

CHAPTER A

Inventory of Existing Conditions

Introduction

Tulsa, with a City population of approximately 400,000, and a metropolitan area population of approximately 960,000 is the second largest city in Oklahoma. Tulsa International Airport (TUL) is a regional center for aviation activity and is a major contributor the region's economic stability and sustainability. In 2014 the airport accommodated 2,750,798 departing and arriving passengers and 95,198 aircraft takeoffs and landings.

The Airport serves an area that encompasses 64 counties in four states, providing critical commercial airline service to 19 nonstop destinations. The airport complex encompasses over 4,400 acres and is home to over 13,000 employees, making TUL the largest industrial employment complex in the region. Some of TUL's tenants include American Airlines Maintenance and Engineering Center, Spirit AeroSystems, Lufthansa and L-3/Aeromet. These businesses support the global aerospace industry and reflect Tulsa's role as the 8th largest hub of aerospace engine manufacturing and 20th largest defense cluster in the nation. The annual economic impact of airport operations is estimated to exceed \$3 billion.

The Airport is also the home for the 138th Fighter Wing and the Army Aviation Support Facility (AASF) #2 of the Oklahoma Air National Guard. In addition, commercial/business aviation activity includes six (6) fixed base operators (FBOs) that cater to the needs of based and itinerant general aviation operators, including several locally based corporate flight departments.

The previous Airport Master Plan was completed in 1996 and has been recognized as an accurate representation of the overall concepts that drive operations and development of the Airport. However at almost 20 years of age, and in consideration of the significant changes in local, regional and national aviation industry considerations, the document is in need of a comprehensive update. This planning effort will assist in documenting the current state of the aviation industry at TUL, including the future development and maintenance needs of the facility. Specifically, this update of the Airport's Master Plan will focus on an examination of the ultimate layout of runway and taxiway facilities (the airside), along with an examination of the best use of all airport land parcels that lay outside of the airside reservation (the landside).

The purpose of this Airport Master Plan is to provide a long-term physical development plan that is based on the defined planning objectives of the Tulsa Airport Improvement Trust (TAIT), which include:

- **Operate Tulsa International Airport and Richard Lloyd Jones, Jr. Airport in a safe and secure manner; and provide necessary protective services to the public, customers, tenants, and employees.**
- **Provide safe, secure, accessible, functional, well-maintained, and attractive Airport facilities that provide the desired services and accommodate the air transportation needs of the Airport's service areas.**
- **Make the business decisions required to keep the Airports efficient, self-supporting, fiscally sound, and able to attract needed growth.**
- **Provide and support air service development activities to expand and retain air service.**
- **Work with the surrounding communities to be a good neighbor.**
- **Enhance the Airport's position as an economic development partner for the region; by supporting aerospace and aviation-related firms and organizations in their efforts to grow and expand in our region.**

In addition, the Master Plan must provide an updated on-airport land use plan that is compatible with the environment and land uses adjacent to the Airport, as well as other modes of transportation and other airports in the region. The requirement of future facilities will be evaluated not only from an aviation standpoint, but also the relationship of airport facilities to the surrounding land uses, and the community as a whole. The focus will be on the total aviation facility and its environs, with the overall planning goal being the development of an aviation facility that can accommodate future demand, is not significantly constrained by its environs, and does not adversely impact its surroundings.

Airport Role and Facilities

As illustrated in the following figures, entitled *AIRPORT LOCATION MAP*, and *AIRPORT VICINITY MAP*, Tulsa International Airport (TUL) is located in Tulsa County, approximately five (5) miles northeast of downtown Tulsa, adjacent to the regional transportation network that connects State Highways to Interstate Highways.

TUL is owned by the City of Tulsa and is leased to the Tulsa Airports Improvement Trust (TAIT). The Tulsa Airport Authority (TAA) operates, manages, and administers Tulsa International Airport and Richard Lloyd (R.L.) Jones, Jr. Airport for TAIT. TAA and TAIT are governed by five-member boards that are composed of the same five persons. The Airports' Director is responsible for the Airport operations and maintenance in order to meet required federal safety standards and serves as the Airport's public relations representative.

TUL, which is classified as a small-hub, primary commercial service airport by the Federal Aviation Administration's (FAA) National Plan of Integrated Airport Systems (NPIAS), is operated within a two airport system that includes the general aviation (GA) reliever airport, R.L. Jones, Jr. Airport. It is anticipated that R.L. Jones, Jr. Airport will continue to accommodate the majority of the smaller general aviation aircraft operations for the airport system, while TUL accommodates all of the commercial passenger service activity, along with the majority of the military and larger general aviation operations.

Figure A1
Airport Location Map

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Figure A2
Airport Vicinity Map

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Airside Facilities

TUL is operated with three runways. Two of the runways are parallel, oriented in a general north-south direction, and supported by a system of parallel and connecting taxiways. The third is a crosswind runway, oriented in a general east-west direction, and has supporting parallel and connecting taxiway system. Figure A3, entitled *EXISTING AIRPORT LAYOUT*, provides a graphic presentation of the existing airport facilities. Additional airport information includes:

- **Airport Reference Point:** Latitude N 36° 11' 54.21" and Longitude W 95° 53' 17.18"
- **FAA Site Number:** 19283.A
- **Airport Elevation:** 676.7 feet above mean sea level (AMSL)
- **Acreage:** 4,404.4 acres
- **Mean Normal Temperature of hottest month:** 93.1° F (July & August).

Runways

Runway 18L/36R (Primary). Runway 18L/36R, the Airport's primary runway, is 9,999 feet in length, and 150 feet in width. The runway is constructed of concrete, and has a gross weight bearing capacity of 75,000 pounds single wheel, 200,000 pounds dual wheel, and 400,000 pounds dual tandem wheel main landing gear configuration. The runway is equipped with High Intensity Runway Lights (HIRLs) and a four-light Precision Approach Path Indicator (PAPI) on the left side of both runway ends. In addition, Runway 18L/36R is equipped with centerline lights, and is marked with precision approach runway markings. The Runway 18L end is served by an Instrument Landing System (ILS) approach that includes a glide slope, localizer, a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR), and has a *left hand* traffic pattern. Runway 36R is also served by an ILS approach that includes a localizer, Category II/III High Intensity Approach Lighting System with Centerline Sequenced Flashers (ALSF2), and has a *right hand* traffic pattern. In addition, this runway is equipped with a retractable arresting gear system to support the operation of the 138th Fighter Wing's F16s that are based at TUL.

Runway 8/26 (Crosswind). Runway 8/26, the Airport's crosswind runway, is 7,376 feet in length, and 150 feet in width. It is constructed of concrete, and has a gross weight bearing capacity of 75,000 pounds single wheel, 200,000 pounds dual wheel, and 350,000 pounds dual tandem main landing gear configuration. Runway 8/26 is marked with non-precision approach runway markings, is equipped with HIRLs, four-light PAPIs on the left side of both runway ends, Runway End Identifier Lights (REILs) on both runway ends, and provides standard *left hand* patterns to each runway end. The Runway 26 end is also served by a MALSR. In addition, this runway is equipped with a retractable arresting gear system to support the operation of the 138th Fighter Wing's F16s that are based at TUL.

Runway 18R/36L (Secondary). Located on the west side of the Airport, the Airport's secondary parallel runway (Runway 18R/36L) is 6,101 feet in length and 150 feet in width. The runway is constructed of grooved asphalt, and has a gross weight bearing capacity of 60,000 pounds single wheel and 100,000 pounds dual wheel main landing gear configuration. The runway is equipped with HIRLs, four-light PAPIs on the left side of each runway end, as well as REILs on both runway ends. The Runway 18R end is served by an

Figure A3
EXISTING AIRPORT LAYOUT

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Instrument Landing System (ILS) approach that includes a glide slope and localizer, and has a *right hand* traffic pattern. The Runway 36L end has a *left hand* traffic pattern. Runway 18R/36L is marked with precision approach runway markings.

Taxiways

Runway 18L/36R Taxiway System. Taxiways “J” & “G” combine to serve as the west side parallel taxiway serving Runway 18L/36R. These taxiways, which are constructed of concrete, are 75 feet in width and provided with nine (9) connector/exit taxiways that are designed to varying standards and dimensions. Taxiway “E” is the east side parallel taxiway serving Runway 18L/36R. This taxiway, which is constructed of concrete, is 75 feet in width and provided with six (6) connector/exit taxiways that are designed to varying standards and dimensions. A brief summary description of the features associated with this taxiway system is presented in the following table.

Table A1 RUNWAY 18L/36R TAXIWAY SYSTEM

Taxiway	Type	Location	Width	Condition	Lighting/Signage
Taxiway “J”	Partial Parallel	West Side	75’	Excellent	Yes/Yes
Taxiway “J-1”	Exit	West Side	100’	Excellent	Yes/Yes
Taxiway “J-3”	Exit	West Side	100’	Excellent	Yes/Yes
Taxiway “B”	Connector/Exit	West Side	90’	Excellent	Yes/Yes
Taxiway “H”	Exit	West Side	75’	Excellent	Yes/Yes
Taxiway “F”	Exit	West Side	75’	Excellent	Yes/Yes
Taxiway “F-1”	Connector/Exit	West Side	75’	Excellent	Yes/Yes
Taxiway “G”	Partial Parallel	West Side	75’	Excellent	Yes/Yes
Taxiway “G-1”	Connector/Exit	West Side	110’	Excellent	Yes/Yes
Taxiway “N”	Connector	West Side	75’	Excellent	Yes/Yes
Taxiway “E”	Parallel	East Side	75’	Excellent	Yes/Yes
Taxiway “E-1”	Exit	East Side	85’	Excellent	Yes/Yes
Taxiway “B”	Connector/Exit	East Side	85’	Excellent	Yes/Yes
Taxiway “C”	Connector/Exit	East Side	85’	Excellent	Yes/Yes
Taxiway “E-2”	Connector/Exit	East Side	75’	Excellent	Yes/Yes
Taxiway “A”	Connector	East Side	100’	Excellent	Yes/Yes
Taxiway “AA” ¹	Connector	East Side	110’	Excellent	Yes/Yes
Taxiway “BB”	Connector	East Side	325’	Excellent	Yes/Yes
Taxiway “DD” ¹	Connector	East Side	85’	Excellent	Yes/Yes
Taxiway “EE”	Connector	East Side	90’	Excellent	Yes/Yes

SOURCE: May 27, 2013 Airport Layout Plan, TAIT Staff, & Mead & Hunt, Inc.

