



# **Leesburg International Airport Interim Airport Layout Plan Update and Narrative Report**

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**Submitted to:  
City of Leesburg**

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APPENDIX 1      Public Involvement Materials

APPENDIX 2      Airport Design Dimensional Criteria and FAR Part 77 Surfaces Spreadsheet  
                         KLEE Runway 3/21 and 13/31 Criteria Highlighted

APPENDIX 3      Airport Layout Plan Drawing Set Checklist



## INTRODUCTION

The City of Leesburg completed an Airport Master Plan Update (MPU) for Leesburg International Airport (KLEE) in early 2002. That report included all the required elements of a typical airport master plan and layout plan update and described planned improvements throughout the 2020 planning horizon. The following improvements to airside and landside facilities have occurred since the last Master Plan:

1. New Airport Rescue & Fire Fighting (ARFF) Station
2. New Airport Traffic Control Tower (ATCT)
3. 125,000 SF of GA Ramp
4. FBO Building
5. 7 new Corporate Hangars
6. 20 T-Hangars
7. New Taxiway E
8. RWY 13/31, TWY D & A Improvements
9. RWY 13/31 Extension & Environmental Studies
10. RWY 3/21 Rehabilitation
11. Airport Security Fence/Automated Gates
12. Wildlife Hazard Assessment
13. Mitigated Wetland Removal
14. Airfield Signage/Lighting Improvements
15. Air Navigation Surveys
16. DBE Plans (FY 2011/12/13)
17. Rotating Beacon Analysis
18. ASOS Installation

Numerous projects are currently underway to accommodate increased demand for general aviation services at KLEE including the realignment of Taxiway A, the extension of Taxiway A to the airport property line and the extension of Taxiway A from the property line to the seaplane ramp. (Section 2 of this report describes the need for these current projects.) During normal communications with the FDOT and FAA, it was noted that an interim update to the KLEE Airport Layout Plan is needed to document actual projects since the last ALP update and to facilitate the advancement of future projects. A comprehensive Master Plan Update is programmed for a future planning period (2014/2015).

In May 2013, the City of Leesburg executed a Joint Participation Agreement with the Florida Department of Transportation (FDOT) to fund an Interim ALP Update and Narrative Report. This Interim ALP Update is consistent with the most current Federal Aviation Administration (FAA) and the Florida Department of Transportation (FDOT) guidelines, including those described in:

- Advisory Circular 150/5300-13A, "Airport Design"



- Advisory Circular 150/5070-6B, “Airport Master Plans”
- Federal Aviation Regulations Part 77, “Objects Affecting Navigable Air Space”
- Advisory Circular 150/5395-1, “Seaplane Bases”

This project is divided into two principal tasks:

Task 1 – Airport Requirements and Narrative Report – describes historical airport activity, identifies the existing operational mix and design aircraft, and documents forecasts of airport activity using the most recent FAA Terminal Area Forecasts (TAF) and Florida Aviation System Plan (FASP) forecasts and facility requirements.

Task 2 – Airport Layout Plans - involves the preparation of certain drawings to conform to FDOT and FAA requirements. The interim ALP will depict past projects completed, along with future planned projects, with an emphasis on projects anticipated in the short-term (5-year) planning horizon including a potential future sea plane ramp and associated elements. The airports future generalized land use map will also be updated.

The balance of this report documents the data and information collected through completion of Task 1 and presents Airport Layout Plan set drawings as described in Task 2.



## Section 1 Public Involvement

Agency and public consultation occurred throughout the development of this document, facilitated through the Airport Advisory Board (AAB). The Airport Advisory Board is comprised of 5 members appointed by the City Commission for a period not longer than the term of office of the appointing commissioner. The Board advises the Airport Manager and City Manager, and reports to the City Commission on all matters affecting the airport including safety, security, emergency planning, airspace, runway protection zone encroachments, capital improvements projects, hangar construction and project planning. This Board meets monthly and as required by the City Commission.

The committee maintains a regular meeting schedule that is advertised in advance on the City's web site, on bulletin boards, and in the local newspaper. Airport tenants, pilots and members of the community at large attend regularly.

The AAB met on 3 occasions during the course of this study:

- May 15, 2013 – Project Memorandum No. 1 describing existing airport conditions, the existing ALP, historical aviation activity and FAA design criteria that will be the basis for the geometry of the ALP Update was presented.
- June 19, 2013 - Project Memorandum No. 2 describing forecasts of aviation activity and facility requirements was presented. The airport generalized land use maps were also presented including options for future use designations that would accommodate anticipated demand for future aviation and non-aviation uses.
- July 17, 2013 – The Draft Interim Airport Layout Plan and Narrative Report were presented. AAB comments were incorporated and recommended for approval by the City Commission at their meeting on August 12, 2013.

In addition to the AAB meetings, consultation occurred with the airport and City staff, FDOT Aviation Office representatives, FAA Airports Division, FAA Airport Traffic Control Tower (ATCT) staff, airport users, and airport tenants throughout the planning process.

## Section 2 Airport Physical Description and Existing Conditions

Leesburg International Airport (KLEE) is a general aviation facility located approximately 4 miles east of the City of Leesburg in Lake County, Florida. The airport rests on a narrow strip of land adjacent to Lake Harris on the south side of U.S. Highway 441. The airport is owned and operated by the City of Leesburg and is the cornerstone of aviation operations in the Lake County Region. The airport was established in the 1940's by the Civil Aeronautics Administration and served as a U.S. Army facility during World War II. After the war, the airport was deeded to the City of Leesburg and has grown to its current size of 818 acres. The airports general location is shown in Figure 1.



**Figure 1 – General Location Map, KLEE**

KLEE serves all types of general aviation traffic ranging from small single-engine recreational and light sport aircraft to specialized firefighting floatplanes and corporate jets. The airports proximity to Lake



Harris provides opportunities to meet the growing seaplanes/floatplane segment of the Florida aviation industry.

## 2.1 Airport Facilities

Airport facilities include “airside” and “landside” facilities. Airside facilities are those airport areas associated with aircraft arrival, taxiing and departure, such as runways, taxiways, and navigational aids. A summary of KLEE’s airside facilities is shown in Table 1.

There are presently 2 runways in use at KLEE. Primary Runway 13/31 is asphalt, 100 feet wide and 6,300 feet long. The runway is displaced 289 feet on the Runway 13 end and 400 feet on the Runway 31 end. The runway was rehabilitated in 2010

**Table 1 Summary of Existing Airside Facilities, KLEE**

Airport Elevation	76 feet			
Runways	13	31	03	21
Dimensions	6,300 x 100		4,957 x 100	
Lighting	REIL, HIRL		HIRL	
NAVAIDS	NDB,GPS	NDB,GPS	GPS	NONE
Visual Aids	PAPI-4	PAPI-4	PAPI-4	PAPI-2
Design Group	C-III		B-II	
Design Aircraft	Embraer 170		King Air 100	

Source: Airport Facility Directory, 2013

and the pavement is in excellent condition. Crosswind Runway 3/21 is also asphalt and is 100 feet wide and 4,957 feet long. The Runway 21 threshold is displaced 310 feet. Runway 3/21 was rehabilitated in 2010 and is in excellent condition.

Each runway is served by a full length parallel taxiway and both runways are lighted. Leesburg opened the Airport Traffic Control Tower (ATCT) in 2007, which operates daily from 7 AM to 7 PM. The airspace above the airport is classified as Class D, with a ceiling of 1,599 feet. The Class D airspace is effective from 7 AM to 7 PM. The airspace is Class G at all other times. KLEE has five published approach procedures applicable to Approach Categories A, B and C aircraft. (Approach Category A includes aircraft with approach speeds of 0-90 knots; Approach Category B aircraft have approach speeds of 91-120 knots; Approach Category C aircraft have approach speeds of 121-140 knots.) All of these approach procedures provide straight-in capabilities. They also support circling approaches to the airport, considered as visual approaches. Best available minimums provided by the procedures are the 317-foot ceiling and one mile visibility for RAV (GPS) RWY 31.



