

## A. Inventory of Existing Conditions

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### INTRODUCTION

The purpose of this Master Plan Study (Study) is to formulate a long-term comprehensive development plan that meets the unique goals and objectives of Stillwater Regional Airport (SWO or the Airport). The Study will seek to address SWO's operational, maintenance, and improvement considerations, incorporate the City of Stillwater's priorities, enhance the natural environment, embrace land use compatibility considerations, improve SWO's fiscal viability, and comply with all relevant Federal Aviation Administration (FAA) requirements.

The foundation of any Study begins with a thorough review of an airport's pertinent background data, as well as a physical inventory of its airside, landside, and airspace components and facilities. Documenting SWO's existing conditions serves as the baseline for subsequent chapters of the Study. This chapter presents the five basic elements of SWO: airport facilities, the surrounding airspace system, the surrounding environs, the financial conditions, and a strategic evaluation.

#### Airport History

SWO was originally constructed in 1929 when the City of Stillwater acquired 239 acres of land north of town. The first runway was a half-mile grass strip and early airport facilities included a steel hangar and a wood-framed office. SWO formally opened on December 7, 1929. After many improvements, the U.S. Navy leased the Airport in 1942 and continued operation for an additional six months following the end of World War II.

In 1949, Oklahoma Agricultural and Mechanical College (forerunner of Oklahoma State University) took charge of the Airport, known as Searcy Field at the time, and operated the Airport for 25 years. Central Airlines offered the first commercial service in 1953, providing daily flights between Stillwater and Dallas. This service ceased in 1968 when Central merged with Frontier Airlines. Lone Star Airlines provided commercial service to Dallas, Memphis, and other cities beginning in 1984, but it ceased service in 1987.

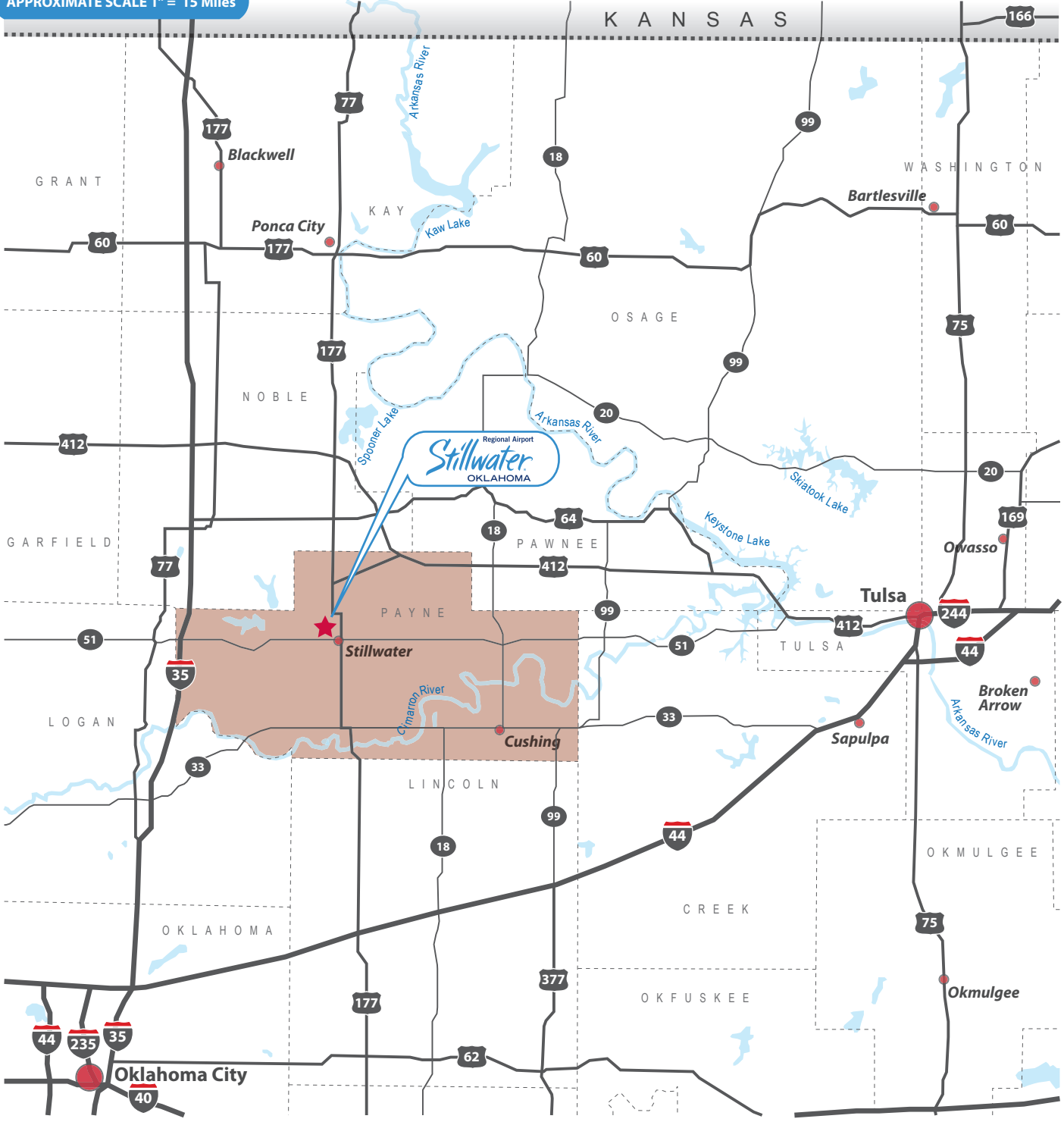
The Airport was renamed Stillwater Municipal Airport in 1977 and the City of Stillwater resumed responsibility for operating the Airport in 1980. The Airport became known as Stillwater Regional Airport in 1999.

#### Airport Location and Vicinity

SWO is in the north-central portion of Oklahoma, approximately three miles northwest of the City of Stillwater within Payne County. Stillwater is approximately 50 miles north of Oklahoma City and 60 miles west of Tulsa. **Figure A-1** illustrates SWO's location within the state, and **Figure A-2** presents the location of SWO relative to the City of Stillwater and surrounding area.

# AIRPORT MASTER PLAN

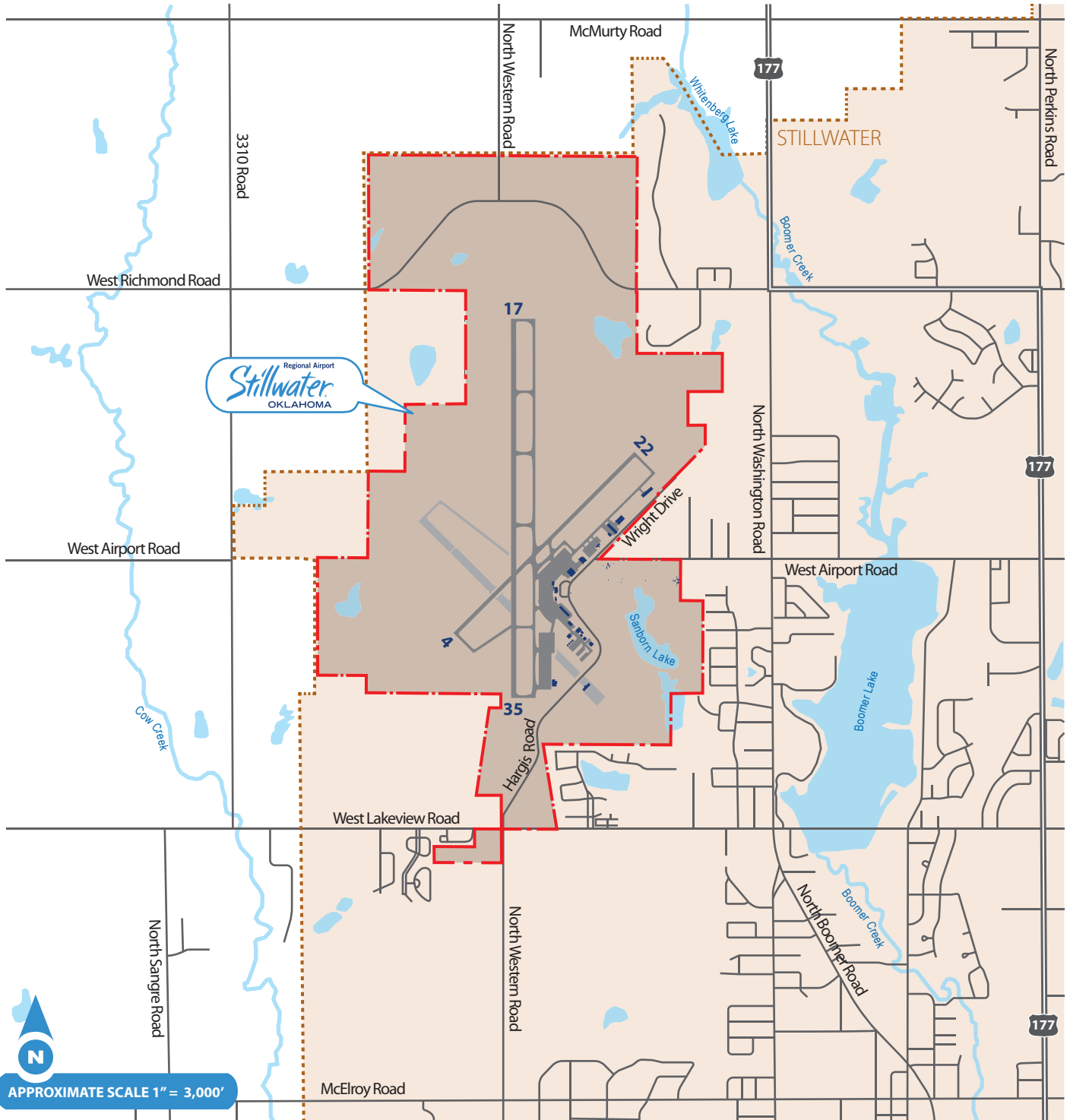
**N**  
APPROXIMATE SCALE 1" = 15 Miles



SWO  
Regional Airport  
**Stillwater**  
OKLAHOMA

Figure A-1  
Airport Location Map

# AIRPORT MASTER PLAN



Source: Google Maps, 2021 & City of Stillwater GIS.



**Figure A-2**  
Airport Vicinity Map

## A. Inventory of Existing Conditions

### Airport Ownership Structure and Role

SWO is a public use airport owned and operated by the City of Stillwater. Within the City's government structure, SWO is in the Airport Department. The Stillwater Regional Airport Advisory Board (Board) has been established to act in an advisory capacity to the Stillwater City Council. The Board consists of five voting members appointed by the City Council who serve three-year terms. The City Manager and the Chamber of Commerce Chief Executive Officer serve as non-voting ex-officio members. According to the SWO website, the functions of the Board are:

- Annually review the schedule of airport rates and charges and make necessary recommendations regarding these items to the City Council for the upcoming Fiscal Year.
- Periodically review terms and conditions for standard airport leases and contract documents.
- Review airport ordinances, regulations, rules, standards, and operational policies as needed and make appropriate recommendations to the City Council.
- Direct planning activities for SWO and the establishment of the Airport Master Plan and present the same to the City Council for consideration and adoption.
- Study, review, analyze, and mark reports, findings, and recommendations to the City Council concerning the betterment of aviation within the City of Stillwater.
- Carry out other airport-related tasks assigned by the City Council.

An airport's role indicates the type of service it provides to the community and how it performs within the national and state airport systems. The FAA's National Plan of Integrated Airport Systems (NPIAS) 2021-2025 consists of 3,310 existing and proposed airports considered significant to national air transportation. As part of the NPIAS, SWO is classified as a nonhub primary airport. A primary airport is defined by statute as a public use airport receiving scheduled air carrier service with 10,000 or more annual enplaned passengers. Primary airports are divided into four categories based on the percentage of total U.S. passenger enplanements, with nonhub airports accounting for less than 0.05 percent of the total.

### AIRPORT FACILITIES

SWO contains a variety of airside, landside, and support facilities that facilitate aircraft operations and passenger movement. Airside facilities are those in which aircraft, support vehicles, and equipment are located and in which aviation-specific operational activities take place. They consist of such components as airfield pavements, navigational aids, weather reporting equipment, lighting, and signage. Landside facilities are those designed to serve passengers or other airport users, typically located outside aircraft movement areas. They consist of such components as aircraft parking aprons, terminal buildings, and general aviation (GA) facilities. Support facilities are airport components such as Aircraft Rescue and Fire Fighting (ARFF) facilities and the Airport Traffic Control Tower (ATCT). **Figure A-3** graphically depicts the major airside facilities at SWO.



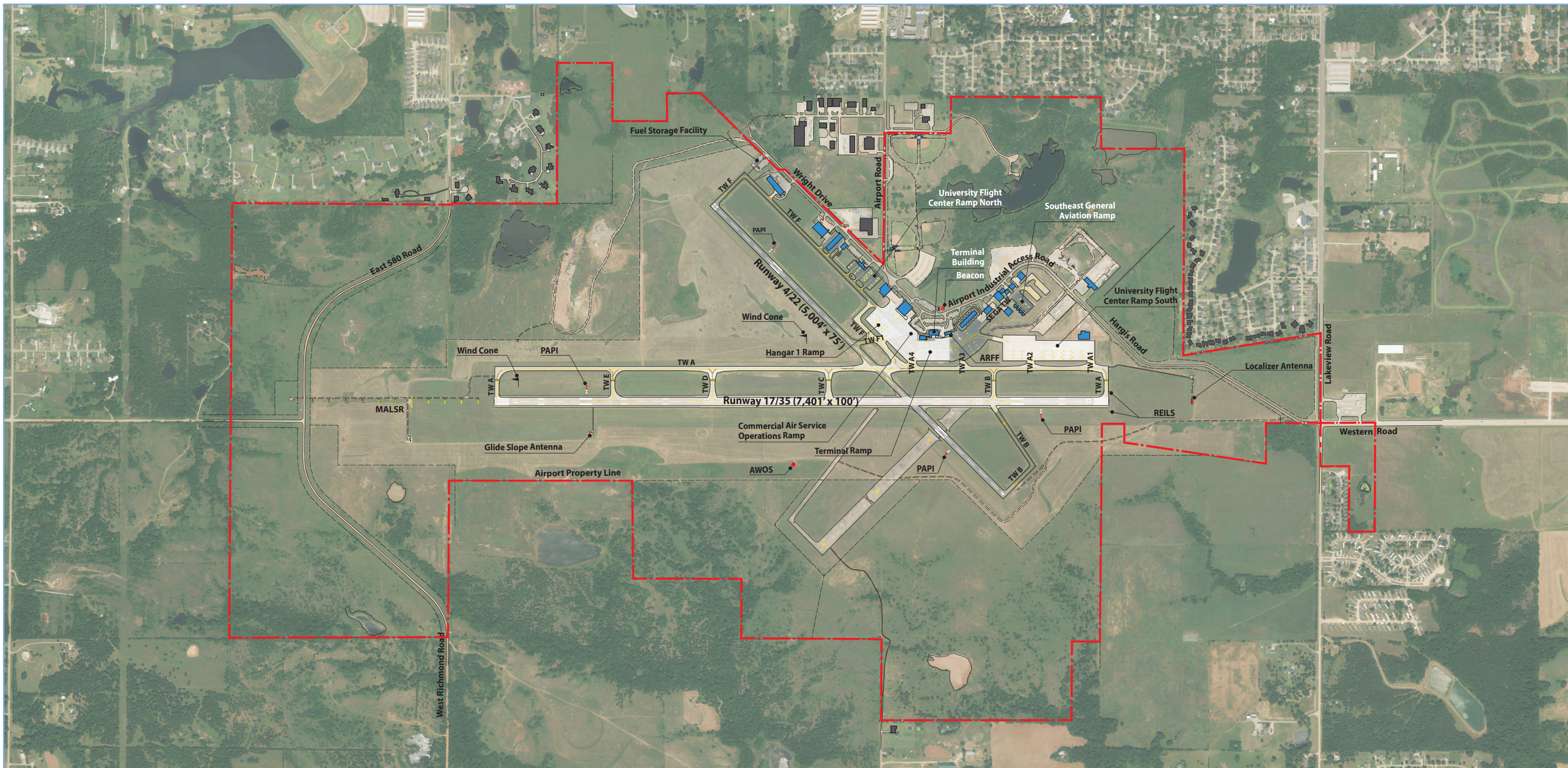


Figure A-3  
Airport Facilities



A. Inventory of Existing Conditions

**Airside Facilities**

**Airfield Pavements**

Airfield pavements consist of runways and taxiways. These pavements are the framework of an airport system, supporting and connecting aircraft activities to non-movement areas and landside facilities. A general description and condition of the existing airside pavements are provided below.