¹ Taxiway is currently closed.

Runway 8/26 Taxiway System. Taxiway “C” is the south side parallel taxiway serving Runway 8/26. This taxiway, which is constructed of concrete, is 75 feet in width and provided with eight (8) connector/exit taxiways that are designed to varying standards and dimensions. Taxiways “B” and “K” combine to serve as the north side parallel taxiway system serving Runway 8/26. These taxiways, which are constructed of

concrete, are 75 feet in width and provided with six (6) connector/exit taxiways that are designed to varying standards and dimensions. A brief summary description of the features associated with this taxiway system is presented in the following table.

Table A2 RUNWAY 8/26 TAXIWAY SYSTEM

Taxiway	Type	Location	Width	Condition	Lighting/Signage
Taxiway "C"	Parallel	South Side	75'	Excellent	Yes/Yes
Taxiway "CC"	Connector/Exit	South Side	90'	Excellent	Yes/Yes
Taxiway "E"	Connector/Exit	South Side	75'	Excellent	Yes/Yes
Taxiway "H"	Connector/Exit	South Side	100'	Excellent	Yes/Yes
Taxiway "J"	Connector/Exit	South Side	100'	Excellent	Yes/Yes
Taxiway "K"	Connector/Exit	South Side	115'	Excellent	Yes/Yes
Taxiway "C-1"	Connector/Exit	South Side	90'	Excellent	Yes/Yes
Taxiway "L"	Connector/Exit	South Side	75'	Excellent	Yes/Yes
Taxiway "GG"	Connector	South Side	75'	Excellent	Yes/Yes
Taxiway "HH"	Connector	South Side	85'	Excellent	Yes/Yes
Taxiway "JJ"	Connector	South Side	50'	Excellent	Yes/Yes
Taxiway "SS"	Connector	South Side	70'	Excellent	Yes/Yes
Taxiway "KK"	Connector	South Side	50'	Excellent	Yes/Yes
Taxiway "B"	Partial Parallel	North Side	75'	Excellent	Yes/Yes
Taxiway "E"	Connector/Exit	North Side	75'	Excellent	Yes/Yes
Taxiway "H"	Exit	North Side	75'	Excellent	Yes/Yes
Taxiway "J"	Connector/Exit	North Side	75'	Excellent	Yes/Yes
Taxiway "K"	Connector/Exit & Partial Parallel	North Side	75'	Excellent	Yes/Yes
Taxiway "L"	Connector/Exit	North Side	75'	Excellent	Yes/Yes
Taxiway "LL"	Connector	North Side	75'	Excellent	Yes/Yes
Taxiway "MM"	Connector	North Side	150'	Excellent	Yes/Yes
Taxiway "NN"	Connector	North Side	75'	Excellent	Yes/Yes

SOURCE: May 27, 2013 Airport Layout Plan, TAIT Staff, & Mead & Hunt, Inc.

Runway 18R/36L Taxiway System. Taxiway "M" is the west side partial parallel taxiway serving Runway 18R/36L. This taxiway, which is constructed of asphalt, is 75 feet in width and provided with four (4) connector/exit taxiways that are designed to 75-foot dimension. Taxiway "L" is the east side partial parallel taxiway serving Runway 18 R/36L. This taxiway, which is constructed of asphalt and concrete, is 75 feet in width and provided with seven (7) connector/exit taxiways that are designed to a 75-foot dimension. A brief summary description of the features associated with this taxiway system is presented in the following table.

Table A3 RUNWAY 18R/36L TAXIWAY SYSTEM

Taxiway	Type	Location	Width	Condition	Lighting/Signage
Taxiway "M"	Parallel	West Side	75'	Excellent	Yes/Yes
Taxiway "K"	Connector/Exit	West Side	75'	Excellent	Yes/Yes
Taxiway "M-1"	Connector/Exit	West Side	75'	Excellent	Yes/Yes
Taxiway "M-2"	Connector/Exit	West Side	75'	Excellent	Yes/Yes
Taxiway "TT"	Connector	West Side	75'	Excellent	Yes/Yes
Taxiway "UU"	Connector	West Side	50'	Excellent	Yes/Yes
Taxiway "W"	Connector	West Side	75'	Excellent	Yes/Yes
Taxiway "WW"	Partial Parallel	West Side	50'	Excellent	Yes/Yes
Taxiway "ZZ" ¹	Connector	West Side	75'	Excellent	Yes/Yes
Taxiway "L"	Parallel	East Side	75'	Excellent	Yes/Yes
Taxiway "L-1"	Connector/Exit	East Side	75'	Excellent	Yes/Yes
Taxiway "K"	Connector/Exit	East Side	75'	Excellent	Yes/Yes
Taxiway "L-2"	Connector/Exit	East Side	75'	Excellent	Yes/Yes
Taxiway "L-3"	Exit	East Side	75'	Excellent	Yes/Yes
Taxiway "L-4"	Exit	East Side	75'	Excellent	Yes/Yes
Taxiway "L-5"	Connector/Exit	East Side	75'	Excellent	Yes/Yes
Taxiway "LA"	Connector	East Side	35'	Excellent	Yes/Yes
Taxiway "LB"	Connector	East Side	50'	Excellent	Yes/Yes
Taxiway "PP"	Connector	East Side	50'	Excellent	Yes/Yes
Taxiway "C"	Connector	East Side	75'	Excellent	Yes/Yes

SOURCE: May 27, 2013 Airport Layout Plan, TAIT Staff, & Mead & Hunt, Inc.

¹ Taxiway is currently closed.

Landside Facilities

Landside facilities are defined as those airport facilities that are outside of the runway/taxiway system. Therefore, landside facilities typically include the passenger terminal building, passenger terminal support facilities, airport support facilities, aircraft storage and maintenance facilities, Fixed Base Operator (FBO) facilities, aircraft storage and parking aprons, along with automobile access and parking facilities, and other on-airport structures/use areas. A brief listing/description of the major landside facilities for Tulsa International Airport is provided in the following narrative.

Aprons

There are seven (7) major apron designations at Tulsa International Airport for aircraft parking and storage. The aprons are generally categorized as follows:

- **Passenger Terminal Apron**
- **Air Cargo Aprons**
- **Aircraft Maintenance Apron**
- **Air & Army National Guard Aprons**
- **General Aviation Aprons**

Passenger Terminal Apron. Consisting of about 50 acres, the passenger terminal apron is located on the northwest side of the passenger terminal building. This apron also extends beyond the actual area used for terminal parking and access to include four (4) large aircraft parking positions along the northeastern edge of the apron area. This apron area is in **good condition**, with existing pavement strengths that are comparable to the various taxiways and taxilanes that serve it.

Air Cargo Aprons. There are two (2) designated air cargo aprons located at the Airport. The first, consisting of about 14.7 acres, is located southeast of the passenger terminal building and is utilized by United Parcel Service (UPS) and several of the air carrier airlines that serve TUL (i.e., American Airlines, United Airlines, and Southwest Airlines). The second cargo apron area, consisting of about 8.4 acres, is located east of the Runway 36R threshold. This apron, which is utilized exclusively by FedEx, is also located on private property that is outside the airport boundary. Each of the apron areas are in **good condition**, with existing pavement strengths that are comparable to the various taxiways that serve them.

Aircraft Maintenance Apron. There are several apron areas associated with the American Airlines Maintenance Facility located east of Runway 18L/36R and north Runway 8/26. The total apron area, which consists of about 54.4 acres, includes both open apron areas and apron associated with individual hangar facilities. These apron areas are in **good condition**, with existing pavement strengths that are comparable to the various taxiways and taxilanes that serve them.

Oklahoma Air & Army National Guard Aprons. The Oklahoma Air National Guard Apron, consisting of about 15.8 acres, is located east of the Runway 18L end. The Oklahoma Army National Guard Apron, consisting of about 10.3 acres, is located in the northeast corner of airport property, south of 46th Street North and west of the Mingo Valley Expressway (U.S. Highway 169). Each of the apron areas are in **good condition**, with existing pavement strengths that are comparable to the various taxiways that serve them.

General Aviation Apron. There are several apron areas associated with the various commercial and corporate general aviation facilities located on the Airport. They are generally concentrated in three (3) areas on the east side of the Airport: 1) located along the west side of Runway 18R/36L; 2) an area bounded by the east side of the Runway 36L approach end, south of Runway 8/26, and west of the passenger terminal area; and 3) an area located on the east side of 18R/36L and north of Runway 8/26. The pavement condition varies for each of the apron areas, ranging from fair to excellent condition, with existing pavement strengths that are comparable to the various taxiways that serve them.