Landside facilities include the Airport Administration Building (which accommodates the Airport Manager and Civil Air Patrol), hangars, FBO office and aircraft parking aprons, entry and access roadways, auto parking and other support structures. Aircraft parking and hangar facilities are located exclusively in the northwest quadrant of the airport. A physical count of T-Hangar spaces indicates a total of 45 spaces exist; 20 are owned by the Airport and are 100% occupied. An additional 24 private T-Hangar units are located near the Sheriff's hangar and all but 4 are occupied. One private T-hangar is located west of the airport administration building. There are 27 conventional hangars located on site, occupied by private aviation business and aircraft owners, the Lake County Sheriff's Office, and others. (The specific location and list of occupants of all airport structures is provided in Section 5 of this report, Land Use Plan of the ALP drawing set.)

A full service Fixed Base Operator Sunair Aviation (FBO), and maintenance shop is located on-site offering flight training, aircraft parking, aircraft repairs and other services. Primary auto parking areas are located adjacent to the FBO and general aviation terminal/U.S. Customs Office and are also provided adjacent to each corporate hangar and T-hangar unit. There are 40 tie-down spaces available on the primary airport parking apron. A current aerial of the airport showing the existing airport layout, the location of airside and landside facilities and surrounding land use is shown in Figure 2.

## **2.2 Regional and Environmental Setting**

Regional Setting - Leesburg International Airport is located in the East Central Region as identified in the Florida Aviation System Plan. This region includes the airports located in Lake County, in addition to Flagler, Volusia, Brevard, Orange, Seminole and Osceola Counties. By population, it is the second largest region in the FASP. The region's growth since 1970 has been fueled primarily by global tourism due to the resort industry in central Florida. Aviation services have been and are expected to remain an essential component in the region's economic diversity.

The 2012 FASP Regional Overview<sup>1</sup> identifies 4 commercial service and 21 general aviation airports in the region. Comparatively, KLEE ranks as follows:

- 6<sup>th</sup> region wide when considering numbers of based aircraft, and 3<sup>rd</sup> when considering only general aviation airports (based aircraft at commercial service airports excluded)

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<sup>1</sup> FASP 2012 Regional Overview, Region 4: East Central Florida Region, FDOT Office of Freight, Logistics and Passenger Operations; CDMSmith, 2012.

- 12<sup>th</sup> in the region wide when considering total general aviation operations , and 9<sup>th</sup> when considering only general aviation airports (general aviation operations at commercial service airports excluded)



**Figure 2 – Airport Aerial, KLEE**

In January 2013, the City of Leesburg announced a major economic development at KLEE that will influence future airport activity; the establishment of the Wipaire, Inc. Southeastern Service Center. The 2012 FASP does not reflect this activity and the company’s plans to expand their business throughout the planning period. Wipaire, a 52 year old firm headquartered in Minnesota is the world leader in the manufacturer of aircraft floats. Wipaire holds contract with the U.S. Department of State and the U.S. Department of the Interior for maintenance and modifications to their aircraft. The company also builds the Fire Boss firefighting aircraft.



Nearby airports with instrument procedures include:

- X04 - Orlando Apopka Airport (14 nm SE)
- KINF - Inverness Airport (27 nm W)
- KORL - Executive Airport (30 nm SE)
- KOCF - Ocala International Airport-Jim Taylor Field (30 nm NW)
- KSFB - Orlando Sanford International Airport (30 nm E)

The only location nearby capable of accommodating seaplanes/floatplanes is Tavares Seaplane Base (FA1), approximately 3 nm east of KLEE. Tavares offers limited seaplane/floatplane mooring and aircraft parking apron, and provides users access to avgas but not Jet A aircraft fuel. No other aircraft services, such as those provided by an FBO (maintenance/repair/paint/training) are provided.

Environmental Setting – The airport is located between Lake Harris and Lake Griffin, and the headwaters of the Oklawaha River system. Smaller lakes around the airport include Silver Lake, Lake Eustis and Lake Dora with more than a dozen much smaller ponds interspersed throughout the area. Consequently, several species of shorebirds, waterfowl and raptors have been spotted at the airport. Most pilot flight planning resources alert pilots to bird activity in the vicinity of the airport. The City completed a Wildlife Hazard Assessment in December 2012. Certain airport conditions contributing to the potential to attract wildlife that may create a hazard were identified and are pertinent to this ALP Update:

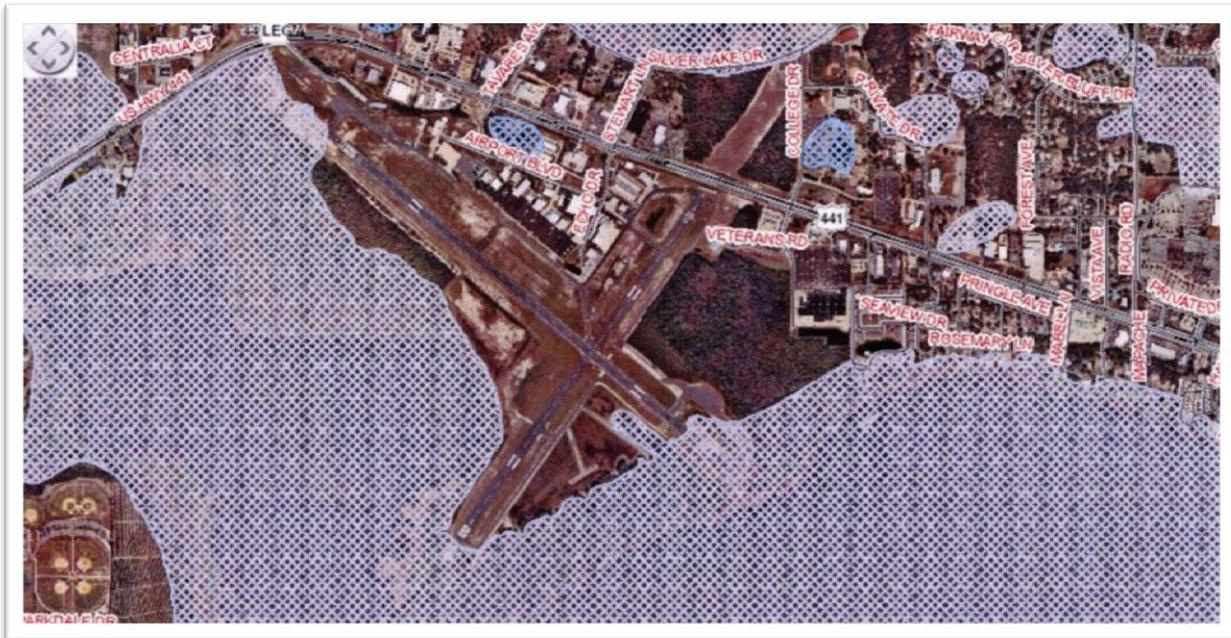
- Wetlands - Wetlands located in the western, southern and eastern quadrants of the airport include marshes and forested wetlands. Areas of sandy scrub uplands lie south of the west end of Runway 13. This combination provides a robust habitat for wildlife.
- Railroad Grade – The railroad property was acquired following the last ALP approval. Portions of the old railroad grade intersecting the eastern side of the airport were re-graded and excess fill used for the Runway 13/31 extension. Some portions of the railroad spur still exist and are heavily vegetated. This provides unobstructed movement for wildlife. The remnants of the railroad spur should be re-graded and the vegetation removed.
- Stormwater/Retention ponds - Ponds on the AOA hold standing stormwater for several days after periods of medium rainfall. Heavy rainfall was observed saturating soils in several areas of the AOA resulting in areas of standing water, attracting shorebirds and raptors.
- Fencing - The entire AOA is not fenced. Ground, mobile wildlife enter the AOA undeterred, particularly on the western, southern and eastern boundaries of the airport, along the lagoon

and Lake Harris.

