FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035

Technical Report

November 2017

FDOT

FLORIDA DEPARTMENT OF TRANSPORTATION

AVIATION AND SPACEPORTS OFFICE

Table of Contents

Preface **P-1**

Technical Report P-1

Executive Summary P-1

Summary Report P-1

CFASPP Regional Brochures P-2

Executive Summary Primers P-2

Chapter 1 – Study Introduction **1-1**

1.1 Purpose of the Florida Aviation System Plan 1-1

1.2 Role of the FDOT Aviation and Spaceports Office 1-1

1.3 Role of the Continuing Florida Aviation System Planning Process 1-2

1.4 FASP 2035 Update Process 1-2

1.5 Stakeholder Involvement 1-3

1.5.1 Comprehensive Review Team 1-5

1.5.2 Florida Metropolitan Planning Organization Advisory Council (MPOAC) and the Florida Transportation Plan (FTP) Implementation Committee 1-5

1.5.3 FDOT 1-5

1.5.4 FAA 1-6

1.5.5 FASP Review Team 1-6

1.5.6 Public Engagement Mechanism Development 1-6

1.5.7 Bi-Weekly FDOT ASO Team Meetings 1-8

1.5.8 Monthly FDOT ASO Task Team Meetings 1-8

1.5.9 CFASPP 1-8

Chapter 2 – Florida's Aviation History and Identification of Current Issues **2-1**

2.1 Current Florida System Overview 2-1

2.2 History of Aviation in the State of Florida 2-2

2.2.1 First Commercial Flight in the U.S. 2-2

2.2.2 First International Flight 2-3

2.2.3 Wartime Pilot Training State 2-3

2.2.4 First Modern Terminal to International Gateway 2-5

2.2.5 Aircraft Manufacturing 2-6

2.2.6 One of the Largest Airshows in the World 2-6

2.2.7 U.S. Sport Aviation Expo 2-7
2.2.8 Growth of Population and Tourism Since 1920 2-7
2.2.9 Flight Training and Education 2-9
2.3 Airport Issues 2-9
2.3.1 Aging Population 2-10
2.3.2 Airline Pilot Shortage 2-11
2.3.3 Autonomous Vehicles (Ground Based) 2-13
2.3.4 Competition for Space Operations 2-13
2.3.5 Contract Towers 2-16
2.3.6 Customs & Immigration 2-17
2.3.7 Electric Aircraft 2-17
2.3.8 Florida's Economy 2-19
2.3.9 Future of Avgas 2-20
2.3.10 Legalization of Gambling 2-20
2.3.11 Medical Certificate Reform for Part 91 Operations 2-21
2.3.12 NextGen 2-22
2.3.13 Opening of Cuba Market 2-23
2.3.14 Pandemic Fears 2-24
2.3.15 Price of Oil 2-25
2.3.16 Reaction to Terrorist Activity 2-25
2.3.17 Reduction in Numbers of GA Pilots 2-26
2.3.18 Reliance on Tourism 2-27
2.3.19 Remote Control Towers 2-27
2.3.20 Shortfall of Aviation Maintenance Personnel 2-28
2.3.21 Sustainability 2-30
2.3.22 TSA Staffing 2-31
2.3.23 Unmanned Aircraft Systems 2-31
2.3.24 Airport Issues Summary 2-32
2.4 Aviation Industry Trends 2-35
2.4.1 NextGen Air Transportation System 2-35
2.4.1.1 History 2-35
2.4.1.2 NextGen Components and Status of Implementation 2-36
2.4.1.3 Making the Transition to NextGen in Florida 2-39

2.4.1.4 NextGen Summary *2-39*
2.4.2 Unmanned Vehicles 2-39
2.4.2.1 Unmanned Aerial Systems (UAS) *2-40*
2.4.2.2 Autonomous Ground Vehicles *2-41*
2.4.2.3 Unmanned Vehicles Summary *2-42*
2.4.3 Aviation Activities Occurring Within the State of Florida 2-42
2.4.3.1 Commercial Service Activity *2-42*
2.4.3.2 GA Activity *2-50*
2.4.3.3 Aviation Activities Summary *2-57*
2.4.4 Commercial and GA Pilot Growth Trends 2-57
2.4.4.1 Historical Growth Trends of the Pilot Population *2-57*
2.4.4.2 Forecasts of Pilot Population and Demand *2-60*
2.4.4.3 Pilot Shortage *2-63*
2.4.4.4 Impacts of a Pilot Shortage on Florida *2-66*
2.4.4.5 Pilot Growth Trends Summary *2-69*
2.4.5 Review of Boeing and Airbus Industry Outlook 2-69
2.4.5.1 Economic Environment *2-70*
2.4.5.2 Airline Strategies and Business Models *2-73*
2.4.5.3 Network and Hub Analysis *2-74*
2.4.5.4 Technology and Capabilities *2-74*
2.4.5.5 Traffic and Market Outlook *2-75*
2.4.5.6 Outlook by Region *2-78*
2.4.5.7 Pilot and Technicians Outlook *2-83*
2.4.5.8 Air Cargo Outlook *2-84*
2.4.5.9 Boeing and Airbus Forecast Summary *2-89*
2.5 Summary 2-89
Chapter 3 – Airport System and Classifications 3-1
3.1 Introduction 3-1
3.2 Aviation Facilities in Florida 3-1
3.3 Florida's Airport System 3-3
3.4 FASP Airport Classifications or Roles 3-11
3.4.1 NPIAS 3-11
3.4.1.1 Primary Airports *3-11*

3.4.1.2 Nonprimary Airports *3-13*
3.4.2 ASSET 3-13
3.4.3 CFASPP Regions 3-16
3.4.4 FDOT Districts 3-18
3.4.5 Strategic Intermodal System (SIS) 3-25
3.5 Summary 3-27
Chapter 4 – System Goals 4-1
4.1 Introduction 4-1
4.2 Selection of Goals 4-1
4.3 Goal 1: Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors 4-2
4.4 Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment and exhibiting social responsibility 4-4
4.5 Goal 3: Support and enhance the position of leadership and prominence held by Florida's aviation industry 4-5
4.6 Goal 4: Protect airspace and promote compatible land uses around public airports 4-6
4.7 Goal 5: Foster technological innovation and support implementation of new technologies 4-7
4.8 Goal 6: Promote support for aviation from business, government, and the public 4-8
4.9 Goal 7: Foster Florida's reputation as a military- and aerospace-friendly state 4-8
4.10 Comprehensive Review Team Survey of Goals and Objectives 4-9
4.11 Alignment with FDOT Source Book 4-13
4.12 Alignment with Florida Transportation Plan Goals 4-14
4.13 Summary 4-17
Chapter 5 – Data Collection and Inventory 5-1
5.1 Statewide System Performance Assessment 5-1
5.2 Existing and Future Mapping Analysis 5-24
5.3 Summary 5-25
Chapter 6 – Aviation Activity Forecasts 6-1
6.1 Introduction 6-1
6.2 Airport Categories 6-2
6.3 Data Collection 6-15
6.3.1 Based Aircraft Data Sources 6-15

6.3.2 GA Aircraft Operations Data Sources 6-16
6.3.3 Socioeconomic Data Source 6-17
6.4 Based Aircraft Forecast 6-17
6.4.1 Based Aircraft Methodologies 6-17
6.4.2 Based Aircraft Forecast Results 6-19
6.4.2.1 County Population Growth Rate Methodology 6-19
6.4.2.2 FAA Aerospace Forecast Methodology 6-20
6.4.2.3 FAA TAF/Straight-Line Growth Methodology 6-20
6.4.2.4 Preferred Methodology 6-21
6.4.2.5 Preferred Based Aircraft Forecast: FDOT Districts 6-22
6.5 GA Operations Forecast 6-23
6.5.1 GA Operations Methodologies 6-24
6.5.2 GA Operations Forecast Results 6-25
6.5.2.1 County Population Growth Rate Methodology 6-25
6.5.2.2 FAA Aerospace Forecast Methodology 6-26
6.5.2.3 FAA TAF/Straight-Line Growth Methodology 6-26
6.5.2.4 Preferred Methodology 6-27
6.5.2.5 Preferred GA Operations Forecast: FDOT Districts 6-28
6.6 Forecasts of Operations Above Airport ARC 6-29
6.7 Coordination with Forecasting Methodology Tool Update 6-33
6.8 D/C Analysis 6-33
6.8.1 D/C Process 6-33
6.8.2 D/C Methodology and Results 6-34
6.9 Air Service & Air Cargo 6-48
6.9.1 Overview of the 2016 Florida Air Cargo System Plan Study (2016) 6-48
6.9.1.1 Global and Local Air Cargo Usage 6-48
6.9.1.2 Emerging Market Trends 6-52
6.9.1.3 Commercial Service Air Cargo Forecasts 6-53
6.9.1.4 GA Air Cargo Forecasts 6-54
6.9.2 Overview of the 2016 Air Service Study 6-54
6.10 Summary 6-57

Chapter 7 – System Analysis 7-1

7.1 Introduction 7-1

7.2 System Performance 7-1

7.2.1 Goal 1: Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors. 7-2

7.2.1.1 Objective 1.1: Ensure that FASP airports operate at an efficient D/C ratio. 7-4

7.2.1.2 Objective 1.2: Achieve and maintain 100 percent of primary runways at FASP airports in compliance with FAA and FAC 14-60 RSA standards 7-10

7.2.1.3 Objective 1.3: Achieve and maintain 100 percent of nonprimary runways at FASP airports in compliance with FAA and FAC 14-60 RSA standards 7-11

7.2.1.4 Objective 1.4: Support protection of people and appropriate land uses and controls of RPZs at FASP airports 7-12

7.2.1.5 Objective 1.5: Achieve compliance with F.S. regarding security plans 7-15

7.2.1.6 Objective 1.6: Ensure FASP airports can maintain operational capabilities during disasters… 7-16

7.2.1.7 Objective 1.7: Ensure FASP airports address wildlife incompatible uses through appropriate means 7-19

7.2.1.8 Objective 1.8: Support FASP airports in meeting FAA airfield geometric design criteria to promote operational safety 7-20

7.2.2 Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment ... 7-22

7.2.2.1 Objective 2.1: Encourage revenue generation at FASP airports to enhance airport self-sufficiency by assisting airports to develop business plans in accordance with FDOT's Florida General Aviation Airport Business Plan Guidebook 7-23

7.2.2.2 Objective 2.2: Enhance the competitiveness of Florida SIS airports for intermodal enhancement funding. Provide seamless transportation for Florida's travelers from point of departure to destination 7-24

7.2.2.3 Objective 2.3: Encourage economic, environmental, and community sustainability planning for FASP airports 7-27

7.2.3 Goal 3: Support and enhance the national position of leadership and prominence held by Florida's aviation industry 7-28

7.2.3.1 Objective 3.1: Maintain Florida's status as a national leader in supporting aviation… 7-29

7.2.4 Goal 4: Protect airspace and promote compatible land uses around airports 7-37

7.2.4.1 Objective 4.1: Encourage FASP airports to work with communities to enact airport zoning ordinances compatible with F.S. Chapter 333 and FDOT's Florida Airport Compatible Land Use Guidebook 7-38

7.2.4.2 Objective 4.2: Encourage mapping at FASP airports that is compatible with FAA's eALP standards 7-38

7.2.5 Goal 5: Foster technological innovation and support the implementation of new technologies 7-39

7.2.5.1 Objective 5.1: Encourage the development of GPS-based instrument approaches 7-40

7.2.5.2 Objective 5.2: Encourage readiness of FASP airports to meet NextGen requirements 7-41

7.2.5.3 Objective 5.3: Ensure UAS operations are considered in the state infrastructure and airway system in accordance with FAA directives 7-43

7.2.6 Goal 6: Promote support for aviation from business, government, and the public…. 7-44

7.2.6.1 Objective 6.1: Quantify and communicate the economic impact of FASP airports……..... 7-44

7.2.6.2 Objective 6.2: Coordinate with EFI to advertise the availability of resources and developable land at FASP airports to aviation-minded businesses around the country 7-45

7.2.6.3 Objective 6.3: Encourage airports to maintain pavement in an above average level of condition 7-46

7.2.7 Goal 7: Foster Florida's reputation as a military- and aerospace-friendly state 7-47

7.2.7.1 Objective 7.1: Coordinate with military aviation representatives as it relates to the Florida aviation system 7-47

