

JANUARY 2022

Tulsa Riverside Airport Master Plan
Inventory of Existing Conditions



TABLE OF CONTENTS

| | | |
|-------|---|----|
| 1.1 | Introduction..... | 1 |
| 1.2 | Airport Role and Facilities..... | 1 |
| 1.2.1 | Airside Facilities | 5 |
| 1.2.2 | Landside Facilities | 8 |
| 1.2.3 | Vehicular Access and Parking Facilities..... | 8 |
| 1.3 | Airspace System/Navigation and Communication Aids..... | 9 |
| 1.3.1 | Air Traffic Service Areas and Aviation Communications | 9 |
| 1.3.2 | Airspace | 9 |
| 1.3.3 | Navigational Aids..... | 10 |
| 1.4 | Existing Planning Data Inventory..... | 12 |
| 1.4.1 | Land Use and Zoning | 12 |
| 1.4.2 | Future Land Use..... | 12 |

LIST OF TABLES

| | |
|--|----|
| Table 2-1 Airport General Characteristics..... | 2 |
| Table 2-2 Airport Instrument Approaches | 10 |

LIST OF FIGURES

| | |
|--|----|
| Figure 2-1 Airport Location | 3 |
| Figure 2-2 Airport Vicinity..... | 4 |
| Figure 2-3 Airport Diagram | 6 |
| Figure 2-4 Airport Layout..... | 7 |
| Figure 2-5 Airport VFR Sectional..... | 11 |
| Figure 2-6 Generalized Zoning Map..... | 13 |
| Figure 2-7 Land Use Map..... | 14 |

1.1 INTRODUCTION

Tulsa Riverside Airport (RVS or the Airport) is owned by the City of Tulsa and operated by the Tulsa Airports Improvement Trust. It is located in the southern portion of the City of Tulsa, adjacent to the Arkansas River (on the east) and the City of Jenks (on the South). The Airport was established in 1958 in order to help alleviate congestion and overcrowding that was beginning to occur at Tulsa International Airport (the primary commercial airport in the region). The Airport is now an important element of the national airport system and an integral component of the transportation infrastructure for the region.

The Airport is a busy and unique general aviation airport, in that it supports a wide variety of aircraft, ranging from single engine aircraft, experimental aircraft and war birds to larger business and corporate jet aircraft. Almost all of the Airport's 752 acres are fully developed.

RVS is an excellent aviation facility and, along with the aviation related businesses and facilities, represents a vital and significant economic asset to the region. Additionally, the Airport provides benefits to local businesses and industry, promotes tourism, and encourages additional economic development and expansion throughout the region.

While airport planning documents related to the layout of airport facilities have been kept up-to date, an overall master planning study of airport facilities has not been completed since 2006. Since that time, aviation issues on the local, regional, and national levels have changed. This Airport Master Plan Update is intended to provide a comprehensive evaluation of the Airport, and result in a well-conceived, long-term facilities plan for accommodating the anticipated future aviation demand. The future requirements are evaluated from the standpoint of aviation needs, and from the perspective of the relationship of airport facilities to the surrounding land uses and the community as a whole. This planning document focuses on the provision of a complete and comprehensive aviation facility, with the overall goal being an airport that can accommodate future demand, and which is compatible with its environs.

This initial Inventory chapter examines three basic elements of the Airport, which are physical facilities (runway, taxiways, aircraft parking aprons, hangars, ground access, etc.); the relationship to the airport/airspace system; and the airport environs. Subsequent chapters of the Master Plan Update detail a forecast of future aviation activity, along with an evaluation of the existing facilities' ability to meet the projected demand safely and efficiently. In addition, alternatives are formulated to examine the options for provision of facilities to meet the demand and a preferred future development plan is recommended. Further, an implementation schedule is provided, cost estimates developed, and an overview of potential environmental impacts is prepared.