**Pavement Strength**

Pavement weight bearing capacity does not limit the size of aircraft that can use the pavement but does indicate the size of aircraft for which the pavement is designed. Continuous use of aircraft heavier than the designated weight-bearing capacity can result in increased pavement maintenance and lead to premature pavement failure requiring replacement. Current pavement strengths at SWO were listed in **Table A-1**.

**Runways**

SWO operates with two runways, the north-south oriented Runway 17/35, and the northeast-southwest oriented Runway 4/22. **Table A-1** summarizes the characteristics of both runways.

**Table A-1: Existing Runways**

Facility Component	Runway 17/35		Runway 4/22	
	Runway 17	Runway 35	Runway 4	Runway 22
Length and Width	7,401' x 100'		5,004' x 75'	
Pavement Surface/Condition	Concrete – Good condition		Asphalt – Good condition	
Pavement Treatment	Grooved		None	
Pavement Strength	100,000 pounds Single Wheel (SW) 157,000 pounds Double Wheel (DW) 310,000 pounds Double Tandem Wheel		34,000 pounds Single Wheel (SW) 60,000 pounds Double Wheel (DW)	
Elevation	1,000.1'	965.8'	960.5'	984.6'
True Heading	179°	359°	45°	225°
Threshold Crossing Height	48'	26'	35'	39'
Visual Glide Path Angle	3°	3°	3°	3°

Source: Airport Master Record Form 5010, FAA.

**Taxiways**

SWO is equipped with one full-length parallel taxiway, one partial parallel taxiway, four entrance taxiways at each runway end, multiple exit taxiways, and a series of connector taxiways. **Table A-2** summarizes the taxiway characteristics at SWO, informed by the 2008 Airport Layout Plan (ALP).

A. Inventory of Existing Conditions

**Table A-2: Existing Taxiways**

Taxiway Segment	Taxiway A	Taxiway A1	Taxiway A2	Taxiway A3
Type	Full Parallel/Entrance	Connector	Connector	Connector
Location	<ul style="list-style-type: none"> <li>400 feet east of Runway 17/35</li> <li>Both Runways 17 and 35</li> </ul>	Between Taxiway A and University Flight Center Ramp South at south end of Taxiway A	Between Taxiway A and University Flight Center Ramp South at north end of University Flight Center Ramp South	Between Taxiway A and Terminal Ramp at south end of Terminal Ramp
Width	50'	90'	90'	60'
Pavement Surface	Concrete	Concrete	Concrete	Asphalt
Edge Lighting	Medium Intensity (MITL)	MITL	MITL	MITL
Taxiway Segment	Taxiway A4	Taxiway B	Taxiway C	Taxiway D
Type	Connector	Entrance/Connector/Exit	Exit	Exit
Location	Between Taxiway A and Terminal Ramp at north end of Terminal Ramp	<ul style="list-style-type: none"> <li>Entrance to Runway 4</li> <li>Connector between Runways 4/22 and 17/35</li> <li>Exit at 1,385' north of Runway 35</li> </ul>	2,400' north of the intersection of Runways 17/35 and 4/22	1,000' north of the intersection of Runways 17/35 and 4/22
Width	100'	50'	55'	55'
Pavement Surface	Concrete/Asphalt	Asphalt/Concrete	Concrete	Concrete
Edge Lighting	MITL	MITL	MITL	MITL
Taxiway Segment	Taxiway E	Taxiway F	Taxiway F1	Southeast GA Taxiway
Type	Exit	Partial Parallel/Entrance	Exit/Connector	Connector
Location	1,425' south of Runway 17	<ul style="list-style-type: none"> <li>525 feet southeast of Runway 4/22 from Runway 22 to the Hangar 1 Ramp</li> <li>240' feet southeast of Runway 4/22 from Taxiway A to the end of the Hangar 1 Ramp</li> <li>Entrance to Runway 22</li> </ul>	<ul style="list-style-type: none"> <li>2,400' southwest of Runway 22</li> <li>Between Taxiway F and Hangar 1 Ramp</li> </ul>	Southeast of the Terminal Ramp
Width	50'	50'	50'	50'
Pavement Surface	Concrete	Concrete/Asphalt	Concrete	Asphalt
Edge Lighting	MITL	MITL	MITL	None

Source: Stillwater Regional Airport ALP.

**Runway Protection Zones**

A Runway Protection Zone (RPZ) is a trapezoidal area off the end of the runway designed to enhance safety for aircraft operations and for people and objects on the ground. **Table A-3** summarizes the Arrival and Departure RPZ information.

A. Inventory of Existing Conditions

**Table A-3: Existing Runway Protection Zone Dimensions**

RPZ	Runway 17/35		Runway 4/22	
	Runway 17	Runway 35	Runway 4	Runway 22
<b>Approach RPZ</b>	<b>Precision</b>	<b>Non-Precision</b>	<b>Visual</b>	<b>Visual</b>
Length	2,500'	1,700'	1,000'	1,000'
Inner Width	1,000'	1,000'	500'	500'
Outer Width	1,750'	1,510'	700'	700'
<b>Departure RPZ</b>				
Length	1,700'	1,700'	1,000'	1,000'
Inner Width	500'	500'	500'	500'
Outer Width	1,010'	1,010'	700'	700'

Source: Stillwater Regional Airport ALP, 2009.

**Pavement Marking, Lighting, and Signage**

**Airfield Marking**

Runway markings are white and indicate the Instrument Approach Procedure (IAP) category for each runway threshold. Runways 17 and 35 have markings for precision approaches (i.e., an IAP provided with course and vertical path guidance with visibility minimums lower than 3/4 statute mile), although the Runway 35 precision approach has an IAP with visibility minimums not lower than 3/4 mile. Runways 4 and 22 have visual markings.

**Airfield Lighting**

Runway lighting systems enable aircraft to use the runways during periods of low visibility and assist in identifying the runway environment during instrument landings. Runway lights are white. Both Runways 17/35 and 4/22 are equipped with Medium Intensity Runway Lights (MIRL).

Approach lighting systems allow pilots to visually identify the runway environment and align the aircraft with the runway upon arriving at a prescribed point on an IAP. Runway 17 is equipped with a Medium-Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). Runway 35 is equipped with Runway End Identifier Lights (REILs). REILs are flashing strobe lights that help to identify runway ends during night and low visibility approaches.

Visual Glide Slope Indicators (VGSIs) are ground-based visual aids that use lights to help pilots monitor their angle of descent during landing. All four runway ends have a four-box Precision Approach Path Indicator (PAPI) located on the left-hand side of the runway as seen by the pilot on approach.

A. Inventory of Existing Conditions

**Airfield Signage**



FAA Advisory Circular 150/5340-18G, *Standards for Airport Signs Systems* (AC 5340-18G) states that airports with frequent turbojet aircraft operations shall include distance remaining signs. Both Runways 17/35 and 4/22 have distance remaining signs. The runway and taxiway signage facilities at SWO support the existing airfield operations, support IAPs, and comply with the airfield signage plan. The most recent Part 139 commercial airport certification

inspection found that several markings on Taxiway A were faded or damaged but have been remarked. No other deficiencies with markings, lighting, and signage were identified at SWO. **Table A-4** summarizes the airfield marking types, lighting equipment, and airside signage at SWO.

**Table A-4: Markings, Lighting, and Signage Summary**

Facility Component	Runway 17/35		Runway 4/22	
	Runway 17	Runway 35	Runway 4	Runway 22
Runway Markings	Precision – Good Condition	Precision – Good Condition	Basic – Good Condition	Basic – Good Condition
Aim Points	Yes		Yes	
Centerline	Yes		Yes	
Threshold Bars	Yes		No	
Edge Lines	Yes		No	
Touchdown Zone Markings	Yes		No	
Edge Lights	MIRL		MIRL	
Approach Lighting System	MALSR	No	No	No
Visual Approach Path Guidance	PAPI-4L	PAPI-4L	PAPI-4L	PAPI-4L
Runway End Identifier Lights	No	Yes	No	No
Runway and Taxiway Signage				
Distance Remaining Signage	Yes		Yes	
Runway Entry Hold Signs	Yes		Yes	
Taxiway Location Signs	Yes		Yes	
Taxiway Directional Signs	Yes		Yes	

**Source:** Airport Master Record Form 5010, FAA.

**Airfield Grading and Drainage and Storm Water Management**

The terrain at SWO is relatively flat (slopes of 1-5 percent) with overall drainage from north to south. Rainfall east of Runway 17/35 primarily drains to the southeast; rainfall west of Runway 17/35 drains to the southwest. SWO has a self-contained drainage system of swales, inlets, and culverts.

A. Inventory of Existing Conditions

**Landside Facilities**

**Aircraft Parking Aprons**

SWO has six main aprons: the Terminal Ramp, the Commercial Air Service Operations Ramp, the Hangar 1 Ramp, the University Flight Center Ramp North, the University Flight Center Ramp South, and the Southeast General Aviation Ramp.

**Table A-5** summarizes the aircraft parking aprons at SWO.



**Table A-5: Existing Aprons**

Item	Description
Terminal Ramp*	<ul style="list-style-type: none"> <li>• 113,600 square feet</li> <li>• Located west of the Terminal Building</li> <li>• One commercial service aircraft parking space</li> <li>• 9 Tie-down spaces</li> </ul>
Commercial Air Service Operations Ramp	<ul style="list-style-type: none"> <li>• 18,500 square feet</li> <li>• Located northeast of the Terminal Building</li> <li>• 6 Tie-down spaces</li> </ul>
Hangar 1 Ramp	<ul style="list-style-type: none"> <li>• 53,000 square feet</li> <li>• Located north of the Commercial Air Service Operations Ramp, northwest of Taxiway F</li> <li>• 15 Tie-down spaces</li> </ul>
University Flight Center Ramp North	<ul style="list-style-type: none"> <li>• 69,000 square feet</li> <li>• Located northeast of Hangar 1 Ramp</li> <li>• 20 Tie-down spaces</li> </ul>
University Flight Center Ramp South*	<ul style="list-style-type: none"> <li>• 310,000 square feet</li> <li>• Located south of the Terminal Ramp</li> <li>• 51 Tie-down spaces</li> </ul>
Southeast General Aviation Ramp	<ul style="list-style-type: none"> <li>• 30,000 square feet</li> <li>• Located southeast of the Terminal Ramp</li> <li>• 8 Tie-down spaces</li> </ul>

**Source:** SWO Ultimate Aircraft Parking Plan (March 2020).

**Note:** \* Portions still under construction as of August 2021.

**Tenant Building and Ground Facilities**

This section describes the existing tenant buildings and ground facilities, entrance roadways, access points, vehicle circulation, truck routes, service and perimeter roadways, property interests, emergency response, utilities, wildlife hazards, and perimeter security. **Table A-6** lists the buildings and square footage of each facility. **Figure A-4** depicts the layout and locations of major facilities.

A. Inventory of Existing Conditions

**Table A-6: Tenant Buildings & Ground Facilities**

Description	Square Feet
Administration Building	2,470
Cowboy Hangar	5,745
Double C Hangar – Simmons Hangar	6,000
OSU Flight Center (Existing)	3,100
OSU Flight Center (Future)	16,000
Group Hangar 1	17,082
Group Hangar 2	12,212
Group Hangar 3 (Ops Center)	6,392
LBR, Inc. Office	3,900
OSU Maintenance Hangar	16,500
Med Flight Base	2,436
Port-A-Ports	4,375
Rock Hangar	7,700
Special Hangar	3,682
T-Hangar 1	12,470
T-Hangar 2	13,750
Waits Holding Hangar	10,160
Waste Management Building/Facility	10,170 (8.06 acres)

**Administration Building**

The administration building is owned by the City of Stillwater. The building is between Airport Industrial Access Road and the Southeast GA Taxilane and is a total of 2,400 square feet. The building is roughly ten years old and is in good condition.

**Cowboy Hangar**

The Cowboy Hangar is currently owned by Oklahoma State University (OSU) and is near the intersection of the Terminal Ramp and the Southeast GA Taxilane. This hangar has a contractual reversion to the City of Stillwater that is effective during the 2060s. The Cowboy Hangar has a total of 5,740 square feet and retains its structural stability.