The Wildlife Hazard Assessment recommended several actions to reduce the likelihood of future wildlife strikes and create a safer operational environment for the airport, including those listed below.

- Resolve stormwater management issues in accordance with FAA guidelines and install grates on culverts that are open to areas outside the AOA;
- Modify fences and gates to deter smaller wildlife from entering the AOA. Install a wildlife fence along the west, south and east perimeters of the airport;
- Prepare a Wildlife Hazard Management Plan (WHMP);

Except for the majority of the active movement areas, and along the north side of the airport, much of the western, southern, and eastern portions of the airport property lie within a flood zone. Figure 3 shows the current flood zone map for KLEE. The airport lies atop seven different soil types with most of the active movement areas built upon fill material soils. The majority of the non-movement area soils are hydric and experience saturated or flood conditions multiple times each year. Because high water table conditions exist throughout much of the airport, even the dry retention ponds hold standing stormwater for several days after rain events.



**Figure 3 – Airport Flood Zone Map, KLEE**

Six ponds help to alleviate flooding on the taxiways and runways during rain events. Figure 4 shows the location of airport stormwater retention/detention ponds. These ponds become vegetated with grass and tall weeds if not mowed regularly. Pond number 1 lies south of the ATCT, and has a large quantity of tall weeds and vegetation covering much of the bottom. This pond drains south to the lagoon and has unrestricted culverts that allow ingress from the lagoon to the AOA.

An inspection of the airport showed that it is well managed and well maintained. Airport areas are in good condition with respect to turf coverage and the absence of most trees and shrub vegetation close to runways and taxiways. Security chain-link fencing with 3-strand barbed wire outriggers exists along the north side of the airport. The installation of new security fencing and automated gates began in March 2013 and is scheduled for completion in August 2013. The new fencing and gates was not intended to address wildlife concerns; future projects may include modifications to address specific wildlife issues. The eastern, western, and southern limits of the AOA are not fenced; these are areas of highest concern of wildlife encroachment.



Figure 4 – Retention/Detention Pond Locations, KLEE



## 2.3 Historic Airport Activity

Two components of historic airport activity, based aircraft and operations, are examined in this section. The data compiled here was collected from various sources including airport records, the City of Leesburg, FAA Airport Traffic Control Tower (ATCT) reports, the Airport Facility Directory, and other pertinent sources.

### 2.3.1 Based Aircraft

The number of based aircraft at KLEE has fluctuated since the 2002 Master Plan. Table 2 lists the makeup of the based aircraft fleet at KLEE in 1998 compared to the based aircraft reported in April 2013. (1998 was the base year for the development of the 2002 Master Plan Update.) The most notable change in the airports based aircraft fleet has been the change in proportion of single-engine and multi-engine aircraft and the addition of floatplanes to the airport mix. Based helicopters also increased significantly. The airport has also experienced an increase in the proportion of multi-engine and jet aircraft as well. Airport staff have indicated that KLEE experiences seasonal increases in based aircraft during winter months when northern aircraft owners relocate to take advantage of Florida’s climate and good weather.

**Table 2 Comparison of Based Aircraft, 1998 vs. 2013, KLEE**

Type	1998 MPU Base Year		2013 Interim ALP Base Year	
	No.	Percent (%)	No.	Percent (%)
Single Engine	140	85%	94	66%
Multi-Engine	12	7%	17	12%
Jet	8	5%	5	3.5%
Helicopter	5	3%	13	9%
Ultra-Light	0	0	9	6%
Floatplane	0	0	5	3.5%
<b>Total</b>	<b>165</b>	<b>100%</b>	<b>143</b>	<b>100%</b>

Source: Leesburg International Airport Master Plan, 2002; Airport Records, April 2013

### 2.3.2 Annual Airport Operations

As noted previously, KLEE has an airport traffic control tower that operates from 7 AM to 7 PM. During those hours, tower personnel note the number of take-offs and landings (operations) performed at the airport. Table 3 presents historical annual airport operations data available from the KLEE ATCT and FAA databases.



The most recent data (2008 and partial for 2013) indicate a bottoming of the number of operations in 2010 and a recovery underway since that time.

Annual airport operations are recorded in the following categories: General Aviation (Local and Itinerant) and Military. Local operations include those that remain within the airports traffic pattern, those simulating instrument approaches and those to and from an airport and/or a practice area within a 20-mile radius. Itinerant operations are operations originating from outside the local area and traffic pattern. Operations data was collected from tower staff for fiscal years 2008 through year to date 2013. Helicopter operations are not defined in their own category; however they are counted as itinerant operations. Table 4 shows the breakdown of airport operations. Military operations were not documented in the 2002 Master Plan and are assumed to be 0.34% of the total operations for each fiscal year in accordance with FAA input.

**Table 3 Annual Airport Operations, KLEE**

Year	Actual
1998	103,462
2005	114,400
2006	--
2007	--
2008	62,152
2009	67,611
2010	50,646
2011	52,812
2012	54,712
2013 YTD	28,906

Note: Year to Date includes Jan-June, 2013  
 Source: 2002 Master Plan; ATCT reports, 2008-2012

**Table 4 Airport Operations by Type, 2008 through YTD 2013, KLEE**

Year	Local		Itinerant		Military		Total
	Number	Percent (%)	Number	Percent (%)	Number	Percent (%)	
1998	51,462	49.7%	52,000	50.3%			103,462
2008	36,748	59.1%	25,193	40.5%	211	0.34%	62,152
2009	37,731	55.8%	29,650	43.8%	230	0.34%	67,611
2010	30,423	60.1%	20,051	39.5%	172	0.34%	50,646
2011	31,403	59.4%	21,229	40.1%	180	0.34%	52,812
2012	32,373	59.1%	22,153	40.5%	186	0.34%	54,712

Source: 2002 Airport Master Plan; Leesburg International Airport ATCT Staff, 2008-2013 January through June (YTD)

Annual Instrument Approaches - KLEE has five published approach procedures applicable to Approach Categories A, B and C aircraft. The ATCT maintains records of total airport operations and instrument approach operations. Instrument approaches are used by jet, piston and military aircraft during instrument flight conditions and instrument training operations. Table 5 identifies the last 12 months of annual instrument approaches. January 2013 experienced a fluctuation in instrument approaches due to the increase in jet traffic related to the seasonal influx of residents from northern states.



**Table 5 Annual Instrument Approaches, 12-Months Ending April 2013, KLEE**

<b>Month/Year</b>	<b>No. of Instrument Approaches</b>
May 2012	381
June 2012	367
July 2012	389
August 2012	400
September 2012	353
October 2012	396
November 2012	464
December 2012	422
January 2013	504
February 2013	393
March 2013	398
April 2013	467
<b>Total</b>	<b>4,934</b>

Source: Leesburg International Airport ATCT Staff, 2012/2013

Aircraft Mix and Design Aircraft - Aircraft mix refers to the types of airplanes that use, and will use, the airport. Mix is considered in requirements for runway length, strength, and width among other design parameters. Mix also reflects three primary aircraft characteristics with respect to airfield design weight, approach speed, and wingspan. Review and consideration of these factors produces planning inputs including the design aircraft for the airport as well as the mix of based aircraft and the overall operational fleet mix. The “design” aircraft may be a single aircraft or a composite of several different aircraft composed of the most demanding characteristics of each. FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, suggests two categories of aircraft weight. Aircraft weighing 12,500 pounds or less are classified as small aircraft, and aircraft weighing more than 12,500 pounds are classified as large aircraft. The AC lists five Aircraft Categories with respect to approach speed:

- Category A: with speeds of less than 91 knots
- Category B: with speeds of 91 knots or more but less than 121 knots
- Category C: with speeds of 121 knots or more but less than 141 knots
- Category D: with speeds of 141 knots or more but less than 166 knots
- Category E: with speeds of 166 knots or more

The FAA’s classification system also divides aircraft into six Airplane Design Groups according to wingspans, as follows:



- Group I: with wingspans of up to but not including 49 feet
- Group II: with wingspans of up to but not including 79 feet
- Group III: with wingspans of up to but not including 118 feet
- Group IV: with wingspans of up to but not including 171 feet
- Group V: with wingspans of up to but not including 197 feet
- Group VI: with wingspans of up to but not including 262 feet

The previous master plan identified the design aircraft as Approach Category C, Design Group III. Based upon current information and discussions with Airport staff, users and tenants Runway 13/31 and parallel taxiway are designed to C-III standards; Runway 3/21 and taxiway system will be designed to meet lesser demanding B-II standards.