7.2.7.2 Objective 7.2: Coordinate with military on emergency response coordination efforts……. 7-48

7.2.7.3 Objective 7.3: Measure the economic impact of military aviation in Florida 7-48

7.3 Mapping Analyses 7-49

7.3.1 Drive Time and Population Calculations 7-49

7.3.2 Data Sources 7-53

7.3.2.1 Airport Categories 7-53

7.3.3 Airports with ATCT 7-54
7.3.3.1 Existing Population Analysis 7-54
7.3.3.2 Contract and FAA ATCT Comparison 7-55
7.3.3.3 Future Population Analysis 7-55
7.3.4 Airports with Jet A Fuel 7-57
7.3.4.1 Existing Population Analysis 7-57
7.3.4.2 Future Population Analysis 7-57
7.3.5 100LL Fuel (Avgas) 7-60
7.3.5.1 Existing Population Analysis 7-60
7.3.5.2 Future Population Analysis 7-60
7.3.6 NPIAS Airports 7-63
7.3.6.1 Commercial Service Airports 7-63
7.3.6.2 Commercial Service Airports: Expanded Drive Times 7-69
7.3.6.3 GA Airports 7-74
7.3.7 Strategic Intermodal System (SIS) 7-79
7.3.7.1 Existing Population Analysis 7-79
7.3.7.2 Future Population Analysis 7-79
7.3.8 Flight Training 7-82
7.3.8.1 Existing Population Analysis 7-82
7.3.8.2 Future Population Analysis 7-82
7.3.9 Surface Weather Observation Stations 7-85
7.3.9.1 Existing Population Analysis with 30-Nautical Mile Buffers 7-85
7.3.9.2 Future Population Analysis 7-86
7.3.10 Runways of Various Lengths 7-88
7.3.10.1 Existing Population Analysis 7-88
7.3.10.2 Future Population Analysis 7-89
7.3.11 Instrument Approaches 7-94
7.3.11.1 Existing Population Analysis 7-94
7.3.11.2 Land Coverage within 30-Nautical Mile Buffers 7-94
7.3.11.3 Existing Population with 30-Nautical Mile Buffers 7-95
7.3.11.4 Future Population Analysis 7-95
7.3.12 Precision Approaches 7-98
7.3.13 Business User Accessibility 7-102

7.3.14 Conservation Lands and Their Effect on Development 7-105
7.3.15 Planned Roadway Improvements 7-107
7.3.15.1 Major Roadways with Planned Improvements 7-107
7.3.16 Retirement and Seasonal Residents 7-110
7.4 Intermodal Requirements and Connectivity 7-111
7.4.1 Airport Accessibility Summary 7-111
7.4.1.1 Courtesy and Rental Car Connectivity 7-111
7.4.1.2 Connectivity at Non-SIS airports 7-115
7.4.1.3 SIS Airport Connectivity Analysis 7-115
7.4.1.4 SIS Airport Intermodal Services Summary 7-117
7.4.2 SIS Intermodal Connectivity and LOS Analysis 7-118
7.4.2.1 Daytona Beach International Airport 7-118
7.4.2.2 Destin-Ft. Walton Beach Airport 7-119
7.4.2.3 Fort Lauderdale-Hollywood International Airport 7-119
7.4.2.4 Gainesville Regional Airport 7-120
7.4.2.5 Jacksonville International Airport 7-121
7.4.2.6 Kissimmee Gateway Airport 7-122
7.4.2.7 Melbourne International Airport 7-122
7.4.2.8 Miami Executive Airport 7-123
7.4.2.9 Miami International Airport 7-124
7.4.2.10 Northwest Florida Beaches International Airport 7-124
7.4.2.11 Orlando International Airport 7-125
7.4.2.12 Orlando-Sanford International Airport 7-126
7.4.2.13 Palm Beach International Airport 7-127
7.4.2.14 Pensacola International Airport 7-127
7.4.2.15 Punta Gorda Airport 7-128
7.4.2.16 Sarasota Bradenton International Airport 7-129
7.4.2.17 Southwest Florida International Airport 7-129
7.4.2.18 St. Pete-Clearwater International Airport 7-130
7.4.2.19 Tallahassee International Airport 7-131
7.4.2.20 Tampa International Airport 7-132
7.5 Activity Drivers 7-132
7.5.1 Accommodation and Food Service (Code 72) 7-134

7.5.2 Arts, Entertainment, and Recreation (Code 71) 7-134
7.5.3 Construction (Code 23) 7-134
7.5.4 Finance and Insurance (Code 52) 7-135
7.5.5 Healthcare and Social Assistance (Code 62) 7-135
7.5.6 Information (Code 51) 7-135
7.5.7 Manufacturing (Code 31 – 33) 7-135
7.5.8 Professional, Scientific, and Technical Services (Code 54) 7-135
7.5.9 Real Estate and Rental and Leasing (Code 53) 7-135
7.5.10 Retail Trade (Code 44 – 45) 7-136
7.5.11 Transportation and warehousing (Code 48 – 49) 7-136
7.5.12 Utilities (Code 22) 7-136
7.5 Summary 7-150
Chapter 8 – Alternative Scenarios 8-1
8.1 Introduction 8-1
8.2 Stability of Oil Prices 8-1
8.2.1 Commercial Service Impacts 8-2
8.2.1.1 Ticket Prices 8-3
8.2.1.2 Airline Capacity 8-4
8.2.1.3 Changing Airline Fleet 8-5
8.2.2 GA Impacts 8-5
8.3 Resiliency 8-8
8.3.1 Community Resiliency 8-8
8.3.2 Industry Resiliency 8-10
8.3.2.1 Commercial Service 8-11
8.3.2.2 General Aviation 8-12
8.3.3 Workforce adaptation 8-13
8.3.3.1 Pilots 8-13
8.3.3.2 Maintenance Technicians 8-14
8.3.3.3 Air Traffic Controllers 8-14
8.3.3.4 Airport Operators 8-15
8.3.3.5 Aviation Workforce History 8-15
8.4 Reliance on Tourism 8-19
8.5 Summary 8-22

Chapter 9 – Funding **9-1**
9.1 Introduction 9-1
9.2 Financial Comparison of Federal Needs and State Programming 9-1
9.2.1 Overview of Florida Aviation Grant Program 9-1
9.2.2 Examination of FDOT ASO Grant Funding 9-3
9.2.2.1 Current Funding Process *9-3*
9.2.2.2 Florida Aviation Grant Program Process *9-4*
9.2.2.3 Ability of Funding Processes to Address FASP Goals *9-4*
9.2.3 Analysis of FDOT Funding Needs and Programs 9-6
9.2.4 FAA Airport Funding 9-7
9.2.5 FAA-Identified Airport Funding Needs 9-8
9.2.6 Comparison of FAA and FDOT-Identified Funding Needs 9-8
9.2.7 Findings 9-13
9.3 Application of State Strategic Goal Assessment Tool (SSGAT) 9-13
9.3.1 Overview of the SSGAT 9-14
9.3.2 FDOT Five Year Work Program 9-16
9.3.3 JACIP 9-17
9.3.4 Methodology 9-17
9.3.5 Results 9-17
9.3.5.1 Apron *9-18*
9.3.5.2 Building – ARFF and Snow Removal *9-20*
9.3.5.3 Buildings – Air Traffic Control and Hangars *9-21*
9.3.5.4 Ground Transportation *9-22*
9.3.5.5 Other Projects *9-25*
9.3.5.6 Runway *9-28*
9.3.5.7 Taxiways *9-30*
9.3.5.8 Terminals *9-32*
9.3.6 Findings 9-34
9.4 SIS-Funded Projects Analysis 9-34
9.4.1 SIS Classifications 9-34
9.4.2 Projects Eligible for Funding 9-36
9.4.3 Historical SIS Funding 9-37
9.4.3.1 Funding by Project Type *9-37*

9.4.3.2 Funding by Airport *9-38*
9.4.3.3 Funding by FDOT District *9-38*
9.4.4 Looking Ahead – SIS Aviation Funding 9-39
9.4.5 Looking Ahead – Non-Aviation SIS Funding 9-40
9.4.5.1 Non-Aviation Project Within One Mile of a SIS Airport *9-41*
9.4.5.2 Non-Aviation Project Within Five Miles of an SIS Airport *9-41*
9.4.6 SIS Findings 9-43
9.5 Summary 9-43
Chapter 10 – Recommendations 10-1
10.1 Introduction 10-1
10.2 Florida Airport System and FASP Inclusion Criteria Recommendations 10-1
10.2.1 Evaluation of Florida Airport System Facilities 10-1
10.2.2 Evaluation of FASP Study Airports 10-2
10.3 NPIAS/ASSET Recommendations 10-3
10.3.1 NPIAS 10-4
10.3.1.1 NPIAS Inclusion Criteria *10-4*
10.3.1.2 Changes to Existing NPIAS Airports *10-5*
10.3.1.3 Recommended Additions to the NPIAS *10-6*
10.3.2 ASSET 10-7
10.3.2.1 ASSET Inclusion Criteria *10-7*
10.3.2.2 Changes to Existing ASSET Airports *10-9*
10.3.2.3 Recommended Changes to Florida Airports' ASSET Classifications 10-10
10.4 Strategic Intermodal System (SIS) Recommendations 10-11
10.4.1 Existing SIS Designation Criteria 10-11
10.4.2 Previous Changes to SIS Designation Criteria 10-13
10.4.3 Recommended Changes to the SIS 10-14
10.5 FASP 2035 Recommendations 10-18
10.5.1 Goal 1: Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors 10-18
10.5.1.1 Goal 1 Recommendations *10-18*
10.5.2 Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment 10-18
10.5.2.1 Goal 2 Recommendations *10-19*

10.5.3 Goal 3: Support and enhance the national position of leadership and prominence held by Florida's aviation industry 10-19

10.5.3.1 Goal 3 Recommendations: 10-19

10.5.4 Goal 4: Protect airspace and promote compatible land uses around public airports 10-19

10.5.4.1 Goal 4 Recommendations: 10-20

10.5.5 Goal 5: Foster technological innovation and support implementation of new technologies 10-20

10.5.5.1 Goal 5 Recommendations: 10-20

10.5.6 Goal 6: Promote support for aviation from business, government, and the public 10-20

10.5.6.1 Goal 6 Recommendations: 10-21

10.5.7 Goal 7: Foster Florida's reputation as a military- and aerospace-friendly state 10-21

10.5.7.1 Goal 7 Recommendations: 10-21

10.5.8 FASP Recommendations Alignment with FTP & SIS 10-21

10.6 System Gaps and Opportunities 10-24

10.6.1 Additional Airport Analysis: Accessibility 10-24

10.6.2 Additional Airport Analysis: Capacity 10-30

10.6.3 Aviation System Facility and Service Gaps/Opportunities 10-33

10.7 IAT and SSGAT Recommendations 10-44

10.7.1 IAT Overview and Recommendations 10-44

10.7.2 SSGAT Overview and Recommendations 10-45

10.8 CFASPP Recommendations/Enhancements 10-47

10.8.1 Number of Meetings 10-49

10.8.2 Outreach Efforts 10-49

10.8.3 CFASPP Website Updates 10-50

10.8.4 CFASPP Boundaries 10-50

10.8.4.1 FDOT District Boundaries 10-50

10.8.4.2 Florida Economic Development Regions 10-53

10.8.5 CFASPP Summary 10-55

10.9 Follow-On Study Needs 10-55

10.10 Summary 10-56

Appendices

Appendix A – Stakeholder Outreach A-1

A.1 Comprehensive Review Team (CRT) A-1

A.1.1 Meeting # 1 – August 20, 2015 ..... A-1

A.1.1.1 Agenda A-1

A.1.2 Meeting #2 – March 22, 2016 ..... A-2

A.1.2.1 Agenda A-2

A.1.2.2 Presentation A-3

A.1.2.3 Meeting Summary A-24

A.1.3 Meeting #3 – June 1, 2016 ..... A-32

A.1.3.1 Presentation A-32

A.1.3.2 Meeting Summary A-46

A.1.4 Meeting #4 – August 10, 2016 ..... A-48

A.1.4.1 Presentation A-48

A.1.4.2 Meeting Summary A-60

A.1.5 Meeting #5 – December 6, 2016 ..... A-61

A.1.5.1 Agenda A-61

A.1.5.2 Presentation A-62

A.1.5.3 Meeting Summary A-80

A.1.5.4 Good, Better, Best Exercise – District Aviation Coordinators A-82

A.1.5.5 Good, Better, Best Exercise – Aviation Stakeholders A-85

A.1.5.6 Demand Drivers Summary A-90

A.1.6 Meeting #6 – April 11, 2017 ..... A-99

A.1.6.1 Agenda A-99

A.1.6.2 Presentation A-101

A.1.6.3 Recommendations Exercise A-126

A.1.6.4 Meeting Summary A-128

A.1.7 Meeting #7 – June 27, 2017 ..... A-133

A.1.7.1 Agenda A-133

A.1.7.2 Presentation A-134

A.1.7.3 Meeting Summary A-161

A.2 Florida Metropolitan Planning Organization Advisory Council (MPOAC) and the Florida Transportation Plan (FTP) Implementation Committee A-169
A.2.1 Meeting #1 w/MPOAC – January 26, 2017 ..... A-169
A.2.1.1 Presentation #1 – Staff Directors' Committee A-169
A.2.1.2 Presentation #2 – Governing Board A-187
A.2.1.3 Presentation #3 – Freight Committee A-199
A.2.2 Meeting #2 w/FTP Implementation Committee – November 6, 2017 ..... A-206
A.2.2.1 Presentation A-206
A.2.2.2 Implementation Committee Meeting Summary A-220
A.3 Florida Department of Transportation (FDOT) A-224
A.3.1 Meeting #1 – FDOT Modal Meeting – February 15, 2017 ..... A-224
A.3.1.1 Presentation A-224
A.3.1.2 Meeting Summary A-243
A.3.1.3 Multimodal Trends and Issues Survey Responses A-248
A.3.2 Meeting #2 – Strategic Development Coordination Meeting – June 28, 2017 ..... A-257
A.3.2.1 Presentation A-257
A.3.2.2 Meeting Summary A-277
A.4 Federal Aviation Administration (FAA) A-279
A.4.1 Meeting #1 – FAA Coordination Meeting – December 5, 2016 ..... A-279
A.4.1.1 Agenda A-279
A.4.1.2 Meeting Summary A-280
A.4.2 Meeting #2 – FAA Coordination Meeting – June 26, 2017 ..... A-282
A.4.2.1 Agenda A-282
A.4.2.2 Presentation A-282
A.4.2.3 Meeting Summary A-292
A.5 FASP Review Team (FASPRT) A-294
A.5.1 Meeting #1 – FASPRT Meeting – February 19, 2016 ..... A-294
A.5.1.1 Agenda A-294
A.5.1.2 Briefing Materials A-295
A.5.2 Meeting #2 – FASPRT Meeting – December 5, 2016 ..... A-297
A.5.2.1 Agenda A-297
A.5.2.2 Presentation A-298