Hot Spots

The FAA defines a “hot spot” as a safety-related problem area on an airport (generally represented by a complex or confusing taxiway system, runway system, or runway/taxiway intersection) that poses an increased risk for runway incursions or incidents during aircraft surface operations. The typical causes of hot spot-related runway incursions or incidents can be attributed to airfield layout, traffic flow, airport marking/signage/lighting, situational awareness, and training.

According to FAA’s current *Runway Safety Hot Spots List*, there is one documented hot spot at TUL. It is defined as an “*Expansive pavement at the intersection of Twy C, Twy J and Twy K in near proximity to Rwy 08-26 and Terminal. Be alert for Rwy 08-26 hold short line and do not cross without authorization*”. Though not

identified as official hot spots, Airport Staff have also identified two additional areas where the existing runway/taxiway geometry could potentially be improved to enhance safety. These areas are associated with the intersection of Taxiway “K” and Runway 8/26 (on the north side of the runway) and the intersection of Taxiway “K” and Runway 18R/36L (on the east and west sides of the runway).

Each of the various aircraft apron areas, including the existing and potential hot spot locations are identified on the following figure, entitled *EXISTING AIRPORT APRON AREAS & HOT SPOTS*.

Passenger Terminal Area Complex

The passenger terminal complex at Tulsa International Airport is centrally located between the north-south parallel runways and positioned along the south side of Runway 8/26. The passenger terminal building was constructed at the current location in 1961, with subsequent building and parking expansion projects occurring through the years. The remainder of the terminal complex is composed of access roadways, public parking structure and surface parking, employee parking, a rental car maintenance facility, two hotels, air cargo facilities and other terminal ancillary facilities. The existing layout of the passenger terminal building is presented on Figure A5, entitled *EXISTING PASSENGER TERMINAL AREA SITE PLAN*.

Passenger Terminal Building. The passenger terminal building consists of two levels and utilizes a two-pier concourse design. The concourses (Concourse A & B) extend from the north side of the terminal, with the upper levels being linked to the departure level of the building and the majority of the lower levels being used for airline operations. Concourse A currently operates with ten (10) gate positions and seven (7) jet loading bridges. Concourse B currently operates with eleven (11) gate positions and seven (7) jet loading bridges. There are a total of four (4) commuter gate positions, utilizing ramp loading with elevator and/or stair access from the concourses. Additional space along the perimeter of the concourse at the ramp level is utilized for airline vehicle and equipment storage.

Recent terminal building upgrade/improvement projects that were completed in 2010, included the establishment of a single centralized security screening area, new exit only passenger lanes, a concession boulevard, a food court, and several new restaurants. More recently, upgrades to Concourse B, which were completed in 2014, included a raised concourse ceiling with added skylight, renovated restrooms, new holdroom seating with fully integrated power charging stations, a business center, and back-up generators. Phase III of the Passenger Terminal renovation project, which will include similar improvements to Concourse A, are scheduled for completion in 2015. In addition, the existing terminal parking structure is currently undergoing an expansion/modification project that is scheduled for completion in July of 2016.

At present, the Airport is served by six (6) commercial airlines (Allegiant Air, American Airlines, Delta Airlines, Southwest, United Airlines, and US Airways) that lease their arrival/departure gates. The following table, entitled *AIRLINE ARRIVAL/DEPARTURE GATE INVENTORY*, presents the existing concourse and gate distribution among the various airlines serving the Airport.

Figure A4
EXISTING AIRPORT APRON AREAS

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Figure A5
EXISTING PASSENGER TERMINAL AREA SITE PLAN

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Table A4 AIRLINE ARRIVAL/DEPARTURE GATE INVENTORY

Airline Carrier	Concourse	Gates
Allegiant Air	B	B4
American Airlines ¹	A	A5, A7, A9
Delta Airlines	B	B7, B9, B11
Southwest Airlines	B	B1, B3, B5
United Airlines	B	B6, , B8, B10
US Airways ¹	A	A5, A7, A9

SOURCE: TAIT Staff

¹The American Airlines and US Airways merger was finalized in 2014.

The passenger arrivals level is located on the second/upper level of the terminal building. The arrivals level roadway serves for both private passenger pick-up and commercial vehicle pick-up, with two dedicated drive thru lanes and two additional parallel parking lanes at the curb. There are approximately 1,000 linear feet of arrivals curb frontage, and this level has a direct on-grade access to the upper level of the parking structure. The arrivals level contains the rental-car counters, the baggage claim area and in-bound baggage operations, security/baggage screening operations, Airport administration/operations areas and concessions and retail areas, as well as various informational display and ground transportation functions. In addition, meeter/greeter space is provided at the south end exit area of each concourse, on the public landside of security. The ready rental car storage and return area is located in the lower level of the parking structure, which accommodates just over 500 rental car spaces.

The lower level of the terminal building is the departures level. The access to this level is via Airport Drive, which provides two dedicated drive thru lanes and two additional parallel parking lanes at the curb. The departures curb is approximately 1,000 linear feet in length and is partially covered by sky-bridge connections from the upper level of the terminal. The departures level is interconnected with the arrivals level by a series of escalators, located parallel to the south building facade at the central portion of the terminal and adjacent to the end of each of the concourses. Elevator and stair access is also provided. The departures level accommodates the ticketing lobby, ATO spaces, and baggage drops, as well as various informational and display functions.

Together, the combined area of the arrivals and departures levels equals approximately 579,278 square feet of which approximately 172,147 square feet is dedicated to passenger access areas. The existing terminal also complies with the design provisions set forth in the Americans with Disabilities Act of 1990.

Automobile parking facilities serving the terminal building are located directly southwest of the terminal and encircled by the terminal loop roadway system (Airport Drive), which extends northeast from State Highway 11 (Gilcrease Expressway). Existing parking is provided by the two-level parking structure, with a portion of the upper level being partially covered with fabric panels, and adjacent ground-level surface lots. The existing allocation of parking spaces associated with the terminal building (i.e., hourly, garage/covered, economy, ready-rental car, employee, and cell phone lot parking is presented in the following table, entitled *PASSENGER TERMINAL VEHICLE PARKING INVENTORY*. There are approximately 1,413 covered and 509 un-covered public parking spaces associated with the parking structure, and 1,603 hard-surface outdoor/economy public parking spaces. There are also approximately 573 hard-surface/outdoor spaces

designated for employee parking and 502 spaces designated for ready rental car parking in the lower level of the parking garage. In addition, one off-site parking facility operates near the Airport (located just south of the Airport’s cargo development area), providing both garage/covered and uncovered surface parking.

Table A5 PASSENGER TERMINAL VEHICLE PARKING INVENTORY

Parking Type	# of Spaces
Public (Total)	3,654
Garage-Level 1 (Long-Term & Covered)	715
Garage-Level 2 (Short-Term & Uncovered)	509
Garage-Level 2 (Long-Term & Covered)	698
Express Shuttle/Valet	1,603/60
Cell Phone Lot	69
Rental-Car (Total)	2,036
Ready-Rental (Terminal Garage)	502
Remote-Rental (Storage)	1,534
Employee (Total)	573
Lot A (Southeast)	234
Lot B (Northwest)	298
VIP (Northeast)	41

SOURCE: TAIT Staff & Mead & Hunt, Inc.

Aviation Industrial/Maintenance Facilities

These facilities at TUL are currently highlighted by aircraft Maintenance, Repair, and Overhaul (MRO) operations conducted by American Airlines Maintenance Base and Original Equipment Manufacturing (OEM) operations conducted by Spirit Aerosystems. A brief description of these facilities is presented in the text below.

American Airlines Maintenance Base. The American Airlines Maintenance & Engineering Center at TUL is located on approximately 260 acres that is positioned east and adjacent to the north end of Runway 18L/36R. According to the TUL website, this facility is recognized as one of largest and most sophisticated aviation MRO facilities in the world, employing more than 5,000 employees (recognized as one of the largest private employers in Oklahoma) that operate from 3.3 million square feet of maintenance “plant”. This facility serves as the maintenance base for the airline’s fleet of MD-80, B737, B757 and B767 aircraft, as well as performs overhaul work on American’s Pratt and Whitney JT-8, and General Electric CF6-80 and CFM56 jet

engines. The maintenance base also includes jet aircraft wheel and brake overhaul facilities and a composite repair center.

Spirit Aerosystems. The Spirit Aerosystems OEM facilities at TUL are located in two development areas, with one of the areas located outside the existing airport property boundary. The first area, consisting of about 45.8 acres is located east of Runway 18L/36R and north of the east end of Runway 8/26 (south of the American Airlines Maintenance Base). The second area, consisting of about 53.6 acres is located southwest of the Runway 26 end and north of the FedEx cargo area. According to their company website, this manufacturing facility fabricates Boeing 737NG, 747-8, 777 and 787 composite and metallic wing components as well as metallic and composite floor beams for the Boeing 777 and 787 programs. In addition to a Military program that includes the fabrication of the Boeing E3 AWACS (i.e., a modified Boeing 707/320 aircraft) radomes, engine cowls and rudders, the facility is also responsible for the design and delivery of a fully integrated wing for the Gulfstream G280 and the G650 business jets.

Luthansa Technik Component Services (LTCS). The LTCS facility at TUL is located within the existing commercial general aviation development area (northeast of the Runway 8) and includes 72,000 square feet of hangar/workshop floor space. LTCS offers a broad range of services to maintain commercial aircraft components (certificated by FAA and EASA), and is fitted with state-of-the-art equipment and tooling to provide test and repair services for avionics components. In addition, the tear down of vintage aircraft, mainly B737s, also takes place within the area. The tear down includes the preparation of the aircraft as well as the re-movement of all components requested by the customer.

