile. If visibility falls below ¾-mile, then the landing cannot be completed.

TABLE 1A | Weather Conditions

Condition	Cloud Ceiling	Visibility	Percent of Total
VMC	≥ 1,000' AGL	≥ 3 statute miles	90.31%
IMC	≥ 500' AGL and < 1,000' AGL	≥ 1 to < 3 statute miles	7.30%
PVC	< 500' AGL	< 1 statute mile	2.39%

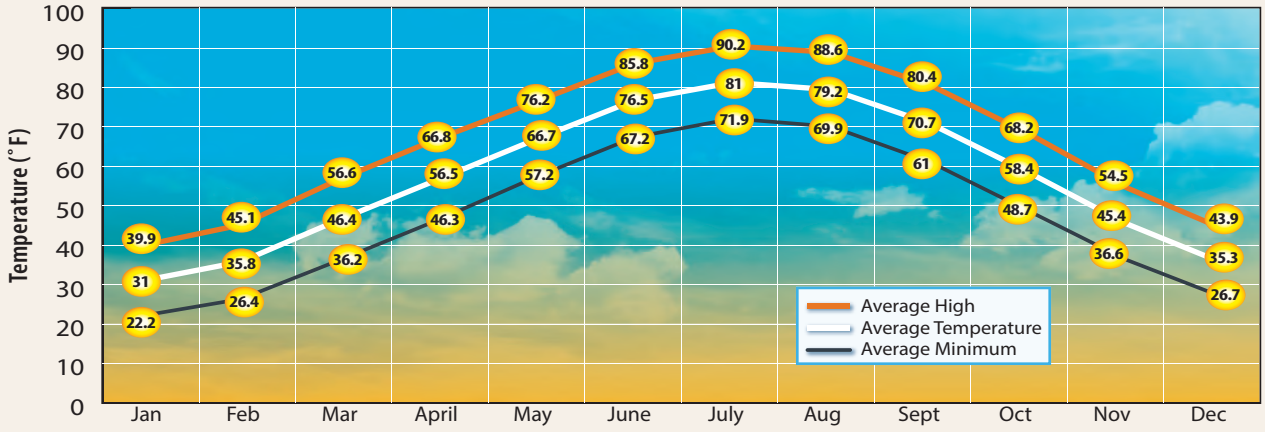
VMC: Visual Meteorological Conditions
IMC: Instrument Meteorological Conditions
PVC: Poor Visibility Conditions
AGL: Above Ground Level

Source: KANSAS CITY DOWNTOWN AIRPORT, MO Station ID: 72446313988 Observations from 1/1/2013 thru 12/31/2022

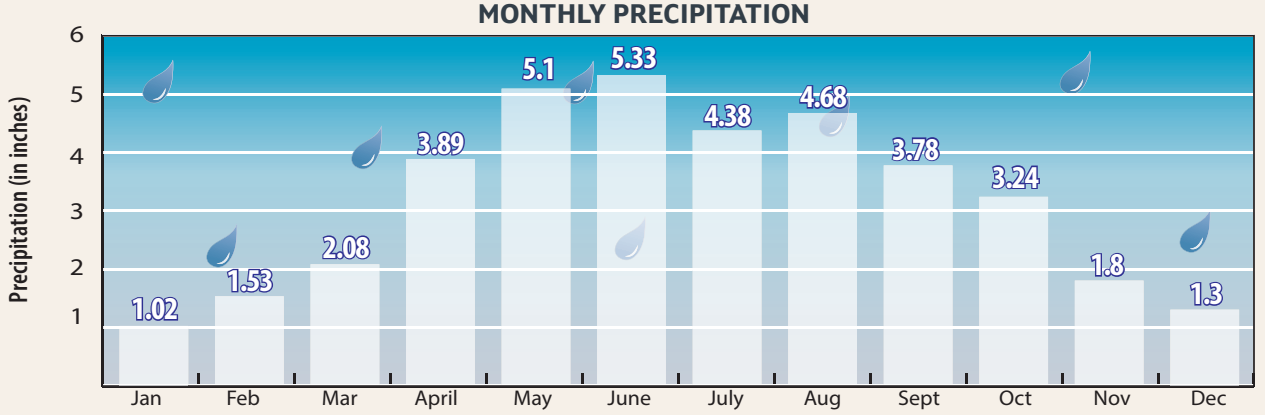
AIRPORT HISTORY

Aviation in Kansas City dates to the 1920s, when city leaders recognized the need for an airport to support air mail and military operations. Following a survey by the Army Air Corps, the current airport location was established, due in part to its proximity to downtown and the nearby railyards. Located in the Missouri River bottoms on a sliver of land, the airport was aptly named Peninsula Field. In August 1927, just three months after his famous trans-Atlantic flight, Charles Lindbergh dedicated the airport site to much fanfare, and the Kansas City Municipal Airport was born.

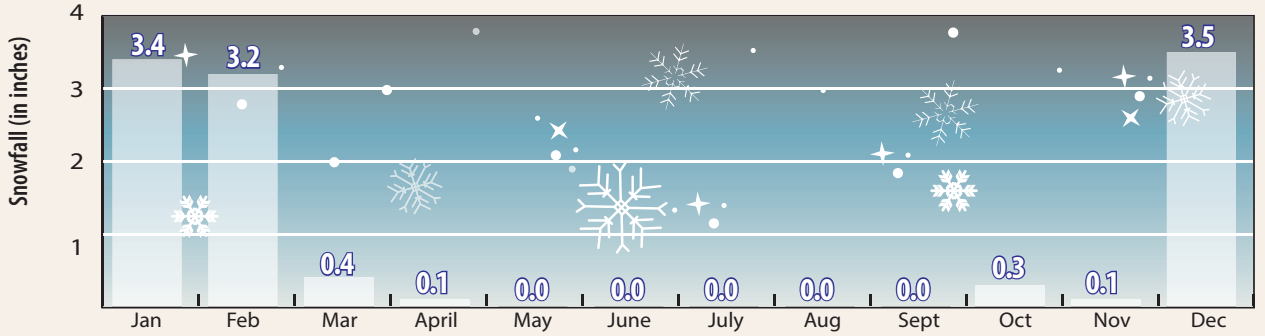
MONTHLY TEMPERATURES



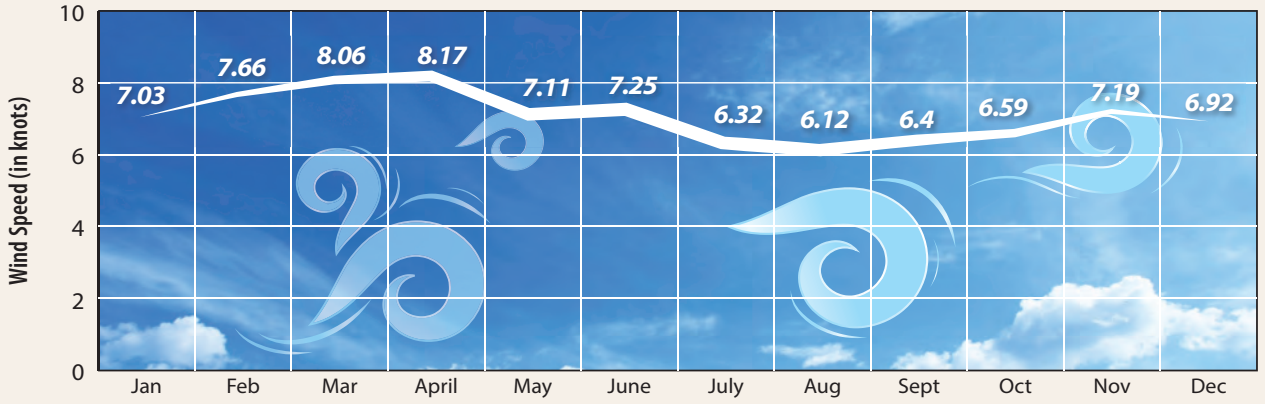
MONTHLY PRECIPITATION



SNOWFALL



MONTHLY WIND DATA



Source: National Oceanic and Atmospheric Administration, Kansas City Downtown Airport, Station ID USW00013988

Interest in and support for the airport was strong, with citizens raising more than a million dollars to construct concrete runways and an airport "station." In 1931, Transcontinental and Western Air (later to be known as TWA) located their headquarters at the airport, and it became known as the "Air Hub of America." Scheduled commercial service was soon offered at the airport, and by the 1950s, seven airlines were offering regular, weekday service.



MKC Terminal, 1940s

With the arrival of the jet age, it became apparent to city leaders that the Kansas City Municipal Airport could not meet the growing aviation demand in the area. There was limited area for expansion, and surrounding community development and geographical features presented additional challenges to air navigation. In 1966, Kansas City voters approved a $150 million bond to construct a new, major air facility, which would be called Kansas City International Airport (MCI). After MCI opened in November 1972, Kansas City Municipal Airport was rededicated as the Kansas City Downtown Airport, and again in 2002 as Charles B. Wheeler Downtown Airport in honor of the Kansas City mayor who served from 1971 to 1979.

Today, MKC is a thriving general aviation facility that serves as a reliever to MCI, accommodating all aspects of general aviation activity, including charter flights, business aviation, recreational flying, flight training, air ambulance, and aerial tours, to name a few. **Exhibit 1C** illustrates a timeline of the airport's historic events and milestones.

AIRPORT ADMINISTRATION

MKC is owned by the City of Kansas City, Missouri, and is managed by the Kansas City Aviation Department (KCAD). The KCAD maintains and operates the airport along with MCI. The KCAD is operated as an enterprise fund department within the city and is entirely supported and funded by airport user charges; no general tax fund revenues are used for the operation or maintenance of either airport. The KCAD is led by a Director of Aviation, with five Deputy Directors managing the following divisions: Operations, Marketing, Finance, Property Management and Commercial Development, and Planning and Engineering. In all, the KCAD employs more than 500 individuals across both airports, with 27 employees dedicated specifically to MKC, including seven security personnel. Daily operations at MKC are overseen by an Airport Manager and Assistant Airport Manager, who also provide oversight and direction for staff that includes operations, maintenance, and administrative personnel. Below is an organizational chart depicting the lines of succession of airport operational responsibility.

1927 — Charles Lindbergh dedicates Municipal Airport site



1929 — Terminal "station" is opened



1930 — Braniff Airlines begins operations



1931 — TWA establishes headquarters



1939-1945 — MKC serves as troop carrier command in WWII



1944 — Continental Airlines begins operations



1948 — Delta Airlines begins operations



1951 — Airport sustains severe flood damage



1951 — Ozark Airlines begins operations



1954 — Central Airlines begins operations



1960s — Increased jet traffic strains airport



1967 — North Central Airlines begins operations



1972 — MCI opens to serve increased commercial service demands



1977 — MKC renamed as Kansas City Downtown Airport



1980s — Airport Traffic Control Tower constructed



2002 — MKC renamed as Charles B. Wheeler Downtown Airport



2010 — North Central Airlines begins operations



2011 — EMAS Installed



2015 — ARFF station constructed



2017 — 900 NW Richards Road administration building constructed

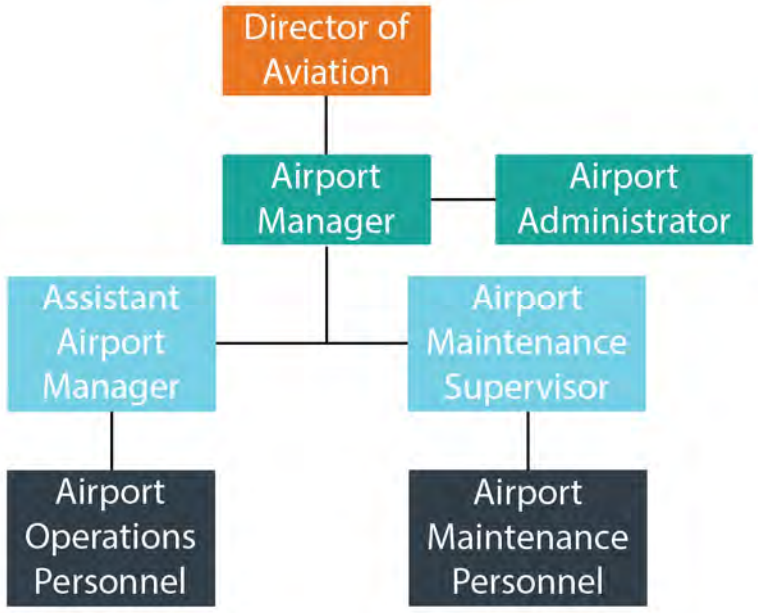


2020 — VOR Decomissioned and removed



2025 — MKC Renamed Kansas City Downtown Airport - Wheeler Field

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AIRPORT SYSTEM PLANNING ROLE

Airport planning takes place at the local, state, and national levels, and each has a different emphasis and purpose.

- **Local:** At the local level, MKC has an Airport Master Plan, which was last updated in 2004. The airport last updated their Airport Layout Plan in 2020 to facilitate several necessary projects. Other locally drafted documents also factor into airport planning on this level.
- **State:** The Missouri Department of Transportation (MoDOT), specifically the Aviation Division, updated the State Airport System Plan in 2019.
- **National:** The Airport is included in the *National Plan of Integrated Airport Systems* (NPIAS), which categorizes overall airport roles and responsibilities based on input from local and state planning efforts (i.e., Master Plans and State System Plans).

LOCAL AIRPORT PLANNING

Airport Master Plan (2004) | The Airport Master Plan is the primary local planning document that provides a 20-year airport development vision based on aviation demand forecasts. The 2004 Airport Master Plan used 1999 data for its aviation forecasts baseline. Given the inevitable uncertainties as the master plan ages, the FAA recommends airports update their master plans every seven to ten years, or as necessary to address any significant changes. Primary recommendations from the 2004 Airport Master Plan included modifications to provide a standard runway safety area on Runway 1-19 (ultimately achieved through the installation of an engineered material arresting system [EMAS]) and reconfiguring the taxiway system to enhance efficiency and capacity. On the landside, additional aircraft storage hangars and expansion of the apron and taxiway system to support the new hangars were planned.

Kansas City Regional Aviation System Plan (2015) | The Kansas City Regional Aviation System Plan was prepared in 2015 by the Mid-America Regional Council (MARC). The study focused on 13 general aviation airports, including MKC, that serve MARC's nine-county area and provided insight into how these airports could be improved to best meet the region's needs. Future aviation demand was projected, and specific facility needs identified, with a comprehensive plan ultimately developed for each airport to meet facility and service objectives. For MKC, this included additional hangar capacity, implementation of height/hazard zoning, and establishment of plans for stormwater management and environmental/ efficiency improvements.

STATE AIRPORT PLANNING

MKC is classified in MoDOT Aviation's 2019 *State Airport System Plan* as a National Business airport. In general, these airports should be capable of serving almost all business jets and able to connect travelers to all domestic and some international markets. A minimum runway length of 5,500 feet should be available. Additional criteria that National Business airports should meet are detailed in **Table 1B**. MKC meets the minimum recommended requirements of the State Airport System Plan.

TABLE 1B | Minimum Standards for National Business Airports

AIRPORT CRITERIA	MINIMUM DESIGN STANDARDS
Airside Facilities	
Airport Reference Code	B-II
Runway length	5,500 feet
Runway width	100 feet
Taxiway	Full parallel
Lighting	HIRL and MITL
Approach	Precision-Like Approach (ILS or LPV)
NAVAIDs/visual aids	Rotating beacon, segmented circle and wind cone, PAPI or VASI, and REILs
Weather reporting	AWOS or ASOS
General Aviation Facilities	
Hangared aircraft storage	70% of based aircraft fleet
Apron parking/storage	30% of based aircraft fleet but an additional 75% for daily transient aircraft
Terminal/administration	2,500 square feet minimum of public use space, including restrooms, conference area, and pilots' lounge
Auto parking	One space for each based aircraft plus an additional 50% for visitors/employees
Services	
Fuel	Avgas and jet fuel
FBO	Yes
Aircraft maintenance	Yes
Rental car access	Yes
Ground transportation services	Yes

ASOS: Automated Surface Observing System
AWOS: Automated Weather Observing System
FBO: Fixed Base Operator
HIRL: High Intensity Runway Lighting
LPV: Localizer Performance with Vertical Guidance
ILS: Instrument Landing System
MITL: Medium Intensity Taxiway Lighting
PAPI: Precision Approach Path Indicator
REILs: Runway End Identifier Lighting
VASI: Visual Approach Slope Indicator

Source: Missouri State Airport System Plan (2019)

FEDERAL AIRPORT PLANNING

Many of the nation's existing airports were either initially constructed by the federal government or their development and maintenance was partially funded through various federal grant-in-aid programs to local communities. The system of airports existing today is, therefore, due in large part to federal policy that promotes the development of civil aviation. As part of a continuing effort to develop a national airport system, the U.S. Congress has maintained a national plan for the development and maintenance of airports.

The FAA maintains a database of public-use airports eligible for AIP funding called the *National Plan of Integrated Airport Systems* (NPIAS). The NPIAS is published and used by the FAA in administering the AIP, which is the source of federal funds for airport improvement projects across the country. The AIP is funded exclusively by user fees and user taxes, such as those on fuel and airline tickets. An airport must be included in the NPIAS to be eligible for federal funding assistance through the AIP.

The most current plan is the NPIAS 2023-2027, which identifies 3,295 public-use airports (3,287 existing and eight proposed) that are important to national air transportation. The plan estimates approximately $62.4 billion in AIP-eligible and justified airport development projects will occur between 2023 and 2027. **Table 1C** identifies the types of airports included in the NPIAS.

TABLE 1C | Activity and Development at NPIAS Airports

Airport Category	Number of Airports	Percentage of Airports	Percentage of Runways	Percentage of 2021 Total Enplanements	Percentage of All Active GA Aircraft[1]	Percentage of Total Operations	Percentage of NPIAS Cost
Large Hub	30	1	2	69	1	10	32.0
Medium Hub	35	1	2	18	2	5	14.9
Small Hub	80	2	4	9	5	7	9.7
Non-Hub	238	7	9	3	10	10	12.2
Primary Subtotal	**383**	**11**	**17**	**99**	**18**	**32**	**68.8**
National	107	3	4		12	11	5.3
Regional	501	15	17		22	25	9.0
Local	1,179	36	34		20	23	10.3
Basic	904	28	23		3	7	6.0
Unclassified	213	7	5		1	2	0
Nonprimary Subtotal	**2,904**	**89**	**83**	**0.07**	**58**	**68**	**30.6**
Total NPIAS Airports	**3,287**	**100**	**100**	**100**	**76**	**100**	**100**

[1] Based on an active general aviation fleet of 204,380 aircraft in 2020. The remaining aircraft are based at other, non-NPIAS airports.

Source: National Plan of Integrated Airport Systems (NPIAS), *2023-2027.*

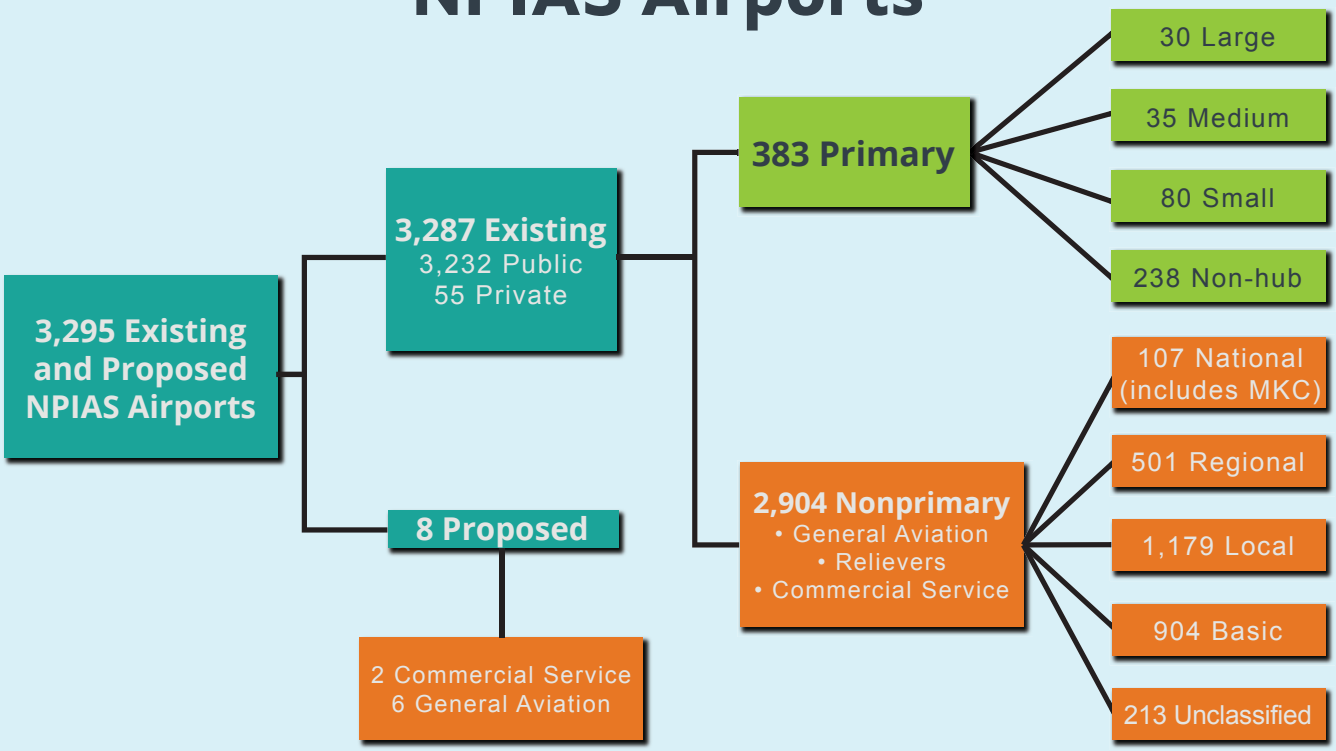
MKC is classified in the NPIAS as a "National" airport. As detailed in **Table 1D**, the FAA describes the national group as airports that support the national and state systems by providing communities with access to national and international markets in multiple states throughout the U.S. These airports have very high levels of aviation activity with many jets and multi-engine propeller aircraft, as well as single engine aircraft, and average 224 based aircraft, including 38 jets. **Exhibit 1D** illustrates MKC's role in the NPIAS.

TABLE 1D | General Aviation Airport Categories

ROLE	DESCRIPTION
National	Supports the national airport system by providing communities access to national and international markets in multiple states and throughout the United States.
Regional	Supports regional economies by connecting communities to regional and national markets.
Local	Supplements local communities by providing access to markets within a state or immediate region.
Basic	Links the community with the national airport system and supports general aviation activities (e.g., emergency response, air ambulance, flight training, personal flying).
Unclassified	Currently in the NPIAS but with limited activity.

Source: https://www.faa.gov/airports/planning_capacity/categories

NPIAS Airports





MKC has been further classified as a reliever airport in the FAA's NPIAS. Reliever airports are considered high-capacity general aviation facilities in major metropolitan areas that provide pilots with alternatives to congested hub airports, while simultaneously providing access to the surrounding area.

