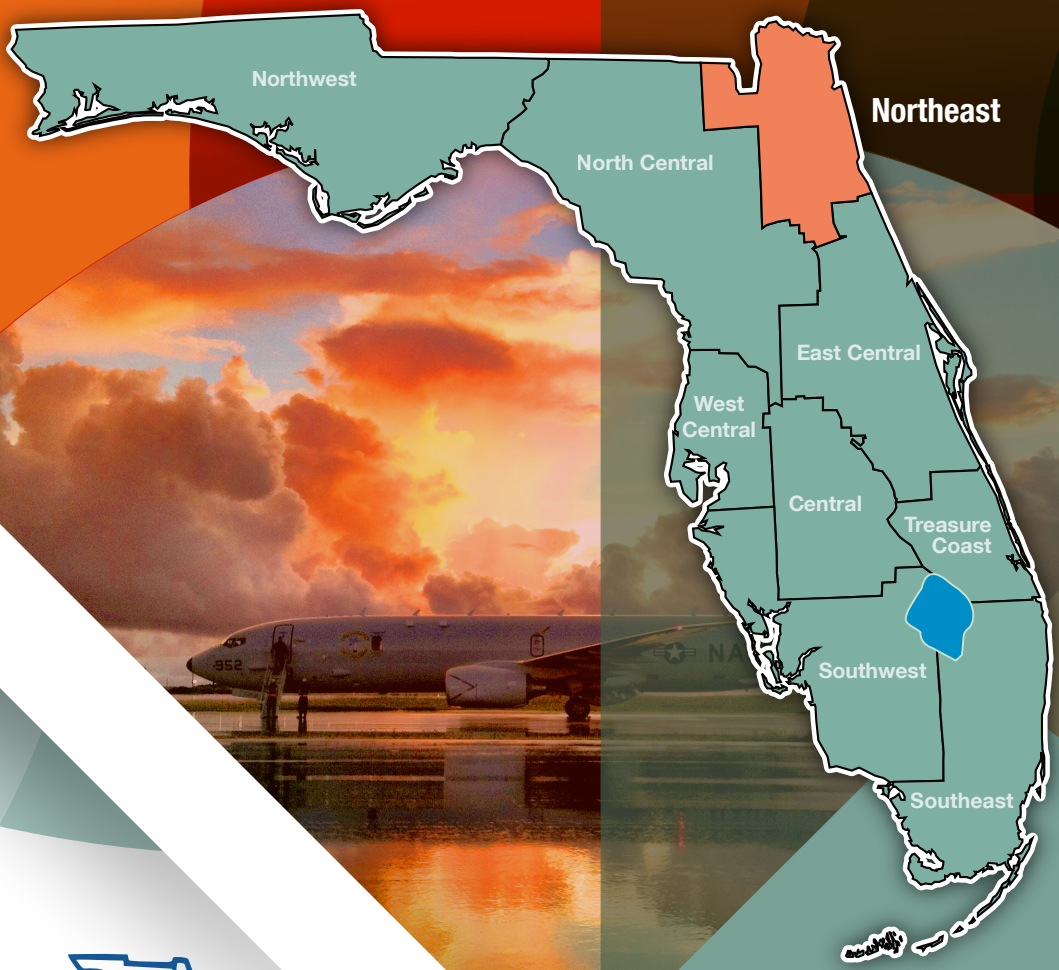
FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035



Northeast

CFASPP Metropolitan Area

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

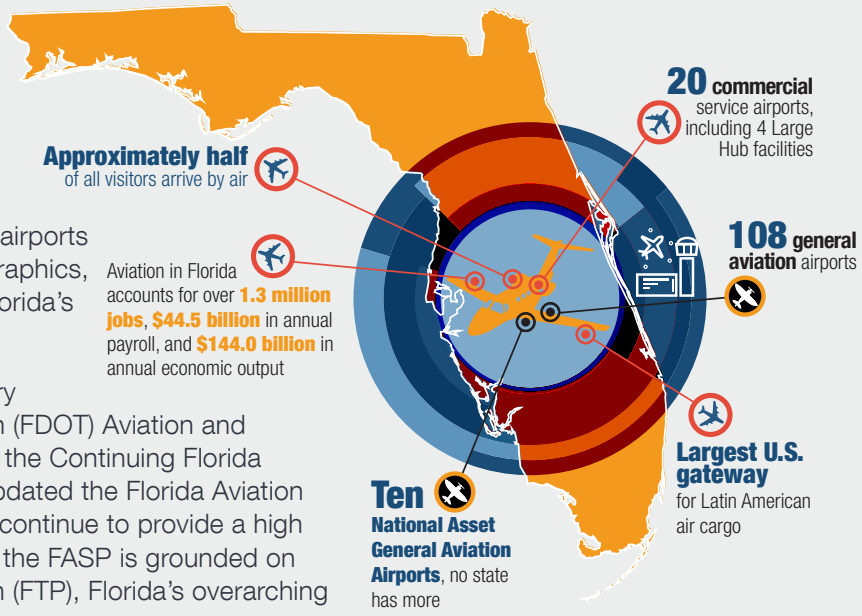
November 2017

Florida Aviation System Plan 2035 Update

Florida offers the most dynamic and progressive aviation system in the United States (U.S.). The state's 128 public-use commercial service and general aviation airports supported nearly nine million aircraft operations in 2015, and that number is anticipated to continuously rise over the next 20 years. International air cargo is a multi-billion dollar industry with over $64 billion in total air trade value in 2014. That same year, 2.7 million tons of domestic and international air cargo passed through Florida's airports. Air transportation serves as a backbone of the state's tourism economy and links rural communities to lifesaving amenities, such as emergency medical care and firefighting services.

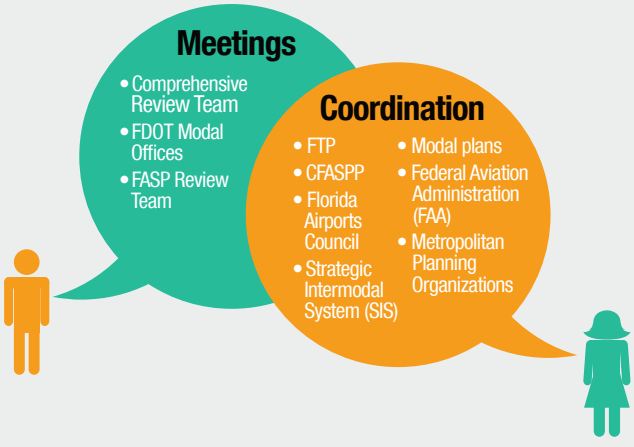
Aviation in Florida supports the economy, as well as the safety, resiliency, and security of the state's residents, visitors, and businesses. Over the past several years, a number of major shifts have impacted the aviation industry. Some, like airline consolidations, federal regulatory requirements, and fuel costs, impact airports across the U.S. Others, such as shifting demographics, state regulations, and pilot shortages, impact Florida's airports differently than other states.