L-3 Aeromet. The L-3 Aeromet facilities at TUL, which consist of two hangars, an office building, and apron area, are located on about 8.3 acres that is positioned adjacent to the south end of Runway 18R/36L. According to their company website, this facility develops, integrates, and operates airborne sensors in support of aircraft and mission operations; data collection, production, and exploitation; and aircraft modifications.

Air Cargo Facilities

The TUL air cargo facilities are located in two areas southeast of the passenger terminal building. The first area, located adjacent to the passenger terminal, consists of five (5) buildings and adjacent apron area. This area supports cargo operations for the United Parcel Service (UPS), as well as belly freight cargo handled by the various airlines (i.e., American Airlines Cargo, United Cargo, and Southwest Cargo). The TAIT also has current plans to construct one additional cargo building in this area to accommodate the removal of one of the older cargo facilities. The second cargo area is located east of the Runway 36R threshold (utilized exclusively by FedEx), and consists of a single building and adjacent apron area.

Oklahoma National Guard Facilities

There are two Oklahoma National Guard Units [i.e., the 138th Fighter Wing and the Army Aviation Support Facility (AASF) #2] that are located and operate from TUL property. A brief description of their operation, as described in the *Oklahoma National Guard/The Adjutant General's 2013 Annual Report*, is provided in the following text.

Oklahoma Air National Guard (138th Fighter Wing). The 138th Fighter Wing is comprised of four groups (consisting of over 1,100 airman), which include the Operations Group, Maintenance Group, Mission Support Group, and Medical Group and is host to the 219th Engineering Installation Squadron. The 138th Fighter Wing operates the F16C/D Fighting Falcon, a multi-role combat aircraft capable of delivering precision guided munitions around the world. There are currently twenty-two (22) F16s based at the TUL facility. This Air National Guard Base, which consists of about 81.0 acres, is located northeast of the Runway 18L end and provided direct access to the east side parallel taxiway system (i.e., Taxiway “E”) from connector Taxiway “A”. The Base includes several aircraft storage and maintenance hangars, aircraft apron areas (i.e., about 15.8 acres), administrative buildings, industrial/service buildings, and numerous base support facilities.

Oklahoma Army National Guard (Army Aviation Support Facility #2). The Army Aviation Support Facility (AASF) #2 at TUL supports the B Company 2/285th Assault (ASLT) and B Co 834th Aviation Intermediate Maintenance (AVIM) units training air crewmembers, aircraft mechanics, and provides maintenance on UH-60 Black Hawk helicopters. There are currently ten (10) UH-60 Black Hawk helicopters based at the TUL facility, which is a four-bladed, twin-engine, medium-lift utility helicopter manufactured by Sikorsky Aircraft. These aviation support facilities also provide individual aircrew training, consisting of aircraft transitions, day and night tactics, advanced instruments, and other specialized training.

This Army National Guard Base, which consists of about 48.0 acres, is located in the far northeast corner of Airport property, southwest of the intersection of Highway 169 and East 46th Street North. The base’s aviation facilities include a 75’ x 2,000’ north-south runway (Runway 17/35) with five (5) marked helipad positions, two connector taxiways, and about 10.3 acres of apron area that includes taxilanes and twelve helicopter parking positions.

General Aviation Facilities

The majority of existing general aviation facilities at TUL are located on the east side of the Airport, adjacent to Runway 18R/36L. These facilities, which are concentrated along the west side of Runway 18R/36L, south of Runway 8/26 (west of the passenger terminal area), and on the east side of 18R/36L (north of Runway 8/26), are represented by a combination of commercial and corporate hangar development areas.

The Airport is served by six (6) full service Fixed Base Operators that provide aircraft fuel, maintenance, aircraft storage, and charter services. These include:

- **Atlantic Aviation** (located northwest of the Passenger Terminal Area with connector taxiway access to Taxiway “C”)
- **BizJet** (located west of Runway 18R/36L with connector taxiway access to Taxiway “M” and north of Runway 8/26 with connector taxiway access to Taxiway “K”)
- **Legacy Jet Center** (located east of Runway 36L end with connector taxiway access to Taxiway “L”)
- **Sparks Aviation** (located north of Runway 8/26 with connector taxiway access to Taxiway “K”)
- **Tulsair** (located west of Runway 18R/36L with connector taxiway access to Taxiway “M”)
- **United States Aviation** (located west of Runway 18L end with connector taxiway access to Taxiway “J”)

The Airport is also home to several Aviation Service Operators (ASOs) that provide specialty aviation services/maintenance and charters, as well as numerous corporate aircraft operators that have located hangar and flight department facilities at TUL.

Aviation-Related Commercial Facilities

Air & Space Museum Facilities. The Tulsa Air and Space Museum (TASM) is located on 17.8 acres of airport property, just east of the approach end to Runway 18R, and is accessed from E. 182nd Street, which extends south from Port Road. The mission of the TASM is to preserve Oklahoma’s aerospace heritage and to inspire science-based learning by providing historical exhibits, hands-on science exhibits, computer flight simulator lab, and full-dome planetarium shows. The museum is also provided with airside access to Taxiway “L”, the east side parallel taxiway system serving Runway 18R/36L.

Hotel Facilities. The Airport is served with two (2) hotel facilities: Clarion Inn @ 172 rooms and Hilton Garden Inn @ 120 rooms. Each is located within the passenger terminal area complex, easily accessed from the Airport entrance roadway system (Airport Drive) and provide visitors with banquet/meeting facilities, as well as easy access to downtown and area attractions.

Airport Support Facilities

Fuel Storage Facilities. As noted previously, the Airport is currently served by six (6) Fixed Base Operators (FBOs) that offer aircraft fueling services and products ranging from Avgas, Jet A, Military Jet fuel, unleaded, and diesel. The FBO fuel storage/dispensing facilities are sited at various locations on airport property, which includes facilities for self-fuelers of corporate aircraft, as well as fuel storage for automobiles in support of rental-car facilities and airport maintenance facilities. The location of the various fuel storage/dispensing facilities are depicted on the following illustration, entitled *AIRPORT FUEL STORAGE/DISPENSING FACILITIES*, and a summary of the fuel types and tank sizes are presented in the following table.

Table A6 EXISTING AVIATION FUEL STORAGE

FUEL TYPE	Tank Size/Type										TOTAL (GALLONS)
	30,000/ UST	112,000/ UST	20,000/ UST	12,000 UST	20,000/ AST	2,000/ UST	8,000/ UST	12,000/ AST	10,000/ UST	500/ AST	
AVGAS	-	-	-	1	-	-	2	1	-	-	
Sub-Total (Gallons)	-	-	-	12,000	-	-	16,000	12,000	-	-	40,000
JET A	3	2	8	1	1	1	-	-	-	-	
Sub-Total (Gallons)	90,000	224,000	160,000	12,000	20,000	2,000	-	-	-	-	508,000
UNLEADED	-	-	-	-	-	-	-	-	1	1	
Sub-Total (Gallons)	-	-	-	-	-	-	-	-	10,000	500	10,500
DIESEL	-	-	-	-	-	-	-	-	1	-	
Sub-Total (Gallons)	-	-	-	-	-	-	-	-	10,000	-	10,000

SOURCE: TAIT Staff & Mead & Hunt, Inc.

Figure A6
AIRPORT FUEL STORAGE/DISPENSING FACILITIES

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Fuel sales by month for calendar year 2014, as well as total fuel sales for 2010-2013, are shown in the following table entitled *FUEL SALES AT TULSA INTERNATIONAL AIRPORT, 2010-2014*.

Table A7 **FUEL SALES AT TULSA INTERNATIONAL AIRPORT, 2010 - 2014**

Month	AVGAS (Gallons)	JET A (Gallons)	Military JET (Gallons)
January	9,821	1,892,910	136,704
February	8,157	1,796,830	103,424
March	9,631	2,085,806	166,286
April	6,566	1,951,035	23,653
May	10,864	2,097,263	83,549
June	10,141	533,833	266,928
July	10,960	1,952,904	287,717
August	11,985	2,363,424	302,242
September	10,037	2,318,650	235,700
October	11,986	2,303,677	263,069
November	8,401	1,962,720	208,066
December	7,042	1,934,034	264,308
2014 Totals	115,321	23,193,086	2,341,646
2013 Totals	117,128	25,338,868	1,911,416
2012 Totals	303,977	23,628,566	3,073,384
2011 Totals	130,801	22,430,067	2,620,816
2010 Totals	132,113	20,370,600	2,758,700

SOURCE: TAIT Staff & Mead & Hunt, Inc.

Aircraft Rescue and Fire Fighting (ARFF) Facilities. The ARFF facility, identified as Fire Station 51 by the City of Tulsa, is located north of Runway 8/26 and east of Runway 18L/36R, just northeast of the intersection of Taxiways “E” and “B”. In accordance with FAA Part 139 guidelines, Index C ARFF facilities and equipment are provided at the Airport, as required, to serve the existing type and number of air carrier aircraft operations. An Index C ARFF facility is required at an airport that has five (5) or more daily departures by air carrier aircraft with lengths at least 126 feet, but less than 159 feet. Supplemental fire protection services to the Airport are provided by the Air National Guard and City of Tulsa Fire Station 31, which is also located on Airport property, northeast of the Runway 26 end and adjacent to N. Mingo Road. It should also be noted that the west parallel runway (Runway 18R/36L) was removed from TUL’s existing FAA Part 139 certificate in 2015.

