

Lakeland Linder Regional Airport, Airport Master Plan Update

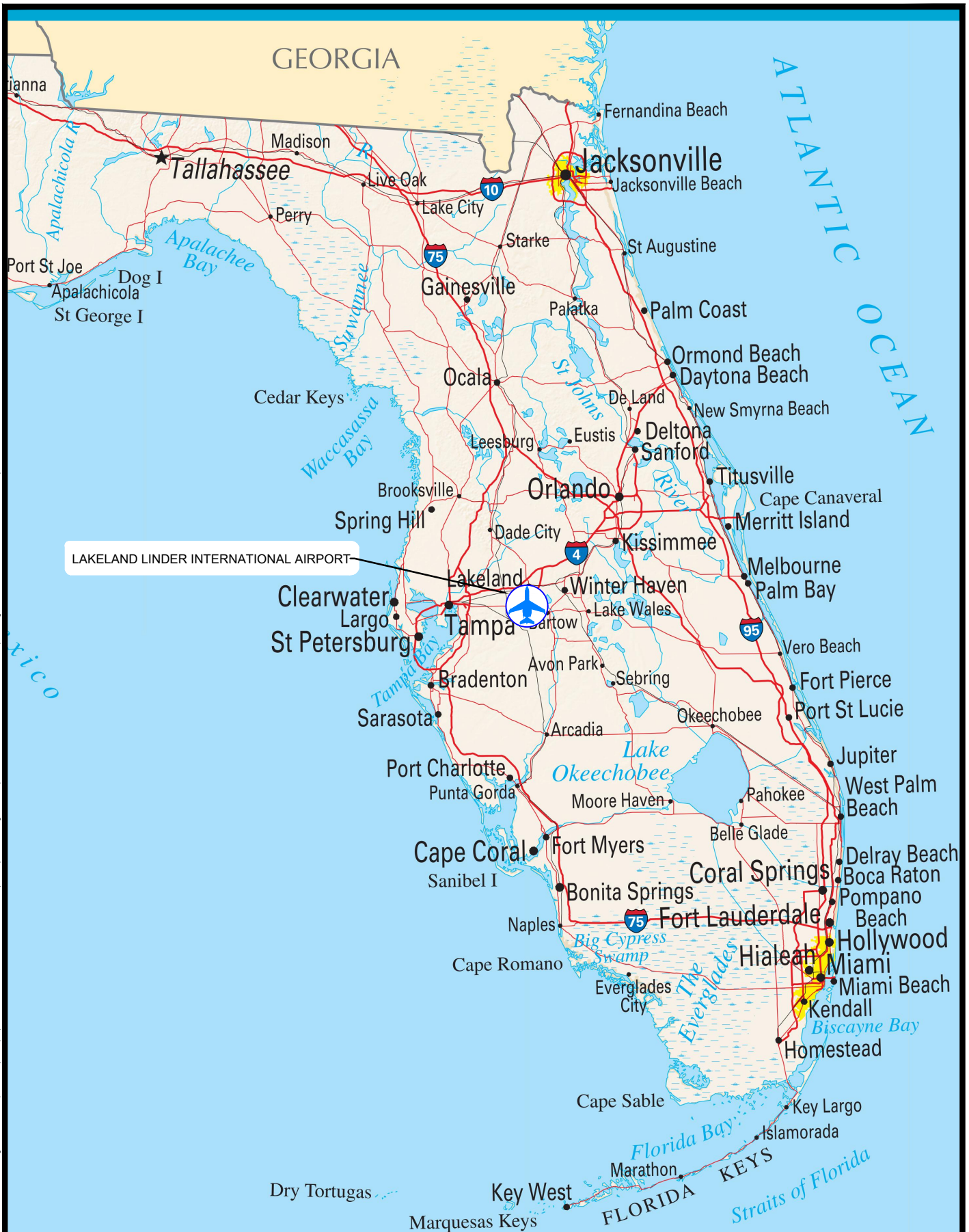
May 2018
Working Paper # 1



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Source U.S. Department of Interior

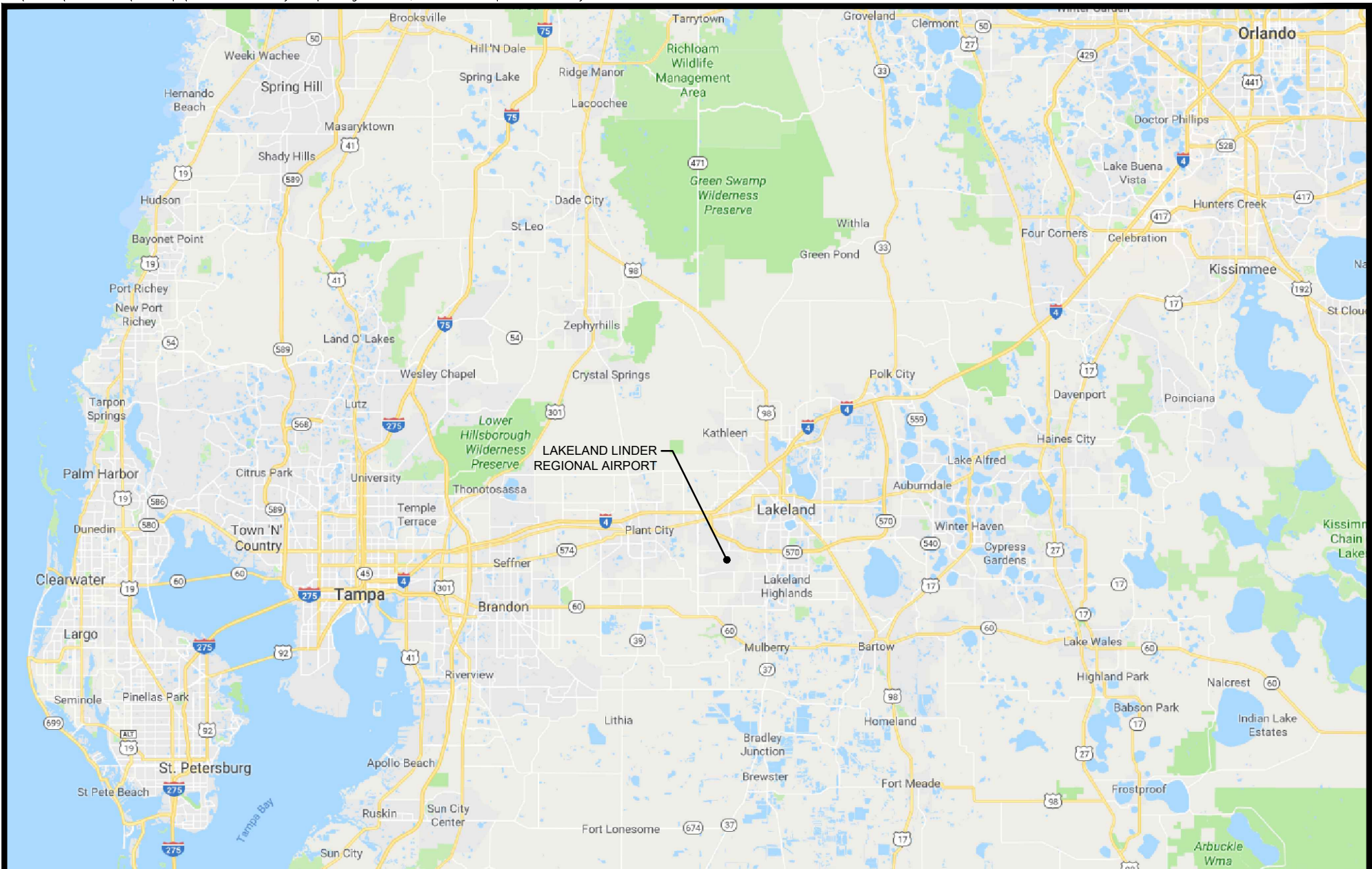


Lakeland Linder International Airport
Airport Master Plan Update



Location Map

Figure.
1-1



1. Inventory of Existing Conditions

The development of an Airport Master Plan (AMP) for Lakeland Linder Regional Airport requires the collection and evaluation of baseline information relating to the Airport's property, facilities, services, location, and tenants, as well as access, utilities, and environmental considerations. The information collected as part of the inventory will establish a baseline condition for the Airport which will be compared to future requirements determined from the aviation forecast and the demand/capacity analysis. The information presented in this chapter was obtained through a variety of sources, including Airport site visits, interviews with Airport staff and tenants, and examination of Airport records and other public documents. This chapter includes the following sections.

- Airport Facility Inventory
- Airspace Structure
- Land Use
- Previous Studies

1.1. Airport Background

Lakeland Linder Regional Airport (LAL) is publicly owned and operated by the City of Lakeland. LAL is located on an approximate 1,710-acre property in Polk County. The Airport is located approximately five miles southwest of the City of Lakeland and 27 miles east of Tampa International Airport (TPA). **Figure 1-1**, Location Map, depicts the location of LAL within the State of Florida. **Figure 1-2**, Vicinity Map, shows the Airport in relation to the surrounding community.

1.1.1. Regional Setting

The location of LAL could be considered both a weakness and opportunity. The Airport is in the vicinity of both TPA and Orlando International Airport (MCO). TPA and MCO are two of the busiest airports within the State of Florida in terms of overall operations and passenger enplanements. According to the Air Service Study completed in 2015, LAL is a viable alternative to accommodate the future excess commercial demand and capitalize on the tourism opportunity within the State of Florida, since TPA and MCO are unable to increase overall capacity. The Airport is approximately 45 minutes from Walt Disney World's main gate.

1.1.2. Airport History

Lakeland Linder Regional Airport was constructed in 1940 to replace the original Lakeland Municipal Airport. The Airport was named Drane Field in honor of Herbert J. Drane, who moved to Lakeland in November, 1883, where he was considered one of the founders of the City. Drane served as mayor of Lakeland from 1888-1892 and served as a member of the U.S. House of Representatives from 1917-1933. In 1941 the Airport was leased to the United States War Department to support various World War II missions. At that time, the U.S. Army renamed the Airport to Lakeland Army Air Field. During the duration of the war, military personnel received flight training in various combat bombers and fighter aircraft. At the end of World War II in 1945, the Airport was closed and placed in a standby status until 1946 when the War Assets Administration declared the facility as surplus and turned it over to the City of Lakeland for a return to civil use.

At the time the facility was declared surplus, the size of the Airport's facilities far exceeded the City's needs, and the high cost of converting to public use far outweighed the benefits. After a decade of laying vacant, the closure of a nearby municipal airport in 1957 sparked a need to re-develop Drane Field to have it become suitable for public aviation use. In 1960, after the development for public aviation use, Drane Field was rededicated as Lakeland Municipal Airport. In the 1970s, it was renamed to Lakeland Regional Airport. It was then renamed again in the late 1980s to its current name of Lakeland Linder Regional Airport. This name honors Paul Scott Linder, who founded Linder Industrial Machinery in 1953. This Lakeland based company was a multimillion-dollar heavy construction machinery company. Linder played a large role in the community

and held the title of Chairman of the Lakeland Economic Development Council, and Director of the Florida Chamber of Commerce.

Commercial Air Service

Commercial air service was present at LAL as early as 1947. In that year, National Airlines relocated to the Airport after the closure of Lodwick Field. The airline operated out of the Airport until its final departure in 1962. Shortly after National Airlines left, Allegheny Commuter (Sun Airlines) conducted commercial air service starting from mid-1960's to the early 1970's. From 2006 to 2008 the Airport had partial air service under FAR Part 135 (AirTaxi) by DayJet using Very Light Jet (VLJ) aircraft. However, due to a significant economic downturn DayJet ceased operations in September 2008. The Airport had no commercial air service until the arrival of Direct Air in June 2011. That airline had scheduled commercial passenger service, utilizing Boeing 737s, to destinations including Springfield, IL, Myrtle Beach, SC, Plattsburgh, NY, and Niagara Falls, NY. Direct Air ended service in March 2012.

Airport Sustainability

In 2012 LAL became the first airport in the region to open a large scale solar farm on the property. The 5.5-megawatt solar farm was constructed in partnership with the City of Lakeland and Sun Edison. The solar farm effectively eliminates airport electricity costs as well as provides power to approximately 7,000 homes in the area.

Air Traffic Control Tower

The Airport's new Air Traffic Control Tower (ATCT) was completed in 2016. This facility replaced the previous tower which was no longer located appropriately for controller line of sight, had insufficient height, and was in poor condition. The new ATCT structure and related infrastructure has been positioned to allow clearer line of sight for controllers and to maximize future airport development opportunities.

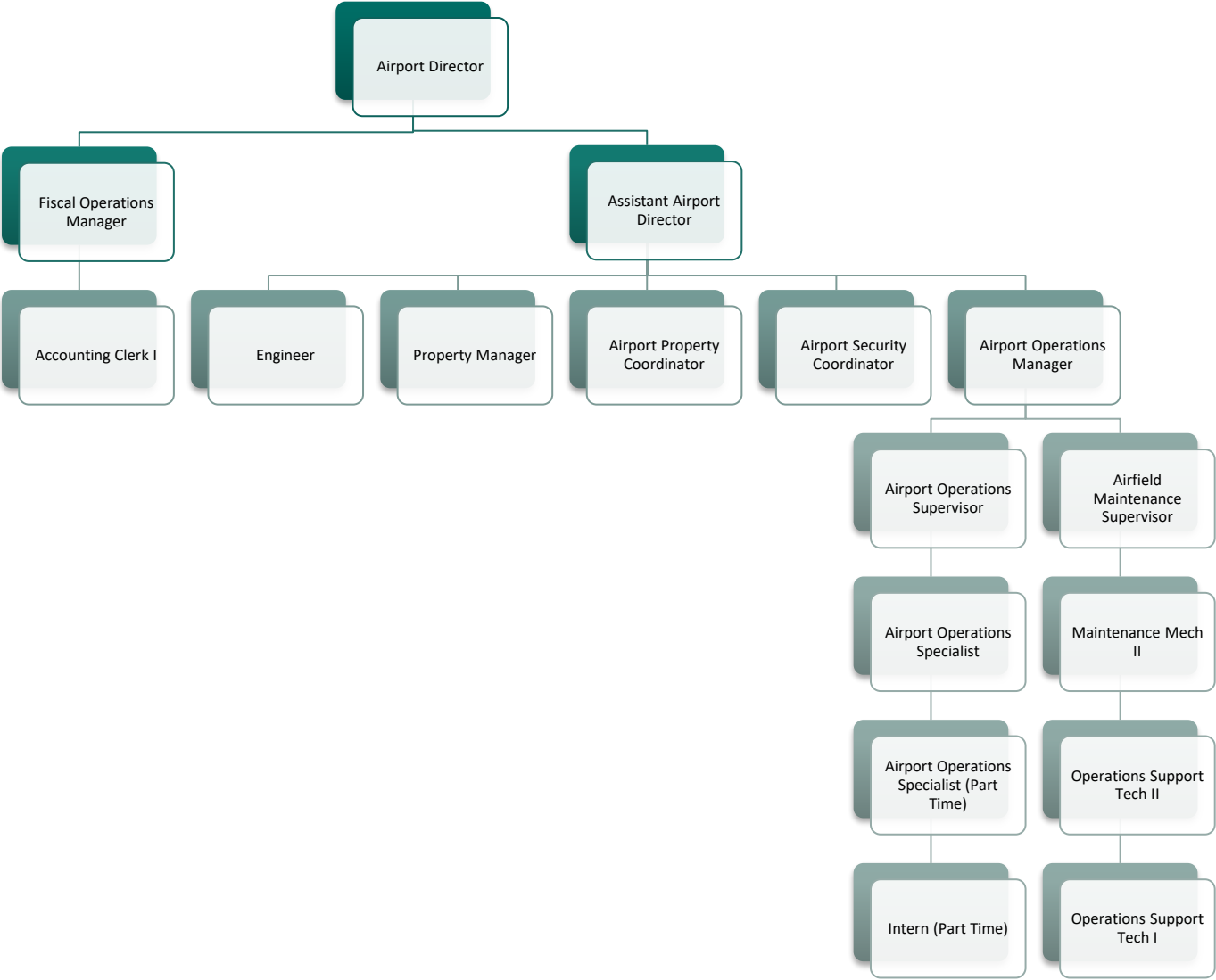
US Customs and Border Patrol

A newly developed U.S. Customs and Border Protection Facility was opened in 2017 allowing the Airport to accept international flights. The first international flight was welcomed on November 16, 2017.

1.2. Management Structure

The management of the Airport is subject to the City's own organizational structure. **Figure 1-3** presents an organizational chart for the Airport, depicting the direct lines of responsibility structure for airport management and how the Airport connects with the City's formal organizational structure. Policy and operational decisions rest with the City of Lakeland, yet the Airport management has been delegated the authority to make many of the decisions. The Airport's current staff consists of a management team lead by the Airport Director. Reporting directly to the director are managers of various airport functions.

Figure 1-3 Airport Management Structure



Source: LAL Intermodal Feasibility Study, 2015

1.3. Airport Facility Inventory

The identification of existing aviation facilities, their locations and abilities to meet the Airport’s daily needs are essential elements of the master planning process. The Airport has been certified under 14 CFR Part 139 to allow scheduled air carrier service. In addition, the Airport provides the following services: rental cars; fuel (100LL and Jet A); hangars and tie-downs; major airframe and power-plant maintenance; avionics service; charter flights; flight instruction; aircraft rental and sales; customs services, and foreign trade zone. The existing conditions of airside, terminal, landside, and support facilities will be discussed in the following sections.

1.3.1. Airside Facilities

Airside facilities are critical components of an airport and include more than just the runways and taxiways. The following sub-sections present information collected on key airside facilities. **Figure 1-4** depicts the airport’s existing airfield layout.

1.3.1.1. Runways

The existing airfield configuration consists of three bi-directional runways. Runway 9-27 is considered the Airport's primary runway and is 8,499 feet long and 150 feet wide. It's surface is grooved asphalt, and is currently reported to be good condition. Runway 5-23 is 5,005 feet long and 150 feet wide. It's surface composition similar to Runway 9-27, is grooved asphalt reported in good condition. Runway 8-26 is a turf surface runway and is approximately 2,205 feet long and 60 feet wide. Runway 8-26 was activated in November 2016. Runway 8/26 requires pre-approval from the Airport in order to utilize the facility. **Table 1-1** provides a comprehensive breakdown of each runway and their respective characteristics.

Table 1-1 Runway Characteristics

Dimensions	Runway 9-27		Runway 5-23		Runway 8-26	
Length (ft.)	8,499		5,005		2,205	
Width (ft.)	150		150		60	
Surface Material	Asphalt/Grooved		Asphalt/Grooved		Turf	
Markings	Precision/Non-Precision		Precision/Non-Precision		Threshold & Edge Concrete Markers	
Load Bearing Capacity by Gear Type						
SWL* (pounds)	105,000		94,000		N/A	
DWL* (pounds)	170,000		150,000		N/A	
2DWL (pounds)	N/A		N/A		N/A	
PCN Data	40 /F/A/X/T		35 /F/A/X/T		N/A	
Runway Approach Slope & Effective Gradient						
Approach Slope	3.00 Degrees		3.00 Degrees		N/A	
Effective Gradient	0.10% Up/Down		0.20% Up/Down		N/A	
Runway End Coordinates	Runway 9	Runway 27	Runway 5	Runway 23	Runway 8	Runway 26
Latitude	N 27° 59' 21.2540"	N 27° 59' 21.4565"	N 27° 59' 00.3894"	N 27° 59' 35.5214"	N/A	N/A
Longitude	W 082° 02' 01.9263"	W 082° 00' 27.1192"	W 082° 01' 13.3832"	W 082° 00' 34.0067"	N/A	N/A

*Single Wheel Load (SWL), Dual Wheel Load (DWL), Two Dual Wheel Load (2DWL)



Declared Distances

The FAA requires airports having certain operational limitations to publish declared distances for each runway. This information informs pilots what the available runway lengths are for different types of operations to maintain standard safety areas and protection zones. Declared distances include the following.