**Double C Hangar – Simmons Hangar**

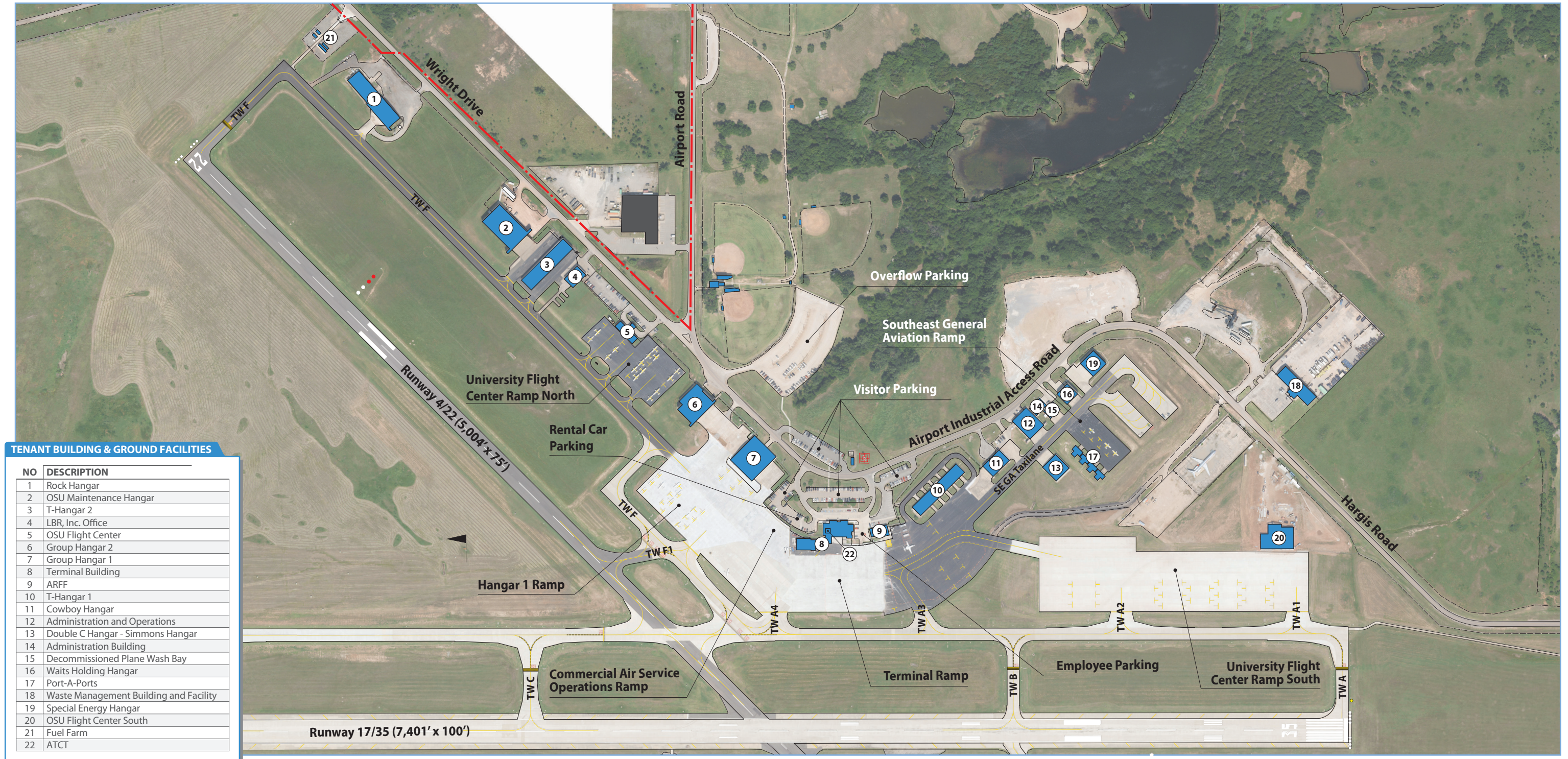
The Double C Hangar, or Simmons Hangar, is currently owned by Simmons with a contractual reversion to the City of Stillwater. The Simmons Hangar is southwest of the Southeast GA Taxilane opposite the Cowboy Hangar. The Simmons Hangar is in excellent condition and consists of 6,000 square feet.

**Group Hangar 1**

Group Hangar 1 is owned by the City of Stillwater. The hangar is just northeast of the terminal building. Business activity here includes the office and hangar use for both Hangar 1 Flight School and Quality Aircraft Maintenance. At 70 to 80 years old, the structure remains structurally sound, but the exterior needs repairs and upgrades. The space is a total of 17,082 square feet.



N APPROXIMATE SCALE 1" = 400'



**TENANT BUILDING & GROUND FACILITIES**

NO	DESCRIPTION
1	Rock Hangar
2	OSU Maintenance Hangar
3	T-Hangar 2
4	LBR, Inc. Office
5	OSU Flight Center
6	Group Hangar 2
7	Group Hangar 1
8	Terminal Building
9	ARFF
10	T-Hangar 1
11	Cowboy Hangar
12	Administration and Operations
13	Double C Hangar - Simmons Hangar
14	Administration Building
15	Decommissioned Plane Wash Bay
16	Waits Holding Hangar
17	Port-A-Ports
18	Waste Management Building and Facility
19	Special Energy Hangar
20	OSU Flight Center South
21	Fuel Farm
22	ATCT

Figure A-4  
Landside Facilities



**A. Inventory of Existing Conditions**

**Group Hangar 2**

Group Hangar 2 is owned by the City of Stillwater. The hangar is between Taxiway F and Airport Road just northeast of Group Hangar 1 and southwest of the existing OSU Flight Center. Group Hangar 2 business activity includes the hangar space and mechanic shop for Stillwater Aircraft Services. Group Hangar 2 is also 70 to 80 years old and requires exterior updates. This hangar provides 12,212 total square feet.

**Group Hangar 3 (Ops Center)**

Group Hangar 3 is owned by the City of Stillwater. The hangar is directly south of the Cowboy Hangar and north of the Administration Building. Group Hangar 3 is structurally sound, only limited exterior needs have been identified, and it consists of 6,392 total square feet.

**LBR, Inc. Office**

The LBR, Inc. office building is currently owned by LBR with a contractual reversion to the City of Stillwater. The building is between Taxiway F and Wright Drive south of T-Hangar 2 and north of the OSU Flight Center (Existing). The structure is in fair condition and is approximately 3,900 square feet.

**OSU Flight Center (Existing)**

The existing OSU Flight Center is owned by the City of Stillwater and is on Wright Drive near the intersection of West Airport Road and Wright Drive. This structure, which provides 3,100 square feet of space, will likely be demolished following completion of the future OSU Flight Center.



**OSU Flight Center (Future)**

The future OSU Flight Center is at the south end of the airfield near the approach end of Runway 35, just east of Taxiway A. The center is currently owned by OSU with a contractual reversion to the City of Stillwater. The center will provide a total of 16,016 square feet.

**OSU Maintenance Hangar**

The OSU Maintenance Hangar is between Taxiway F and Wright Drive north of T-Hangar 2. The hangar is currently owned and operated by OSU with a contractual reversion to the City of Stillwater, which is expected to occur upon completion of the new OSU Flight Center. The hangar is used to perform maintenance on and store OSU aircraft. The hangar is structurally sound and is 16,500 square feet in total.

**Port-a-Port Hangars**

The Port-a-Port hangars are owned by the City of Stillwater and are south of the Double C Hangar - Simmons Hangar. By design, Port-a-Port hangars are not long-term structures, and their current location is on the site

## A. Inventory of Existing Conditions

of future hangar development. In total the space is a combined 4,375 square feet spread among four structures.

### **Rock Hangar**

The Rock Hangar is at the northeast end of Taxiway F and is owned by the City of Stillwater. The Hangar is currently used by RPX Technology for aircraft storage; the City of Stillwater uses the Hangar for miscellaneous storage, including Emergency Management Equipment. Needed upgrades include electrical, water, and sewer systems. The total space provided is 7,700 square feet.

### **Special Hangar**

The Special Hangar is currently owned by Special Exploration with reversion back to the City of Stillwater. The hangar is south of the Waits Holding Hangar and east of the SE GA Taxilane. The hangar is in excellent condition with no needs. Its total space is 3,682 square feet.

### **T-Hangar 1**

Containing the corporate office for the Stillwater Flight Center, the Fixed Base Operator (FBO) serving SWO, this hangar is owned by the City of Stillwater and is over 40 years old. The total space this t-hangar provides is 12,470 square feet and 10 individual storage units. The hangar is south of the ARFF facility near the intersection of the Terminal Ramp and the Southeast GA Taxilane.

### **T-Hangar 2**

Owned by the City of Stillwater, this hangar is over 40 years old and is structurally in fair condition with recent rehabilitation. The total space it provides is 13,750 square feet and 10 individual storage units. The hangar is between Taxiway F and Wright Drive, roughly at the halfway point of Taxiway F.

### **Waits Holding Hangar**

The Waits Holding Hangar is currently owned by Waits with reversion back to the City of Stillwater in six years. This hangar is in excellent condition and provides 10,160 square feet of total space. The hangar is east of the Southeast GA Taxilane just south of the Airport Administration Building.

### **Waste Management Building and Facility**

The Waste Management Building and Facility is currently owned by Waste Management with reversion back to the City of Stillwater in two years. This is an older building that has been well maintained. Waste Management will continue to use the building after reversion to city ownership, but under fair market value rent rate as opposed to ground lease rate. The building provides is 10,170 square feet of space and the overall site consists of just over 8 acres. The building is the southernmost facility south of North Airport Industrial Access Road (recently renamed as Hargis Road).

## A. Inventory of Existing Conditions

### FAA Airfield Facilities

SWO's lease with the FAA includes five facilities: the MALSR, the Localizer/Distance Measuring Equipment (LOC/DME), the Glideslope antenna, the Remote Communications Outlet (RCO), and the Automated Surface Observation System (ASOS). The leases include facility sites, equipment shelters, restricted critical areas, access roads, a sensor group site, and Aircraft Cooling Unit (ACU) space in the terminal building.

### Hay and Pasture Lease

Within and around SWO property, vacant property is leased for hay and pasture that consists of a total of 1,215 acres and 13 different tracts. The leased properties are spread in and around SWO among undeveloped parcels. The lease is for an initial five-year period, and the parties have the option to extend the lease for one additional five-year period by written agreement of the parties prior to expiration of the initial term.

### Terminal Building

Historically the terminal building has served both commercial airline passengers and general aviation activity, including FBO facilities. The terminal building was originally constructed and put into operation in 1952. The building has been extensively altered and remodeled several times over the past seven decades. Commercial passenger flights serving Stillwater started in April 1953 with daily flights to Dallas by Central Airlines (later Central merged with Frontier airlines). Other airlines serving SWO through the mid-1980s included Metro Airlines, Lone Star Airlines, and Exec Express. From the mid-1980s to 2016, SWO had no scheduled airline service. American Airlines began operation in August 2016 with service to Dallas/Fort Worth International Airport (DFW). This service continues today.

### Terminal Building Facilities

The terminal building is on the east side of Runway 17/35, south of the runway's mid-point. The first floor of the terminal building contains commercial passenger facilities consisting of ticketing, bag claim, checked bag screening, non-secure arrival/departure waiting areas, airline, and Transportation Security Administration (TSA) offices and restrooms. In addition, the first floor contains FBO facilities, including service counter/dispatch, pilot's flight planning room and ready room/rest areas. The total area of the first floor is approximately 7,200 square feet, with approximately 1,000 square feet being used for FBO/GA facilities and the remainder being primarily focused on commercial passenger facilities.

The first floor of the terminal building was extensively remodeled in preparation for the beginning of American Airline service in 2016. This included the construction of a modular building to accommodate TSA passenger screening facilities, along with a secure passenger waiting area. The modular building, which is just to the northwest of the terminal building, has a total floor area of approximately 2,700 square feet. The use of first floor terminal building spaces is illustrated in **Figure A-5**.

SCALE 1" = 20'



Source: McFarland Architects.

- Non-Secure Terminal
- Secure Terminal Area
- Canopy Covered Area
- General Aviation / FBO

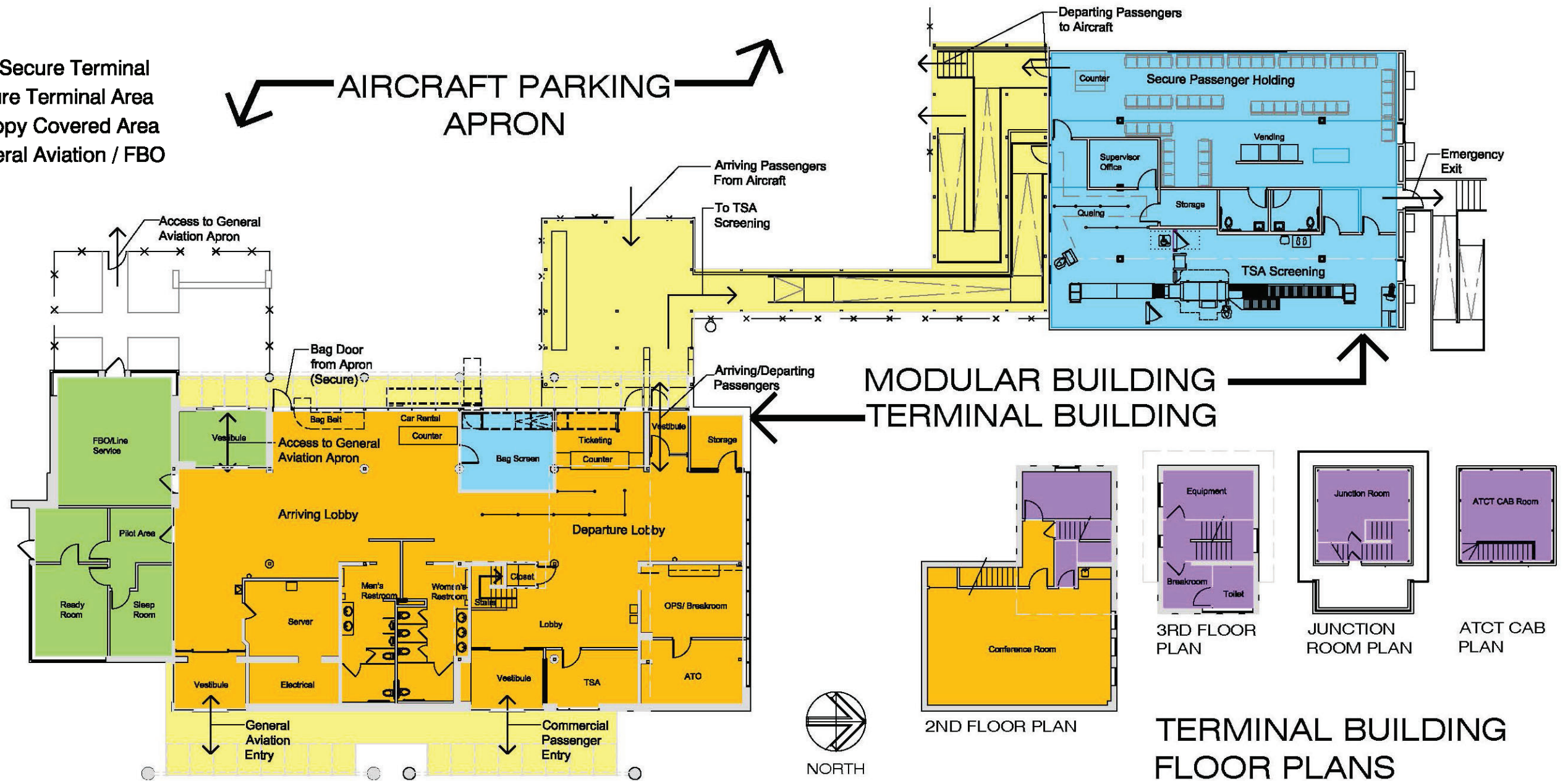
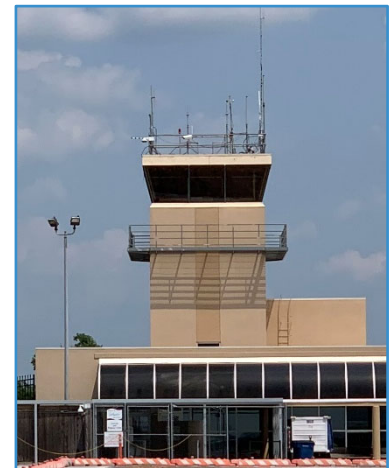


Figure A-5  
Terminal Building - First Floor



**A. Inventory of Existing Conditions**

The terminal building also has a second-floor conference room (approximately 1,000 square feet), a third floor Airport Traffic Control Tower (ATCT) office, and a top floor containing the ATCT cab (total ATCT area is approximately 600 square feet). The ATCT is operational from 8:00 a.m. to 10:00 p.m. Central Standard Time (CST).



**Aircraft Rescue and Fire Fighting (ARFF) Facility**

SWO currently maintains an ARFF Index B classification, meaning that the largest aircraft to regularly depart the airport an average of five times daily is longer than 90 feet but shorter than 126 feet. Commercial passenger aircraft regularly operating at SWO fit into this category. Some longer models such as the Boeing 737-800 and Airbus A321, used by Oklahoma State University and visiting university football teams, are ARFF Index C, meaning their length is at least 126 feet, but less than 159 feet. SWO will provide Index C services with prior arrangement.