Airport Traffic Control Tower (ATCT). The TUL Airport Traffic Control Tower (ATCT) is centrally located on the Airport, on the north side of Runway 8/26 (directly north of the passenger terminal building) and between the two north-south parallel runways. The ATCT is defined as an ATC-7 combined tower and radar approach control facility with Class C airspace that is operated by FAA personnel twenty (24) hours daily. In addition, it should be noted that there are four locations on the airfield where visibility from the ATCT is restricted. These include Taxilanes “QQ”, “LZ”, “LA”, and “NN”, as well as the portion of Taxiway “L” that is south of Taxiway “L-5”.

U.S Customs Facilities. TUL provides U.S. Customs clearance services during normal business hours (Monday-Friday), and both after hours and weekend clearance appointments can be scheduled. The U.S. Customs office is located on airport property, south of the Passenger Terminal Building and west of the Cargo development Area.

Airport Maintenance Facilities. The Airport’s maintenance facility development area is centrally located on airport property (directly north of the ATCT facility). The development area, which consists of over eleven acres, includes numerous storage facilities and yard areas for equipment and materials, as well as fuel storage and dispensing facilities. Public vehicular access is provided via internal access roadways that extend south from Port Road. Airside vehicular access is provided via the Airport’s perimeter roadway system that connects directly to Taxiway “J” to the east of the maintenance facility.

Airport Warehouse & Office Facilities. Existing warehouse and office space, totaling 70,000 square feet is available at TUL for businesses that require direct airfield access. These facilities are conveniently located adjacent to the cargo apron, just west of the Airport’s primary runway (Runway 18L/36R), and directly south of the passenger terminal building. Vehicular access is provided via the Airport’s primary entrance roadway system from Gilcrease Expressway.

Transportation Facilities

Vehicular access is an important transportation component in the overall ability of an airport to function properly. Not only is it vital that passengers have easy access to and from the terminal area using ground transportation, but also surface transported freight must be easily shipped to and cargo areas and other facilities located on airport property. Also, because many airports are major employment centers, proper access for people employed on airport property must be provided. This issue is of particular importance at TUL, being the largest industrial employment complex in the region with over 13,000 employees. The existing system of ground transportation access supporting TUL is described in the following paragraphs and presented in the following illustration, entitled *EXISTING AIRPORT LANDSIDE ACCESS*.

Highways. TUL is accessed by a network of state and federal highways. The entrance to the passenger terminal area is accessed from the south via the Gilcrease Expressway (State Highway 11), which extends northward approximately 1.6 miles from Interstate 244 and continues west approximately 3.5 miles before intersecting with the Cherokee Expressway (U.S. Highway 75). In addition, the north side of the Airport is bounded by Port Road (State Highway 266), which intersects with the Mingo Valley Expressway (U.S. Highway 169) to the east and parallels the Airport’s eastern boundary before intersecting with Interstate 244.

Arterial Streets. There are three major north-south arterial streets (i.e., Sheridan Road, Memorial Drive, and North Mingo Road) that serve the Airport. Sheridan Road parallels the western boundary of the Airport and provides landside access to the numerous general aviation and corporate aviation facilities that are located along the west side Runway 18R/36L. Memorial Road provides access to the Airport from the south before intersecting with East Virgin Street, just south of the TUL cargo development area. North Mingo Road provides landside vehicular access to the Airport’s east side, which is the location of the existing major TUL employers (i.e., American Airlines Maintenance Base, Air National Guard, and Spirit Aerosystems), and also the location other existing and planned industrial and manufacturing facilities in the area.

Figure A7
EXISTING AIRPORT LANDSIDE ACCESS

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The major east-west arterial streets in the vicinity of the Airport are 46th Street North (Port Road), 36th Street North, East Apache Street, and Pine Street. 46th Street North intersects with Port Road to form the northern edge of developed airport property. Further east, 46th Street North provides direct access to the Mingo Valley Expressway. On the east side of the Airport, 36th Street North links North Mingo Road with the Mingo Valley Expressway, providing direct access to the main entrance of the American Airlines Maintenance Base. On the west side of the Airport, 36th Street North intersects with Port Road at the Sheridan Road intersection. East Apache Street on the west side of the Airport extends east from Sheridan Road and loops around the south end of Runway 18R/36L where it transitions to Young Street before intersecting with the looped roadway system serving the Passenger Terminal area. Pine Street is located approximately one mile south of the Passenger Terminal area and provides direct access between the north-south arterials (i.e., Sheridan Road, Memorial Drive, and North Mingo Road) that serve the Airport, as well as the Gilcrease Expressway and the Mingo Valley Expressway.

Railroads. There are two railroads in the immediate vicinity of TUL. The Southern Kansas Oklahoma Line (SKOL) railroad parallels the north side of Port Road, along the northern boundary of developed airport property. The Burlington Northern Santa Fe railroad (BNSF) intersects the southern portion of developed airport property, passing approximately ¼-mile south of the extended centerline of Runway 36R. Currently, there is no existing railroad spur that provides direct rail access to airport property. However, the TAIT has initiated preliminary planning efforts to investigate the future development of a multi-modal freight transfer facility located approximately one mile northeast of airport property that would incorporate the relocation of the existing SKOL marshalling yard in downtown Tulsa, as well as link to existing rail facilities that are associated with the Tulsa Port of Catoosa (i.e., the Port Railroad, including the BNSF and South Kansas & Oklahoma), and future potential rail spur connections to existing airport property.

Airspace System and NAVAIDS

Tulsa International Airport, as with all airports, functions within a local, regional, and national system of airports and airspace. The following illustration, entitled *AIRSPACE/NAVAIDS SUMMARY*, and narrative provide a brief description the Airport's role as an element within these systems.

Air Traffic and Service Areas and Aviation Communications. FAA air traffic controllers, stationed in Air Route Traffic Control Centers (ARTCC), provide positive air traffic control within defined geographic jurisdictions. There are some twenty-two geographic ARTCC jurisdictions established within the continental United States. Tulsa International Airport is contained within the Kansas City ARTCC jurisdiction, and includes the airspace in portions of Missouri, Kansas, Oklahoma, and Arkansas.

Aviation communication facilities associated with the Airport include the Air Traffic Control Tower on frequencies 118.7 (Runway 18R/36L) and 121.2 (Runways 18L/36R & 8/26), Ground Control on frequency 121.9, Approach/Departure Control on frequencies 119.1, 124.0, 338.3, and 351.8 (depending on direction), Automated Terminal Information System (ATIS) on frequency 124.9, and Aeronautical Advisory Station (UNICOM) frequency on 122.95. In addition, the Airport has separate frequencies for the Air National Guard at 381.1 and for the Army National Guard at 134.05 & 284.7 (PTC) and 260.4 (PTD).

Airspace. Tulsa International Airport is a controlled airport with an airport traffic control tower (ATCT). The local airspace surrounding the Airport is designated as Class C airspace. Although the configuration of Class C

Figure A8
Airspace/NAVAIDS Map

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airspace is tailored to each individual airport, it is generally that airspace surrounding airports that have an operational control tower, are serviced by a radar approach control facility, and that have a certain number of Instrument Flight Rules (IFR) operations or passenger enplanements. It usually consists of a five- nautical mile (NM) radius circle surrounding the airport that includes the airspace from the ground surface up to 4,000 feet Above Ground Level (AGL), and an outer area with a ten-NM radius that extends from 1,200 feet AGL to 4,000 feet AGL. Pilots must establish two-way radio communication with the ATCT facility providing air traffic services prior to entering Class C airspace and, thereafter, must maintain those communications within the airspace.

The Class C airspace surrounding TUL is consistent with the generalized criteria presented above. The airspace within the inner five-NM radius circle extends from the surface [the Airport elevation is 678 feet Above Mean Sea Level (AMSL)] to an elevation of 4,700 feet AMSL. That airspace within the ten-NM radius circle extends from a floor elevation of 2,300 feet AMSL to the same 4,700-foot AMSL altitude cap at the inner circle. In addition, there is an area of Class D airspace that overlays Richard L. Jones, Jr. Airport (RVS) that is located approximately 10 NMs southwest of TUL. This airspace extends from the surface to 2,500 feet above the airport elevation (i.e., 3,100 feet AMSL).

Military airports, military operations areas, and restricted areas can also impact airspace use in the vicinity of a civil airport. There are no Military Operations Areas (MOAs) in the immediate vicinity of the Airport. However, the southern boundary of the Eureka High and Low MOA, which is located approximately 60 NMs north of the Airport is often utilized by the Air National Guard's 138th Fighter Wing for general purpose training missions.

Navigational Aids. A variety of navigational facilities are currently available to pilots in the vicinity of TUL, whether located at the field or at other locations in the region. Many of these navigational aids are available to en-route air traffic, as well. These include VORTAC facilities, VOR-DME facilities, and Non-Directional radio Beacon (NDB) facilities. A VORTAC (VHF Omnidirectional Range/Tactical Air Navigation) is a navigational aid providing VOR azimuth, TACAN Azimuth, and TACAN distance measuring equipment (DME) at a single site. 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. This equipment is used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigation aid. NDBs are general purpose low- or medium-frequency radio beacons that an aircraft equipped with a loop antenna can home in on or determine its bearing relative to the sending facility.

The Tulsa VORTAC (114.4 TUL) is located roughly four NMs east of the Airport, the Glenpool VOR-DME (110.6 GNP) is located roughly seventeen NMs southwest of the Airport, the Okmulgee VOR-DME (114.9 OKM) is located roughly twenty-nine NMs south of the Airport and the William Pogue NDB (362 OWP) is located approximately thirteen NMs to the west of the Airport.