Master Plan Reviews by the FAA

The recommendations contained in an airport master plan represent the views, policies, and development plans of the airport sponsor and do not necessarily represent the views of the FAA. Acceptance of the master plan by the FAA does not constitute a commitment on the part of the United States to participate in any development depicted in the plan, nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public law. The FAA reviews all elements of the master plan to ensure that sound planning techniques have been applied. However, the FAA only approves the following elements of airport master plans:

1) **Forecasts of Demand** – The master plan forecast should be reviewed to ensure that the underlying assumptions and forecast methodologies are appropriate. Paragraph 704.h of this guidance (AC 150/5070-6B, *Airport Master Plans*) should be used to determine consistency of the master plan forecast with the *Terminal Area Forecast* (TAF). Inconsistencies between the master plan forecast and TAF must be resolved, and the forecast approved, before proceeding with subsequent planning work.

2) **Airport Layout Plan (ALP)** – All airport development at federally obligated airports must be done in accordance with an FAA-approved ALP. Furthermore, proposed development must be shown on an approved ALP to be eligible for AIP funding. FAA approval of the ALP indicates that the existing facilities and proposed development depicted on the ALP conforms to the FAA airport design standards in effect at the time of the approval or that an approved modification to standard has been issued. Such approval also indicates that the FAA finds the proposed development to be safe and efficient.

In many regards, an airport master plan can be considered a feasibility study of what may be possible or desired as part of the long-term vision for an airport. Included in a master plan are multiple alternative development scenarios, each of which may be feasible; however, implementation of which will require FAA approval. While a single long-term vision is included in a master plan, it can be revised in the future by updating the ALP or by updating the master plan.

14 CFR Part 139 Certification

An airport must have an Airport Operating Certificate (AOC) if it is serving air carrier aircraft with more than nine seats or serving unscheduled air carrier aircraft with greater than 30 passenger seats. 14 Code of Federal Regulations (CFR) Part 139 (Part 139) describes the requirements for obtaining and maintaining an AOC. This includes meeting various FAA regulations.

Airports are classified in the following categories based on the type of air carrier operations served:

- **Class I Airport** | An airport certificated to serve scheduled operations of large air carrier aircraft (31 passenger seats or more) that can also serve unscheduled passenger operations of large air carrier aircraft and/or scheduled operations of small air carrier aircraft.

- **Class II Airport** | An airport certificated to serve scheduled operations of small air carrier aircraft (10 to 30 passenger seats) and unscheduled passenger operations of large air carrier aircraft. A Class II airport cannot serve scheduled large air carrier aircraft.

- **Class III Airport** | An airport certificated to serve scheduled operations of small air carrier aircraft. A Class III airport cannot serve scheduled or unscheduled large air carrier aircraft.

- **Class IV Airport** | An airport certificated to serve unscheduled passenger operations of large air carrier aircraft. A Class IV airport cannot serve scheduled large or small air carrier aircraft. **MKC is a Class IV airport.**

The regulation (which implemented provisions of the *Airport and Airway Development Act of 1970*, as amended Nov. 27, 1971) set standards for: the marking and lighting of areas used for operations; firefighting and rescue equipment and services; the handling and storage of hazardous materials; the identification of obstructions; and safety inspection and reporting procedures. It also required airport operators to have an FAA-approved Airport Certification Manual (ACM). A Class IV airport must comply with some, but not all, sections of Part 139.

The ACM is a required document that defines the procedures to be followed in the routine operation of the airport and for response to emergency situations. The ACM is a working document that is updated regularly. It reflects the current condition and operation of the airport and establishes responsibility, authority, and procedures as required. There are required sections for the ACM covering administrative detail and procedural detail. Each section independently addresses who (primary/secondary), what, how, and when as it relates to each element.

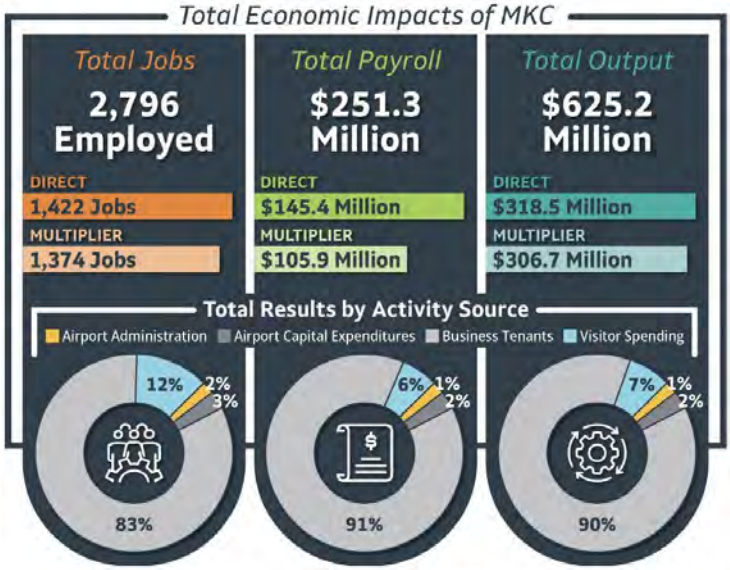
Administrative sections of an ACM cover such elements as the organizational chart, operational responsibilities, maps, descriptions, weather sensors, access, and cargo. Procedural elements cover such items as paved and unpaved areas, safety areas, lighting and marking, communications and navigational aids, airport rescue and firefighting (ARFF), handling of hazardous material, utility protection, public protection, self-inspection program, ground vehicle control, obstruction removal, wildlife management, and construction supervision. In addition to the main body, MKC's ACM includes an Airport Marking and Sign Plan, Airport Emergency Plan, and Wildlife Hazard Management Plan. MKC has a current, approved ACM, which is updated regularly.

ECONOMIC IMPACT

Airports are economic drivers in their communities, providing an array of employment opportunities, helping to attract new businesses, retaining existing businesses, supporting the movement of goods in and out of the region, and providing air transportation for business and leisure travelers. Quantifying the economic impact of airport activity is an important step for an airport to take as it not only demonstrates to the broader public the value of the airport within the regional economy, but it can also validate and

garner continued support for future investment into the facility. For this reason, as part of the ongoing Airport Master Plan process, the Kansas City Downtown Airport - Wheeler Field (MKC or Airport) completed an airport economic impact study (AEIS) to determine the annual economic contribution of the Airport based on 2022 activity.

The AEIS shows that the operation of the airport is responsible for 2,796 jobs, more than $251 million in annual payroll, and a total economic output of more than $625 million. By comparison, a similar study published in 2013 resulted in a total of 692 jobs, an annual payroll of $29.3 million, and a total economic output of $83.7 million. The complete technical AEIS document is in **Appendix E.**



Sources: IMPLAN, Kansas City Downtown Airport - Wheeler Field, Business Tenants, Kimley-Horn. Note: Dollar values are rounded to the nearest thousand, therefore totals may not sum due to rounding.

AVIATION ACTIVITY

At airports primarily serving general aviation activity, the number of based aircraft and operations (takeoffs and landings) are key aeronautical activity measures. These indicators will be used in subsequent analyses in this master plan to project future aeronautical activity and determine future facility requirements.

ANNUAL OPERATIONS

Aircraft operational statistics at MKC are recorded by the airport traffic control tower (ATCT). The ATCT is owned and operated by the FAA and is operated 24 hours a day. Among other duties, the ATCT counts aircraft operations, which are defined as either a takeoff or landing. Aircraft operations are classified as either local or itinerant. Local operations are those that stay within an airport's traffic pattern, such as flight training operations or touch-and-goes, while itinerant operations are those that have an origin or destination at another airport. Aircraft operations are further separated into four general categories:



Business jet arriving at MKC

- **Air Carrier:** operations performed by commercial airline aircraft with greater than 60 seats.
- **Air Taxi:** operations associated with commuter aircraft (60 seats and below) but also include for-hire general aviation aircraft.

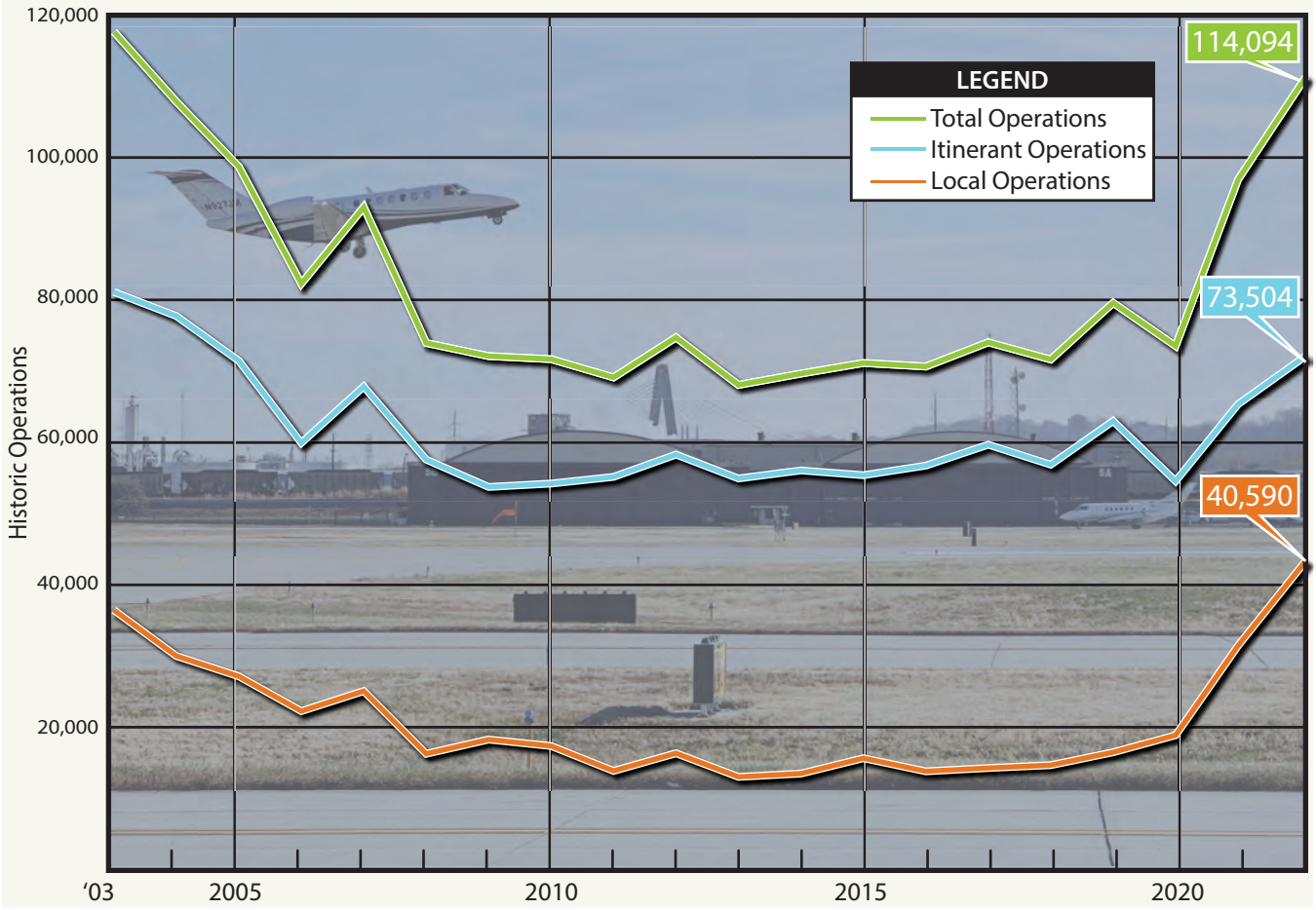
- **Military Operations:** operations conducted by airplanes and helicopters with a military identification.
- **General Aviation:** all other aviation activity, from small ultralights to large business jets.

Table 1E provides a summary of operational statistics since 2003, including the breakdown of itinerant and local operations and the category of operations. In 2022, the airport had more than 114,000 operations, which is the highest level since 2003. The last few years have seen operations increase significantly year-over-year, increasing from approximately 73,000 in 2020 to the current level. This growth coincided with the COVID-19 pandemic and reflects national trends where commercial activity declined, and general aviation increased. Many general aviation airports like MKC were minimally impacted by the pandemic and, in fact, saw increased activity in many cases. Historic operations are illustrated on **Exhibit 1E**.

TABLE 1E | Historic Operations

	Itinerant					Local			
Calendar Year	Air Carrier	Air Taxi	General Aviation	Military	Total	Civil	Military	Total	Total Operations
2003	34	19,213	61,063	731	81,041	36,371	99	36,470	117,511
2004	102	20,092	56,543	942	77,679	29,931	104	30,035	107,714
2005	16	15,204	55,719	464	71,403	26,986	209	27,195	98,598
2006	24	14,850	44,482	540	59,896	22,202	118	22,320	82,216
2007	99	16,903	49,884	921	67,807	24,916	213	25,129	92,936
2008	134	14,449	42,031	947	57,561	15,976	366	16,342	73,903
2009	159	14,288	38,273	1,007	53,727	17,755	581	18,336	72,063
2010	87	15,851	37,345	921	54,204	16,951	480	17,431	71,635
2011	169	17,801	36,002	1,168	55,140	13,539	399	13,938	69,078
2012	187	15,656	41,321	1,099	58,263	16,108	307	16,415	74,678
2013	176	14,233	39,824	685	54,918	12,984	121	13,105	68,023
2014	203	15,239	39,691	913	56,046	13,221	343	13,564	69,610
2015	189	14,685	39,435	1,068	55,377	15,322	400	15,722	71,099
2016	194	13,433	42,091	1,002	56,720	13,616	267	13,883	70,603
2017	232	15,163	43,335	919	59,649	14,260	86	14,346	73,995
2018	173	15,747	39,981	950	56,851	14,565	179	14,744	71,595
2019	214	16,305	45,515	935	62,969	16,293	262	16,555	79,524
2020	176	15,075	38,525	763	54,539	18,803	137	18,940	73,479
2021	322	19,899	44,210	892	65,323	31,385	108	31,493	96,816
2022	321	21,592	50,661	930	73,504	40,549	41	40,590	114,094

Source: FAA Operations and Performance Data (OPSNET) (https://aspm.faa.gov/)



Calendar Year	Itinerant Operations	Local Operations	Total Operations
2003	81,041	36,470	117,511
2004	77,679	30,035	107,714
2005	71,403	27,195	98,598
2006	59,896	22,320	82,216
2007	67,807	25,129	92,936
2008	57,561	16,342	73,903
2009	53,727	18,336	72,063
2010	54,204	17,431	71,635
2011	55,140	13,938	69,078
2012	58,263	16,415	74,678
2013	54,918	13,105	68,023
2014	56,046	13,564	69,610
2015	55,377	15,722	71,099
2016	56,720	13,883	70,603
2017	59,649	14,346	73,995
2018	56,851	14,744	71,595
2019	62,969	16,555	79,524
2020	54,539	18,940	73,479
2021	65,323	31,493	96,816
2022	73,504	40,590	114,094

Source: FAA Operations and Performance Data (OPSNET), https://aspm.faa.gov/

BASED AIRCRAFT

Identifying the current number of based aircraft is important to the master plan analysis; however, it is inherently challenging to maintain accurate records due to the transient nature of aircraft storage. MKC maintains a record of based aircraft, but data from the FAA's *Terminal Area Forecast* (TAF) was consulted to provide a broader history. Historic based aircraft levels at MKC, as sourced from the TAF, are shown in **Table 1F**.

TABLE 1F | Based Aircraft History

Year	Based Aircraft
1990	314
2000	296
2005	206
2010	189
2015	222
2020	159
2022	198*

*Count derived from airport records

Source: FAA TAF; Airport records

CAPITAL IMPROVEMENT HISTORY

To assist in ongoing capital improvements, the FAA provides funding to MKC primarily through the Airport Improvement Program (AIP). **Table 1G** summarizes the airport's AIP-funded capital improvement projects undertaken since 2003. During this period, the airport has received $73.4 million in federal grants.

Airports that apply for and accept AIP grant funding must adhere to various grant assurances. These assurances include maintaining the airport facility safely and efficiently in accordance with specific conditions. The duration of the assurances depends on the type of airport, the useful life of the facility being developed, and other factors. Typically, the useful life for an airport development project is a minimum of 20 years. Thus, when an airport accepts AIP grants, they are obligated to maintain that facility in accordance with FAA standards for at least that long.

TABLE 1G | Federal Grant History

Year	Grant #	Project Description	AIP Entitlement	AIP Discretionary	COVID Relief General	IIJA	Total
2003	13	Conduct Environmental Study	$450,000	-	-	-	$450,000
2004	14	Rehabilitate Runway 1-19	-	-	-	-	$7,650,000
2005	15	Rehabilitate Runway 1-19	$150,000	$5,265,000	-	-	$5,415,000
2005	16	Rehabilitate Runway 1-19 Lighting	-	$1,100,000	-	-	$1,100,000
2007	17	Rehabilitate Runway 3-21	$300,000	$3,783,646	-	-	$4,083,646
2009	18/20	Improve Runway 1-19 Safety Area	$300,000	$8,433,003	-	-	$8,733,003
2010	21	Improve Runway 1-19 Safety Area	$150,000	$8,091,480	-	-	$8,241,480
2011	22	Rehabilitate Taxiways and MITL	$150,000	$4,110,750	-	-	$4,260,750
2013	23	Construct ARFF Building	$157,817	$2,651,027	-	-	$2,808,844
2012	24	Rehabilitate Taxiway	$150,000	$6,562,991	-	-	$6,712,991
2013	25	Acquire ARFF Vehicle	$150,000	$104,273	-	-	$254,273
2013	26	Rehabilitate Taxiway	-	$4,084,300	-	-	$4,084,300
2018	27	Pavement Rehabilitation & Removal	$508,721	-	-	-	$508,721
2019	28	Acquire ARFF Vehicle	$650,920	-	-	-	$650,920
2021	29	Reconstruct Portion of Taxiway A	$300,000	$1,734,981	$226,108	-	$2,261,089
2021	30	Operating Expenses (CRRSA)	-	-	$57,000	-	$57,000
2022	31	Rehabilitate Runway 3-21[1]	$4,253,443	$3,114,323	-	-	$7,367,766
2021	32	Operating Expenses (General ARPA)	-	-	$148,000	-	$148,000
2022	33	Cancelled by FAA - Renumbered 036	-	-	-	-	-
2023	34	FAA Engineering (Twy L/4-22 Rehab.)[2]	-	-	-	-	$47,600

Continues on next page

TABLE 1G | Federal Grant History (continued)

Year	Grant #	Project Description	AIP Entitlement	AIP Discretionary	COVID Relief General	IIJA	Total
2023	35	Construct Taxiway L	-	-	-	$844,000	$844,000
2023	36	Airport Master Plan	-	-	-	$763,000	$763,000
2023	37	Construct Taxiway L	$107,167	-	-	-	$107,167
						TOTAL	**$73,416,553**

[1] Runway 3-21 to be redesignated as Runway 4-22 in Summer 2023
[2] Reimbursable agreement with FAA
ARFF: Aircraft Rescue & Fire Fighting
ARPA: American Rescue Plan Act
CRRSA: Coronavirus Response and Relief Supplemental Appropriations
IIJA: Infrastructure Investment and Jobs Act
MITL: Medium intensity taxiway lighting

Source: FAA Airport Improvement Grant Histories https://www.faa.gov/airports/aip/grant_histories); Airport records

MKC is also eligible to receive grant funding from MoDOT Aviation through the State Aviation Trust Fund. The Aviation Trust Fund is funded by jet fuel sales taxes and excise taxes on aviation gas across the state. The fund is capped at $10 million per year and can be used for certain non-revenue-generating projects, unlike AIP. The Aviation Trust Fund provides up to 90 percent funding assistance on projects, with the remaining 10 percent sourced through local funding mechanisms. MKC's state grant funding history since 2005 is detailed in **Table 1H**.

TABLE 1H | State Grant History

Year	Grant Number	Project Description	Amount
2005	AIR 026-107C	Unknown	$72,896
2008	AIR 086-107C	T-hangar Complex Rehabilitation	$1,575,000
2010	AIR 106-106A	Air Service Promotion	$317,409
2010	AIR 116-106A	ARFF Training Assistance	$4,000
2013	AIR 146-106A	ARFF Training Assistance	$4,000
2015	AIR 156-106A	ARFF Training Assistance	$4,000
2016	AIR 166-106A	ARFF Training Assistance	$4,000
2016	AIR 166-107C	Apron and Pavement Connections for New Maintenance Facility	$250,000
2017	AIR 186-106A	ARFF Training Assistance	$4,000
2018	AIR 196-106A-1	ARFF Training Assistance	$4,000
2019	AIR 206-165A-1	ARFF Training Assistance	$4,000
		Total	**$2,243,305**

Source: Airport records

Current Projects

As of this writing in March 2023, there are several immediate projects of note, which include an extension to Taxiway L, a reconfiguration of Taxiway B, and redesignation of Runway 3-21 as Runway 4-22, as depicted on **Exhibit 1F**. As these projects are planned for the near future, they will be depicted as "existing" throughout this master plan.

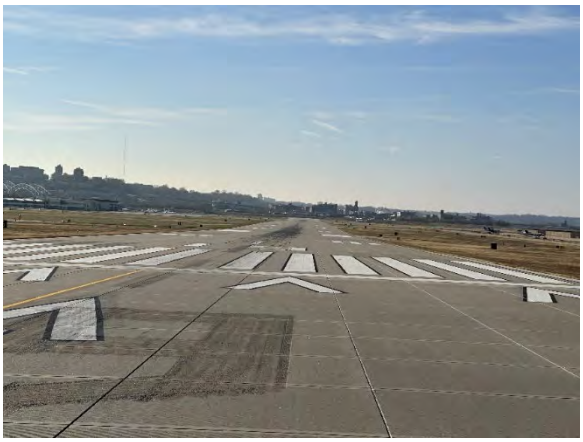
AIRSIDE FACILITIES

Airside facilities include runways, taxiways, airfield lighting, and navigational aids. These facilities are identified on **Exhibit 1G**, with descriptions of each included in the following sections.

RUNWAYS

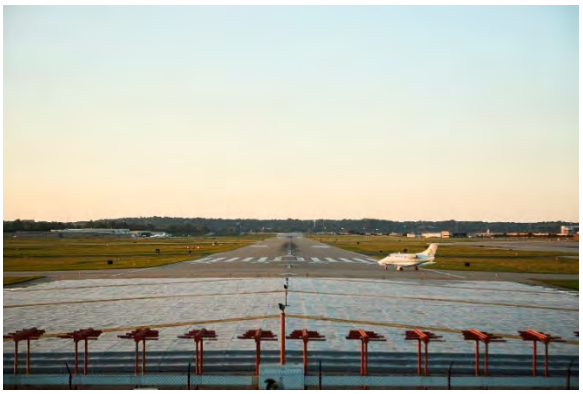
Primary Runway 1-19

Runway 1-19 is 6,827 feet long and 150 feet wide and is oriented in a north-south manner. The concrete runway surface is grooved and is reported in FAA publications to be in excellent condition. Runway 1 has non-precision markings, including runway end designations, threshold markings, centerline, edge markings, and aiming points. Runway 19 has precision markings that include all of the above, along with touchdown zone markings, in support of the instrument landing system (ILS) approach that is available to this runway end. The runway slopes down from the Runway 19 end at a gradient of 0.12 percent. Both runway ends have a left-hand traffic pattern.