The ARFF facility at SWO is south of the terminal building. The facility is comprised of one vehicle bay staffed on-demand for scheduled and non-scheduled commercial flights. An additional bay is leased in tandem with the adjoining apartment that serves as the residence of the FBO manager. **Table A-7** lists the ARFF equipment at SWO.

**Table A-7: ARFF Vehicles**

Equipment	Year	Water (gal)	Dry Chem (lbs)	ARFF <sup>1</sup> (lbs)
Oshkosh T-1500	2000	1,500	500	210
Ford F350 (with skid)	2002	-	500	-
Rosenbauer Class 4 Panther 4x4 Unit	2021/22	1,500	500	200

**Source:** Stillwater Regional Airport personnel.

**Note:** <sup>1</sup>ARFF (Aqueous Film Forming Foam).

**Fuel Storage Facilities**

The SWO fuel storage facility is southeast of Runway 22. The facility consists of three aboveground tanks owned and operated by SWO. There are two 12,000-gallon Jet A fuel tanks and one 20,000-gallon AVGAS tank. Stillwater Flight Center operates two 3,000-gallon Jet A fuel delivery trucks, one 1,200-gallon and one 1,000-gallon AVGAS fuel delivery trucks.



**Snow Removal and Airport Maintenance**

SWO does not currently have a dedicated Snow Removal Equipment (SRE) facility; SWO stores equipment indoors and outdoors where space is available. Limited indoor equipment storage space is used in the

**A. Inventory of Existing Conditions**

Operations Center (Hangar 3). SWO staff use SRE to clear the runways, taxiways, and aprons during snowfall events. **Table A-8** lists the SRE equipment at SWO.

**Table A-8: SRE Equipment**

Equipment	Year
Blizzard Buster 3616 tow-behind broom	1988
Blizzard Buster 3616 tow-behind broom	1988
Wylie 800-gallon agricultural sprayer	2019
Snow Dog Plow 9-foot truck mounted	Unknown
Tractor-mounted 12-foot snow pusher box	Unknown
New Holland Skid Steer with bucket	2005

Source: Stillwater Regional Airport personnel.

**Vehicle Access, Parking, and Circulation**

**Entrance Roads**

SWO is accessible by vehicle, truck, and bus. Primary access to SWO is provided by West Airport Road and North Hargis Road. West Airport Road is oriented east and west, intersecting with North Washington Street to the east and Airport Industrial Access Road to the west. North Hargis Road is oriented north and south and connects the intersection of Western Road and Lakeview Road on the south to the intersection of Airport Industrial Access Road to the north. Wright Drive provides access to the GA hangars, existing OSU Flight Center, OSU Maintenance Hangar, and Fuel Farm east of Taxiway F via its intersection with West Airport Road.

Public transportation is provided by the OSU/Stillwater Community Transit System. Bus routes are operated within the Stillwater City Limits and on the OSU Campus for a small fee. The Blue Route travels to SWO Monday through Friday beginning at 6:20 a.m. and ending at 7:00 p.m.

**Parking Facilities**

Free short-term and long-term parking is available at SWO. This includes two primary lots, one on either side of Hargis Road: a 50-space lot to the west of the road and a 43-space lot to the east. An unpaved overflow lot is located to the east adjacent to the ballfields in Sanborn Lake Park and Sports Complex. An additional 52-space parking lot is located to the northeast of the terminal building, and a 23-space lot is located to the southeast of the terminal building. Employee parking is provided immediately south of the terminal building and east of the ARFF buildings.

Parking provided along the curb in front of the terminal building is allowed only for loading and unloading. Vehicles must be accompanied at all times in this area. Vehicles left unattended are subject to ticketing and towing. Parking is available in the lot directly across from the terminal building. Handicap accessible drop off is provided just east of the curbside drop off spaces east of the terminal building.

Enterprise and Avis car rentals are available at SWO with prior reservations. There are 12 designated rental car spaces along the east side of the lot north of the main lot. Uber and Lyft are also available at SWO.



## A. Inventory of Existing Conditions

### Access Points

There are currently 28 access points at SWO along Airport Industrial Access Road, Airport Road, and Hargis Road. 21 are ungated, and seven are gated. There are five access points along Wright Drive, of which two are ungated and three are gated.

### Vehicle Circulation

Vehicle circulation is conducted on Hargis Road, Airport Industrial Access Road, Airport Road, and Wright Drive. All employees, tenants, and any other ground operators have access to these roads and the entrances provided. Currently roadway circulation improvement plans are in progress to realign Hargis Road to locate it further east of the terminal building. Once Hargis Road is relocated, the existing roadway will be utilized as an access and entrance road and will connect to the relocated Hargis Road at two locations.

### Truck Routes

Trucks headed east-west may depart SWO to the south via Hargis Road. Hargis Road eventually becomes North Western Road, which then merges with Highway 51 two miles to the south. Northbound and southbound trucks use West Airport Road heading east to North Washington Street. Trucks can then proceed north along North Washington Road for one mile before reaching State Highway 177.

### Service and Perimeter Roads

SWO has service roads accessing the navigational and electronic equipment on the airfield. The service road network is comprised of paved and unpaved surfaces. Parts of airport property do not have a dedicated, paved service road, so communication with the ATCT is necessary when using taxiways and runways by ground vehicles. Service roads that may interfere with aircraft operations also require communication with the ATCT. SWO lacks a full perimeter road surrounding the airfield, and SWO remains inaccessible from the west.

### Airport Property Interests

Currently SWO owns 1,487 acres of land in fee simple and 0.7 acres controlled through an easement. A breakdown of these areas is presented in **Table A-9**. The 2008 ALP identifies 242.9 acres for future acquisition that is still unacquired. The easement is located just south of Lakeview Road.

A. Inventory of Existing Conditions

**Table A-9: Airport Property Interests**

Tract	FAA Project Number	Interest	Acres
1	Original Airport	Fee Simple	955.0
2	FAA #9-34-050-C6C3	Fee Simple	38.0
3a	ADAP #8-40-0090-02	Fee Simple	26.8
3b	NON - FAA	Fee Simple	8.4
4	-	Fee Simple	79.6
5	-	Fee Simple	24.0
6	-	Fee Simple	9.9
7	-	Fee Simple	11.9
8	ADAP #5-40-0090-05/06-07	Fee Simple	9.2
9	ADAP #5-40-0090-05/06-07	Fee Simple	4.2
10	-	Fee Simple	3.9
11	AIP 3-40-0090-012-2002	Fee Simple	14.3
12	AIP 3-40-0090-013-2003	Fee Simple	127.2
13a	AIP 3-40-0090-013-2003	Fee Simple	38.1
13b	AIP 3-40-0090-014-2003	Fee Simple	110.5
B	-	Fee Simple	26.0
E1	ADAP #5-40-0090-05/06-07	Easement	0.7

Source: Airport Property Map by Barnard Dunkelberg & Company, 2008. SWO staff.

**Utilities**

The major utility systems at SWO include water, sanitary sewer, stormwater drainage, electric, natural gas, and communications.

**Water**

Water to SWO is supplied by the City of Stillwater. The City’s water source is Kaw Lake north of Stillwater. The water system consists of 2-, 6-, and 12-inch lines.

**Sanitary Sewer**

The City of Stillwater Public Works Department operates and maintains the sanitary sewer system surrounding SWO. A 6-inch pipe is located along the south side of Lakeview Road. A few various stretches of sanitary sewer extend north according to the City of Stillwater Atlas. An 8-inch line runs along the east side of North Hargis Road beginning at the Stillwater Water and Wastewater Maintenance Building. This line extends roughly 500 feet then crosses under the road to the west servicing all the major SWO buildings.

**Stormwater**

Rainfall at SWO is collected by sheet flow, area inlets, or culverts from the airfield and conveyed to tributaries of Cow Creek to the west and Sanborn Lake or Hazen Lake to the east. All the rainfall that does not infiltrate the ground or evaporate will eventually flow to Stillwater Creek on the south side of the City of Stillwater.

**Electric**

Electric service at SWO is provided by the City of Stillwater, referred to as Stillwater Power. Overhead electric lines supplying SWO are primarily from Airport Road to the east and Lakeview Road to the south. Several



## A. Inventory of Existing Conditions

overhead and underground facilities run throughout the area supplying power to buildings, hangars, and streetlights.

### Natural Gas

Oklahoma Natural Gas provides service to SWO. An existing 4-inch steel line is located on the north side of Lakeview Road in an east-west direction. Existing gas lines also run along the north end of SWO property connecting all the major buildings.

### Telephone/Fiber Optic Communications

Data and voice communication lines run along Lakeview Road and North Hargis Road. Communication services are provided by AT&T and Chickasaw Telecom.

### Perimeter Fencing and Gates

SWO's airfield is surrounded by an 8-foot perimeter fence. Security gates provide access to airside uses including the hangars, OSU facilities, and controlled movement areas of the airfield. Additional gates to the north and south provide access to either end of Runway 17/35.

### Wildlife Hazards

Wildlife strikes by birds and other animals are the most significant wildlife hazards faced by an airport. While no habitats or significant congregations of any animal exist on SWO property, wildlife management practices should be followed to minimize wildlife strikes. **Threatened and Endangered Species** discusses in further detail the wildlife found on or near SWO.

## AIRSPACE, NAVIGATIONAL AIDS (NAVAIDS), AND COMMUNICATIONS

### Airspace

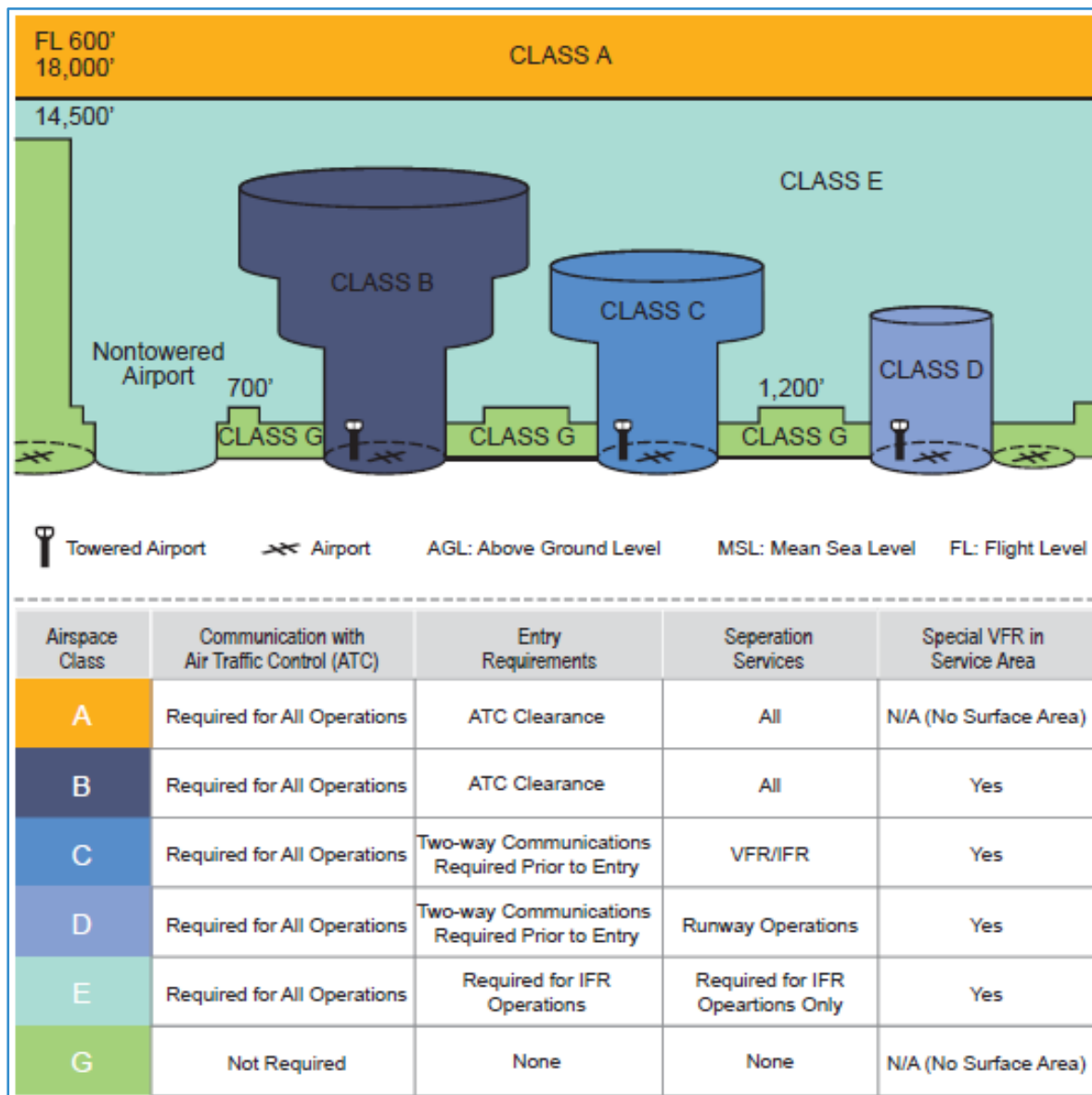
SWO functions as all airports do within the National Airspace System (NAS). The NAS consists of various classifications of airspace regulated by the FAA. Airspace is either controlled or uncontrolled. Pilots flying in controlled airspace are subject to Air Traffic Control (ATC) and must follow either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) requirements. These requirements include combinations of operating rules, aircraft equipment and pilot certification, and vary depending on the class of airspace. A graphical representation of the different airspace classes is shown in **Figure A-6**. General definitions of the classes of airspace are provided below:

- **Class A Airspace** - Airspace from 18,000 feet Mean Sea Level (MSL) up to and including flight level (FL) 600, or approximately 60,000 feet MSL.
- **Class B Airspace** - Airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of IFR operations or passenger enplanements.
- **Class C Airspace** - Generally, airspace from the surface to 4,000 feet above the airport elevation (MSL) surrounding those airports that have an ATCT.

A. Inventory of Existing Conditions

- **Class D Airspace** - Airspace from the surface up to 2,500 feet above the airport elevation (MSL) surrounding those airports with an ATCT.
- **Class E Airspace** - Generally, controlled airspace that is not designated Class A, B, C or D.
- **Class G Airspace** - Generally, uncontrolled airspace that is not designated Class A, B, C, D, or E.
- **Victor Airways** - These airways are low altitude flight paths between ground-based Very High Frequency (VHF) Omni-Directional Range receivers (VORs).

Figure A-6: Airspace Classes



## A. Inventory of Existing Conditions

SWO is situated under Class D airspace during the ATCT's operational hours from 8:00 a.m. to 10:00 p.m. CST. The Class D airspace begins at the surface and extends to 2,500 feet above the airport elevation (charted in MSL). Aircraft operating within Class D airspace are required to establish communications with the ATCT. There are extensions of the Class D airspace to accommodate instrument approaches into SWO. When the ATCT is not operational, the Class D airspace is reclassified as uncontrolled Class G. Aircraft can continue to operate at SWO when the ATCT is closed and the airspace is uncontrolled, but pilots are expected to announce their positions and intentions to other aircraft on the ATCT radio frequency known as the Common Traffic Advisory Frequency (CTAF). The traffic patterns at SWO are standard left-hand traffic for all runways. Traffic Pattern Altitude (TPA) is the standard 1,000 feet above ground level (AGL). A depiction of the airspace and other elements surrounding SWO is found on the VFR sectional chart as shown in **Figure A-7**.