1.2 AIRPORT ROLE AND FACILITIES

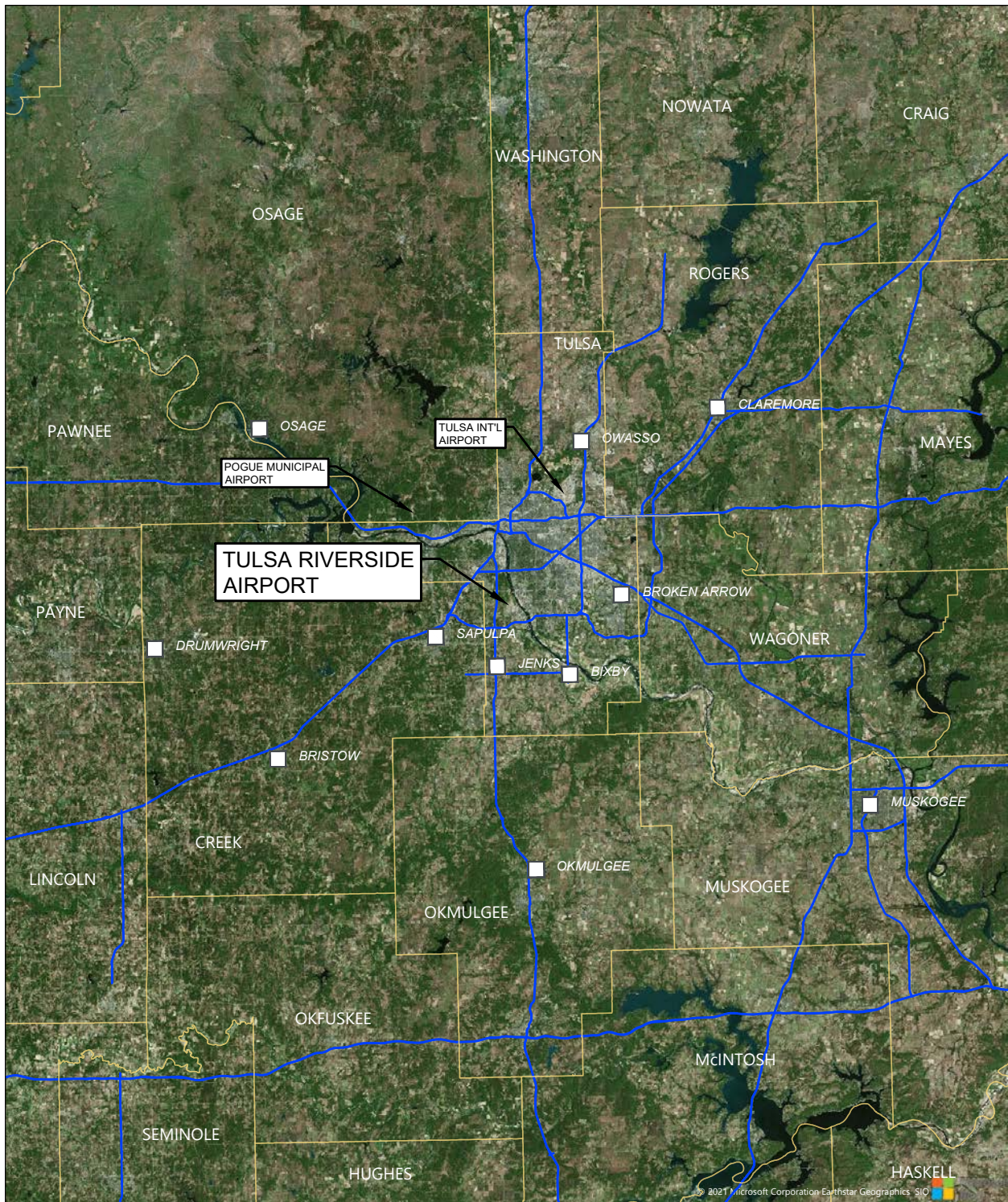
Tulsa Riverside Airport is located in northeastern Oklahoma shown in **Figure 2-1**. The Airport is classified as a general aviation airport by the FAA's National Plan of Integrated Airport Systems (NPIAS). It has also been designated as a general aviation reliever airport for the region's primary commercial service airport (Tulsa International Airport). The Airport is located almost entirely within the City of Tulsa, with a small

section located within the City of Jenks as shown in **Figure 2-2**. General characteristics of the Airport are shown in **Table 2-1**.




TABLE 2-1
AIRPORT GENERAL CHARACTERISTICS

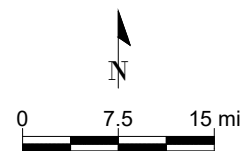
| Item | Description |
|--|--|
| Location | N 36° 02' 22.5020" W 95° 59' 04.5430" |
| Identifier | KRVS |
| NPIAS Category | Reliever |
| Acreage | 752 acres |
| Elevation | 637.9' |
| Mean Daily Maximum Temperature of Hottest Month | 96° F (July) |

Source: Form 5010; National Centers for Environmental Information (2011-2021); RS&H, 2022.