Florida by the Numbers



Against a background of rapidly evolving industry trends, the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), with the assistance of the Continuing Florida Aviation System Planning Process (CFASPP), updated the Florida Aviation System Plan (FASP) to ensure Florida's airports continue to provide a high level of service to all users. The development of the FASP is grounded on the framework of the Florida Transportation Plan (FTP), Florida's overarching transportation planning document.[1]

Known as the FASP 2035 Update, this long-term planning process is designed to comprehensively assess all public-use airports in Florida to understand the relationships between these facilities and their unique users. This integrated study is designed to assess the ability of the existing system to achieve current and anticipated future demands. The FASP 2035 Update is a tool to help FDOT maintain an efficient, safe, and reliable system, evaluate future funding decisions by identifying the facilities and services that are needed to meet future demand, and effectively expand capacity in those areas where it is most needed and beneficial. The FASP 2035 Update offers policy and development recommendations for the continuing improvement of the state aviation system.

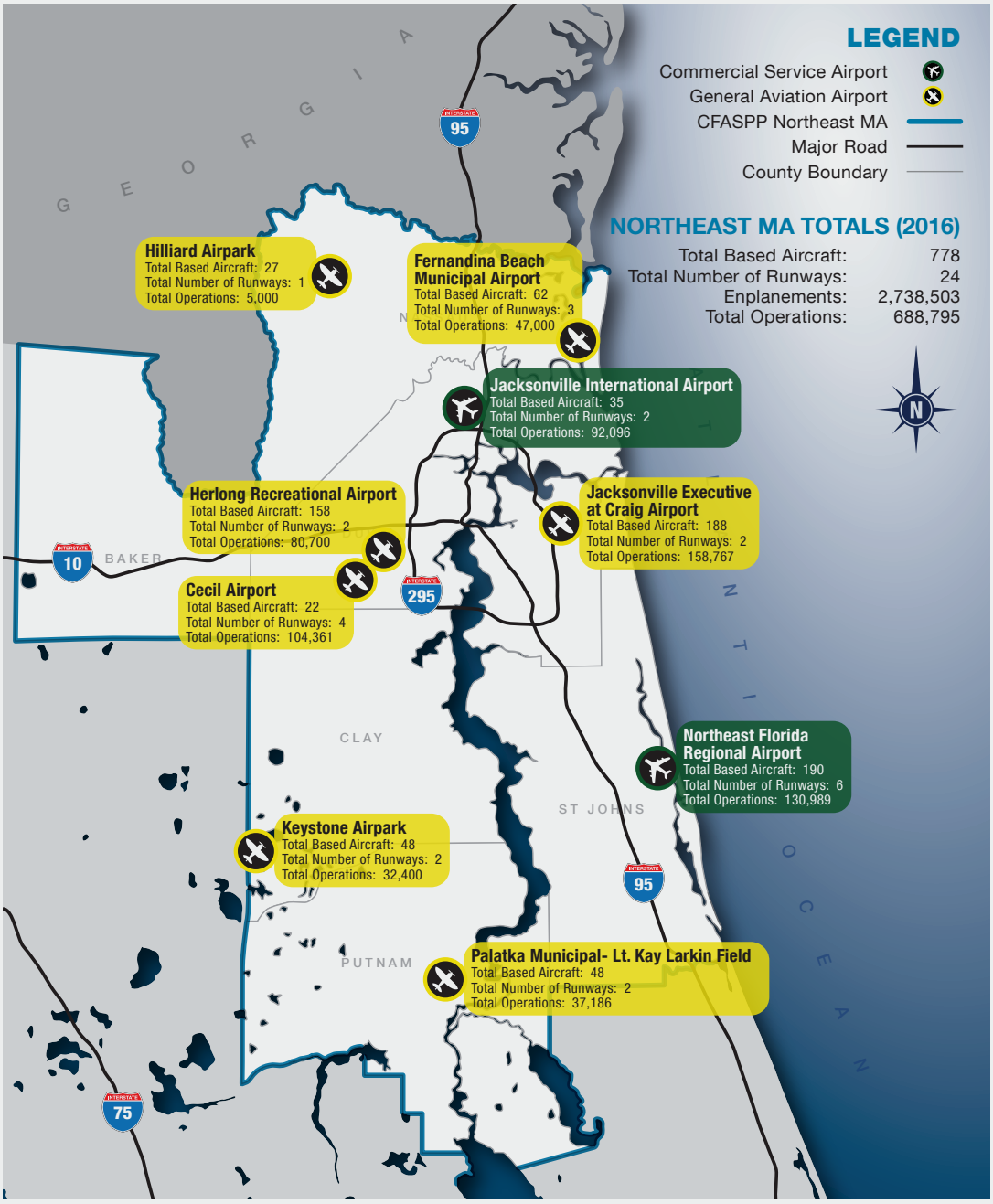


FDOT used a comprehensive public outreach and stakeholder engagement process to ensure the FASP 2035 Update was developed with the input of many audiences.

The FASP 2035 Update included analyses of the facilities, aviation activities, and future demands specific to the state's nine CFASPP regions and metropolitan areas (MAs). The process encompassed a variety of interrelated technical analyses and tasks to ensure the aviation system continues to effectively serve the needs of businesses, citizens, and visitors—both today and well into the future.

[1] *The FTP can be accessed at www.FloridaTransportationPlan.com.*

Northeast Florida CFASPP MA



Source: FAA 5010 (extracted October 2016)

The Northeast CFASPP MA is wholly contained within FDOT District Two. District Two extends further to the west, encompassing counties in the North Central CFASPP Region. Additionally, the Northeast CFASPP MA is located within the Northeast Florida Economic Development Region. The CFASPP Northeast MA Steering Committee is supported by the Northeast Regional Planning Council, Jacksonville Urbanized Area Metropolitan Organization (MPO), and FDOT.

STUDY PROCESS

Framework
- Goals, Objectives, and Performance Measures/Indicators
- System-wide Issues and Trends
- Existing Conditions Inventory
- Prior Studies and Tools Review

Assessment and Analysis
- Activity Forecasts
- Capacity Analysis
- System Evaluation
- Performance Measurement
- Alternative Scenarios
- Financial Needs

Recommendations
- Policy Recommendations
- Strategic Intermodal System Options
- Potential Follow-on Studies
- CFASPP Enhancements

Northeast Florida CFASPP MA Background

CFASPP was established by the FAA and FDOT to ensure that the state continues to meet the evolving demands placed upon its aviation system.

As part of this process, nine centers of aviation activity were identified in the state. Each of these CFASPP regions or MAs contributes to the aviation system by supporting different types and levels of aviation activity, driven by a unique set of social, economic, and environmental conditions impacting the area.

For more information, please visit www.cfaspp.com.

Naval Station Mayport with CV-60 and CV-64, 1993

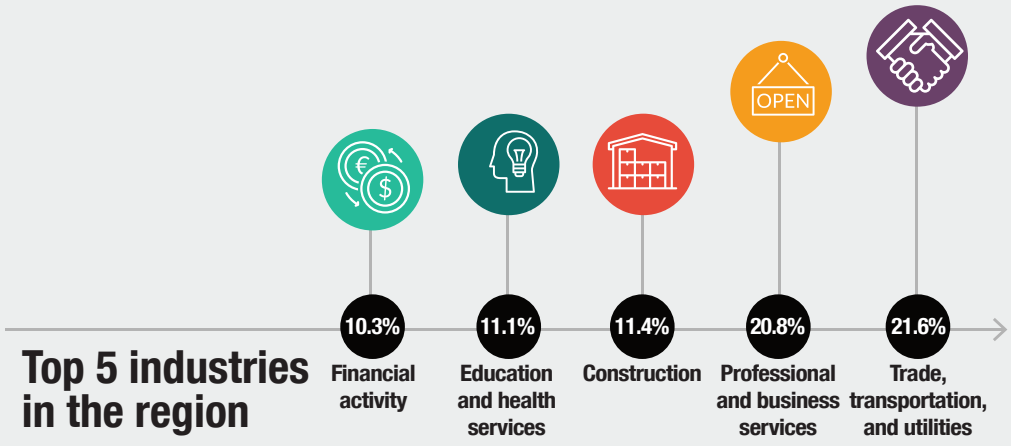
Covering 3,857 square miles, the Northeast MA includes Baker, Clay, Duval, Putnam, Nassau, and St. Johns counties. The MA is home to 1.5 million residents, comprising 7.6 percent of the state's total population. Duval County serves as the largest population base with over 900,000 residents, most of whom reside in the major urban center of Jacksonville.