- Takeoff Run Available (TORA) – The runway length declared available for the ground run of an aircraft.
- Takeoff Distance Available (TODA) – The runway length declared available for the ground run of an aircraft plus any remaining clearway.
- Accelerate-Stop Distance Available (ASDA) – The length of runway plus any stop way declared available and suitable for the safe deceleration of an aircraft after aborting a take-off.
- Landing Distance Available (LDA) – The length of runway declared available for landings.

The Airport's declared distances have been published. **Table 1-2** shown below, shows the published distances for each category for each runway.

Table 1-2 Declared Distances

Runway	TORA	TODA	ASDA	LDA
9	8,499'	8,499'	8,414'	8,414'
27	8,499'	8,499'	8,499'	8,499'
5-23	5,005'	5,005'	5,005'	5,005'
8	1,650'	2,010'	2,205'	1,845'
26	1,845'	2,205'	2,205'	1,650'

Source: Atkins Analysis 2017

1.3.1.2. Taxiways

Both Runways 9-27 and 5-23 have full-length parallel taxiway systems. In addition, LAL has multiple taxiways that provide access to both runways as well as all airside facilities. Those taxiways are designed to satisfy the critical aircraft requirements. **Figure 1-4** depicts the current taxiway layout. A summary of LAL's taxiways is as follows.

- Taxiway Alpha (A) is a 75-foot wide full length parallel taxiway on the north side of Runway 9-27. It lies approximately 400 feet from runway centerline to taxiway centerline. It has five connections from Runway 9-27, with connection A5 being a high-speed exit for operations arriving on Runway 9. This taxiway crosses over Runway 5-23 approximately 1,350 feet from the Runway 23 threshold.
- Taxiway Bravo (B) is a full length parallel taxiway on the west side of Runway 5-23. It's width varies based on location. At the Runway 23 threshold and connector B2 the taxiway is 75 feet wide down to the runway crossing of Runway 9-27. After that it becomes 50 feet wide down to connection B1 at the Runway 5 threshold. It's runway separation from Runway 5-23 is 400 feet. Taxiway B has three connections (B1-B3). Connections B1 and B2 are located at either end of Runway 5-23. Connection B3 is located towards the newly constructed apron area in the vicinity of the Runway 5 approach end.
- Taxiway Charlie (C) is located east of the Runway 23 approach end and north of the Runway 27 approach end. It connects those two runway ends and intersects Taxiway A. Taxiway C is 75 feet wide.
- Taxiway Delta (D) is 60 feet wide and lies south of Runway 9-27. It begins at Taxiway Echo and runs west to Taxiway Foxtrot, while crossing both Runway 5-23 and Taxiway B. It crosses Runway 5-23 approximately 1,800 feet from the Runway 5 threshold. There is one connection along Taxiway D (D1) which connects to the newly constructed southwest apron area.

- Taxiway Echo (E) is 50 feet wide and runs on the southeast portion of the Airport. This taxiway begins at the Runway 27 end, runs south of the runway end and turns west adjacent to the Runway 5 approach end. It ultimately connects with the Runway 5 approach end, with three connections (E1-E3) between the turn west and the runway end. Located near the connections on Taxiway E are tenants including Polk State College, International Aero Academy, Kingsky Flight Academy, and more.
- Taxiway Foxtrot (F) is 50 feet wide and runs perpendicular to Runway 9-27. It begins across the runway from Taxiway A4 and provides access to both Taxiways Papa and D, as well as the newly constructed apron on the southern portion of the airfield.
- Taxiway Golf (G) is 50 feet wide and runs perpendicular to and north of Taxiway A, towards the airside facilities located on the northern portion of the airfield. The taxiway splits into a “Y” formation, with one direction going towards Taxiway Hotel (H) and the other going towards the existing tenant and Fixed Based Operator (FBO) facilities.
- Taxiway H is 50 feet wide and runs perpendicular to and north of Taxiway A. This taxiway ultimately joins with Taxiway G, after running north of Taxiway A and turning east after passing the T-hangar facilities.
- Taxiway Juliet (J) runs perpendicular to and north of Taxiway A. It has a small section which connects Taxiway A with the Taxilane/Apron for the existing FBO and Terminal Facilities.
- Taxiway Kilo (K) runs perpendicular to Taxiway B. Taxiway K gives access to the existing terminal apron area.
- Taxiway Papa (P) is 50 feet wide and runs parallel to Runway 9-27 from the Runway 9 approach end approximately 3,500 feet. This taxiway has two connections, one located at the Runway 9 approach end and another located across from connection A2.

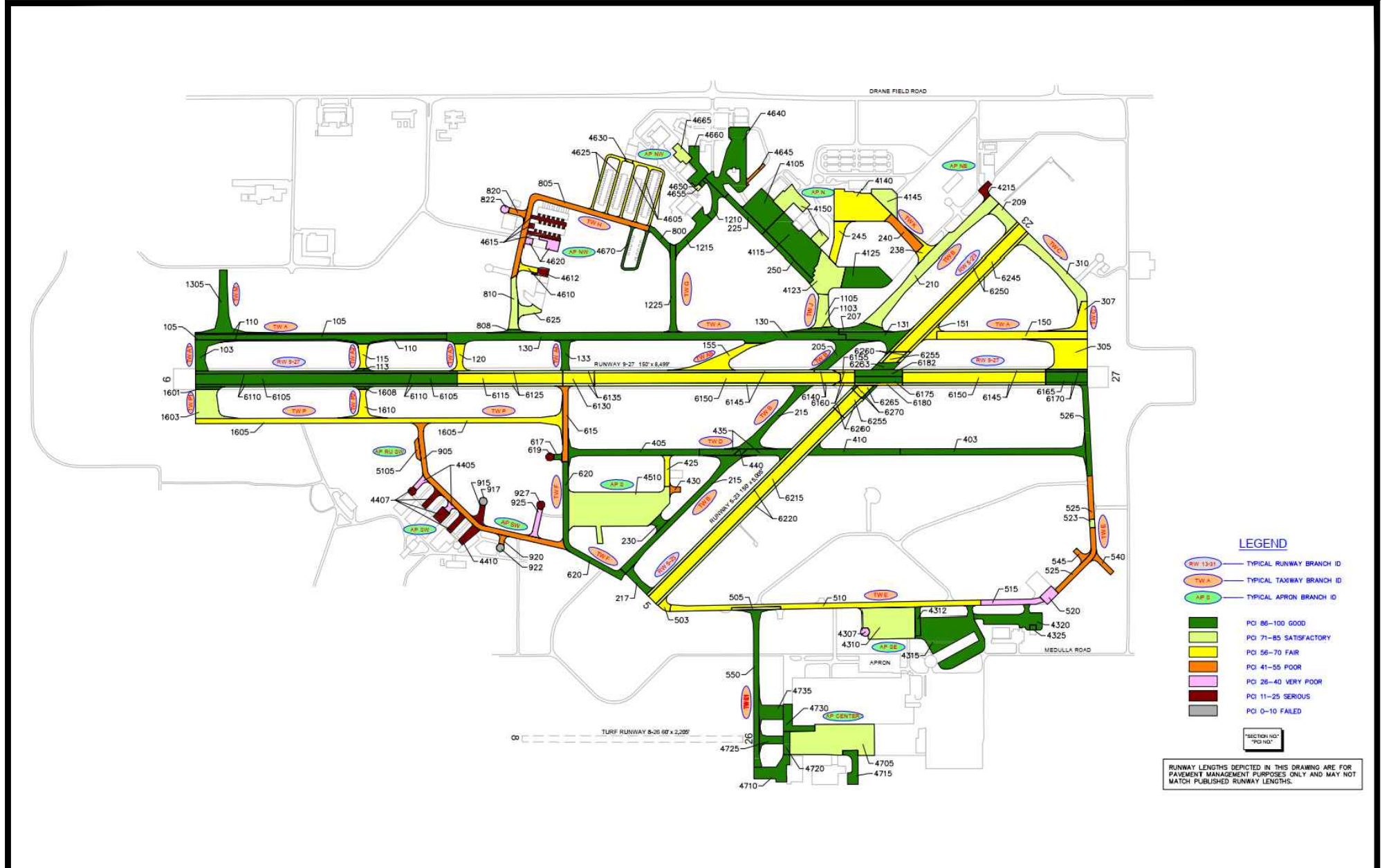
1.3.1.3. Airfield Pavement Condition

The most recent FDOT Airfield Pavement Condition Index (PCI) Rating Inspection report available for LAL was completed in May of 2015. In this report, both asphalt runways (Runway 9-27 and Runway 5-23) have portions that are deemed in “Fair” condition. Taxiways at LAL have been classified anywhere from good to poor condition. Specifically, Taxiway E has been deemed both poor and fair condition. Taxiway H has been classified as in poor condition. **Table 1-3** and **Figure 1-5** depicts the 2015 pavement condition report at LAL.

Table 1-3 Taxiway Pavement Condition

Taxiway	Pavement Type	Width	PCI Range	Action Needed
A	Asphalt	75'	65-82	No
B	Asphalt	75'/50'	80-100	No
C	Asphalt	75'	67-90	Yes
D	Asphalt	60'	100	No
E	Asphalt	50'	7-69	Yes
F	Asphalt	50'	16-58	Yes
G	Asphalt	50'	100	No
H	Asphalt	50'	33-100	Yes
J	Asphalt	75'	62-96	No
K	Asphalt	75'	55-80	No
P	Asphalt	50'	70-73	No

Source: FDOT PCI Report, 2015



The Airport is due for an update of the pavement condition study and will be included in future rounds of the FDOT study.

1.3.1.4. Lighting

A variety of lighting aids are available at LAL to facilitate identification, approach, landing, and taxiing. These aids are essential during night operations and operations during adverse weather conditions. The systems, categorized by function, are further described in the following paragraphs.

Identification Lighting

A rotating airport beacon light universally indicates the location and presence of an airport. The rotating beacon is equipped with an optical system that projects two beams of light (one green and one white) 180 degrees apart. The airport beacon is located north of Taxiway H on the top of the ATCT.

Obstruction Lighting

Existing obstructions that cannot be removed are lighted. Obstructions near the Airport are marked or lighted during both daylight and night time hours, to warn pilots of their presence. These obstructions may be identified for pilots on approach charts and on the official Airport Obstruction Chart, published by the National Oceanic and Atmospheric Administration (NOAA). A more detailed analysis of airspace obstructions will be conducted as part of the Airport Layout Plan phase of the report.

Approach Lighting

There are three types of approach aids: electronic navigational aids, visual approach aids, and approach lighting. Approach lighting systems (ALS) are used in the approaches to runways as adjuncts to electronic NAVAIDS for the final portion of IFR approaches, and as visual guides for night-time approaches under VFR conditions. The approach lighting system provides the pilot with visual clues concerning aircraft alignment, roll angle, height, and position relative to the runway threshold.

Runway 9 is equipped with a MALSR. Such systems assist pilots transitioning from the cockpit instrument landing segment to the runway environment. Those systems provide a lighted approach path along the extended centerline of the runway. Runway alignment indicator lights flash in sequence as a series of blue-white lights moving toward the runway threshold. These lights brilliantly emphasize runway centerline alignment. Roll indication is emphasized by a single row of white lights located on either side and symmetrically along the column of approach lights.

Another approach light system utilized by LAL is the Precision Approach Path Indicator (PAPI). The PAPI is a system of lights located near the runway end, which provides the pilot with visual descent guidance information during an approach to the runway. This type of installation has a visual range of approximately four miles. Runways 9-27 and 5-23 are equipped with PAPI-4 (four light unit) systems while Runway 8-26 is not equipped with approach path indicator systems.

Runway End Identification Lighting

Runway End Identification Light (REIL) systems are put in place to help pilots rapidly identify runway thresholds in areas of light pollution or large open spaces. These systems consist of two synchronized flashing unidirectional white lights situated near the runway threshold. Currently, LAL does not have REIL systems on any runways. (NOTE: FAA installed REILs at displaced thresholds on Runway 9R and Runway 9L for Sun 'n Fun International Fly-In and Expo special traffic procedures.)

Runway Threshold Lighting

The identification of runway ends or thresholds assists approaching pilots in much the same manner as other approach aids. Threshold identification lights make use of a two-color lens, red and green. The green half of the lens faces the approaching aircraft and indicates the beginning of usable runway. The red half faces the airplane on the rollout or takeoff, indicating the end of the usable runway. LAL has runway threshold lighting on all paved runway ends. There is no threshold lighting on Runway 8-26.

Runway Lighting

Runway edge lighting is used to outline the edges of a runway during periods of darkness or restricted visibility. These systems are classified in accordance with their intensity or brightness. At LAL Runway 9-27 and Runway 5-23 have High Intensity Runway Lights (HIRL). Runway 8-26 is not equipped with any runway lighting.

Taxiway Lighting

Taxiway lighting, which delineates the taxiway edges provides guidance to pilots during periods of low visibility and at night. The most commonly used type of taxiway lighting consists of a series of blue fixtures located along the taxiway edges. These lights provide taxiway alignment up to the apron. Taxiways A, B, C, G, H, J, and K all have Medium Intensity Taxiway Lighting (MITL) to help identify the outer boundaries of the taxiway pavement. Taxiways D, E, F, and P are unlit. All existing taxiway lighting utilize LED fixtures except for Taxiway H.

Apron Lighting

Portions of the terminal apron, U.S. Customs apron, Polk State College apron, South Ramp apron and FBO apron are lit by overhead mast lighting systems. However, to a large extent, the remaining apron areas at the Airport are not lighted. The current overhead mast lighting systems are in fair to poor condition.

1.3.1.5. Markings

The precision runway markings for Runway 5 and Runway 9 are in good condition. Runway 27 and Runway 23 have non-precision markings in good condition. Since Runway 8-26 is a turf runway, concrete markers identify both the thresholds and the runway edge. Markings not meeting current FAA guidelines include the VOR Checkpoint at Taxiway C, the terminal ramp parking position markings, and several vehicle roadway markings located on the north side of the airport.

FAA Advisory Circular 150/5340, *Standards for Airport Markings*, identifies specific requirements for taxiways at Part 139 certificated airports such as LAL. Requirements include enhanced taxiway centerline markings, surface painted hold markings, and extension of the runway holding position markings onto the paved shoulders. All taxiway markings are in compliance with is in compliance with FAA 150/5340 marking standards.

1.3.1.6. Signage

Lighted airfield signage currently found on the airfield consists of all required signage for a Part 139 certified airport including airfield location signage, mandatory instruction signage, and runway hold position signage. These airfield identification signs assist pilots in recognizing their location on the airfield and directs them to their desired end point.

1.3.1.7. Airport Apron Areas

LAL has multiple apron areas which are utilized by transient and based aircraft. LAL's two primary apron areas are open to the public and located on the northern portion of the airfield. One is controlled by the FBO (Sheltair), while the other is controlled and operated by the Airport. The Airport currently has 54 aviation related tenants many having airside access and private apron areas. A recently constructed apron area is located northwest of the Runway 5 end, which is accessible by Taxiways B, F, and D1.

1.3.1.8. FAA Air Traffic Control Tower (ATCT)

LAL operates as a Federal Contract Tower controlled airfield, with operation hours from 0600 to 2200. The newly constructed tower was completed in 2016 and is located in the northern portion of the airfield, just north of Taxiway H. This location was deemed the best location for the current and future layout at LAL. The ATCT is 155 feet high. The Airport has a Class D airspace classification that requires pilots to establish two-way communication prior to entering the airspace. ATCT provides guidance for ground vehicles in movement areas as well, where a constant visual connection is needed at all times.

1.3.2. Navigational Aids

Navigational aids, commonly referred to as NAVAIDs, assist pilots with enroute navigation and approaches as well as departures into and out of airports. These aids consist of both ground-based electronic systems and

space-based satellite radio systems. NAVAIDs for an airport vary in complexity, which is primarily based on the type of operations that will be occurring at that certain airport. The more sophisticated the NAVAID, the lower the minimums are at an airport. The basis that categorizes these aids consider the type of guidance pilots are receiving while on approach. If there is both vertical and horizontal guidance, then this can be classified as a precision-approach. If there is only horizontal guidance, it is classified as a non-precision approach.

1.3.2.1. Terminal Area NAVAIDs and Landing Aids

Included in this group are NAVAIDs located at or near the airfield for providing aircraft guidance information while arriving, departing, or overflying the area under all weather conditions. Landing aids provide either precision or non-precision approaches to an airport or runway.

Currently the Airport has four Area Navigation (RNAV) approaches for Runway 9-27 and Runway 5-23, and two VOR approaches for Runway 9-27. RNAV can be defined as a system of navigation that permits aircraft operation on any desired course within the coverage of station-referenced navigation signals or within the confines of a self-contained system ability. There is one Instrument Landing System (ILS) in addition to one Instrument Landing System Localizer (LOC) for Runway 9. Runway 9 ILS allows for precision instrument operations to be conducted. This allows pilots to operate aircraft into airports where visual contact with the runway ends cannot be established. The system provides both horizontal and vertical guidance to pilots on approach to the runway, where the guidance is established precisely to an appropriate reference point of landing. The VOR approach consists of radio navigation, where a VHF omni directional radio range system allows for aircraft to navigate via the location of the transmitting radio beacon. **Figures 1-6 through Figure 1-12** depict the Instrument Approach Charts (IAP) for LAL. A description of each approach procedure sorted by runways is listed in **Table 1-6**. Visibility conditions that are listed for each approach procedure is often referred to by pilots and the aviation community as an airport's "approach minimums", "minimums", or "approach minima".

Table 1-6 Instrument Approach Procedures Information

Runway	Type of Approach	Visibility Requirements	Glideslope	Threshold Crossing Height (Feet AGL)
Runway 9	ILS or LOC	1/2 Mile	3.00 Degrees	51
Runway 9	RNAV (GPS)	<3/4 Mile	3.00 Degrees	52
Runway 27	RNAV (GPS)	>3/4 Mile	3.00 Degrees	45
Runway 5	RNAV (GPS)	>3/4 Mile	3.00 Degrees	56
Runway 23	RNAV (GPS)	>1 Mile	3.00 Degrees	50
Runway 9	VOR	<3/4 Mile	2.98 Degrees	52
Runway 27	VOR	>3/4 Mile	2.96 Degrees	45

LAKELAND, FLORIDA

AL-939 (FAA)

19283

LOC/DME I-LAL 110.1 Chan 38	APP CRS 094°	Rwy Idg TDZE 132 Apt Elev 142
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ILS or LOC RWY 9 LAKELAND LINDER INTL (LAL)

DME required.