A.5.2.3 Meeting Summary *A-316*
A.6 Continuous Florida Aviation System Planning Process (CFASPP) A-318
A.6.1 Meeting #1 – CFASPP Update Meeting – February 2017 ..... A-318
A.6.1.1 Presentation *A-318*
A.6.2 Meeting #2 – Statewide CFASPP Meeting – July 2017 ..... A-328
A.6.2.1 Presentation *A-328*
Appendix B – Forecasting Tables B-1
B.1 Based Aircraft Forecast Tables B-2
B.2 GA Operation Forecast Tables B-37
B.3 Sensitivity Analyses B-57
Appendix C – Intermodal Connectivity Data C-1
Appendix D – Infrastructure Assessment Tool (IAT) D-1
D.1 Commercial Service D-3
D.1.1 Tourism (CS) and Business Service D-4
D.1.2 Air Cargo D-5
D.1.3 Intercontinental Service D-6
D.2 General Aviation D-10
D.2.1 Corporate Service D-10
D.2.2 Tourism Service D-13
D.2.3 Sport Activity D-15
D.2.4 Business Activity D-18
D.2.5 Flight Training D-21
Appendix E – Follow-On Study White Papers E-1
E.1 Statewide Airport Resiliency and Disaster Response Assessment E-1
E.2 Business Suitability Study E-7
E.3 Replace the FAD E-12
E.4 Detailed Capacity Study E-15
E.5 Facility, Infrastructure, and Service Guidelines E-18

E.6 Statewide Roadmap to Address Airport Wildlife Hazards for Non-Part 139 Airports E-25
E.7 RPZ Ownership Data Compilation E-28
E.8 CFASPP Boundary Evaluation E-30
Appendix F – Final Deliverables F-1
F.1 Executive Summary F-2
F.2 Summary Report F-19
F.3 CFASPP Regional Brochures F-102
F.4 Executive Summary Primers F-247

List of Tables

Table 2-1: Historic Visitor Estimates (in millions) 2-8

Table 2-2: Comparison of Florida Median Age and National Averages, 1960 – 2010 2-11

Table 2-3: Airport Issues Summary Table 2-32

Table 2-4: NPIAS Hub Designation of Florida Commercial Service Airports 2-44

Table 2-5: Enplanements at Florida Commercial Service Airports, 2010 – 2014 2-45

Table 2-6: International Enplanements at Florida's Large Hubs, 2010 – 2014..... 2-47

Table 2-7: Total Economic Impacts of Air Cargo Activity at Florida Commercial Service Airports, 2013 2-48

Table 2-8: Total Air Cargo Tonnage Handled at Florida Commercial Service Airports, 2010 – 2014 2-48

Table 2-9: Total Economic Impacts of Aviation Education in Florida, 2013 2-51

Table 2-10: Local GA Operations at Florida Airports, 2010 – 2014 2-52

Table 2-11: Itinerant Air Taxi Operations at Florida GA Airports, 2010 – 2014 2-53

Table 2-12: Total Registered Special LSAs in the U.S., 2010 – 2014 2-56

Table 2-13: Sport Pilot Certificates Held in the U.S., 2010 – 2014 2-56

Table 2-14: Sport and Recreational Pilot Certificates Held in Florida, 2010 – 2014..... 2-56

Table 2-15: Pilot Certificates Held in the U.S. 2-58

Table 2-16: Active FAA Certified Pilots and Flight Instructors in Florida..... 2-59

Table 2-17: Forecast of Active Pilot Population in the U.S. 2-60

Table 2-18: Occupational Employment Projections for Pilots in Florida, 2014 – 2022 2-62

Table 2-19: Boeing Forecast of Regional Passenger Traffic Flows 2014 – 2034 2-79

Table 2-20: Airbus Forecast of Country Passenger Traffic Flows 2013 – 2033 2-81

Table 2-21: Boeing Forecast of New Aircraft Deliveries by Region 2-82

Table 2-22: Airbus' Forecast of New Aircraft Deliveries by Region 2-83

Table 2-23: Boeing Forecast of New Pilots and Technicians Needed by 2034 2-84

Table 2-24: Boeing World Air Cargo Forecast Scenarios 2013 – 2033 2-86

Table 2-25: Boeing Regional Air Cargo Growth Rates 2-88

Table 2-26: Comparison of Airbus and Boeing Forecasts 2-89

Table 3-1: FASP Airports 3-4

Table 3-2: Florida's Primary NPIAS Airports 3-12

Table 3-3: FASP Airports by CFASPP Regions and FDOT Districts 3-20

Table 3-4: Summary of Adopted SIS Airport Types, Criteria, and Thresholds 3-25

Table 3-5: Florida SIS Airports 3-26

Table 4-1: Goal 1 Objectives, Performance Measures, and Performance Indicators 4-2

Table 4-2: Goal 2 Objectives and Performance Indicators 4-5

Table 4-3: Goal 3 Objectives and Performance Indicators 4-5

Table 4-4: Goal 4 Objectives and Performance Measures 4-6

Table 4-5: Goal 5 Objectives, Performance Measures, and Performance Indicators 4-7

Table 4-6: Goal 6 Objectives and Performance Indicators 4-8

Table 4-7: The Amount of Florida's Aviation Economic Impact with Military Aviation Units and Airports Included 4-9

Table 4-8: Goal 7 Objectives and Performance Indicators 4-9

Table 4-9: Impact of Airport Issues Sorted 4-9

Table 4-10: Impact of Goal Objectives Sorted 4-11

Table 4-11: Average Goal Impact Sorted 4-13

Table 4-12: Relationship of FASP 2035 and FTP Goals 4-16

Table 5-1: Statewide Performance Assessment Data Source and Methodology 5-2

Table 5-2: Data Source and Methodology for the Existing and Future Mapping Analysis 5-24

Table 5-3: Additional Data Affecting Aviation in Florida 5-25

Table 6-1: Based Aircraft: Commercial Airports 6-4

Table 6-2: Based Aircraft: High Activity GA Airports 6-5

Table 6-3: Based Aircraft: Medium Activity GA Airports 6-5

Table 6-4: Based Aircraft: Low Activity GA Airports 6-7

Table 6-5: Aircraft Operations: Commercial Airports 6-9

Table 6-6: Aircraft Operations: GA Airports (with ATCT) 6-10

Table 6-7: Aircraft Operations: High Activity GA Airports 6-11

Table 6-8: Aircraft Operations: Medium Activity GA Airports 6-12

Table 6-9: Aircraft Operations: Low Activity GA Airports 6-13

Table 6-10: Airport Category Methodologies: Based Aircraft 6-18

Table 6-11: Based Aircraft Forecast: County Population Growth Rate Methodology 6-19

Table 6-12: Based Aircraft Forecast: FAA Aerospace Forecast 6-20

Table 6-13: Based Aircraft Forecast: FAA TAF or Straight-Line Methodology 6-21

Table 6-14: Based Aircraft Forecast: Preferred Methodology 6-22

Table 6-15: Preferred Based Aircraft Forecast: FDOT Districts 6-22

Table 6-16: Airport Category Methodologies: GA Operations 6-24

Table 6-17: GA Operations Forecast: County Population Growth Methodology (GA Airports Only) 6-25

Table 6-18: GA Operations Forecast: FAA Aerospace Forecast Methodology (GA Airports Only) 6-26

Table 6-19: GA Operations Forecast: FAA TAF or Straight-Line Methodology 6-27

Table 6-20: GA Operations Forecast: Preferred Methodology 6-28

Table 6-21: Preferred GA Operations Forecast: FDOT District 6-28

Table 6-22: Total Aircraft Operations Exceeding ARC 6-32

Table 6-23: FASP 2035 Airport D/C Ratios 6-35

Table 6-24: FASP 2035 FDOT District D/C Ratios 6-41

Table 6-25: FASP 2035 Airport D/C Ratios: Sensitivity Analysis High Growth 6-43

Table 6-26: Historic Air Cargo Tonnage at Florida Commercial Service Airports, 2010 – 2014 (in U.S. Short Tons) 6-50

Table 6-27: Commercial Service Airports Air Cargo Tonnage and Cargo Operations Preferred Forecasts 6-53

Table 7-1: Goal 1 Objectives, Performance Measures, and Performance Indicators 7-2

Table 7-2: Total Funding, By Year, for Terminal-Related Projects (2017 – 2022) 7-8

Table 7-3: The Percentage of "On Time" Flights Relative to Departure Reliability 7-9

Table 7-4: Runway Safety Areas Standards in FAC 14-60.007 7-10

Table 7-5: Goal 2 Objectives and Performance Indicators 7-22

Table 7-6: Goal 3 Objectives and Performance Indicators 7-28

Table 7-7: Florida's Historic State Aviation Funding 7-30

Table 7-8: Economic Impact by State 7-31

Table 7-9: The Number of Pilot Certificates Held (national ranking) in Florida (By Category) ...7-33

Table 7-10: Number and Type of USPA License Holders in Florida 7-34

Table 7-11: Number of Revenue Passenger Boardings 7-34

Table 7-12: FDOT Freight and Cargo Study 7-35

Table 7-13: Goal 4 Objectives and Performance Measures 7-37

Table 7-14: Goal 5 Objectives, Performance Measures, and Performance Indicators 7-39

Table 7-15: Goal 6 Objectives and Performance Indicators 7-44

Table 7-16: Goal 7 Objectives and Performance Indicators 7-47

Table 7-17: The Amount of Florida's Aviation Economic Impact with Military Aviation Units and Airports Included 7-49

Table 7-18: Number of Airports by FDOT District 7-51

Table 7-19: Data Sources 7-53

Table 7-20: Airports with ATCTs by FDOT District 7-54

Table 7-21: Airports with Jet A Fuel by FDOT District 7-57

Table 7-22: Airports with AvGas by FDOT District 7-60

Table 7-23: NPIAS Airports by Commercial Service Hub Size 7-64

Table 7-24: NPIAS Airports by Commercial Service Hub Size: With Expanded Drive Time Limits 7-69

Table 7-25: NPIAS Airports by ASSET Classification 7-74

Table 7-26: SIS Airports by FDOT District 7-79

Table 7-27: Airports with Flight Training Activity by FDOT District 7-82

Table 7-28: Airports with Surface Weather Observation Stations by FDOT District 7-85

Table 7-29: Percentage of Population by Airport Runway Length 7-88

Table 7-30: Airports with Instrument Approaches by FDOT District 7-94

Table 7-31: Airports with Precision Approaches by FDOT District 7-98

Table 7-32: Business-Use Airports by FDOT District 7-102

Table 7-33: Florida's Aging Population 7-110

Table 7-34: Number and Percentage of Airports with Rental Car Service 7-113

Table 7-35: Number and Percentage of Airports with Courtesy Cars 7-113

Table 7-36: Number of SIS Airports Where Service is Provided 7-117

Table 7-37: Direct Roadway Connections Summary 7-117

Table 7-38: Indirect Roadway Connection Summary 7-118

Table 7-39: NAICS Industry Classifications 7-134

Table 7-40: Number of Establishments and Employees Working at Businesses with a Tendency to Use Air Services by County 7-136

Table 7-41: Number of Establishments and Employees Working at Businesses with a Tendency to Use Air Services by FDOT District 7-139

Table 7-42: Airports Associated with a High-Density of Business Establishments 7-141