## Section 3

### Forecast of Airport Activity

Forecasts of future levels of aviation demand form the basis for effective decision making in the airport planning process. These estimates are used to identify the need for new or expanded facilities. Forecasts are intended to be realistic, based upon the latest available data and information, be supported by study information, and provide sufficient justification for development of future facilities.

The scope of this study calls for the use of the FAA's Terminal Area Forecast (TAF) and the Florida Department of Transportation's (FDOT) Florida Aviation System Plan (FASP) as the basis for forecasts of aviation activity at KLEE. This section presents the projections of aviation demand identified in the FAA's Terminal Area Forecast (TAF) and the Florida Department of Transportation's (FDOT) Florida Aviation System Plan (FASP). Aviation trends specific to Central Florida and KLEE that will influence future activity and that were not considered in the development of the TAF and FASP forecasts are also documented. Finally, the recommended forecasts for use in determining future facility needs are summarized.

#### 3.1 Forecast Methodologies

Forecasts were developed for two primary components of demand at the airport:

- Based aircraft (number, type)
- Aircraft operations (total annual, local/itinerant, annual instrument approaches and aircraft mix and design aircraft)

Consistent with federal and state guidelines for airport master planning, the forecasts were identified for three planning horizons – short-range (five years), intermediate-range (10 years), and long-range (20 years). Subsequent sections describe the context within which the forecasts were developed, data used, methods employed, and identifies the next steps in the ALP update. Forecast data were collected from the TAF and FASP. The scope of work for this task required the comparison of projections from both sources; therefore, a full forecast was not developed. The methodologies of both sources are discussed here.



Terminal Area Forecast (TAF) – The TAF is the official forecast of aviation activity at FAA facilities. These forecasts are prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities and the aviation industry. The TAF includes forecasts for active airports in the National Plan of Integrated Airport System (NPIAS). The historical data and forecasts are located on an FAA’s website. Aviation activity forecasts at FAA-towered and contract towered airports are developed using historical relationships between airport activity measures and local and national factors influencing aviation activity. Each estimate is examined for its reasonableness by comparisons with historical trends and for consistency with airport activity.

Other methods may include use of other functional forms and the use of growth rates developed separately from TAF. The TAF may incorporate estimates prepared by local authorities and/or recent FAA-approved airport master plan forecasts, when the forecast staff economists conclude that the methods used to develop these forecasts are acceptable. The TAF assumes an unconstrained<sup>2</sup> demand for aviation services based upon local and national economic conditions as well as conditions within the aviation industry. However, if the airport historically functions under constrained conditions, the FAA forecast may reflect those constraints since they are embedded in historical data. Because military operations forecasts often have national security implications, the Department of Defense (DOD) provides only limited information on future military aviation activity.

Florida Aviation System Plan (FASP) – The FDOT uses a similar approach to aviation forecasting. The FDOT uses FAA data as a source but also calculates projections based on data collected by field inspectors during the 5010 Airport Master Record update process. Because aviation is a large part of the transportation system in the state of Florida, FDOT relies heavily on aviation trends within the state of Florida, including high levels of flight training.

### **3.1.1 Aviation Trends Specific to Central Florida and KLEE**

As discussed in Section 2, the seaplane/floatplane segment of the FL aviation industry is experiencing a swell of interest and growth. In January 2013, the City of Leesburg announced a major economic development at KLEE that will influence future airport activity; the establishment of the Wipaire, Inc. Southeastern Service Center. Wipaire began service in February 2013 and is currently designing capital

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<sup>2</sup> The forecast is not affected by the airport or air traffic control systems capacity to meet the demand.



improvements totaling more than \$2M including construction of a 20,000 s.f. hangar and 12,000 s.f. office in area designated for future aviation use, adjacent to the T-Hanger area owned by the City of Leesburg. The firm is accomplishing these improvements in compliance with a \$420,000 Enterprise Florida economic development grant to facilitate the construction of a seaplane ramp. The Leesburg facility will offer onsite aircraft and float maintenance, avionics repair and installations, aircraft interior refurbishments and float installations as well as installations of select Wipaire modifications. The service center's hangar will accommodate aircraft ranging in size from small single-engine aircraft such as the Piper Super Cub up to single-engine turboprops like the twin Otter, the Quest Kodiak and Cessna Caravan series. The firm estimates the addition of 10 to 60 jobs to support the facility; the anticipated annual average wage is \$52,000. Wipaire operations will positively impact other airport business including paint shops, instrument repair facilities, and fuel sales.

Significance of Seaplane Activities in Florida - FAA registration data indicates Florida is second only to Alaska for seaplane ownership and seaplane rated pilots. Florida is the first stopping point for seaplanes coming from the Caribbean and South America. Wipaire's market research prepared as part of the firms KLEE investment showed that a service center located in central Florida at an airport with customs services, would attract domestic and international seaplane operators. Wipaire business is currently generating approximately 5 operations per day/1,845 per year at KLEE. This is expected to increase to 10 operations per day 3,650 over the 5-year planning period (2018).

Activity at the Tavares Seaplane Base & Marina is an example of the growth of this segment of the aviation market. The Tavares Seaplane Base opened in April 2010. The number of operations that year (April through December) were 1,141. Operations grew 35% in 2011 to 1,767 total operations, and continued to grow in 2012, increasing 11% to 1,990. The number of operations January through May 2013 are up 61%. The seaplane/floatplane capacity added at KLEE with the development of the seaplane base is expected to positively impact the Tavares Seaplane and Marina.

Recent Economic Development influencing KLEE Activities – On July 22, 2013 the Leesburg City Commission directed the Airport Manager to prepare an application for Foreign Trade Zone designation at Leesburg International Airport and, if the application is approved, to move forward with the necessary steps to activate the FTZ. A Foreign Trade Zone (FTZ) is an area within a country where goods can be



transported, stored, and/or processed without being subject to certain duties. Currently, there are 286 FTZs in the United States, with 20 located in the State of Florida. Seminole County FTZ 250 is currently the only FTZ located in proximity to KLEE, 40 miles to the east.

The KLEE FTZ will offer numerous benefits to business, industry and the public at large. FTZ's make the airport, City and County extensively more attractive to import/export businesses, manufacturers, and others, several are listed below:

Benefits to a Businesses / FTZ users:

- Duty Exemption - No duties on or quota charges on re-exports
- Duty Deferral - Customs duties and federal excise tax deferred on imports
- Inverted Tariff - In situations where FTZ production results in a finished product that has a lower duty rate than the rates on foreign inputs (inverted tariff), the finished products may be entered at the duty rate that applies to its condition as it leaves the FTZ
- Logistical Benefits - Companies using FTZ can have access to streamlined customs procedures
- Foreign and domestic goods held for export are exempt from state/local inventory taxes

Public benefits:

- Facilitate and expedite international trade (imports and exports)
- Provide special customs procedures as a public service to help firms conduct international trade related operations in competition with foreign plants
- Attract offshore activity and encourage retention of domestic activity
- Enhances state/local economic development efforts including job creation

Lake County, through implementation of the Lake County Economic Action Plan, is aggressively pursuing companies to expand existing businesses and industry or support emerging markets like seaplane operations and floatplane manufacturing. The City of Leesburg has the County's full support and leaders are actively working together to advance economic growth.