### **Air Traffic and Aviation Communications**

Air Route Traffic Control Centers (ARTCC) are responsible for providing navigational assistance in 22 geographic areas to aircraft en route along airways and other portions of airspace. SWO is within the Kansas City ARTCC coverage area operating on frequency 127.8. Airports in parts of Oklahoma, Kansas, Missouri, and Texas are also under the Kansas City ARTCC jurisdiction.

Aviation communications facilities associated with SWO include the CTAF frequency 125.35, a Universal Communications (UNICOM) frequency 122.95. The SWO ATCT frequency is 125.35 and Stillwater Ground Control is frequency 121.6.

### **Navigational Aids (NAVAIDs)**

NAVAIDs provide guidance and positional information to aircraft. NAVAIDs include ground-based radio beacons, satellite-based Global Positioning System (GPS) signals, signage, marking, and lighting systems. NAVAIDs can transmit weather and airport operational information to en route aircraft and allow pilots to operate during periods of poor visibility.

SWO is served by a ground based VOR collocated with Distance Measuring Equipment (DME) (VOR/DME SWO 108.4) that is located approximately 3 ½ miles to the north. The FAA owns the VOR/DME, which guides the non-precision IAPs to Runways 17 and 35. The VOR/DME also serves as a NAVAID identifying airway intersections for aircraft en route along low altitude airways.

Runway 17 is equipped with an Instrument Landing System (ILS) that comprises two components working together to guide precision instrument approaches. The ILS localizer antenna is installed 1,000 feet south of Runway 35 and provides final course guidance. The Glideslope antenna, providing vertical guidance on the descent path, is located approximately 1,170 feet south of Runway 17 and 375 feet west of the runway centerline.



A. Inventory of Existing Conditions

**Figure A-7: NAVAIDS Map**



Source: FAA Wichita, Kansas City, and Dallas – Ft. Worth Aeronautical Charts.

SWO is also equipped with an ASOS, a rotating beacon, and a wind indicator. The ASOS is located approximately 3,560 feet south of Runway 17 and 750 feet west of the Runway 17/35 centerline. The ASOS broadcasts weather and wind data on frequency 133.725. The rotating beacon is located east of the terminal



**A. Inventory of Existing Conditions**

building, east of Hargis Road. SWO has two wind cones east of Runway 17/35, one near Runway 17 and the other near the intersection of Runway 4/22 and Taxiway A.

**Instrument Approach Procedures**

SWO has three precision and two non-precision IAPs providing for the orderly transfer of aircraft from the beginning of the initial approach to landing. Runway 17 is equipped with an ILS approach, a satellite-based Area Navigation (RNAV) GPS approach, and a ground-based VOR approach. Runway 35 is equipped with a RNAV (GPS) approach and a VOR/DME approach. Runway 4/22 is a visual approach only runway. IAPs are categorized by aircraft approach speed and by the visibility and altitude to which an aircraft can follow the approach until the pilot can execute the landing. **Table A-10** lists SWO’s IAPs.

**Table A-10: Instrument Approaches and Lowest Minimums**

Runway End	Procedure	Procedure Type	Aircraft Categories	Minimum Descent Altitude (Feet AGL)	Visibility Minimums (Statute Mile)
17	ILS	Precision	A, B, C, D	200	1/2
17	RNAV (GPS)	Precision	A, B, C, D	200	1/2
35	RNAV (GPS)	Precision	A, B, C, D	200	3/4
17	VOR	Non-Precision	A, B, C	460	3/4
			D	460	1
35	VOR/DME	Non-Precision	A, B	414	1
			C, D	414	1-1/4

Source: FAA published Instrument Approach Procedures.

**EXISTING LAND USE, ZONING, AND PUBLIC INFRASTRUCTURE**

An inventory of existing zoning, land uses, and various land use planning and control mechanisms used to guide property development surrounding SWO is an important element in the airport planning process. Land use compatibility with airport development is achieved through knowledge of what land uses are proposed and what, if any, changes need to be made.

**Existing Zoning**

SWO property is currently zoned as Public (P), Light Industrial (IL), and University (U) under the City of Stillwater. IL zoning encompasses the industrial development areas east of Hargis Road and north of West Airport Road. The OSU Research Range Airport Pasture, located on the southwestern edge of the property, is zoned U, and all remaining land is zoned P.

Surrounding property zoning includes a mixture of residential, commercial, industrial, university, and public land uses as defined by the City of Stillwater:

- **Residential** – Small Lot Single-Family Residential (RSS) provides the bulk of residential zoning around SWO, with significant single-family housing located southwest, southeast, and east of SWO. Other higher density zones, such as Two/Multi-Family Residential (RTM) are scattered amongst the RSS zoning.
- **Commercial** – Similar to residential, commercial zones are found south, southeast, and east of SWO. Most commercial uses are located along North Boomer Road and US-177 to the southeast.





## A. Inventory of Existing Conditions

- **Industrial** – Industrial zones are located directly east of SWO.
- **University** – OSU owns a significant portion of the land south of SWO.
- **Public** – Additional public zones located east of SWO are Boomer Lake Park and the Lakeside Memorial Golf Course.

The existing zoning is provided in **Figure A-8**. Only zoning directly attributed to the City of Stillwater is shown.

### Existing Land Use

Land uses to the north and west of SWO consist primarily of agricultural and scattered rural residential. OSU-owned land immediately abuts SWO to the south, and additional medium density residential and downtown commercial uses are located further south. Land uses to the south and east include a mix of residential, commercial, and industrial developments. Parklands and greenways are scattered throughout the City of Stillwater, with several located immediately east of SWO. Existing land uses are depicted in **Figure A-9**.

### Future Land Use

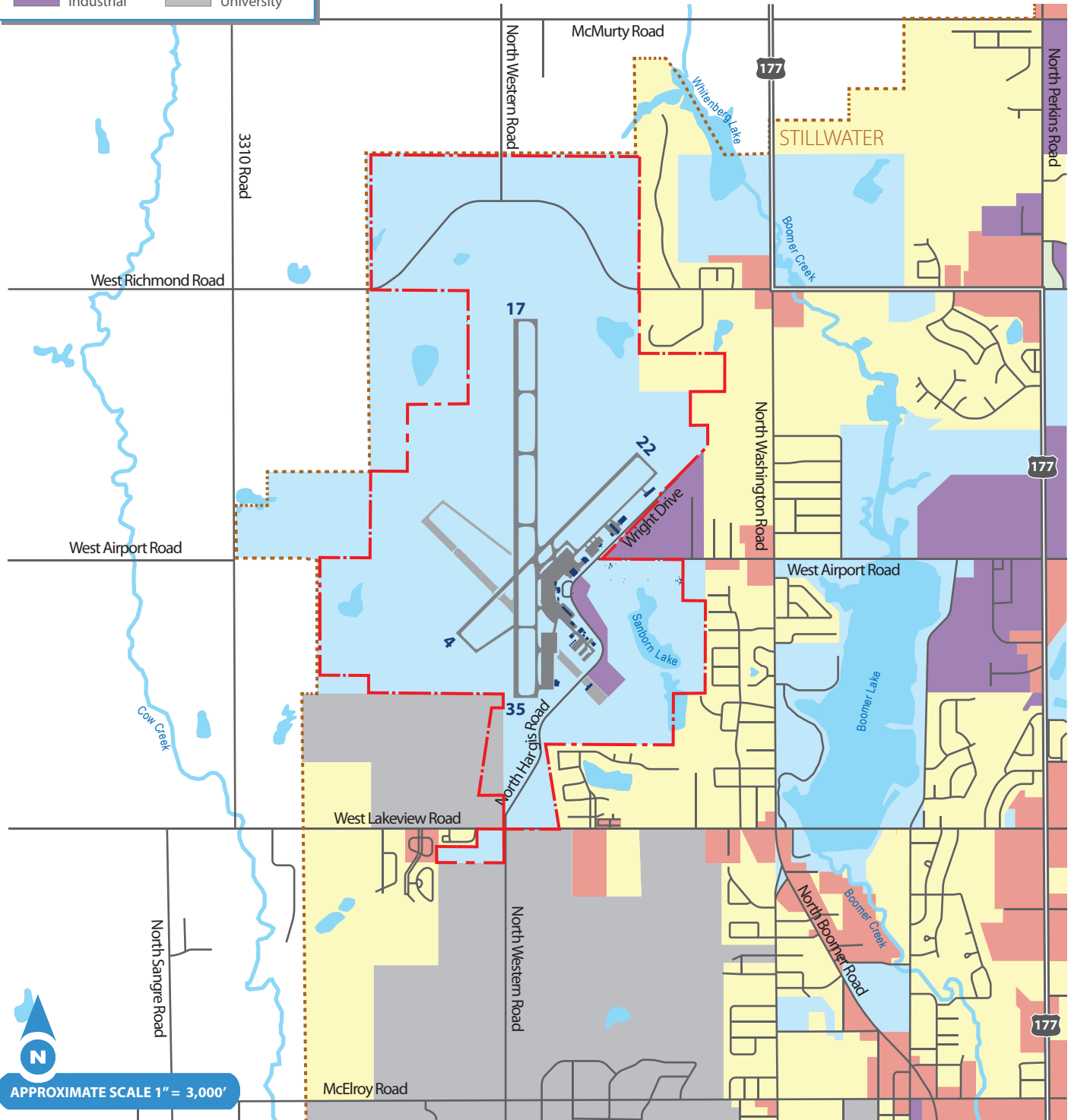
It is important that future land use planning efforts consider the compatibility of off-airport development to avoid creating obstacles to the safe and efficient use of the airspace surrounding an airport. Non-compatible future land uses planned for the areas surrounding an airport can negatively impact current and future airport operations.

Future land uses of the areas immediately north and west of SWO skew towards low-density residential development interspersed among agricultural croplands. Additional industrial land is indicated west of the airport property line. Additional land to the south is provided for the expansion of OSU. Significant expansion of commercial uses is anticipated along Stillwater's major thoroughfares, including North Washington Road, North Boomer Road, and US-177. High density residential, or densities of 12 to 150 dwelling units per acre, are planned around areas of increased commercial development. Future land use is shown in **Figure A-10**.

# AIRPORT MASTER PLAN

## LEGEND

- Agriculture
- Residential
- Commercial
- Public
- Industrial
- University



Source: Google Maps, 2021; City of Stillwater GIS.

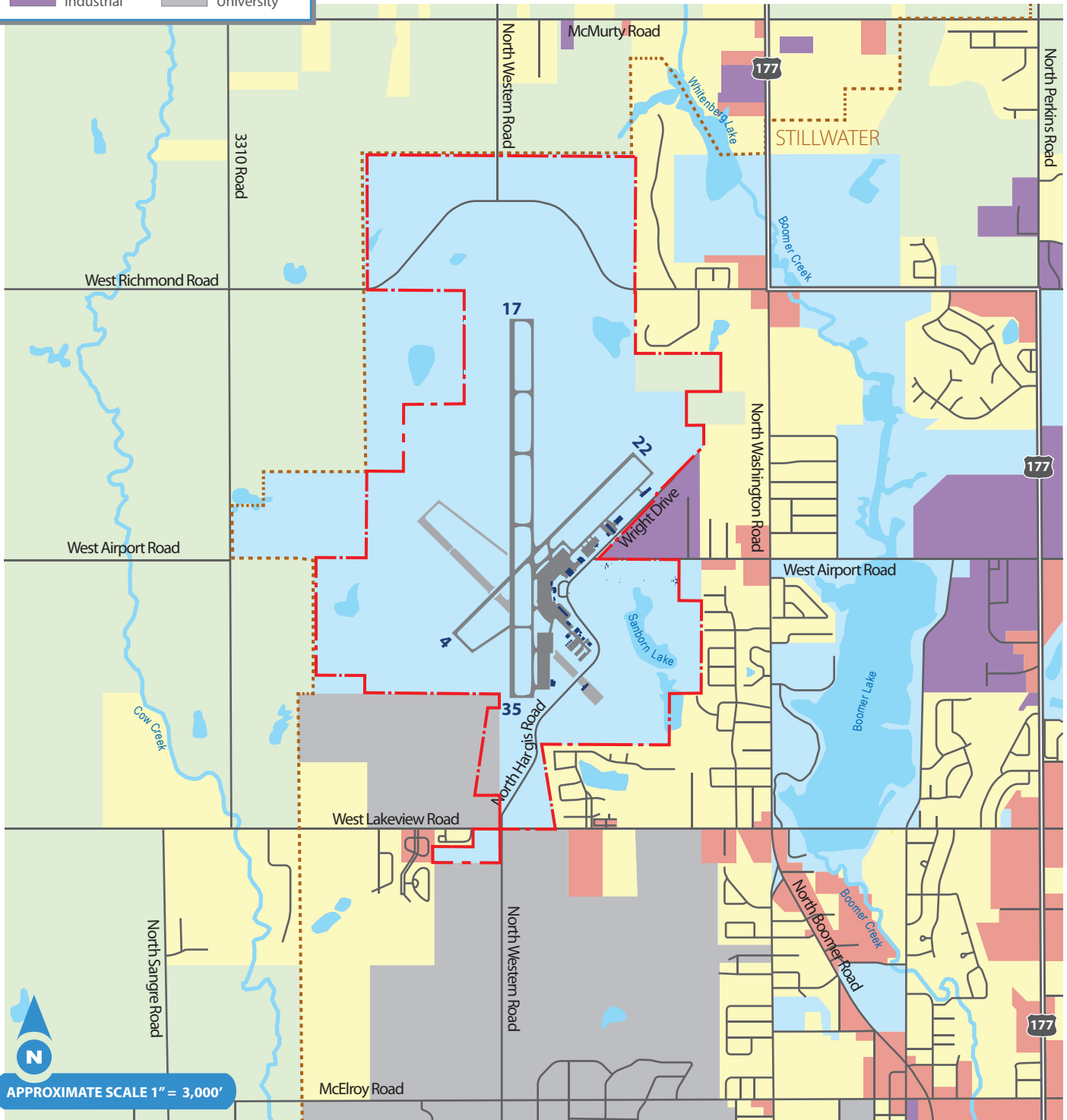


**Figure A-8**  
Generalized Existing Zoning

# AIRPORT MASTER PLAN

## LEGEND

- Agriculture
- Residential
- Commercial
- Public
- Industrial
- University



Source: Google Maps, 2021; City of Stillwater and Payne County GIS.