South view from Runway 19

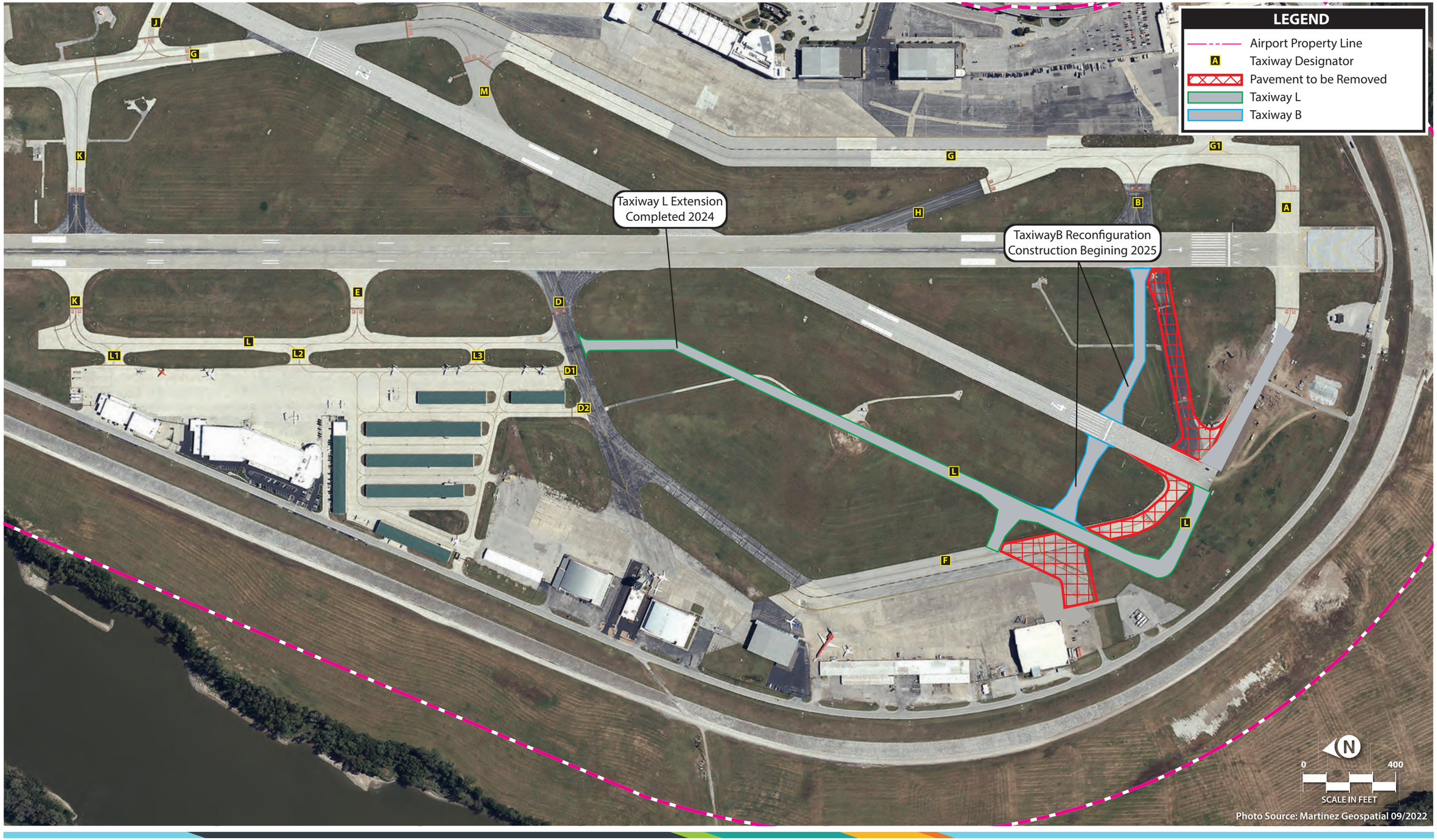
Runway lighting and approach aid systems available include high intensity runway lighting (HIRL), a four-box visual approach slope indicator (VASI) system on Runway 1, a precision approach path indicator (PAPI-4) system on Runway 19, a medium intensity approach light system with sequenced flashers (MALSF) on Runway 19, and runway alignment indicator lights (RAIL) on Runway 1. Approach capabilities will be described in more detail in a later section.



Runway 1 EMAS Bed

Both ends of Runway 1-19 are equipped with EMAS beds, which were constructed in 2010 as an allowable alternative to a standard runway safety area (RSA). EMAS consists of crushable concrete and functions to slow or stop an aircraft from overrunning the runway. In 2019, a business jet overshot the runway during icy conditions but was safely stopped due to the EMAS bed on Runway 1. As part of this master plan, an evaluation of the current condition of the EMAS beds will be conducted to plan for any repair or replacement needs that may be necessary.

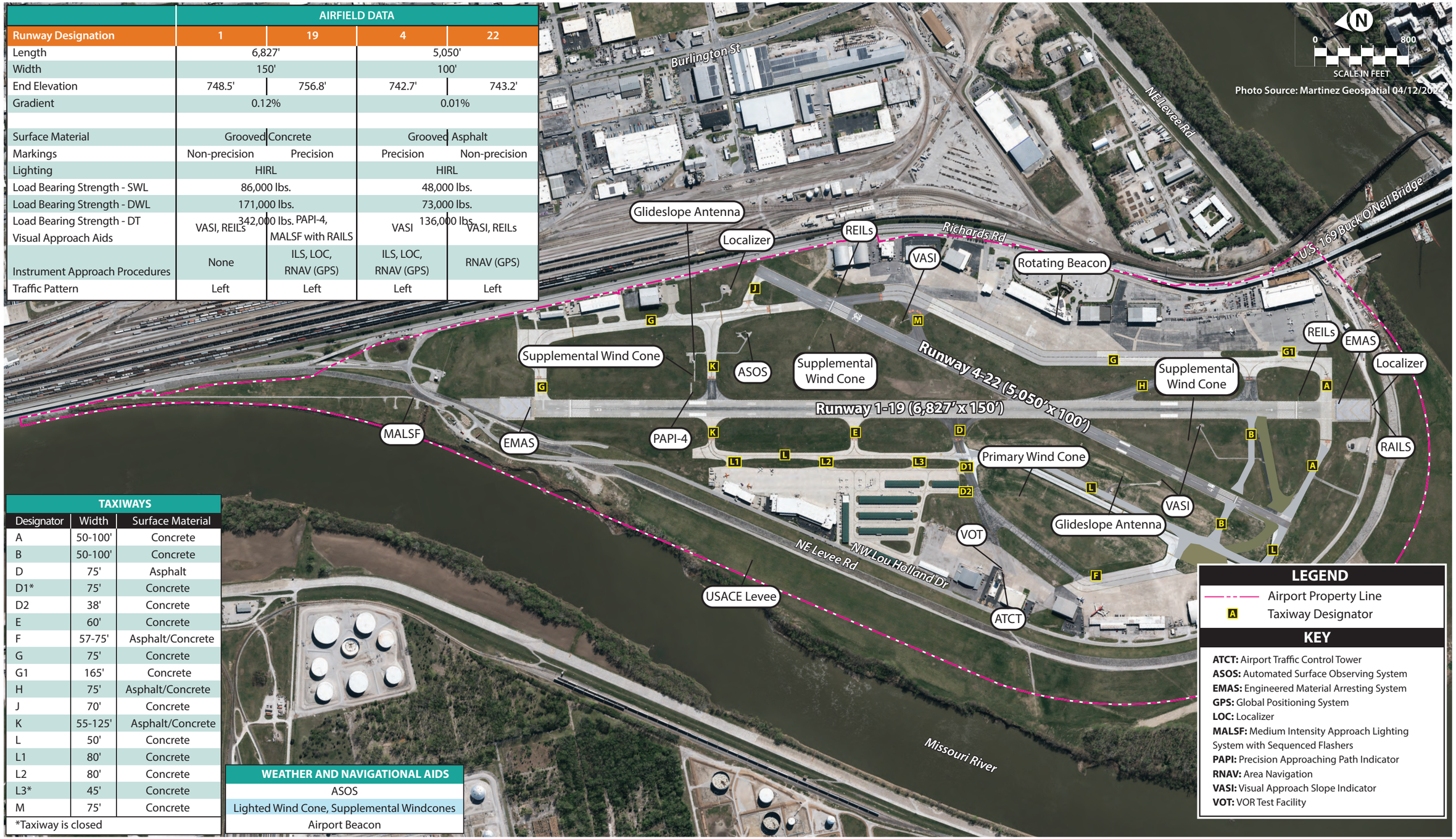
Displaced thresholds are also present at both ends of the runway. Runway 1 is displaced by 299 feet, while Runway 19 has a 302-foot displacement.


LEGEND
Airport Property Line
A Taxiway Designator
Pavement to be Removed
Taxiway L
Taxiway B
Taxiway L Extension
Completed 2024
TaxiwayB Reconfiguration
Construction Begining 2025
J
G
M
K
G
G1
H
B
A
K
E
D
L
L1
L2
L3
D1
D2
L
L
F
N
0
400
SCALE IN FEET
Photo Source: Martinez Geospatial 09/2022

AIRFIELD DATA				
Runway Designation	**1**	**19**	**4**	**22**
Length	6,827'		5,050'	
Width	150'		100'	
End Elevation	748.5'	756.8'	742.7'	743.2'
Gradient	0.12%		0.01%	
Surface Material	Grooved Concrete		Grooved Asphalt	
Markings	Non-precision	Precision	Precision	Non-precision
Lighting	HIRL		HIRL	
Load Bearing Strength - SWL	86,000 lbs.		48,000 lbs.	
Load Bearing Strength - DWL	171,000 lbs.		73,000 lbs.	
Load Bearing Strength - DT	342,000 lbs.		136,000 lbs.	
Visual Approach Aids	VASI, REILs	PAPI-4, MALSF with RAILS	VASI	VASI, REILs
Instrument Approach Procedures	None	ILS, LOC, RNAV (GPS)	ILS, LOC, RNAV (GPS)	RNAV (GPS)
Traffic Pattern	Left	Left	Left	Left

TAXIWAYS		
Designator	Width	Surface Material
A	50-100'	Concrete
B	50-100'	Concrete
D	75'	Asphalt
D1*	75'	Concrete
D2	38'	Concrete
E	60'	Concrete
F	57-75'	Asphalt/Concrete
G	75'	Concrete
G1	165'	Concrete
H	75'	Asphalt/Concrete
J	70'	Concrete
K	55-125'	Asphalt/Concrete
L	50'	Concrete
L1	80'	Concrete
L2	80'	Concrete
L3*	45'	Concrete
M	75'	Concrete
*Taxiway is closed		

WEATHER AND NAVIGATIONAL AIDS
ASOS
Lighted Wind Cone, Supplemental Windcones
Airport Beacon



LEGEND

Airport Property Line

A Taxiway Designator

KEY

ATCT: Airport Traffic Control Tower
ASOS: Automated Surface Observing System
EMAS: Engineered Material Arresting System
GPS: Global Positioning System
LOC: Localizer
MALSF: Medium Intensity Approach Lighting System with Sequenced Flashers
PAPI: Precision Approaching Path Indicator
RNAV: Area Navigation
VASI: Visual Approach Slope Indicator
VOT: VOR Test Facility

Crosswind Runway 4-22

Oriented northwest-southeast, Runway 4-22 intersects Runway 1-19 approximately 4,000 feet from the north end of the primary runway. Crosswind Runway 4-22 is 5,050 feet long and 100 feet wide and has a left-hand traffic pattern. The runway surface is grooved asphalt, reportedly in excellent condition. There are displaced thresholds on each runway end, with Runway 4 displaced by 500 feet and Runway 22 displaced by 699 feet. The runway is essentially flat, with less than one foot difference in elevation between the runway ends. Runway 4 is equipped with precision markings, while Runway 22 has non-precision markings. The runway is lit with HIRL, and VASI systems are installed on both runway ends.

PAVEMENT STRENGTH

The rating of pavement strength has traditionally been measured in terms of the number of wheels on each landing gear strut of an aircraft. Additional wheels on each landing gear provide greater dispersal of the aircraft weight, enabling the pavement to withstand heavier aircraft. The strength rating, expressed in pounds, indicates that the pavement can withstand repeated usage by aircraft within that weight limitation and experience normal wear and tear. Repeated usage of the runway by aircraft that are heavier than the strength rating will exert greater wear and tear and will shorten the useful life of the pavement.

Aircraft with a single wheel on each landing gear strut are classified as single (S). Two wheels on each landing gear strut is classified as dual (D), and dual tandem wheel (DT) has four tires on the landing gear strut.

Weight-bearing capacities for Runway 1-19 are 86,000 pounds single wheel loading (S), 171,000 pounds dual wheel loading (D), and 342,000 pounds double tandem (DT). The published pavement strength rating for Runway 4-22 is 48,000 pounds S, 73,000 pounds D, and 136,000 pounds DT.

The FAA has recently moved to implementing the International Civil Aviation Organization (ICAO) pavement classification number (PCN) for identifying strength of airport pavements. The PCN is a five-part code described as follows:

1) *PCN Numerical Value:* Indicates the load-carrying capacity of the pavement expressed as a whole number. The value is calculated based on several engineering factors, such as aircraft geometry and pavement usage.
2) *Pavement Type:* Expressed as either R for rigid pavement (most typically concrete) or F for flexible pavement (most typically asphalt).
3) *Subgrade Strength:* Expressed as A (High), B (Medium), C (Low), or D (Ultra Low). A subgrade of A would be considered very strong, like concrete-stabilized clay, and a subgrade of D would be very weak, similar to un-compacted soil.
4) *Maximum Tire Pressure:* Expressed as W (Unlimited/No Pressure Limit), X (High/254 psi), Y (Medium/181 psi), or Z (Low/72 psi), this indicates the maximum tire pressure the pavement can support. Concrete surfaces are usually rated W.

5) *Process of Determination:* Expressed as either T (technical evaluation) or U (physical evaluation), this indicates the method of pavement testing.

The published PCN for Runway 1-19 is expressed as 67/R/B/W/T. This means that the underlying pavement value has a load-carrying capacity of 67 (unitless), is rigid (concrete), is medium subgrade strength, has an unlimited allowable tire pressure capability, and was calculated through a technical evaluation. For Runway 4-22, the PCN is expressed as 74/F/C/W/T, meaning the underlying pavement value has a load-carrying capacity of 74 (unitless), is flexible (asphalt), is low subgrade strength, has an unlimited allowable tire pressure capability, and was calculated through a technical evaluation.

TAXIWAYS

The taxiway system at MKC consists of partial parallel, connector, and entrance/exit taxiways. The width of each taxiway varies based on aircraft design and usage, with each taxiway's width listed on **Exhibit 1G**. All taxiways are at least 50 feet wide but vary in width up to 100 feet. All taxiways are equipped with medium intensity taxiway lighting (MITL).



Taxiway D - East View

Parallel taxiways are primarily designed to efficiently route aircraft between the runway and the originating/destination location. There are no full-length parallel taxiways at MKC, with partial-parallel Taxiways G and L providing access to both runways. Several connector taxiways link the parallel taxiways to the runways and aircraft parking aprons. The taxiways at MKC function as follows:

- Taxiway A – threshold taxiway for Runways 1 and 4
- Taxiway B –bypass taxiway for Runway 4
- Taxiway D – connector to Runway 1-19
- Taxilanes D1 and D2 – Taxilane D1 is closed; Taxilane D2 is a connector for Taxiway D
- Taxiway E – connector to Runway 1-19
- Taxiway F – access to southwest apron area via Taxiway D
- Taxiway G – partial parallel for Runways 1-19 and 4-22; threshold taxiway for Runway 19
- Taxiway G1 – connector for Taxiway G
- Taxiway H – acute-angled exit for Runway 19
- Taxiway J – threshold taxiway for Runway 22
- Taxiway K – crossing taxiway for Runway 1-19
- Taxiway L – partial parallel for Runways 1-19 and 4-22
- Taxiways L1, L2, and L3 – Taxiways L1 and L2 are connectors for Taxiway L; Taxiway L3 is closed
- Taxiway M – connector to Runway 4-22

Taxiway L extends to the south and then jogs to the southwest to serve as a partial-parallel to Runway 4-22. Taxiway B is planned to be relocated, with construction starting in 2025.

AIRFIELD MOVEMENT AREAS

Exhibit 1H depicts the movement and non-movement areas of the MKC airfield. Movement areas are defined as portions of airfield pavement that are controlled by the ATCT. Aircraft cannot operate within movement areas without communication and clearance from the tower. Non-movement areas are the apron areas, which are not controlled by the ATCT, so aircraft do not need to communicate with the ATCT in these areas.

HOT SPOTS

There are currently three FAA-designated "hot spots" on the airfield. Hot spots are confusing intersections that are more likely to contribute to runway incursions. **Exhibit 1J** details the location of the three hot spots at MKC. Hot Spot #1 is located on the north end of the field where Taxiway G crosses Runway 4-22 at an oblique angle. Aircraft taxiing on Taxiway G must obtain specific clearance prior to crossing Runway 4-22. Hot Spot #2 is located at the current intersection of Taxiway L and Taxiway D, where pilots traveling south on Taxiway L may inadvertently turn left onto Runway 1-19. The new Taxiway L extension is intended to lessen confusion and improve efficiency for pilots taxiing to Runway 4. Hot Spot #3 is located on the south side of the airfield, where current Taxiways A, B, and F converge at the end of Runway 3. This hot spot will be alleviated with the completion of the Taxiways L and B projects. Hot spots will be discussed in greater detail in Chapter Three, Facility Requirements.

PAVEMENT CONDITION

In an effort to more effectively monitor and proactively manage airfield pavement in Missouri, MoDOT implemented an Airport Pavement Management System (APMS) in 2002. Since then, the APMS has been periodically updated, with the most recent update reflecting years 2021-2024.

Airfield pavement at MKC, including the runways, taxiways, and aprons, was evaluated in February/March 2022 to provide a Pavement Condition Index (PCI) rating. PCI ratings are determined through a visual assessment in accordance with FAA Advisory Circular 150/5380-6C and range from 0 (failed) to 100 (excellent). In general, pavement with a rating between 62 and 100 falls into the "preventative maintenance" category, while pavement with a rating between 41 and 61 is in the "major rehabilitation" category. Pavement that receives a rating of 0 to 40 is in the "reconstruction" category. The purpose of the report is to provide the airport sponsor with pavement condition information to guide pavement maintenance schedules and ensure airfield surfaces are preserved in good working order. The results of the PCI surveys are depicted on **Exhibit 1K**. It should be noted that the exhibit reflects existing pavement conditions only and does not depict the planned reconfiguration of Taxiways B and L. Once these taxiways are reconstructed, those portions of the new taxiway pavement will have a PCI of 100.

PAVEMENT MARKINGS

Pavement markings aid in the safe and efficient movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. The following provides a description of pavement markings available at MKC.

Runway Markings

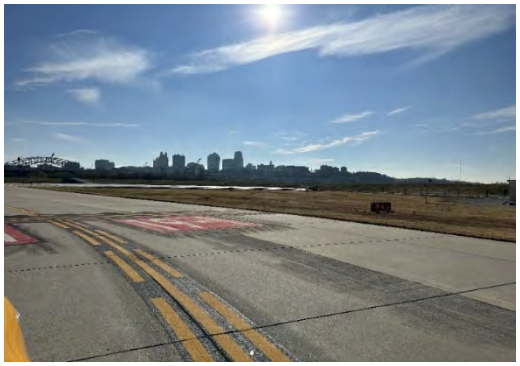
There are three types of markings for runways: visual, non-precision instrument, and precision instrument. Runways 19 and 4 are equipped with precision markings, which consist of the runway end designation, centerline, threshold, aiming point, touchdown zone, and edge markings. Runways 1 and 22 have non-precision runway markings, which consist of the runway end designation, centerline, threshold, and edge markings. The displaced landing thresholds to all runway ends are marked by arrows, while the EMAS beds on Runway 1-19 are marked with yellow chevrons.

Taxiway Markings

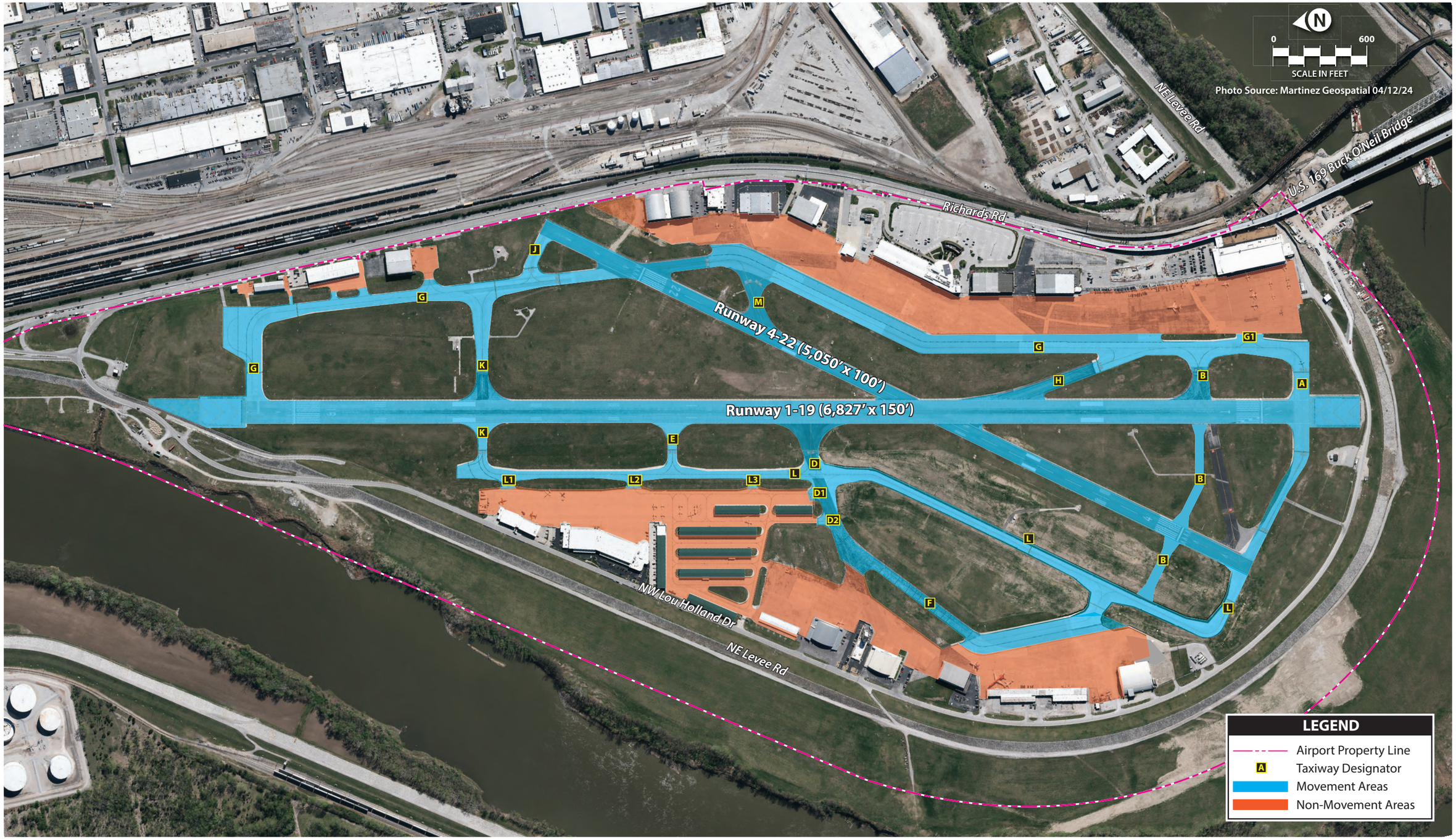
Taxiway centerline markings are provided to assist pilots in maintaining proper clearance from pavement edges and objects near the taxiway/taxilane edges. Taxiway markings also include lead off lines, continuous edge markings, dashed edge markings, non-movement area boundaries, aircraft holding positions, including ILS holding position markings, enhanced taxiway centerline markings at runway access points, and surface runway destination markings.