The FASP recognizes the need for the appropriate level of investment for airports with evolving priorities and special markets. The 2012 Regional Overview points out that functional specialization is already occurring in the East Central Florida region and is expected to continue for the foreseeable future. The



FASP recognizes that this market specialization will enhance capacity and that policy makers should facilitate growth in this area.

### 3.2 Forecast of Aviation Activity

#### 3.2.1 Based Aircraft

The number of based aircraft at an airport is an important indicator in determining future activity levels and the need for expanded or improved airport facilities. Forecasts of based aircraft are used directly to estimate the need for certain types of facilities such as hangars, aircraft aprons and support facilities. Projections of based aircraft also may serve as the basis for projecting other components of demand such as aircraft operations.

The inventory relied on airport staff collecting based aircraft information from tenants. As of May 24, 2013 airport records show a total of 143 based aircraft including 13 helicopters and 5 floatplanes. Historical data reported in the TAF indicated that the based aircraft levels have declined since the late 1990's. There have been minor fluctuations in based aircraft over the past 5 years. Table 6 compares the actual 2013 based aircraft to data collected from the FASP, TAF, and 2000 Master Plan Update. *Note: The FASP forecast ends at 2031. For that reason, the Consultant has extrapolated the FASP forecast data for 2033.*

These based aircraft forecasts showed the following:

- The TAF forecast projects a 29.29% increase in based aircraft throughout the planning period, or a growth rate of approximately 1.7%; the TAF forecast of based aircraft growth in the Southern Region averages 1.0% annually through 2033. The 2033 projections are below the current 2013 number of based aircraft. The consultant and AAB consider the data from this source to be insufficient for all planning horizons.
- The FASP projects a 20.43% increase during planning period. This source has historically overestimated the number of based aircraft and continues the same trend over the planning horizon. In the consultant's experience, this level of increase is unlikely under normal growth conditions, would require substantial shifting of airplanes from other airports, and would require airport improvements for which financial resources are uncertain.



**Table 6 Comparison of Actual vs. Forecast Based Aircraft, KLEE**

Year	Actual	TAF (2012)	FASP	2000 MPU
2003		188	215	
2004		186	215	
2005		186	215	204
2006		186	215	
2007		186	215	
2008		109	200	
2009	99	99	215	
2010		90	215	224*
2011		87	215	
2012		89	218	
2013	143	90*	220*	
<b>2018</b>		<b>99*</b>	<b>235*</b>	
<b>2023</b>		<b>108*</b>	<b>250*</b>	
<b>2033</b>		<b>128*</b>	<b>283*</b>	

Note: \* identifies forecast figures, 2033 data extrapolated

Source: FAA TAF, 2013; FDOT FASP, 2013; 2000 Master Plan; & airport records 2013

Both sources appear to provide forecasts at opposite ends of the spectrum, TAF underestimates and the FASP overestimates. For that reason and based upon input from the AAB, both forecasts were combined and averaged to formulate a composite forecast of based aircraft. The results are shown in Table 7.

**Table 7 Comparison of TAF/FASP Forecast Based Aircraft, KLEE**

Year	Actual	TAF	FASP	Difference (TAF vs. FASP)	Average
2013	143	90	220		
2018		99	235	136 (137%)	167
2023		108	250	142 (131%)	179
2033		128	283	155 (121%)	206

Source: FAA TAF, 2013; FDOT FASP, 2013; & Hanson

This composite forecast predicts the following growth in based aircraft over the key planning horizons:

- Short-range (5 years) – An increase of 26 aircraft, or 18% total, 3.6% annually
- Intermediate-range (10 years) – An increase of 12 aircraft, or 7% total, 1.4% annually
- Long-range (20 years) – An increase of 27 aircraft, or 15% total, 1.5% annually



In the absence of historic data, the forecast of based aircraft by type for the 20-year planning horizon was determined using the 2013 based aircraft inventory completed by airport staff and anticipated increases due to the development of the seaplane/floatplane market that has been achieved since February 2013 and that is expected through the 2033 planning horizon. The distribution of based aircraft by type is provided in Table 8.

**Table 8 Forecast Based Aircraft by Type, KLEE**

Type	2013		2018	2023	2033
	No.	Percent (%)			
Single Engine	94	66%	106	110	126
Multi-Engine	17	12%	22	24	28
Jet	5	3.5%	7	9	10
Helicopter	13	9%	15	16	17
Ultra-Light	9	6%	10	11	12
Floatplane	5	3.5%	7	9	13
<b>Total</b>	<b>143</b>	<b>100%</b>	<b>167</b>	<b>179</b>	<b>206</b>

Source: Leesburg International Airport Master Plan, 2002; Airport Records, April 2013

### 3.2.2 Annual Airport Operations

Forecasts of annual operations<sup>3</sup> from the TAF and FASP were also compiled. Operations forecasts are used to examine airport capacity and determine future facility requirements. Table 9 compares the historical data provided by the Air Traffic Control Tower to data collected from the TAF, FASP and 2002 Master Plan Update. These operations forecasts showed the following:

- The TAF forecast predicts an 8.30% increase in operations over the planning period. Historically, the TAF has underestimated the annual operations for LEE. 2009 had the largest difference with the TAF underestimating by 4,169 operations. The TAF forecast projects a 11% increase in operations throughout the year 2033; a growth rate of only 1.1% annually. The consultant and AAB believe a slightly higher operational growth rate will occur with increased demand by floatplanes and corporate business users. These assumptions are based upon statements of anticipated operations by the new service provider, Wipaire, and increased interest from local business aircraft operators expressing interest in basing their operations at KLEE.

<sup>3</sup> An operation is a take-off or a landing. Touch-and-go activity and stop-and-go activity that simulate take-offs and landings constitute two operations for each touch-and-go or stop-and-go cycle.



- The FASP forecast anticipates a 33.6% increase in 2033 over 2013 estimates; a growth rate of approximately 3.3 percent annually. The consultant and AAB believe a slightly higher operational growth rate will occur with increased demand by floatplanes and corporate business users. These assumptions are based upon statements of anticipated operations by the new service provider, Wipaire, and increased interest from local business aircraft operators expressing interest in basing their operations at KLEE.

**Based upon the above observations, the AAB selected the FASP forecast of annual airport operations as the preferred forecast.** The FASP forecast was adjusted slightly to reflect the anticipated increase in capacity due to Wipaire’s growth plans, which were reflected or contemplated when the FASP forecasts were developed. These adjustments are shown below:

**Table 9 Comparison of Actual vs. Forecast Total Annual Operations, KLEE**

Year	Actual	TAF (2012)	FASP	2000 MPU	Adjusted for Seaplane/Floatplane Demand
2003		112,326	117,016		
2004		114,506	117,016		
2005	114,400	116,711	117,016	114,400*	
2006		118,651	117,016		
2007		70,611	79,987		
2008	62,152	60,877	62,152		
2009	67,611	63,442	67,611		
2010	50,646	49,762	50,646	125,600*	
2011	52,812	52,322	52,812		
2012	54,712	54,735	53,583		
2013 YTD	<b>28,906</b>	56,422*	54,365*		<b>56,190 (est)</b>
<b>2018</b>		<b>57,870*</b>	<b>58,452*</b>		<b>60,250</b>
<b>2023</b>		<b>59,393*</b>	<b>62,845*</b>		<b>65,592</b>
<b>2033</b>		<b>62,675*</b>	<b>72,624*</b>		<b>76,274</b>

Note: \* identifies forecast figures, 2033 FASP Data extrapolated  
 Year To Date (YTD) = January through June 2013

Source: FAA TAF, 2012; FDOT FASP, 2013; 2000 Master Plan; and ATCT reports, 2008-2013

Annual Airport Operations by Type – A comparison of actual airport operations by type compared to TAF and FASP forecasts is shown in Table 10. Because the FASP does not have data for 2033, the FASP forecast presented in Table 4 has been extrapolated using historic data provided by the airport tower. Historic data showed that itinerant operations ranged from approximately 39.59% to 40.53% of total annual operations for the period 2008 to 2012. Itinerant operations averaged 40.93% percent for that period. This methodology was used to estimate military and local operations. The split between local,



itinerant, and military operations used for the FASP assumptions are 58.37% local, 40.93% itinerant, and 0.34% military.