The Northeast MA hosts two commercial service airports and seven general aviation airports. Jacksonville International Airport (JAX) is the primary commercial service provider, and all counties except Baker are supported by at least one general aviation or commercial service airport. Six airports provide at least one 5,000-foot-long runway to support a variety of private and corporate aircraft.

In October 1999, the U.S. Navy vacated the former Naval Air Station Cecil Field and transferred ownership of the facilities to the Jacksonville Aviation Authority. Today, Cecil Airport is the newest addition to the MA civil airport system and home to Cecil Spaceport, the only horizontal space launch facility on the East Coast. The Northeast MA has also witnessed an expansion in its commercial offerings with the addition of a direct route between Northeast Florida Regional Airport in St. Augustine and Trenton, New Jersey.

The Northeast MA's airports offer a gateway to the region's diverse industries and recreational destinations, as well as access to the intermodal transportation network centered in Jacksonville. Travelers from around the globe are drawn by recreational destinations ranging from the Spanish colonial City of St. Augustine to Jacksonville—one of the fastest growing regions of the state. Amelia Island and Ponte Vedra Beach offer access to some of Florida's best known attractions: sun, sand, and world-class golf.

The Northeast MA is supported by a diverse economic base composed of agriculture, industrial manufacturing, shipping and transportation, construction, education, and financial services. Trade, Transportation, and Utilities is the top employment sector with the highest number of workers in all counties except St. Johns. Home to three Fortune 500 companies and nearly 80 national or divisional headquarters, Jacksonville is the primary economic center of the region. The region also supports a vibrant agricultural sector with 43 percent of the total land area dedicated to crop production.

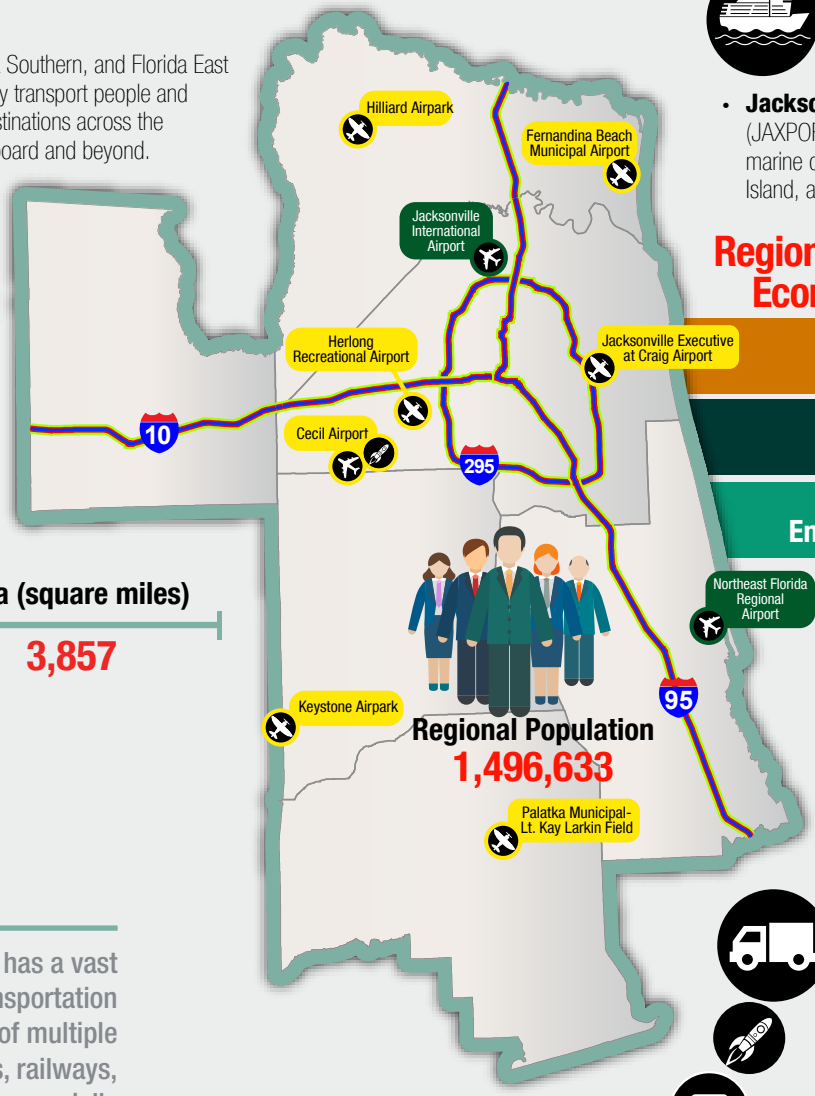


Top 5 industries in the region

Military activity is also a vital component of the regional economy and a major employer in Northeast Florida. Camp Blanding Joint Training Center, Naval Outlying Landing Field Whitehouse, Jacksonville Air National Guard Base, Marine Corps Support Facility Blount Island, Naval Station Mayport, and Naval Air Station Jacksonville support the U.S. Navy and Marine Corps, as well as the Florida National Guard.

The region's skilled workforce is, in large part, driven by the presence of numerous institutions of higher education. In addition to several private universities and community colleges, the University of North Florida supports students at its Jacksonville campus, and Flagler College in St. Augustine is one of the top liberal arts schools in the South. Jacksonville University and Florida State College at Jacksonville train students to become aviation professionals in a variety of fields including business management, flight operations, and aircraft maintenance and repair. Future pilots also have access to one of the highest densities of flight schools in the state.

CSX, Norfolk Southern, and Florida East Coast Railway transport people and goods to destinations across the Atlantic Seaboard and beyond.



Area (square miles)

3,857

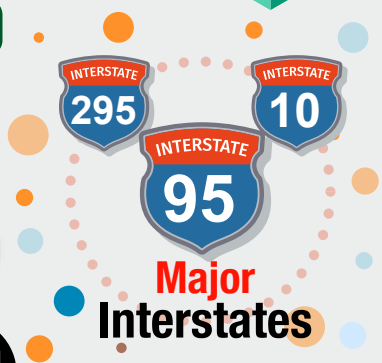
Regional Population

1,496,633

- **Port of Jacksonville** is one of the largest commercial cargo ports on the East Coast.
- **Jacksonville Port Authority** (JAXPORT) owns and operates three public marine cargo terminals: Talleyrand, Blount Island, and Dames Point.