There are also a network of low-altitude published airways (Victor airways) in the vicinity of TUL also traverses the area, which spans between the regional ground based VOR/DME and VORTAC equipment. Victor airways include the airspace within parallel lines located four NMs on either side of the airway and extend from 1,200 feet AMSL up to, but not including, 18,000 feet AMSL. When an aircraft is flying on a federal airway below 18,000 feet average mean sea level (AMSL), the aircraft may be operating within Class

B, C, or E airspace. TUL also has several existing visual navigational aids that are available to pilots. These include a rotating beacon, which is co-located with the ATCT, and lighted wind cones. Each of the existing runway ends is also equipped with PAPIs, which provide descent guidance for the visual segment of the approach. The PAPIs at each end of Runway 8/26 and Runways 36R & 36L are configured for a 3.0-degree glide path angle, while Runways 18L & 18R PAPI are configured for a 2.75 degree glide path angle.

In addition, this complement of navigational aids (NAVAIDS) permit a variety of instrument approaches at the Airport. Presently, there are 15 instrument approach procedures published for Tulsa International Airport. Additionally, the Airport has radar approaches for each runway end (six in total). These procedures are listed in the following table, entitled *INSTRUMENT APPROACH PROCEDURES*.

Table A8 INSTRUMENT APPROACH PROCEDURES

Approach	Designated Runway(s)	Ceiling Minimums (AGL)	Visibility Minimums	Aircraft Category
Runway 18L/36R				
ILS or LOC	Runways 18L, 36R	200' AGL	½-mile	All Aircraft
RNAV (GPS) LPV	Runway 18L	267' AGL	½-mile	All Aircraft
ILS (Cat II)*	Runway 36R	100' AGL	¼ -mile	A, B, C, D
RNAV (GPS) LPV	Runway 36R	200' AGL	½-mile	All Aircraft
Runway 8/26				
VOR/DME	Runway 8	409' AGL	1/1 ¼/1 ½-miles	A, B/C, D/E
RNAV (GPS) LNAV/VNAV	Runway 8	414' AGL	1 ½-mile	All Aircraft
RNAV (GPS) LPV	Runway 26	200' AGL	¾-mile	All Aircraft
HI-VOR/DME or TACAN	Runway 26	427' AGL	¾-mile	C, D, E
VOR or TACAN	Runway 26	567' AGL	¾/1 ¼-mile	A, B/C, D, E
VOR or TACAN (HUKDO Fix)	Runway 26	427' AGL	¾-mile	All Aircraft
Runway 18R/36L				
ILS or LOC	Runways 18R	200' AGL	¾-mile	A, B, C, D
RNAV (RNP) Z	Runways 18R	303' AGL	1-mile	A, B, C, D
RNAV (GPS) Y	Runways 18R	200' AGL	¾-mile	All Aircraft
RNAV (GPS) LNAV/VNAV	Runways 36L	427' AGL	1½-mile	A, B, C, D

Source: U.S. Terminal Procedures, South Central (SC), Vol. 1, 05 March 2015 – 02 April 2015.

* Category II ILS- Special Aircrew & Aircraft Certification Required.

Notes: "All Aircraft" includes all aircraft categories, A, B, C, D, and E. Circling approaches not included.

The TUL ATCT also maintains counts on the number of instrument operations that are conducted at the Airport. An instrument operation is recorded by the tower for each arriving or departing aircraft the flies a

specified flight plan, regardless of the existing meteorological conditions. For calendar year 2014, 75% of the Airport's total operations were recorded as instrument operations.

Land Use and Zoning Inventory

Existing Zoning

Zoning is the public regulation of the use of land. It involves the adoption of ordinances that divide a community into various districts or zones. Each district allows a certain use of land within that zone, such as residential, commercial, and industrial (and others). Typical zoning regulations address things such as the height of a building, number of people that can occupy a building, lot area, setbacks, parking, signage, and density.

The Tulsa Metropolitan Area Planning Commission adopted the City of Tulsa Zoning Code, which is enacted for purposes of promoting the health, safety, peace, morals, comfort, convenience, prosperity, order, and general welfare of its citizenry. It intends to lessen danger and congestion of public transportation and travel; secure safety from fire and other dangers; prevent overcrowding of land; and avoid undue concentration of population. Additionally, it provides adequate light and air, police protection, transportation, water, sewerage, schools, parks, forests, recreational facilities, military and naval facilities, and other public requirements, and prevents undue encroachment thereon. Finally, it conserves the value of buildings and encourages the most appropriate use of land; encourages the industrial, commercial and residential growth of the community; and promotes the development of the community in accordance with a comprehensive plan. The following figure, entitled *GENERALIZED EXISTING ZONING*, provides a graphic summary of the land use zoning patterns in the area surrounding Tulsa International Airport.

A review of the existing zoning designations in the vicinity of the Airport reveal that Industrial is the dominant zone. Virtually the entire airport property is zoned either Industrial Light District (IL) or Industrial Moderate District (IM). The IL District is designed to provide areas suitable for manufacture, wholesaling, warehousing, and other industrial activities that have no objectionable environmental influences. The IM District is designed to group together a wide range of industrial uses that may produce moderately objectionable environmental influence in their operation and appearance. The area surrounding terminal building is zoned primarily Commercial High Intensity District (CH). This district is designed to accommodate high intensity commercial and related uses in areas designated high intensity by the Comprehensive Plan. There are small pockets of Commercial Shopping Center District (CS) that are designed to accommodate convenience, neighborhood, subcommunity, community, and regional shopping centers providing a wide range of retail and personal service uses.

North of the Airport, north of 36th Street North/Port Road, is Mohawk Park, which is zoned Residential Single-Family District (RS-3). This district is designed to permit the development and conservation of single-family detached dwellings in suitable environments in a variety of densities to meet the varying requirements of families. North of Mohawk Park, north of Bird Creek, Agricultural District (AG) zoning is applied. This district is designed to encourage and protect agricultural land until an orderly transition to urban development may be accomplished, discourage wasteful scattering of development in rural areas, and obtain economy of public fund expenditures for improvements and services.

Figure A9
Generalized Existing Zoning

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East of the Airport is a mixture of Agricultural and Industrial zoning districts, including IL, IM, and IH. The Industrial Heavy District (IH) is designed to provide areas for manufacturing and other industrial activities that may constitute substantial environmental influences or hazards. To the southeast, near the intersection of Interstate 244 and U.S. Highway 169, are various districts of Residential Single Family (RS-3) and Residential Manufactured Home District (RMH), Industrial Light District (IL), Agricultural District (AG), Commercial Shopping Center District (CS), Commercial High Intensity District (CH), and General Commercial District (CG). The Residential Manufactured Home District is designed to recognize manufacture home living as a residential use necessitating location in a residential manufactured home park development or in a residential manufactured home subdivision while requiring regulation to insure a suitable living environment. The General Commercial District is designed to accommodate existing development of mixed commercial uses that are well established, while providing a degree of protection to adjacent residential areas and accommodate the grouping of certain commercial and light industrial uses that are compatible with one another.

South of the Airport, north of Interstate 244 and east of State Highway 11, is dominated by Residential Districts (RS-2, RS-3, and RMH) and an Agricultural District. South of Interstate 244, Commercial Shopping Center Districts (CS) and Commercial High Intensity Districts (CH) are the dominant zoning. Residential Single Family District (RS-3) zoning predominates to the west of State Highway 11, with Commercial District (CS and CH) zoning applied adjacent to North Sheridan Road and East Pine Street. Residential Multifamily District (RM-1 and RM-2) zoning is located between many of the Commercial Districts and the Residential Single Family Districts. Residential Multifamily Districts are designed to permit the development and conservation of multifamily dwelling types, such as garden apartment, in suitable environments in a variety of densities to meet the varying requirements of families. West of North Sheridan Road and south of East Pine Street, Residential Single Family Districts (RS-3) and Industrial Districts (IL and IM) are dominant, with small scatterings of Residential Multifamily Districts (RM-1 and RM-2), Commercial Districts (CS and CH), and Office Low Intensity Districts (OL) interposed throughout. Office Low Intensity Districts are designed to preserve and promote the development of efficient, low intensity office facilities and to maximize the compatibility with other land uses.

West of the Airport, between State Highway 11 and East Pine Street, is mostly Residential Single Family Districts (RS-3 and RS-4), with some Residential Manufactured Home District (RMH) and Residential Multifamily District (RM-1) present. Properties located adjacent to North Sheridan Road and the Burlington Northern Santa Fe Railroad are zoned Commercial District (CH and CS). Industrial District (IL and IM) zoning is also applied to properties adjacent the Burlington Northern Santa Fe Railroad. North of State Highway 11 is a large amount of Agricultural (AG) zoning, with Industrial District (IL) zoning, Residential Single Family District (RS-3) zoning, and Residential Manufactured Home District (RMH) zoning is also scattered throughout the area.

It should be noted that there are two municipal solid waste landfills located within five miles of the Airport. The APAC-East Quarry Landfill and the Waste Management Quarry Landfill are located approximately three miles east of the north end of Runway 18L. These landfills are operated in old limestone quarries located south of East 46th Street North/State Highway 266 on properties that are zoned Industrial Moderate District (IM) and Industrial Heavy District (IH).

Existing Land Use

The existing lands uses in the general vicinity of the Airport, which primarily follow the existing zoning patterns, are defined by the current use of the property. The vast majority of existing lands north and east of the Airport are either Public (associated with Mohawk Park) or undeveloped vacant or agricultural land. There are some Industrial uses located north of 46th Street North adjacent to North Mingo Road as well as along the east side of U.S. Highway 169. Southeast of the Airport Industrial uses dominate adjacent to U.S. Highway 169, East Pine Street, and North Garnett Road, with some Residential occurring east of North Garnett Road and east of North Mingo Road. Commercial establishments are developed adjacent to East Admiral Place.