**Table 10 Comparison of Actual Annual Airport Operations by Type, to TAF and FASP Forecasts, KLEE**

<b>ACTUAL</b>				
<b>Year</b>	<b>Local</b>	<b>Itinerant</b>	<b>Military</b>	<b>Total</b>
2008	36,748	25,193	211	62,152
2009	37,731	29,650	230	67,611
2010	30,423	20,051	172	50,646
2011	31,403	21,229	180	52,812
2012	32,373	22,153	186	54,712
2013 YTD	28,906			56,190 (est)
<b>TAF</b>				
<b>2018</b>	<b>29,837</b>	<b>27,766</b>	<b>267</b>	<b>57,870</b>
<b>2023</b>	<b>31,360</b>	<b>27,766</b>	<b>267</b>	<b>59,393</b>
<b>2033</b>	<b>34,642</b>	<b>27,766</b>	<b>267</b>	<b>62,675</b>
<b>Adjusted FASP</b>				
<b>2018</b>	<b>35,167</b>	<b>24,884</b>	<b>199</b>	<b>60,250</b>
<b>2023</b>	<b>38,286</b>	<b>27,092</b>	<b>214</b>	<b>65,592</b>
<b>2033</b>	<b>44,521</b>	<b>31,506</b>	<b>247</b>	<b>76,274</b>

Source: Leesburg International Airport ATCT Report; FAA TAF, 2013; & FDOT FASP

Annual Instrument Approaches (AIA) - The annual instrument approaches (AIA) are the number of arrivals by both itinerant and local traffic that utilize the instrument approaches at KLEE. KLEE has five published approach procedures applicable to Approach Categories A, B and C aircraft. A 5-month sample of operational data was selected out of the historic data provided by ATCT. May 2012 through September 2012 was selected because these were the only months where both total monthly operations and instrument approaches were reported. This sample is provided below in Table 11 and was used to calculate the percentage of monthly operations that are instrument approaches.

**Table 11 Percentage of Annual Instrument Approaches, May – Sept. 2012, KLEE**

<b>Month</b>	<b>No. of Instrument Approaches</b>	<b>Total Monthly Operations</b>	<b>Percentage (%)</b>
May 2012	381	5,169	7.37%
June 2012	367	4,072	9.01%
July 2012	389	4,114	9.46%
August 2012	400	4,234	9.45%
September 2012	353	4,094	8.62%



<b>Total</b>	<b>1,890</b>	<b>21,683</b>	<b>8.72%</b>
<b>Average</b>	<b>-</b>	<b>-</b>	<b>8.78%</b>

Source: Leesburg International Airport ATCT Reports, 2012

The average of 8.8% was applied to the FASP forecast annual operations resulting in the following forecast of instrument approaches:

**Table 12 Forecast Annual Instrument Approaches, KLEE**

<b>Year</b>	<b>Annual Operations</b>	<b>AIA</b>	<b>% of Total Operations Total</b>
<b>2018</b>	<b>60,250</b>	<b>5,302</b>	<b>8.8%</b>
<b>2023</b>	<b>65,592</b>	<b>5,772</b>	<b>8.8%</b>
<b>2033</b>	<b>76,274</b>	<b>6,712</b>	<b>8.8%</b>

Note: Percentage may differ due to rounding.

Source: Leesburg International Airport ATCT Report; FAA TAF, 2012; FDOT FASP; Hanson

Aircraft Mix and Design Aircraft - Aircraft mix refers to the types of airplanes that use, and are expected to use, the airport. Mix is considered in determining requirements for runway length, strength, and width among other design parameters. Mix also reflects three primary aircraft characteristics with respect to airfield design – weight, approach speed, and wingspan. Review and consideration of these factors produces planning inputs including the mix of based aircraft, the overall operational fleet mix and the airport design aircraft. FAA Advisory Circular (AC) 150/5300-13A, *Airport Design*, suggests two categories of aircraft weight. These categories were discussed in Section 2 of this report. The design category for Runway 13/31 is C-III (design aircraft Embraer 170) and the design category for Runway 3/21 is B-II (design aircraft Beech King Air 100).

The operational fleet mix is more difficult to estimate even with the use of the TAF and FASP. Neither source breakout the forecast projects by aircraft category or types. In the absence of that data, the 2000 Master Plan Update and current mix distribution was used to determine the percentages applied to each aircraft type. Table 13 provides the forecast of operational fleet mix.



**Table 13 Forecast of Operational Fleet Mix, KLEE**

Year	Total Operations	Single-Engine	Multi-Engine	Jet	Helicopter	Experimental	floatplanes
2013 estimate		67%	12%	5%	7%	4%	5%
<b>Based on TAF</b>							
2018	<b>57,870</b>	38,773	6,944	2,894	4,051	2,314	2,894
2023	<b>59,393</b>	39,793	7,127	2,970	4,157	2,376	2,970
2033	<b>62,675</b>	41,992	7,521	3,133	4,387	2,509	3,133
<b>Based on Adjusted FASP</b>							
2018	<b>60,250</b>	40,368	7,230	3,012	4,217	2,411	3,012
2023	<b>65,592</b>	43,947	7,871	3,280	4,591	2,623	3,280
2033	<b>76,274</b>	51,104	9,153	3,815	5,339	3,048	3,815

Source: Leesburg International Airport Reports, 2013; FAA TAF, 2013; & FDOT FASP, 2013

### 3.3 Consolidated Forecast

A summary of the forecasts of aviation demand are shown below:

**Table 14 Forecast Summary, KLEE**

	2013	2018	2023	2033
<b>Based Aircraft</b>				
Single-Engine	94	106	110	126
Multi-Engine	17	22	24	28
Jet	5	7	9	10
Helicopter	13	15	16	17
Ultralight	9	10	11	12
Floatplane	5	7	9	13
<b>Total</b>	<b>143</b>	<b>167</b>	<b>179</b>	<b>206</b>
<b>Annual Airport Operations</b>				
Local	32,759	35,167	38,286	44,521
Itinerant	23,245	24,884	27,092	31,506
Military	186	199	214	247
<b>Total</b>	<b>56,190</b>	<b>60,250</b>	<b>65,592</b>	<b>76,274</b>
<b>Annual Instrument Approaches</b>	<b>4,934</b>	<b>5,302</b>	<b>5,772</b>	<b>6,712</b>



## Section 4

### Identification of Facility Requirements

Preceding sections described existing airport facilities at KLEE and presented forecasts of activity anticipated during the 20-year planning period. Using the forecasts and the airport's physical and operational characteristics, permits evaluation of the airport's capacity and determination of the facilities needed to serve local air transportation needs. As previously noted, this Interim ALP Update and Narrative Report is not intended to represent a full airport master plan update. Therefore, this section briefly addresses airside and landside facility requirements and excludes a detailed capacity analysis that would normally accompany a comprehensive master plan update.