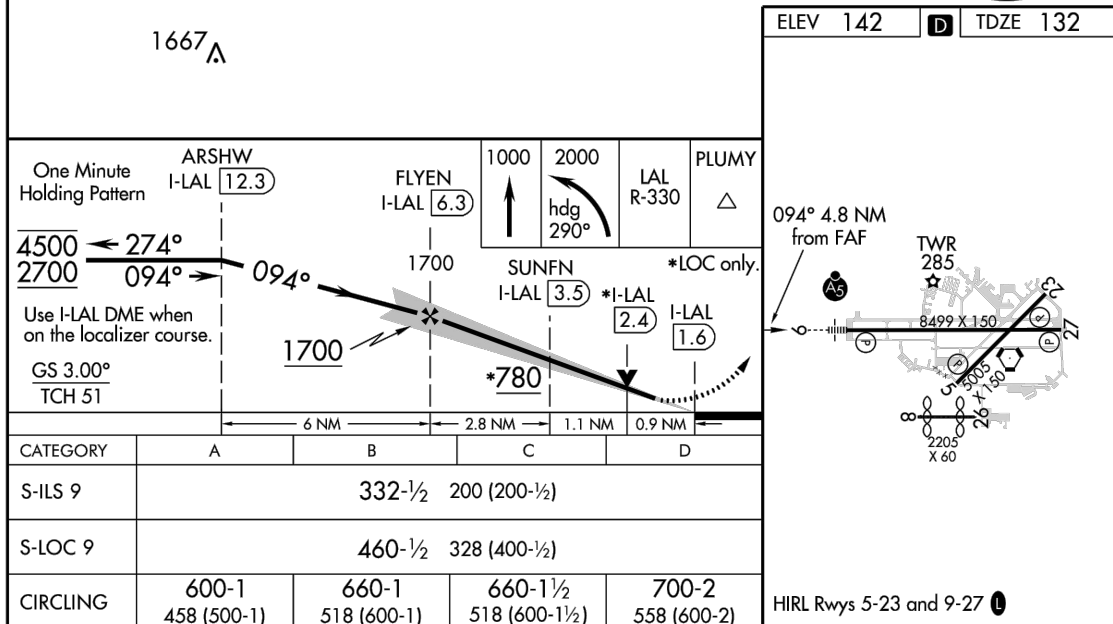
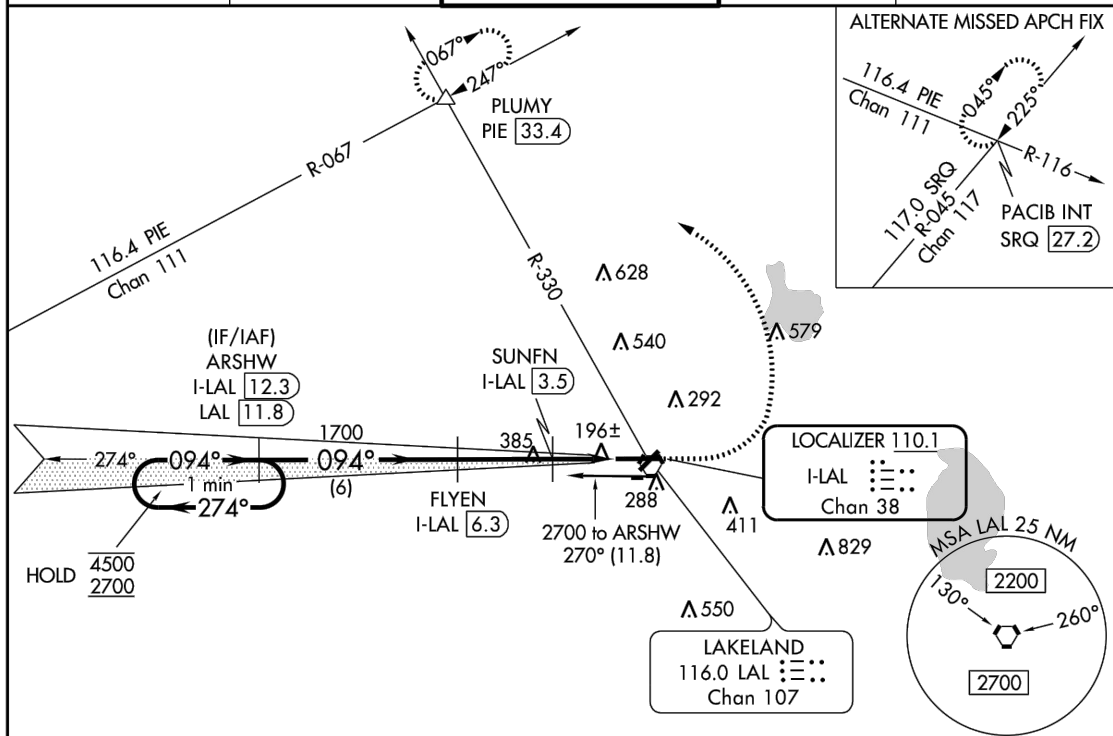
⚠ When local altimeter setting not received, use Plant City altimeter setting and increase all DA/MDA 20 feet; increase S-LOC Cats C/D visibility $\frac{1}{8}$ SM. For inop ALS when using Plant City altimeter setting, increase S-LOC Cats C/D visibility to 1 SM. Circling NA to Rwy 8 and 26.

MALSR



MISSED APPROACH: Climb to 1000 then climbing left turn to 2000 on heading 290° and on LAL VORTAC R-330 to PLUMY INT/PIE 33.4 DME and hold.

ATIS 118.025	TAMPA APP CON 120.65 290.3	LAKELAND TOWER ★ 124.5 (CTAF) 0 236.775	GND CON 121.4	UNICOM 122.95
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LAKELAND, FLORIDA

Orig-C 28FEB19

27°59'N-82°01'W

LAKELAND LINDER INTL (LAL) ILS or LOC RWY 9

LAKELAND, FLORIDA

AL-939 (FAA)

19283

WAAS CH 78305 W09A	APP CRS 094°	Rwy Idg 8414 TDZE 132 Apt Elev 142
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RNAV (GPS) RWY 9 LAKELAND LINDER INTL (LAL)

RNP APCH

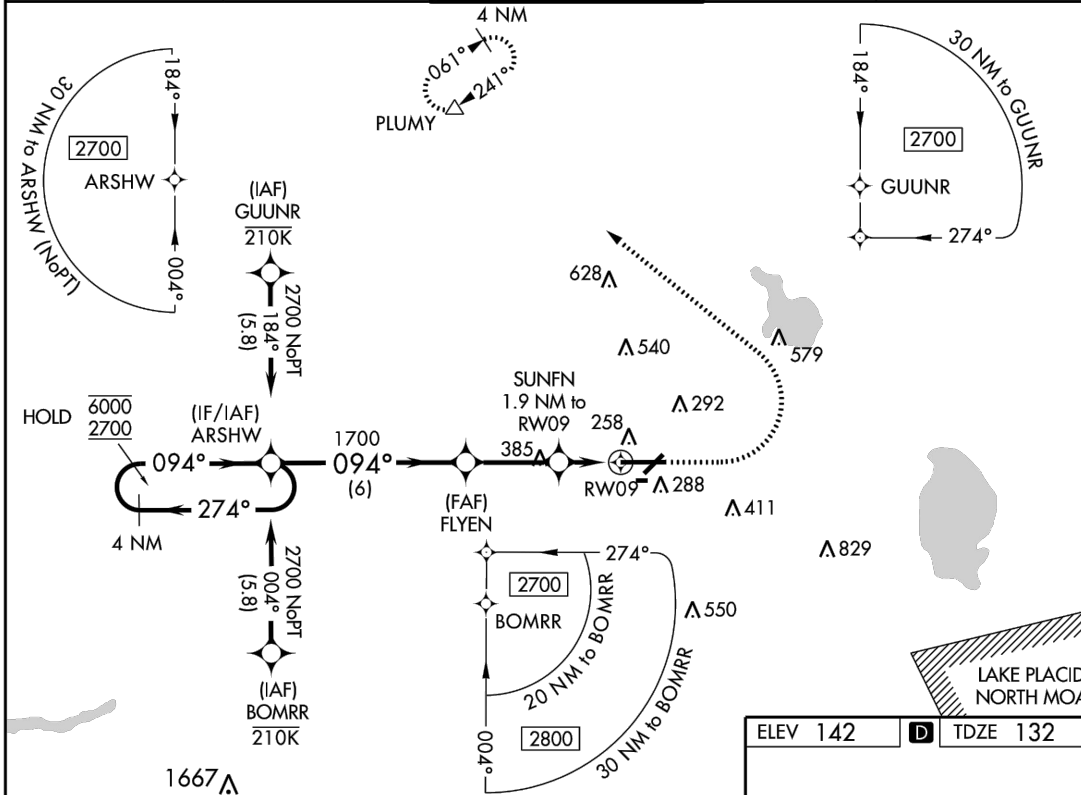
For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C or above 54°C. Baro-VNAV and VDP NA when using Plant City altimeter setting. When local altimeter setting not received, use Plant City altimeter setting and increase all DA/MDA 20 feet, increase LNAV/VNAV all Cats visibility and LNAV Cats C/D visibility 1/2 SM. For inop ALS, increase LNAV Cats C/D visibility to 1 1/2 SM. For inop ALS when using Plant City altimeter setting, increase LNAV/VNAV all Cats visibility to 1 SM. Circling NA to Rwy 8 and 26.

MALS

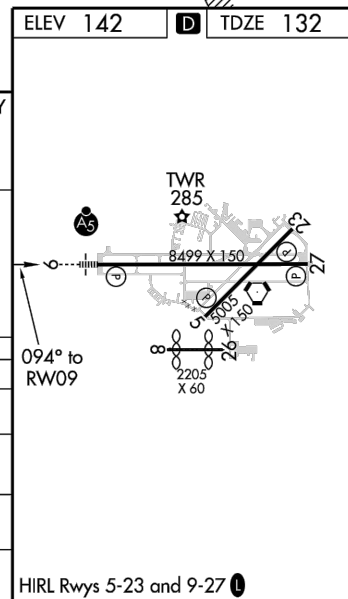


MISSED APPROACH: Climb to 1100 then climbing left turn to 2000 direct PLUMY and hold.

ATIS 118.025	TAMPA APP CON 120.65 290.3	LAKELAND TOWER ★ 124.5 (CTAF) 236.775	GND CON 121.4	UNICOM 122.95
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4 NM Holding Pattern		*LNAV only.		1100	2000	PLUMY
6000 2700		ARSHW		FLYEN	SUNFN	RWY 9
GP 3.00° TCH 52		1700		1.9 NM to RWY 9	0.8	1.1
6 NM		2.9 NM		RWY 9		
CATEGORY	A	B	C	D		
LPV DA	332-1/2		200 (200-1/2)			
LNAV/VNAV DA	439-1/2		307 (300-1/2)			
LNAV MDA	520-1/2 388 (400-1/2)		520-5/8 388 (400-5/8)			
CIRCLING	600-1 458 (500-1)	660-1 518 (600-1)	660-1 1/2 518 (600-1 1/2)	700-2 558 (600-2)		



LAKELAND, FLORIDA
Amdt 2D 28FEB19

27°59'N-82°01'W

LAKELAND LINDER INTL (LAL) **RNAV (GPS) RWY 9**

LAKELAND, FLORIDA

AL-939 (FAA)

19283

WAAS CH 82605 W27A	APP CRS 274°	Rwy Idg 8499 TDZE 142 Apt Elev 142
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RNAV (GPS) RWY 27

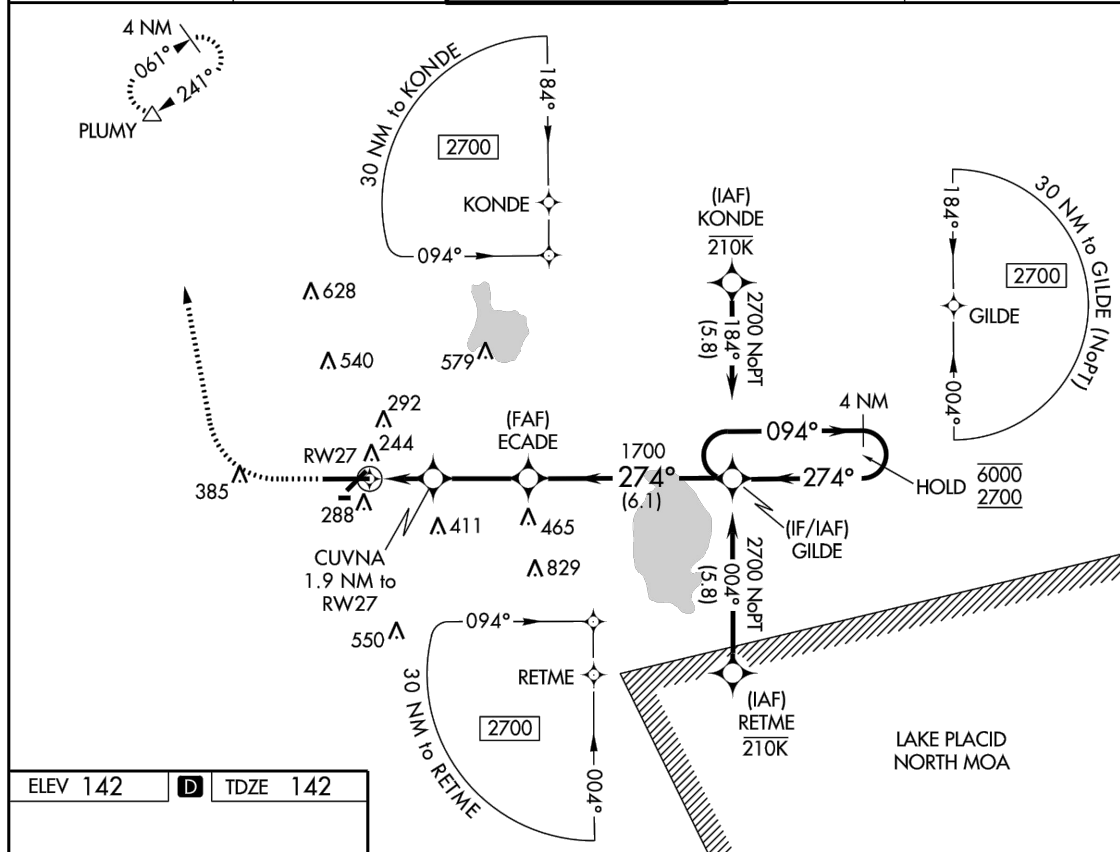
LAKELAND LINDER INTL (LAL)

RNP APCH.

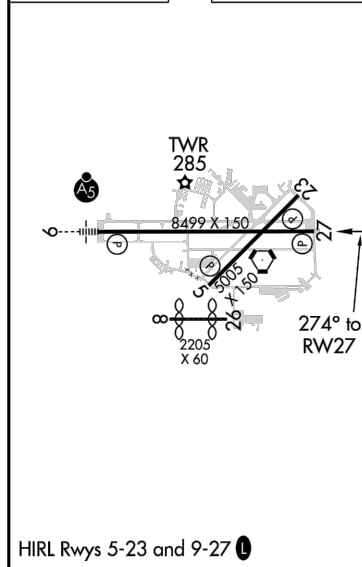
⚠ For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C or above 54°C.
 ⚠ When local altimeter setting not received, use Plant City altimeter setting and increase all DA/MDA 20 feet, and increase LNAV/VNAV all Cats and LNAV Cats C/D visibility $\frac{1}{8}$ SM.
 Baro-VNAV and VDP NA when using Plant City altimeter setting. Circling NA to Rwy 8 and 26.

MISSED APPROACH: Climb to 1000 then climbing right turn to 2000 direct PLUMY and hold.

ATIS 118.025	TAMPA APP CON 120.65 290.3	LAKELAND TOWER ★ 124.5 (CTAF) 0 236.775	GND CON 121.4	UNICOM 122.95
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ELEV 142 **D** TDZE 142



1000	2000	PLUMY	GILDE	4 NM Holding Pattern
*LNAV only.	CUVNA 1.9 NM to RWY 27	ECADE 1700	094° → 6000	274° ← 2700
*1.1 NM to RWY 27	*780	1700	GP 3.00°	TCH 45
1.1 NM	0.8	2.9 NM	6.1 NM	
CATEGORY	A	B	C	D
LPV DA	342- $\frac{3}{4}$ 200 (200- $\frac{3}{4}$)			
LNAV/VNAV DA	455-1 313 (400-1)			
LNAV MDA	560-1 418 (500-1)	560-1 $\frac{1}{8}$ 418 (500-1 $\frac{1}{8}$)		
CIRCLING	600-1 458 (500-1)	660-1 518 (600-1)	660-1 $\frac{1}{2}$ 518 (600-1 $\frac{1}{2}$)	700-2 558 (600-2)

LAKELAND, FLORIDA

Amdt 2C 28FEB19

27°59'N-82°01'W

LAKELAND LINDER INTL (LAL)

RNAV (GPS) RWY 27

LAKELAND, FLORIDA

AL-939 (FAA)

19283

WAAS CH 42805 W05A	APP CRS 049°	Rwy Idg TDZE Apt Elev	5005 136 142
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RNAV (GPS) RWY 5 **LAKELAND LINDER INTL (LAL)**

RNP APCH.

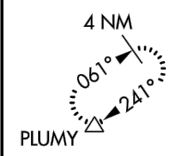


For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C or above 54°C. When local altimeter setting not received, use Plant City altimeter setting and increase all DA/MDA 20 feet and LNAV Cat C/D visibility 1/2 SM. Baro-VNAV and VDP NA when using Plant City altimeter setting. Circling NA to Rwy 8, 26.

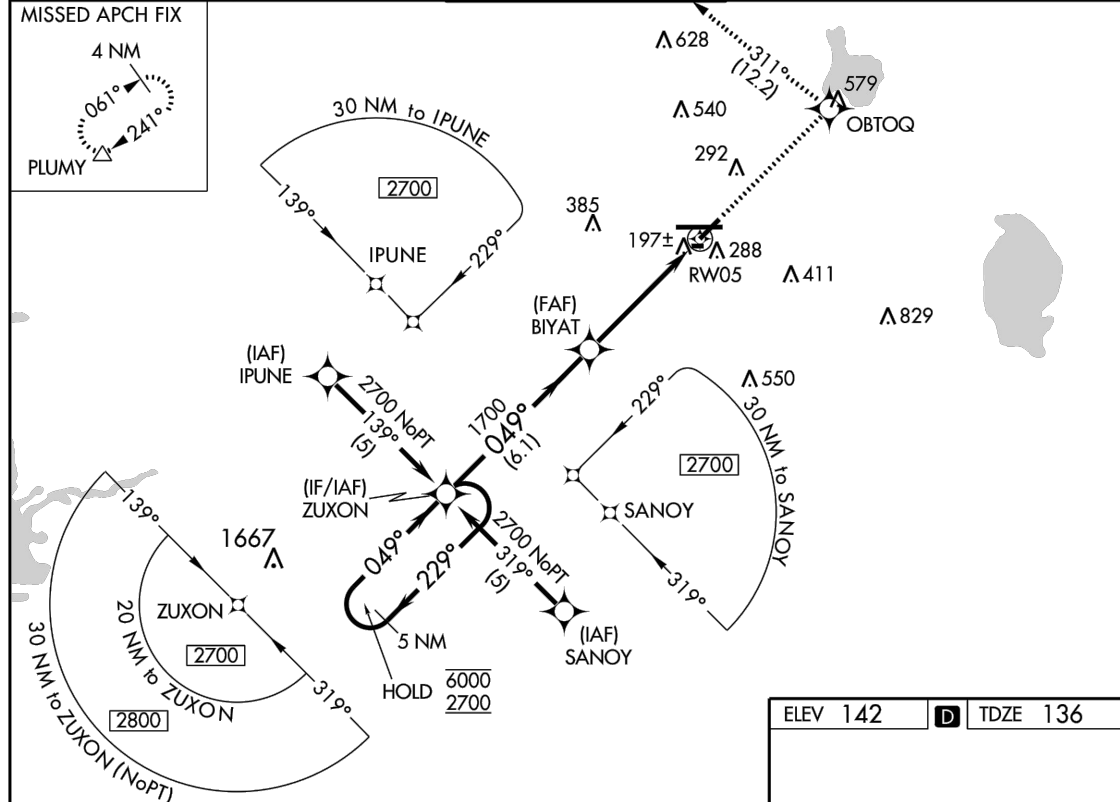
MISSED APPROACH: Climb to 2000 direct OBTOQ and left turn on track 311° to PLUMY and hold.