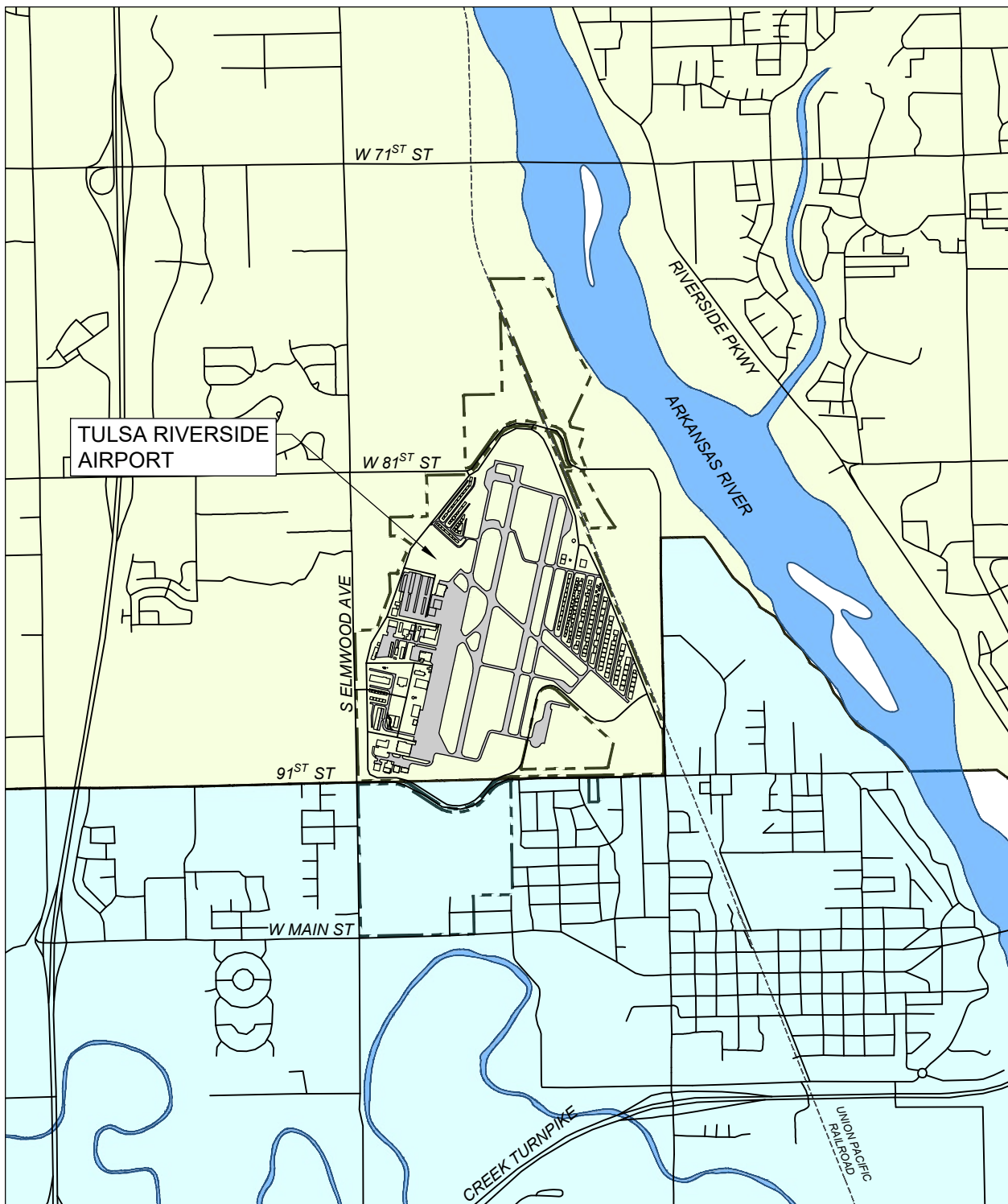
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-  MUNICIPALITY
-  COUNTY BOUNDARY
-  HIGHWAY











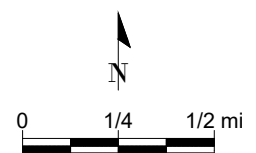
Source: RS&H, 2022

AIRPORT LOCATION MAP



LEGEND

| | | |
|---|---|---|
|  AIRFIELD |  RAILROAD |  CITY OF JENKS |
|  PROPERTY LINE |  CITY LIMITS |  WATERWAY |
|  ROADWAY |  CITY OF TULSA | |



Source: RS&H, 2022

AIRPORT VICINITY MAP

1.2.1 Airside Facilities

Airside facilities include the runway and taxiways, and the various aprons throughout the Airport.

Runways

The Airport is operated with three runways, Runway 1L-19R, Runway 1R-19L, and Runway 13-31. The published airport diagram is shown in **Figure 2-3**. **Figure 2-4**, provides a graphic presentation of the existing airport facilities. All three runways are constructed of asphalt.