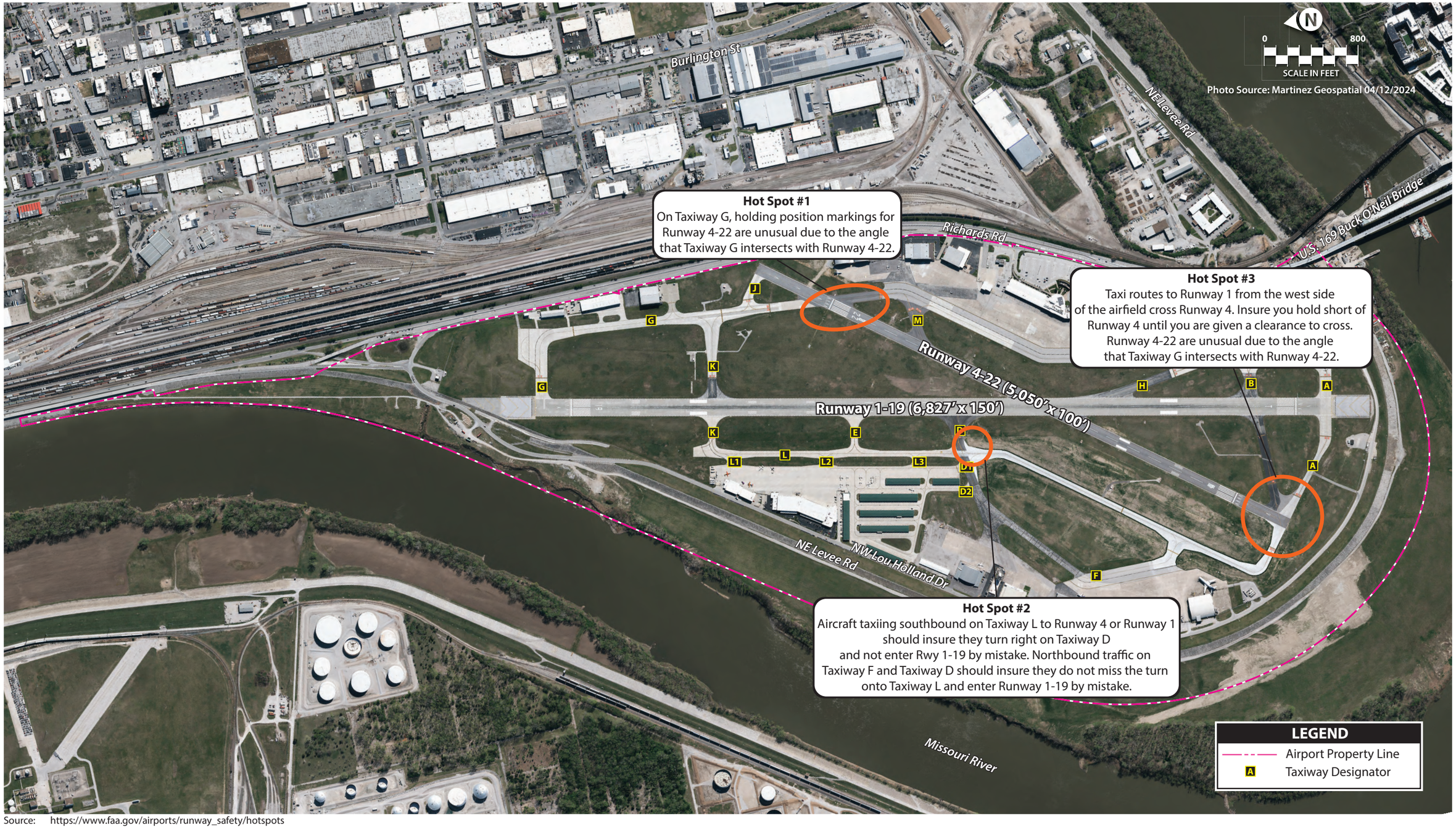
Holding Position Markings

Holding position markings inform pilots where to stop if not cleared to enter a runway. All holding position markings at MKC are located at least 250 feet from the runway centerline. ILS holding position markings are located on Taxiways F and G prior to the boundary of the precision obstacle free zone (POFZ) for Runway 4 and on Taxiway G prior to the boundary of the POFZ for Runway 19. All holding position markings are glass beaded, highlighted in black, and double-sized in accordance with AC 150/5340-1M, *Standards for Airport Marking*.



Pavement Markings (Enhanced Centerline, Runway Designation, & Holding Position


N
0
600
SCALE IN FEET
Photo Source: Martinez Geospatial 04/12/24
NE Levee Rd
U.S. 169 Buck O'Neil Bridge
Richards Rd
Runway 4-22 (5,050' x 100')
Runway 1-19 (6,827' x 150')
NW Lou Holland Dr
NE Levee Rd
J
G
M
G
G1
K
H
B
A
K
E
D
L1
L2
L3
L
D1
D2
L
B
B
F
L
LEGEND
Airport Property Line
A Taxiway Designator
Movement Areas
Non-Movement Areas



Source: https://www.faa.gov/airports/runway_safety/hotspots
Accessed 3/28/2023



Source: Missouri Department of Transportation, Airport Management System, 2022.

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AIRFIELD SIGNAGE

The airport also has a runway/taxiway signage system. The presence of runway/taxiway signage is an essential component of a surface movement guidance control system necessary for the safe and efficient operation of the airport. The signage system installed at MKC includes runway and taxiway designations, holding positions, ILS critical areas, routing/directional, runway entrance and exits, and runway distance remaining (Runway 1-19). Approximately half the airfield signs are lit with LED lights, with the remainder planned to be replaced with LED lights when maintenance is required. **Exhibit 1L** depicts the existing airfield signage system for the airport on an aerial base map.



Airfield Signage

AIRFIELD LIGHTING

Airfield lighting systems extend an airport's usefulness into periods of darkness and/or poor visibility. A variety of lighting systems are installed at the airport for this purpose. These lighting systems, categorized by function, are summarized as detailed below.



Rotating Beacon

Identification Lighting

The location of the airport at night is universally identified by a rotating beacon. The rotating beacon projects two beams of light, one white and one green, 180 degrees apart. The rotating beacon at MKC is situated on the east side of the airport, atop the former passenger terminal (now VML) building at the east edge of the GA apron.

Runway and Taxiway Lighting

Runway and taxiway edge lighting utilize light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. This lighting is essential for safe operations during night and/or times of low visibility to maintain safe and efficient access to and from the runways and aircraft parking areas. All runways are equipped with runway edge lighting.

Runways 1-19 and 4-22 are equipped with high intensity runway lights (HIRL). The lights on Runway 1-19 are incandescent, while Runway 4-22 is equipped with LED lights as of Summer 2023. For the last 2,000 feet on all runways, the edge lights are amber in color to alert pilots that they are approaching the end of the runway. Separate green and red lights are installed at each runway end to identify the threshold and runway end. Displaced threshold lighting using split red/yellow lens is also present at each

runway end, with the red side alerting pilots to the location of the end of the runway and the yellow lights visible on approach. These lights are installed at the following locations to light the area not available for landing behind the displaced threshold:

- The first 299 feet of Runway 1
- The first 302 feet of Runway 19
- The first 500 feet of Runway 4
- The first 699 feet of Runway 22

All displaced threshold lights are installed approximately 10 feet from the pavement edge and in-line with or up to 10 feet prior to the threshold marking.

All taxiways at MKC are equipped with LED medium intensity taxiway edge lighting (MITL). Aprons and apron edge taxilanes have no edge lighting.

The airport owns and maintains both the runway and taxiway edge lighting systems.

NAVIGATIONAL AIDS AND VISUAL APPROACH AIDS

Visual Glide Slope Approach Aids

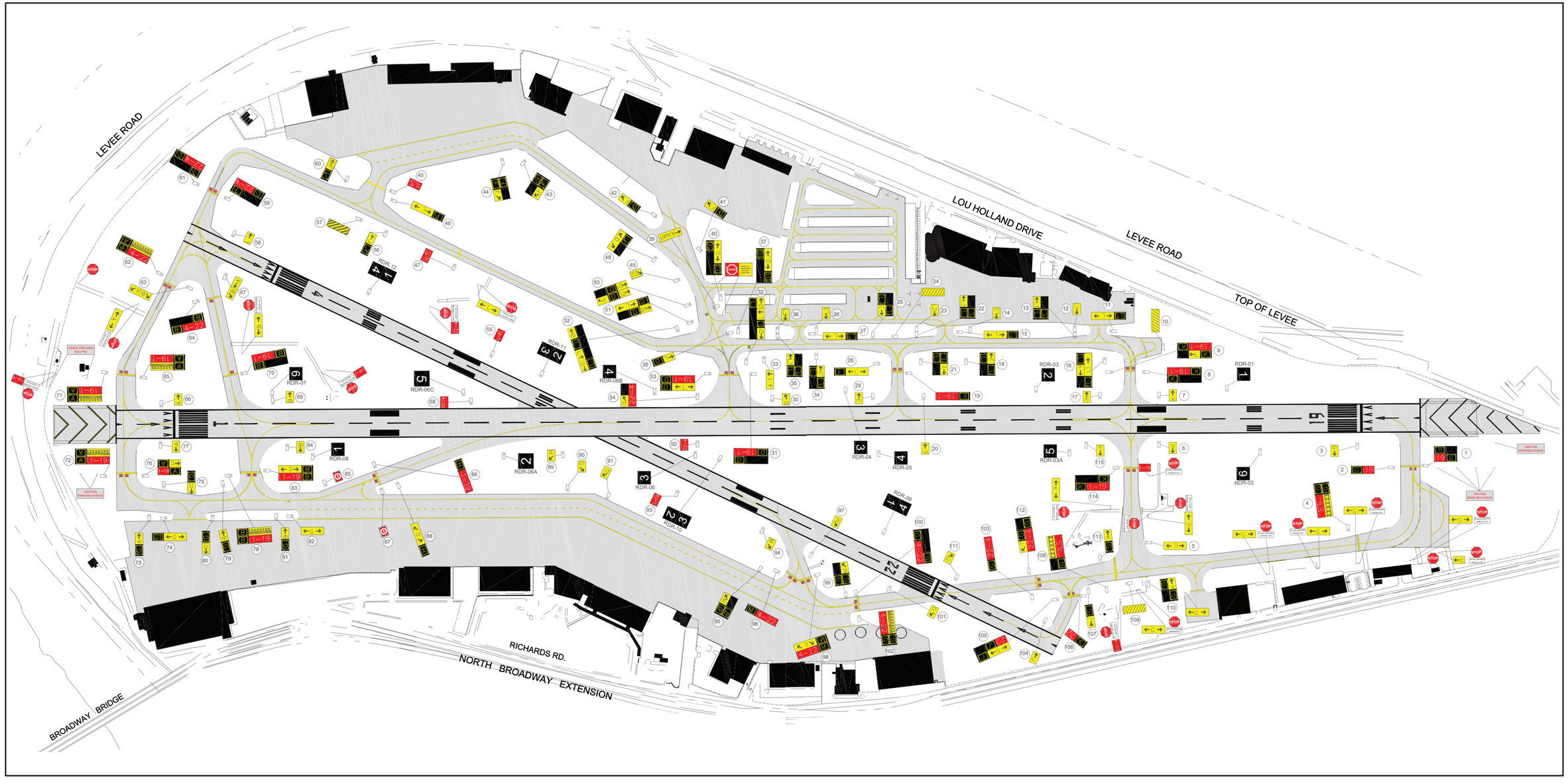
Visual glide slope approach aids provide a visual cue to pilots alerting them to whether they are on the correct glide path to landing. The approaches to Runways 1, 3, and 21 are outfitted with a 4-box visual approach slope indicator lighting system (VASI). The glide path angle for Runway 4 is set at a standard 3.00°, while the glide path for Runway 1 is set at 3.70°, and for Runway 22 it is set to 3.30°. Runway 19 is outfitted with 4-light precision approach path indicator lights (PAPI) with a 3.00° standard glide path. While configured differently than the VASI system, the PAPI provides the same visual cue to pilots. The VASI and PAPIs are owned and maintained by the FAA.

Runway End Identification Lighting

Runway end identifier lights (REILs) are strobe lights placed at the edge of the landing thresholds of certain runways. REILs provide rapid identification of the landing threshold for distances up to 20 miles. Runways 1 and 22 are equipped with REILs, which are owned and maintained by the FAA.

Approach Lighting Systems

Approach lighting systems (ALS) are used in the approaches to runways as a transition from electronic navigational aids for the final portion of IFR approaches and visual guides for nighttime approaches under VFR conditions. The approach lighting system provides the pilot with visual cues concerning aircraft alignment, roll guidance, height perception, and position relative to the threshold. The approach to Runway 19 has a 1,400-foot-long medium intensity approach lighting system with sequenced flashers (MALSF) that is augmented with runway alignment indicator lights (RAIL). The MALSF is owned and


LEVEE ROAD
LOU HOLLAND DRIVE
LEVEE ROAD
TOP OF LEVEE
RDR-12
RDR-11
RDR-07
RDR-06C
RDR-08B
RDR-08
RDR-06A
RDR-06
RDR-10
RDR-04
RDR-05
RDR-03A
RDR-03
RDR-02
RDR-01
RICHARDS RD.
NORTH BROADWAY EXTENSION
BROADWAY BRIDGE

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maintained by the FAA. The approach to Runway 1 is equipped with runway alignment indicator lights (RAIL), which consists of sequenced flashing lights.

Emergency Generators

To ensure a reliable source of power for airfield lighting, MKC maintains a diesel generator as a secondary power source for all runway and taxiway lighting systems. This generator is located in an electrical vault near the ARFF facility. There are also generators to provide backup power for operations at the VML, ARFF, and airport administration buildings.

HOLDING BAYS

Holding bays are designated areas on the airfield typically located at the end of a taxiway near the runway end. The ATCT may instruct aircraft to hold on the apron until it is safe for the aircraft to proceed to the runway for take-off. Pilots may also request to utilize holding bays to conduct final pre-flight checks prior to take-off.

There are two holding bays on the airfield. The holding bay on the north end of Taxiway G is approximately 3,050 square yards, which can accommodate multiple small aircraft at one time. The hold bay at the north end of Taxiway L is approximately 900 square yards in size.

WEATHER AND COMMUNICATION AIDS

Automated Terminal Information Service (ATIS)

MKC provides weather information to airport users with an Automated Terminal Information Service (ATIS). ATIS broadcasts are updated hourly and provide arriving and departing pilots with the current surface weather conditions, communication frequencies, and other important airport-specific information. The ATIS frequency at MKC is 120.75 MHz. Pilots can also access information via UNICOM at 122.95 MHz.

Automated Surface Observing System (ASOS)

MKC is equipped with an Automated Surface Observing System (ASOS). An ASOS will automatically record weather conditions, such as temperature, dew point, wind speed, altimeter setting, visibility, sky condition, and precipitation. The ASOS updates observations each minute 24 hours a day, and this information is transmitted to pilots in the airport vicinity via FAA VHF ground-to-air radio. Pilots can receive these broadcasts on the ATIS frequency or via a local telephone number (816-329-2843). The ASOS equipment is located east of Runway 1-19, near the intersection of Taxiways G and K, and is maintained by the National Weather Service.

Wind Cones

MKC is equipped with four lighted wind cones. The wind cones provide information to pilots regarding wind conditions, such as direction and intensity. The primary wind cone is lighted and located in the midfield on the south side of Taxiway D at approximately the midpoint of the intersecting runways. Three supplemental wind cones are located near the approach ends of Runways 1, 19, and 22. The supplemental wind cones at the approach end of Runway 1 are co-located to also provide wind direction information for the approach end of Runway 4. All wind cone locations are depicted on **Exhibit 1G.**

AREA AIRSPACE AND AIR TRAFFIC CONTROL

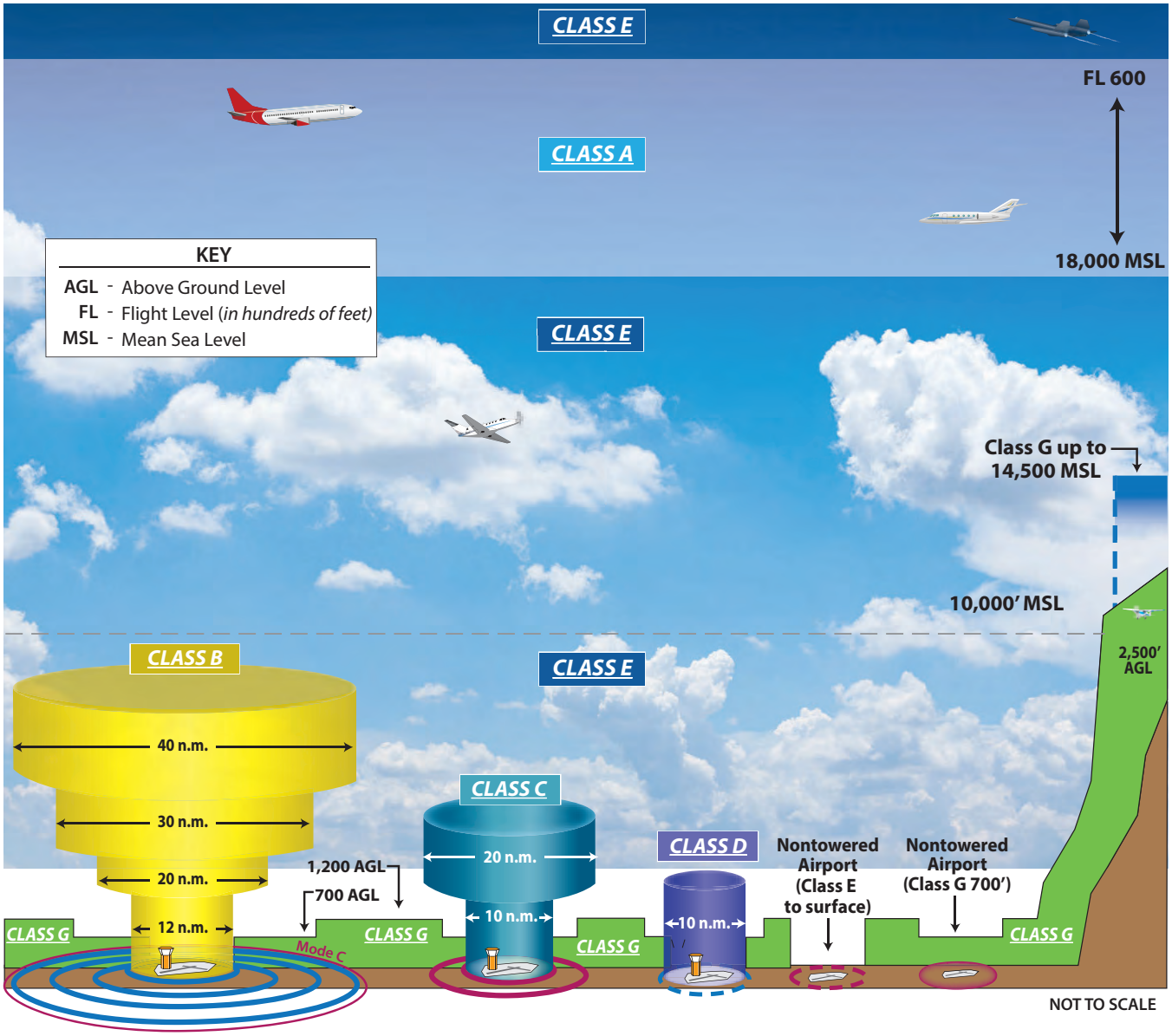
The *Federal Aviation Administration Act of 1958* established the FAA as the responsible agency for the control and use of navigable airspace within the United States. The FAA has established the National Airspace System (NAS) to protect persons and property on the ground and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS covers the common network of U.S. airspace, including air navigation facilities; airports and landing areas; aeronautical charts; associated rules, regulations, and procedures; technical information; and personnel and material. The system also includes components shared jointly with the military.

AIRSPACE STRUCTURE

Airspace within the United States is broadly classified as either "controlled" or "uncontrolled." The difference relates primarily to requirements for pilot qualifications, ground-to-air communications, navigation and air traffic services, and weather conditions. Six classes of airspace have been designated in the United States, as shown on **Exhibit 1M**. Airspace designated as Class A, B, C, D, or E is considered controlled airspace. Aircraft operating within controlled airspace are subject to varying requirements for positive air traffic control.

Class A: Class A is controlled airspace and includes all airspace from 18,000 feet mean sea level (MSL) to Flight Level 600 (approximately 60,000 feet MSL). This airspace is designated in Federal Aviation Regulation (FAR) Part 71.193 for positive control of aircraft. The Positive Control Area (PCA) allows flights governed only under instrument flight rules (IFR) operations. The aircraft must have special radio and navigational equipment, and the pilot must obtain clearance from an air traffic control (ATC) facility to enter Class A airspace. Additionally, the pilot must possess an instrument rating to operate in Class A.

Class B: Class B is controlled airspace surrounding high-activity commercial service airports. Class B airspace is designed to regulate the flow of uncontrolled traffic above, around, and below the arrival and departure airspace required for high performance, passenger-carrying aircraft at major airports. To fly within Class B airspace, an aircraft must be equipped with special radio and navigation equipment and must obtain clearance from air traffic control. A pilot is required to have at least a private pilot certificate or be a student pilot who has met the requirements of FAR Part 61.95, which requires special ground and flight training for Class B airspace. Aircraft are also required to utilize a Mode C transponder within a 30 nautical-mile range of the center of Class B airspace. A Mode C transponder allows air traffic control to track the location and altitude of the aircraft. The nearest Class B airspace is Kansas City International Airport (MCI).



DEFINITION OF AIRSPACE CLASSIFICATIONS

CLASS A Think A - Altitude. Airspace above 18,000 feet MSL up to and including FL 600. Instrument Flight Rule (IFR) flights only, ADS-B 1090 ES transponder required, ATC clearance required.

CLASS B Think B - Busy. Multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports. ADS-B 1090 ES transponder required, ATC clearance required.