Regional Airports' 2014 Economic Impacts

Total Output	$3.5 billion
Total Payroll	$1.2 billion
Total Employment	34,000



Major Interstates

- **Rail-to-truck and port-to-truck** facilities take advantage of the extensive highway system in the area.
- Cecil Airport is a licensed **commercial spaceport.**

The region has a vast intermodal transportation system consisting of multiple seaports, airports, railways, highways, and a commercially licensed spaceport.

Intermodal Connectivity

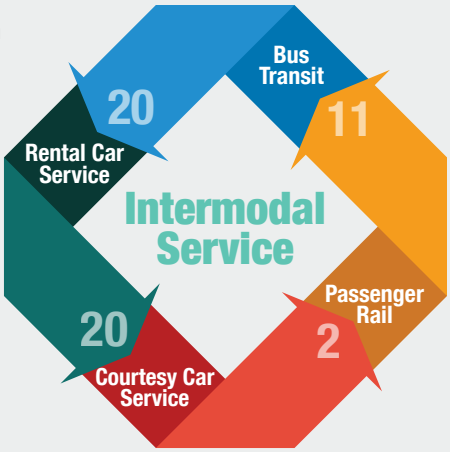
An integrated multimodal transportation system:

- Improves the efficient movement of people and goods to and from airport facilities
- Attracts visitors by providing multiple options to travel between destinations
- Reduces vehicular traffic on the roadway network
- Decreases congestion throughout the surrounding area
- Facilitates the movement of goods between suppliers, manufacturers, and consumers

Airports provide access to the national air transportation system, but also require links to other modes of transportation to facilitate the movement of people and goods to and from the airport. The linkages between airports and highway, passenger rail, transit, rental car, and other modes of travel are essential aspects of an airport system's accessibility.

While roadways provide access to all airports, intermodal connectivity is particularly important at those facilities that have been deemed essential for statewide mobility, economic growth, and development. In Florida, the airports that play a unique role in the transportation system are designated as Strategic Intermodal System (SIS) facilities.

Intermodal Services at Florida's 20 SIS Airports



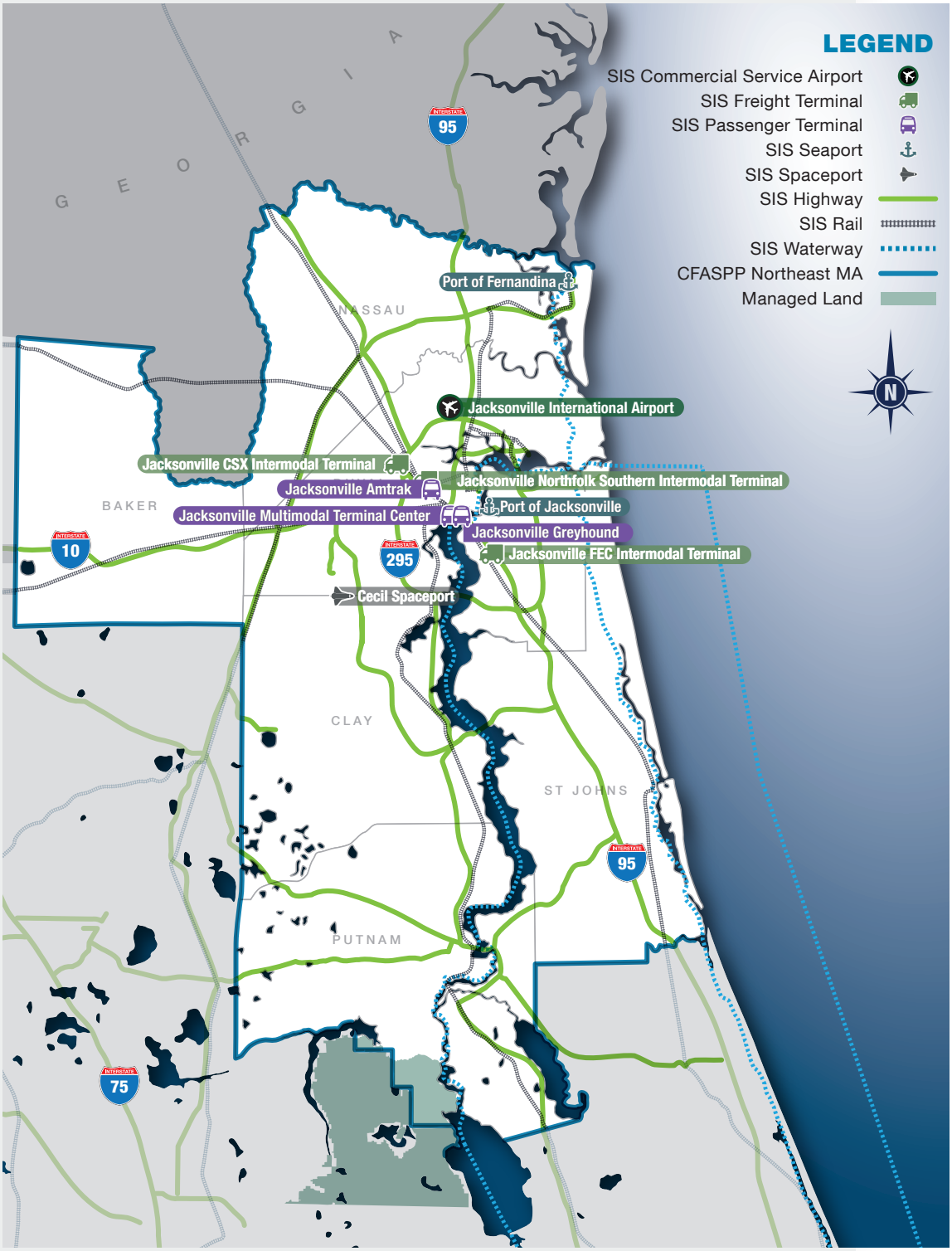
Twenty of Florida's 128 airports are SIS or Emerging SIS facilities, including 18 commercial service and two general aviation reliever airports. Commercial service airports require more connections to facilitate access to airline service, while general aviation reliever airports typically serve a high level of demand in metropolitan areas. The FASP 2035 update evaluated all airports' levels of connectivity with a particular emphasis on the SIS facilities' integration with other key modes of transportation.

Jacksonville International Airport is the only SIS airport in the Northeast Region. Cecil Spaceport is also a designated SIS spaceport, though not included in the SIS as an airport.

Jacksonville International Airport

Port of Jacksonville

Regional SIS Facilities



Jacksonville's intermodal connectivity provides a major incentive for industries with the need to transport people and goods. In addition to an exceptionally high level of roadway access offered by I-295, I-95, and I-10, the Port of Jacksonville is one of the largest natural seaports in the Southeast U.S. Located along the St. Johns River, the port handles over 21 million tons of cargo each year with annual economic impact of more than $19 billion. Freight rail facilities include the Jacksonville CSX Intermodal Terminal, Jacksonville Norfolk Southern Intermodal Terminal, and Jacksonville Intermodal Terminal. Additionally, Cecil Airport hosts Cecil Spaceport, the only commercially licensed horizontal launch facility on the East Coast.

System Goals and Performance

The FASP 2035 Update validated a series of seven goals established during previous FASP updates aimed at ensuring Florida's airports continue to meet the evolving needs of FDOT, stakeholders, and the aviation public. Based on these goals, a comprehensive set of FASP performance measures and performance indicators was developed to assess progress on system-wide objectives developed in association with each goal.

This analysis is used to quantify the ability of the existing system to achieve FASP goals and provides important insight to guide the development of system recommendations and, ultimately, funding and other planning decisions.