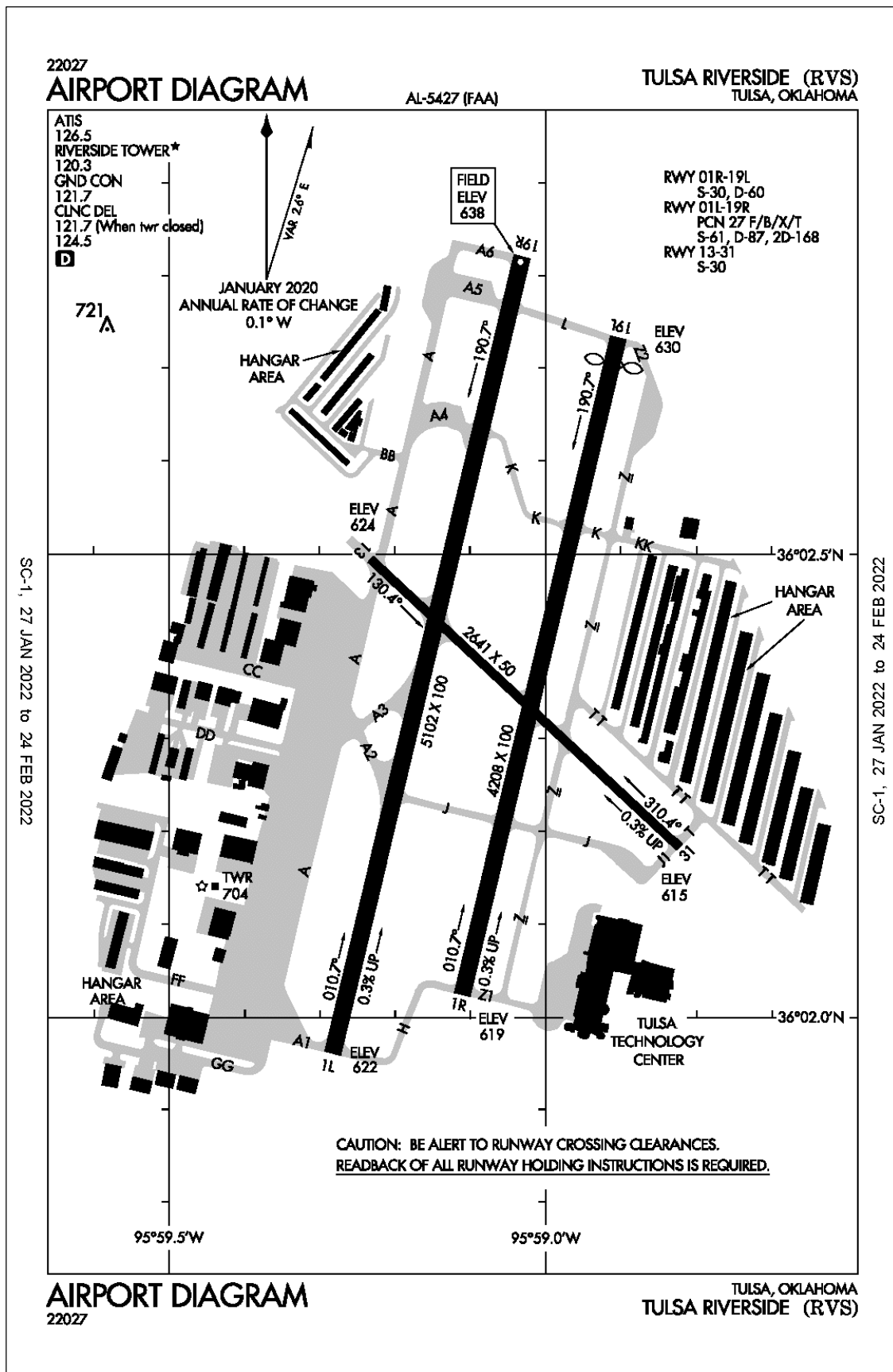
Runway 1L-19R: This is the primary runway and is 5,102 feet in length and 100 feet wide. The runway is grooved. It has a gross weight bearing capacity of 61,000 pounds for aircraft with a single wheel main landing gear configuration, 87,000 pounds for aircraft with a dual wheel configuration, and 168,000 pounds for aircraft with dual tandem configuration. Runway 1L-19R has a four-light precision approach path indicator (PAPI) lighting system serving both runway ends and has an instrument landing system (ILS) including a localizer and a glide slope antenna serving Runway 1L. Additionally, this runway is equipped with high intensity runway edge lights (HIRL) and runway end identifier lights (REIL) for both runway ends.

Runway 1R-19L: This is the secondary parallel runway and is 4,208 feet in length and 100 feet wide, with a gross weight bearing capacity of 30,000 pounds for aircraft with a single wheel main landing gear configuration and 60,000 pounds for aircraft with a dual wheel configuration. Runway 1L-19R has a four-light precision approach path indicator (PAPI) system on both ends and has medium intensity runway edge lights (MIRL).

Runway 13-31: This runway serves as the crosswind runway and is 2,641 feet in length and 50 feet wide, with a gross weight bearing capacity of 30,000 pounds for aircraft with a single wheel main landing gear configuration. Runway 13-31 has VASI lighting system serving both runway ends and has MIRLs.

Taxiway System

In addition to the runways, the airside facilities at the Airport consist of a taxiway system that provides access between the runway surfaces and the landside aviation use areas. The parallel runways have parallel taxiway systems. The Taxiway A system serves the west side of Runway 1L-19R, while the Taxiway Z system serves the east side of Runway 1R-19L. The east end of Runway 13-31 is served by partial parallel taxiways on both sides of the runway which connect the approach end of Runway 31 with Taxiway Z. For night use, the taxiway system is equipped with a medium intensity taxiway lighting system (MITL).



Source: FAA; RS&H, 2022

AIRPORT DIAGRAM



Source: RS&H, 2022

AIRPORT LAYOUT

1.2.2 Landside Facilities

Landside development at the Airport includes aircraft storage hangars; aircraft parking aprons; aircraft rental, repair, and maintenance facilities; fixed base operator (FBO) facilities; flight instruction and aviation training facilities; along with other commercial aviation-use facilities.

Airport Parking Aprons

The Airport's main aircraft-parking apron is located on the west side of the property, adjacent to Runway 1L-19R. In addition, many of the hangars at the Airport are provided with adjacent aircraft parking apron areas.

Hangar Facilities

The commercial use aviation facilities at the Airport are located on the southwest portion of airport property (west of Runway 1L and south of Runway 13-31). The area also contains some small hangar storage units (T-hangars, etc.). The northwest and northeast development areas contain private aircraft storage hangars.

Fixed Base Operators

There are two FBOs that serve the Airport. Christiansen Aviation and Riverside Jet Center drive a significant amount of traffic to the Airport.

Airport Maintenance Facility/Office.

The Airport's maintenance facility and operations office is located in the northeast corner of airport property, north of the private hangar development area.

Airport Traffic Control Tower

An air traffic control tower at the Airport is operational from 7:00 am to 10:00 pm daily. The ATCT is located west of Runway 1L-19R, in the southwest development area.