Table 7-43: Airports Associated with a High-Density of Employees Working at Businesses with a Tendency to Use Aviation Services 7-143

Table 7-44: Percentage of Employed Population Working at a Business with the Tendency to Use Air Services by County 7-144

Table 7-45: Airports Associated with a High-Density of Employees as a Percentage of the Employable Population at Businesses with a Tendency to Use Aviation Services 7-149

Table 8-1: Historical and Forecasted GA Activity from GAMA 8-6

Table 8-2: Labor Market Composition 8-13

Table 8-3: FAA Pilot Certificates Issued by Category 8-16

Table 8-4: FAA Non-Pilot Certificates Issued by Category 8-17

Table 8-5: Active FAA Certified Pilots and Flight Instructors in Florida 8-18

Table 8-6: Historic Visitor Estimates (in millions) 8-20

Table 8-7: Summary of Example Scenarios 8-22

Table 9-1: FDOT Work Program Comparison 9-6

Table 9-2: Summary of NPIAS Report Development Estimates 9-8

Table 9-3: Summary of FDOT Work Program Funding 9-9

Table 9-4: Detailed Overview of FDOT and FAA Funding for Florida's NPIAS Airports 9-9

Table 9-5: FAA Project Categories and Weights 9-14

Table 9-6: FASP 2035 Goal Categories and Weights 9-15

Table 9-7: Table Apron Projects in the JACIP and FDOT Work Program (FY 17-22) 9-19

Table 9-8: Building Projects in the JACIP and FDOT Work Program (FY 17-22) 9-20

Table 9-9: Buildings Projects in the JACIP and FDOT Work Program (FY 17-22) 9-22

Table 9-10: Ground Transportation Projects in the JACIP and FDOT Work Program (FY 17-22) 9-23

Table 9-11: Other Projects in the JACIP and FDOT Work Program (FY 17-22) 9-26

Table 9-12: Runway Projects in the JACIP and FDOT Work Program (FY 17-22) 9-29

Table 9-13: Taxiway Projects in the JACIP and FDOT Five Year Work Program (FY 17-22) 9-31

Table 9-14: Terminal Projects in the JACIP and FDOT Work Program (FY 17-22) 9-33

Table 9-15: SIS Airports in Florida 9-35

Table 9-16: Airport Capacity Projects Eligible for SIS Funding 9-36

Table 9-17: Funding by Project Type, FY 13-17 9-37

Table 9-18: SIS Aviation Funding by Airport, FY 13-17 9-38

Table 9-19: Funding by FDOT District, FY 13-17 9-38

Table 9-20: Funding by Project Type, FY 18-22 9-39

Table 9-21: Funding by Airport, FY 18-22 9-39

Table 9-22: Funding by FDOT District, FY 18-22.... 9-40

Table 9-23: SIS Roadway Funding Within One Mile by FDOT District 9-41

Table 9-24: SIS Roadway Funding Within One Mile by Project Type 9-41

Table 9-25: SIS Roadway Funding Within Five Miles by FDOT District 9-42

Table 9-26: SIS Roadway Funding Within Five Miles by Project Type 9-42

Table 10-1: Florida's Primary NPIAS Airports 10-5

Table 10-2: Florida's Nonprimary NPIAS Airports 10-6

Table 10-3: Non-NPIAS Publicly-Owned Airports 10-7

Table 10-4: Florida Airports ASSET Categories 10-9

Table 10-5: Changes to ASSET Categories 10-10

Table 10-6: Existing SIS Designation Criteria 10-12

Table 10-7: FASP 2035 Recommendations by FTP Goal and SIS Objective 10-22

Table 10-8: Drive Time Coverage of Airports by Commercial Service Hub Size 10-24

Table 10-9: NPIAS Airports by ASSET Classification 10-28

Table 10-10: IAT Output for a Commercial Service Airport 10-44

Table B-1: Based Aircraft Forecast by Airport – County Population Growth Method B-2

Table B-2: Based Aircraft Forecast by Airport – FAA Aerospace Methodology B-10

Table B-3: Based Aircraft Forecast by Airport – FAA TAF/Straight-Line Methodology B-18

Table B-4: Based Aircraft Forecast by Airport – Preferred Methodology B-26

Table B-5: Based Aircraft Forecast by Airport – FAA TAF Growth Rates 2014 – 2035 and 2016 – 2035 (FAA TAF/Straight-Line Preferred Methodology Only) B-35

Table B-6: GA Operations Forecast by Airport – County Population Growth Methodology B-37

Table B-7: GA Operations Forecast by Airport – FAA Aerospace Methodology B-42

Table B-8: GA Operations Forecast by Airport – FAA TAF/Straight-Line Methodology.... B-46

Table B-9: GA Operations Forecast by Airport – Preferred Methodology B-51

Table B-10: GA Operations Forecast by Airport – FAA TAF Growth Rates 2014 – 2035 and 2016 – 2035 (FAA TAF/Straight-Line Preferred Methodology Only) B-56

Table B-11: Based Aircraft Sensitivity Analysis – ± 10% of Preferred Methodology B-57

Table B-12: GA Operations Sensitivity Analysis – ± 10% of Preferred Methodology..... B-62

Table C-1: Non-SIS Airports Intermodal Connectivity Data.....C-2

Table C-2: SIS Airports Intermodal Connectivity Data C-11

Table D-1: IAT Performance Quotient Example (Commercial Service Airport) D-1

Table D-2: IAT Performance Quotient Example (GA Airport) D-2

Table D-3: GA and Commercial Service Airports by FDOT District D-2

Table D-4: Summary of Commercial Service IAT Performance Quotient Results D-3

Table D-5: Tourism (CS) and Business Service – Commercial Service Airports D-4

Table D-6: Air Cargo – Commercial Service Airports D-6

Table D-7: Intercontinental Service – Commercial Service Airports.....D-8

Table D-8: Adequate Corporate Service at GA Airports by District.....D-10

Table D-9: Adequate Tourism Service at GA Airports by District.....D-13

Table D-10: Adequate Sport Activities at GA Airports by District.....D-15

Table D-11: Adequate Business Services at GA Airports by District D-18

Table D-12: Total Economic Impacts of Aviation Education in Florida (2013) D-21

Table D-13: Adequate Flight Training at GA Airports by District.....D-25

List of Figures

Figure 1-1: FASP 2035 Update Process 1-2

Figure 1-2: FASP 2035 Phase Tasks 1-3

Figure 1-3: FASP 2035 Update Stakeholder Coordination 1-4

Figure 1-4: Stakeholder Involvement Timeline 1-4

Figure 2-1: Florida by the Numbers 2-1

Figure 2-2: St. Petersburg-Tampa Air Boat Line 2-2

Figure 2-3: Pan Am First Scheduled International Air Service Flight 2-3

Figure 2-4: Sarasota Bradenton International Airport – Today 2-4

Figure 2-5: Sarasota Army Airfield – 1948 2-4

Figure 2-6: Pan American Airways System Terminal Building, 3500 Pan American Drive, Miami, Miami-Dade 2-5

Figure 2-7: Sun 'n Fun International Fly-In & Expo 2-7

Figure 2-8: Florida's Existing Spaceport System and Assets 2-15

Figure 2-9: Florida's Existing Spaceport System and Assets 2-34

Figure 2-10: GA Issues 2-34

Figure 2-11: Percentage of Total Air Cargo Tonnage Handled at Florida Commercial Service Airports, 2014 2-50

Figure 2-12: New Airplanes by Region 2015 – 2034 2-61

Figure 2-13: New Pilots by Region 2015 – 2034 2-62

Figure 2-14: Regional Air Service in Florida, 2014 2-68

Figure 2-15: Historic Global Aviation Growth 2-76

Figure 2-16: Boeing Forecast of Regional Passenger Traffic Flows 2014 – 2034 2-80

Figure 2-17: 2013 World Air Cargo Market Share by Region 2-86

Figure 2-18: Boeing World Air Cargo Forecast Scenarios 2003 – 2033 2-87

Figure 3-1: Florida Aviation Facilities 3-2

Figure 3-2: Current Florida Aviation Facilities 3-4

Figure 3-3: FASP Airports 3-10

Figure 3-4: Florida NPIAS Airports 3-15

Figure 3-5: CFASPP Boundaries 3-17

Figure 3-6 FDOT District Boundaries 3-19

Figure 6-1: Preferred Based Aircraft Forecast: FDOT Districts 6-23

Figure 6-2: Preferred GA Operations Forecast: FDOT Districts 6-29

Figure 6-3: Statewide Annual Enplanements 6-55

Figure 6-4: Statewide Average Fares and Passengers 6-56

Figure 7-1: Percentage of FASP Airports with a D/C Ratio Greater than 60 Percent and Less than 80 Percent 7-5

Figure 7-2: Percentage of FASP Airports with a D/C Ratio of 80 Percent or More 7-6

Figure 7-3: The Percentage of FASP Airports with Terminal-Related Development Projects (2017 – 2022) 7-8

Figure 7-4: The Percentage of FASP Airports Identified by FDOT Inspection That Do Not Meet Relevant RSA Standards on Their Primary Runway 7-11

Figure 7-5: The Percentage of FASP Airports (with two or more runways) Identified by FDOT Inspection That Do Not Meet Relevant RSA Standards on Their Nonprimary Runways 7-12

Figure 7-6: The Percentage of FASP Airports That Have Incompatible Land Uses within the RPZs of the Primary Runway 7-14

Figure 7-7: The Percentage of FASP Airports That Have Incompatible Land Uses within the RPZs of the Nonprimary Runways 7-15

Figure 7-8: The Percentage of FASP Airports with a Runway Greater or Equal To 5,000 Feet in Length That Report Having a Security Plan 7-16

Figure 7-9: The Percentage of FASP Airports with Standby Emergency Power for Airfield Lighting 7-17

Figure 7-10: The Percentage of FASP Airports with Standby Emergency Power for Fueling Operations 7-18

Figure 7-11: The Percentage of FASP Airports with Standby Emergency Power for Their Terminal 7-19

Figure 7-12: The Percentage of FASP Airports with Completed Wildlife Hazard Site Visits, Assessments, and/or Management Plans 7-20

Figure 7-13: The Percentage of FAA-Obligated FASP Airports That Do Not Meet Current FAA Taxiway Design Standards 7-21

Figure 7-14: The Percentage of FAA-Obligated FASP Airports That Have FAA-Designated Airfield "Hot Spots" 7-22

Figure 7-15: The Percentage of FASP Airports That Report Having a Business/Marketing Plan 7-24

Figure 7-16: The Percentage of Commercial Service SIS Airports Reporting Direct Bus Service 7-25

Figure 7-17: The Percentage of Commercial Service SIS Airports Reporting Direct Passenger Rail Connections 7-26

Figure 7-18: The Percentage of LOS on SIS Highway Airport Connectors That Are LOS A Through C 7-27

Figure 7-19: The Percentage of Airports That Have Master Plans on File with FDOT 7-28

Figure 7-20: The Number (and Percentage of State Total) of Based Aircraft in Florida 7-37

Figure 7-21: The Percentage of FASP Airports Reporting That They Have Mapping Compatible with FAA eALP Standards 7-39

Figure 7-22: The Percentage of FASP Airports with GPS Approaches 7-41

Figure 7-23: The Percentage of FASP Airports That Meet the FAA Standards for an Instrument Approach Procedure with Visibility Minima Between 3/4 Mile and Less Than One Mile 7-42

Figure 7-24: The Percentage of FASP Airports That Meet the FAA Standards for An Instrument Approach Procedure with Visibility Minima Less Than 3/4 Mile 7-43

Figure 7-25: The Change in the Economic Impact of FASP Airports from 2010 to 2014 7-45

Figure 7-26: Airports by FDOT District 7-52

Figure 7-27: Airports with ATCTs by FDOT District 7-56

Figure 7-28: Airports with Jet A Fuel by FDOT District 7-59

Figure 7-29: Airports with AvGas by FDOT District 7-62

Figure 7-30: NPIAS Large Hub Airport 30-Minute Drive Times 7-66

Figure 7-31: NPIAS Large and Medium Hub Airport 30-Minute Drive Times 7-67

Figure 7-32: NPIAS Large, Medium, Small, and Non-Hub Airport 30-Minute Drive Times 7-68

Figure 7-33: NPIAS Large Hub Airport 90-Minute Drive Times 7-71

Figure 7-34: NPIAS Large Hub Airport 90-Minute Drive Times and Medium Hub 60-Minute Drive Times 7-72

Figure 7-35: NPIAS Large Hub Airport 90-Minute Drive Times, Medium Hub 60-Minute Drive Times, and the Small/Non-Hub 45-Minute Drive Times 7-73

Figure 7-36: National ASSET Classification Airports 30-Minute Drive Times 7-76

Figure 7-37: National and Regional ASSET Classification Airports 30-Minute Drive Times 7-77

Figure 7-38: National, Regional, and Local ASSET Classification Airports 30-Minute Drive Times 7-78