CLASS C Think C - Mode C. Mode C transponder required. ATC communication required. Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control.

CLASS D Think D - Dialogue. Pilot must establish dialogue with tower. Generally airspace from the surface to minimum 2,500 feet AGL surrounding towered airports.

CLASS E Think E - Everywhere. Controlled airspace that is not designated as any other Class of airspace.

CLASS G Think G - Ground. Uncontrolled airspace. From surface to a 1,200 AGL (in mountainous areas 2,500 AGL) Exceptions: near airports it lowers to 700' AGL; some airports have Class E to the surface. Visual Flight Rules (VFR) minimums apply.

Source: www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/17_phak_ch15.pdf

Class C: Class C is controlled airspace surrounding lower-activity commercial service and some military airports. The FAA has established Class C airspace at 120 airports around the country as a means of regulating air traffic in these areas. Class C airspace is designed to regulate the flow of uncontrolled traffic above, around, and below the arrival and departure airspace required for high performance, passenger-carrying aircraft at major airports. To operate inside Class C airspace, aircraft must be equipped with a two-way radio, an encoding transponder, and the pilot must have established communication with ATC. The nearest Class C airspace surrounds commercial airports in Wichita, KS (ICT), Omaha, NE (OMA), and Springfield, MO (SGF).

Class D: Class D is controlled airspace surrounding most airports with an operating ATCT and not classified under B or C airspace designations. MKC is located within Class D airspace, as shown on **Exhibit 1N**.The Class D airspace at MKC extends upward from the surface to and including 3,300 feet MSL within a 4.2-mile radius of the airport, excluding that airspace within the Kansas City, MO Class B airspace area; and within 1.0 mile each side of the 012° bearing from the Runway 19 LOC, extending from the 4.2-mile radius to 4.4 miles north of the airport; and within 1.0 mile each side of the 013° bearing from the airport, extending from the 4.2-mile radius to 4.3 miles north of the airport; and within 1.0 mile each side of the 215° bearing from the Runway 4 LOC, extending from the 4.2-mile radius to 4.5 miles south of the airport; and within 1.0 mile each side of the 218° bearing from the airport, extending from the 4.2-mile radius to 5.0 miles south of the airport.

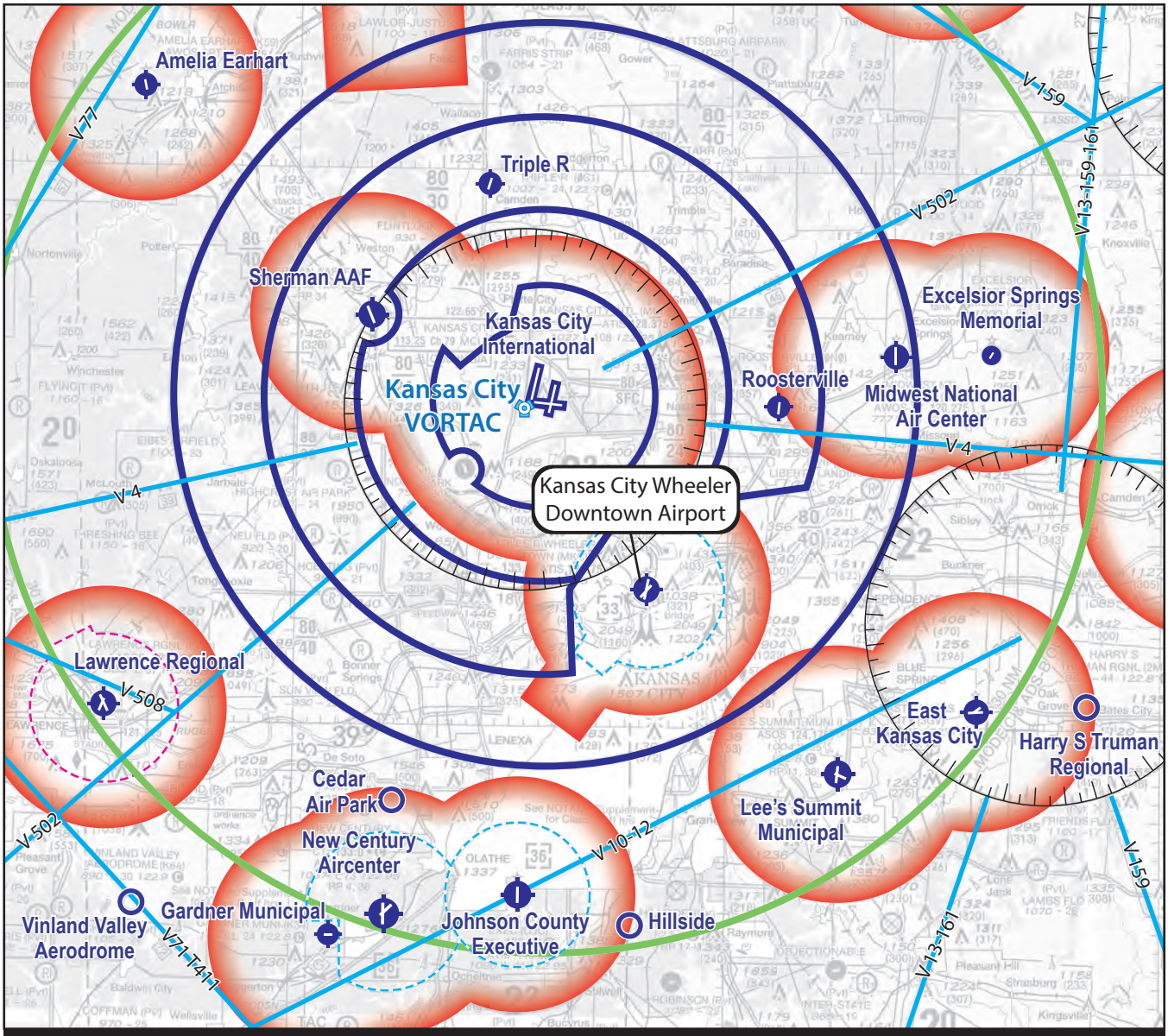
Class E: Class E is controlled airspace surrounding an airport that encompasses all instrument approach procedures and low-altitude federal airways. Only aircraft conducting instrument flights are required to be in contact with the appropriate air traffic control facility when operating in Class E airspace. While aircraft conducting visual flights in Class E airspace are not required to be in radio contact with air traffic control facilities, visual flight can only be conducted if minimum visibility and cloud ceilings exist.

Class G: Class G is uncontrolled airspace that is typically found in rural areas that does not require communication with an air traffic control facility. Class G airspace lies between the surface and the overlaying Class E airspace (700 to 1,200 feet AGL). While aircraft may technically operate within this Class G airspace without any contact with ATC, it is unlikely that many aircraft will operate this low to the ground. Furthermore, FAR Part 91.119, *Minimum Safe Altitudes*, specify minimum altitudes for flight.

SPECIAL USE AIRSPACE

Special use airspace is defined as airspace where activities must be confined because of their nature, or where limitations are imposed on aircraft not taking part in those activities. Special use airspace identifies the areas where these non-standard operations may be occurring by outlining active times and/or altitudes to provide separation information in the area. Most special use airspace is designated on FAA aeronautical charts. The special use airspace in the vicinity of MKC is also depicted on **Exhibit 1N**.

Victor Airways: Victor Airways are for aircraft arriving or departing the regional area and navigating by using very high frequency omni-directional range (VOR) facilities. This system of federal airways, referred to as Victor Airways, has been established. Victor Airways are corridors of airspace eight miles wide that extend upward from 12,000 feet AGL to 18,000 feet MSL and extend between VOR facilities. There are several Victor Airways surrounding the airport, and they are identified with blue lines marked with a “V” preceding a designation number on **Exhibit 1N**.



LEGEND

- Airport with hard-surfaced runways 1,500' to 8,069' in length
- Airports with hard-surfaced runways greater than 8,069' or some multiple runways less than 8,069'
- Airport with other than hard surfaced runway
- VORTAC
- Compass Rose
- Victor Airways
- MODE C Airspace
- Class B Airspace
- Class D Airspace
- Class E Airspace
- Class E (sfc) Airspace with floor 700 ft. above surface that laterally abuts 1200 ft. or higher Class E airspace

Source: Kansas City Sectional Chart, US Department of Commerce, National Oceanic and Atmospheric Administration, 2/23/23

Military Operations Area (MOA): An MOA is an area of airspace designated for military training use. This is not restricted airspace; however, pilots who use this airspace should be on alert for the possibility of military traffic. A pilot may need to be aware that military aircraft can be found in high concentrations, conducting aerobatic maneuvers, and possibly operating at high speeds and/or at lower elevations. The nearest MOA to MKC is the Truman A MOA, which is approximately 37 nm southeast of the airport. Each MOA will have its own designated airspace block and hours of operation. The activity status of an MOA is advertised by a Notice to Airmen (NOTAM) and notated on sectional charts.

Restricted Airspace: Restricted airspace is an area (volume) of airspace typically used by the military in which the local controlling authorities have determined that air traffic must be restricted (if not continually prohibited) for safety or security concerns. It is depicted on aeronautical charts with the letter "R" followed by a serial number. Restricted areas denote the existence of unusual, often invisible, hazards to aircraft, such as artillery firing, aerial gunnery, or guided missiles. Penetration of restricted areas without authorization from the using or controlling agency may be extremely hazardous to the aircraft and its occupants. Restricted airspace zones may not always be active; in such cases, there are typically schedules of local dates and times available to aviators specifying when the zone is active, and at other times, the airspace is subject to normal operation for the applicable airspace class. There are no restricted areas in the immediate vicinity of the airport. The closest restricted airspace is near Fort Riley in Kansas, and near Fort Leonard Wood in Missouri.

Alert Areas: Alert areas are depicted on aeronautical charts to inform non-participating pilots of areas that may contain a high volume of pilot training or an unusual type of aerial activity, such as military operations. Pilots should be particularly alert when flying in these areas. Military activities or other flight training in these areas typically operate at lower altitudes and may occur at any time of the day or night. General aviation flights are not restricted within these areas, but pilots are strongly cautioned to be alert for high-speed military training aircraft. There are no alert areas that would impact activity around MKC.

Military Training Routes: Military Training Routes (MTRs) are designated airspace established for use by high performance military aircraft to train below 10,000 feet AGL and at speeds exceeding 250 knots. There are visual (VR) and instrument (IR) designated MTRs. MTRs with no segment above 1,500 feet AGL will be designated with the VR or IR, followed by a four-digit number. MTRs with one or more segments above 1,500 feet AGL are identified by the route designation, followed by a three-digit number. The arrows on the route show the direction of travel. There are no MTRs in the immediate vicinity of MKC.

AIRSPACE CONTROL

The FAA has established 21 Air Route Traffic Control Centers (ARTCCs) throughout the continental United States to control aircraft operating under IFR within controlled airspace and while enroute. An ARTCC assigns specific routes and altitudes along federal airways to maintain separation and orderly traffic flow. The Kansas City ARTCC controls IFR air traffic over an area that covers 130,000 miles of airspace from southern Illinois to Colorado and includes enroute air traffic to and from MKC.



MKC ATCT

Flight service stations (FSS) are air traffic facilities which provide pilot briefings, flight plan processing, in-flight radio communications, search and rescue (SAR) services, and assistance to lost aircraft in emergency situations. FSS facilities also relay air traffic control (ATC) clearances, process Notice to Air Missions (NOTAMs), broadcast aviation metrological and aeronautical information, and notify Customs and Border Protection of trans-border flights.

As shown on **Exhibit 1N,** the airspace surrounding MKC is Class D airspace, which requires two-way radio communications with the ATCT and consists of controlled airspace extending upward from the surface to 3,300 feet MSL. Pilots operating in MKC's Class D airspace must establish communication with ATC prior to entering the airspace and then maintain communications while operating in the Class D airspace. Pilots of arriving aircraft should provide their position, altitude, destination, and any requests to the tower personnel.

The ATCT at MKC is continuously operated, 24 hours per day, seven days per week. The tower, which is operated by the FAA, is staffed by a minimum of three controllers. The primary responsibilities for tower controllers are to sequence and separate local arriving and departing traffic and to provide ground control direction to aircraft taxiing on the ground. Tower radio frequencies are as follows:

- Downtown Ground – 121.9 MHz
- Downtown Tower – 133.3 / 233.7 MHz
- Kansas City Approach – 118.4 MHz
- Kansas City Departure – 118.4 MHz
- Clearance Delivery – 121.9 MHz
- Pre-Taxi Clearance – 121.9 MHz

NAVIGATIONAL AIDS

Navigational aids are electronic devices that transmit radio frequencies that pilots of properly equipped aircraft can translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft flying to/from MKC include a very high frequency omni-directional range (VOR) facility, a non-directional beacon (NDB), and global positioning system (GPS).

The VOR provides azimuth readings to pilots of properly equipped aircraft by transmitting a radio signal at every degree to provide 360 individual navigational courses. Frequently, distance measuring equipment (DME) is combined with a VOR facility (VOR-DME) to provide distance as well as direction information to the pilot. Military tactical air navigation aids (TACANs) and civil VORs are commonly combined to form a VORTAC. The VORTAC provides distance and direction information to both civil and military pilots. A VOR test facility, or VOT, transmits a test signal that allows pilots to determine the operational status and accuracy of a VOR receiver while on the ground where a VOT is located. At MKC, VOR navigational aids are available:

- VOT – Kansas City Downtown (108.6 MHz), on-airport
- VORTAC – Kansas City, 11.8 nm northwest
- VORTAC – Napoleon, 21.7 nm east

- VORTAC – Topeka, 44.7 nm west
- VOR/DME – Braymer, 45.2 nm northeast

A non-directional beacon (NDB) is a radio transmitter that acts as a navigational aid. In contrast to other navigational aids, like the VHF omnidirectional range (VOR) and TACAN, the signal transmitted from the NDB does not include inherent directional information. The NDB signal can be received at much greater distances at lower altitudes and follow the curvature of the Earth to assist pilots. The Herbb NDB is the nearest to MKC, located approximately 23.2 nautical miles to the southwest.

GPS was initially developed by the United States Department of Defense for military navigation around the world. However, GPS is now used extensively for a wide variety of civilian uses, including civil aircraft navigation. GPS uses satellites placed in orbit around the Earth to transmit electronic radio signals, which pilots of properly equipped aircraft use to determine altitude, speed, and other navigational information. This provides more freedom in flight planning and allows for more direct routing to destinations. GPS provides enroute navigation and non-precision instrument area navigation (RNAV) approaches to both ends of Runway 4-22 and Runway 19 at MKC.

INSTRUMENT LANDING SYSTEM (ILS) EQUIPMENT

Airports offering full ILS approaches are equipped with both a glide slope antenna and localizer antenna array. The glide slope antenna provides vertical guidance to landing aircraft and can be located on either side of the runway; however, it is best to locate the glide slope antenna on the side of the runway with the least possibility of signal reflections from buildings, power lines, aircraft, etc. The glide slope antenna for Runway 19 is located on the east side of the runway, just north of Taxiway K. The localizer antenna array for Runway 19 is located at the end of the Runway 1 EMAS bed, approximately 650 feet from the Runway 1 threshold.

The glide slope antenna for Runway 4 is located on the west side of the runway, at Taxiway L near the VASI system. The localizer antenna array for Runway 4 is offset from the runway, located approximately 330 feet northwest of the Runway 22 pavement end.



Glide Slope Antenna Serving Runway 4-22

FLIGHT PROCEDURES

Flight procedures are a set of predetermined maneuvers established by the FAA, using electronic or visual navigational aids that assist pilots in locating and landing or departing from an airport. For MKC, there are instrument approach procedures, standard terminal arrivals (STARs), and departure procedures. An instrument approach procedure (IAP) is defined as a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually. There are three categories of IAPs: precision approach (PA), approach with vertical guidance (APV), and non-precision approach (NPA).

Precision Approach: A PA uses a navigation system that provides both course and glidepath deviation.

Approach with Vertical Guidance: An APV also uses a navigation system for both course and glidepath deviation, but not to the same standards as a traditional precision approach.

Non-Precision Approach: An NPA uses a navigation system for course deviation but does not provide glidepath information.

The FAA creates and publishes airport-specific instrument approach procedures designed to each individual airport environment and available navigational aids. The capability of an instrument approach procedure is defined by the visibility and the cloud ceiling minimums associated with the approach. Visibility minimums define the horizontal distance a pilot must be able to see in order to complete the approach. The cloud ceiling is defined as the height of the lowest layer of clouds, above the surface, that are either broken or overcast. If the observed visibility and/or cloud ceiling is below the prescribed minimums for the approach, the pilot cannot legally complete the approach. **Exhibit 1P** depicts the weather minimums for each instrument approach at MKC separated by aircraft approach category. It should also be noted that an additional RNAV GPS approach to Runway 19 with a cloud height of 250 feet and visibility minimums not lower than ¾-mile is planned to be implemented in August 2023.

Standard Terminal Arrivals (STARs)

A STAR is a preplanned, coded ATC IFR arrival route established for application to arriving IFR aircraft destined for certain airports. STARs simplify clearance delivery procedures and facilitate transition be-tween enroute and instrument approach procedures. There are currently three published STAR procedures into MKC.

Departure Procedures

Similar to a STAR, a departure procedure is a preplanned procedure for pilots to follow during departure in IFR conditions. These charted routes provide for obstacle clearance and a transition from the terminal area to the appropriate enroute structure. There are six published departure procedures at MKC.

LANDSIDE FACILITIES

Landside facilities are those airport elements that are not directly related to the airfield system, and which support the aircraft and pilot/passenger handling functions. Landside elements include the terminal buildings, general aviation facilities, aircraft storage facilities, aviation and non-aviation businesses located at the airport, and support facilities, such as fuel storage, airport maintenance, and aircraft rescue and firefighting. A generalized map of landside facilities and lease holdings at MKC is illustrated on **Exhibit 1Q**.

	WEATHER MINIMUMS BY AIRCRAFT TYPE							
	Category A		Category B		Category C		Category D	
	CH	VIS	CH	VIS	CH	VIS	CH	VIS
RWY 4 ILS or LOC								
S-ILS 4	250	¾ mile	250	¾ mile	250	¾ mile	NA	
S-LOC 4	816	1 mile	803	1 mile	803	2 ½ mile	803	2 ½ mile
Circling	803	1 mile	803	1 ¼ mile	803	2 ½ mile	803	2 ½ mile
DME Required								
S-LOC 4	496	1 mile	496	1 mile	496	1 ⅜ mile	NA	
Circling	623	1 mile	643	1 mile	703	2 mile	783	2 ½ mile
RWY 19 ILS or LOC								
S-ILS 19	250	¾ mile	250	¾ mile	250	¾ mile	250	¾ mile
S-LOC 19	706	¾ mile	706	1 mile	706	1 ⅞ mile	706	1 ⅞ mile
Circling	703	1 mile	703	1 mile	703	2 mile	783	2 ½ mile
DME Minimums								
S-LOC 19	546	¾ mile	546	¾ mile	546	1 ⅜ mile	546	1 ⅜ mile
Circling	623	1 mile	643	1 mile	800	2 mile	800	2 ½ mile
RWY 4 RNAV (GPS)								
LPV DA	255	¾ mile	255	¾ mile	255	¾ mile	NA	
LNAV/VNAV DA	667	1 ⅞ mile	667	1 ⅞ mile	667	1 ⅞ mile	NA	
LNAV MDA	496	1 mile	496	1 mile	496	1 ⅜ mile	NA	
Circling	623	1 mile	643	1 mile	703	2 mile	783	2 ½ mile
RWY 19 RNAV (GPS)								
LPV DA	250	¾ mile	250	¾ mile	250	¾ mile	250	¾ mile
LNAV/VNAV DA	546	1 ⅝ mile	546	1 ⅝ mile	546	1 ⅝ mile	546	1 ⅝ mile
LNAV MDA	586	¾ mile	586	¾ mile	586	1 ⅜ mile	886	2 ½ mile
Circling	623	1 mile	643	1 mile	703	2 mile	883	3 mile
RWY 22 RNAV (GPS)								
LP DA	416	1 mile	416	1 mile	416	1 ⅛ mile	NA	
LNAV MDA	516	1 mile	516	1 mile	516	1 ⅜ mile	NA	
Circling	623	1 mile	643	1 mile	703	2 mile	783	2 ½ mile

ABBREVIATIONS

CH | Cloud Height (in feet above ground level)
DA | Decision Altitude (used for vertically guided approaches)
GPS | Global Positioning System
ILS | Instrument Landing System
MDA | Minimum Descent Altitude
LNAV | A technical variant of GPS (Lateral)
VNAV | A technical variant of GPS (Vertical Navigation)
LOC | Localizer
LPV | Localizer Performance with Vertical Guidance
VOR | Very High Frequency Omnidirectional Range
VIS | Visibility (in miles)

Aircraft categories are based on the approach speed of aircraft, which is determined as 1.3 times the stall speed in landing configuration. The approach categories are as follows:

Category A | 0-90 knots (e.g., Cessna 172)
Category B | 91-120 knots (e.g. Beechcraft King Air)
Category C | 121-140 knots (e.g., B-737, Regional Jets, Canadair Challenger)
Category D | 141-166 knots (e.g., B-747, Gulfstream IV)

Source: AirNav



Exhibit 1Q – Generalized Landside Map

TERMINAL BUILDING

The Charles E. McGee General Aviation Terminal is located on the west side of the airport and is accessible via NW Lou Holland Drive, as shown on **Exhibit 1R**. The terminal was constructed in 2010 as part of a larger GA complex project that includes hangars, self-serve Avgas fueling, and aircraft parking apron. The terminal, which is approximately 3,100 square feet (sf), offers flight planning, office space, a pilots' lounge, showers, and restroom.



Terminal Building

FIXED BASE OPERATORS (FBO)

MKC currently has two full-service FBOs on the field: Atlantic Aviation and Signature Flight Support. Each provides aircraft fueling and a multitude of other aircraft and passenger services.

Atlantic Aviation

Atlantic Aviation is a full-service FBO offering aircraft fueling, deicing, air stairs, hangar space, charters, cargo, and ground handling services. Other amenities include day and overnight crew quarters, a fitness facility, conference rooms, a café, and access to rental car services. Atlantic Aviation operations are conducted in an 89,100-sf facility located on the west side of the airport, immediately north of the terminal building.



Atlantic Aviation

Signature Flight Support

Signature Flight Support is another full-service FBO at MKC. Signature offers a variety of services and amenities, including fueling, aircraft parking, aircraft maintenance, deicing, crew cars, and business center/conference rooms. While Signature leases a number of buildings on the airport, FBO services take place in Hangar 1, on the airport's southeast side near Runway 1.



Signature Flight Support

SPECIALTY AVIATION SERVICES OPERATOR (SASO) AND ON-AIRPORT BUSINESSES

There are a number of specialty aviation service operators (SASOs) and other businesses located on the airport, including air charter operators, flight schools, and aircraft maintenance providers. **Table 1J** includes a list of the businesses operating on the airfield at the time of this writing (March 2023), including the two museums operating on airport property. **Exhibit 1R** denotes the locations of these organizations on the airport.