Residential land uses dominate the non-airport owned properties directly south of the Airport. Industrial uses occur just west of State Highway 11 between the Burlington Northern Santa Fe Railroad and East Pine Street, as does the Tulsa Public Schools vehicle maintenance facility designated Public. Commercial development occurs along the main arterial streets of North Memorial Road, East Pine Street, East Admiral Place, and North Sheridan Road. Three schools are located in the area west of State Highway 11 and north of Interstate 244; two post-secondary schools (Spartan College of Aeronautics and Technology and Phillips Theological Seminary) are located east of State Highway 11. Many churches are also located here, interspersed primarily throughout the residential developed area.

The same development pattern exists west of North Sheridan Road and south of East Apache Street, with more Industrial development located adjacent to the Burlington North Santa Fe Railroad. Two schools and numerous churches are located north of the Railroad and south of East Apache Street. The area directly west of the Airport and north of State Highway 11 is largely undeveloped vacant land, but some Industrial and Commercial development exists west of North Sheridan Road. Existing Residential development is intermixed with the other land uses. The following illustration, entitled *GENERALIZED EXISTING LAND USE*, provides a graphic depiction of the existing land uses in the vicinity of Tulsa International Airport.

Future Land Use

The future land use for the area surrounding Tulsa international Airport is depicted in Figure A11, entitled *GENERALIZED FUTURE LAND USE*. The source of the information is from the City of Tulsa Comprehensive Plan produced in July 2010. The plan presents the long-term aspirations for how Tulsa will look, feel, and function, and serves as a guide to set planning goals and policies and measure their outcomes.

The vast majority of the Airport and lands to the east reflect an Employment category, which is an area envisioned to contain office, warehousing, light manufacturing, and high tech uses such as clean manufacturing or information technology. This designation requires access to major arterials or interstates to accommodate extensive truck traffic, and rail traffic in some instances. To the north, the Parks and Open Space category is applied to Mohawk Park. Northeast of the intersection of U.S. Highway 169 and 46th Street North is an area designated as Regional Center, which is a category of mid-rise mixed-use areas for large-scale employment, retail, and civic or education purposes. Southeast of the Airport, surrounding the intersection of Interstate 244 and U.S. Highway 169 are Parks and Open Space category, Employment category, and Town Center category. The Town Center category is intended to serve larger areas of neighborhoods with medium-scale, one to five story mixed-use development with retail, dining, and office

Figure A10
Generalized Existing Land Use

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Figure A11
Generalized Future Land Use

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establishments. Apartments, condominiums, and townhouses with small lot single family homes at the edges are the envisioned residential types. South of the Airport, between the Burlington Northern Santa Fe Railroad and East Pine Street, the Employment category is applied. South of the East Pine Street, Existing Neighborhood land use category is dominant. This category is intended to preserve and enhance existing single family neighborhoods through development activities limited to rehabilitation, improvement, or replacement of existing homes, and small-scale infill projects as permitted through clear and objective standards of the zoning code. On both sides of State Highway 11 the Parks and Open Space land use category is applied. Adjacent to the main arterial streets of North Mingo Road, North Sheridan Road, and East Admiral Place are Mixed-Use Corridor and Town Center category designations. Mixed-Use Corridor is applied to modern thoroughfares pairing high capacity transportation facilities with housing, commercial, and employment uses. Land uses include multifamily housing, small lot, and townhouse developments that step down intensities to integrate with single family neighborhoods. There are also sizeable designations of Neighborhood Center land use category. Neighborhood Centers are small-scale, one to three story mixed-use areas intended to serve nearby neighborhoods with retail, dining, and services that include apartment, condominium, townhouse, and small lot single family homes at the edges.

Existing Neighborhood is the predominant land use category applied to the properties located southwest of the Airport. Other categories applied include Employment, Mixed-Use Corridor adjacent the main arterial streets, and Town Center at the main arterial intersections. The Main Street category is applied to properties north of the Burlington Northern Santa Fe Railroad. Main Streets are classic linear centers, comprised of residential, commercial, and entertainment uses along transit-rich streets, with lower intensity residential neighborhoods situated behind. To the west of the Airport, the Employment category is the dominant land use designation. However, Existing Neighborhood, Regional Center, and New Neighborhood categories are also applied. The New Neighborhood category is intended for new communities developed on vacant land comprised primarily of single-family homes on a range of lot sizes, but can include townhouses and low-rise apartments or condominiums.

Additionally, many airports across the country are investigating opportunities to both maximize and diversify the revenue generating capabilities of airport property. For airports such as TUL that serve as a hub of aerospace activity for the region, the promotion of aviation industrial development, as well as aviation-related and aviation compatible development, continues to be a top priority for the TAIT. Therefore, the City of Tulsa, in cooperation with Tulsa County, the Tulsa Airport Development Trust, and the TAIT, recently completed the *Tulsa International Airport Economic Development Project Plan*, the purpose of which is to provide a planning framework and funding mechanism for the substantial portion of the local public investment required to support the areas aerospace economy and to generate additional, related private investment in the area. The Project Plan proposes improvements to and development of airport property, as illustrated in the following figure, entitled *PROPOSED ON-AIRPORT DEVELOPMENT*. The anticipated development is divided into seven categories:

- **Education**
- **Aircraft Maintenance and Assembly**
- **General Aviation**
- **Retail/Hotel,**
- **Industrial**

Figure A12
Proposed On-Airport Development

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- **Military**
- **Terminal Building and Support.**

Education is anticipated to occur east of the north end of Runway 18R and in the south portion of airport property south of East Pine Street. Aircraft Maintenance and Assembly is anticipated to expand in the area between Runways 18L/36R and 18L/36L, and east of North Mingo Road between East 36th Street North and East 46th Street North, and south of East 36th Street North. Anticipated General Aviation development is projected for the vacant area north of the terminal building, just north of Runway 8/26. A large swath of Retail/Hotel is anticipated south of East 36th Street North to the Burlington Northern Santa Fe Railroad just immediately west of U.S. Highway 169. Smaller areas of Retail/Hotel are anticipated at the intersection of East Pine Street and State Highway 11 and near the intersection of East Virgin Street and State Highway 11. Industrial development is suggested for areas east of North Mingo Road, east of the American Airlines Maintenance Base, and north of the Burlington Northern Santa Fe Railroad. A smaller area of Industrial development is expected south of East Virgin Street and north of the Burlington Northern Santa Fe Railroad. Military is anticipated to occur north of East 46th Street North and west of Mingo Road.

Environmental Review

Environmental considerations and factors are important to review during the airport planning process when analyzing development alternatives and identifying preferred alternatives. It is necessary to provide the airport sponsor with the information needed to expedite environmental processing that may be required in support of future airport development projects. The following sections provide a brief descriptions of environmental impact categories that are pertinent to airport planning, as well as airport-specific environmental information.

Air Quality

The U.S. Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: carbon monoxide (CO), ozone (O₃), particulate matter (PM₁₀), sulfur dioxide (SO₂), oxides of nitrogen (NO_x), and lead (Pb). According to the EPA, TUL is currently designated as being “in attainment” for all criteria pollutants under the NAAQS. An attainment area is one in which air pollution levels do not exceed the NAAQS. Future projects at the Airport may need to be accounted for in the State Implementation Plan and/or be shown not to exceed applicable *de minimis* levels as defined by General Conformity. Conformity requirements are addressed in Section 176(c)(1) of the Clean Air Act. These requirements are intended to ensure that the federal government does not take, approve, or support actions that are inconsistent with a state’s plan to attain and maintain NAAQS.

Short-term air quality impacts may be expected from heavy equipment pollutant emissions, fugitive dust resulting from the movement of earth for cur and fill, any open burning that may occur on the Airport, and the operations of concrete batch plants. Contractors would be required to comply with all local, state, and federal air quality regulations, especially the procedures contained in the Federal Aviation Administration’s (FAA) Advisory Circular (AC) 150/5370-10G, *Standards for Specifying Construction of Airports*, which is the FAA guidance to airport sponsors concerning protection of the environment during construction projects.

Farmland

The Farmland Protection and Policy Act (FPPA), was enacted to minimize the loss of prime farmland and unique farmland as a result of a Federal action resulting in the converting of designated lands to nonagricultural use. Federal agencies that authorize actions that result in the conversion of prime farmland not already committed to urban development or water storage are responsible for compliance with FPPA. Compliance is to be coordinated with the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS).

According to the Tulsa County Soils Map, prepared by USDA, NRCS, 64 percent of the airport property is designated as not prime farmland soils. The remaining 36 percent of the airport property has been designated as an area of prime farmland. Prime farmland is a classification defined by the NRCS National Soil Survey Handbook (NSSH), to mean “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and that is also available for these uses.” Soils designated as prime farmland are listed in the following table, entitled *PRIME FARMLAND SOIL TYPES*, and illustrated in the following figure, entitled *PRIME FARMLAND SOIL*.

Table A9 **PRIME FARMLAND SOIL TYPES**

Soil Type	Slope	Acres
Okemah-Parsons-Pharoah Complex	0 to 1 Percent	559.99
Dennis silt loam	1 to 3 Percent	367.91
Dennis-Pharoah Complex	1 to 3 Percent	202.84
Newtonia silt loam	1 to 3 Percent	164.7
Okay loam	3 to 5 Percent	93.64
Dennis silt loam	3 to 5 Percent	71.41
Okemah silt loam	0 to 1 Percent	23.72
Apperson silty clay loam	1 to 3 Percent	4.49
Catoosa silt loam	1 to 3 Percent	3.86
Radley silt loam	0 to 1 Percent	0.56
Total Prime Farmland		1,493.12

SOURCE: U.S. Department of Agriculture, Nature Resource Conservation Service (NRCS), National Geospatial Center of Excellence, USDA-NRCS Soil Survey Geographic (SSURGO).