Figure 7-39: SIS Airports by FDOT District 7-81

Figure 7-40: Airports with Flight Training Activity by FDOT District 7-84

Figure 7-41: Airports with Surface Weather Observation Stations by FDOT District 7-87

Figure 7-42: Runways Over 6,500 Feet 30-minute Drive Times 7-90

Figure 7-43: Runways Over 5,000 Feet 30-Minute Drive Times 7-91

Figure 7-44: Runways Over 4,200 Feet 30-Minute Drive Times 7-92

Figure 7-45: Runways Over 3,200 Feet 30-Minute Drive Times 7-93

Figure 7-46: Airports with Instrument Approaches by FDOT District..... 7-96

Figure 7-47: Airports with Instrument Approaches by FDOT District: 30-Nautical Mile Buffer 7-97

Figure 7-48: Airports with Precision Approaches by FDOT District 7-100

Figure 7-49: Airports with Precision Approaches by FDOT District: 30-Nautical Mile Buffer 7-101

Figure 7-50: Business-Use Airports by FDOT District 7-104

Figure 7-51: City Population Size and Managed/Conservation Areas..... 7-106

Figure 7-52: Planned SIS Roadway Improvements 7-109

Figure 7-53: Airports with Rental Car Facilities 7-112

Figure 7-54: Airports with Courtesy Cars 7-114

Figure 7-55: SIS Airports 7-116

Figure 7-56: Density of Establishments with Tendency to Use Aviation and Public-Use Airports 7-140

Figure 7-57: Density of Employees at Businesses with Tendency to Use Aviation and Public-Use Airports 7-142

Figure 7-58: Density of Employees at Businesses with Tendency to Use Aviation as a Percentage of Total Working Population 7-148

Figure 8-1: West Texas Intermediate Crude Oil Price 8-2

Figure 8-2: Jet Fuel Refiner Price vs. Airline Ticket Price Index (1997 – 2018) 8-4

Figure 8-3: Airbus and Boeing Orders 2007 – 2016 vs. Oil Price 8-5

Figure 8-4: Active Aircraft in the U.S. and Florida 2008 – 2025 8-7

Figure 8-5: Hours Flown in the U.S. and Florida 2008 – 2025 8-7

Figure 8-6: Air Transport of Doctors, Nurses, and other Emergency Response Personnel to Florida before Hurricane Irma Made Landfall 8-9

Figure 8-7: Witham Field in Stuart, Florida Serves as Staging Area for In- and Out-of-State Utility Trucks after Hurricane Matthew 8-10

Figure 8-8: Regional Jet Aircraft 8-11

Figure 8-9: Terminal Over Capacity 8-11

Figure 8-10: LSA Example 8-12

Figure 8-11: UAS Operating Off-Airport 8-12

Figure 8-12: Commercial Airline Pilots in Flight 8-13

Figure 8-13: Aircraft Maintenance Technician Installing Propeller 8-14

Figure 8-14: Air Traffic Controller Monitoring Activity 8-14

Figure 8-15: Direct Tourism Spending in Florida (in billions) 8-20

Figure 8-16: Visitors Arriving to Florida by Air (1997 – 2016) 8-21

Figure 9-1: FDOT Airport Planning Process 9-4

Figure 9-2: SSGAT Spreadsheet 9-16

Figure 9-3: Comparison of JACIP and Work Program Funding (FY 17-22) 9-18

Figure 9-4: Apron Projects in the JACIP and FDOT Work Program (FY 17-22) 9-19

Figure 9-5: Building Projects in the JACIP and FDOT Work Program (FY 17-22) 9-20

Figure 9-6: Buildings Projects in the JACIP and FDOT Work Program (FY 17-22)..... 9-22

Figure 9-7: Ground Transportation Projects in the JACIP and FDOT Work Program (FY 17-22) . 9-23

Figure 9-8: Other Projects in the JACIP and FDOT Work Program (FY 17-22) 9-25

Figure 9-9: Runway Projects in the JACIP and FDOT Work Program (FY 17-22) 9-29

Figure 9-10: Taxiway Projects in the JACIP and FDOT Work Program (FY 17-22) 9-31

Figure 9-11: Terminal Projects in the JACIP and FDOT Work Program (FY 17-22) 9-33

Figure 10-1: Existing and Recommended SIS Airports 10-17

Figure 10-2: Large Hub Airport 90-Minute Drive Times, Medium Hub 60-Minute Drive Times, and the Small/Non-Hub 45-Minute Drive Times 10-26

Figure 10-3: Commercial, NPIAS, and Public Non-NPIAS Airports 30-Minute Drive Times 10-29

Figure 10-4: D/C Ratios, 2035 10-32

Figure 10-5: Airports with ATCTs by FDOT District 10-35

Figure 10-6: Runways Over 3,200 Feet, 30 Minute Drive Times 10-37

Figure 10-7: Airports with Precision Approaches by FDOT District, 30 Nautical Miles 10-39

Figure 10-8: Business-Use Airports by FDOT District 10-41

Figure 10-9: Airports with Flight Training Activity by FDOT District 10-43

Figure 10-10: SSGAT Tool Screenshot 10-46

Figure 10-11: CFASPP Boundaries 10-48

Figure 10-12: FDOT District Boundaries 10-52

Figure 10-13: Florida Economic Development Regional Boundaries 10-54

Figure D-1: Commercial Service Airports with Adequate Intercontinental Service.....D-9

Figure D-2: Adequate Corporate Services at GA Airports.....D-12

Figure D-3: Adequate Tourism Services at GA Airports.....D-14

Figure D-4: Adequate Sport Activity Services at GA Airports D-17

Figure D-5: Adequate Business Services at GA Airports.....D-20

Figure D-6: Commercial Service and GA Airports with Flight Training D-23

Figure D-7: Percentage of Commercial Service and GA Airports with Flight Training Activity by District D-24

Figure D-8: Adequate Flight Training Facilities at GA Airports D-26

Preface

A system plan is a detailed planning document that guides aviation stakeholders and decision makers in their efforts to protect and enhance an airport system. Due to the comprehensive nature of system planning, five types of deliverables were developed to communicate the Florida Aviation System Plan (FASP) 2035 Update findings to targeted audiences. Each deliverable was created to highlight specific aspects of the analysis most relevant or applicable to the audience's interest in the state aviation system.

Technical Report

Each task of the FASP 2035 Update was developed as a separate memorandum provided to and approved by the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) through the course of the study. The Technical Report consolidates all previously developed memoranda to integrate the study findings into a cohesive report (this report). It is designed to present information in a systematic and logical way to effectively tell the story of Florida's aviation system. This report also includes all study data utilized to develop the deliverables presented in previous tasks, including explanations of the analysis, figures, and tables developed to portray the analysis. Due to the technical nature of the content, this technical report is primarily designed to be used by the FDOT ASO, airports, airport sponsors, and consultants to inform planning, funding, and other decision-making processes at statewide and FDOT District levels.

Executive Summary

The Executive Summary provides an overview of the system planning process and highlights the key outcomes of the FASP 2035 Update. This brochure summarizes the key trends impacting aviation in Florida and presents an overview of existing and anticipated future conditions, including general aviation and based aircraft forecasts and the airport drive-time accessibility and demand/capacity analyses on a statewide and FDOT District level. Statewide performance on selected performance measures and performance indicators are also presented.

The Executive Summary is tailored to technical and non-technical audiences by providing content comprehensible to individuals unfamiliar with airport planning and in sufficient detail to be of interest to those more engaged in the industry. Readers can gain insight into how and where aviation activity is anticipated to change across the state through the planning horizon. A copy of the Executive Summary is included in **Appendix F – Final Deliverables**.

Summary Report

The Summary Report was developed to present an abridged version of the Final Technical Report and mirrors the document in function and form. It is considered a longer version of the Executive Summary. The booklet provides the key findings of the FASP 2035 Update primarily at the statewide and District levels. While significantly less detailed than the Final Technical Report,

the Summary Report provides information about the future of aviation that can be applied to statewide and District-specific planning processes. The booklet targets technical and non-technical audiences, including FDOT, airports, airport sponsors, consultants, elected officials, and the general public. A copy of Summary Report is included in **Appendix F – Final Deliverables**.

CFASPP Regional Brochures

The Continuing Florida Aviation Systems Planning Process (CFASPP) Regional Brochures are short summaries that identify FASP 2035 Update results relative to each of the nine CFASPP Regions/Metropolitan Areas (MAs). Similar to the statewide content provided in the Executive Summary – Short Version, the CFASPP Regional brochures provide region/MA-specific results for representative performance measures and performance indicators and selected drive-time analyses. Additionally, airport-specific data is presented for indicators of current and future activity, including based aircraft and general aviation operations. These brochures also present information about the key drivers of aviation activity in each CFASPP Region/MA.

The CFASPP Regional Brochures are tailored to technical and non-technical audiences by providing content comprehensible to individuals unfamiliar with airport planning and in sufficient detail to be of interest to those more engaged in the industry. Some readers will likely be particularly interested in the airport-specific results, which may be valuable to airports and airport sponsors, elected officials, and CFASPP committees for local or regional planning initiatives. Copies of the nine CFASPP Regional Brochures are included in **Appendix F – Final Deliverables**.

Executive Summary Primers

Four brochures were developed and specifically tailored to audiences to communicate the FASP 2035's results and what they mean to each audience including:

- Airport Managers and Consultants
- Policymakers
- FDOT
- General Public

The development of these primers considered the needs and perspective of each audience. Content was selected for inclusion based on the audiences' needs, general technical familiarity, interest in the state aviation system, how the FASP relates to them, and how they can or should leverage the FASP in their unique planning efforts. Copies of the four primers are included in **Appendix F – Final Deliverables**.

1 Study Introduction

1.1 Purpose of the Florida Aviation System Plan

According to Florida Statute (F.S.) 332.006, *Duties and responsibilities of the Department of Transportation*, "the Department of Transportation shall, within the resources provided pursuant to chapter 216: (1) Provide coordination and assistance for the development of a viable aviation system in this state. To support the system, a statewide aviation system plan shall be developed and periodically updated which summarizes 5-year, 10-year, and 20-year airport and aviation needs within the state."

The Florida Aviation System Plan (FASP) analyzes the state's system of airports as a whole in an effort to determine needs and future requirements. This differs from typical airport master plans that focus on the desires and needs of individual airport facilities. Statewide goals have been established for the FASP. Once determined, these goals were compared to both existing and future operations estimates and inventories of system facilities and services for the purpose of identifying improvements, as needed, to address factors such as safety, capacity, ground access, airspace congestion, navigation, financial needs, growth, and repairs. Socioeconomic and demographic data were also reviewed to identify potential areas of growth. The FASP is utilized by both state and federal agencies as a tool for making future decisions regarding the prioritization and/or funding of projects and acts as a resource for consultants, airport owners and operators, and other users of the system.

1.2 Role of the FDOT Aviation and Spaceports Office

In accordance with F.S. 330, 331, 332, and 333, the FDOT Aviation and Spaceports Office (ASO) is responsible for the licensing, regulation, development, and planning of airports and spaceports and participating financially in airport and spaceport capital improvement projects throughout the state. The mission of the FDOT ASO is "to provide a safe and secure air transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities."

The FDOT ASO regulates and supports the development of Florida airports through inspection, licensing, and private airport registration. In addition, the FDOT ASO analyzes airspace obstructions and provides permits for construction within 10 nautical miles of those airports where airport zoning responsibilities have not been assumed by local government authorities.

Moreover, the FDOT ASO is responsible for developing and maintaining the FASP and is the administrator of the Continuing Florida Aviation System Planning Process (CFASPP). Additionally, the FDOT ASO participates in several airport research and development programs, develops a number of online tools within the Florida Aviation Database (FAD), and distributes information and provides educational services to the aviation community. Finally, the FDOT ASO supports Space Florida facility planning and funding assistance and promotes the development of spaceports throughout the state.