ATIS 118.025	TAMPA APP CON 120.65 290.3	LAKELAND TOWER ★ 124.5 (CTAF) 236.775	GND CON 121.4	UNICOM 122.95
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MISSED APCH FIX

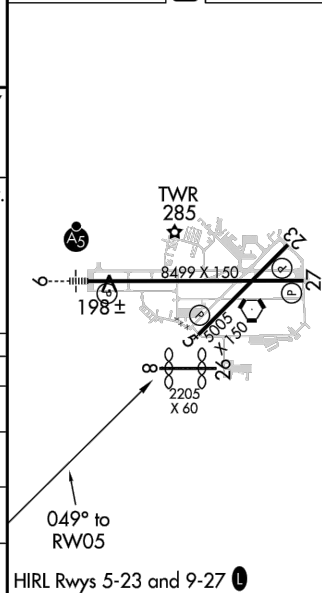


SE-3, 02 JAN 2020 to 30 JAN 2020



5 NM Holding Pattern		ZUXON		BIYAT		OBTOQ		PLUMY	
6000		229°		049°		1700		*1.2 NM to RW05	
GP 3.00°		TCH 56		1700		RW05		*LNAV only.	
CATEGORY		A		B		C		D	
LPV DA		336-3/4		200 (200-3/4)					
LNAV/VNAV DA		505-1 1/4		369 (400-1 1/4)					
LNAV MDA		560-1		424 (500-1)		560-1 1/4		424 (500-1 1/4)	
CIRCLING		600-1		660-1		660-1 1/2		700-2	
		458 (500-1)		518 (600-1)		518 (600-1 1/2)		558 (600-2)	

ELEV 142 D TDZE 136



LAKELAND, FLORIDA

Orig-F 28FEB19

27°59'N-82°01'W

LAKELAND LINDER INTL (LAL) **RNAV (GPS) RWY 5**

SE-3, 02 JAN 2020 to 30 JAN 2020

Plotted By: HASK8597
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Lakeland Linder International Airport
 Airport Master Plan Update



Runway 5
 RNAV Approach Plate

Figure.
 1-9

LAKELAND, FLORIDA

AL-939 (FAA)

19283

WAAS CH 77805 W23A	APP CRS 229°	Rwy Idg TDZE 141 Apt Elev 142
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RNAV (GPS) RWY 23

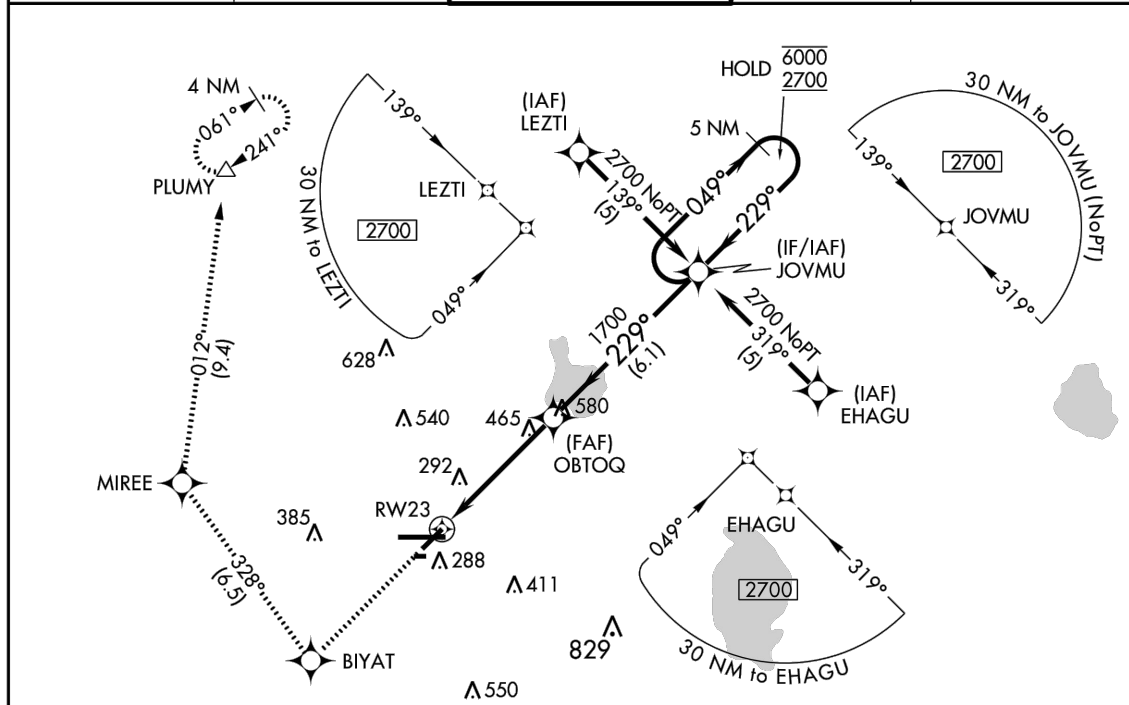
LAKELAND LINDER INTL (LAL)

RNP APCH.

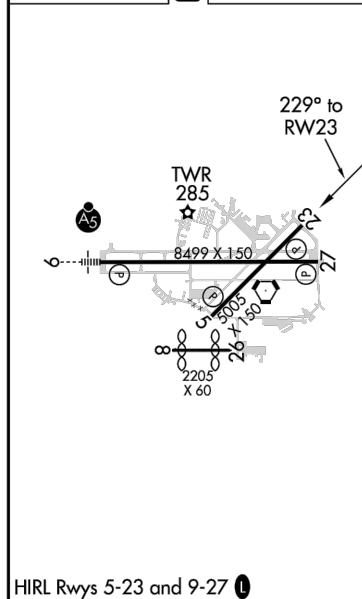
⚠ For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C or above 54°C.
⚠ When local altimeter setting not received, use Plant City altimeter setting and increase all DA/MDA 20 feet and increase LNAV Cat C/D and Circling Cat C visibility 1/8 SM.
 Baro-VNAV and VDP NA when using Plant City altimeter setting. Rwy 23 helicopter visibility reduction below 3/4 SM NA. Circling NA to Rws 8 and 26.

MISSED APPROACH: Climb to 2000 direct BIYAT and right turn on track 328° to MIREE then on track 012° to PLUMY and hold.

ATIS 118.025	TAMPA APP CON 120.65 290.3	LAKELAND TOWER ★ 124.5 (CTAF) 236.775	GND CON 121.4	UNICOM 122.95
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ELEV 142 **D** TDZE 141



HIRL Rws 5-23 and 9-27

LAKELAND, FLORIDA

Orig-D 28FEB19

27°59'N-82°01'W

LAKELAND LINDER INTL (LAL)

RNAV (GPS) RWY 23

2000	BIYAT	MIREE	PLUMY	JOVMU	5 NM Holding Pattern
↑	tr 328°	tr 012°	△		
*LNAV only.					
OBTOQ					
*1.7 NM to RWY 23					
RWY 23					
1.7 NM 3 NM 6.1 NM					
049° → 6000 2700					
← 229°					
GP 3.00° TCH 50					
CATEGORY	A	B	C	D	
LPV DA	426-1 285 (300-1)				
LNAV/VNAV DA	480-1 339 (400-1)				
LNAV MDA	720-1	579 (600-1)	720-1 5/8 579 (600-1 5/8)	720-1 3/4 579 (600-1 3/4)	
CIRCLING	720-1	578 (600-1)	720-1 5/8 578 (600-1 5/8)	720-2 578 (600-2)	

LAKELAND, FLORIDA

AL-939 (FAA)

19283

VORTAC LAL 116.0 Chan 107	APP CRS 096°	Rwy Idg TDZE Apt Elev	8414 132 142
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VOR RWY 9

LAKELAND LINDER INTL (LAL)

RADAR required for procedure entry. DME or RADAR required.

- ▼ When local altimeter setting not received, use Plant City altimeter setting and increase all MDA 20 feet; increase Circling Cat C visibility $\frac{1}{8}$ SM. VDP NA when using Plant City altimeter setting. For inop ALS, increase S-9 Cat C/D visibility to $1\frac{1}{8}$ SM; increase UDATE Fix Minimums S-9 Cat C/D visibility to $1\frac{1}{8}$ SM. For inop ALS when using Plant City altimeter setting, increase UDATE Fix Minimums S-9 Cat C/D visibility to $1\frac{1}{8}$ SM. Circling NA to Rwy 8 and 26.

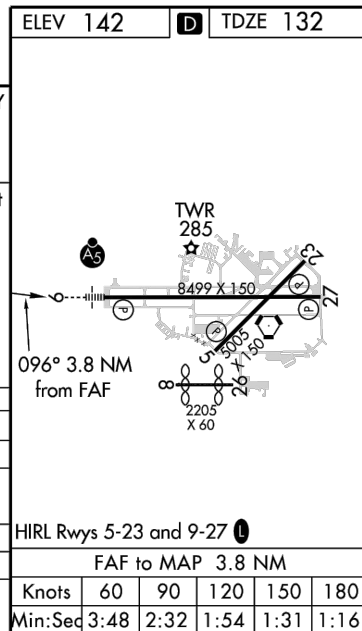
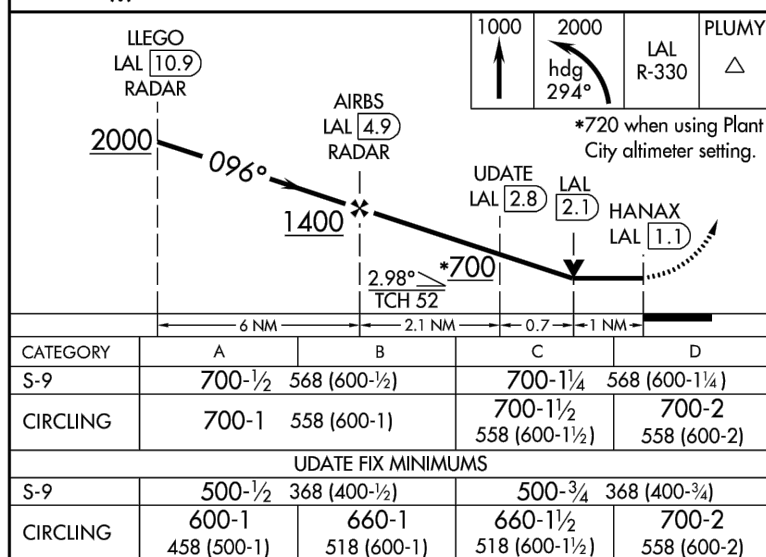
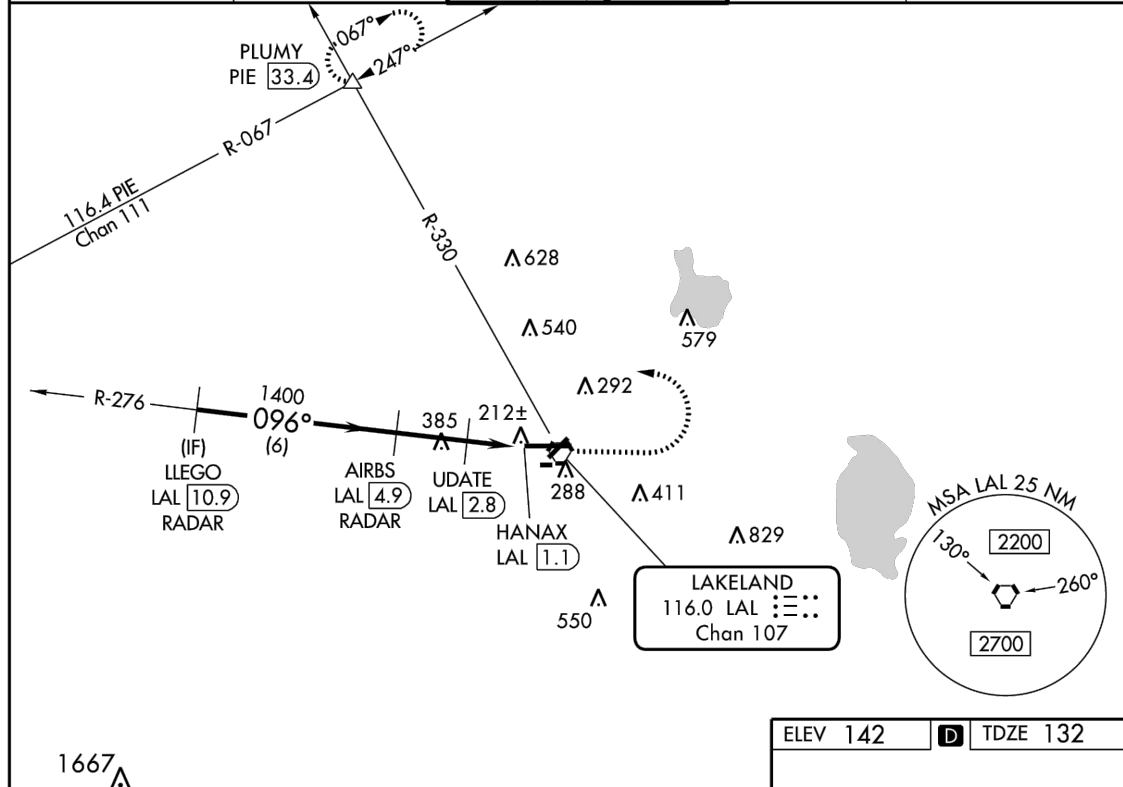
MALSR



MISSED APPROACH: Climb to 1000 then climbing left turn to 2000 on heading 294° and on LAL VORTAC R-330 to PLUMY INT/PIE 33.4 DME and hold.

ATIS 118.025	TAMPA APP CON 120.65 290.3	LAKELAND TOWER ★ 124.5 (CTAF) 236.775	GND CON 121.4	UNICOM 122.95
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SE-3, 02 JAN 2020 to 30 JAN 2020



LAKELAND, FLORIDA

Amdt 4E 28FEB19

27°59'N-82°01'W

LAKELAND LINDER INTL (LAL)

VOR RWY 9

SE-3, 02 JAN 2020 to 30 JAN 2020

Plotted By: HASK8597

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Lakeland Linder International Airport
Airport Master Plan Update



Runway 9
VOR Approach Plate

Figure.
1-11

LAKELAND, FLORIDA

AL-939 (FAA)

19283

VORTAC LAL 116.0 Chan 107	APP CRS 256°	Rwy Idg TDZE Apt Elev	8499 142 142
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VOR RWY 27

LAKELAND LINDER INTL (LAL)

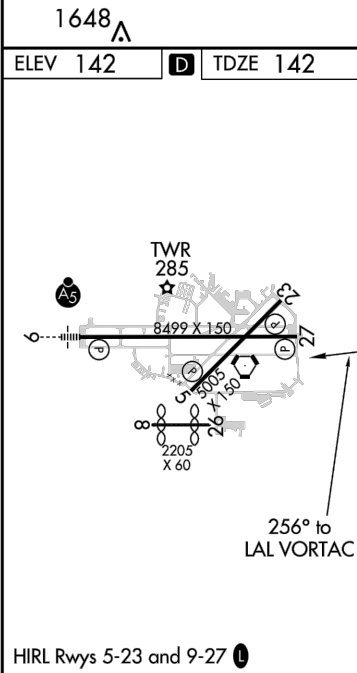
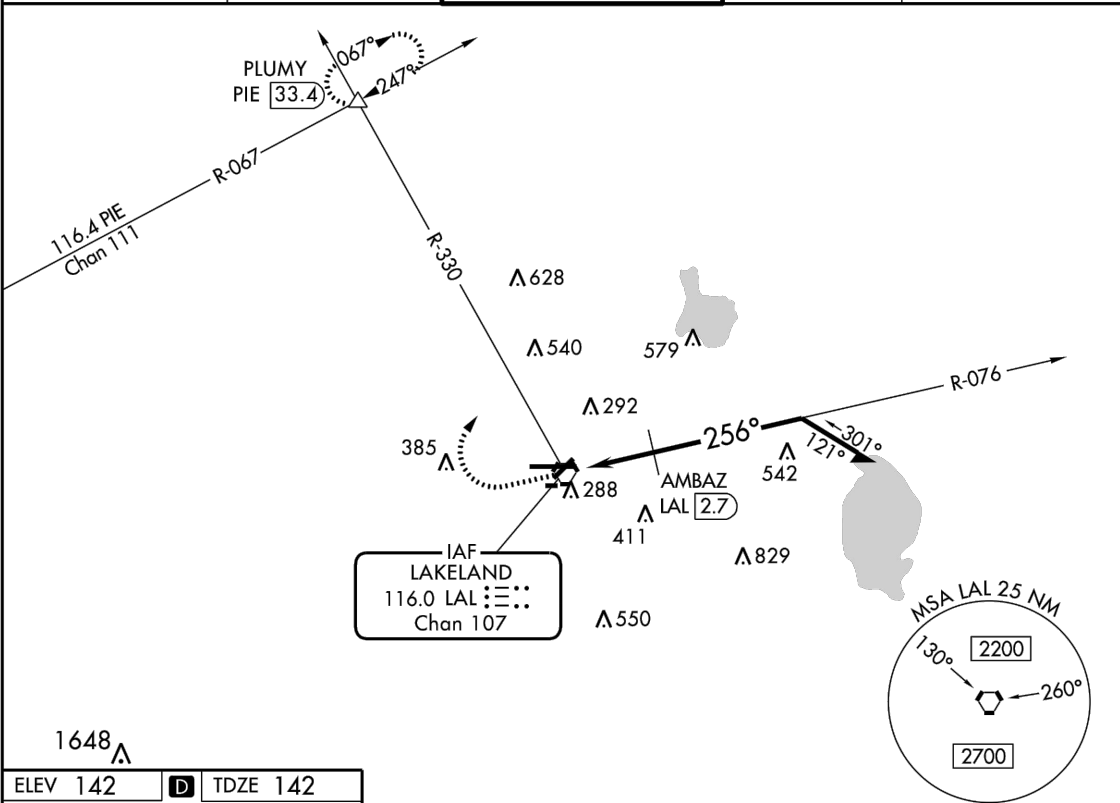
When local altimeter setting not received, use Plant City altimeter setting and increase all MDA 20 feet.
Circling NA to Rwy 8 and 26.

MISSED APPROACH: Climb to 1000 then climbing right turn to 2000 on heading 017° and on LAL VORTAC R-330 to PLUMY INT/PIE 33.4 DME and hold.

ATIS 118.025	TAMPA APP CON 120.65 290.3	LAKELAND TOWER ★ 124.5 (CTAF) 236.775	GND CON 121.4	UNICOM 122.95
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SE-3, 02 JAN 2020 to 30 JAN 2020

SE-3, 02 JAN 2020 to 30 JAN 2020



1000

↑

2000

hdg
017°

LAL R-330

PLUMY

△

LAL VORTAC

076°

Remain within 10 NM

2000

256°

AMBAZ LAL 2.7

*920

2.96°

TCH 45

2.7 NM

*940 when using Plant City altimeter setting.

CATEGORY	A	B	C	D
S-27	920-1 778 (800-1)	920-1¼ 778 (800-1¼)	920-2½	778 (800-2½)
CIRCLING	920-1 778 (800-1)	920-1¼ 778 (800-1¼)	920-2½	778 (800-2½)
AMBAZ FIX MINIMUMS				
S-27	540-1	398 (400-1)	540-1⅛	398 (400-1⅛)
CIRCLING	600-1 458 (500-1)	660-1 518 (600-1)	660-1½ 518 (600-1½)	700-2 558 (600-2)

LAKELAND, FLORIDA

Amdt 7H 28FEB19

27°59'N-82°01'W

LAKELAND LINDER INTL (LAL)

VOR RWY 27

Plotted By: HASK8597
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Lakeland Linder International Airport
Airport Master Plan Update



Runway 27
VOR Approach Plate

Figure.
1-12

1.3.3. Landside Facilities

It takes airside facilities to make an airport, but it takes landside facilities to make an airport truly viable. Landside facilities include all those assets and activities outside of the airport operating area (AOA) and comprise the most visible airport assets to the general public. This section of the inventory presents information on landside facilities such as hangars, roadways, parking, terminals, office spaces, support facilities, business parks, and other activities located outside the airfield. The following sub-sections describe the existing conditions of LAL's landside facilities. **Figure 1-13** depicts the discussed landside facilities.