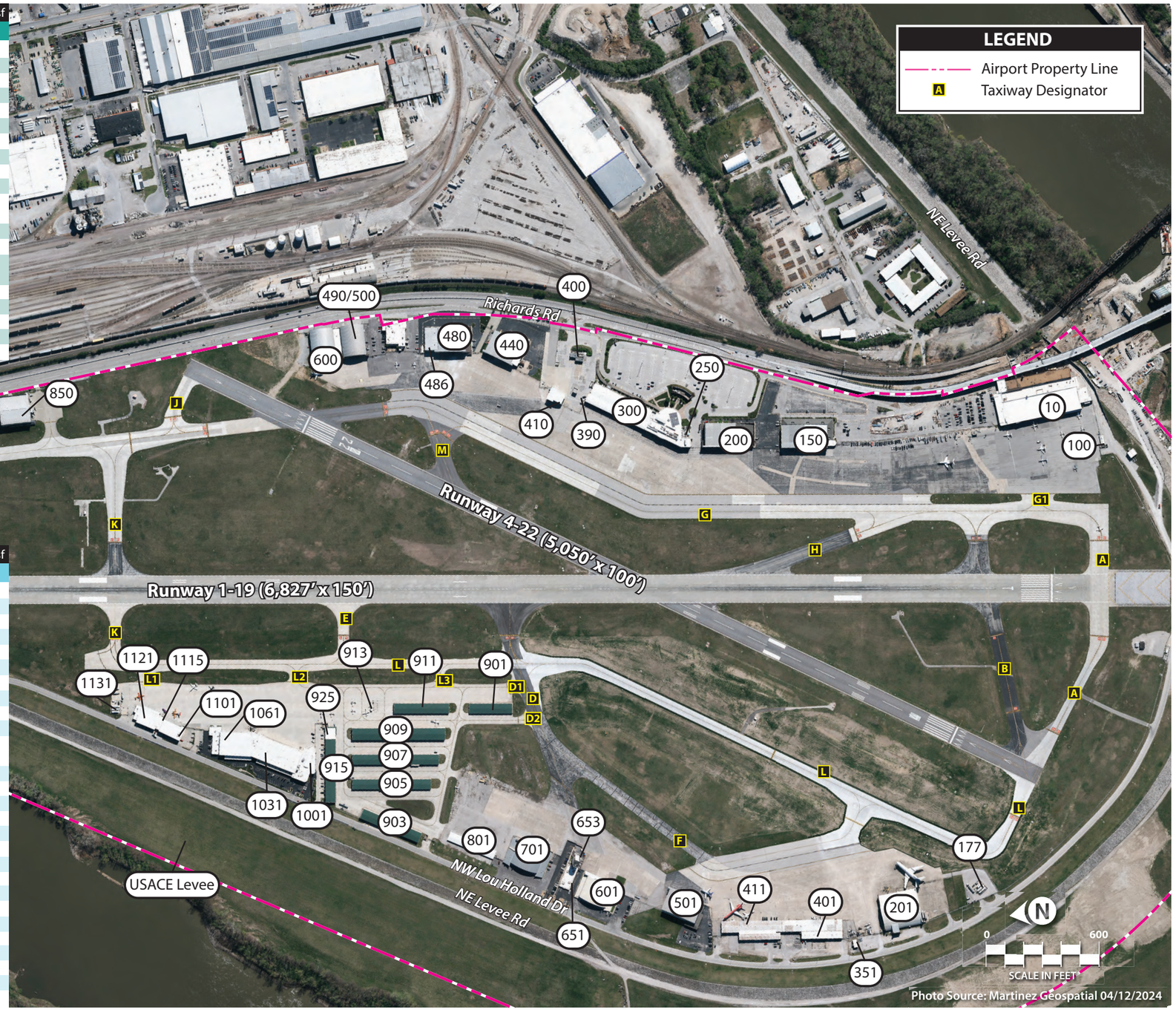
TABLE 1J | Airport Businesses

Air Charter Operators	Aircraft Maintenance
AirShare	Duncan Aviation
Air Associates	Meisinger Aviation
ATD Flight Systems, LLS	**Other Businesses**
Skybound Helicopters LLC	Airline History Museum
Timberview Helicopter Tours	TWA Museum
Flight Schools	VML (Marketing Agency)
ATP Flight School	
US Flight Co.	

Source: www.flymkc.com; Airport records

Building #	Description	Additional Tenants	Total sf	Hangar sf
East Side				
10	Hangar 1 (Signature FBO)	TWA Museum, Air Associates Charter	100,000	47,800
100	Storage Building (Signature Flight Support		1,200	NA
150	Hangar 2 (Signature Flight Support)	Meisinger Aviation	42,200	29700
200	Hangar 3 (Signature Flight Support)		33,500	19900
250	Administration Office/Maintenance Garage		2,500	NA
300	Old Terminal / VML		62,200	NA
390	Underground Auto Fuel Facility	NA	NA	NA
400	Electrical Vault	NA	NA	NA
410	Aircraft Rescue and Firefighting	NA	5,300	NA
440	Hangar 4A (Signature Flight Support)	Sierra Aviation Corporation	28,700	19,500
480	Hangar 4B (Signature Flight Support/TADIC)		30,300	25,600
486	Aboveground Fuel Facility	NA	NA	NA
490/500	Offices (Signature Flight Support)	ATP,	14,300	NA
600	Hangar 5A (Signature Flight Support) & 5B (KCAD)		46,800	41,000
850	Hangar 50 (Signature Flight Support)		23,400	23,400
900	Office and Maintenance Building (KCAD)		30,600	NA
940	Storage Building (KCAD)		10,000	
942	Storage Building (KCAD)		800	NA
970	Sand Storage Building (KCAD)		900	

Building #	Description	Additional Tenants	Total sf	Hangar sf
West Side				
177	Aboveground Fuel Facility (Signature)		NA	NA
201	Hangar 9 (Signature Flight Support)	Airline History Museum	39,600	39,600
351	Office/Storage (Signature Flight Support)		900	NA
401	Hangar 8A (Signature Flight Support)		24,700	NA
411	Hangar 8B (Signature Flight Support)		31,300	NA
501	Hangar 7 (Signature Flight Support)	Airshare	24,000	24,000
601	Hangar 6B (Signature Flight Support)	ATD	29,900	24,000
651	FAA Airways and Facilities Building	NA	7,600	NA
653	FAA Airport Traffic Control Tower	NA		NA
701	Hangar 6A (Signature Flight Support)	Duncan Aviation	31,900	22,400
801	Shade Hangars, 12 spaces (Signature Flight Support)		NA	NA
901	T-hangar, 10 units		12,200	12,200
903	Linear Box Hangars, 6 units		18,100	18,100
905	T-hangar, 19 units		22,400	22,400
907	T-hangar, 21 units		24,000	24,000
909	T-hangar, 21 units		29,900	29,900
911	T-hangar, 13 units		15,500	15,500
913	Self-Serve Fuel Facility		NA	NA
915	Linear Box Hangars, 6 units		17,800	17,800
925	GA Terminal Building		3,100	NA
1001	FBO Terminal (Atlantic Aviation)		29,600	NA
1031	Hangar 10 (Atlantic Aviation)		31,700	31,700
1061	Hangar 11 (Atlantic Aviation)		27,800	21,000
1101	Hangar 14			8,800
1115	Hangar 15			9,100
1121	Customs and Border Protection		2,000	
1131	Aboveground Fuel Facility (Atlantic)		NA	NA



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AIRCRAFT HANGAR FACILITIES

Existing hangar facilities at MKC consist of large, conventional-style hangars utilized by the various FBOs/SASOs on the airport, mid-sized executive hangars, and linear box and T-hangars that are designed to accommodate smaller aircraft. Conventional hangars, which make up the bulk of the hangars at MKC, typically offer more than 10,000 sf of storage space, while the smaller executive hangars usually range in size from 2,500 sf to 10,000 sf. Hangars at the airport are identified on **Exhibit 1R**, along with their approximate square footage and condition. Approximate total square footages of the existing hangar types are:

- Conventional hangars (including maintenance hangars) – 369,600 square feet
- Executive hangars – 17,900 square feet
- Linear box and T-hangars – 139,900 square feet

AIRCRAFT PARKING APRONS

Aircraft aprons are pavement areas that are sufficiently removed from aircraft taxiways and movement areas that facilitate the safe and efficient transition of passengers from the airside element (runways and taxiways) to the landside element. Aprons provide access to the terminal building and hangars and provide for short- and long-term aircraft parking. MKC has five distinct apron areas, offering approximately 234,400 square yards (sy) of ramp space combined, excluding taxilane pavement. Primary apron areas at MKC are described below and identified on **Exhibit 1S**. The pavement condition of the various apron areas was previously detailed on **Exhibit 1H**.

- Atlantic Apron – The Atlantic apron comprises approximately 27,400 sy and is used predominantly by Atlantic Aviation. This apron also contains the designated U.S. Customs aircraft parking area.
- GA Apron – The GA apron fronts the terminal building and provides ramp area for transient operators, including four marked tiedowns. The apron is sized at approximately 7,400 sy, excluding taxilane pavement associated with the linear box and T-hangars. Two additional marked tiedowns are located on the western edge of the taxilane pavement, just north of the linear box hangars along NW Lou Holland Drive.

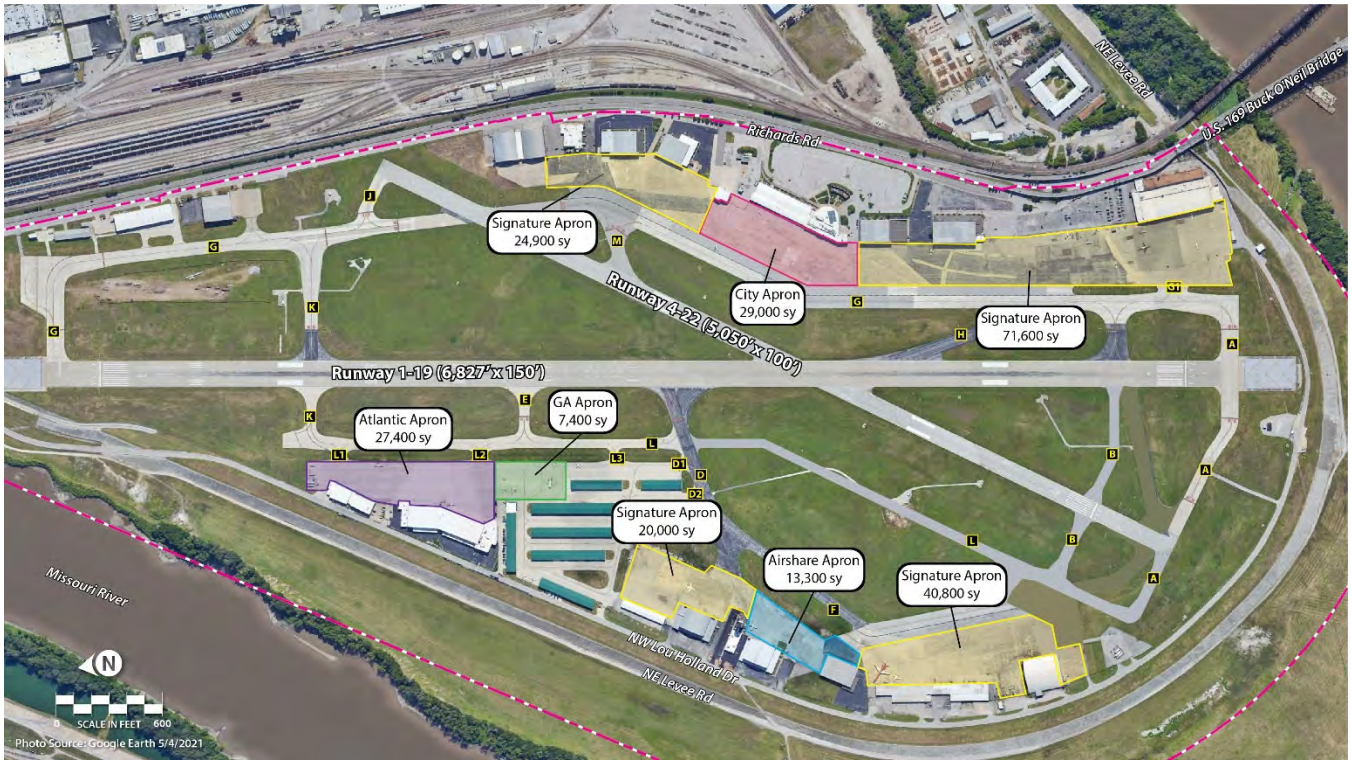


Exhibit 1S – Aircraft Parking Aprons

- Signature Aprons – There are four apron areas associated with Signature Flight Support. The Signature aprons are located on both the east and west sides of the airport, providing approximately 157,300 sy of combined pavement. The ATCT is located on the northernmost Signature apron on the west side of the airport. A portion of this apron is also used for vehicle parking, with 30 spaces available for tenants and other authorized individuals. The southern Signature apron on the west side supports Hangars 8A and 8B, as well as the Airline History Museum. On the southeast side, the 71,600 sy apron serves as the primary aircraft parking apron for transient operators utilizing Signature Flight Support, with the northeast 29,400 sy apron utilized for miscellaneous Signature operations.
- Airshare Apron – This apron supports the Airshare hangar and Hangar 6B and comprises approximately 13,300 sy.
- City Apron – The City apron provides approximately 29,000 sy of pavement and supports KCAD and other City operations, including the ARFF building.

VEHICLE PARKING

There are approximately 1,800 marked vehicle parking spaces to support facilities at the airport, including handicapped accessible spaces. Of this total, roughly 1,375 are publicly accessible, with the remainder being private parking spaces at businesses within the fenced airport property. Each FBO has their own designated parking areas. Vehicle parking spaces are identified on **Exhibit 1T**.

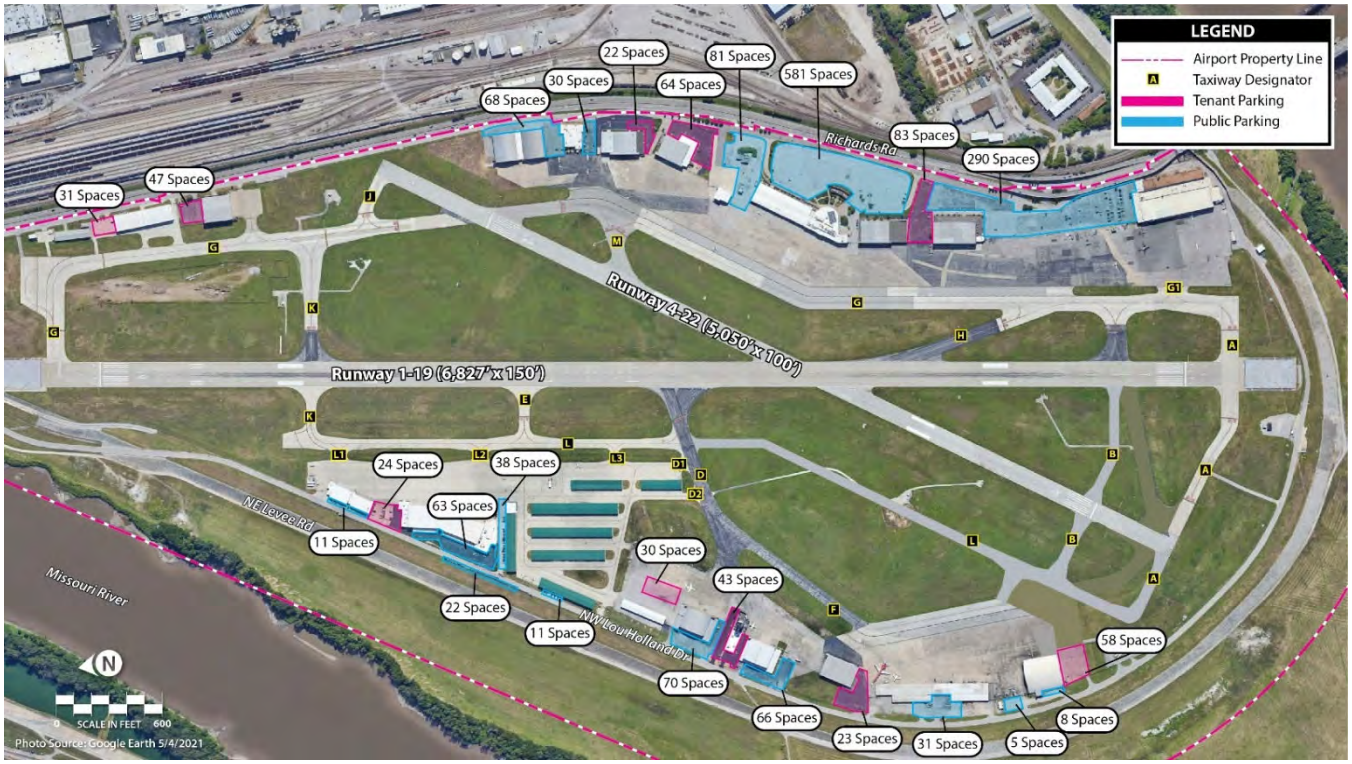


Exhibit 1T – Vehicle Parking

SUPPORT FACILITIES

AIRCRAFT RESCUE & FIREFIGHTING (ARFF) SERVICES

Part 139 airports are required to provide ARFF services during air carrier operations. Each certificated airport maintains equipment and personnel based on an ARFF index established according to the length of aircraft and scheduled daily flight frequency. There are five indices, A through E, with A applicable to the smallest aircraft and E the largest (based on aircraft length). Although it does not see daily scheduled air service, MKC is required to meet ARFF Index A based on periodic unscheduled large air carrier operations with over 30 passenger seats. Prior permission is required 24 hours in advance of any air carrier operations to ensure ARFF availability 15 minutes before and after an air carrier arrival and departure.



Aircraft Rescue & Firefighting

ARFF operations are provided by the Kansas City Fire Department (KCFD). The on-site ARFF facility is unstaffed. When needed, ARFF qualified personnel respond from nearby Station 25 (401 E. Missouri Avenue), with other ARFF trained firefighters on standby in the event that Station 25 personnel cannot respond. In all, the KCFD has a total of 55 ARFF certified responders, and the department maintains mutual aid agreements with all municipalities surrounding MKC (Kansas City, KS Fire Department; North Kansas City Fire Department; and South Platte Fire Protection District).

The ARFF building at MKC is located on the east side of the airport, identified as Building #410 on **Exhibit 1P**. The following equipment is housed at the facility:

- Primary vehicle: 2020 Oshkosh Striker with:
  - 3,000 gallons of water
  - 420 gallons of aqueous film forming foam (AFFF)
  - 450 pounds of potassium-based dry chemical
  - Various ARFF and structural hand tools
  - Emergency Medical Services basic life support equipment bags

- Secondary vehicle: 1986 Oshkosh P19 with:
  - 1,000 gallons of water
  - 90 gallons of AFFF
  - 450 pounds of potassium-based dry chemical
  - Various ARFF and structural hand tools
  - Emergency Medical Services basic life support equipment bags

The airport has an Airport Emergency Plan (AEP) in place to comply with CFR 14 Part 139.325, as administered by the FAA. The AEP presents the overall sequence and scope of the planned emergency response. The AEP was approved in December 2006, with the most recent revisions made in June 2022.

FUEL STORAGE

Aviation fuel services at MKC are offered by the two FBOs, Atlantic Aviation and Signature Flight Support, as well as a self-serve station on the terminal apron that is owned by the airport and managed by MKC staff. Atlantic Aviation maintains three aboveground fuel tanks on the north apron (identified as #1131 on **Exhibit 1R**). Signature Flight Support also maintains three aboveground tanks on the south apron (#177). Both FBOs also maintain fleets of fuel trucks to support fueling operations. **Table 1K** lists information about the public-use aviation fuel tanks/vehicles located on airport property. Additional fuel tanks located on the airport include a Jet-A tank used by Tadic Aviation and a Jet-A fuel truck used by Airshare. Fuel in these tanks is for private use only by these entities.

TABLE 1K | Fuel Storage Capacity

Storage Type	Capacity (gal.)	Fuel Type
ATLANTIC AVIATION		
Static Aboveground Tank	20,000	Jet-A
Static Aboveground Tank	20,000	Jet-A
Static Aboveground Tank	20,000	Jet-A
Mobile Fuel Truck	5,000	Jet-A
Mobile Fuel Truck	5,000	Jet-A
Mobile Fuel Truck	4,500	Jet-A
SIGNATURE FLIGHT SUPPORT		
Static Aboveground Tank	20,000	Jet-A
Static Aboveground Tank	20,000	Jet-A
Static Aboveground Tank	12,000	100LL
Mobile Fuel Truck	5,000	Jet-A
Mobile Fuel Truck	5,000	Jet-A
Mobile Fuel Truck	5,000	Jet-A
Mobile Fuel Truck	1,200	100LL
Mobile Fuel Truck	1,000	100LL
MKC		
Static Aboveground Tank	12,500	100LL
Total Capacity	**156,200**	
Total Jet A	**129,500**	
Total 100LL	**26,700**	

Source: Airport records

Additional information regarding fuel flowage has been provided by MKC staff. According to these records, in 2022, a total of 5,678,872 gallons of Jet A and 260,988 gallons of Avgas were sold. These figures are both up from the previous four years, where

2021 experienced the lowest fuel sales for both Jet A and 100LL at 3,346,302 gallons and 177,567 gallons, respectively. **Exhibit 1U** includes a graphic depicting the last five years of fuel flowage at MKC.

VEHICLE AIRFIELD ACCESS AND PERIMETER FENCING

Ground vehicles authorized by the airport to operate on movement and safety areas are limited to those vehicles necessary for airport operations. These include airport maintenance vehicles, police patrols, fire and rescue vehicles, aircraft fuel and service vehicles, and others authorized by the airport, such as airline/FBO vehicles, construction vehicles, FAA, and airport staff.

Most areas of the airfield are accessible from NW Lou Holland Drive and Richards Road, which encircle the airport, with secure access gates located at various points. An access road extends from NW Lou Holland Drive, near the Runway 1 and 4 ends, providing access to the southern portion of the airfield. On the north side, another access road extends from Richards Road near Building #970.

The entire perimeter of the airport is secured by seven-foot chain-link fencing topped with one foot of barbed wire. Signs prohibiting unauthorized entry are displayed on all gates and other prominent locations to control inadvertent entry to the airfield. Gates are located at various points on the airfield allowing access to movement and non-movement areas and are locked, either electronically or with padlocks.