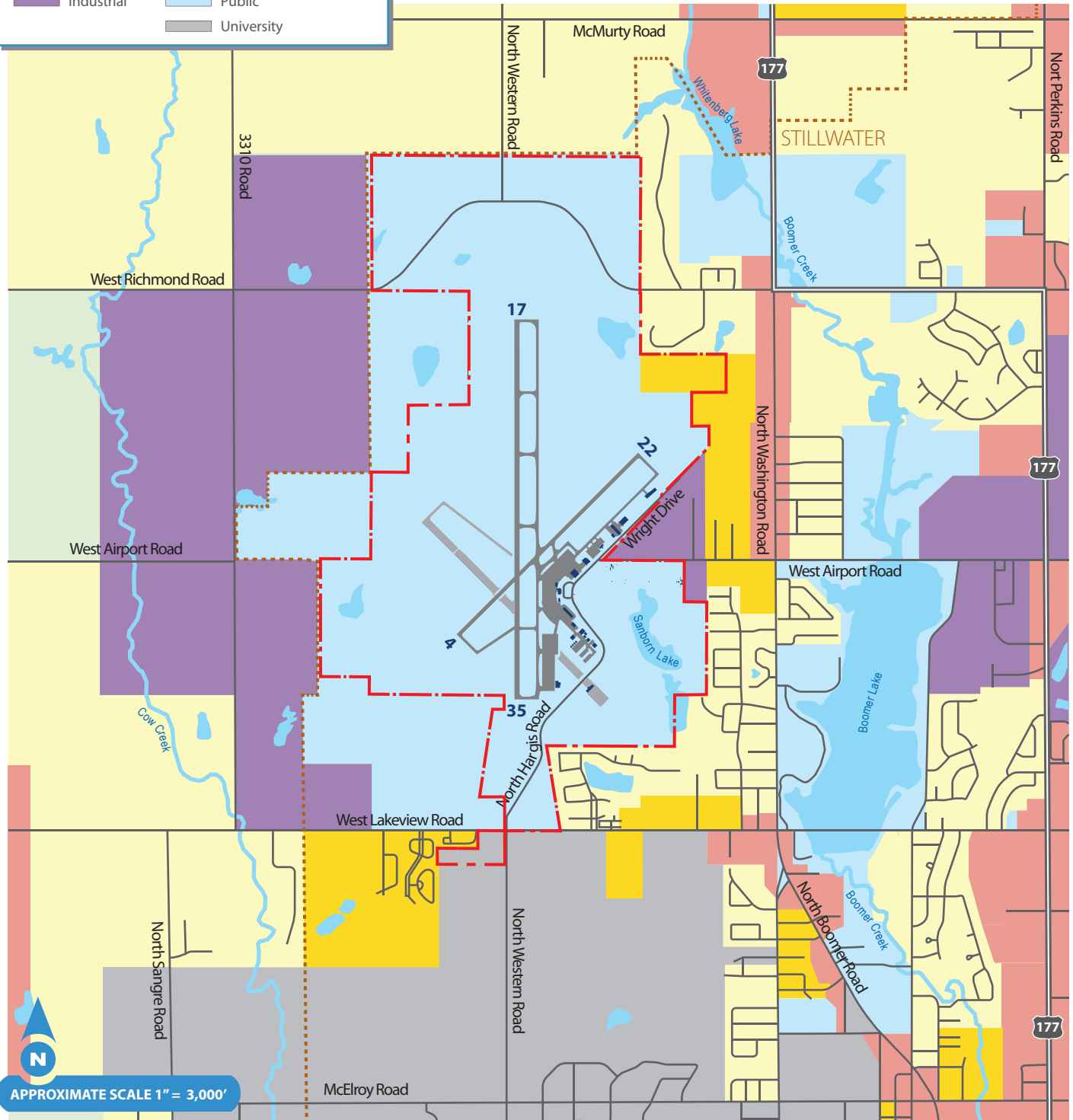


**Figure A-9**  
Generalized Existing Land Use

# AIRPORT MASTER PLAN

## LEGEND

- Agriculture
- Low-Density Residential
- Commercial
- High-Density Residential
- Industrial
- Public
- University



Source: Google Maps, 2021; City of Stillwater Comprehensive Plan 2030.



Figure A-10  
Generalized Future Land Use

A. Inventory of Existing Conditions

## ENVIRONMENTAL CONDITIONS INVENTORY

Understanding the environment on and surrounding SWO allows for efficient planning of future development and compliance with federal and state regulations. Awareness of the surrounding environment also affords the opportunity to understand how SWO affects the environment and neighboring community. The following narrative details environmental factors at SWO, surrounding the Airport, and within Payne County.

This environmental inventory section is not intended to satisfy environmental clearance requirements outlined in FAA Order 1050.1F, *Environmental Impacts and Procedures*, nor is it intended to fulfill requirements of the National Environmental Policy Act (NEPA). It does provide a baseline condition of environmental resources that are known to occur on or near SWO. The intent is to assist in the identification and analysis of airport development alternatives throughout the airport master planning process. The following environmental categories are not discussed as they are not relevant to SWO and/or they only relate to impacts from a specific project:

- Coastal Resources
- Light Emissions and Visual Impacts
- Natural Resources, Energy Supply, and Sustainable Designs
- Secondary (Induced) Impacts
- Wild and Scenic Rivers

### Air Quality

As required by the Clean Air Act, the Environmental Protection Agency (EPA) has established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants considered harmful to public health and the environment: Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO<sub>2</sub>), Ozone (O<sub>3</sub>), Particulate Pollution (PM; both 10 micron and 2.5 micron), and Sulfur Dioxide (SO<sub>2</sub>). An attainment area is one in which air pollutants do not exceed the NAAQS. Nonattainment areas are those in which a criteria pollutant has exceeded the NAAQS for a period of time. Payne County is in attainment for all six criteria pollutants.

### Compatible Land Use

Compatible land use protects the health, safety, and welfare of those living and working near SWO, while protecting airspace for safe and efficient aircraft operations. Airports that receive federal funds must prevent the development of incompatible uses on land. They must also ensure that proposed airport actions, including the adoption of zoning laws, have or will be taken, to the extent reasonable, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft.

The compatibility of existing and planned land uses near airports is typically determined in relation to the level of aircraft-generated noise. Federal guidelines for a variety of compatible land uses are provided in the Code of Federal Regulations (CFR) under 14 CFR part 150, Appendix A, Table 1, *Land Use Compatibility with*

**A. Inventory of Existing Conditions**

Yearly Day-Night Average Sound Levels, which is included here as **Table A-11**. The table identifies land use types as compatible, incompatible, or compatible if conducted within a sound-attenuated structure. Developed by the FAA, the table acts as a guide to local municipalities for land use planning and control and provides a tool to compare relative land use impacts resulting from planning alternatives.

**Table A-10: Land Use Compatibility Matrix**

LAND USE	YEARLY DAY-NIGHT NOISE LEVEL (DNL) IN DECIBELS				
	65-70	70-75	75-80	80-85	OVER 85
<b>RESIDENTIAL</b>					
Residential, other than mobile homes and transient lodgings	N(1)	N(1)	N	N	N
Mobile home parks	N	N	N	N	N
Transient lodgings	N(1)	N(1)	N(1)	N	N
<b>PUBLIC USE</b>					
Schools	N(1)	N(1)	N	N	N
Hospitals and nursing homes	25	30	N	N	N
Churches, auditoriums and concert halls	25	30	N	N	N
Governmental services	Y	25	30	N	N
Transportation	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y(2)	Y(3)	Y(4)	N
<b>COMMERCIAL USE</b>					
Offices, business and professional	Y	25	30	N	N
Wholesale and retail-building materials, hardware and farm equipment	Y	Y(2)	Y(3)	Y(4)	N
Retail trade-general	Y	25	30	N	N
Utilities	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	25	30	N	N
<b>MANUFACTURING AND PRODUCTION</b>					
Manufacturing, general	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y(5)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y(6)	Y(7)	N	N	N
Mining and fishing resource production and extraction	Y	Y	Y	Y	Y
<b>RECREATIONAL</b>					
Outdoor sports arenas and spectator sports	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	N	N	N	N	N
Nature exhibits and zoos	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	25	30	N	N

Numbers in parentheses refer to NOTES.

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

TABLE KEY	
SLUCM	Standard Land Use Coding Manual.
Y(Yes)	Land Use and related structures compatible without restrictions.
N(No)	Land Use and related structures are not compatible and should be prohibited.
NLR	Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30 or 35	Land Use and related structures generally compatible; measures to achieve NLR of 25, 30 or 35 dB must be incorporated into design and construction of structure.

NOTES	
(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB to 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.	(4) Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(2) Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.	(5) Land use compatible provided that special sound reinforcement systems are installed.
(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.	(6) Residential buildings require an NLR of 25.
	(7) Residential buildings require an NLR of 30.
	(8) Residential buildings not permitted.

## A. Inventory of Existing Conditions

Land uses around SWO largely remain compatible with airport operations. Agricultural, industrial, commercial, and university land uses can generally function under airport flight paths with minimal impairment. Residential developments under flight paths, such as those to the northeast, are not ideal. In the Noise section that follows, existing and future noise contours are compared with the surrounding land use to determine the compatible nature of the existing land uses.

### Construction Impacts

FAA Advisory Circular (AC) 150/5370-10, *Standards for Specifying Construction of Airports*, contains provisions to minimize impacts to air quality, water quality, and soil erosion associated with projects. The AC directs that construction and demolition debris be disposed of according to applicable state and federal criteria.

The construction of proposed master plan projects can cause temporary impacts associated with construction noise, air quality, traffic impacts on local roads, and the use and storage of fuel to operate construction vehicles and equipment. Best management practices are available to avoid or reduce temporary construction impacts. Potential construction impacts will be considered in forthcoming environmental analyses performed in accordance with NEPA.

### Department of Transportation Section 4(f) Properties

Section 4(f) provides that the Secretary of Transportation “may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife or waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance, only if there is no feasible and prudent alternative to using that land and the program or project includes all possible planning to minimize harm resulting from the use.” The U.S. Department of Transportation Act – Section 4(f) protects certain properties from use for Department of Transportation projects unless the FAA determines there is no feasible and prudent alternative.

The Sanborn Lake Park and Sports Complex is located on SWO property occupying most of the area east of Hargis Road and south of West Airport Road. The following Section 4(f) properties are located near SWO:

- **Lakeside Memorial Golf Course** – Located 0.5 miles northeast of the Airport along US 177.
- **Boomer Lake Park** – Located immediately east of North Washington Street.
- **Western Fields football field** – Located 0.5 miles south of SWO.

### Farmlands

The Farmland Protection Policy Act (FPPA) was enacted to minimize the extent to which federal actions and programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses. The FPPA classified farmland as prime farmland, unique farmland, or farmland of statewide or local importance. Prime farmland has the best combination of physical and chemical characteristics for producing food, forage, fiber, and oilseed crops. Unique farmland is land other than prime farmland used to produce specific high-



**A. Inventory of Existing Conditions**

value food and fiber crops such as citrus, tree nuts, olives, cranberries, fruits, and vegetables. Farmland of statewide or local importance includes soils that do not meet prime farmland criteria, but economically produce high yields of crops when treated and managed. A federal action that may result in conversion of farmland to non-agricultural use requires coordination with the U.S. Department of Agriculture Natural Resource Conservation Services (NRCS).

The NRCS online web soil survey system was used to identify soil types on the airport and adjacent property. Mapping and table details regarding the mapped soils within PSC are contained within the USDA/NRCS Soil Report. Airport soils are listed in **Table A-11**.

**Table A-11: Airport Soils**

Map Unit Name	Rating	Acres in AOI	Percent of AOI
Coyle loam, 3 to 5 percent slopes	Prime farmland	10.4	0.7%
Renfrow silt loam, 1 to 3 percent slopes	Prime farmland	18.3	1.3%
Renfrow silt loam, 3 to 5 percent slopes	Prime farmland	73.2	5.0%
Zaneis loam, 3 to 5 percent slopes	Prime farmland	10.9	0.7%
Coyle loam, 1 to 3 percent slopes	Prime farmland	4.5	0.3%
Grainola-Lucien complex, 1 to 5 percent slopes	Prime farmland	30.0	2.1%
Kirkland silt loam, 1 to 3 percent slopes	Prime farmland	67.3	4.6%
Zaneis-Huska complex, 1 to 5 percent slopes	Prime farmland	140.6	9.6%
Zaneis loam, 1 to 3 percent slopes	Prime farmland	20.6	1.4%
<b>Total Prime Farmland</b>		<b>375.8</b>	<b>25.7%</b>
Coyle loam, 3 to 5 percent slopes, eroded	Not prime farmland	10.0	0.7%
Pulaski fine sandy loam, 0 to 1 percent slopes, frequently flooded	Not prime farmland	25.4	1.7%
Renfrow loam, 3 to 5 percent slopes, eroded	Not prime farmland	166.3	11.4%
Renfrow and Grainola soils, 3 to 8 percent slopes, severely eroded	Not prime farmland	61.7	4.2%
Mulhall loam, 3 to 5 percent slopes, eroded	Not prime farmland	21.3	1.5%
Masham silty clay loam, 5 to 20 percent slopes	Not prime farmland	82.2	5.6%
Zaneis loam, 3 to 5 percent slopes, eroded	Not prime farmland	3.9	0.3%
Coyle and Zaneis soils, 3 to 5 percent slopes, severely eroded	Not prime farmland	3.7	0.3%
Renfrow-Urban land complex, 1 to 5 percent slopes	Not prime farmland	393.7	27.0%
Huska silt loam, 1 to 3 percent slopes	Not prime farmland	66.0	4.5%
Doolin silt loam, 1 to 3 percent slopes	Not prime farmland	28.0	1.9%
Grainola-Ashport frequently flooded-Mulhall complex, 0 to 8 percent slopes	Not prime farmland	76.7	5.3%
Grainola-Lucien complex, 5 to 12 percent slopes	Not prime farmland	125.4	8.6%
Water	Not prime farmland	17.4	1.2%
<b>Total Non-Prime Farmland</b>		<b>1,081.3</b>	<b>74.3%</b>
<b>Totals for Area of Interest</b>		<b>1,457.1</b>	<b>100%</b>

**Source:** USDA, NRCS, Soil Resource Report for SWO property (Area of Interest), August 2021.

**Note:** AOI = Area of Interest

According to the NRCS, there is a variety of soil types on SWO property. The most prominent soil by percentage is the Renfrow-Urban land complex with 1 to 5 percent slopes, which accounts for 27 percent of the airport area. In addition to other non-prime farmland soils, roughly three quarters of SWO is rated as non-prime farmland.

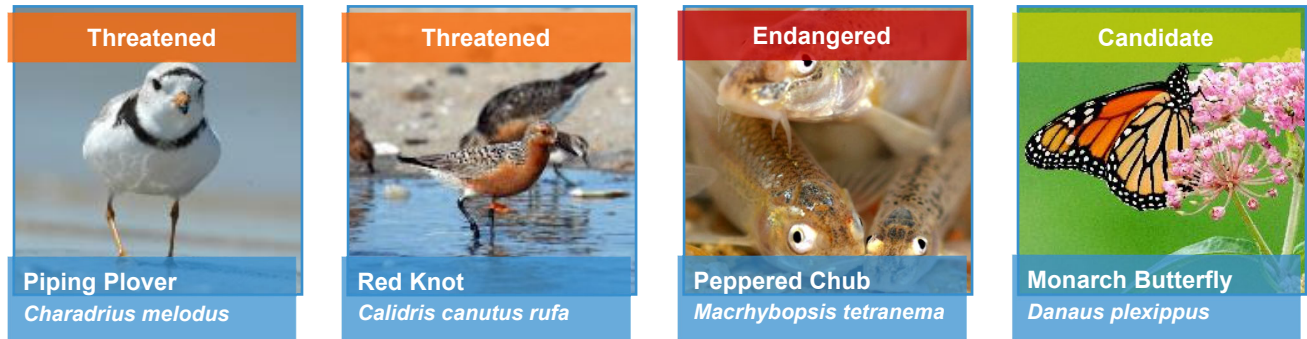
A. Inventory of Existing Conditions

**Threatened and Endangered Species**

The Endangered Species Act (ESA), 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 or adverse modification of habitat of such species.” The U.S. Fish and Wildlife Service is responsible for listing federal threatened and endangered species protected by the ESA. The Oklahoma Department of Wildlife Conservation (ODWC) lists the U.S. Fish and Wildlife Service federal threatened and endangered species along with the state threatened and endangered species.