Automated Surface Observation System (ASOS)

Airport currently maintains an automated service observation system with a frequency of 126.50. This system is designed to provide 24-hour, minute-by-minute observations and performs the basic observing functions necessary to generate an aviation routine weather report and other aviation weather information. Information can be transmitted over a discrete VHF radio frequency or the voice portion of a local navigational aid.

Flight Instruction

Six flight schools are located on-site. Each provide opportunities for flight training to obtain various pilot licenses including private pilot up to commercial flight instructor-instrument (CFII). All facilities are located the west side of parallel runways and a major generator of airport operations.

1.2.3 Vehicular Access and Parking Facilities

The main entrance to the Airport is located on the western edge of airport property, via Elwood Avenue (approximately 1,600 feet north of 91st Street). A perimeter road (Airport Road) circles airport property, connecting the various aviation use areas. Additional entrances to the Airport are provided off of 81st Street on the north side of airport property, off of Peoria Avenue on the east side of airport property, and

an additional entrance on 91st Street on the south side. Automobile parking areas are associated with specific private and commercial aviation use facilities, as well as the FBO and airport maintenance facilities.

1.3 AIRSPACE SYSTEM/NAVIGATION AND COMMUNICATION AIDS

All airports function within the local, regional, and national system of airports and airspace. The Airport is certainly no exception to this rule. The following narrative gives a brief description of the Airport's role as an element within the local and regional systems.

1.3.1 Air Traffic Service Areas and Aviation Communications

Within the continental United States, some 22 geographic areas are under Air Traffic Control (ATC) jurisdiction. Air traffic services within each area are provided by air traffic controllers in Air Route Traffic Control Centers. The airspace overlying the Airport is contained within the Kansas City Air Route Traffic Control Center (ARTCC) service area and includes the airspace in portions of Missouri, Kansas, Oklahoma, and Arkansas. Aviation communication facilities associated with the Airport include the Aeronautical Advisory Station (UNICOM) and the ASOS which broadcasts weather information. Approach and departure control is handled by the Riverside Ground and Tower Control, as well as Tulsa Approach and Departure Control.

1.3.2 Airspace

The airspace within the approach control boundary surrounding Tulsa International Airport is under the jurisdiction of the FAA Tulsa Terminal Radar Approach Control facility (TRACON) located at Tulsa International Airport, while the airspace above and surrounding the approach control boundary is under the jurisdiction of the FAA Kansas City ARTCC. In addition, Tulsa is positioned only a few miles from the boundaries of both the Memphis and the Ft. Worth ARTCC.

The dominant feature of the local airspace surrounding the Airport is the Class C airspace associated with Tulsa International Airport (TUL). RVS is located just south of the TUL Class C Airspace. The Class C Airspace extends outward in two concentric circles, having radii of five nautical miles (NM) and ten NM increments from Tulsa International Airport. The airspace ranges from the surface to 4,700 feet above mean sea level (AMSL) within the inner circle of five NM and between 2,300 feet Above Ground Level (AGL) and 4,700 feet AMSL within the outer ten NM circle. All aircraft that wish to enter Class C Airspace must establish two-way radio communication with the Tulsa TRACON facility. The services provided within Class C Airspace, upon establishing radio and radar contact, include sequencing of arrivals, IFR/IFR standard separation, IFR/VFR traffic advisories and conflict resolution, and VFR/VFR traffic advisories.

The local airspace surrounding the Airport is designated as Class D airspace, which is tailored to individual airports. Generally, Class D airspace consists of the immediate airspace within a horizontal radius of five-statute miles from the geographic center of airports with operating control towers. The ceiling of the Class D airspace at the Airport is established at 2,500 feet above the airport elevation. Class D airspace is in effect whenever the ATCT is operational, which at Richard Lloyd Jones, Jr. Airport is between 7:00 a.m. and 10:00 p.m. (local time). In order to operate on the Airport or within Class D airspace, pilots must establish two-way radio communications with air traffic control personnel.