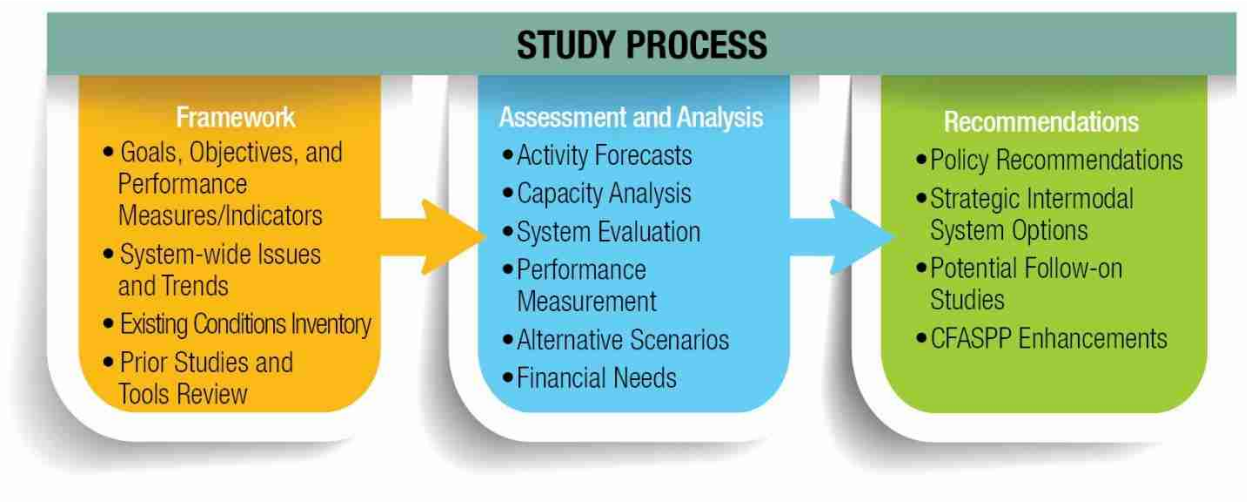
1.3 Role of the Continuing Florida Aviation System Planning Process

The CFASPP was established by FDOT and the FAA in an effort to help maintain a viable statewide aviation environment. The FDOT ASO utilizes a CFASPP administrator who regularly schedules and holds regional and statewide committee meetings to disseminate and gather information regarding aviation within Florida. The state has nine CFASPP committees—Northwest, North Central, Northeast, West Central, Central, Southwest, Southeast, East Central, and Treasure Coast. These areas are delineated by regions and metropolitan areas depending on the characteristics of the area. Various subject criteria are discussed during these meetings, including pertinent aviation legislation that is before the house or senate, state regulatory changes and revisions, status of funding programs (both FAA and FDOT), training courses, the FAD, and status updates of various individual airport projects that may be commencing, underway, or that are coming to an end. Any aviation needs and trends identified during these meetings are noted and addressed on an as-needed basis and during the regular updates of the FASP, such as this FASP 2035 Update.

1.4 FASP 2035 Update Process

The FASP 2035 Update (also referred to as the FASP 2035) planning process, shown in **Figure 1-1**, comprehensively assessed all public-use airports in Florida to understand the relationships between the facilities and their unique users. Additionally, it analyzed the ability of the existing system to achieve current and anticipated future demands. The FASP 2035 serves as a tool to help FDOT maintain a safe, efficient, 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 offers policy and development recommendations for the continuing improvement of the state aviation system.

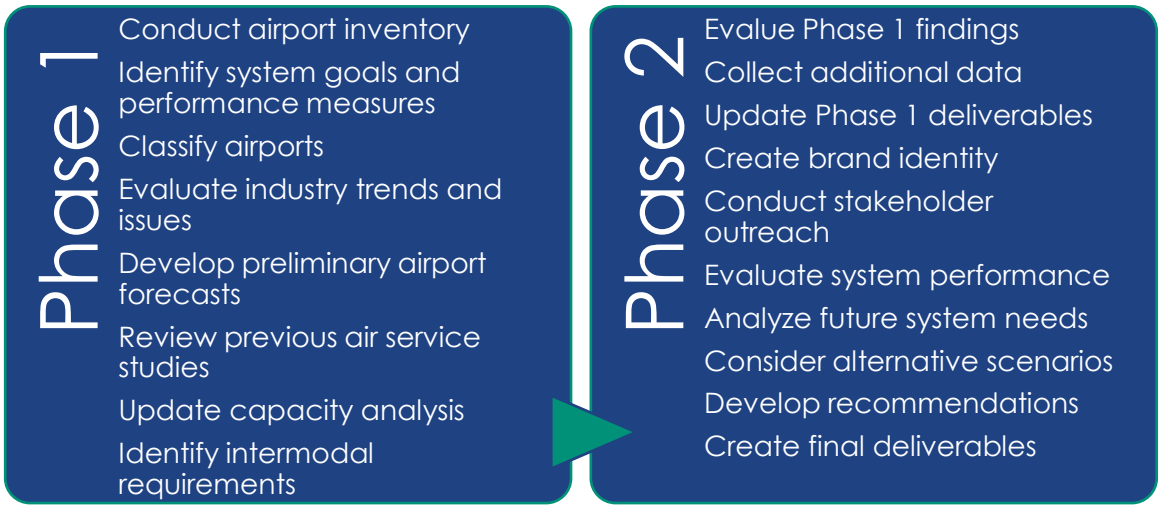
Figure 1-1: FASP 2035 Update Process



Included in this FASP 2035 Update is an analysis of the facilities, aviation activities, and future demands specific to Florida's nine CFASPP regions or metropolitan areas (MAs). The process encompasses 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.

The FDOT ASO initiated the development of the FASP 2035 Update in 2015. The FASP was previously updated in 2005 and an interim update was completed in 2012. The FASP 2035 Update was conducted in two phases (see **Figure 1-2**), with Phase 1 consisting primarily of data collection and background analysis, supported by a coordination and stakeholder process to gain input and provide direction to the FDOT ASO and project team. Phase 2 built on Phase 1 results with an evaluation of the system's performance, an analysis of alternatives, and the creation of a project implementation plan that identifies policy and system recommendations, resulting in various forms of final documentation.

Figure 1-2: FASP 2035 Phase Tasks



Stakeholder engagement was emphasized in both phases of the study. The feedback provided during outreach, along with an assessment of potential industry changes, provided the context necessary to develop a responsive and effective system plan.

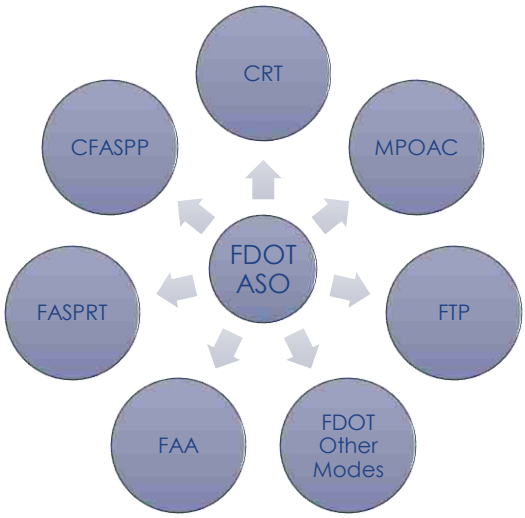
1.5 Stakeholder Involvement

Public outreach is critical to the success of system plans. Since Florida's aviation system impacts a wide variety of stakeholders, a robust public or stakeholder involvement program was developed to solicit input from various perspectives (aviation users, other transportation modes, planning agencies, etc.). This input helped set the stage for the creation of goals and performance measures (see **Chapter 4 – System Goals**) that can be used to achieve user needs.

The following entities participated in formal outreach efforts throughout the FASP 2035 Update (as shown in **Figure 1-3**):

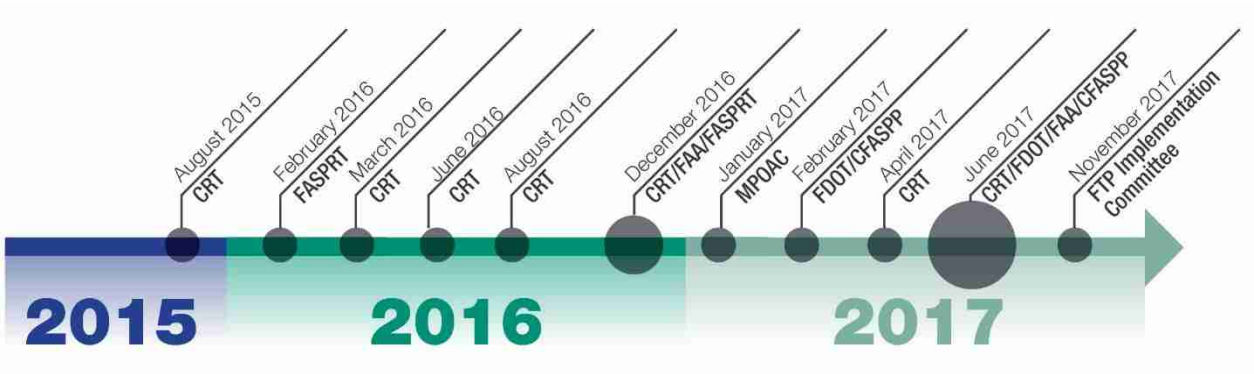
- Comprehensive Review Team (CRT)
- Florida Metropolitan Planning Organization Advisory Council (MPOAC)
- Florida Transportation Plan (FTP) Implementation Committee
- Florida Department of Transportation (FDOT)
- Federal Aviation Administration (FAA)
- Florida Aviation System Plan Review Team (FASPRT)
- Continuing Florida Aviation System Planning Process (CFASPP)

Figure 1-3: FASP 2035 Update Stakeholder Coordination



The following pages summarize the outreach to each stakeholder group (a timeline is provided in **Figure 1-4**). Internal coordination efforts are also detailed in this section.

Figure 1-4: Stakeholder Involvement Timeline



1.5.1 Comprehensive Review Team

Throughout the FASP 2035 Update, the Comprehensive Review Team (CRT) provided input and feedback on this study's process, analyses, and draft deliverables. The CRT was made up of various representatives from CFASPP (airport members), FDOT ASO and District staff, and the FAA. A total of seven meetings were held with CRT membership during Phase 1 and Phase 2:

- Meeting #1: August 20, 2015
- Meeting #2: March 22, 2016
- Meeting #3: June 1, 2016
- Meeting #4: August 10, 2016
- Meeting #5: December 6, 2016
- Meeting #6: April 11, 2017
- Meeting #7: June 27, 2017

Both in-person and webinar meetings were held with the CRT to maximize participation in the process.

The purpose of these meetings was to report progress, present findings, solicit input from the CRT, and inform the team of upcoming steps of the FASP process. A presentation was prepared and digital copies of meeting materials were disseminated through email. The in-person meetings provided opportunities for interactive engagement through the use of polling software and other means to effectively solicit specific information and increase dialogue among the meeting attendees.

Copies of the meeting agendas, presentations, and meeting summaries are provided in **Appendix A – Stakeholder Outreach**.

1.5.2 Florida Metropolitan Planning Organization Advisory Council (MPOAC) and the Florida Transportation Plan (FTP) Implementation Committee

One in-person meeting was conducted with the MPOAC on January 26, 2017, and one presentation to the FTP Implementation Committee occurred on November 6, 2017. The meetings followed a workshop format with significant opportunities for interaction. These meetings provided an opportunity to present and receive feedback on the progress and findings of the project, especially the study elements that have regional implications.

Copies of the meeting presentations are provided in **Appendix A – Stakeholder Outreach**.

1.5.3 FDOT

Two in-person meetings were conducted during the FASP 2035 Update process with representatives of various FDOT offices including:

- FDOT Office of Policy Planning
- FDOT Transit Office
- FDOT ASO

- FDOT Seaport and Waterways Office
- FDOT Office of Freight, Logistics and Passenger Operations
- FDOT Systems Planning Office
- FDOT Strategic Development Finance
- FDOT Freight and Multimodal Operations Office

These meetings were used to coordinate related efforts such as the FTP and the Strategic Intermodal System (SIS) and included discussions of timelines between the FASP and other statewide plan updates.

The first meeting on February 15, 2017 focused on identifying multimodal trends and issues that are (or are expected to) impact Florida's transportation system. The second meeting on June 28, 2017 included discussion of intermodal connections, airports included in the SIS, and draft deliverable formats.

Copies of the meeting presentations and summaries are provided in **Appendix A – Stakeholder Outreach**.

1.5.4 FAA

Throughout the duration of the development of the FASP 2035, two in-person meetings with the FAA's Orlando Airports District Office staff were held to discuss project status and results, guide upcoming efforts, and maintain the FAA's involvement throughout the project (December 5, 2016 and June 26, 2017). It is also important to note that the FAA also participated as a member of the CRT, providing input through the meetings held with this group.

Copies of the meeting agendas, presentations, and summaries are provided in **Appendix A – Stakeholder Outreach**.

1.5.5 FASP Review Team

During Phase 1, the FASP Review Team (FASPRT) was established to get input and feedback on the study's process, analyses, and draft deliverables. The FASPRT membership consisted of FDOT District and FDOT ASO personnel. The first FASPRT meeting was held on February 19, 2016. One additional meeting with the FASPRT membership was held on December 5, 2016, during Phase 2 of the FASP 2035 Update process to supplement CRT and monthly FDOT ASO Task Team meetings, providing an opportunity for discussion with a subset of participants from other groups.

Copies of the meeting agenda, presentation, and summary are provided in **Appendix A – Stakeholder Outreach**.

1.5.6 Public Engagement Mechanism Development

Engagement through an online presence is extremely effective in today's environment of constant connectivity. As such, the existing CFASPP website was enhanced to leverage and improve stakeholder engagement through the project duration and after the FASP 2035 was completed as a part of the "continuous" aspect of the FASP 2035. Added features of the

CFASPP website include storage of final deliverables, past archived FASP files, and other general information on the plan.