U.S. CUSTOMS AND BORDER PROTECTION

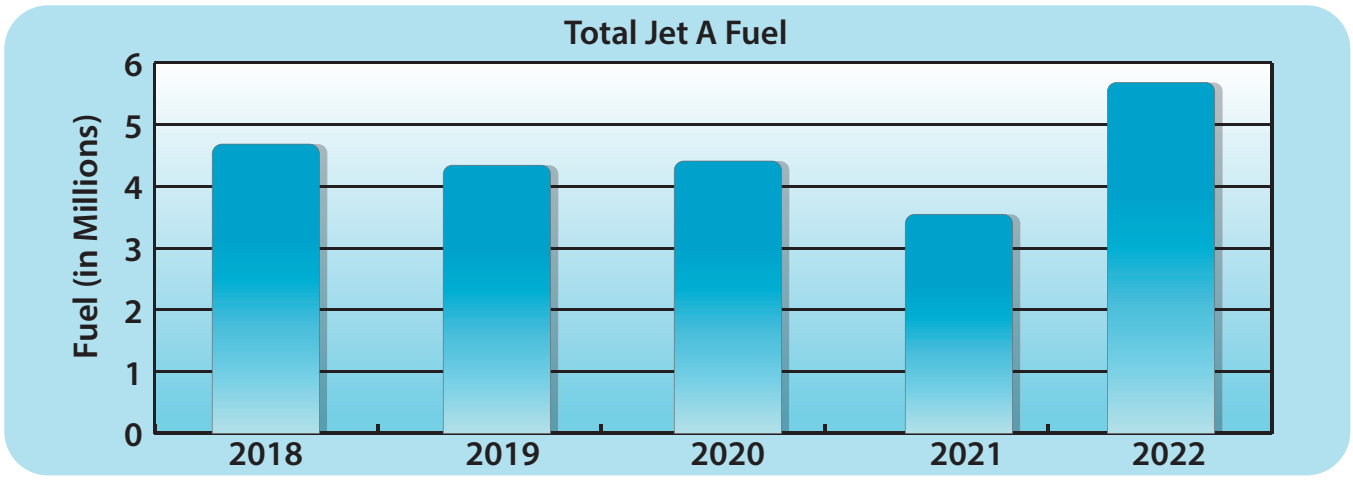
MKC has an on-site U.S. Customs and Border Protection (CBP) facility. The airport is part of the CBP Reimbursable Services Program, which enables partnerships between CBP and private sector or government entities. The program allows CBP to provide inspection services for international general aviation flights upon request. Aircraft are directed to park on the apron fronting Atlantic Aviation on the west side of the airport, near the CBP facility. A Customs officer will be notified and will meet the aircraft for processing and collection of user fees. The CBP facility is identified as Building #1121 on **Exhibit 1P**.

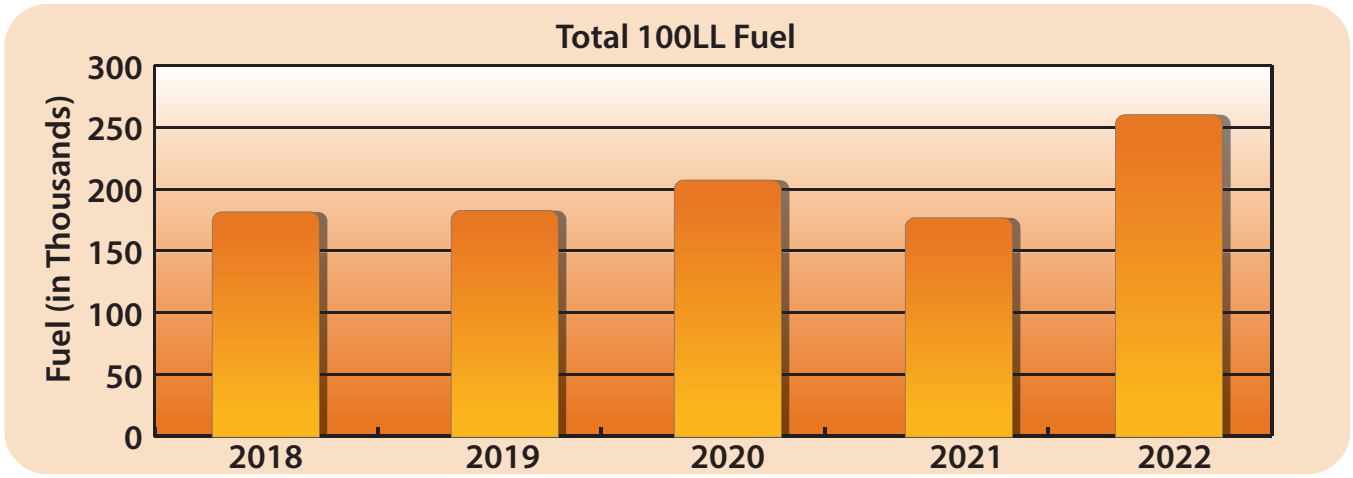
AIRPORT MAINTENANCE FACILITIES

MKC staff maintains the airfield with a variety of equipment, including passenger vehicles; grass mowers; snowplows; sand trucks; pavement equipment, such as surface sweepers; small personal tractors; forklifts; and other necessary tools. Maintenance offices and storage are located on the east side of the airfield in Buildings #250 and #900.

AIRCRAFT WASH RACK

Busier general aviation airports often make aircraft wash rack systems available. The wash rack at MKC is located near the self-serve fuel pump at the end of a row of T-hangars. This wash rack includes a water recovery system and an oil separator to enhance pollution prevention and provide an environmentally friendly method to contain cleaning fluids.





Year	Jet A			100LL			Total Fuel Dispensed
	Atlantic Aviation	Signature	Total	Self-Service	Signature	Total	
2018	2,717,128	1,965,937	4,683,065	108,572	73,803	182375	4,865,440
2019	2,439,150	1,901,706	4,340,856	109,840	73,629	183469	4,524,325
2020	2,438,154	1,970,704	4,408,858	119,059	89,087	208,146	4,617,004
2021	2,185,722	1,360,580	3,546,302	105,080	72,487	177,567	3,723,869
2022	3,158,780	2,520,092	5,678,872	122,014	138,974	260,988	5,939,860



UTILITIES

MKC is served by electrical, natural gas, communications (phone and internet), and water services by the providers listed below.

- Electrical – Evergy
- Natural Gas – Spire
- Water/Sewer – KC Water
- Communications -AT&T

SOCIOECONOMIC CHARACTERISTICS

Socioeconomic information related to the approximate airport service area is an important consideration in the master planning process by providing an understanding of the demographic dynamics of the area. As a reliever airport, certain elements of aviation demand, such as air cargo, may be related to the demographic trends across the whole state. Other elements may be more directly related to regional demographics.

The historic demographic trends in population, employment, and income provide insight into the long-term socioeconomic condition of the region. This information is essential in determining aviation service level requirements, as well as forecasting aviation demand elements for airports. Aviation forecasts are typically related to the population base, economic strength of the region, and the ability of the region to sustain a strong economic base over an extended period.

Data has been obtained from Woods & Poole Economics - Complete Economic and Demographic Data Source, 2022. Woods & Poole utilizes information from the U.S. Census Bureau, as well as other national and state organizations, for historic data and future projections, and is an FAA-approved source for socioeconomic data. **Table 1L** details population, employment, and income data.

TABLE 1L | Historical Demographic Data

Local	YEAR				CAGR 2000-2022
	2000	2010	2020	2022	
Population					
Kansas City MSA	2,132,466	2,347,431	2,529,908	2,553,321	0.82%
State of Missouri	5,607,285	5,996,089	6,154,481	6,196,299	0.46%
State of Kansas	2,693,681	2,858,266	2,935,880	2,947,266	0.41%
Employment					
Kansas City MSA	1,385,510	1,422,472	1,544,548	1,650,040	0.80%
State of Missouri	3,470,837	3,475,306	3,626,308	3,847,439	0.47%
State of Kansas	1,760,318	1,801,873	1,851,263	1,955,641	0.48%
PCPI					
Kansas City MSA	$39,516	$41,970	$50,225	$51,572	1.22%
State of Missouri	$35,781	$38,767	$46,458	$46,795	1.23%
State of Kansas	$36,180	$41,744	$50,058	$50,829	1.56%

CAGR: Compound Annual Growth Rate
PCPI: Per Capita Personal Income ($2012)

Source: The Complete Economic and Demographic Data Source, Woods and Poole, 2022.

ENVIRONMENTAL INVENTORY

The purpose of the following environmental inventory is to identify potential environmental sensitivities that should be considered when planning future improvements at the airport. Research was performed for each of the 13 impact categories within FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures* (§1.2(b)(1)). When considering the effects to the impact categories listed below, the FAA may examine both the short and long-term effects, beneficial and adverse effects, effects on public health and safety, economic effects, and the effects on the quality of life to American people.

i. Aviation Emissions and Air Quality
ii. Biological Resources (including fish, wildlife, and plants)
iii. Coastal Resources
iv. *Department of Transportation Act*, Section 303 (referred to as "Section 4(f)") and Land and Water Conservation Fund (referred to as "Section 6(f)")
v. Farmlands
vi. Hazardous Materials, Solid Waste, and Pollution Prevention
vii. Historical, Architectural, Archeological, and Cultural Resources
viii. Land Use
ix. Natural Resources and Energy Supply
x. Noise and Noise-Compatible Land Use
xi. Socioeconomic and Children's Health and Safety Risks
xii. Visual Effects (including light emissions)
xiii. Water Resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers)

AVIATION EMISSIONS AND AIR QUALITY

The concentration of various pollutants in the atmosphere describes the local air quality. The significance of a pollutant's concentration is determined by comparing it to the state and federal air quality standards. In 1971, the U.S. Environmental Protection Agency (EPA) established standards that specify the maximum permissible short- and long-term concentrations of various air contaminants. The National Ambient Air Quality Standards (NAAQS) consist of primary and secondary standards for criteria pollutants: ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), coarse particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), and lead (Pb).

Based on federal air quality standards, a specific geographic area can be classified as an "attainment," "maintenance," or "nonattainment" area for each pollutant. The *de minimis* threshold for nonattainment designation varies by pollutant.

The airport is in northern Clay County, Missouri, just across the Missouri River from Kansas City, Kansas. Clay County is in attainment for all federal criteria pollutants.[3]

[3] Missouri Nonattainment / Maintenance Status for Each County by Year for All Criteria Pollutants (https://www3.epa.gov/airquality/greenbook/anayo_mo.html)

BIOLOGICAL RESOURCES

Biotic resources include the various types of plants and animals that are present in an area. The term also applies to rivers, lakes, wetlands, forests, and other habitat types that support plants and animals.

The U.S. Fish and Wildlife Service (USFWS) is charged with overseeing the requirements contained within Section 7 of the *Endangered Species Act* (ESA). The ESA provides a framework to conserve and protect animal or plant species whose populations are threatened by human activities. The FAA and USFWS review projects to determine if a significant impact to protected species would result from the implementation of a proposed project. Significant impacts occur when a proposed action could jeopardize the continued existence of a protected species or would result in the destruction or adverse modification of federally designated critical habitat in the area. The USFWS's Information for Planning and Consultation (IPaC) resource list describes species and habitat protected under ESA within the vicinity of the airport (**Table 1M**).

Section 3 of the ESA is used to protect critical habitat areas. Designated critical habitat areas are geographically defined and have been determined to be essential to the recovery of a specific species. There is no federally designated critical habitat at the airport.

There is potential for avian concerns for areas at the airport. Habitat for migratory birds may occur if bushes or other ground nesting substrate is present.

TABLE 1M | Species Protected Under ESA Section 7 with Potential to Occur at the Airport

Common Name (*Scientific Name*)	Federal Status	Habitat and Range	Potential for Occurrence
Mammals			
gray bat (*Myotis grisescens*)	Endangered	Occupies caves or cave-like structures year-round. While gray bats prefer caves, summer colonies have been documented using dams, mines, quarries, concrete box culverts, and the undersides of bridges. Summer caves must be warm or have rooms that can trap the body heat of clustered bats. Winter hibernation sites are primarily deep vertical caves that can trap large quantities of cold air (these caves are extremely rare). The gray bat is a monotypic species that occurs across a limited geographic range in limestone karst areas of the southeastern United States. During the winter, hibernating populations are concentrated in caves across northern Alabama and Arkansas, Kentucky, Missouri, and Tennessee.	May occur. The airport may contain suitable habitat for this species.
Indiana bat (*Myotis sodalis*)	Endangered	During the summer, reproductive females occupy roost sites in forested areas under the exfoliating bark of dead or dying trees that retain large slabs of peeling bark. Primary roosts usually receive direct sunlight for more than half the day. Roost trees can be found in a forest, in a fence line, or along a wooded edge. Habitats in which maternity roots are often in riparian zones, bottomland and floodplain habitats, wooded wetlands, and upland communities. Indiana bats forage in semi-open to closed forested habitats with open understory, forest edges, and riparian areas. Adult males occupy similar habitats but can use a wider range of roosts compared to females. In the winter, this species inhabits caves and cave-like locations (i.e., abandoned mines), called hibernacula. The largest known hibernaculum is in an abandoned mine in Missouri.	May occur. The airport may contain suitable habitat for this species.

Continues on next page

TABLE 1M | Species Protected Under ESA Section 7 with Potential to Occur at the Airport (continued)

Common Name (*Scientific Name*)	Federal Status	Habitat and Range	Potential for Occurrence
northern long-eared bat (*Myotis septentrionalis*)	Threatened	During the summer and portions of the fall and spring, this species can be found roosting singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags, or dead trees. Non-reproductive females and males may also roost in cooler places, like caves and mines. In the winter, this species hibernates in caves and mines. The northern long-eared bat utilizes areas in various sized caves or mines with constant temperatures, high humidity, and no air currents. Within hibernacula, surveyors find them hibernating most often in small crevices or cracks. This species range includes all or portions of the eastern and midwestern states.	May occur. The airport may contain suitable habitat for this species.
tricolored bat (*Perimyotis subflavus*)	Proposed Endangered	During the spring, summer, and fall, tricolored bats primarily roost among live and dead leaf clusters of live or recently deciduous hardwood trees. Tricolored bats have also been observed roosting during summer among pine needles, eastern red cedar (*Juniperus virginiana*), within artificial roosts like barns, beneath porch roofs, bridges, concrete bunkers, and rarely within caves. In the winter, tricolored bats hibernate in caves and mines; although, in places of the U.S. where caves are sparse, tricolored bats often hibernate in road-associated culverts and may be found in tree cavities and abandoned water wells.	May occur. The airport may contain suitable habitat for this species.
Fishes			
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	This species inhabits large, deep turbid river channels, usually in strong current over firm sand or gravel.	Potential to occur adjacent to the airport. The airport is near the Missouri River on its western, northern, and southern airport property boundaries.
Insects			
monarch butterfly (*Danaus plexippus*)	Proposed Threatened	A migratory species found in a variety of habitats; monarch butterfly requires milkweed (*Asclepias* spp.) for breeding. Monarchs born in midwestern states move south during late summer and fall and arrive in central Mexico. During the spring migration, monarchs move northward from central Mexico.	Potential to occur. The airport may contain suitable habitat for this species and species may be present during migration.

*USFWS Status Definitions

- *Endangered*: an animal or plant species that is in danger of extinction throughout all or a significant portion of its habitat range.
- *Threatened*: an animal or plant species in danger of extinction throughout all or a significant portion of its habitat range.
- *Proposed endangered*: any species in danger of extinction throughout all or a significant portion or its range and the Service has proposed a draft rule to list as endangered.
- *Proposed Threatened*: an animal or plant species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and has been proposed to be listed as threatened; proposed threatened species are not protected by the take prohibitions of section 9 of the ESA.

Source: USFWS IPaC (https://ipac.ecosphere.fws.gov/); USFWS Species (https://www.fws.gov/species)

COASTAL RESOURCES

Federal activities involving or affecting coastal resources are governed by the *Coastal Barriers Resource Act*, the *Coastal Zone Management Act*, and Executive Order (E.O.) 13089, *Coral Reef Protection*.

The airport is not located within a coastal zone. The closest National Marine Sanctuary is the Thunder Bay National Marine Sanctuary located 691 miles away in northeastern Michigan.[4]

DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(f)

Section 4(f) of the *Department of Transportation Act,* which was recodified and renumbered as Section 303(c) of 49 United States Code, provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly or privately owned historic sites, public parks or recreation areas, or waterfowl and wildlife refuges of national, state, regional, or local importance unless there is no feasible and prudent alternative to the use of such land, and the project includes all possible planning to minimize harm resulting from the use.

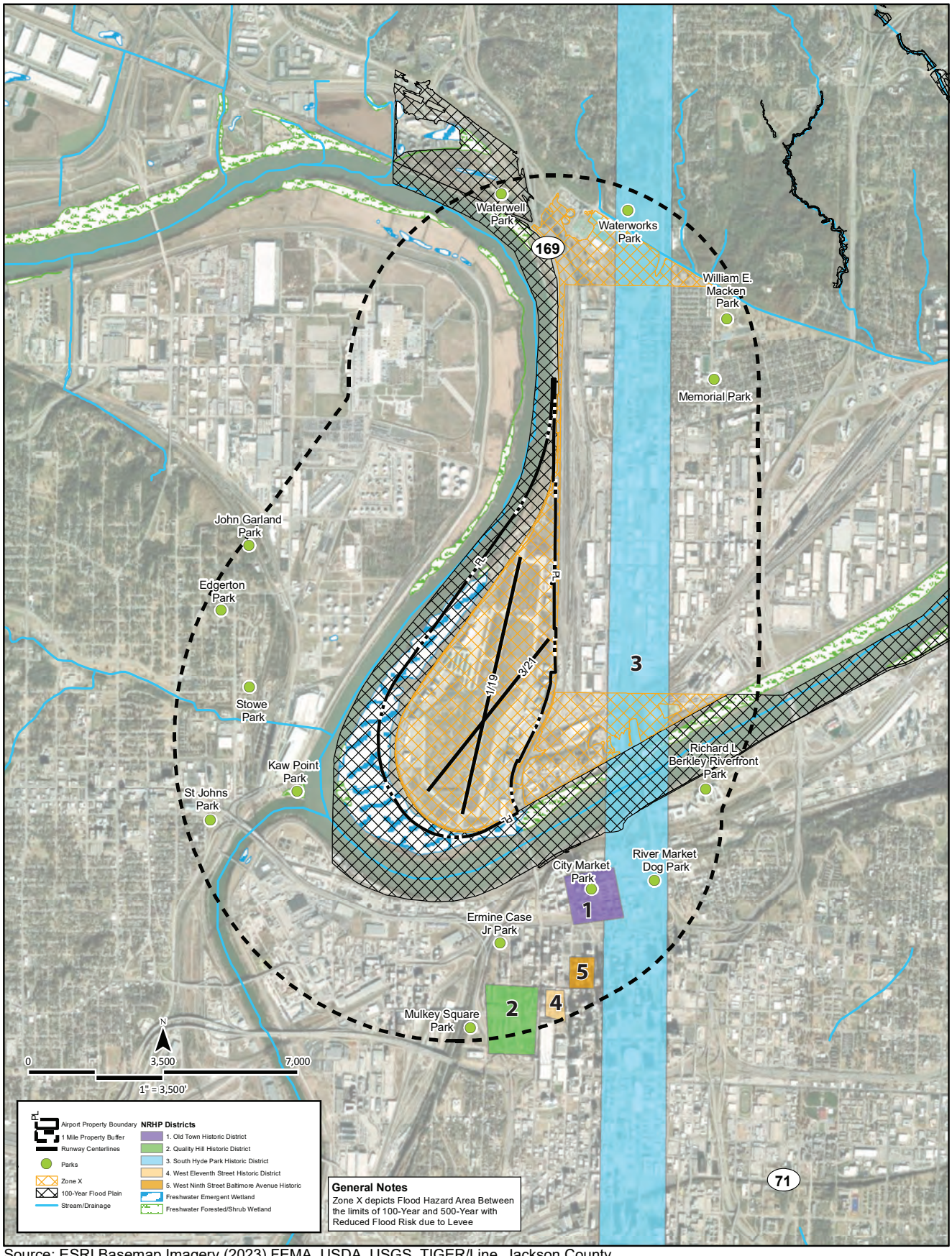
Table 1N and **Exhibit 1V and Exhibit 1W** identify potential Section 4(f) resources within one mile of the airport. School playgrounds or athletic fields may be considered a Section 4(f) resource if the recreational facilities at the school are readily available to the public.

TABLE 1N| U.S. Dept. of Transportation Section 4(f) Resources within One Mile of the Vicinity of the Airport

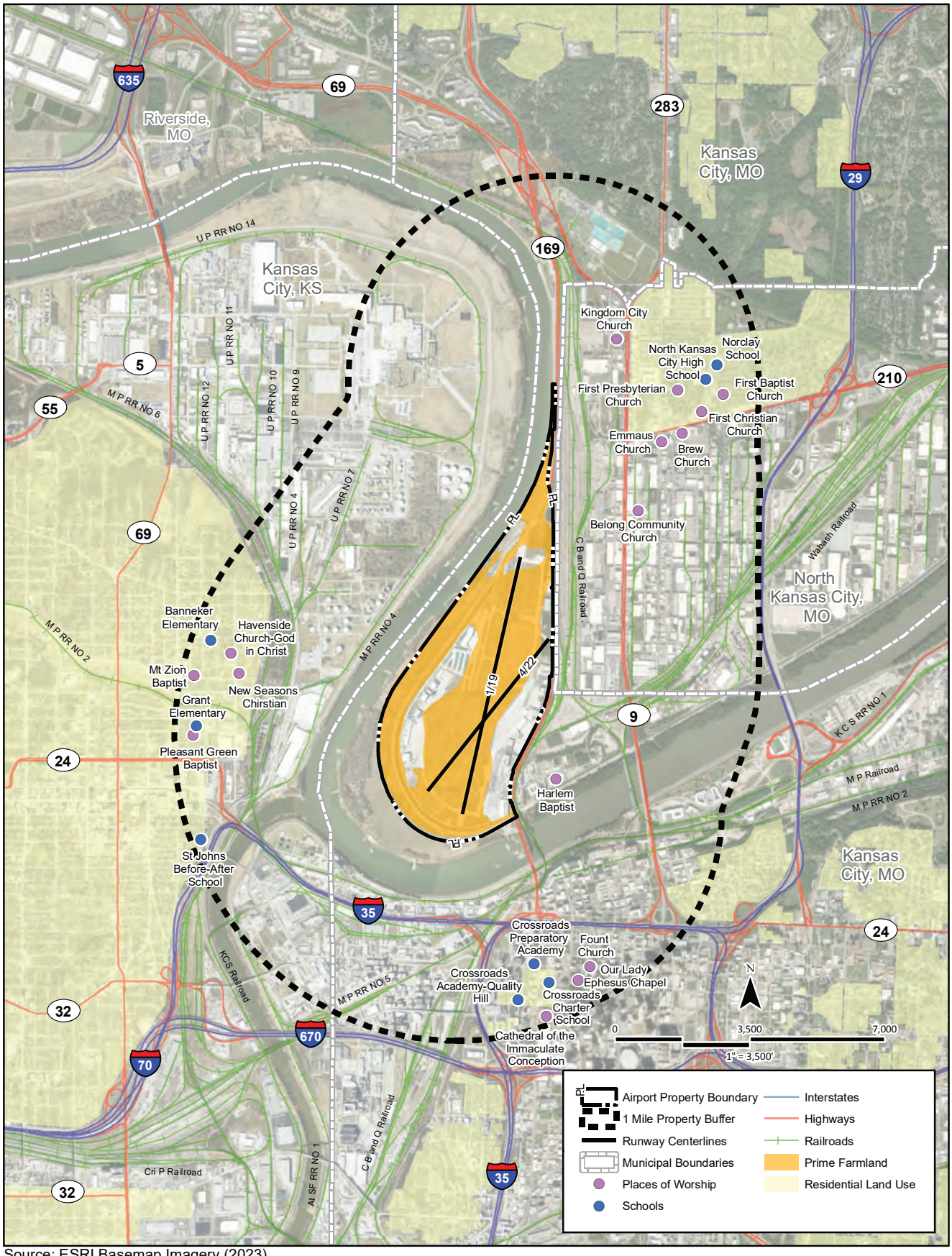
Place	Location	Distance from Airport (miles)	Direction from Airport
Public Recreational Facilities			
Kaw Point Park	1403 Fairfax Trafficway	0.5 mile	West
John Garland Park	406-498 Cleveland Park	1.0 mile	West
Edgerton Park	Edgerton Drive and North 3rd Street	1.0 mile	West
Stowe Park	Walker Ave	0.7 mile	West
St. John's Dog Park	898-800 N 4th Street	0.9 mile	West
Mulkey Square Park	1100 Summit Street	1.0 mile	South
Ermine Case Jr Park	905 Jefferson Street	0.6 mile	South
City Market Park	300-398 Main Street	0.5 mile	Southeast
River Market Dog Park	419-499 Locust Lane	0.8 mile	East
Richard L. Berkley Riverfront Park	1298 River Front Drive	0.9 mile	Southeast
Memorial Park	716 E 23rd Avenue	0.7 mile	Northeast
William E. Macken Park	1002 Clark Ferguson Drive	1.0 mile	Northeast
Waterworks Park	2 N OAK Trafficway and Northeast 32nd Street	1.0 mile	Northeast
Waterwell Park	MO-9 North Kansas City	1.0 mile	Northwest
Public Schools			
Banneker Elementary	2026 N 4TH Street	1.0 mile	West
Crossroads Preparatory Academy	816 Broadway Boulevard	0.7 mile	South
Crossroads Charter School	1011 Central Street	0.8 mile	South
Crossroads Academy Quality Hill	1080 Washington Street	0.8 mile	South
Grant Elementary	1510 N 4th Street	0.9 mile	West
St John's Before-After School	708 N 4th Street	1.0 mile	Southwest
North Kansas City High School	620 E 23RD Avenue	0.7 mile	Northeast
Norclay School	2601 Howell	0.8 mile	Northeast

Source: Google Earth Aerial Imagery (March 2023); U.S. Department of the Interior, National Park Service, National Register of Historic Places (https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466)

[4] Google Earth Aerial Imagery (March 2023); National Marine Sanctuaries (https://sanctuaries.noaa.gov/)



Source: ESRI Basemap Imagery (2023),FEMA, USDA, USGS, TIGER/Line, Jackson County



Source: ESRI Basemap Imagery (2023), FEMA, USDA, USGS, HERE/Inc,

There are several National Registry of Historic Places (NRHP)-listed Resources within one mile of the airport (**Exhibit 1V)**. East of the airport is the South Hyde Park Historic District. Southeast of the airport is the Old Town Historic District, West Ninth Street – Baltimore Avenue Historic District, West Eleventh Street Historic District, and Quality Hill District.