1.3.3 Navigational Aids

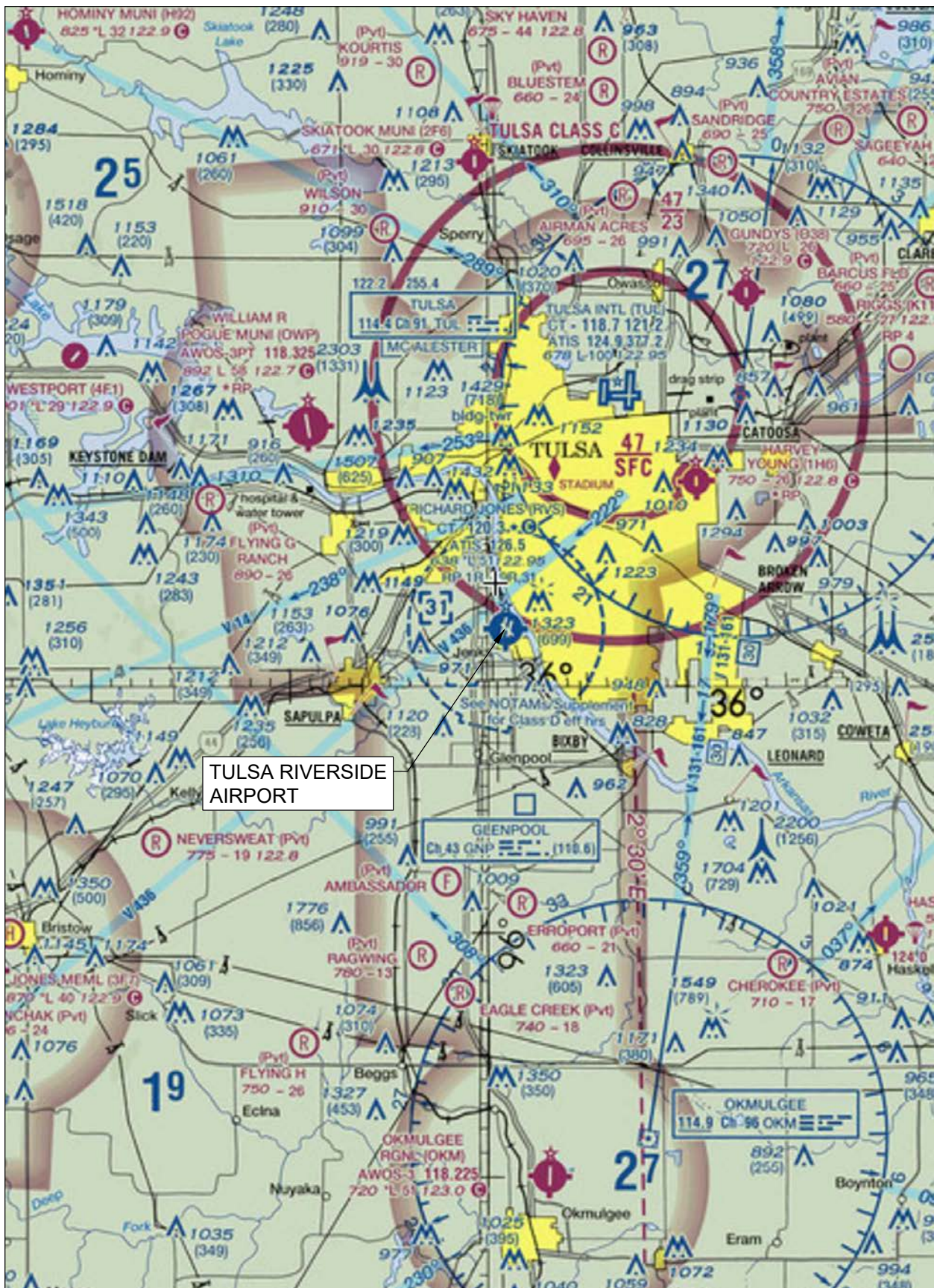
Navigational aids (NAVAIDS) are instruments providing navigation readings to pilots in appropriately equipped aircraft. A VOR-DME system is a Very High Frequency Omnidirectional Range Station with Distance Measuring Equipment transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north. It is used to measure, in nautical miles, the slant range distance of an aircraft from the facility. A non-directional beacon (NDB), which is a general-purpose low- or medium-frequency radio beacon that aircraft equipped with a loop antenna can home in on or determine its bearing relative to the sending facility. In recognition of the ever-increasing availability of GPS approaches at airports around the country, many NDBs are being decommissioned.

Navigational Aids available for use by pilots near the Airport include an ILS, the Tulsa VOR, Okmulgee VOR/DME, and several NDBs in the area. The following illustration, **Figure 2-5**, depicts the Airports, local airspace, and navigational facilities near the Airport. There are currently four published instrument approach procedures at the Airport shown in **Table 2-2**.

TABLE 2-2
AIRPORT INSTRUMENT APPROACHES

| Runway | Type | Decision Height | Visibility |
|--------|-----------|-----------------|------------|
| 1L | ILS | 200' | ¾ mile |
| 1L | RNAV | 200' | ¾ mile |
| 19R | RNAV | 500' | 1 mile |
| All | VOR/DME-A | 700' | 1 mile |

Source: AirNav; RS&H, 2022.



Source: SkyVector; RS&H, 2022

VFR SECTIONAL

1.4 EXISTING PLANNING DATA INVENTORY

An inventory of the existing land uses and zoning patterns surrounding the Airport are important elements in the airport planning process. Land use compatibility with the Airport's aircraft operational activity can be enhanced with a thorough knowledge of what land uses exist, what is proposed, and what, if any, changes might be required in the future.