Floodplains

Executive Order 11988 directs federal agencies to take action to reduce the risk of flood loss, minimize the impacts of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by floodplains.

According to the Federal Emergency Management Association (FEMA) published floodplain maps, approximately 947 acres of airport property are within floodplain areas. The airport parcels impacted by floodplain are not areas of current development, as 91 percent of impacted acres are located on the east side of Mingo Road, along Bird Creek. There are 827 acres within in the 100-year floodplain, and 120 acres within the 500-year floodplain on airport property. These floodplains are illustrated in Figure A14, entitled *ENVIRONMENTAL CONDITIONS*.

Figure A13
Prime Farmland Soils

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Figure A14
Environmental Conditions

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Historical, Architectural, Archeological, and Cultural Inventories

Section 106 of the National Historic Preservation Act requires federal agencies, or their designated representatives, to take into account the effects of their undertaking on historic properties, which include archeological sites, buildings, structures, objects, and districts. According to the National Park Service’s Register of Historic Places (NRHP), TUL does not contain historical buildings, structures, or objects. Although given that some of the buildings and facilities at the Airport are over 50 years old, there may be some potentially eligible structures. Adjacent to the Airport is a property that is listed in the NRHP, the Dawson School. This school was listed to the register in 2001, and is approximately one half mile southwest of the Airport. An additional historic property is the J. Paul Getty Bunker House, located on the extended centerline of Runway 36L, just south of East Virginia Street, where Getty lived during World War II while he managed the Spartan Aircraft Company.

In addition, the Native American Consultation Database (NACD), maintained by the National Park Service, indicates that the Osage Nation of Indians, and the Osage Nation (previously listed as the Osage Tribe) have historical ties and interests in Tulsa County.

Threatened and Endangered Species

The Endangered Species Act, as amended, requires each Federal agency to ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction of adverse modification habitat of such species. The U.S. Fish and Wildlife Service list for Tulsa County currently includes the American Peregrine falcon, Piping Plover, Least Tern, Red Knot, American Burying beetle, and the northern long-eared Bat. The U.S. Fish and Wildlife Service does not indicate that critical habitat for these species is located within Tulsa County. The species are listed in the following table, entitled *TULSA COUNTY ENDANGERED, THREATENED, AND CANDIDATE SPECIES*.

Table A10 TULSA COUNTY ENDANGERED, THREATENED, AND CANDIDATE SPECIES

Group	Common Name	Scientific Name	Status
Birds	American Peregrine falcon	<i>Falco peregrinus anatum</i>	Recovery
Birds	Piping Plover	<i>Charadrius melodus</i>	Threatened
Birds	Least Tern	<i>Sterna antillarum</i>	Endangered
Birds	Red Knot	<i>Calidris canutus rufa</i>	Threatened
Insects	American Burying beetle	<i>Nicrophorus americanus</i>	Endangered
Mammals	northern long-eared Bat	<i>Myotis septentrionalis</i>	Proposed Endangered

SOURCE: U.S. Fish & Wildlife Service, Environmental Conservation Online System, Species by County Report, accessed March 2, 2015 (<http://www.fws.gov/endangered>).

Section 4(f) Property

According to Section 4(f) of the Department of Transportation Act (recodified as 49 USC, Subtitle I, Section 303), no publicly owned park, recreation area, wildlife or waterfowl refuge, or land of historic site that is of

national, state or local significance shall be used, acquired, or affected by programs or projects requiring federal assistance for implementation unless there is no feasible or prudent alternative.

Several parks, are located within a half mile of the airport property boundary. The following table, entitled *PARKS WITHIN THE VICINITY OF TUL*, list the various parks and the direction from the center of the Airport.

Table A11 **PARKS WITHIN THE VICINITY OF TUL**

Park	Direction
Dawson Park	Southwest
Norvell Park	South
Boeing Park	Southeast
Jingle Feldman Park	Southeast
Loving Park	Southeast
Mohawk Park (Tulsa Zoo and Golf Course)	North

SOURCE: Indian Nations Council of Governments (INCOG), GIS data, accessed April 6, 2015 (http://www.incog.org/Mapping_GIS_Resources/mapping_main.html)

In addition, schools within a half mile of the airport boundary having playgrounds or park-like spaces that might be used by the public are the Hamilton Elementary and Mitchell Elementary schools.

Water Quality

Water quality consideration related to airport development often include increase surface runoff and erosion, and pollution from fuel, oil, solvents, and deicing fluids. Potential pollution could come from petroleum products spilled on the surface and carried through drainage channels off of airport property. During a storm, storm water can pick up these dilute concentrations of oil, grease, fuel, and deicing chemicals from runways, taxiways, parking lots, fuel storage facilities, and access roads, which can then drain into the surface water or ground water systems, thereby polluting them. State and Federal laws and regulations have been established to safeguard these storage facilities and prevent extensive storm water pollution. Additionally, water pollution is regulated by the National Pollutant Discharge Elimination System (NPDES), permit program by controlling sources that discharge pollutants into waters of the United States.

TUL is located within the Bird Creek watershed. The western portion of the Airport is within the Ranch Creek-Bird Creek sub-watershed, and the eastern portion of the Airport is within the Mingo Creek sub-watershed. The closest named streams and rivers to the Airport are Coal Creek and various unnamed tributaries to the north and west, and Mingo Creek, and various unnamed tributaries to the east and south of the Airport, all of which flow north to Bird Creek.

TUL has in place a Storm Water Pollution Prevention Plan (SWPPP), which was prepared for the Airport in 2011, to comply with the requirements of the National Discharge Elimination System (NPDES), Clean Water Act of 1987 and the Multi-Sector General Permit (MSGP)-2000 for industrial activity. The SWPPP authors performed a site assessment for runoff and erosion, detailed existing potential sources of pollutants, and recommended facilities, monitoring practice, and procedures to reduce the contribution of pollutants from

the Airport to surface waters, as well as treatment measures to be employed when pollutants encounter surface runoff. In addition, there are three structural BMP stormwater retention ponds located on the Airport that are integral to the SWPPP. These facilities, which consist of approximately 16.5 acres, are located north of Runway 8/26 (just west of the Airport Maintenance Facility).

Fuels. Tulsa International Airport has two (2) 5,000 gallon Underground Storage Tanks (UST), one gasoline, and one diesel, for vehicle and equipment fueling. TUL also manages 8 – 12,000 gallon unleaded fuel USTs in support of the rental car services and there is a 2,500 gallon diesel UST to support shuttle buses.

Oils, Coolants, and Lubricants. Most oils, coolants, and lubricants are purchased in 55 gallon steel drums and are stored in Field Maintenance Buildings 4, 5, and 6, indoors and away from floor drains. Building floor drains are connected to oil/water separators before flowing into the sanitary sewer system.

Deicing Chemicals. Potassium Acetate (KaC) and Sodium Acetate (Naac) are utilized to deice runways, aprons, and ramps. Storage tank capacity for KaC is 20,000 gallons while the solid Naac is purchased in 2,200 pound totes. Both chemicals are stored inside the Field Maintenance Building #3. TUL also uses sand to increase traction on runways, aprons, and ramps. Sand is stockpiled inside Field Maintenance Building #6.

According to the EPA’s Permit Compliance System (PCS), and Integrated Compliance Information System (ICIS), there are facilities permitted to discharge wastewater into streams located in the vicinity of the Airport. These facilities are listed in the following table, entitled *WASTEWATER DISCHARGE PERMITTED FACILITIES IN AIRPORT VICINITY*.

Table A12 WASTEWATER DISCHARGE PERMITTED FACILITIES IN AIRPORT VICINITY

Facility Name	Address	Facility Type	Receiving Waters	Distance and Direction from Airport
OK Air National Guard – Tulsa IAP	9100 E 46 th ST N	NPDES Individual Permit	Bird Creek, Mingo Creek	On Airport
Spirit Aerosystems, Inc.	3330 N. Mingo Road	NPDES Individual Permit	Mingo Creek	1,500 FT East
Tulsa International Airport		NPDES Individual Permit	Bird Creek, Mingo Creek	On Airport

SOURCE: Environmental Protection Agency Permit Compliance (PCS) and Integrated Compliance Information System (ICIS) Envirofacts database, accessed March 30, 2015 (<http://www.epa.gov/enviro/facts/pcs-icis/index.html>).

Wetlands

Wetlands are defined as areas inundated by surface or groundwater, with a frequency sufficient to support vegetation or aquatic life requiring saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands and other Waters of the U.S. may be classified as “jurisdictional” or “non-

jurisdictional.” Jurisdictional wetlands and designated Waters of the U.S. are under the authority of and are regulated by the U.S. Army Corps of Engineers (ACOE). Section 404 of the *Clean Water Act*, gives the ACOE the jurisdictional authority to regulate disposal of dredge or fill materials in Waters of the U.S., including coastal wetlands, tidelands and marine waters below the High Tide Line (HTL), as well as streams and freshwater wetlands above the Ordinary High Water (OHW) line of streams that are adjacent to Waters of the U.S.. The ACOE must be consulted whenever jurisdictional wetlands and other Waters of the U.S. are present.

According to the National Wetlands Inventory (NWI) maps maintained by the U.S. Fish and Wildlife Service, there are wetlands on airport property. The location of wetlands on airport property were illustrated in Figure 14, entitled *AIRPORT ENVIRONMENTAL CONDITIONS*.