A survey was conducted to better understand how the previous version of the CFASPP website was being used, what specific features were utilized, which features were not, and how it could be improved. An update and redesign of the CFASPP website serves as the FASP 2035's project repository and results. As part of the improvements, several tabs were added and existing information updated, including a new tab dedicated to the FASP 2035 that incorporates the FASP 2035 brand. A new tab was also added to provide a location for master planning resources such as the *FDOT Guidebook for Airport Master Planning* and other relevant information. The Administration Section was revised to correspond to the FASP and Master Planning tab updates and allow for the FDOT ASO to manage files and text to be displayed on the respective tabs.

Detailed updates performed to the website include:

- **Contacts Tab:** In the Administrative Section, functionality was added to email templates to allow recipients to add meeting information to their calendars. A link was added for participants to RSVP to the meetings to provide the FDOT ASO and the hosting organization for each meeting with an attendee count. In addition, the baseline information entry for a new contact (or contact updates) was reformatted to allow all of the necessary data to be entered, then followed by a "save" entry that updates all information at once. These changes were applied internally to the FAD in the Contact Management Module and on the CFASPP website in order to maintain consistency.

- **CFASPP Schedule Tab:** This tab was updated to increase flexibility in the display of upcoming meetings. It was previously limited based on the reporting of the "next meeting" date. It now provides a monthly calendar display that allows the selection of the layers of events to be shown. It allows for a list or grid view. This calendar shows the current calendar month with the ability to move between current, future, and past months. All items included on the calendar include active links to details about the item. CFASPP meeting dates will continue to be managed in the Administration Section, but the Schedule tab will display other events and deadlines as approved under the News tab addressed below.

- **News Tab:** A News tab was added to increase the use of the website by providing access to industry items of interest such as news, events, and/or job postings. It allows users to request to add items by providing open/close dates, organization name, a brief description, and a link. The request is sent to FDOT ASO and, upon their approval, is posted to the tab. The deadline date is added to the calendar on the Schedule tab and the notice is automatically removed from the News tab upon the expiration date. A new tab for the management of this data was added to the Administration tab to allow FDOT ASO to edit as needed.

- **Projects Tab:** The data entry process was updated to be more user friendly. A separate section on the Projects tab was established for "FDOT Sponsored Training" to display

time/date/registration information for these types of efforts in a more prominent location.

- **Committees Tab:** Contact information for the current Chair and Vice-Chair for each CFASPP region was added on their respective committee tabs.

- **Calendar Tab:** A calendar that displays all meetings, events, and important dates in the system was added as a separate tab on the CFASPP website. The calendar tab shows the current calendar month with the ability to move between current, future, and past months. All items included on the calendar include active links to details about the item.

1.5.7 Bi-Weekly FDOT ASO Team Meetings

Bi-weekly meetings with the FDOT ASO team were held throughout the duration of the project to ensure that the project was progressing according to schedule, and allowed project updates and input from participants. Action items resulting from these meetings were documented and shared with the FDOT ASO.

1.5.8 Monthly FDOT ASO Task Team Meetings

Throughout the duration of the development of the FASP 2035, the monthly FDOT ASO Task Team meetings were used to discuss project status with FDOT ASO and District staff. These meetings were held in lieu of other FASPRT meetings, as they were part of the FDOT ASO's regular schedule and allowed for discussion of FASP 2035 issues with FDOT District staff on a more routine basis.

1.5.9 CFASPP

In addition to the aforementioned internal coordination, the CFASPP was utilized as a venue to obtain input and present the findings and recommendations of the FASP 2035. During regional CFASPP meetings in February 2017, interactive sessions were conducted to obtain input and feedback on draft plan recommendations. During the meetings, all members of the aviation public were given the opportunity to express their opinions and provide feedback regarding the FASP 2035 recommendations and findings. These included members of the military, airport staff, consultants, and other aviation professionals who were not participants of the previously described review teams.

Toward the end of the project, the July 2017 statewide CFASPP meeting was used to present the nearly final FASP 2035 deliverables. A presentation was made at this statewide CFASPP meeting.

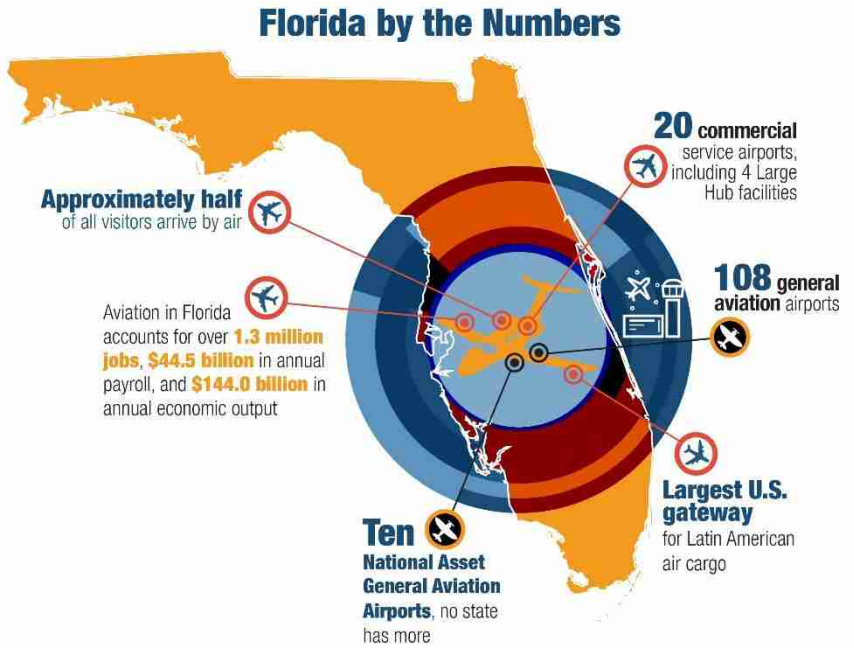
Copies of the regional CFASPP presentation and statewide CFASPP presentation are provided in **Appendix A – Stakeholder Outreach**.

2 Florida's Aviation History and Identification of Current Issues

2.1 Current Florida System Overview

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 (GA) airports (see **Figure 2-1**) 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. In total, 2.7 million tons of domestic and international air cargo passed through Florida's airports in 2014. 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.

Figure 2-1: Florida by the Numbers



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 in Florida and across the U.S. 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 FASP 2035 Update is grounded on the framework of the Florida Transportation Plan (FTP), the single overarching statewide plan guiding Florida's transportation future.

An initial task of the FASP was to examine the history of aviation in Florida and the issues currently affecting the airport system. With a long history of innovation and firsts, Florida's airport system continues to experience change that impacts its needs and must be considered in the context of the entire Florida transportation system. This historical perspective and identification of specific issues that are impacting or have the potential to impact Florida's aviation system provides a

backdrop for understanding the need to consider how the system might respond to address future activities.

2.2 History of Aviation in the State of Florida

Since the Wright brothers flew the first powered aircraft in Kitty Hawk, North Carolina on December 17, 1903, significant developments in the aviation industry have occurred around the world and in the Sunshine State. From the first commercial aircraft flight in St. Petersburg more than 100 years ago to the present day launches into space at Cape Canaveral, Florida has been at the forefront of aviation and aerospace development. Florida continues to advance aviation with research and training at leading aeronautical universities and growth in numerous sectors of the aviation industry, such as aircraft manufacturing.

These historic advances have helped shape the future of the industry and have set the framework for the state of Florida to become one of the most active and dynamic aviation states in the U.S., serving to advance the industry and promote large-scale technological advancement. Very few states have played such an important role in aviation as the state of Florida.

2.2.1 First Commercial Flight in the U.S.

While the Wright brothers first flight was a remarkable achievement, aviation was still in its infancy at the turn of the 20th century. It took nearly a decade before aviation made its first tentative steps toward becoming a world-altering industry and Florida led the way. Advancing the aviation industry in the state of Florida, Percival E. Fansler conceptualized the development of the world's first commercial airline. Fansler, an electrical engineer from Jacksonville, teamed up with Thomas Benoist, owner of airboat manufacturer Benoist Aeroplane Company, to harness expertise and move forward in pursuing his goal.

Fansler negotiated with the City of St. Petersburg in order to make his idea of a commercial airline a reality. An auction was held for the inaugural flight, which was won by former St. Petersburg Mayor Abram Pheil who had bid $400 (approximately $9,500 in 2015 dollars) for the opportunity to be the first commercial airline passenger.

Figure 2-2: St. Petersburg-Tampa Air Boat Line

Source: http://www.historynet.com/st-petersburgtampa-airboat-line-worlds-first-scheduled-airline-using-winged-aircraft.htm

On January 1, 1914, the first commercial flight commenced at the Municipal Pier in St. Petersburg (see **Figure 2-2**). In view of more than 3,000 spectators, test pilot Tony

Jannus and Pheil took off on their flight, which landed 23 minutes later in Tampa's Hillsborough River. Following this historic flight, Jannus made a minimum of two regularly scheduled round trips to and from St. Petersburg and Tampa for the next few months before a final flight on May 5, 1914.

2.2.2 First International Flight

Pan American World Airways (Pan Am) was founded on March 14, 1927 by Majors Henry H. "Hap" Arnold, Carl A Spaatz, and John H. Jouett. After Arnold, Spaatz, and Jouett secured financing for the airline, the team pursued the goal of obtaining the U.S. Mail delivery contract to Cuba.

The Pan Am delivery contract was approved by the U.S. government under the assumption that there would be no competition for routes between Latin America and the U.S. Although the contract was approved and landing rights secured in Cuba, they had no plane capable of making the trip. Therefore, Pan Am looked to Aviation Corporation of the Americas (ACA), owner of a Fairchild F-2 Seaplane, to make the historic first flight. On October 28, 1927, Pan Am Flight No. 1 departed Key West, Florida, bound for Havana, Cuba, and performed the first scheduled international air service flight in U.S. history (see **Figure 2-3**).

Figure 2-3: Pan Am First Scheduled International Air Service Flight

Source: Pan Am Historical Foundation

2.2.3 Wartime Pilot Training State

On April 6, 1917, the U.S. joined its allies—Britain, France, and Russia—to fight in World War I. During this time, the use of balloons was fairly commonplace and as aircraft were a relatively new technology, their usefulness during the war was often debated. Further into the 20th century, aircraft were employed in a number of wartime purposes, including reconnaissance, aerial combat, bombing, and ground attacks.

Shortly after the acceptance of aircraft as a tool of utilization, the U.S. Army identified the need to establish multiple training areas for its pilots. Due to its favorable weather conditions, Florida was a desirable location for training facilities. Army survey crews were sent to Florida in an effort to identify sites that would be suitable to construct airfields for military pilot training. The U.S. Army

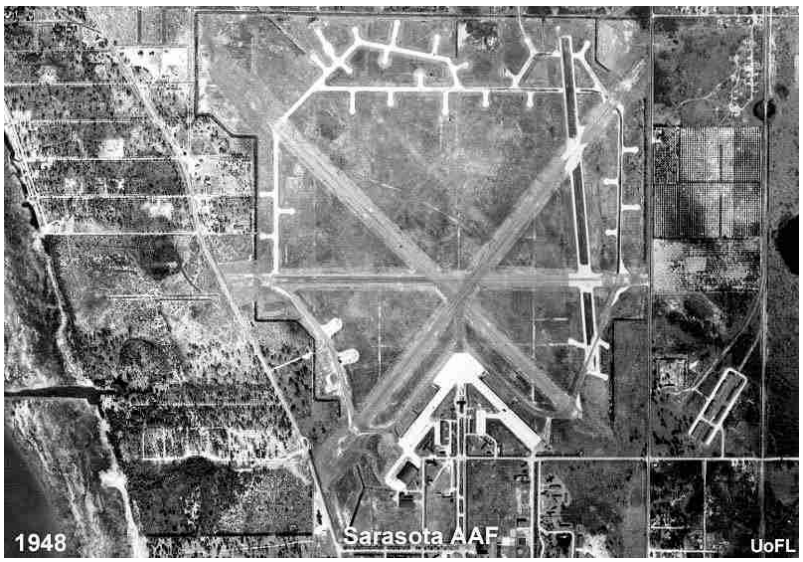
identified four sites in the Sunshine State—Carlstrom Field, which was located approximately six miles southwest of Arcadia; Dorr Field, which was located approximately 12 miles southwest of Arcadia; Valentine Field which was located in Labelle; and, finally, Chapman Field, which was located in Miami. The U.S. Army developed a number of hangars, barracks, a hospital, and other buildings that were utilized to support the military training efforts.

Figure 2-4: Sarasota Bradenton International Airport – Today

Source: http://srq-airport.com/noise-abatement

Dorr and Valentine fields served as auxiliary fields for Carlstrom; whereas, Chapman Field served as an aerial gunnery training facility. Upon Germany's surrender in World War I, Brigadier General Billy Mitchell, then commander of American air combat units in France, stated, "the only damage that has come to [Germany] has been through the air." The pilot training facilities in Florida were credited with producing some of the most skilled pilots leading to the air superiority of the allied forces.