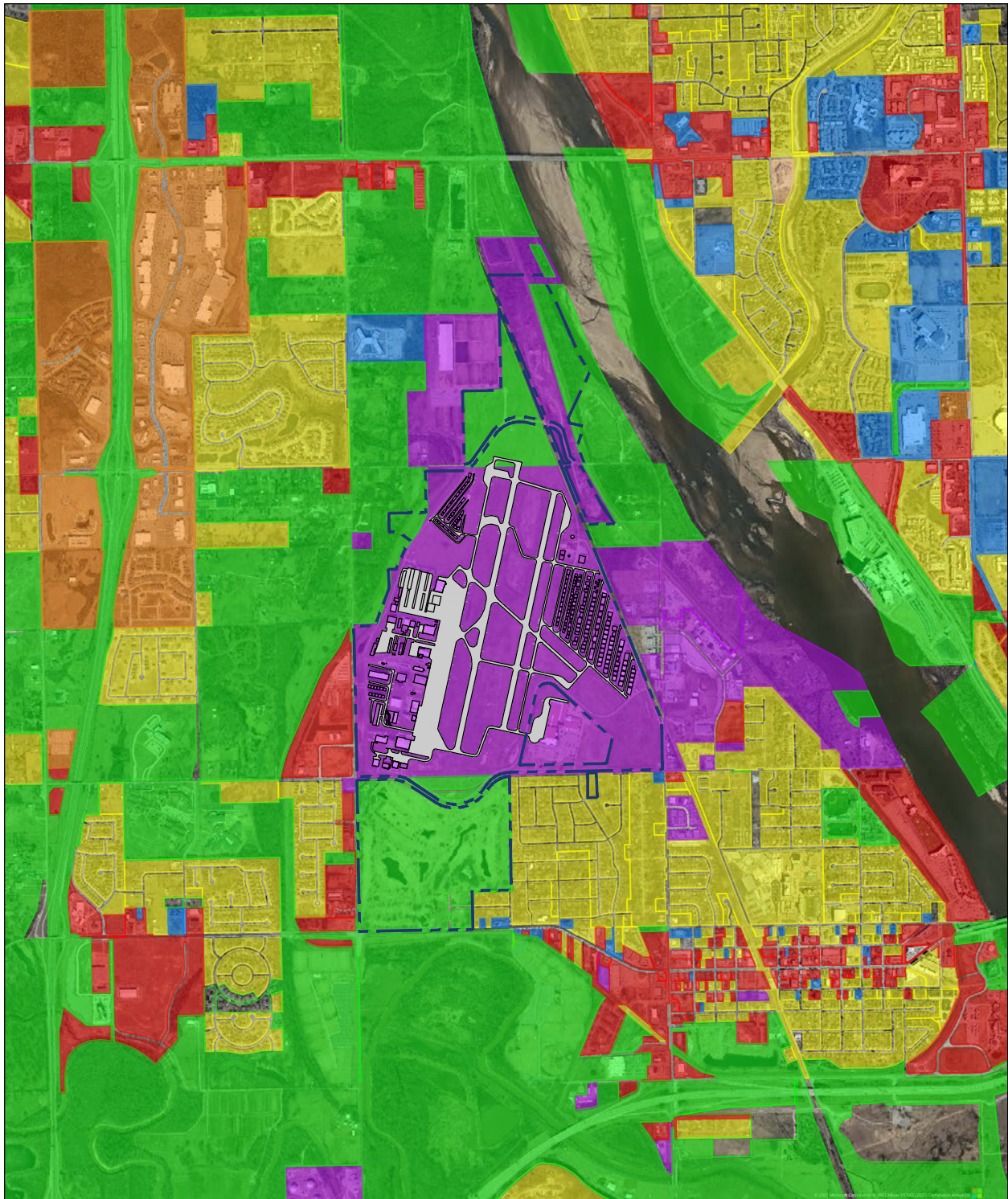
1.4.1 Land Use and Zoning

Both the City of Tulsa and the City of Jenks have adopted land use zoning ordinances. The land use zoning maps for these entities have been reviewed and the following map, **Figure 2-6**, provides a graphic summary of that information. As can be noted on this map, the majority of the land north and west of the Airport is inside the Tulsa corporate limits, while the land south of the Airport is located within the City of Jenks. The area directly adjacent to airport property on the east is within the City of Tulsa; however, further to the east, the area is inside the City of Jenks. For the most part, land use zoning patterns reflect existing land use. The majority of airport property is zoned industrial, with the portion south of 91st Street being zoned agricultural/Planned Unit Development (PUD) and Residential. To the west of the Airport, the land is zoned primarily for agricultural uses with some commercial use. The area to the north of the Airport is also zoned primarily for agriculture and light industrial with some residential and commercial. To the east of the Airport, the majority of the land is zoned industrial with some commercial and residential uses associated with the Jenks central district. South of the Airport, residential and agricultural zoning dominate.









1.4.2 Future Land Use

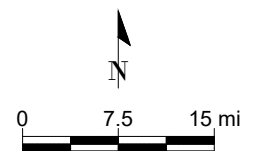
For the area around the Airport, the City of Tulsa's future land use guidance is provided in the District 8 Comprehensive Plan (Indian Nations Council of Governments or INCOG). For the City of Jenks, future land use is documented in The Horizon Jenks Comprehensive Plan 2020. The future land use map is shown in **Figure 2-7**. Additionally, INCOG has recently completed an Arkansas River Corridor Vision Plan that guides future land use around the river. The airport property and the area directly adjacent on the north are included in the "Airport Special District". One of the major goals of establishing this district was to guide development so as to provide a compatible relationship between the utilization of the Airport and other uses within the district. Further to the north (north of 71st Street, the Turkey Mountain Special District has been established. The purpose is to recognize the unique physical features of the natural and man-made environment. To the west of the Airport, low intensity uses are proposed, while the east, the area is primarily associated with the Arkansas River Corridor Special District.

The Horizon Jenks Comprehensive Plan 2020 indicates that the area directly south of the Airport will be utilized for the South Lakes Golf Course and low intensity residential uses. Further to the south, the area is within the development sensitive zone associated with Polecat Creek. To the east of the Airport, medium and light intensities associated with existing use types (industrial, commercial, and residential) are identified. In addition, it should be noted that the City of Tulsa, the City of Jenks, and Tulsa County recognize the significance of the Arkansas River Corridor in the formulation of future land use proposals for the area adjacent to the Airport. Recent and on-going, planning studies for the river corridor could significantly impact future development activity along the river throughout the metropolitan area.