1.3.3.1. Fixed

The FBO is currently owned and operated by Sheltair, which offers full aircraft service as well as various miscellaneous services. Self-serve fueling is available 24 hours a day (100LL and Jet A). On-call service for fueling is available during the FBO service hours. The FBO apron and existing facility is located off of Taxiway J. Sheltair manages three conventional hangars on the FBO apron area, where they provide aircraft storage and maintenance facilities. Situated in the middle of the two conventional hangars is an administration building which provides amenities such as wireless internet, conference rooms, breakroom, and crew cars.

1.3.3.2. Terminal

The existing terminal building and respective apron is located off of Taxiway K and is landside accessible via Don Emerson Drive. The existing facility is approximately 27,260 square feet. Due to the on-going commercial service initiative at LAL, the terminal has been enhanced to have passenger vehicle parking accommodate over 700 vehicles, baggage area, rental car, and security. The terminal houses the airport administration offices on the second floor. The on-airport restaurant, Hallback's Bar & Grill, is located on the second floor of the terminal and provides a sweeping view of the airfield. A parking and turn-around facility has been constructed for rental car companies to the east of the terminal, outside of the AOA fence. **Figure 1-14** shows the terminal area and the surrounding facilities.

1.3.3.3. Hangar Areas

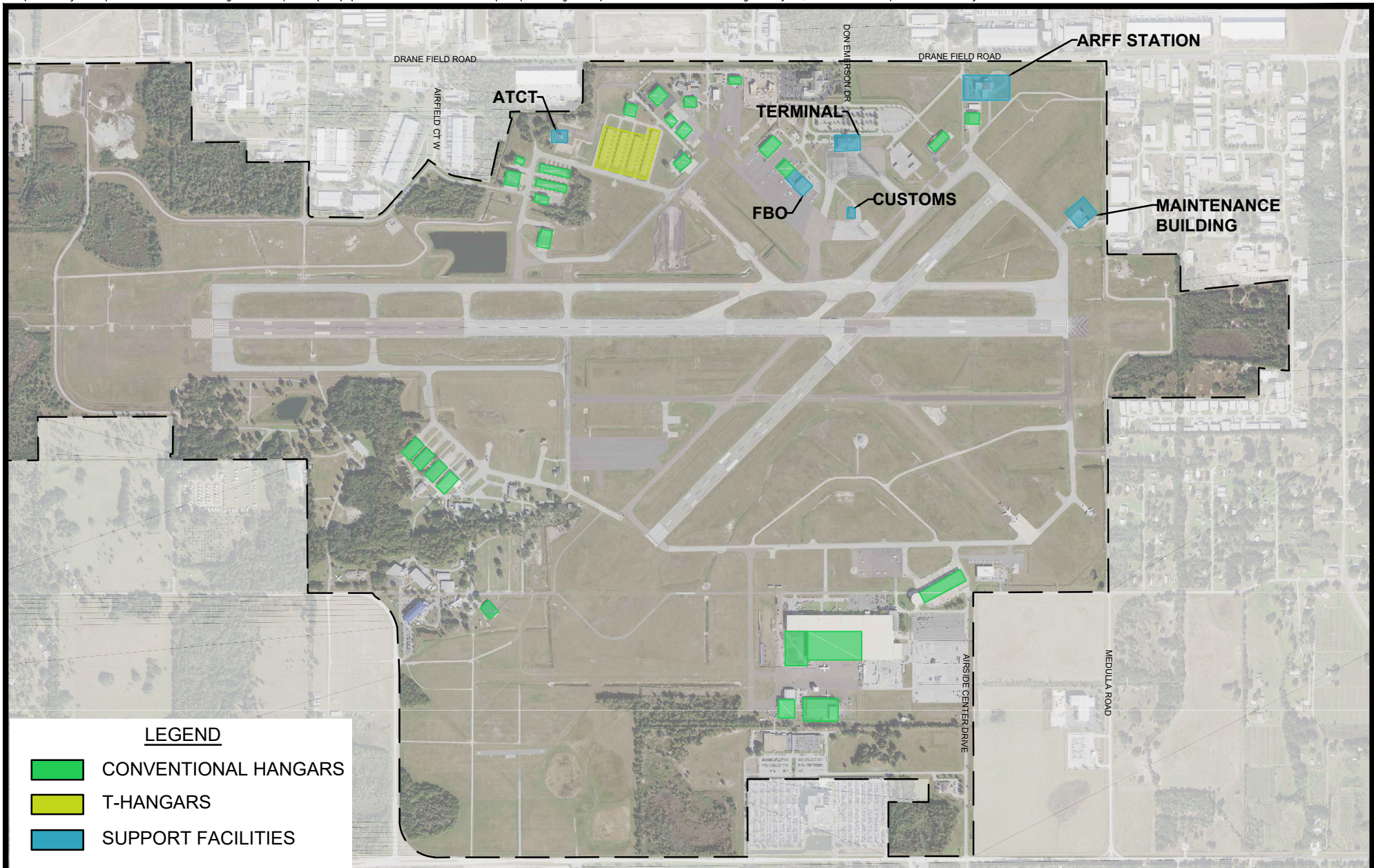
Multiple hangars currently exist at LAL, which include conventional hangars, and T-hangars. The Airport and the FBO each manage specific hangars on property.

Conventional Hangars

A conventional hangar is typically rectangular or square in shape and can hold multiple aircraft while allowing for additional equipment to be present within the facility (based on size). There are currently 34 conventional hangars on LAL airside. **Table 1-7** depicts the current conventional hangar information.

T-Hangars

T-Hangars are designed to maximize aircraft storage utilization. They typically allow for the complete protection of aircraft stored inside and are often scaled for small recreational aircraft. The facilities are usually rectangular and store aircraft in a line by alternating direction of aircraft by nose and tail. There are currently four rows of T-Hangars totaling 65 units. There are currently 32 contacts listed on the T-Hangar waiting list. The Airport manages all T-hangars. **Table 1-8** depicts the current T-hangar information.



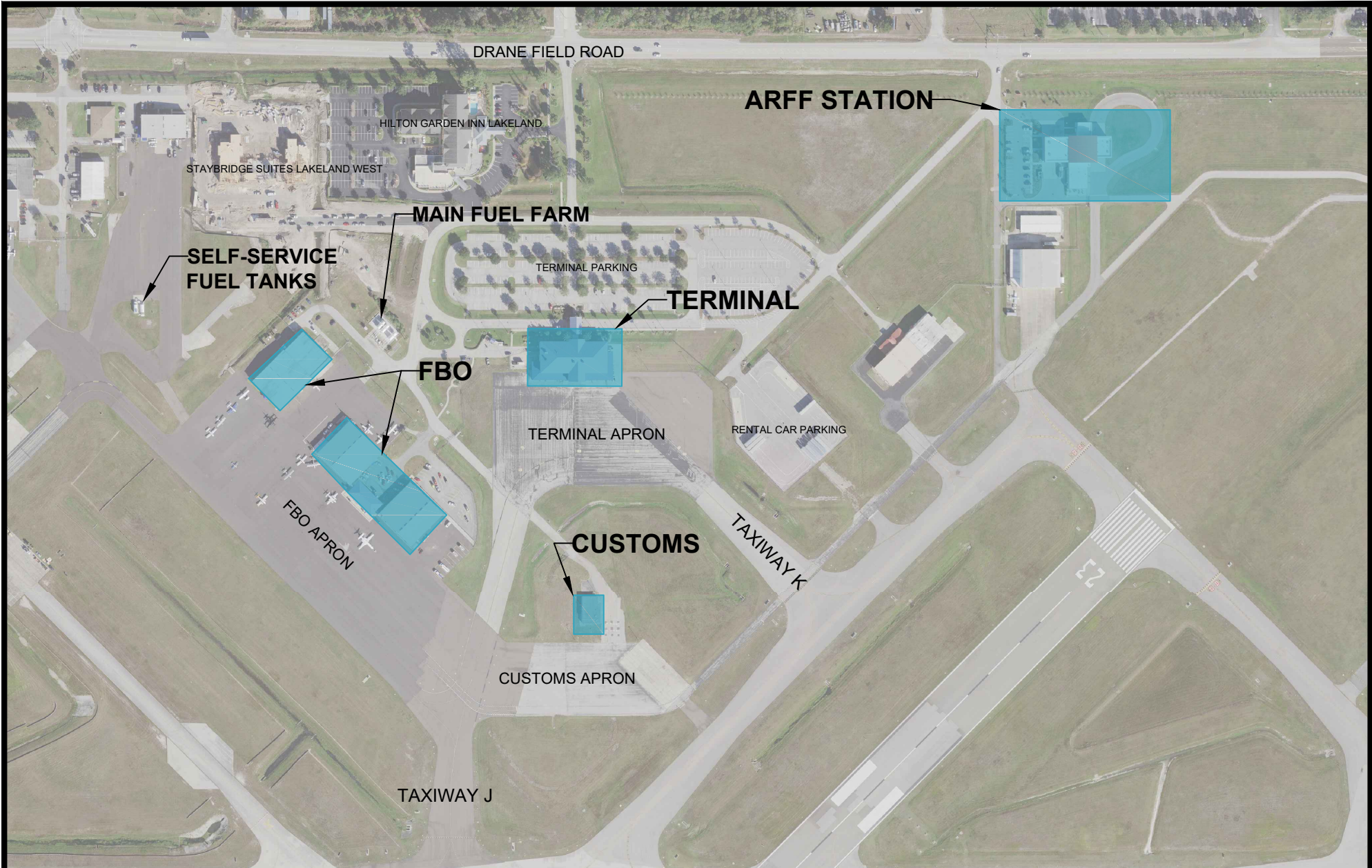


Table 1-7 Conventional Hangar Information

NORTH SIDE BUILDING INFORMATION			
Building Number	Location	Occupied	Notes
05	Taxiway B2	Yes	My Jet Manager
11	FBO Apron	Yes	Sheltair (FBO)
12	FBO Apron	Yes	Sheltair (FBO)
13	FBO Apron	Yes	Double M Aviation
13	FBO Apron	Yes	Mac Avionics
17	North Apron	Yes	Gulf Coast Avionics
18	North Apron	Yes	Dixie Jet
19	North Apron	Yes	Gulf Coast Avionics
27	Taxiway H	Yes	Neel Aviation
501	Taxiway B	Yes	MK Aviation
507	North Apron	Yes	JBS / PECU
509	North of T-Hangars	Yes	Bob Knight
511	Publix Apron	Yes	Publix
525	Taxiway H	Yes	Lakeland Executive Hangars (LEHI)
527	Taxiway H	Yes	Lakeland Executive Hangars (LEHI)
531	Taxiway A Area	Yes	Lakeland Wings
535	Taxiway A Area	Yes	Lakeland Toyota / Express Air Medical
539	Taxiway H	Yes	Champagne Investments
SOUTH SIDE BUILDING INFORMATION			
Building Number	Location	Occupied	Notes
103	Southeast Apron	Yes	Sunrise Aviation / PSC
104	South Apron		Lance Aviation (Hangar 1)
104	South Apron	Yes	Tailwheels (Hangar 2)
104	South Apron	Yes	Tailwheels (Hangar 3)
104	South Apron	Yes	Mauborgn/King Sky (Hangar 4)
104	South Apron	Yes	Wild Air/Cone (Hangar 5)
104	South Apron	Yes	Globe Aero (Hangar 6)
104	South Apron	Yes	Lakeland Aircraft (Hangar 7)
110	Airside Center	Yes	NOAA/Draken/PODS/Merfish/NuAviation/Jerue
113	South Apron	Yes	Lakeland Police Department
600	Sun 'n Fun	Yes	Sun 'n Fun / CAP Florida Wing / Lakeland Aero

Table 1-8 T-Hangar Information

Building Number	# of Units	Occupied %
021	19	100 %
022	14	100 %
023	14	100 %
024	14	100 %

1.3.3.4. Fuel Storage

There are two self-serve fuel farms and one main bulk storage farm located at LAL. The north self-serve fuel farm contains one 12,000 gal 100LL tank and one 12,000-gal Jet-A tank. The south self-service fuel farm contains one 12,000-gal 100LL tank and one 15,000-gal Jet-A tank. The main bulk storage farm contains two 15,000-gal Jet-A tanks and one 15,000 100LL tank. In addition, Draken International, Sunrise Aviation, and International Aero Academy maintain fuel trucks to self-fuel their aircraft. Publix Flight Department also maintains a 12,000-gal Jet-A tank on their ground lease adjacent to their hangar.

1.3.3.5. Automobile Parking

There are multiple parking areas on airport property servicing both airside and landside facilities. The terminal parking lot contains approximately 700 parking spots. Other major parking lots located around the airport include Airside Center, Polk State College, and the FBO. Several areas have reached capacity and are in need of additional parking or rehabilitation of the existing parking lot to meet current and future demands. Due to the current capacity at LAL, the available automobile parking is limited. Specifically, the parking near the FBO and other airside structures is insufficient. This will be further analyzed in subsequent working papers.

1.3.3.6. Airport Boundary Fence

Developed and undeveloped areas on the airside and landside need to be protected to ensure safe and secure operations at LAL. As such, perimeter fencing has been installed around appropriate areas ensuring a safe operating environment. The perimeter fence is seven feet high with three strand barbed wire on top. However, specific sections of the existing boundary fence have deficiencies (such as lower height) that need to be addressed.

1.3.3.7. AOA Fence

The Aircraft Operating Area (AOA) is protected by various size chain-link fence with three strand barbed wire installed in accordance with TSR 1542. Areas around the Sun 'n Fun ground lease are protected by eight-foot-tall chain-link fence without barbed wire to present a more inviting area for their guests. Some areas of AOA fence line are in need of rehabilitation as they are shorter than the required seven feet by TSR 1542.

1.3.3.8. Industrial Sites

Currently on LAL property, there are no “site ready” industrial areas that attract tenants. The site ready industrial areas include specifics such as installed utilities, completed grading, permit approvals, etc. Even with no specific sites being present at this time, future development of industrial sites on airport owned property is feasible due to the available land.

1.3.3.8.1. Foreign Trade Zone #79

Positioned in the Tampa Bay Area, Foreign-Trade Zone (FTZ) #79 assists companies in Tampa Bay and along the I-4 Corridor to streamline the procedure and minimize the costs linked with eligible importing, exporting, manufacturing, and distribution activities. The Airport is currently situated within FTZ #79, and gives tenants the opportunity to enhance their overall operational standpoint. An FTZ is a secured and restricted area that is located near a US port of entry outside of customs territory of the United States. Customs and Border Protection entry procedures do not apply under these areas. Companies can benefit from tax exemptions, increased efficiency, reduction of insurance costs, and many other associated benefits of the FTZ. These sites attract companies that regularly import items for the continuation of their operations.

1.3.3.9. Aircraft Rescue and Firefighting (ARFF)

To meet the requirements of CFR Part 139 the airport maintains an Aircraft Rescue and Firefighting (ARFF) Station. Designed as a dual use station the building is utilized by the Lakeland Fire Department to provide not only ARFF response but also standard fire and emergency response to the surrounding community. Two ARFF trucks are stationed there allowing the airport to meet Index B and have the capability to meet Index C when required. Existing trucks include one Oshkosh 1500 and one E-One Titan. Fire services are provided 24/7/365.

1.3.3.10. U.S. Customs and Border Protection Facility

LAL is classified as a User Fee airport by U.S. Customs and Border Protection requiring all aircraft to receive landing rights prior to their departure from a foreign port. Capable of accepting flights with 19 passengers or less LAL welcomed their first international arrival in 2017. The currently facility operates from 11:30am-8:00pm Thursday through Monday (Closed Tuesday and Wednesday). LAL's port code is 41881.

1.3.3.11. Lakeland Police Department

The Lakeland Police Department (LPD) provides law enforcement services for LAL. LPD occupies an on-airport hangar and building utilized for assigned officers, equipment, etc. The LPD provides immediate response if needed on airfield, as well as assistance during large events, and perimeter security.

1.3.3.12. Public Road Access

There are multiple public roadways that allow for landside access to the Airport. The major transit way is the FL-570 Highway, which is located approximately two miles north of the airport property. This major highway connects to the I-4 Interstate on both ends, where I-4 runs and connects to other major highways in the State of Florida. There is a convenient route to the Airport via FL-570 (Exit 3), by taking Airport Road south, then being directly at the Airport when Drane Field Road is crossed.

The County Line Road to the west of the Airport, which is connected to Drane Field Road, allows for ease of access to the southern portion of the airport property via public roadways. County Line Road then connects with West Pipkin Road, which runs directly to the south of the airport property. In addition, there are multiple public roadways that run directly along airport property to allow for the full access of all landside facilities at LAL. **Figure 1-15** depicts the approximated drive-time analysis for 30, 45, and 60-minute driving ranges.

1.4. Airspace Structure

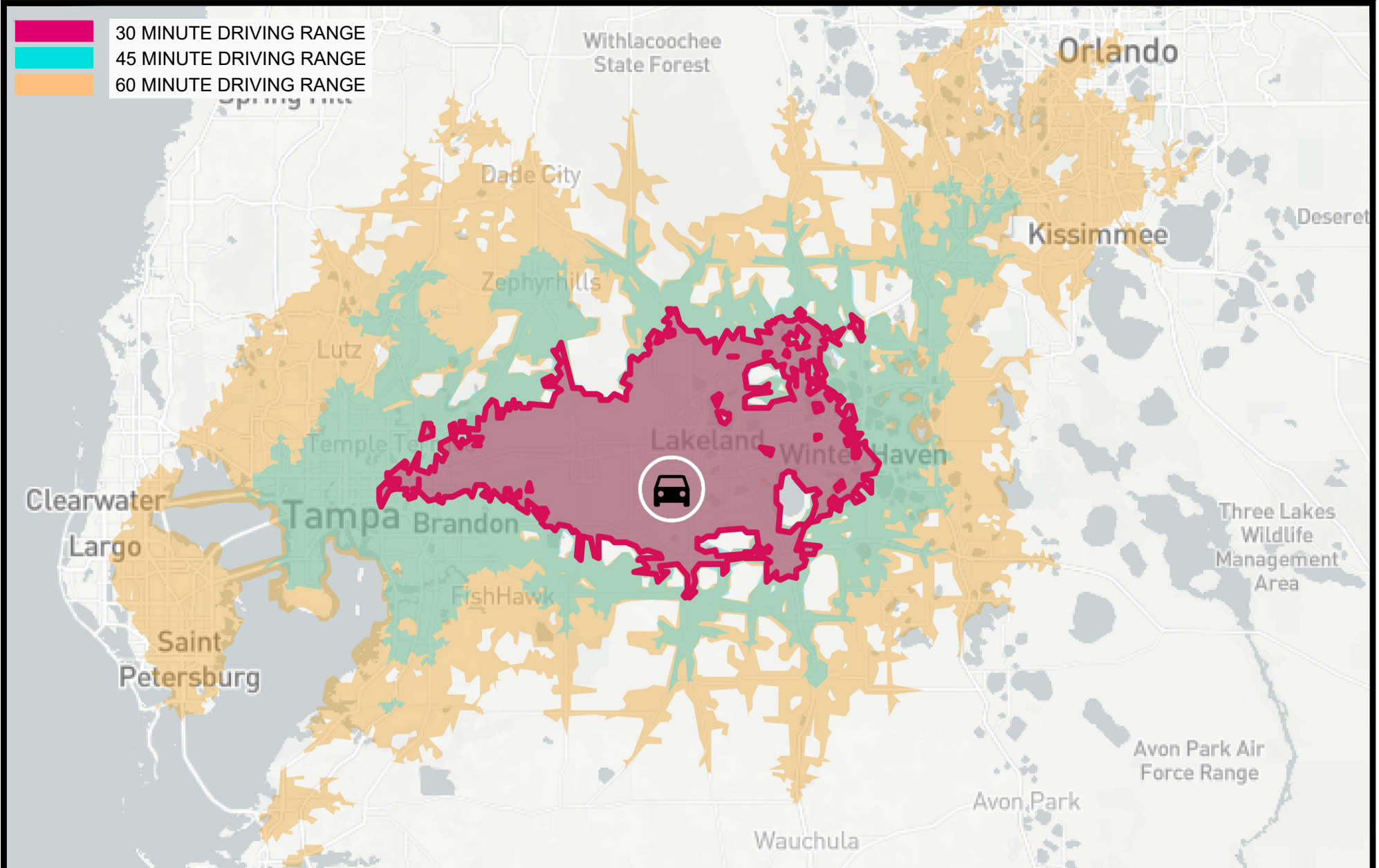
Congress granted the FAA the authority to control all airspace over the United States, via the Federal Aviation Act of 1958. The FAA then established the National Airspace System (NAS) to protect persons and property on the ground and to establish a safe and efficient airspace environment for civil, commercial, and military aviation. The NAS is defined as the common network of U.S. Airspace, including air navigation facilities, airports, and landing areas, aeronautical charts and information, associated rules, regulations and procedures, technical information, personnel, and material. System components shared jointly with military are also included. Florida's airspace has high traffic capacity due to its multiple major commercial airports, as well as the countless GA airports in the state. The ideal flying conditions that occur year-round promotes GA pilots to thrive in the state and to utilize these conditions. Due to high tourism demands, the commercial traffic daily throughout the state is a large contributor to this high volume of overall air traffic.