#### 4.1 Runway Length and Width Requirements

FAA has developed dimensional criteria for airport design in Advisory Circular 150/5300-13 Change 18. A spreadsheet highlighting the design criteria that apply to the KLEE runway system is included as Appendix 1. Adequacy of the existing runway length was reviewed using information from the inventory of existing facilities and the forecasts of aviation demand. Primary runway 13/31 has a total length of 6,300 feet and width of 100 feet. The runway is designed to accommodate large airplanes in the C-III category as the Design Aircraft. Secondary runway 3/21 is 4,957 feet long and 100 feet wide. The runway is designed to accommodate large airplanes in the B-II category as the Design Aircraft. Both runways meet or exceed the design criteria presented in Appendix 1.

#### 4.2 Wind Coverage

FAA guidelines suggest that a runway or runway system should provide coverage for 95% of crosswinds. The all-weather and IFR weather wind information has been updated for this report. The Airport Data Table (sheet 2 of the ALP drawing set) illustrates the new wind roses. The tables below provide a summary. The KLEE runway system provides sufficient wind coverage as recommended by FAA guidelines.



**Table 15 Wind Coverage, KLEE**

Runway	All Weather			IFR		
	10.5 kts	13 kts.	16 kts.	10.5 kts	13 kts.	16 kts.
<b>13/31</b>	95.73%	97.87%	99.65%	93.80%	96.52%	98.88%
<b>3/21</b>	96.77%	98.41%	N/A	96.65%	98.04%	N/A
<b>Combined</b>	99.59%	99.94%	99.97%	99.15%	99.55%	99.70%

Notes: IFR conditions: Ceiling <1000' and/or visibility <3 mile, but ceiling >=200' and visibility >=0.5 mile; Crosswind components per AC 150/5300-13

Source: NOAA Data from Leesburg, FL, period 2000-2009, 24 observations per day; Hanson

### 4.3 Airside Facility Requirements

For the purposes of this memorandum, the airside facilities of an airport are the runway configuration, its associated taxiway system, and any visual or electronic navigational/landing aids. Future needs for these facilities were determined based upon forecasts of aviation demand, in particular projected levels of aircraft operational activity and aircraft fleet mix. Guidelines from FAA AC 150/5300/13A *Airport Design* were used.

#### 4.3.1 Runway Grades and Line of Sight

The recommended maximum longitudinal runway grade is  $\pm 2.0$  percent for airplanes in Approach Category B. The recommended maximum longitudinal grade is  $\pm 1.50$  percent; however, longitudinal grades may not exceed  $\pm 0.80$  percent in the first and last quarter of the runway length in Approach Category C. In the absence of a full parallel taxiway, gradient changes shall be such that any two points 5 feet above the runway centerline shall be mutually visible for the full length of the runway. KLEE meets this requirement.

For airports with intersecting runways, the FAA recommends a clear line-of-sight between the ends of runways. The determination of the runway visibility zone (RVZ) for airports with intersecting runways reflects the distance of runway ends from the point of intersection of the centerlines of the runways. Examination of an aerial photograph of the airport indicates no conflicts with this standard with the exception of the area northeast of the intersection of Runways 13/31 and 3/21. An area of trees will require removal in order to conform to FAA standards. This area is depicted in the Airport Layout Plans Set drawings.



#### 4.3.2 Pavement Strength

Runway 13/31 and 3/21 have pavement strength of 60,000 pounds dual-wheel loading capabilities. The existing pavement strength ratings are adequate throughout the planning horizon unless the mix of aircraft changes to include larger, heavier aircraft operating 500 or more annual operations.

#### 4.3.3 Taxiway System

All runways have associated parallel taxiways. The FAA standard for taxiways serving the B-II Design Aircraft is 35 feet wide and 50 feet wide for the C-III Design Aircraft. The existing taxiway system at KLEE meets or exceeds this standard.

Section 5 of this document identifies future taxiway construction projects that will modify the existing taxiways system. Modifications will include the re-alignment of C, the relocation of Taxiway B, and the relocation of Taxiway A with the addition of a seaplane taxiway/ramp on Runway 31 end. Taxiways A and B will be 50 feet wide and Taxiway C will be 35 feet wide. Future taxiway modifications are expected to meet or exceed the design standards described above.

#### 4.3.4 Airfield Lighting

All runways are equipped with High Intensity Runway Lights (HIRLs). Runway ends 13 and 31 are equipped with Runway End Identifier Lights (REILs). Taxiways are equipped with Medium intensity Taxiway Lights (MITLs). Construction project associated with relocating or re-aligning Future Taxiways A, B, and C, identified on the Airport Layout Drawing, should include the installation of MITLs.

#### 4.3.5 Airfield Marking and Signage

Runway 13, 31 and 3 markings include nonprecision, runway centerline, threshold marking, runway designation, and aiming points. Runway 21 is visual only and included marking for runway centerline, runway designation, threshold and aiming point. The airfield is equipped with signage typical of an airport of its type. As taxiway improvements are completed, the locations of existing and new/replacement signs should be reviewed and installations made that conform to FAA guidelines.



#### 4.3.6 Instrument Approach Capacity

KLEE has five published approach procedures applicable to Approach Categories A, B and C aircraft with straight in nonprecision capabilities. The 2002 Master Plan contemplated future precision approach capabilities for Runway 31; however the need for this improvement was not realized as anticipated and the City of Leesburg has determined that this improvement is not warranted.

#### **4.4 Landside Facility Requirements**

This section describes the guidelines and methodologies used to develop facility requirements for the landside areas of the airport. These were estimated using forecasts of aviation demand and FAA guidelines. The following categories were examined:

- Hangars and Hangar Apron
- Aircraft Apron
- General Aviation Terminal
- Auto Parking and Ground Access

##### 4.4.1 Hangars and Hanger Apron

Several factors influence hangar requirements, e.g., the number of based aircraft, the physical characteristics of these aircraft, aircraft owner preferences, and the local climate. Currently the majority of KLEE's based aircraft are stored in T-hangars. Currently, the airport has 118 units with 10 additional units planned to replace Building 109, which was destroyed by a hurricane in 2006.

The number of based aircraft at the airport is projected to increase from 143 to 206 during the 20-year planning period. The FASP assumes 62% of based aircraft at LEE are stored either in a T-hangar (52%) or conventional hangar (10%). This percentage was applied to estimate the total number of hangar spaces. Continuation of these practices would indicate the need for the additional hangar units identified in Table 16.



**Table 16 Additional Hangar Requirements, KLEE**

Year	Based Aircraft	T-Hangars		Conventional Hangars	
		Existing Units	Units Required	Existing	Required
2013	143	45	74	27	14
2018	167		87		16
2023	179		93		18
2033	206		107		21
<b>Total Additional Hangars</b>			<b>62</b>		<b>0</b>

4.4.2 Aircraft Apron and Tiedowns

KLEE has 40 aircraft tie-down spaces for based aircraft on the ramp adjacent to Taxiway A. The FASP estimates that 38% of based aircraft will occupy tie-down spaces. Based upon the forecasts of demand and the estimates of future hangared aircraft, 40 tie downs will be inadequate. Projected needs for aircraft tie-down spaces (parking apron) are outlined in Table 17.

**Table 17 Additional Tie-down Requirements, KLEE**

Year	Base Aircraft	Existing Tie-downs	Required Tie-downs
2013	143	40	54
2018	167		63
2023	179		68
2033	206		78
<b>Total Additional Tie-downs</b>			<b>38</b>

As demonstrated in Section 2, the numbers of based helicopters and helicopter operations have increased considerably since the last Master Plan was completed. The airport does not currently have designated helipads for these operators. It is recommended that area be provided for the construction of at least 3 helipads in a location that will keep them at a safe distance from fixed-wing aircraft. Changes recommended to Taxiway A and B will provide in Section 5 will provide approximately 41,500 square yards of parking apron will accommodate most but not all future tie-down needs.