There are no waterfowl and wildlife refuges within one mile of the airport. The nearest wilderness and national recreation areas are listed below:

- Nearest Wilderness Area: Paddy Creek Wilderness (172 miles from the airport).
- Nearest National Recreation Area: Chickasaw National Recreation Area (343 miles from the airport).

FARMLANDS

Under the *Farmland Protection Policy Act* (FPPA), federal agencies are directed to identify and consider the adverse effects of federal programs on the preservation of farmland, to consider appropriate alternative actions which could lessen adverse effects, and to assure that such federal programs are, to the extent practicable, compatible with state or local government programs and policies to protect farmland. The FPPA guidelines, developed by the U.S. Department of Agriculture (USDA), apply to farmland classified as prime, unique, or of state or local importance as determined by the appropriate government agency, with concurrence by the Secretary of Agriculture.

The U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS) Web Soil Survey shows the types of soils and their farmland classification on and adjacent to the airport. The airport is classified as "Not prime farmland" and "All areas are prime farmland" (**Exhibit 1W**). **Table 1P** describes the farmland classification based on the soil inhabiting the airport's boundaries. However, activities not subject to FPPA include projects on land already in urban development. The airport is in a census-designated urbanized area, which means that the FPPA does not apply.[5]

TABLE 1P| Farmland Classification – Summary by Map Unit – Clay County, Missouri (MO047)

Soil Type	Farmland Rating
Gilliam silt loam, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
Sarpy loamy fine sand, 0 to 2 percent slopes, occasionally flooded	Not prime farmland
Haynie silt loam, 0 to 2 percent slopes, occasionally flooded	Not prime farmland
Urban land, bottomland, 0 to 3 percent slopes, rarely flooded	Not prime farmland

Source: USDA-NRCS Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx)

HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

Federal, state, and local laws regulate hazardous materials use, storage, transport, and disposal. These laws may extend to past and future landowners of properties containing these materials. In addition, disrupting sites containing hazardous materials or contaminants may cause significant impacts to soil, surface water, groundwater, air quality, and the organisms using these resources. According to the U.S. EPA's *NEPAssist* online tool, there are no Superfund sites located within one mile of the airport. However,

[5] EPA NEPAssist (https://nepassisttool.epa.gov/nepassist/nepamap.aspx) (July 2025)

there are several brownfield[6] sites located south of the airport within a one-mile buffer of airport property boundaries. A large cluster of the brownfields are located south of the Richard L. Berkley Riverfront Park and West of Garrison Square.

The airport is within the city limits of Kansas City, Missouri. There are several recycling centers within Kansas City, Missouri. The closest recycling center is Recycle Your It located 0.4-mile northeast of airport property boundaries on the eastern side of U.S. Highway 169. The closest landfill is Manchester Transfer, LLC, which is more than five miles from airport property boundaries.

National Pollutant Discharge Elimination System (NPDES) permits outline the regulatory requirements of municipal stormwater management programs and establish requirements to help protect the beneficial uses of the receiving waters. They require permittees to develop and implement Best Management Practices (BMPs) to control/reduce the discharge of pollutants to waters of the United States to the maximum extent practicable (MEP). The NPDES program manages wastewater, construction, stormwater, and pretreatment.

The U.S. EPA delegated authority for the NPDES permitting program to the Missouri Department of Natural Resources. Under this authority, Missouri published its own stormwater regulations (10 CSR 20-6.200) in 1992.[7] The Department issues these permits for discharging regulated stormwater. Most of these permits are written to be site-specific and issued to one location to reflect the unique nature of the stormwater or receiving water.

HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Determination of a project's environmental impact to historic and cultural resources is made under guidance in the *National Historic Preservation Act* (NHPA) *of 1966*, as amended, the *Archaeological and Historic Preservation Act* (AHPA) *of 1974*, the *Archaeological Resources Protection Act* (ARPA), and the *Native American Graves Protection and Repatriation Act* (NAGPRA) *of 1990*. In addition, the *Antiquities Act of 1906*, the *Historic Sites Act of 1935*, and the *American Indian Religious Freedom Act of 1978* also protect historical, architectural, archaeological, and cultural resources. Impacts may occur when a proposed project causes an adverse effect on a resource which has been identified (or is unearthed during construction) as having historical, architectural, archaeological, or cultural significance.

The airport was originally established in 1927 as the Kansas City Municipal Airport and is deeply rooted in aviation history. Originally, the airport served commercial airline operators and general aviation aircraft. Due to the airport's age, the airport may be home to several historic-age structures. See Section 4(f) for NRHP resources located within a one-mile buffer of the airport.

There are currently no federally recognized tribal lands in the State of Missouri. The nearest tribal land is the Kickapoo Reservation in Kansas, located 55 miles northwest of the airport.[8]

[6] Brownfields are abandoned or underutilized commercial or industrial sites that have the potential for redevelopment; however, the site's potential redevelopment is complicated by a known or perceived environmental contamination, as defined by the U.S. EPA's *Comprehensive Environmental Response, Compensation and Liability Act* (CERCLA).

[7] Missouri Department of Natural Resources – Stormwater Permits (https://dnr.mo.gov/water/business-industry-other-entities/permits-certification-engineering-fees/stormwater)

[8] U.S. EPA EJScreen (https://www.epa.gov/ejscreen)

LAND USE

Land use regulations near airports are achieved through local government codes, city policies, and plans that include airport districts and planning areas. Regulations are used to avoid land use compatibility conflict around airports.

Kansas City, Missouri adopted its most recent comprehensive plan, KC Spirit Playbook, in April 2023.[9] While land use surrounding MKC is not specifically addressed, it is noted in the plan's Transportation topic that the city must continue to maintain and improve its interconnected, multimodal transportation system. The plan also emphasizes regional collaboration regarding transportation improvements to benefit commerce, freight, and movement of people regionally.

Land uses east of the airport are zoned as industrial/business park and commercial and reflect the multi-modal zoning ordinance outlined in the comprehensive plan. Similarly, land northeast of the airport is zoned as commercial, office, public/semi-public, parks/open space, and single family residential.[10] Land uses west of the airport (west of the Missouri River) are located in Kansas City, Kansas and are primarily zoned as industrial.[11]

Other significant land uses include a railroad to the east of the airport that abuts Broadway Extension, the Missouri River near the west and south sides of airport property boundaries, and U.S. Route 169, which abuts the eastern border of airport property boundaries.

There are also a number of businesses located on the airport, including air charter operators, flight schools, and aircraft maintenance providers. In addition to this, the airport is home to two aviation museums, known as the National Airline History Museum and TWA Museum, and a global digital marketing agency (VML).

NATURAL RESOURCES AND ENERGY SUPPLY

Natural resources and energy supply provide an evaluation of a project's consumption of natural resources. It is the policy of FAA Order 1053.1C, *Energy and Water Management Program for FAA Buildings and Facilities*, to encourage the development of facilities that exemplify the highest standards of design, including principles of sustainability.

The Missouri Department of Natural Resources was created on July 1, 1974, under the *Omnibus State Reorganization Act of 1974* and Missouri Revised Statutes, Section 640.010, RSMo.[12] The primary goals of the Department are to protect air, land, water, and mineral resources; preserve natural and historic places; and provide recreational and learning opportunities, while promoting environmentally sound energy-efficient operations of businesses, communities, agriculture, and industry for the benefit of all Missourians.

[9] The KC Spirit Playbook, April 2023 (https://playbook.kcmo.gov/)
[10] Mid-America Regional Council - Charles B. Wheeler Downtown Airport (Compatible Land Use)
[11] Kansas City – Planning department Zoning Map Viewer – (https://maps.viewprogis.com/ecp/kansascity-ks)
[12] Missouri Department of Natural Resources – About Us (https://dnr.mo.gov/about-us)

NOISE AND NOISE COMPATIBLE LAND USE

Federal land use compatibility guidelines are established under 14 Code of Federal Regulations (CFR) Part 150, *Airport Noise Compatibility Planning*. According to 14 CFR Part 150, residential land and schools are noise-sensitive land uses that are not considered compatible with a 65 decibel (dB) Day-Night Average Sound Level (Ldn or DNL).[13] Other noise-sensitive land uses (such as religious facilities, hospitals, or nursing homes), if located within a 65 dB DNL contour, are generally compatible when an interior noise level reduction of 25 dB is incorporated into the design and construction of the structure. Special consideration should also be given to noise-sensitive areas within Section 4(f) properties where the land use compatibility guidelines in 14 CFR Part 150 do not account for the value, significance, and enjoyment of the area in question.[14]

Table 1Q below identifies noise-sensitive land uses within one mile of the airport. These land uses include schools, places of worship, and residential areas (**Exhibit 1W)**. One place of worship, Harlem Baptist Church, is approximately 0.2-mile from the airport's southeastern property line. The closest residential area is located 0.6-mile away, northeast of the airport boundary, and across Armour Road to the west of Interstate 29. There are no hospitals within one mile of the airport.

TABLE 1Q | Noise-Sensitive Land Uses Within One Mile of the Airport

Facility	Location	Distance from Airport (Miles)	Direction from Airport
Schools			
Crossroads Preparatory Academy	816 Broadway Boulevard	0.7 mile	Southeast
Crossroads Charter School	1011 Central Street	0.8 mile	South
Crossroads Academy Quality Hill	1080 Washington Street	0.8 mile	South
Grant Elementary	1510 N 4th Street	0.9 mile	West
Banneker Elementary	2026 N 4TH Street	1.0 mile	West
St John's Before-After School	708 N 4th Street	1.0 mile	Southwest
North Kansas City High School	620 E 23RD Avenue	0.7 mile	Northeast
Norclay School	2601 Howell Street	0.8 mile	Northeast
Places of Worship			
Havenside Church of God in Christ	308 Franklin Avenue	0.9 mile	West
Harlem Baptist Church	251 N Baltimore Avenue	0.2 mile	East
Cathedral of the Immaculate Conception	416 W 12TH Street	0.9 mile	South
Mt. Zion Baptist Church	417 Richmond Avenue	1.0 mile	West
New Seasons Christian Church	1907 N 3rd Street	0.8 mile	West
Pleasant Green Baptist Church	340 David L Gray Drive	0.8 mile	West
Fount Church	918 Baltimore Avenue	0.8 mile	South
Our Lady Ephesus Chapel	20 W 9TH Street	0.8 mile	South
Belong Community Church	1520 Clay Street	0.4 mile	East
Emmaus Church	408 Armour Road	0.6 mile	East
Brew Church	314 Armour Road	0.6 mile	East
First Christian Church	2018 Gentry Street	0.7 mile	East
First Baptist Church	2205 North Iron Street	0.8 mile	East
First Presbyterian Church	2125 Fayette Street	0.6 mile	East

Source: EPA EJScreen (https://ejscreen.epa.gov/mapper/); Google Earth Aerial Imagery (March 2023)

[13] The DNL accounts for the increased sensitivity to noise at night (10:00 PM to 7:00 AM) and is the metric preferred by FAA, the U.S. EPA, and the U.S. Department of Housing and Urban Development as an appropriate measure of cumulative noise exposure.
[14] 49 U.S. Code § 47141 – Compatible land use planning and projects by state and local governments

SOCIOECONOMICS AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Socioeconomics | *Socioeconomics* is an umbrella term used to describe aspects of a project that are either social or economic in nature. A socioeconomic analysis evaluates how elements of the human environment, such as population, employment, housing, and public services, might be affected by the proposed action and alternative(s).

FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures,* specifically requires that a federal action causing disproportionate impacts to an environmental justice population (i.e., a low-income or minority population) be considered, as well as an evaluation of environmental health and safety risks to children. The FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts.

Would the proposed action?

- Induce substantial economic growth in an area, either directly or indirectly;
- Disrupt or divide the physical arrangement of an established community;
- Cause extensive relocation when sufficient replacement housing is unavailable;
- Cause extensive relocation of community business that would cause severe economic hardship for affected communities;
- Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities; or
- Produce a substantial change in the community tax base?

Children's Environmental Health and Safety |Federal agencies are directed, per E.O. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, to make it a high priority to identify and assess the environmental health and safety risks that may disproportionately impact children. Such risks include those that are attributable to products or substances that a child is likely to encounter or ingest (air, food, water – including drinking water) or to which they may be exposed.

See **Tables 1N** and **1Q** for lists of recreational facilities and schools that are used by children within one mile of the airport.

VISUAL EFFECTS

Visual effects deal broadly with the extent to which a proposed action or alternative(s) would either (1) produce light emissions that create an annoyance or interfere with activities; or (2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment. Each jurisdiction will typically address outdoor lighting, scenic vistas, and scenic corridors in zoning ordinances and their general plan.

Light Emissions | These impacts typically relate to the extent to which any light or glare results from a source that could create an annoyance for people or would interfere with normal activities. Generally, local jurisdictions will include ordinances in the local code addressing outdoor illumination to reduce the impact of light on surrounding properties.

Airfield lighting at the airport includes a rotating beacon, HIRL on Runways 1-19 and 4-22, MITL on all taxiways, 4-box VASI at the approach end to Runways 1, 4, and 22, and a 4-light PAPI on Runway 19. Runways 1 and 22 are also equipped with REILs, and Runway 19 has a MALSF augmented with RAILs. For further information, see the discussion of the types of airfield lighting and visual approach aids earlier in the inventory.

Visual Resources and Visual Character | *Visual resources* include buildings, sites, traditional cultural properties, and other natural or manmade landscape features that are visually important or have unique characteristics. Visual resources may include structures or objects that obscure or block other landscape features. In addition, visual resources can include the cohesive collection of various individual visual resources that can be viewed at once or in concert from the area surrounding the site of the proposed action or alternative(s).

Visual character refers to the overall visual makeup of the existing environment where a proposed action or its alternative(s) would be located. For example, areas near densely populated areas generally have a visual character that could be defined as urban, whereas less developed areas could have a visual character defined by the surrounding landscape features, such as open grass fields, forests, mountains, deserts, etc.

Although the airport environment is located within an urban area, visually it is characterized not only by vegetated open areas, but by both buildings and streets. Views of the airport are accessible from surrounding roadways (Richard Road to the east, and NW Lou Holland Drive to the west and south) due to the spread-out vegetation, as well as the nearby buildings. Along portions of Richard Road, views of skyscrapers across the Missouri River (south of the airport) are readily available. North and south of the airport lies the Missouri River. On the eastern side, the airport abuts U.S. Highway 169. East of U.S Route 169 is a mixture of dense industrial and commercial land uses, as well as a railroad yard.

The State of Missouri has a total of three national scenic byways. However, there are no national scenic byways within Kansas City; therefore, no routes are located near the airport.[15]

WATER RESOURCES

Wetlands | The U.S. Army Corps of Engineers regulates the discharge of dredged and/or fill material into waters of the United States, including adjacent wetlands, under Section 404 of the *Clean Water Act* (CWA). Wetlands are defined in E.O. 11990, *Protection of Wetlands*, as "those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction." Wetlands can include swamps, marshes, bogs, sloughs, potholes, wet meadows, river overflows, mudflats, natural ponds, estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. Wetlands exhibit three characteristics: the soil is inundated or saturated to the surface at some time during the growing season (hydrology), has a population of plants able to tolerate various degrees of flooding or frequent saturation (hydrophytes), and soils that are saturated enough to develop anaerobic (absence of air or oxygen) conditions during the growing season (hydric).

[15] U.S. Department of Transportation Federal Highway Administration – National Scenic Byways & All- American Roads (https://fhwaapps.fhwa.dot.gov/bywaysp/States/Show/MO)

USFWS manages the National Wetlands Inventory on behalf of all federal agencies. The National Wetlands Inventory identifies surface waters and wetlands in the nation. Within airport boundaries, there are no wetlands or other special aquatic sites present. The airport is near the Missouri River on the west and south of the airport.[16] Near the airport on the west and south lies a freshwater emergent wetland associated with the Missouri River and the 100-year floodplain. The airport is separated from this area by NW Lou Holland Drive and a levee along the river.

Floodplains | E.O. 11988, *Floodplain Management* directs federal agencies to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by the floodplains. U.S. Department of Transportation (DOT) Order 5650.2, *Floodplain Management and Protection,* implements the guidelines contained in E.O. 11988.

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel numbers 29095C0138G, 29095C0139G, 29095C0251G, and 29095C0252G, effective January 20, 2017, indicates that the airport is in Zone X, an area with reduced flood risk due to levee.[17]

The airport is located behind a Missouri River levee and flood wall and has two well/pump stations to collect and remove stormwater runoff into the river. The well/pump stations are designed to alleviate ground water swell that is associated with river flooding by pumping relief wells.

Surface Waters | The CWA establishes water quality standards, controls discharges, develops waste treatment management plans and practices, prevents or minimizes the loss of wetlands, and regulates other issues concerning water quality. Water quality concerns related to airport development most often relate to the potential for surface runoff and soil erosion, as well as the storage and handling of fuel, petroleum products, solvents, etc. Additionally, Congress has mandated (under the CWA) the NPDES.

MKC is in the Buckeye Creek-Missouri River watershed. There are seven waterbodies within this watershed, of which five are impaired.[18] One of the impaired waterbodies is the Missouri River, due to the contamination of Escherichia Coli (E. Coli).

Groundwater | Groundwater is subsurface water that occupies the space between sand, clay, and rock formations. The term aquifer is used to describe the geologic layers that store or transmit groundwater, such as wells, springs, and other water sources. Examples of direct impacts to groundwater could include withdrawal of groundwater for operational purposes or reduction of infiltration or recharge area due to new impervious surfaces.[19]

[16] National Wetlands Inventory (https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/)
[17] U.S. FEMA Flood Map Service (https://msc.fema.gov/portal/home)
[18] EPA – How's My Waterway (https://mywaterway.epa.gov/community/Charles%20B%20Wheeler%20Airport/overview)
[19] United States Geological Survey - What is Groundwater? (https://www.usgs.gov/faqs/what-groundwater)

According to the Missouri Groundwater Observation Site, there are no observation wells[20] located within the airport.[21] The nearest well is located in Jackson County, Missouri.[22]

U.S. EPA's Sole Source Aquifer (SSA) Program was established under Section 1424(e) of the *Safe Drinking Water Act* (SDWA). Since 1977, it has been used by communities to help prevent contamination of groundwater from federally funded projects. It has increased public awareness of the vulnerability of groundwater resources. The SSA program is authorized by Section 1424(e) of the SDWA (Public Law 93-523, 42 U.S.C. 300 et. seq), which states:

"*If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the Federal Register.*"[23]

According to the U.S. EPA Sole Source Aquifer for Drinking Water website, there are no sole source aquifers located within the airport. The nearest sole source aquifer is the Mahomet Aquifer SSA more than 233 miles away from the airport.[24]

Wild and Scenic Rivers | The *National Wild and Scenic Rivers Act* was established to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.

The Nationwide River Inventory (NRI) is a list of over 3,400 rivers or river segments that appear to meet the minimum *Wild and Scenic Rivers Act* eligibility requirements based on their free-flowing status and resource values. The development of the NRI resulted from Section 5(d)(1) in the *Wild and Scenic Rivers Act*, directing federal agencies to consider potential wild and scenic rivers in the comprehensive planning process.

The closest designated National Wild and Scenic River identified is the Buffalo River, located 230 miles from the airport in Arkansas.[25] The nearest National River Inventory feature is the Kansas River, located 0.7-mile from the airport.[26]

[20] Observation wells are synonymous with monitoring wells and are primarily used to observe groundwater levels and flow conditions and obtain samples to determine groundwater quality.
[21] Missouri Department of Natural Resources – Groundwater Observation Wells (https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=85207c111127406b84de60aee804fc02)
[22] USGS – National Water Information System (https://maps.waterdata.usgs.gov/mapper)
[23] U.S. EPA - Overview of the Drinking Water Sole Source Aquifer Program (https://www.epa.gov/dwssa/overview-drinking-water-sole-source-aquifer-program#Authority)
Sole Source Aquifer (https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b%20%20%20%20)
[25] National Wild and Scenic River System in the U.S. (https://nps.maps.arcgis.com/apps/MapJournal/index.html?appid=ba6debd907c7431ea765071e9502d5ac#)
[26] Nationwide River Inventory (https://www.nps.gov/maps/full.html?mapId=8adbe798-0d7e-40fb-bd48-225513d64977)