FDOT identified 13 performance measures and 31 performance indicators to evaluate the system's performance. A representative sample is provided.

In the Northeast MA, nearly 90 percent of airports currently meet FAA runway hot spot standards.

FASP 2035 Goals

1. Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors.
2. Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment.
3. Support and enhance the national position of leadership and prominence held by Florida's aviation industry.
4. Protect airspace and promote compatible land uses around airports.
5. Foster technological innovation and support the implementation of new technologies.
6. Promote support for aviation from business, government, and the public.
7. Foster Florida's reputation as a military- and aerospace- friendly state.

Performance Measures

Performance measures quantitatively evaluate specific aspects of system performance that can be improved through funding or project implementation. Performance measures are the metrics that FDOT can influence through funding, planning efforts, or policies and procedures.

✈ Electronic Airport Layout Plans (eALP)

To support NextGen implementation, the FAA is shifting its standards toward eALPs instead of the traditional static-map format. eALPs use a Geographic Information System (GIS) to allow airports and the FAA to collect and store aeronautical data, develop satellite-based approach procedures, and better manage the National Airspace System (NAS).

✈ Runway Hot Spots

A runway hot spot is a safety-related problem area or intersection at an airport. Most often, a hot spot is a complex intersection between two taxiways or a taxiway and runway. The issues resulting from these confusing areas may be compounded by miscommunication between an air traffic controller and a pilot, which may cause an aircraft separation standard to be compromised.

✈ Wildlife Site Visits, Assessments, and/or Management Plans

Wildlife such as birds and deer in proximity to an airfield threaten the safe and efficient operation of airfield users. Airports can perform wildlife hazard site visits, conduct wildlife hazard assessments, and/or prepare management plans to mitigate against these hazards.

Performance Indicators

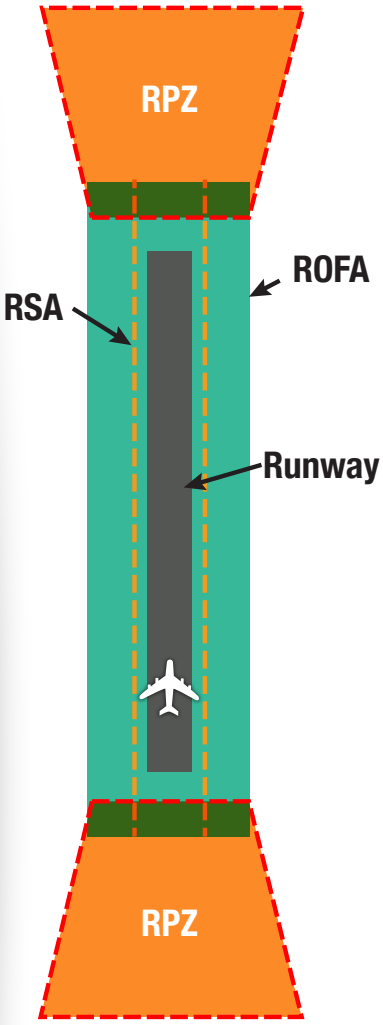
Performance indicators are generally used as a reporting mechanism to gather data on those aspects of system performance that cannot be directly impacted by FDOT action.

Emergency Airfield Lighting

The ability for an airport to remain operational through natural and man-made disasters is critical for the movement of people, goods, and equipment to ensure that the needs of the affected communities are met. Emergency airfield lighting provides for continued operations during nighttime hours or low-visibility conditions when local power is unavailable.

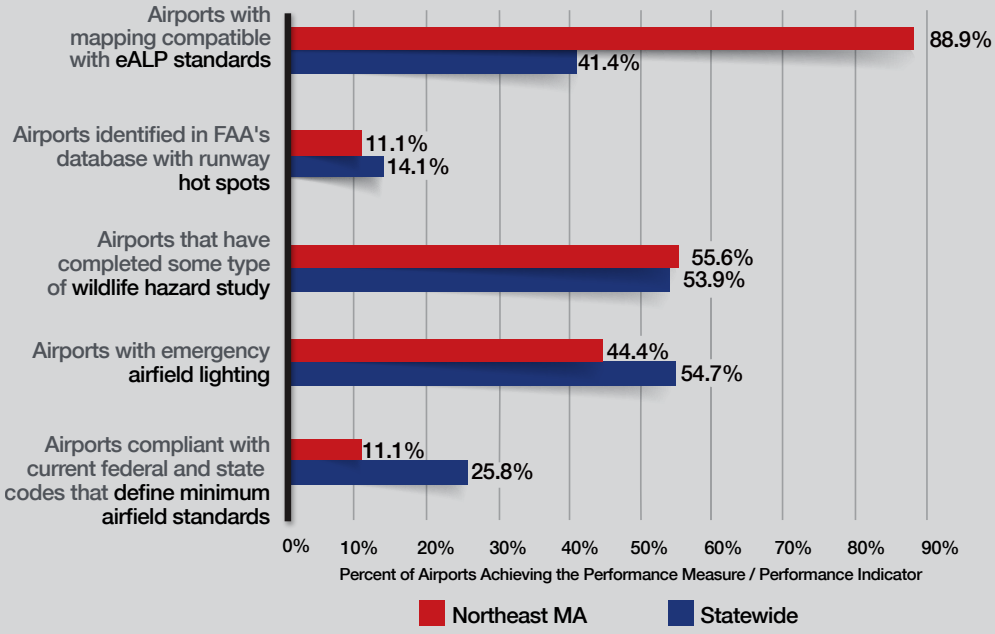
Runway Safety Areas (RSA)

According to the FAA, RSAs are "a defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway."



The FAA defines several key safety areas on and adjacent to runways. The RSA is a rectangular box surrounding the runway based on the runway design code. The **runway object free area (ROFA)** *is an area centered on the runway that must be free of all objects except those provided for air navigation or aircraft maneuvering purposes. The* **runway protection zone (RPZ)** *is a trapezoid-shaped area off the end of the runway designed to protect people and property on the ground if the aircraft lands or crashes off the runway end.*

Measures / Indicators

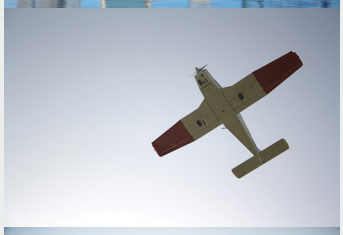


Aviation Drivers

Aviation drivers are the structural conditions and market opportunities that influence the demand for aviation facilities and services within a particular area. These external conditions shape the type and volume of activity that occurs and can significantly impact the ability of specific markets and populations to access the multiple benefits of aviation.

The Northeast MA has evolved to offer one of the most robust air transportation networks in the state, led primarily by the area's high level of intermodal connectivity. Other key drivers of aviation activity include an active tourism industry; diverse economic base; and a skilled, disciplined workforce drawn to the area by numerous military installations and institutions of higher education.