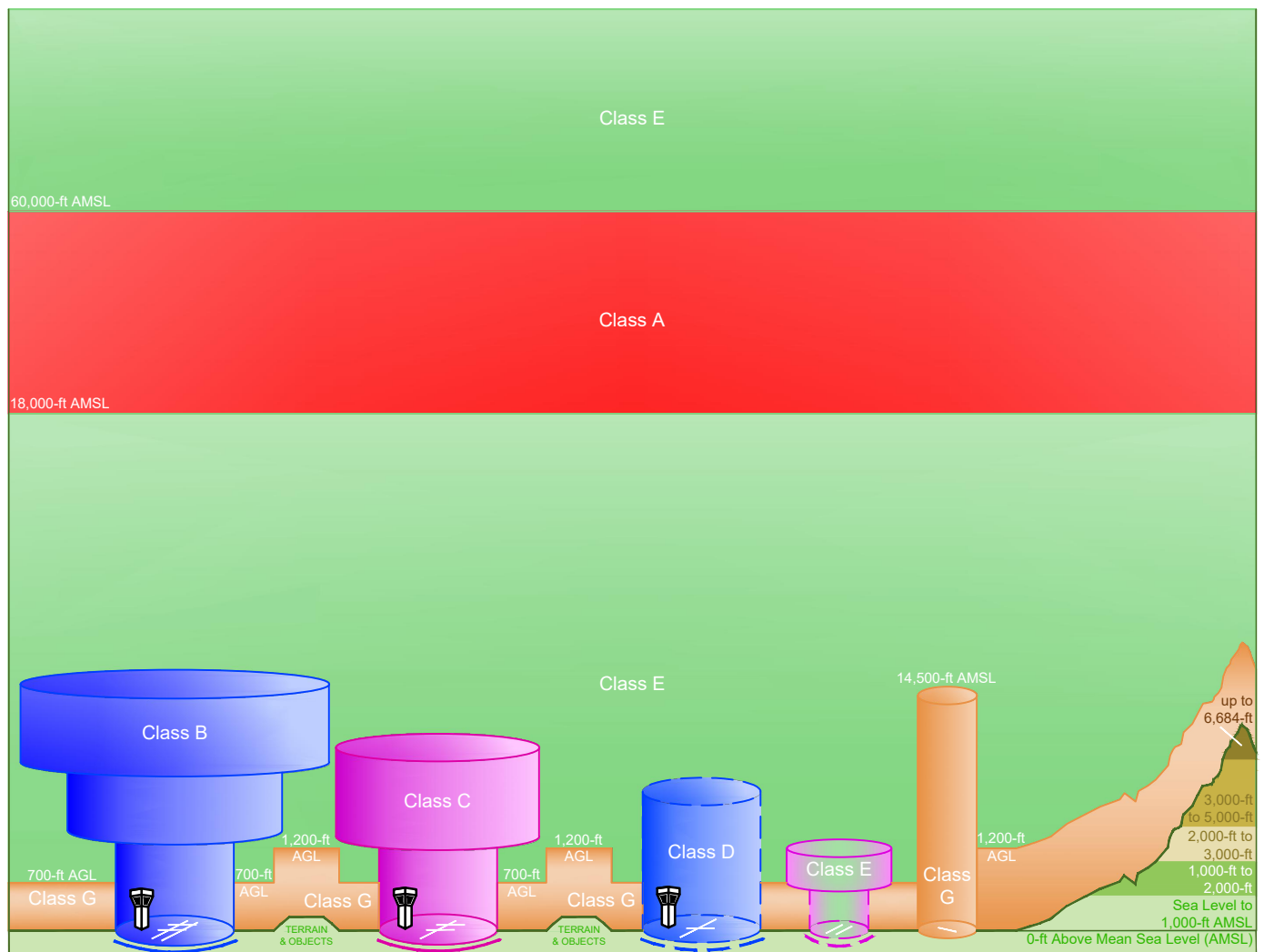
1.4.1. Airspace Environs

Airspace is classified as controlled or uncontrolled. Controlled airspace is supported by ground-to-air communications, NAVAIDs, and air traffic services. In September 1993, the FAA re-classified major airspace. The new classifications are graphically depicted in **Figure 1-16**,

The types of controlled airspace around Lakeland Linder Regional Airport include:

- Class A airspace, which includes all airspace between 18,000 feet AMSL and 60,000 feet AMSL (as well as waters 12 NM off the coast of the 48 contiguous states).
- Class B airspace, which includes typically from the ground up to 10,000 feet AMSL. Class B airports are some of the busiest in the country, and handle an influx of both IFR operations in addition to





Communication Requirements and Weather Minimums

	Class A	Class B	Class C	Class D	Class E	Class G
Minimum Pilot Qualification	Instrument Rating	Student *	Student *	Student *	Student *	Student *
Entry Requirements	IFR: ATC Clearance VFR: Operations Prohibited	ATC Clearance	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: None	None
VFR Visibility Below 10,000 AMSL **	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	3 Statute Miles	Day: 1 Statute Mile Night: 3 Statute Miles
VFR Cloud Clearance Below 10,000 AMSL	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal ***
VFR Visibility 10,000 AMSL and Above **	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	5 Statute Miles	5 Statute Miles
VFR Cloud Clearance 10,000 AMSL and Above	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 1 Statute Mile Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal
Airport Application	N/A	• Radar • Instrument Approaches • Weather • Control Tower • High Density	• Radar • Instrument Approaches • Weather • Control Tower	• Instrument Approaches • Weather • Control Tower	• Instrument Approaches • Weather	
Special VFR Permitted?	No	Yes	Yes	Yes	Yes	N/A

* Prior to operating within Class B, C, or D airspace (or Class E airspace with an operating control tower), student, sport, and recreational pilots must meet the applicable FAR Part 61 training and endorsement requirements. Solo student, sport, and recreational pilot operations are prohibited at those airports listed in FAR Part 91, Appendix D, Section 4.
** Student pilot operations require at least 3 statute miles visibility during the day and 5 statute miles visibility at night.
*** Class G VFR cloud clearance at 1,200 AGL and below (day): clear of clouds.

continuous commercial service operations. There are specific enhancements to required visibility minimums, licenses held, and more to enter into a Class B airspace. LAL is within the 30-nautical mile Mode C veil which is centered around Tampa International Airport (TPA). This requires all aircraft operating within the Mode C veil under 10,000 feet AMSL to have an operating Mode C transponder.

- Class D airspace includes all airspace between the ground up to typically 2,500 feet AGL. This airspace typically extends out 4 statute miles from the airfield. The closest public airport to LAL is Plant City (PCM). Class D airspace is typically established around an airport with an operational control tower. Two-way communication with ATC must be established before entering the Class D airspace, yet no transponder is required for entry.
- Class E airspace, which includes all controlled airspace other than Class A, B, C, or D. Class E airspace extends upward from either the surface of the designated altitude to overlying or adjacent controlled airspace. Class E airspace includes transition areas and control zones for airports without air traffic control towers (ATCTs). South Lakeland Airport (X49) is located within LAL airspace. Operators utilizing the X49 airfield must establish communication with the LAL ATCT.
- Class G airspace, which is uncontrolled airspace.

1.4.2. Class D

The Airport's airspace is classified as Class D, which holds the 5-nautical mile radius around the Airport and is controlled from the ground up to 2,600 Feet AMSL. There is a small section of Class D airspace removed to allow operations at South Lakeland Airport to occur without requiring two-way radio communication. To the east of the LAL Class D airspace, there is a portion of Class E Airspace which is joined with the LAL Class E which extends to the surface. This which extends from 2,600 ft. MSL to the surface to allow aircraft to transition in and out of the LAL Class D airspace effectively. **Figure 1-17** depicts the Airport's surrounding airspace.

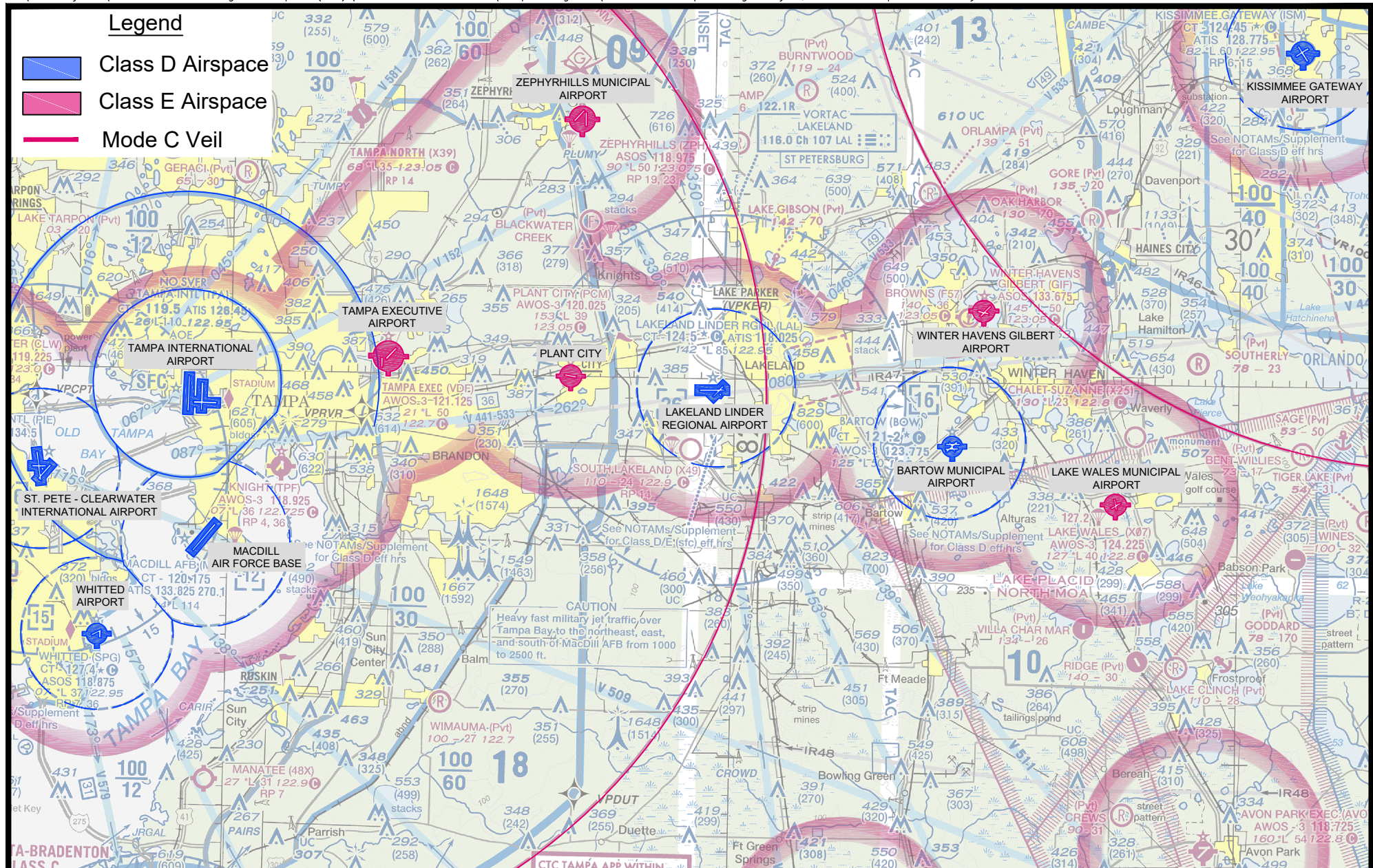
1.4.3. Airports in the Region

There are currently 11 public use airports and one military airport within a 30 Nautical Mile (NM) radius of LAL. The description of these 12 airports can be found in **Table 1-8**. Regarding private airports, there are numerous facilities that hold this classification within the 30 NM radius of LAL. **Figure 1-18** depicts the specified airports within the proximity of LAL.

Table 1-8 Airports Surrounding Lakeland Linder Regional Airport (LAL)

Airport Name (I.D.)	Location from LAL	Use (Airspace)
South Lakeland Airport (X49)	4 NM SSE	Public- GA
Plant City Airport (PCM)	8 NM W	Public- GA
Bartow Municipal Airport (BOW)	13 NM SE	Public- GA
Jack Browns Airport (F57)	14 NM NE	Public- GA (Seaplane Base)
Winter Haven's Gilbert Airport (GIF)	15 NM NE	Public- GA
Zephyrhills Municipal Airport (ZPH)	16 NM NNW	Public- GA
Tampa Executive Airport (VDF)	17 NM W	Public- GA
Lake Wales Municipal (X07)	22 NM SE	Public- GA
Tampa North Aeropark (X39)	23 NM NW	Public- GA
Peter O' Knight Airport (TPF)	23 NM SE	Public- GA
Tampa International Airport (TPA)	27 NM W	Public- Commercial
MacDill Airforce Base (MCF)	28 NM SW	Military (U.S. Air Force)

Source: Skyvector.com, 2018. Analysis: Atkins, 2018.



1.5. Meteorological Data

The climatic conditions commonly experienced at an airport can play a large role in the layout and usage of the facility. Weather patterns characterized by periods of low visibility and cloud ceilings often lower the capacity of an airfield, and wind direction and velocity dictate runway usage.

1.5.1. Meteorological Conditions

The Meteorological conditions commonly experienced at an airport can play a large role in the layout and usage of the facility. Weather patterns characterized by periods of low visibility and cloud ceilings often lower the capacity of an airfield. Furthermore, wind direction and velocity to a large extent dictate runway usage.

1.5.2. Ceiling & Visibility

FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*, identifies three categories of ceiling and visibility minimums. These categories include Visual Meteorological Conditions (VMC), Instrument Meteorological Conditions (IMC), and Poor Visibility and Ceiling (PVC). Data obtained through the National Climatic Data Center (NCDC) consisting of 10 years of hourly wind observations has been used to express information at LAL in more specific terms:

VMC conditions, defined as having a ceiling equal to or greater than 1,000 feet above ground level (AGL) and visibility equal to or greater than three (3) statute miles, represent the majority of atmospheric observations.

IMC conditions, with a ceiling less than 1,000 feet and/or visibility less than three (3) miles, but ceiling equal to or greater than 200 feet and visibility equal to or greater than ½ mile, occur at the Airport approximately 7.0 percent of the time.

PVC conditions, with a ceiling less than 200 feet and/or visibility less than ½ mile, represent periods in which the Airport is unable to service air traffic and must close. Those conditions rarely occur at LAL and exist roughly <.5 percent of the time.

1.5.3. Wind Coverage

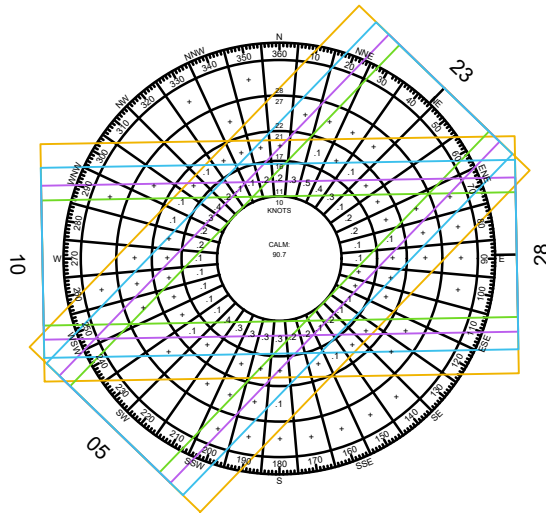
Local wind conditions at an airport play a large role in the runway usage since aircraft operate most efficiently when taking-off and landing into the wind. Runways not oriented to take full advantage of prevailing winds are often not utilized as frequently. Aircraft can operate on a runway when the crosswind component, or wind component perpendicular to the direction of travel, is not excessive. Crosswind components differ slightly depending on the size of aircraft. The appropriate crosswind components for LAL's three runways were determined by the type of aircraft typically operating on those runways. **Figure 1-19** depicts the All-Weather wind rose when considering a 16-knot crosswind component for the primary runway (Runway 9-27 and 5-23) and 10.5 knot crosswind for the turf Runway 8-26. The FAA indicates that the desired wind coverage for an airport is at least 95 percent, meaning the maximum crosswind component is not exceeded more than five (5) percent of the time. **Figure 1-19** depicts the Airport's wind roses, which utilize data gathered from LAL's weather station.

The calculated wind coverage for LAL facilities shows that Runway 9-27 achieves greater than 95 percent wind coverage at each crosswind component when considering all weather conditions. The intersecting runway, Runway 5-23, achieves greater than 95 percent wind coverage for all cross-wind components. During times of inclement weather characterized by IMC, both runways Runway 9-27 and 5-23 achieve greater than 95 percent wind coverage for each crosswind component. The combined wind coverage exceeds 95 percent for all crosswind components during VMC and IMC.