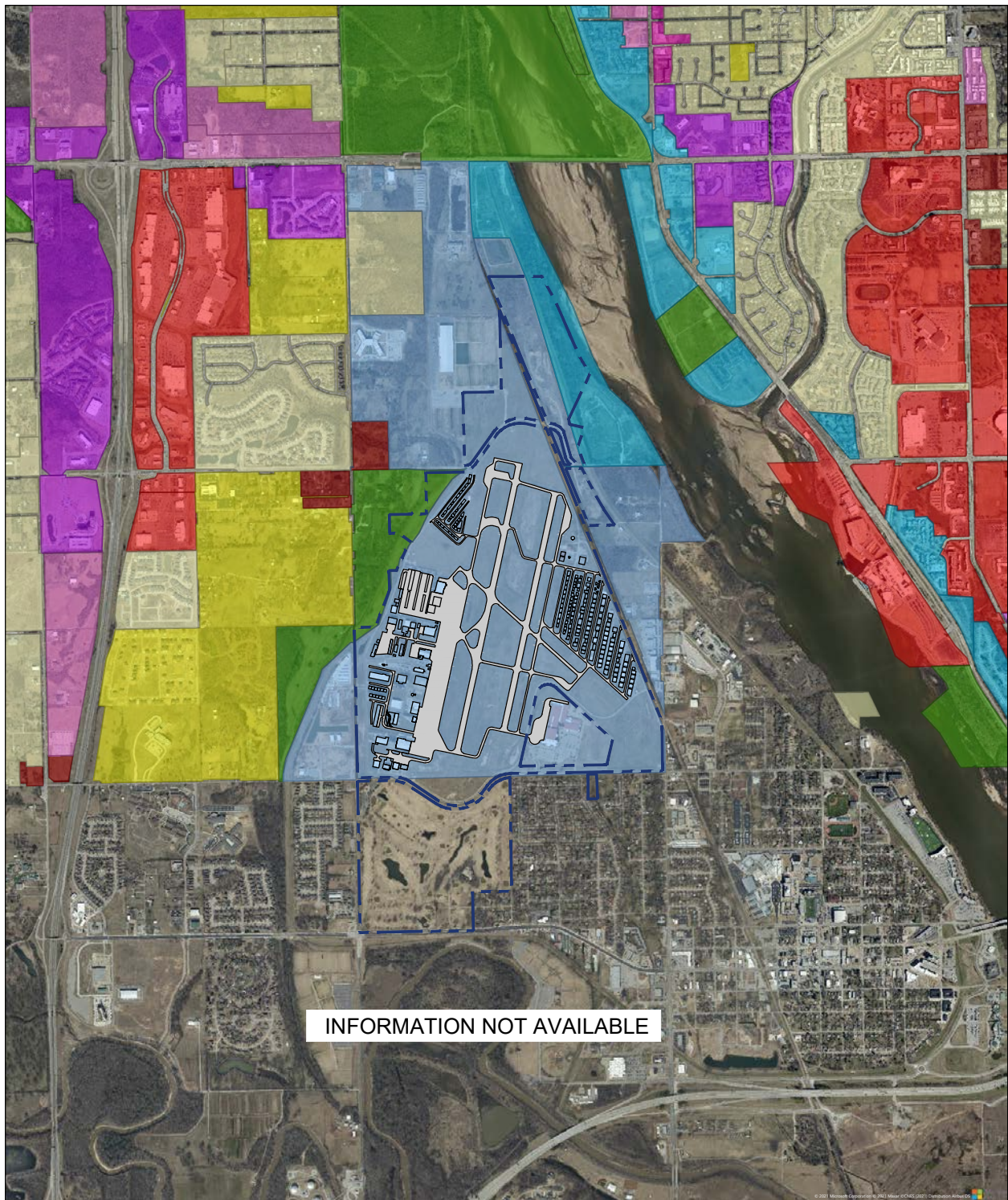
LEGEND

| | | | | | |
|---|---------------|---|------------|---|-------------|
|  | PROPERTY LINE |  | CORRIDOR |  | OFFICE |
|  | AGRICULTURAL |  | INDUSTRIAL |  | RESIDENTIAL |
|  | COMMERCIAL |  | MIXED USE | | |



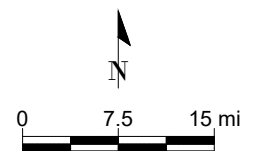
Source: City of Tulsa; RS&H, 2022

GENERALIZED ZONING MAP



LEGEND

| | | | | | |
|--|----------------|--|---------------------|--|-----------------|
| | PROPERTY LINE | | MAIN STREET | | OPEN SPACE |
| | RIVER CORRIDOR | | MIXED USE CORR. | | REGIONAL CENTER |
| | EMPLOYMENT | | NEIGHBORHOOD CENTER | | TOWN CENTER |
| | NEIGHBORHOOD | | NEIGHBORHOOD (NEW) | | |



Source: City of Tulsa; RS&H, 2022

LAND USE MAP

FIGURE 2-7