Aviation Services



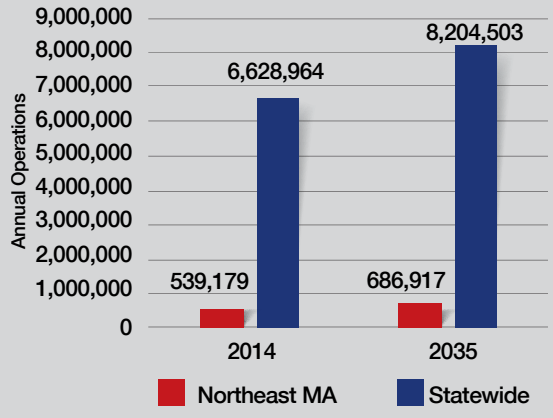
These and other key factors have resulted in a statewide system of airports capable of supporting the key aviation activities that businesses, Florida citizens, and visitors rely upon.

- **Tourism:** In 2016, a record-setting 112.8 million visitors traveled to Florida, showing that tourism remains one of the state's most important industries. Travelers are drawn by ease of travel and the continued expansion of air service into major airports. Nearly 50 percent of Florida's out-of-state visitors arrive by air.
- **Air Cargo:** Florida is the major hub for international trade between the U.S., Latin America, and the Caribbean and serves as an important connection for domestic goods. In total, over 40 percent of the nation's international cargo passes through the state.
- **Intercontinental Service:** Florida welcomes travelers from nearly 200 different countries each year, and 20 percent of all international travelers in the U.S. visit Florida. The state is a key gateway between the U.S. and abroad, and airlines continue to expand commercial service to a growing number of international destinations.
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: student, sport, airline transport, and flight instructor.
- **Corporate/Business Aviation:** Corporate/business aviation offers companies significant time savings and scheduling capabilities when compared to scheduled commercial service, while improving security, safety, productivity, and employee satisfaction. The National Business Aircraft Association's Business Aviation Fact Book 2014 reports that business aviation annually contributes $150 billion to U.S. economic output nationwide.
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

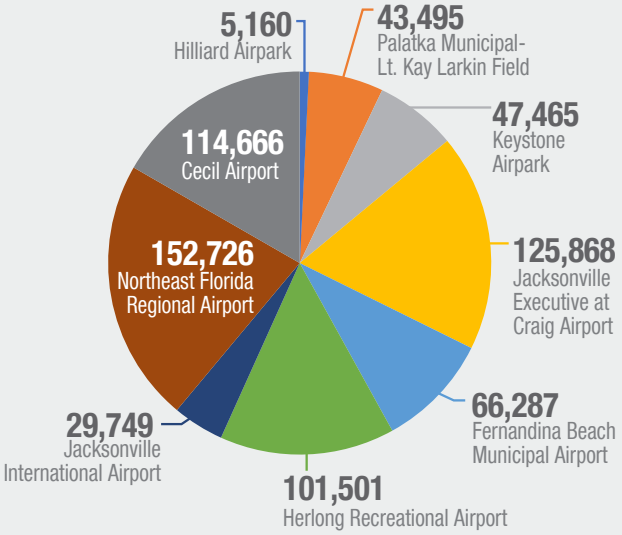
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to guide development to meet future system needs, evaluate the system's capacity to accommodate long-term aviation demand, and plan for future airside and landside facilities.

Historic and Forecast: GA Operations[2]

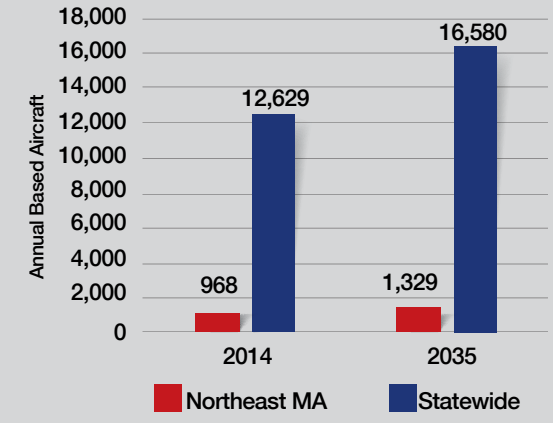


General aviation (GA) operations in the Northeast MA are projected to increase 1.30 percent annually to reach nearly 700,000 by 2035, exceeding the statewide growth rate of 1.13 percent annually over this same time period.

2035 GA Operations by Airport

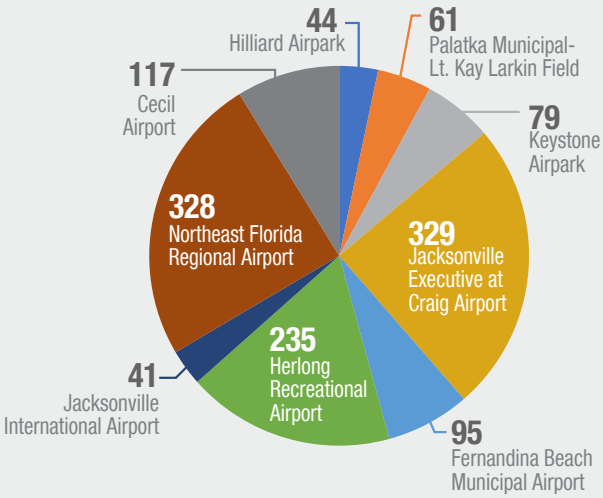


Historic and Forecast: Based Aircraft[2]



Based aircraft in the Northeast MA are projected to increase 1.78 percent annually to reach 1,329 aircraft by 2035, exceeding the statewide growth rate of 1.49 percent annually over this same time period.

2035 Based Aircraft by Airport



[1] *Note: Operations forecasts only reflect GA activity. Commercial operations were excluded from this evaluation, as drivers of commercial activity at airports can vary significantly, often due to factors that are beyond an airport's control. Examples include airline consolidation, route restructuring, and fleet modification.*

[2] *2014 was used as the base year in the FASP because it was the last full year of data available when the analysis was initiated in 2015. Sources: FAA Terminal Area Forecast and 5010 Airport Master Records.*