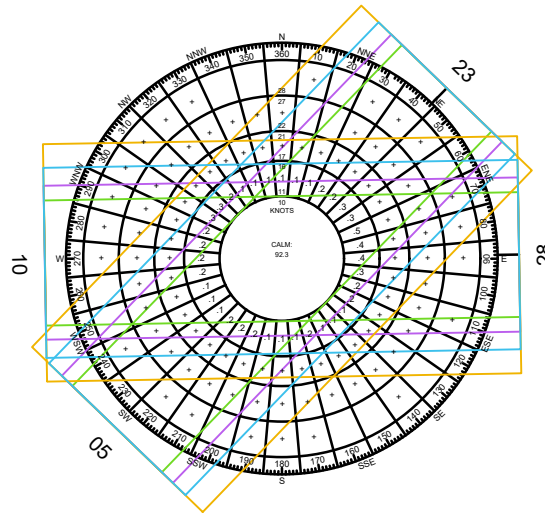
1.6. Land Use and Zoning

Land use and zoning around an airport is critically important to the future utility and sustainability of airport operations. Without the security and support provided by compatible land uses around an airport property, airports and their sponsors can face a variety of safety difficulties, health and human safety concerns, and social/political dissent, which in the long run detracts from the airports ability to reach its full public value

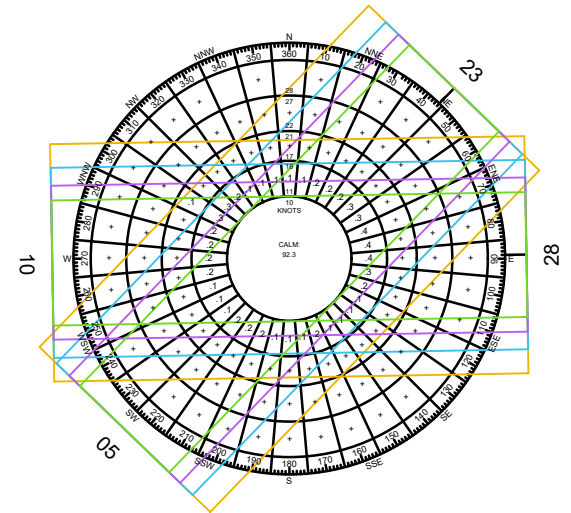
IFR WIND COVERAGE



VFR WIND COVERAGE



ALL WEATHER WIND COVERAGE



IFR WIND COVERAGE			
CROSSWIND COMPONENT	RUNWAY 10/28	RUNWAY 5/23	COMBINED COVERAGE
10.5 KTS	94.94%	96.11%	98.14%
13 KTS	97.18%	97.69%	99.16%
16 KTS	99.11%	99.05%	99.66%
20 KTS	99.58%	99.66%	99.87%

VFR WIND COVERAGE			
CROSSWIND COMPONENT	RUNWAY 10/28	RUNWAY 5/23	COMBINED COVERAGE
10.5 KTS	97.47%	96.83%	98.94%
13 KTS	98.75%	98.38%	99.63%
16 KTS	99.72%	99.62%	99.92%
20 KTS	99.92%	99.90%	99.98%

ALL WEATHER WIND COVERAGE			
CROSSWIND COMPONENT	RUNWAY 10/28	RUNWAY 5/23	COMBINED COVERAGE
10.5 KTS	97.22%	96.97%	98.89%
13 KTS	98.57%	98.43%	99.60%
16 KTS	99.65%	99.61%	99.90%
20 KTS	99.89%	99.89%	99.97%

NOTES:
 1/ WIND DATA DERIVED FROM NOAA'S INTEGRATED SURFACE DATABASE (ISD); COVERING YEARS 2010 - 2019.
 2/ WIND ANALYSIS COMPLETED JANUARY 2020.
 3/ RUNWAY TRUE ORIENTATION USED FOR ANALYSIS, SEE A/C 150/5300-13A, FIGURE A-24.

potential. The Airport has approximately 1,710 acres of land within its boundary which is zoned as a municipality, and classified as well as city owned land.

According to the 2015 Business Plan, mixed use development is key in terms of providing additional lease income and to further develop the landside industrial aspect for LAL in parallel with aviation related development.

As southwest Lakeland continues to develop, and the airport operations increase, zoning of the property surrounding the Airport will become critically important. Currently there is a mixture of business park zoning and residential zoning around the airport property. The City of Lakeland Comprehensive plan recognizes that as airport activity increases, complaints from residential properties may increase, especially from any residential property within about 1 to 2 miles of the airport area. **Figure 1-20** depicts the Airport's zoning classification, as well as the surrounding parcels around the airport property.

1.7. Existing Utilities and Infrastructure

The availability and capacity of the utilities serving LAL are important factors to consider when evaluating future development opportunities. The primary concern is the availability of adequate power, water, and sewer sources.

1.7.1. Electricity

Electricity is provided from Lakeland Electric. This organization supplies power for the Airport and surrounding communities.

1.7.2. Wastewater

Wastewater management is provided to the Airport through Lakeland Water Utilities. This organization provides wastewater services to approximately 149 square miles of the greater Lakeland area. There are multiple force main systems located on airport property, supported by numerous sanitary lines. Those sanitary lines vary in size, from 8" to 10" PVC. At current, there are sanitary lines providing service to all facilities on the northern portion of airport property and select areas on the south portion of airport property. Due to the annual event, Sun 'n Fun, the southern portion of the Airport has been updated to support utilities. **Figure 1-21** depicts the existing wastewater infrastructure on LAL property, and the surrounding community.

1.7.3. Potable Water

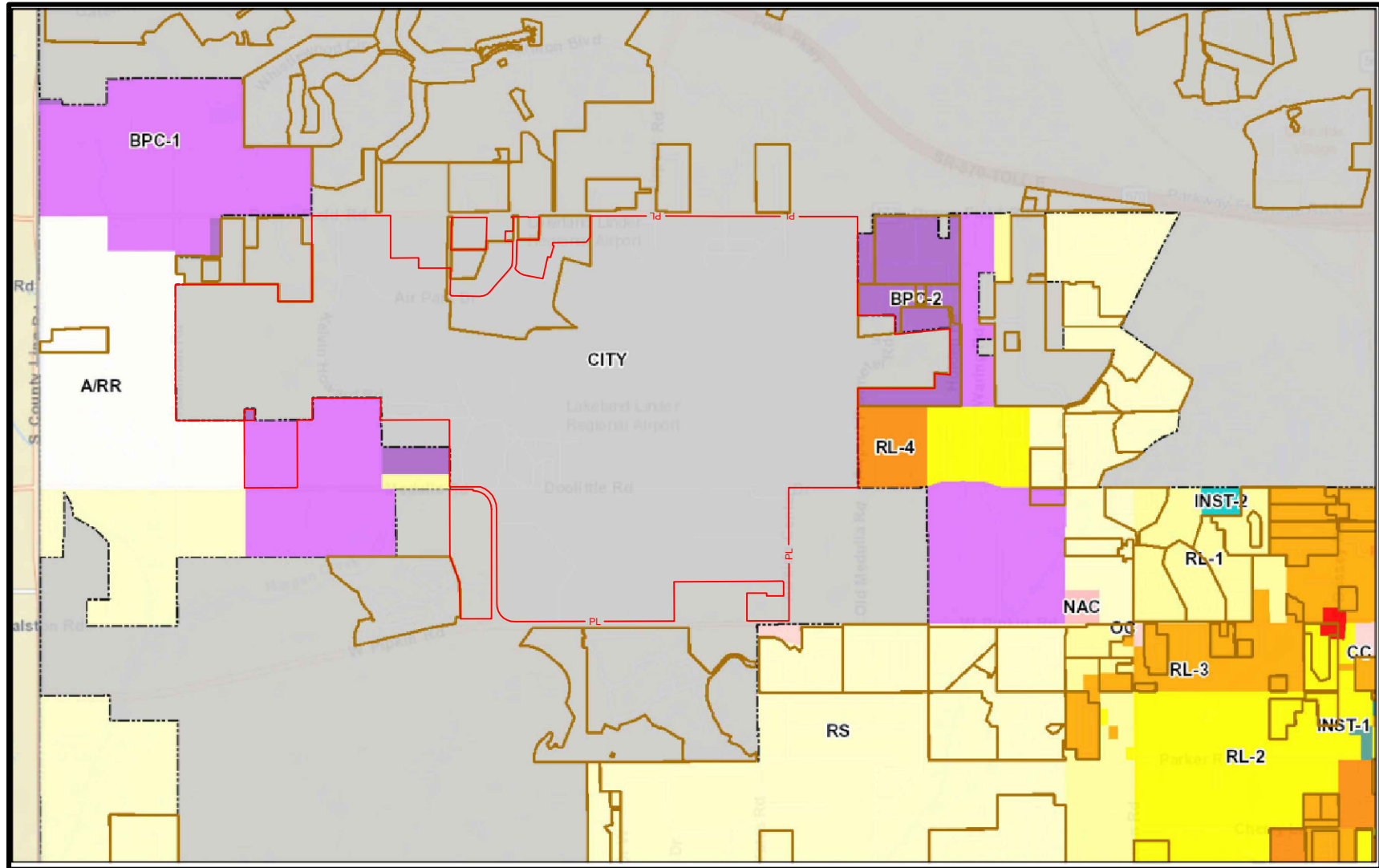
Water service is provided to the Airport through Lakeland Water Utilities. This organization provides potable water services to approximately 132 square miles. Lakeland Water Utilities utilizes two water treatment plants in the area, and can provide close to 59 million gallons per day in purified water to the service area. Similar to the sanitary line layout on airport property, the majority of the facilities on northern portion of airport property are supported by potable water service. There is an increase of water lines on the southern portion of airport property due to the need for proper utilities infrastructure in regard to the annual Sun 'n Fun event. **Figure 1-22** depicts the existing potable water infrastructure on LAL property, and the surrounding community.

1.8. Tenant Activity

There are currently numerous tenants located on LAL property, both with aviation and non-aviation operations. The following sections will briefly touch on specific tenants. A master list of tenants currently residing on LAL property can be found at **Table 1-9**.

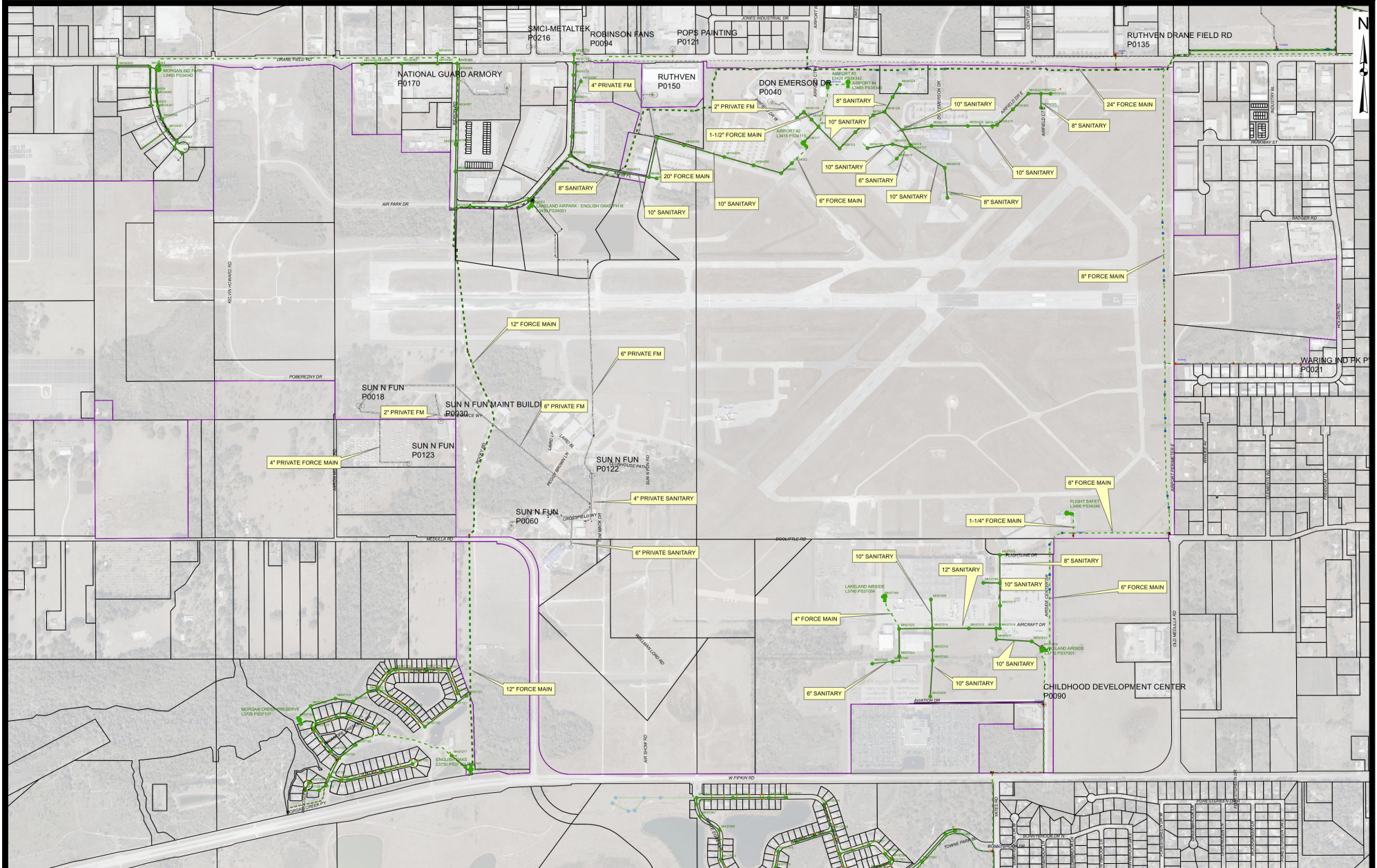
1.8.1. Sun 'n Fun Inc.

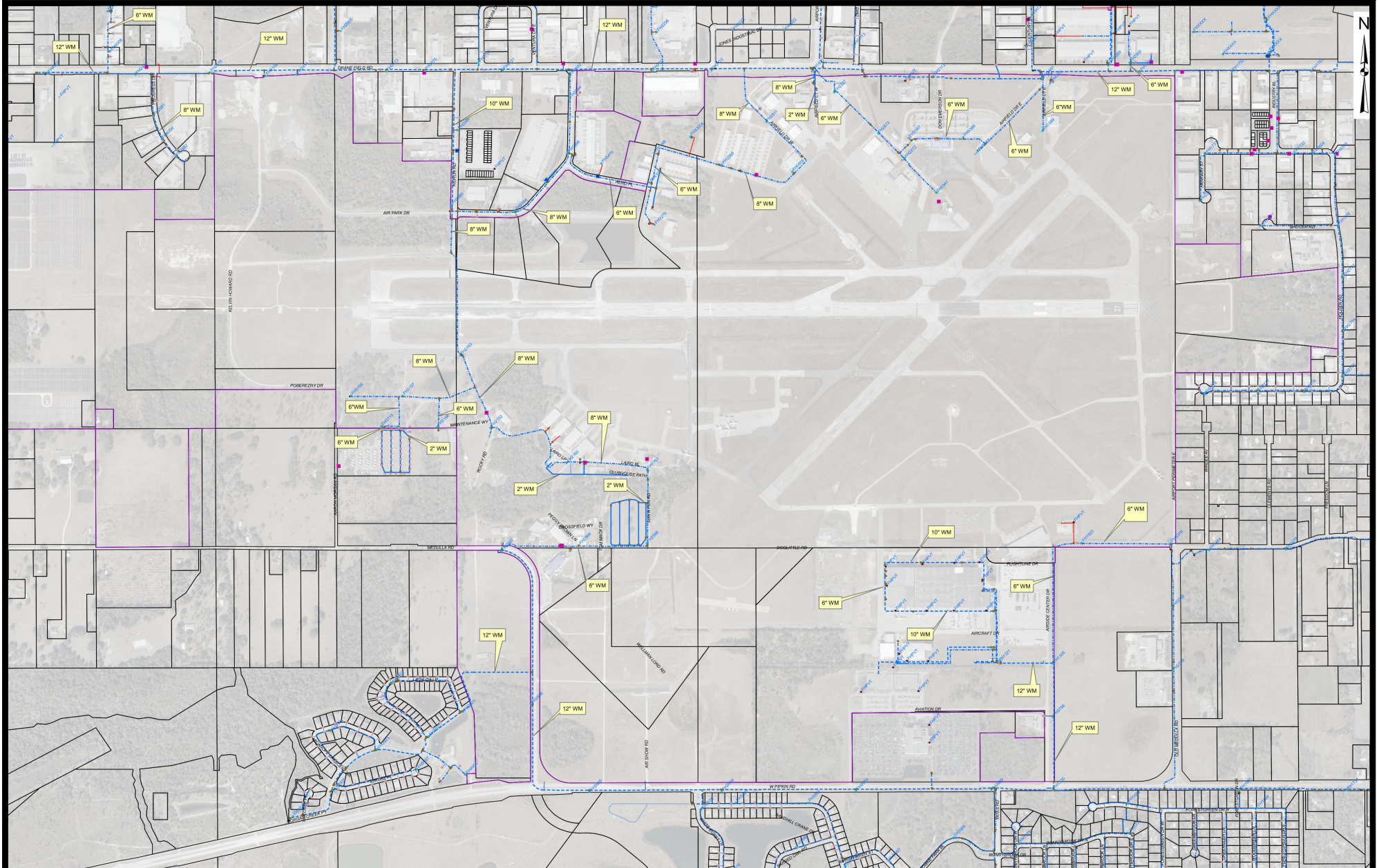
Sun 'n Fun is a non-profit organization which is dedicated to promoting aviation education. Sun 'n Fun leases 172 acres located in the southwest quadrant of the airfield, where it also operates the Florida Air Museum, and supports the Central Florida Aerospace Academy of Kathleen High School. In addition, the Aerospace Center for Excellence provides year-round educational opportunities including summer camps, STEM programs, and aerospace discovery events among other activities. Each year Sun 'n Fun organizes the Sun 'n Fun International Fly-In and Expo a six-day fly-in event in late March or early April.



Legend

CITY	RL-1 - Residential Low	NAC - Neighborhood Activity Center	PL - LAL Property Line
BPC-1 - Business Park Center	RL-2 - Residential Low	A/RR - Agriculture/Residential Rural	
BPC-2 Business Park Center	RL-3 - Residential Low		
IND - Industrial	RL-4 - Residential Low		





Sun 'n Fun Fly-In started in 1974 with an attendance of 1,980 people. It now sees an attendance of nearly 220,000 people per year. In 2014 the Airport recorded nearly 8,000 take-offs and landings, not counting ultra-light operations. The event features approximately 500 aviation exhibitors, multiple educational forums, aviation demonstrations, and much more. During the event LAL becomes the busiest airport in the world. The overall mission of the event is to “preserve and enhance the future of flight through world-class events, inspiring and educating people of all ages”.

During the 43rd annual 2017 event, April 4th to the 9th 2017, the following statistics were recorded:

- Approximately 200,000 guests from over 80 different countries
- Over 8,000 aircraft movements
- 510 exhibitors

The University of South Florida conducted an economic impact study of the Sun 'n Fun Fly In event in 2003. This study attempted to quantify the financial impacts to the community that could be directly related to the weeklong fly in event. For the study year it was estimated that the fly in event generated an economic impact of over 27 million dollars for the Central Florida Community.

1.8.2. Specialized Aviation Service Operators (SASO's)

A Specialized Aviation Service Operator (SASO) is a commercial aeronautical business that offers a single or limited commercial aeronautical service such as flight training, aircraft, airframe and powerplant repair, maintenance, aircraft charter, air taxi or air ambulance, aircraft sales or other commercial flight support business.