4.4.3 General Aviation Terminal

KLEE currently has limited general aviation terminal facilities. Sunair, the airport FBO occupies a small office adjacent to the customs office for customer support, however the size is limited and not adequate to



serve the growing airport. The Airport Administration office comprises 2,600 square feet and houses the airport management offices as well as the air traffic control tower. These are its principal purposes; its location is not convenient for use by pilots and passengers. It is anticipated that these roles will continue into the future.

The previous airport master plan recommended the development of a 5,000 square foot general aviation terminal building at a location convenient to pilots, passengers and airport users. The GA terminal is recommended for further study and will be kept in the airports work program anticipating that review through the design process will more adequately define the proper size and dimensions of the building. It is anticipated that the location would be immediately west of the administration building.

#### 4.4.4 Auto Parking and Ground Access

The primary auto parking areas are located adjacent to the SunAir FBO and general aviation terminal. Parking is also provided with each conventional hangar and T-hangar unit. Immediate access to the primary landside areas at LEE is provided by State Road 441. Echo Drive and Wilco Drive both provide access to Airport Boulevard. Airport Boulevard provides surface access to hangar complexes. Though Airport Boulevard is a road designed for vehicle traffic, it is necessary for aircraft to cross the road to gain access to the airfield.



## Section 5

### Interim Airport Layout Plan Drawing Set

Task 2 of this project involves the preparation of certain drawings to conform to FDOT and FAA requirements. A comprehensive Airport Master Plan includes a complete list of airport plan set drawings depicting existing conditions and future development plans for a 20-year planning horizon. This interim ALP update includes the update of three principal drawings included in the airport plan set: the cover sheet, the Airport Layout Plan and data sheet, and the Land Use Plan. The Interim ALP will depict past completed projects, along with the conceptual location of future planned projects, with an emphasis on projects anticipated in the short-term (5-year) planning horizon including a potential future seaplane ramp and associated elements.

#### 5.1 Interim ALP Drawing Set Checklist

The FAA Southern Region Office has developed a detailed checklist to aid in preparing the Airport Layout Plan drawing set and to aid the FAA reviewer. The checklist has been completed for this Update and is provided as Appendix 3.

#### 5.2 Cover Sheet (Sheet 1)

The Cover Sheet lists the contents of the drawing set identifies the airport owner and the parties responsible for preparing the plans, the FDOT project/program number and the appropriate signature blocks. Airport location and vicinity maps are also included.

#### 5.3 Airport Layout Plan (ALP) and Data Sheet (Sheet 2 & 3)

The ALP depicts existing and future facilities. The ALP was developed in accordance with FDOT and FAA guidance, including

- Advisory Circular 150/5300-13A, “Airport Design”
- Advisory Circular 150/5070-6B, “Airport Master Plans”
- Federal Aviation Regulations Part 77, “Objects Affecting Navigable Air Space”
- Advisory Circular 150/5395-1, “Seaplane Bases”



The Airport Data Sheet includes basic airport and runway data tables and related information such as elevations, wind roses, airport reference point (ARP) coordinates, and runway/taxiway design criteria related to operational and physical characteristics of aircraft using and anticipated to use the airport.

The following is a list of significant changes to the ALP since the previous ALP approval:

- Runway 13/31 was extended 1,300 feet and Taxiway A was extended to the new runway ends
- Construction of a new Airport Traffic Control Tower (ATCT) and Airport Rescue and Firefighting Facility (ARFF)
- 20 New T-Hangars and 7 new corporate hangars were constructed
- A new FBO building was constructed
- ASOS was installed
- Plans for a Localizer approach for Runway 31 and 13 were abandoned
- Construction of Taxiway E (future Taxiway C2)

The following is a list of projects proposed in the previously approved ALP that are carried forward in this Interim ALP Update and a brief justification:

- Reconfigure/relocate Taxiway B, D and A1 to conform to FAA standards:
  - Remove Taxiway B between the intersection of Taxiway A & B and the intersection of Runways 13/31 and 3/21 – The current design conflicts with FAA guidelines.
  - Relocate Taxiway B between Taxiway A and the approach end of Runway 21 – FAA guidelines require 240 foot separation between Runway 3/21 centerline and the Taxiway centerline. The current separation is 520 feet. The relocation of Taxiway B will bring these design elements into conformance and provide area for future aviation use (parking apron/helipads).
  - Reconfigure Taxiway D (remove pavement connecting the taxiway to the ramp) and rename A-1– The current design conflicts with FAA guidelines.
- Realignment/widening of Taxiway A:
  - Realign and widen Taxiway A between Taxiway C and existing Taxiway K (Future Taxiway C) and remove pavement – This is the continuation of a project currently underway



increasing the separation of Taxiway A and the Runway 13/31 centerline to conform with FAA guidelines.

- Realign Taxiway A between Taxiway B and the Runway 13 end - FAA guidelines require 400 foot separation between Runway 13/31 centerline and the Taxiway centerline. The current separation is 520 feet. The relocation of Taxiway A will bring these design elements into conformance and provide area for future aviation use (parking apron).
- Expand aircraft parking apron adjacent to Taxiway A – This provides additional aircraft parking apron adjacent to the airports primary general aviation service areas (FBO).
- Plan/Design new General Aviation Terminal.

The following is a list of new projects proposed in this Interim ALP Update and a brief justification:

- Construct Taxiway A2 – The reconfiguration of Taxiway D eliminates an exit Taxiway; Taxiway A2 will replace Taxiway D.
- Construct Taxiway A extension from the approach end of Runway 13 to the airport property line (Lake Harris) – Construct a 35 foot wide Taxiway approximately 850 feet long to the airport property line. This Taxiway will connect to the seaplane ramp at the shoreline of Lake Harris.
- Construct Seaplane Base at the shoreline of Lake Harris providing access to Taxiway A – This provides access to the airport facilities by aircraft using the newly designated LEE Sealane.
- Expand GA parking apron adjacent to relocated Taxiway B – This project provides area for future aviation use such as parking apron and helipads.
- Relocate Taxiway K (future Taxiway C) - FAA guidelines require 240 foot separation between Runway 3/21 centerline and the Taxiway centerline. The current separation is only 200. The relocation of Taxiway B will bring these design elements into conformance and provide area for future aviation use.
- Install new perimeter/wildlife fence along the western, southern and eastern border of the airport.

#### 5.4 Airport Land Use Plan (Sheet 4)

The Airport Land Use Plan depicts the existing and ultimate land uses on the airport. The following is a list of changes and land use designations added to the ALP since the previous ALP approval and proposed in the Interim ALP Update:



- The City of Leesburg Dog Park is shown on airport property beneath the approach surface to runway 21.
- Acquisition of the railroad grade.
- Acquire parcels within the RPZ/approach surface of Runway 13 – FAA guidelines recommend that the airport sponsor control the use of land within a runway RPZ. An existing commercial use is located within the outer portions of the RPZ for Runway 13. Acquisition of this property will bring these design elements into conformance.
- Acquire 1 Parcel between Runways 21 and 31 at the eastern edge of the current airport property line, designated future aeronautical use.
- Designation of Future Commercial Development for 2 airport parcels adjacent to the Runway 21 approach zone along US 441. (Currently shown as Aviation)
- Designation of property NW of the intersection of Wilco Drive and Airport Blvd as future aeronautical use. (Currently shown as Terminal and Parking)



## APPENDIX 1

### Public Involvement Materials



## **APPENDIX 2**

# **Airport Design Dimensional Criteria and FAR Part 77 Surfaces Spreadsheet KLEE Runway 3/21 and 13/31 Criteria Highlighted**



## **APPENDIX 3**

# **Airport Layout Plan Drawing Set Checklist**