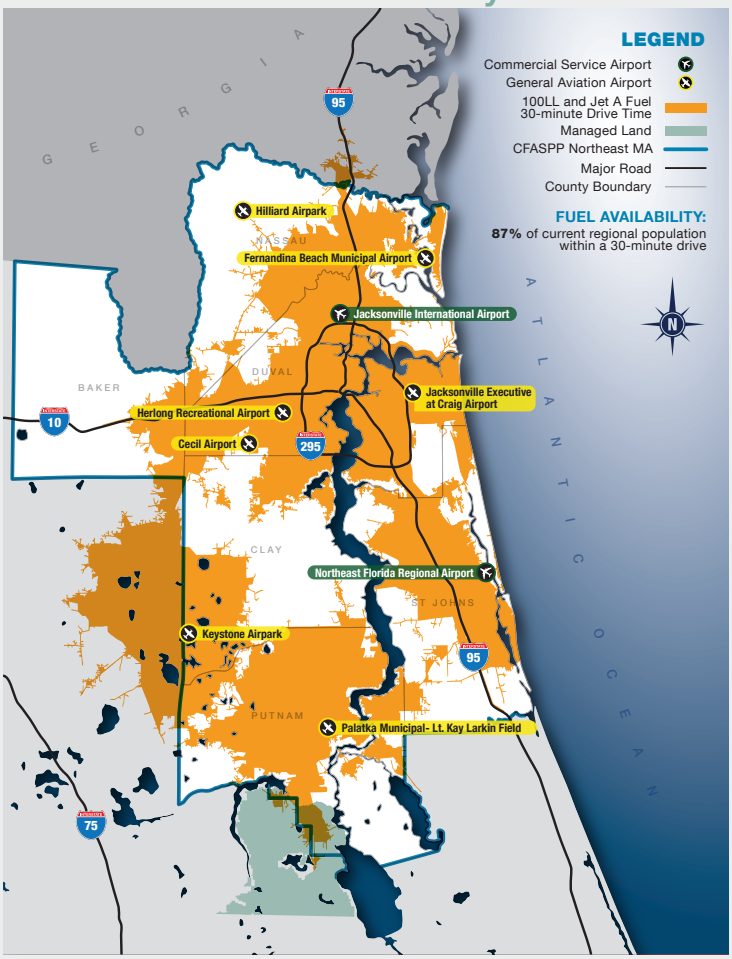
Accessibility Analysis

A functional airport system that meets the state's safety, economic, and accessibility objectives must be accessible from the ground as people travel to airports, as well as from the air for pilots seeking particular airport characteristics. The FASP Update 2035 conducted an analysis to determine the percent of Florida's population that can access different types of airports within a 30-minute drive time or within 30 actual miles by air to demonstrate how well Florida's residents are served by the state aviation system. This analysis shows there is no need for additional airports in Florida, rather that the existing system should be leveraged.

The FAA uses a 30-minute criterion to determine the airports that are eligible for inclusion in the National Plan of Integrated Airport Systems. More information is available at www.faa.gov/airports/planning_capacity/npias.

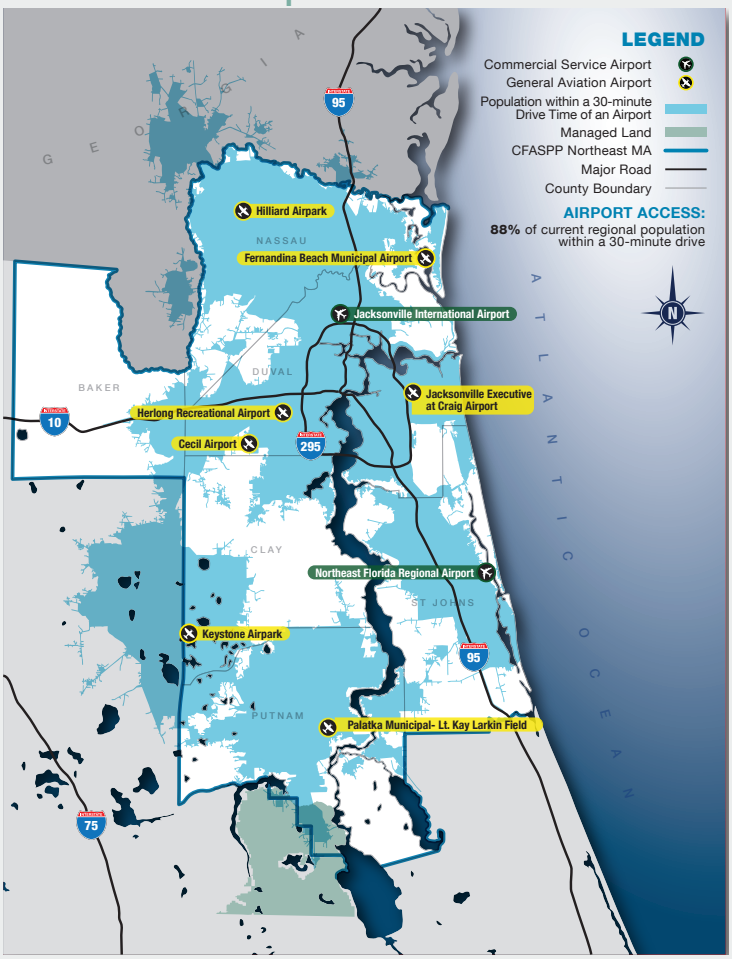
This same threshold is often used by businesses that operate general aviation aircraft as a decision-making factor when seeking locations to build or relocate their facilities.

Fuel Availability



Jet A fuel is used in turbine engines primarily flown by commercial service airlines and many business-class aircraft, while 100LL is used in piston engines commonly flown by general aviation operators. The type and availability of fuel drives the aircraft that use and activities that can occur at an airport.