Avionics

- Gulf Coast Avionics
- Mac Avionics

Aircraft Exporting and Ferrying

- Neel Aviation
- Globe Aero

Maintenance

- Avocet Aviation Services, LLC – Heavy Aircraft Maintenance, Repair, and Overhaul (MRO)
- Aeromech Inc. – Aircraft Maintenance
- Double M Aviation – Aircraft Maintenance
- Dixie Jet & Rotor Service – Aircraft Maintenance
- Fixed Wing Aviation – Aircraft Maintenance
- Lakeland Aircraft Maintenance – Aircraft Maintenance
- Lance Aviation – Aircraft Maintenance (Helicopters)
- Onsite Weight & Balance – Weight and Balance Calculator

Painting & Refurbishing

- Aviation Interiors – Interior Refurbishment
- Duncan Interiors – Interior Refurbishment & Upholstery
- Foster's Aircraft Refinishing, Inc. – Aircraft Painting
- RDI Interiors – Interior Refurbishment & Design

Parts & Sales

- Aeromech, Inc. – Aircraft Parts, Service & Support
- AutoGyro – Aircraft Sales
- Gulf Coast Avionics – Avionics Sales & Service and Pilot Supplies
- NuAviation – UAS Sales
- Pilot Mall – Aviation & Pilot Supplies

Charter Services

- Legacy Airways – Part 135 Charter

Transportation & Other Services

- Draken International – DOD Contracted Air Service
- Express Air Medical Transport – Medical Transport
- Florida Fish and Wildlife Commission – Research and Law Enforcement
- Frank Tiano Enterprises – RC Aircraft Competitions / Fly-Ins
- Ferrera Tooling Inc. – Custom Tools and Fabrication
- G4D – Customs Trucks
- Hallback's Bar & Grill – Restaurant
- Hilton Garden Inn – Hotel & Conference Center
- JBS Equities, LLC – Hangar Rentals
- John J. Jerue Truck Broker, Inc. – Transportation, Logistics & Distribution
- Knight Industrial Equipment
- Lakeland Executive Hangars – Hangar Storage
- My Jet Manager – Full service corporate aircraft fleet management
- Merfish Pipe & Supply – Pipe Distribution
- NOAA OMAO AOC – Aircraft Operations Center
- PODS
- Sheltair Aviation - FBO
- Staybridge Inn & Suites – Hotel
- Tom Evans Environmental, Inc. – Environmental Engineering
- Federal Aviation Administration Technical Operations – Storage and Workshops
- Federal Aviation Administration Flight Service District Office – Orlando Field Office
- Florida Army National Guard – 116th Field Artillery
- U.S. Customs and Border Protection – Customs Services

Flight Schools & Education

In addition to corporate aviation demand, flight training is a significant component of the Airport's operations. Four flight schools are currently located at the Airport, which provide active fixed wing pilot training.

- Central Florida Aerospace Academy – Public High School CFAA operates out of a facility located on the southwest side of the Sun 'n Fun campus. The program seeks to challenge students to achieve high levels of success in science, technology, engineering and math. Students who attend the academy participate in coursework in Aerospace Engineering, Avionics, Aerospace Technologies, and Air Force JROTC as well as their general high school curriculum.
- International Aero Academy – Part 61 and 141 Flight School
- Kingsky Flight Academy – Part 61 and 141 Flight School
- Lakeland Aero Club – High School Flying Club
- MK Aviation – Part 61 and 141 Flight School, currently moving to LAL.
- Polk State College – Associates and Bachelor Programs in Aerospace Fields
- Sunrise Aviation – Part 61 and 141 Flight School, Contracted Services for Polk State College
- Traviss Technical College – A&P Programs
- Wild Air Aviation – Part 61 Flight School

Table 1-9 Master LAL Tenant List

Tenant Company Name	Based Aircraft	Aviation or Non-Aviation
Skyspot Advertising	Yes	Aviation
Lakeland Aero Club	Yes	Aviation
Express Air Medical Transport	Yes	Aviation
RVA (Tower)	No	Aviation
CE Avionics	No	Aviation
Gulf Coast Avionics	Yes	Aviation
Mac Avionics	Yes	Aviation
Globe Aero	Yes	Aviation
Neel Aviation	Yes	Aviation
Aviation Interiors Inc	Yes	Aviation
Duncan Interiors	No	Aviation
RDI	Yes	Aviation
Aeromech	No	Aviation
Dixie Jet & Rotor Services	Yes	Aviation
Double M Aviation LLC	Yes	Aviation
Lakeland Aircraft Maintenance	Yes	Aviation
Lance Aviation	No	Aviation
Fixed Wing Aviation Maintenance LLC	No	Aviation
GDS, LLC	No	Non-Aviation
Avocet	No	Aviation
On-Site Weight & Balance	No	Aviation
MK Homes Limited	No	Aviation
My Jet Manager	No	Aviation
Navigator Aircraft Management Group	No	Aviation
Foster's Aircraft Refinishing	No	Aviation
AutoGyro	Yes	Aviation
Hicks Holdings, Inc.	No	Aviation
Grounz 4 Divorce, LLC	No	Non-Aviation
EAA - Chapter 454	No	Aviation
OX5 Club	No	Aviation
Quite Birdman	No	Aviation
Silver Wings	No	Aviation
The Ninety-Nines	No	Aviation
Women in Aviation - The Heart of Florida Chapter	No	Aviation
Pilot Mall	No	Aviation
Draken International	Yes	Aviation
A&C Drafting and Design, Inc.	No	Non-Aviation
Tom Evans Environmental, Inc.	No	Non-Aviation

Tenant Company Name	Based Aircraft	Aviation or Non-Aviation
Knight Aviation	Yes	Non-Aviation
Frank Tiano Enterprises	No	Aviation
Sun 'n Fun International Fly-In Inc.	Yes	Aviation
Richard Hirsch DPE	No	Aviation
Sheltair Aviation Services	No	Aviation
Doherty's Toys Second LLC	Yes	Aviation
King Sky Flight Academy	Yes	Aviation
International Aero Academy, Ltd	Yes	Aviation
Sunrise Aviation	Yes	Aviation
Wild Air Aviation	Yes	Aviation
COL - Airport	No	Aviation
COL - Telecommunications	No	Non-Aviation
Central Florida Aerospace Academy	No	Aviation
Polk State College West	No	Non-Aviation
Polk State College-East Aviation	No	Aviation
Travis Career Academy - Aviation	No	Aviation
FAA FSDO Orlando Field Office	No	Aviation
FAA Southern Region	No	Aviation
COL - ARFF Station 7	No	Aviation
COL - LPD - Hangar	No	Non-Aviation
Florida Fish and Wildlife Commission	Yes	Both
US Customs & Border Protection	No	Aviation
US Army National Guard	No	Non-Aviation
NOAA Aircraft Operations Center	Yes	Aviation
Civil Air Patrol - S. Lakeland Composite Squadron	No	Aviation
Civil Air Patrol - Florida Wing	No	Aviation
JBS Equities	No	Aviation
Lakeland Executive Hangars	No	Aviation
Lakeland Wings	No	Aviation
Legend Health	No	Non-Aviation
Hilton Garden Inn	No	Non-Aviation
Staybridge Inn	No	Non-Aviation
PECU	No	Non-Aviation
John J. Jerue Truck Brokers	No	Non-Aviation
JRW Company	No	Non-Aviation
NuAviation	No	Aviation
Ferrera Tooling, Inc.	No	Non-Aviation
DKS Aviation	No	Aviation
Hertz	No	Non-Aviation
Hallback's Bar & Grill	No	Non-Aviation
Publix (Flight Department)	Yes	Aviation

Tenant Company Name	Based Aircraft	Aviation or Non-Aviation
Publix (IT)	No	Non-Aviation
Publix (Customer Service)	No	Non-Aviation
Seaplane Pilots Association	No	Aviation
Merfish Pipe & Supply	No	Non-Aviation
PODS	No	Non-Aviation

Source: LAL Tennant List, 2018

1.8.3. Aerospace Center for Excellence at the Florida Air Museum

The Florida Air Museum is located on the southwest side of the airfield adjacent to Medulla Road. The Aerospace Center for Excellence (ACE) displays a range of historic aircraft and aviation artifacts that chronicle the first century of flight. The museum operates year-round and offers educational programs, tours, aviation workshops and lectures. Sun n' Fun plays a large role in supporting the educational programs that occur at the museum. The goal of ACE is to provide a unique learning platform of educating and inspiring the next generation of aerospace professionals while honoring the past. The Museum is able to be a premier showcase for Florida's aviation history through exhibits, restoration and preservation, education and outreach and to share the passion of flight with all ages.

1.9. Review of Existing Studies

Multiple studies have been completed or are in progress for LAL and the surrounding area. The following subsections provide a summary of prior and current studies that were reviewed as part of the master plan process. A critical review of these studies is important to properly analyze current airport conditions and determine future airport needs. This will help ensure compatibility, efficiency, and effectiveness with local, state, and federal plans.

1.9.1. National Plan of Integrated Airport Systems (NPIAS) – FAA

The current National Plan of Integrated Airport Systems (NPIAS) report was submitted to Congress under 49 U.S. Code § 47103 on September 30, 2016. This plan identified 3,340 existing airports that are significant to national air transportation and estimates that \$32.5 billion in infrastructure development will be needed over the next five years to meet the needs of all segments of civil aviation. The airports selected for the NPIAS are comprised of all commercial service airports, all reliever airports, and qualified GA airports. The NPIAS's primary purpose is to determine the identified airport's specific eligibility to receive grants under the Airport Improvement Program (AIP).

LAL is classified as a National Airport and Reliever Airport under the NPIAS. A National Airport is classified as one that supports the national and state system by providing communities with access to national and international markets in multiple states and throughout the United States. The FAA has designated 65 airports as relievers for primary airports. Reliever airports are designated to relieve congestion at busy commercial service airports, providing more general aviation access to local markets. LAL acts as a reliever airport to busy markets such as Tampa International Airport (TPA) and Orlando International Airport (MCO). The NPIAS report also estimates the needed development funding required in the airports 5-year capital improvement program. In the 2016 NPIAS report LAL is noted to have \$32,323,834 funding requirements from 2017 to 2022.

1.9.2. Florida Aviation System Plan- Florida Department of Transportation

The Florida Department of Transportation (FDOT) has a statutory responsibility for promoting, planning, and administering transportation infrastructure in Florida. The Florida Aviation System Plan (FASP) is periodically renewed to provide FDOT with a planning and administrative tool which incorporates aviation statistics, regional and state wide econometric trends, and long-term aviation forecast. The most recent comprehensive update of the FASP, FASP 2025, was completed in 2009.

FASP 2025 divides the state of Florida into nine distinct aeronautical regions. LAL is found in the Central region along with 10 other airports and seaports of varying sizes. LAL stands out in its region as the only reliever airport and is home to the largest market share of regional based general aviation (GA) aircraft, with 36 percent of the region's total. Further, the Airport supports the second highest percentage of regional GA operations with 31 percent. The FASP predicts moderate growth in operations and based aircraft for the region throughout the planning period.

The most recent airport profile that was completed for Lakeland Linder Regional Airport dated April 2012. During this profile, FDOT compiled the Airport's immediate needs, forecasted operations, community services, and documented the overall vision of the Airport's future. The LAL airport profile also identified challenges to airport funding to support long term development. The airport profile report indicated a 2.5 percent growth rate in both airport operations and based aircraft over the forecast period (2009-2029).

1.9.3. Florida Department of Transportation Economic Impact Study

The Florida Department of Transportation (FDOT) as part of the FASP process provides the estimated annual economic impact associated with selected airports in the State of Florida. The study calculates economic impacts of many on-airport and off-airport aviation associated activities with benefits expressed as direct, indirect, and induced (multiplier) impacts. This report found that aviation statewide is responsible for an estimated \$144.0 billion in annual economic activity and or output each year.

At a local level, the large contributing factors that were called out during the analysis include Lakeland's classification as a reliever airport for TPA and MCO, aviation education, aircraft charters, law enforcement operations, and more. One of the largest contributors to the LAL economic impact are large events such as the annual Sun 'n Fun Fly-In. The calculated economic impact for LAL and its contributed factors are presented in **Table 1-10**.

Table 1-10 FDOT Calculated Economic Impact – LAL

Direct Impact	Indirect Impact	Multiplier Impact	Total Employment	Total Payroll	Total Output
\$131,761,000	\$33,492,000	\$119,456,000	2,422	\$91,455,000	\$284,709,000

Source: Statewide Aviation Economic Impact Study, 2014

1.9.4. LAL Airport Business Plan – MRO Feasibility Study 2015

In 2015, an Airport Business Plan was completed for Lakeland Linder Regional Airport by ATKINS in association with R.A. Wiedemann & Associates, Inc. During this study, primary strategic initiatives were identified by the airport staff, where a recommended plan of action was then established for each initiative. The following initiatives were identified within the 2015 study:

- Attract airline service
- Secure U.S. Customs and Border Protection (Completed)
- Attract more MRO activity
- Increase GA and military activity
- Increase intermodal use of the Airport
- Non-Aviation property development
- Airport re-branding

In addition, the business plan allowed for the identification of strengths, weaknesses, and issues that are present at LAL. By identifying these points, specific action plans can be created. A community value was calculated for the Airport at the time of the study, which analyzed the Airport's annual revenue, employment provided, current assets, and annual economic activity. The Airport's total calculated value to the community was \$481.26 million.

1.9.5. Environmental Assessment – MRO Facility 2016

In August of 2016, a Focused Environmental Assessment (EA) was approved for proposed action towards constructing and operating up to three aircraft maintenance, repair and overhaul (MRO) facilities and one air cargo facility at LAL. The purpose of the EA was to determine whether the proposed action had significant impact to the environment. This was completed through a thorough analysis of all environmental aspects including but not limited to: Air Quality, Biological Resources, Climate Impact, Coastal Resources, Farmlands, Hazardous Materials, Pollution Prevention, Historical Resources, Land Use, Noise Compatibility, Socioeconomic Impacts, Children's Environmental Health, and more.

Based on measurements set by the Federal Aviation Administration (FAA) towards measuring specific environmental impact, it was found that the proposed action of the MRO facility would have no impact. These findings were then further validated by the FAA. Through the issuance of a Finding of No Significant Impact (FONSI).

1.9.6. Previous Airport Master Plan Update – September 2011

The previous airport master plan update for LAL, which this document is intended to update, was completed by Amherst Consulting in 2011. This document identified numerous development initiatives for the Airport including extension of Runways 5-23 and 9-27, construction of a new ATCT, extension of Taxiways D and B, relocation of the ILS to Runway 9, additional T-hangar and conventional hangar space, and more. This master plan will consult the information in the previous master plan to gain perspective on the Airport's overall development goals. However, this master plan will conduct unique and independent analyses of future development initiatives and facility requirements to reaffirm the purpose and need for those actions and potentially present new strategies for meeting future development goals. It is important to note that many development initiatives listed in the Implementation Program of the 2011 AMPU have been completed at LAL, driving the need to initiate a fresh look to establish development goals and strategies to guide the Airport in the years ahead.

1.9.7. Economic Impact of Proposed New Air Service – November 2015

The completion of this Air Service study in November 2015 by Sixel Consulting Group, Inc., studied the potential estimated annual local economic impact of new air service commencing at LAL. Specifically, in 2015 dollars and data, the consulting group analyzed the commencement of scheduled service to Charlotte on American Airlines and to Fort Lauderdale on JetBlue. In addition, a visitor impact study for a daily scheduled service to New York City (JFK) was studied to quantify local economic impact. The activity was measured in the following metrics:

- Direct job creation at the Airport to support airline operations
- The employment and other economic impact from the local spending of net-new visitors to the Lakeland region due to the new air service
- The indirect and induced effect of both the on-airport job creation and the visitor spending driven job creation.

The economic impact of the air service was measured with the following metrics:

- Direct impact, economic activity occurring directly related to airline operations or visitor spending
- Indirect impact, activity resulting indirectly from airport activity or visitor spending
- Induced impact, activity driven by payroll dollars from both direct and indirect activity

The findings showed the substantial benefit towards the local economy if air service was commenced at LAL. A combination of the Charlotte and Fort Lauderdale scheduled services, in 2015 dollars, would generate \$20.6 million in new total local economic impact. In addition, new air service at LAL would also significantly increase airport revenues. The potential full-time employments that could be created with the commencement of air service would be approximately 158 new jobs for the local area.

1.9.8. Joint Automated Capital Improvement Program (JACIP)

The JACIP report for LAL allows coordination between the Airport, state agencies, and the FAA in regard to proposed development projects and their respective funding. This report has a five-year outlook for the proposed projects. Each project has a description and approximated cost estimate to ensure that proper coordination with the Airport and regulatory agencies is established. **Table 1-11** provides an overview of the Airport's current JACIP report.

1.9.9. City of Lakeland, 2020 Comprehensive Land Use Plan

The City of Lakeland Comprehensive Plan was last adopted in 2010 and has been updated frequently since its adoption. That plan serves as a guide book to help city decision makers in allocating funds and approving development. It essentially reflects a ten-year blueprint for future growth of the City of Lakeland and it represents the City policies toward land use and growth. The Comprehensive Plan includes a Future Land Use Map that regulates the general type of land use that is allowed (commercial, industrial, residential etc.) and the maximum density (living units per acre) or intensity (square feet of building area) of those uses.

The City of Lakeland Comprehensive Plan is supportive of LAL and recognizes the value of the airport facility to the area. The Plan seeks to protect airport airspace through land use initiatives which discourage obstructions and incompatible land use near LAL. Furthermore, the Plan identifies LAL as an economic development target area in that the county affirms to implement an aggressive strategy to attract specific industries which deliver economic growth in the region.

1.10. Summary

The inventory provided in Working Paper 1 creates a summary of base year conditions (2017) and provides detailed information relating to LAL's property, airside, terminal, and landside facilities, services, location, and tenants, as well as ground access, and utilities. The next step in the planning process is to develop Working Paper 2 and 3 which will focus on environmental considerations that aviation demand forecasts for future aircraft operations, passenger enplanements, and based aircraft. Once completed this information will be compared to data developed in this section to define the adequacy of existing facilities and to provide an indication of what enhancements may be necessary at LAL throughout the planning period.

Table 1-11 LAL JACIP Overview

Proposed Year Start	Project Name	Approximated Cost	Description
2018	Construct T-Hangars	\$800,000	Due to 100% capacity with existing T-hangars, additional structures will be constructed
2018	Rehab Taxiway H	\$3,157,680	Due to poor pavement condition, Taxiway H will be rehabilitated
2018	RPZ Clearing for Safety	\$350,000	Tree clearing of RWY 9-27 approach in the RPZ area
2019	Entrance Road Realignment – Phase I	\$1,198,000	Realign terminal entrance roadway to allow for anticipated increase of traffic flow
2019	Rehab North-East Taxiways	\$3,161,850	Rehabilitate portions of Taxiways A, B, and C
2019	Rehab Taxiway E – Phase I	\$1,900,000	Rehabilitate portions of Taxiway E (including drainage)
2019	Environmental Assessment	\$400,000	Conduct EA for the Runway 9-27 extension
2019	RVR and ILS Upgrade	\$2,800,000	Upgrade the RVR and ILS systems on Runway 9
2020	Perimeter Service Road	\$3,812,500	Construct perimeter service road outside airfield movement areas
2020	Extend Runway 9-27	\$10,025,000	Extend Runway 9-27 (10,100 Feet Total) along with Taxiway A, and Taxiway P
2021	Additional Apron and Ramp Areas	\$750,000	Due to capacity, additional apron and ramp areas will be constructed
2021	Construct FBO Hangar	\$1,500,000	Construct FBO hangar and ramp area
2021	Construct T-Hangars	\$2,750,000	Construct additional single-engine & twin-engine t-hangars to accommodate growing demand
2021	Land Acquisition	\$3,000,000	Land acquisition in southeast corner of airport property for further aviation development
2021	Rehabilitate Runway 9-27	\$8,909,625	Rehabilitate Runway 9-27 (Easterly 6,000 LF +/-)
2022	Construct Secure Road – Phase II	\$1,178,000	Phase II of Phase I (Entrance Road Realignment). Road within AOA to access FBO, corporate hangars, etc.
2022	Rehabilitate Taxiway P	\$1,755,000	Rehabilitate Taxiway P in distressed sections
Proposed Year Start	Project Name	Approximated Cost	Description
2022	Environmental Assessment	\$425,000	Conduct environmental assessment for Runway 9R-27L extension
2023	ARFF Equipment	\$1,800,000	Acquire ARFF Equipment (To meet Index C per Part 139 regulations)
2023	Construct Parallel Runway 9R-27L	\$2,500,000	Construct parallel runway to accommodate demand and increase overall capacity
2024	Rehabilitate and Realign Taxiway E – Phase II	\$5,100,000	Rehabilitate Taxiway E in portions of distressed sections (including drainage)

Source: Lakeland Linder Regional Airport Joint Automated Capital Improvement Program 2018

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