The U.S. Fish and Wildlife Service’s (USFWS) Information, Planning, and Conservation (IPaC) System was used to identify species of concern. Species listed as threatened or endangered, or candidates that may be found within the Airport vicinity are depicted in **Figure A-11**.

**Figure A-11: Listed Species Potentially Located on SWO Property**



**Source:** U.S. Fish and Wildlife Service, Information for Planning and Consultation (IPaC) Species Report, August 10, 2022.

No critical habitats for any threatened or endangered species were found at SWO, nor were any National Wildlife Refuge Lands or fish hatcheries.

Some birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Certain migratory birds are listed by the USFWS Birds of Conservation Concern (BCC) list as species of potential concern. Migratory birds that may be impacted by operations at SWO are listed in **Figure A-12**.

A. Inventory of Existing Conditions

**Figure A-12: Migratory Birds Potentially Located on SWO Property**



**Source:** U.S. Fish and Wildlife Service, Information for Planning and Consultation (IPaC) Species Report, August 10, 2022.

The presence of threatened or endangered species, including bald eagles and other migratory birds, does not necessarily impair operational capabilities at SWO. Certain projects, should they have the potential to disturb or kill endangered species, may require permits to proceed.

**Hazardous Material, Pollution Prevention, and Solid Waste**

Hazardous materials are defined by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) 42 United States Code (USC) 6901-6992. Hazardous materials include substances

**A. Inventory of Existing Conditions**

that, due to their quantity, concentration, or physical, chemical, or infectious characteristics, may present substantial danger to public health or welfare or the environment.

The two statutes of concern to the FAA are the RCRA, as amended by the Federal Facilities Compliance Act, and the CERCLA, as amended by the Superfund Amendments Reauthorization Act (SARA) and by the Community Environmental Response Facilitation Act. RCRA governs the generation, treatment, storage, and disposal of hazardous wastes. CERCLA provides for consultation with natural resources trustees and cleanup of release of a hazardous substance, excluding petroleum, into the environment.

Sites of interest are defined as state cleanup sites, federal superfund cleanup sites, hazardous waste generators, solid waste facilities, underground storage tanks, dairies, and enforcement actions. The U.S. EPA lists four sites of interest at SWO. These are listed in **Table A-12**.

**Table A-12: EPA-Regulated Facilities Near SWO**

Site Name	Site Address (Stillwater, OK 74075)
The Brinkman Corporation	1616 W Airport Rd
Oklahoma Military Department / Stillwater Readiness Center	1616 W Airport Rd
Oklahoma Army National Guard OMS #4	1207 W Airport Rd
Sanborn Baseball Fields	1201 W Airport Rd

**Source:** US EPA Envirofacts.

**Note:** None of the addresses listed by the EPA are on SWO property.

**Historical, Architectural, Archaeological, and Cultural Resources**

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the impacts of their undertakings on historic properties, which include archeological sites, buildings, structures, objects, and districts. The NHPA also requires federal agencies to allow the Advisory Council of Historic Preservation the opportunity to comment on the undertaking. The National Park Service (NPS) maintains the National Register of Historic Places (NRHP), which lists all historic sites that meet criteria.

According to the NRHP, there are no historical sites, buildings, structures, or objects on airport property. The nearest historical sites are located in or around OSU and downtown Stillwater, approximately 1.5 miles south of SWO.

**Noise**

Noise is generally defined as unwanted sound that can disturb routine activities (such as sleep, conversation, or student learning) and cause annoyance. The determination of acceptable levels is subjective. The standard unit of measurement for the loudness of sound is the decibel (dB). The FAA has determined that the cumulative noise energy exposure of individuals to noise resulting from aviation activity must be established in terms of a yearly day-night average sound level (DNL). DNL is a 24-hour, time-weighted energy average noise level based on the “A” weighted decibel (dBA), in which “A” weighted refers to the sound scale pertaining to the human ear, or the overall noise energy level experienced during an entire day. Time-weighted refers to the fact that noise occurring between the hours of 10:00 p.m. and 7:00 a.m. is penalized by



## A. Inventory of Existing Conditions

10 dBA to account for the higher sensitivity to noise during nighttime hours and the expected decrease in background noise levels.

DNL noise levels are depicted as noise contours, which show interpolations of noise levels based on the center of grid cells. Grid cells are squares of land of a specific size entirely characterized by a noise level. Noise contours connect the points of comparable noise levels, similar to topographical contours, and form concentric footprints around a noise source. These footprints surrounding an airport are used to predict community response to noise from aircraft using the airport.










As presented earlier in **Table A-10**, FAA guidelines indicate the 65 DNL noise contour is the threshold of significance for land use analysis. **Figure A-13** provides the existing noise contours generated using the 2020 aircraft operational activity presented in **Chapter B – Forecasts of Aviation Activity**, overlaid on the existing land uses surrounding SWO. As can be seen, the existing 65 DNL noise contour does not extend beyond airport property. The existing 60 DNL noise contour does extend slightly beyond airport property west of Runway End 35 into land owned by OSU. This property is undeveloped.

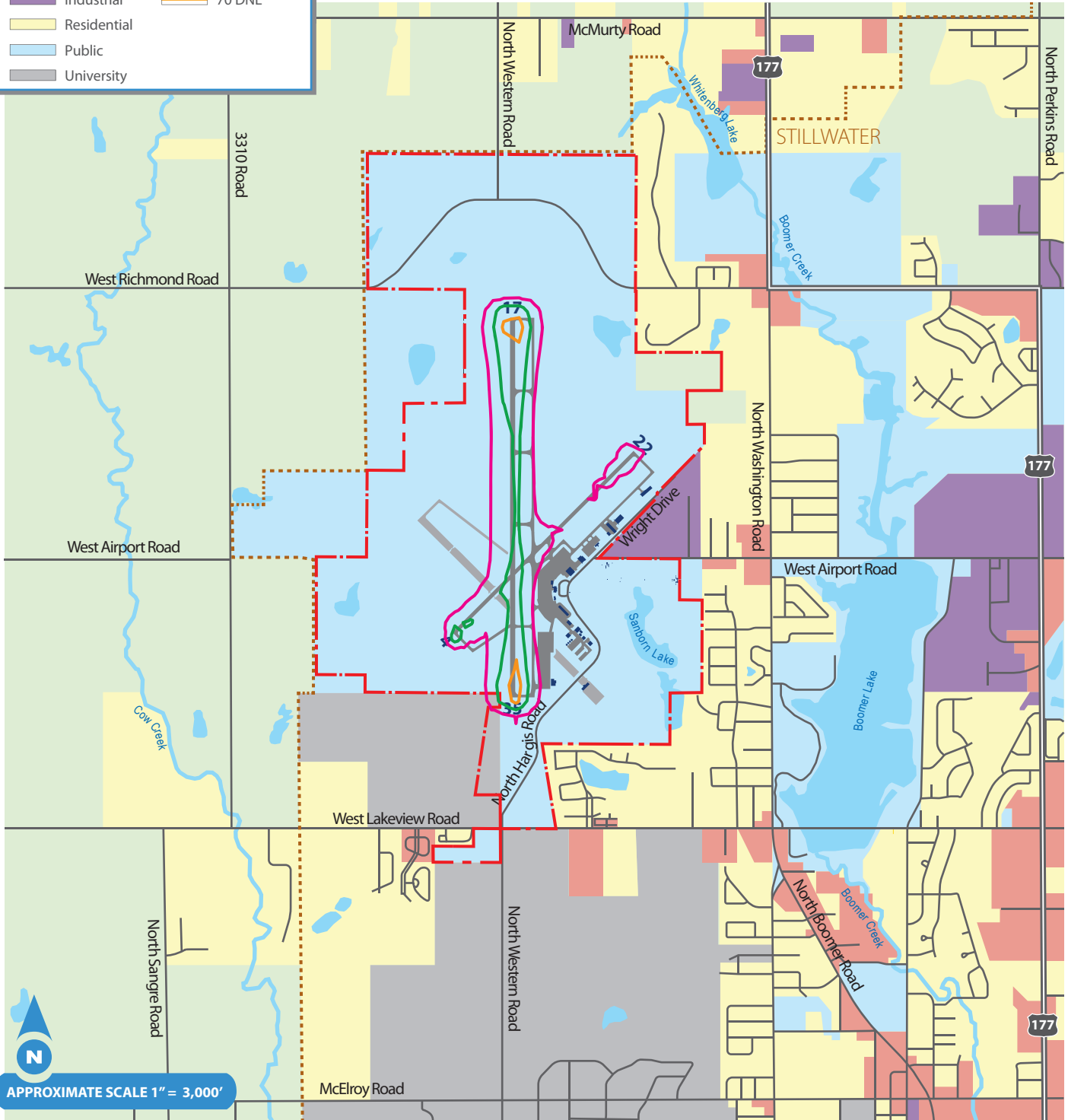
**Figure A-14** provides the future noise contours generated using the 2040 forecast of aircraft operational activity also presented in **Chapter B – Forecasts of Aviation Activity** and overlaid on the existing land uses surrounding SWO. As provided, the future 65 DNL noise contour extends slightly into land owned by OSU west of the Runway 35 End. Again, this land is currently undeveloped. The future 60 DNL noise contour extends further into the OSU-owned land in this same general area, as well as into OSU-owned land south of West Lakeview Road. This land is currently used by OSU for its bus transportation fleet storage and Compressed Natural Gas (CNG) fueling facility.

Based on this analysis, there are no land use incompatibilities associated with existing or future noise levels generated by aircraft operations at SWO.

# AIRPORT MASTER PLAN

## LEGEND

	Agriculture		60 DNL
	Commercial		65 DNL
	Industrial		70 DNL
	Residential		
	Public		
	University		



Source: Google Maps, 2021; City of Stillwater and Payne County GIS.












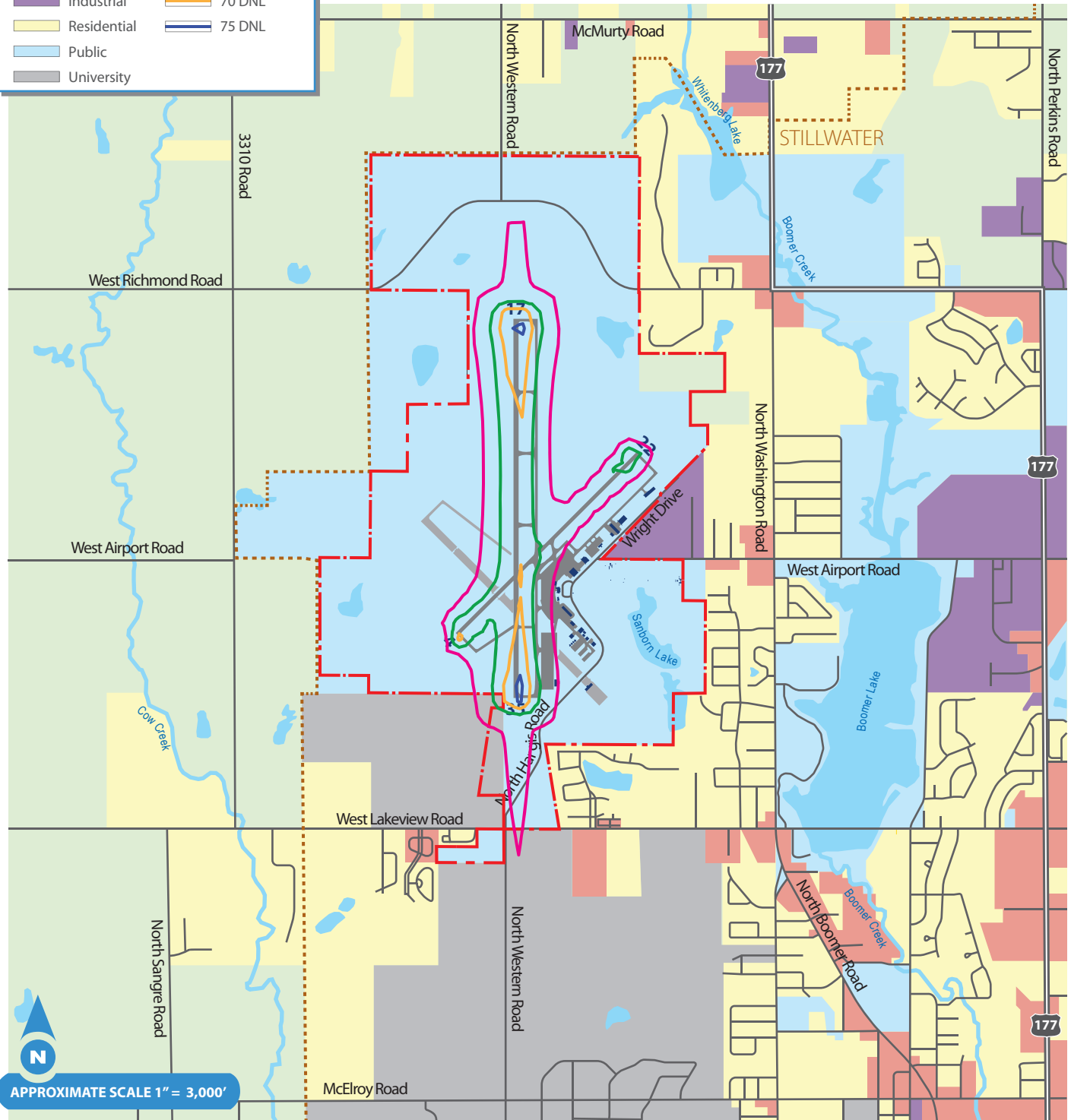
**Figure A-13**  
 Existing (2020) Noise Contours  
 With Generalized Existing Land Use



# AIRPORT MASTER PLAN

## LEGEND

	Agriculture		60 DNL
	Commercial		65 DNL
	Industrial		70 DNL
	Residential		75 DNL
	Public		
	University		



Source: Google Maps, 2021; City of Stillwater and Payne County GIS.



**Figure A-14**  
Future (2040) Noise Contours  
With Generalized Existing Land Use

A. Inventory of Existing Conditions

**Socioeconomic, Environmental Justice, and Children’s Health and Safety Risks**

Council on Environmental Quality regulations in 40 CFR, Section 1508, requires environmental documents prepared for federally funded projects to address potential social impacts. The evaluation of a proposed project on the human environment must address the following:

- Disproportionate impacts to low-income and minority populations
- Potential relocation of homes or businesses
- Division or disruption of an established community
- Disruptions to orderly planned development
- Notable project-related changes in employment
- Impacts on health and safety risks to children.

Demographics for the City of Stillwater are shown in **Table A-13**.