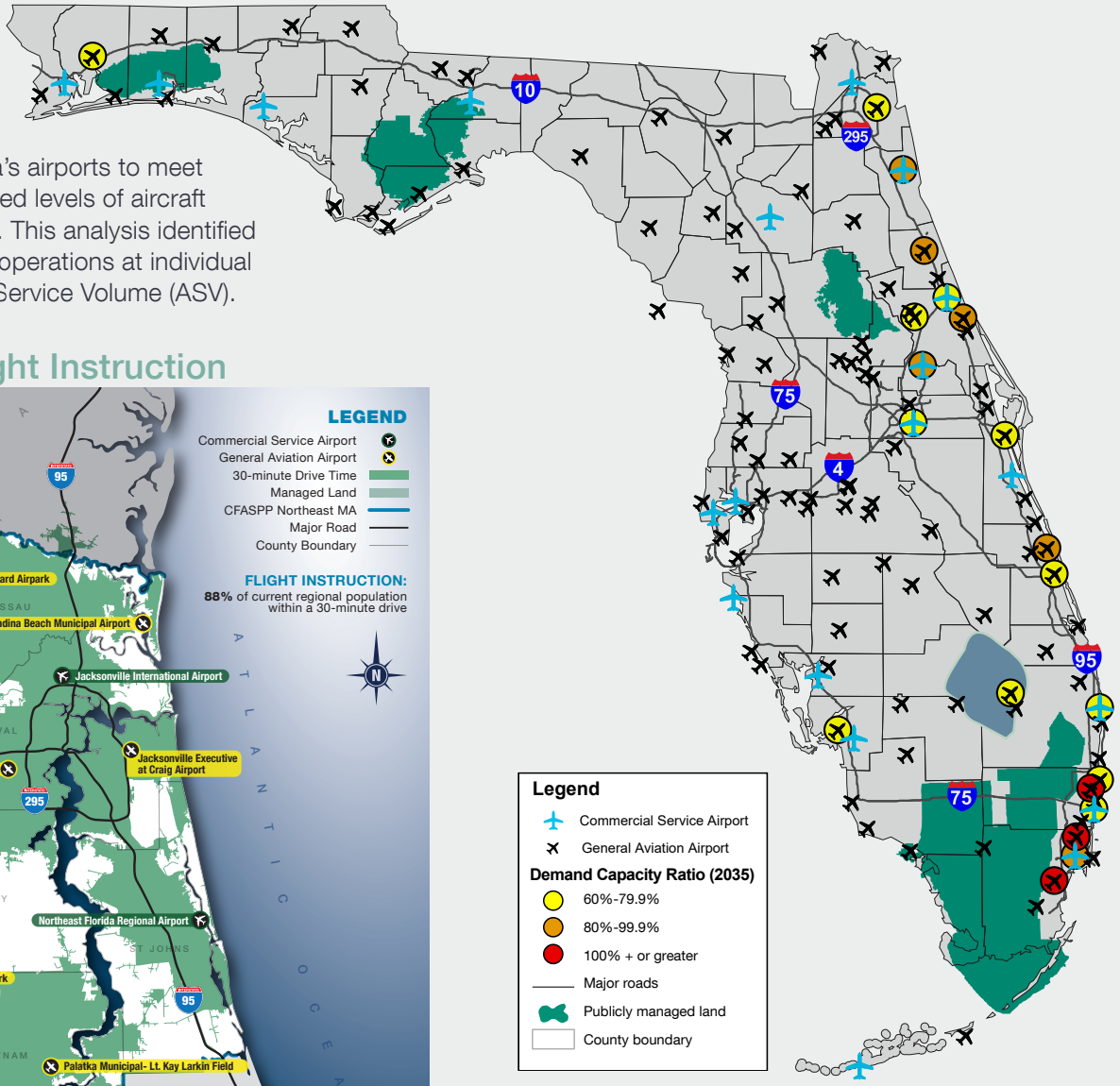
Airport Access



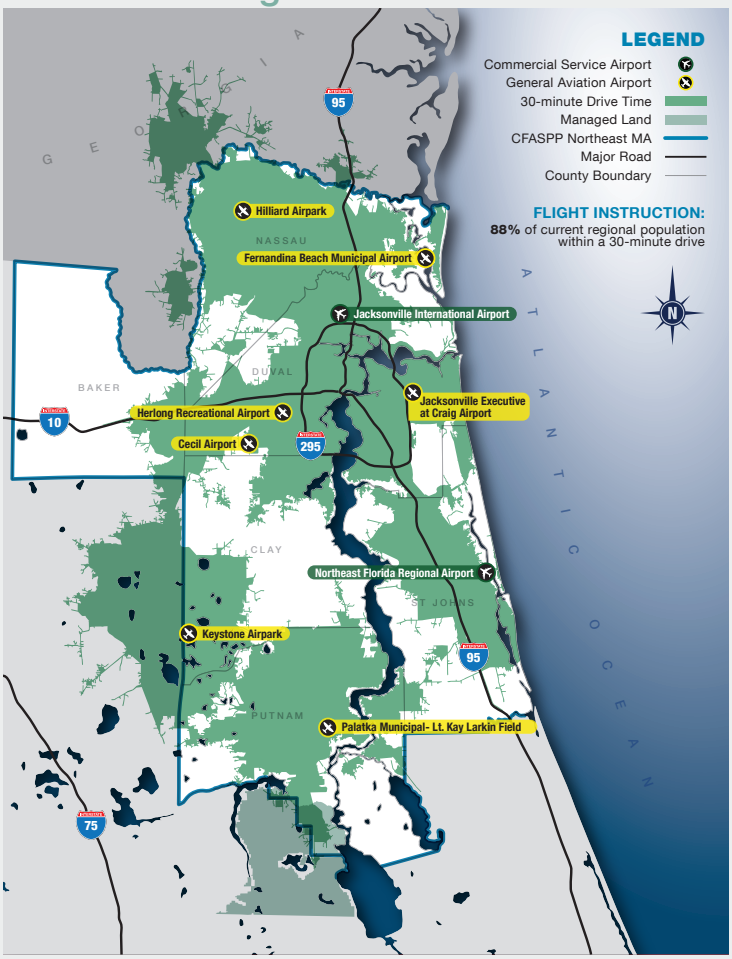
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain these and other services in their local communities.

Capacity Analysis

As part of the regional aviation forecasting effort, the FASP 2035 Update assessed the ability of Florida's airports to meet current and projected levels of aircraft operations in 2035. This analysis identified the ratio of aircraft operations at individual airports to Annual Service Volume (ASV).



Flight Instruction



The international aviation community is currently facing a severe pilot shortage, an issue that is anticipated to reach critical levels over the planning horizon. Access to quality flight instruction ensures the next generation of aviators can safely navigate our skies.

The capacity evaluation specifically assessed each airport's ASV, an indicator of relative operating airfield capacity that accounts for differences in various operating conditions that would be encountered over a year's time. Some examples of these conditions include runway use, airfield configuration, aircraft mix, and weather conditions.

The FAA recommends planning for capacity improvements when the ratio of aircraft operations to ASV reaches 60 percent, and implementation of these improvements should occur when this ratio reaches 80 percent.

Statewide Recommendations

Goal 1

Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors.

- Preserve existing infrastructure or replace when necessary.
- Conduct a more detailed capacity study, looking specifically in FDOT Districts Four, Five, and Six.
- Monitor Future Airport Capacity Task (FACT) studies as they are developed.
- Prioritize funding for projects that address state licensing standards per Rule 14-60, Florida Administrative Code (FAC).
- Compile Runway Protection Zone (RPZ) ownership data.
- Promote state funding for projects that address state and federal standards for protection and compatibility, including compatible land uses within RPZs.
- Coordinate with state and local Emergency Operations Centers (EOCs) on airport emergency power needs.
- Develop a roadmap for addressing airport wildlife hazards at a statewide level for non-Part 139 airports.
- Track the implementation of projects to correct the identified taxiway deficiencies.
- Develop facility, infrastructure, and service guidelines for lower activity general aviation airports.
- Update the FDOT General Aviation Security Assessments.

Goal 2

Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment.

- Coordinate with local, regional, and state business and tourism partners to support and encourage economic growth; communicate the benefits of the aviation industry; and foster social responsibility.
- Develop a study to identify business suitability and leverage opportunities at airports, including commercial air service enhancements.
- Coordinate with Metropolitan Planning Organizations and other modal partners to support and improve intermodal connectivity.
- Continue to maintain a database of current master plans and Airport Layout Plans (ALPs) and develop a database to track sustainability and business plans on file.
- Support efforts related to Florida's aviation education, flight training, and workforce development.
- Recommend modifications to existing SIS airport criteria to better leverage the economic competitiveness and strategic nature of Florida's airports.
- Continue to update and communicate the FDOT *Airport Sustainability Guidebook.*

Goal 3

Support and enhance the national position of leadership and prominence held by Florida's aviation industry.

- Monitor and promote the return on investment (ROI) of state funds invested in Florida's airports.
- Continue to update the *Statewide Aviation Economic Impact Study* in conjunction with the FASP.

Goal 4

Protect airspace and promote compatible land uses around public airports.

- Provide continuous training on the latest requirements of Chapter 333, Florida Statutes (F.S.), Airport Zoning.
- Provide resource materials for developing and implementing zoning ordinances, land use compatibility, and airport protection.
- Develop a web-based statewide land use compatibility tool that includes unmanned aircraft systems information.
- Develop a statewide database of eALP files provided by airports during the master planning process.

Goal 5

Foster technological innovation and support implementation of new technologies.

- Develop an implementation plan for maximizing NextGen approach procedures at Florida airports.
- Continue to work with and support partners in the space industry to advance NextGen technologies.
- Monitor technological advances that could impact airport development needs.

Goal 6

Promote support for aviation from business, government, and the public.

- Leverage Airport Cooperative Research Program (ACRP) information to develop Florida-specific resources and tools to gain support from businesses, public, and government representatives.
- Continue to fund and provide statewide Pavement Condition Index (PCI) inspections and training.
- Improve Capital Improvement Plan (CIP) management and coordination to better manage financial resources for the Joint Automated Capital Improvement Program (JACIP).

Goal 7

Foster Florida's reputation as a military- and aerospace- friendly state.

- Ensure that military personnel are invited and encouraged to participate in planning processes, such as the *Statewide Aviation Economic Impact Study,* FASP, CFASPP planning efforts, and airport master plans.
- Coordinate and support the efforts of the U.S. military in Florida through FDOT/EOC coordination.

FLORIDA AVIATION SYSTEM PLAN 2035

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