**Table A-13: Demographics for Stillwater, Oklahoma**

Demographic Category	2010	Percent	2019	Percent
<b>Population</b>	<b>44,681</b>		<b>49,952</b>	
Male	22,465	50.3%	25,842	51.7%
Female	22,216	49.7%	24,110	48.3%
<b>Age</b>				
Under 18 years	6,324	14.2%	7,964	15.9%
18-64 years	34,628	77.5%	37,412	74.9%
65 years and over	3,729	8.3%	4,576	9.2%
Median Age (years)	23.8		23.5	
<b>Race</b>				
White	35,642	79.8%	38,601	77.3%
Black or African American	1,691	3.8%	2,306	4.6%
American Indian and Alaska Native	1,919	4.3%	2,031	4.1%
Asian	2,695	6.0%	3,354	6.7%
Native Hawaiian and Other Pacific Islander	21	0.0%	63	0.1%
Other	315	0.7%	387	0.8%
Two or more races	2,398	5.4%	3,210	6.4%
<b>Persons Below the Poverty Level</b>	<b>12,352</b>	<b>31.1%</b>	<b>15,069</b>	<b>35.2%</b>

Source: U.S. Census Bureau, American Community Survey.

**Socioeconomic Impacts**

Improvements at SWO are not expected to create significant change in population, public service, and economic activity, but are expected to have positive impacts through creation of employment opportunity, business growth, and economic activity. Coordination with resource agencies should be a priority prior to implementation. As shown in **Table A-13**, the poverty rate for the City of Stillwater was 35.2 percent in 2019.

FAA Order 1050.1F states, “If acquisition of real property or displacement of persons is involved, 49 CFR Part 24 (implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970), as amended, must be met for federal projects and projects involving federal funding. Otherwise, the FAA, to the

## A. Inventory of Existing Conditions

fullest extent possible, observes all state and local laws, regulations, and ordinances concerning zoning, transportation, economic development, housing, etc. when planning, assessing, or implementing the proposed action or alternative(s).”

### Environmental Justice

Environmental justice assessments seek to identify the health disparities across a community’s disadvantaged and underrepresented populations as defined by race, ethnicity, and socioeconomic status. FAA Order 1050.1F states, “...the FAA must provide for meaningful public involvement by minority and low-income populations. In accordance with Department of Transportation Order 5610.2(a), this public involvement must provide an opportunity for minority and low-income populations to provide input on the analysis, including demographic analysis, which identifies and addresses potential impacts on these populations that may be disproportionately high and adverse.”

Environmental justice impacts, including cancer, asthma, obesity, and mental health issues, can be exacerbated through the construction and operation of new facilities and those impacts tend to affect low-income or minority populations at a disproportionately higher rate. In cases where the population in or around a project area have been identified to be disadvantaged or underrepresented, the environmental documents are expected to include the following:

- Demographic information about the affected populations
- Information about the population(s) that have an established use for the significantly affected resource, or to whom that resource is important (e.g., subsistence fishing)
- Results of analysis to determine if a low-income or minority population using the resource sustains more of the impact than any other population segments
- Identification of disproportionately affected low-income and minority populations
- Discussion of alternatives that would reduce the effect on these populations
- Description of possible mitigation to reduce the effect on the disproportionately affected low-income and minority populations.

The NEPA process requires environmental justice review and impact analysis for airport improvements. According to a search of the American Community Survey (2010-2019), the percentage of minority (non-white) populations as of 2019 was 22.7 percent in the City of Stillwater. The Climate and Economic Justice Screening Tool (CEJST) published by the White House Council on Environmental Quality (CEQ) indicated that there were no identified disadvantaged communities near SWO.

### Children’s Environmental Health and Safety Risks

FAA Order 1050.1F states “Pursuant to Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, Federal agencies are directed to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. Environmental health risks and safety risks include risks to health or safety that are attributable to products or substances that a



## A. Inventory of Existing Conditions

child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to.”

Locations with concentrated populations of children near SWO are Will Rogers Elementary and Stillwater High School 1.25 miles to the southeast, and Richmond Elementary School 0.75 miles to the east. Boomer Lake Park east of SWO could also attract concentrated adolescent populations. According to the American Community Survey, 15.9 percent of the population, or 7,964 individuals, are under the age of 18 in Stillwater.

### Water Resources

Water resources are surface and ground waters that are vital to society because they provide drinking water as well as support recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. Surface water, ground water, floodplains, and wetlands do not function as separate and isolated components of the watershed, but rather as a single, integrated natural system. Disruption of any one part of this system can result in consequences to the functioning of the entire system, which must be considered along with potential impacts to the quality of water resources throughout this Master Plan.

### Wetlands

The Clean Water Act (CWA) defines wetlands as “areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” Federal regulations require that proposed actions avoid, to the greatest extent possible, long-term and short-term impacts to wetlands, including the destruction and altering of the functions and values of wetlands.

The USFWS National Wetlands Inventory (NWI) online mapping system was reviewed to identify mapped wetlands near SWO. According to the NWI, two freshwater wetlands are located in the easternmost portion of SWO property: one wetland is located north of Sanborn Lake and the other north of Hazen Lake. A freshwater emergent wetland is also located north of Sanborn Lake. This system is fed by a stream that continues off SWO to the south.

### Floodplains

A floodplain is generally a flat, low-lying area adjacent to a stream or river that is subject to inundation during high flows. The relative elevation of a floodplain determines its frequency of flooding.

Executive Order 11988 requires federal agencies “to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of 100-year floodplains (i.e., areas subject to inundation by a 1 percent annual chance of flood) and to avoid direct or indirect support of floodplain development whenever there is a practical alternative.”

According to the Federal Emergency Management Agency National Flood Hazard Layer Viewer, SWO is entirely located within an area of minimal flood hazard (Zone X). Areas within Zone X are areas outside

## A. Inventory of Existing Conditions

the 500-year flood plain. Boomer Lake and its surrounding watersheds is designated as Zone AE, which is within the 100-year floodplain and has a base flood elevation.

### Surface Waters

Protected by the Safe Drinking Water Act (SDWA) and CWA, surface waters are considered waters of the United States and include streams, rivers, lakes, ponds, statuaries, and oceans. The Oklahoma Water Resources Board (OWRB) monitors surface water throughout the state. In addition to Sanborn Lake on SWO's southeastern edge, several freshwater ponds are scattered throughout SWO. These ponds are usually connected by streams that flow off the property and connect with other nearby surface waters.

### Groundwater

Groundwater is a subsurface water that occupies the space between sand, clay, and rock formations. Aquifers are the geologic layers that store or transmit groundwater to wells, springs, and other water sources. The SDWA and its implementing regulations (40 CFR Parts 141-149) prohibit federal agencies from funding actions that would contaminate an EPA-designated sole source aquifer or its recharge area. State and local agencies may also promulgate regulations to protect sole source aquifers and their recharge areas.

No groundwater aquifers were identified by the OWRB at or near SWO. There are two wells located on SWO property, as well as a regulated underground storage tank used for jet fuel.

## CLIMATE AND WIND DATA

Weather conditions impact aircraft performance and influence airport design. The design process must account for temperature, precipitation, winds, visibility, and cloud ceiling heights. Wind patterns impact runway use and must be assessed to determine runway design requirements.

### Wind

The historical pattern of prevailing winds influences desirable runway orientation and runway use. The FAA has determined that crosswinds pose a hazard to the safe operation of aircraft, particularly to small and light aircraft. Therefore, an airport's primary runway should align with the prevailing winds.

Wind coverage is defined as the average percentage of time that a runway is not subjected to crosswinds of magnitude greater than the allowable crosswind component for each runway. FAA defines the desirable minimum wind coverage of an airport's runway configuration as 95 percent of wind velocity and direction observations over the most recent 10-year period. The allowable crosswind component used to compute the wind coverage for a given runway is based on the Runway Design Code (RDC) of the most demanding aircraft expected to use the runway. RDC categories, FAA crosswind components, and aircraft types are listed in **Table A-14**.

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**Table A-14: Crosswind Component RDC Categories**

Runway Design Code (RDC)	Aircraft Types	FAA Crosswind Component
A-I and B-I: Includes A-I and B-I Small (Small Aircraft are 12,500 pounds or less)	Piston	10.5-Knot
A-II and B-II	Small Jets and Turboprops	13-Knot
A-III, B-II   C-I to C-III   D-I to D-III	Large Jets and Turboprops	16-Knot
A-IV and B-IV   C-IV to C-VI   D-IV to D-VI	Large Jet Transports	20-Knot

Source: FAA Advisory Circular (AC) 150/5300-13A, Change 1.

Wind data is reported to and available from the National Oceanic and Atmospheric Administration (NOAA) by an ASOS located at SWO. Wind data from 2010 to 2020 is grouped in three categories presented in **Table A-15**.

**Table A-15: Ceiling and Visibility Categories**

Wind Coverage	Definition	Occurrence
All Weather	All wind observations	N/A
Instrument Flight Rules (IFR)	Cloud ceiling less than 1,000' and/or visibility less than 3 miles, but cloud ceiling greater or equal to 200 feet and visibility greater than or equal to 1/2 miles	Approximately 13 percent of the time from 2011 to 2020
Visual Flight Rules (VFR)	Cloud ceiling greater than or equal to 1,000 feet and visibility greater than or equal to 3 miles	Approximately 87 percent of the time from 2011 to 2020

Source: Mead & Hunt using the FAA Airport Data and Information Portal (ADIP), Wind Analysis. August 2021. Wind data provided by NOAA Integrated Surface Database (ISD). Station 723545. Period of Record 2011-2020.

The FAA's Airport Data and Information Portal (ADIP) wind analysis program was used to determine the wind coverage for SWO's runway orientations, both individually and combined as presented in **Table A-16**.

Runway 17/35 and Runway 4/22 align with the prevailing winds and together provide greater than 95 percent wind coverage for the 10.5-, 13-, and 16-knot crosswind components.

**Table A-16: Wind Coverage**

Runway	10.5-Knot	13-Knot	16-Knot
<b>All Weather</b>			
Runway 17/35	95.63%	97.93%	99.40%
Runway 4/22	83.81%	91.45%	97.65%
Combined	97.78%	99.18%	99.78%
<b>IFR Weather</b>			
Runway 17/35	94.96%	97.43%	99.15%
Runway 4/22	85.84%	92.32%	97.77%
Combined	97.31%	98.92%	99.67%
<b>VFR Weather</b>			
Runway 17/35	95.72%	98.01%	99.45%
Runway 4/22	83.43%	91.28%	97.62%
Combined	97.85%	99.23%	99.80%

Source: Mead & Hunt using the FAA Airport Data and Information Portal (ADIP), Wind Analysis. August 2021. Wind data provided by NOAA Integrated Surface Database (ISD). Station 723545. Period of Record 2011-2020.

A. Inventory of Existing Conditions

**Climate**

Stillwater lies near the western edge of the country’s humid subtropical climate region as well as where the Rocky Mountain rain shadow has faded. Therefore, the climate is characterized by hot, humid summers and generally mild to cool winters. Rainfall is evenly distributed throughout the year. **Table A-17** presents the basic monthly and annual average climate data for Stillwater using data obtained from the NOAA.

**Table A-17: Climate Data**

Month	Precipitation (inches)	Mean Maximum Temperature (°F)	Mean Minimum Temperature (°F)	Mean Average Temperature (°F)
January	0.92	50.7	26.7	38.7
February	1.33	55.5	30.7	43.1
March	2.22	64.8	39.5	52.1
April	3.72	73.4	48.5	60.9
May	4.58	80.9	58.5	69.7
June	4.49	89.6	67.6	78.6
July	3.12	95.4	72.1	83.7
August	3.28	95.0	70.5	82.7
September	3.11	86.7	61.9	74.3
October	2.94	75.3	49.4	62.3
November	1.95	62.8	37.8	50.3
December	1.51	52.3	29.5	40.9
<b>Annual Average</b>	<b>33.17</b>	<b>73.5</b>	<b>49.4</b>	<b>61.5</b>

Source: NOAA, U.S. Climate Normals Quick Access Tool. August 2021.

**STRATEGIC EVALUATION**

As a strategic planning process, this Study is structured to be responsive to the overall mission of SWO while being inclusive of broader community needs. Knowing that plans involving diverse participation are more successful and widely accepted than those without, a Study Committee (Committee) was assembled specifically for this Study. The Committee serves in an advisory capacity and consists of aviation and non-aviation constituents selected to provide well-rounded perspectives. The Committee provides continuous participation, engages at key decision-points, and guides Study recommendations reflecting airport user needs, aligning with community interests, and supporting the City of Stillwater’s plan and vision. The Committee is charged with reviewing materials, attending meetings, providing comment on findings, and encouraging awareness and adoption of the Study recommendations. Committee feedback is incorporated, as appropriate, into the final Study documentation.

As part of the strategic planning process, a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was conducted to determine the appropriate strategic visions for SWO, and specific goals and objectives to be addressed throughout the Study. The SWOT analysis is a process for synchronizing strategic decision-making factors and helps categorize the Airport’s and city’s internal and external characteristics, qualities, and merits. The SWOT factors help formulate goals, provide the basis to pragmatically assess recommendations, and guide the Study’s overall development policy. The full SWOT analysis is contained in **Appendix One**.





## APPENDIX ONE. SWOT Analysis

### STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND THREATS (SWOT) ANALYSIS

Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis is a strategic evaluation tool frequently used to identify existing influences, either positive or negative, in any number of situations. The SWOT analysis is employed early in the planning process, and it closely examines the four primary aspects in how they may influence the outcome of a project:

- **Strengths** – Internal characteristics that provide an advantage over others.
- **Weaknesses** – Internal characteristics that create a disadvantage compared to others.
- **Opportunities** – External elements that can be capitalized upon.
- **Threats** – External elements risks that can be detrimental.

These four components of the acronym can also be shown visually through the matrix shown below.

	Helps Progress	Harms Progress
Within Airport Influence	Strengths	Weaknesses
Outside Airport Influence	Opportunities	Threats

Stillwater Regional Airport (SWO or the Airport) is an important city economic asset with ample available land providing valuable properties for aviation development, therefore this method was used to aid in the development of goals, objectives, and visions for the Airport.

The following SWOT factors were identified by the Committee during the initial kick-off meeting and will be addressed throughout the Study:

#### Strengths

- Centrally located in the US
- Oklahoma State University (OSU) Flight Center
- Regularly scheduled commercial service operations
- Good pavement condition
- Contract Air Traffic Control Tower (ATCT)
- Community support
- 1,000 acres directly owned by the Airport, not including OSU or other surrounding properties
- Runway length can accommodate all types of aircraft operations

## Appendix One. Strategic Evaluation

- Annual fuel sales exceeding half a million dollars
- Many services offered on the airfield
- Strong GA community
- Few to no noise complaints
- Research and Development (R&D) opportunities for Unmanned Aerial Systems (UAS)

### Weaknesses

- No dedicated funding source for development activity
- Older and outdated facilities
- Lack of automation in the tower
- No facilities to house R&D airfield facilities
- No utilities supporting development of property on SWO's western side
- SWO not financially self-sufficient
- No specialty services incentivizing users to base their aircraft at SWO
- High turnover rate for ATCT personnel and TSA agents
- Difficult rightsizing commercial service aircraft to best fit the area

### Opportunities

- Room for expansion of crosswind RWY (4/22)
- Room and demand for aircraft hangar construction
- OSU Flight School program growth
- University research group with UAS
- State and Department of Commerce pushing aerospace development
- Expansion of commercial service market
- Diversifying aircraft fuels and electronic aircraft

### Threats

- COVID and its variants
- Uncertainty of commercial service market
- Declining funding for education
- Low-cost carriers at Oklahoma City and Tulsa
- No clear package drop-off locations result in unattended packages in the terminal building
- Pending economical concerns
- Change in airline business models
- Laws impacting funding and subsidies for airports