Figure 2-5: Sarasota Army Airfield – 1948



Source: U.S. Department of Agriculture

The Japanese aerial attack on Pearl Harbor demonstrated early on that World War II would be a battle of the skies as much as it would be on the ground. In support of this need, the military invested immense funding to construct and improve a number of airfields within the state of Florida. Florida was preferable for aviation training due to its flat terrain and favorable weather conditions. By the mid-1940s, there were 40 airfields within the state utilized to train military personnel. By the end of the war, there were

approximately 172 military installations within the state, spanning from Key West to Pensacola. At the same time, as many as two million servicemen and women called Florida their home. After the allies' successful efforts in World War II, a large percentage of the military airfields throughout the state were deactivated and transferred back to their original owners. Following this transfer, some facilities were repurposed for non-aviation use, but most of them are presently operated as commercial service and GA airports, which has contributed to the extensive system of 128 public-use airports operating in Florida today. One example is the Sarasota Bradenton International Airport (**Figure 2-4**), which was once known as the Sarasota Army Airfield (**Figure 2-5**), a combat training base for new pilots. The airport was returned to civil use in 1946 after World War II.

2.2.4 First Modern Terminal to International Gateway

In 1927, Pan Am executives decided to relocate their base of operations from Key West to Miami. For the purpose of constructing a new airport facility, Pan Am purchased 116 acres along NW 36th Street from the Seminole Fruit and Land Company. When scheduled service began in September of 1928, three runways were constructed, and a $50,000 terminal was added, retrofitted from a modernized hangar facility (see **Figure 2-6**).

Figure 2-6: Pan American Airways System Terminal Building, 3500 Pan American Drive, Miami, Miami-Dade

Source: U.S. Library of Congress

During the first year of operation, 8,600 passengers and 20 tons of freight were processed through the airport. In 1946, the Miami Dade Port Authority was created, acquiring the 223-acre airport along with an adjacent 262-acre tract of land. The airport was renamed the Miami International Airport.

In February of 1957, a new $21 million terminal complex was constructed and in subsequent years additional hangar facilities and other improvements occurred. By the early 1960s, 32 scheduled airlines and 67 non-scheduled commercial carriers were operating at the airport. In 1977, the International-Satellite Terminal was opened and Runway 09R-27L was extended to a length of 13,000 feet. Over the next 35 years, the airport continued to grow through the addition of new terminal facilities, airport traffic control towers, people-mover systems, and rental car facilities.

Currently, Miami International Airport is one of the largest cargo airports in the country—ranked first in international freight among U.S. airports and ninth in international freight in the world.

Miami International Airport is the number one importer of flowers, fruits and vegetables, and fish in the entire country. Additionally, due to its location in Southeast Florida, Miami International Airport is ideally positioned to service the Caribbean and Latin America. Referred to as the "largest U.S. gateway for Latin America and the Caribbean," Miami International Airport was ranked second among U.S. airports in international passengers, and 10th in total passengers in 2013.

2.2.5 Aircraft Manufacturing

Over the years, Florida has managed to attract multiple aircraft manufacturing companies to the state, a notable achievement given the small number of aircraft manufacturers found in the U.S. Embraer Aircraft first established itself in Florida in 1979, having started as a Brazilian manufacturer of turboprop passenger airliners in 1969. It later moved its U.S. headquarters to Fort Lauderdale and selected Melbourne as the site of Phenom jet production facility, which started producing the corporate jet in 2011.[1] In August 2014, the company announced plans to build a $48 million facility in Melbourne that is expected to deliver Legacy 450 and 500 business jets starting in 2016.[2]

The roots of Piper Aircraft, best known for the iconic two-seat J-3 Cub aircraft, can be traced back to the late 1930s, when it started manufacturing small GA aircraft in Pennsylvania. The company began operations in Florida when it opened its Vero Beach offices in 1955, with aircraft production commencing in the early 1960s. Flooding of the company's Pennsylvania facilities in 1972 resulted in production shifting to Florida. Increased costs associated with product liability in the 1980s, which affected all GA manufacturers, drove Piper into bankruptcy in the 1990s. Piper emerged from bankruptcy in 1995 under new ownership. Control of the company changed hands several times after 2000, ultimately winding up in the hands of the government of Brunei in 2009. Its Vero Beach facility produces piston-powered single- and twin-engine GA aircraft, along with a single-engine turboprop model, the M500.[3] More recently, the company announced plans for a new turboprop aircraft, the M600, aimed at corporate customers instead of the traditional owner-flown customer. The company expects that demand for the M600 will drive new hiring.[4]

2.2.6 One of the Largest Airshows in the World

In 1974, the Experimental Aircraft Association (EAA) decided to organize a fly-in for aviation enthusiasts at the Lakeland Linder Regional Airport. The first fly-in occurred in January of 1975 and was limited strictly to pilots, EAA, Southeastern Sport Aviation Council (SESAC), and Florida Sport Aviation Antique and Classic Association (FSAACA) members. Despite this limitation, 1,980 guests and 365 aircraft attended the event. Due to its popularity, the event was expanded the following year to span an entire week. Since the early days of what is now Sun 'n Fun, the event

[1] Hemlock, D. and Close, K. (2014). "Brazil's Embraer Flying High in the United States," *Sun Sentinel*, August 31, 2014.
[2] Moorman, R. (2015). "Embraer to Build Legacy 450 and 500 in Florida," *Aviation Week*, June 15, 2015.
[3] www.piper.com/history/
[4] Ivice, P. and Kaiser, M. (2015). "Piper to Hire More Employees to Build New Planes," *TCPalm*, April 13, 2015.

has continued to increase in popularity and has subsequently continued to grow in attendance. In addition, new facilities have been constructed, including an Air Museum as well as an aviation-oriented high school facility that can accommodate up to 500 students.

The annual Sun 'n Fun International Fly-In & Expo at the Lakeland Linder Regional Airport is now the second largest airshow in the world (based on number of aircraft) and is the single largest convention in the state of Florida. Currently, "more than 200,000 people converge in Polk County to see an airshow, visit 500 exhibits, earn education credits at workshops and forums, introduce children to the world of aviation and view more than 4,500 aircraft from homebuilt to warbirds on 2,200 acres" (**Figure 2-7**).

Figure 2-7: Sun 'n Fun International Fly-In & Expo

Source: www.visitcentralflorida.org

2.2.7 U.S. Sport Aviation Expo

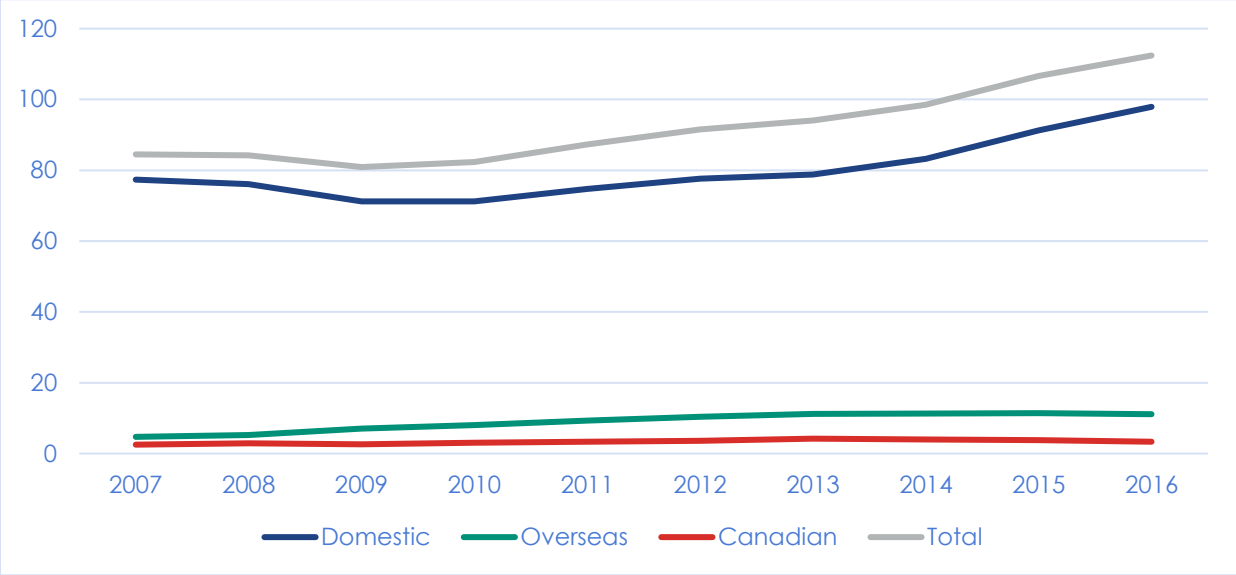
On July 20, 2004, the Federal Aviation Administration (FAA) released a new regulation which created a new category of aircraft known as the Light Sport Aircraft (LSA). Establishing this new category set standards and created rules for pilots of those aircraft that were previously unregulated. Sebring Regional Airport helped orchestrate the first U.S. Sport Aviation Expo, which began in 2004. The expo created a venue for LSA and equipment manufacturers to showcase their products. Since its inception in 2004, the event has continued to grow on an annual basis with an increasing number of both exhibitors and attendees. In 2014, approximately 16,000 people attended the expo, 30 percent of which came from outside of Florida and some visited from as far away as China, New Zealand, Africa, Romania, Australia, Italy, and the Czech Republic.

2.2.8 Growth of Population and Tourism Since 1920

The three largest factors which determine the need for aviation services are business, population, and tourism. The resident population itself directly creates aviation demand; however, the state's unique tourism industry lures a substantial number of visitors to Florida annually that also desire to travel by air. In the last 95 years, Florida's population has increased 20 times over—from 970,000 in 1920 to an estimated 20 million in 2015. The abundance of jobs in Florida and associated income created are directly attributable to the recreational and corporate aviation needs that impact the state's GA airports. During the early 1930s and 1940s, the state's largest assets included beaches, tropical climate, and the abundance of jobs that were created by recent influx of military activity. From 1959 through 1973, four notable attractions emerged which sparked and continued to fuel the state's tourism industry and ignite Florida's aviation industry indefinitely: Busch Gardens (1959 with a large expansion in 1965),

Daytona International Speedway (1959), Walt Disney World (1971), and Sea World Orlando (1973). Between 1989 and 1990, Hollywood Studios and Universal Studios opened. According to Visit Florida, nearly 115 million tourists visited the state of Florida in 2016, and this number continues to grow on an annual basis (see **Table 2-1**). Florida is one of the most traveled tourist destinations in the world.

Table 2-1: Historic Visitor Estimates (in millions)



Source: TNS TravelsAmerica; D.K. Shifflet & Associates, Inc; Individual Florida Airports; Statistics Canada; U.S. Department of Commerce, ITA, Tourism Industries; Visa Vue Travel; Diio, LLC aviation data

Notes: 2016 figures are preliminary; some figures may not add up due to rounding
In 2009 Visit Florida changed its visitor estimation methodology; therefore, estimates made prior to that year are not directly compariable.
In 2013, Statistics Canada implemented a major modernization initiative for the International Travel Survey (ITS) to improve the quality of its data and processes. According to Statistics Canada, any historical data comparisons should be made with caution. Therefore, it is highly likely that most of the year to year change shown for Canada in the table is results from the new methodology.

In addition to multiple tourist attractions, the state of Florida has five cruise ports, located in Tampa, Jacksonville, Port Canaveral, Fort Lauderdale, and Miami. These ports are regularly visited by residents and out-of-state visitors who take cruise vacations from Florida to destinations located throughout the Caribbean and as far south as South America. Each port is located within a short drive from one of Florida's commercial airports. In fiscal year (FY) 2012, Florida ports combined to report almost 14 million cruise passenger embarkations and debarkations (revenue passengers), with projected growth to 21.6 million by FY 2026, according to *Florida's Cruise Industry: A Statewide Perspective*.

With over half of the current business and recreational visitors to Florida traveling by air, the aviation presence within the state has increased tremendously and this growth continues to increase at a very rapid rate. Of the 128 public-use airports in the state, 20 provide commercial service as of 2017. Florida is the only state with four large hub airports—all of which ranked in the top 30 nationally in total passenger enplanements for 2014 (Miami International Airport – 11th,

Orlando International Airport – 14h, Fort Lauderdale International Airport – 21st, and Tampa International Airport – 29th). Collectively, more than 116 million passengers are processed through these four facilities on an annual basis.

2.2.9 Flight Training and Education

Florida is one of the busiest states in the country for both rotary-wing and fixed-wing aircraft flight instruction. Approximately 20 percent of the pilots throughout the world are trained in the Sunshine State.

In addition to flight training, there are two major universities catering specifically to students pursuing careers within the aviation industry. Florida Institute of Technology (FIT), which is located in Melbourne, Florida, was founded in 1958 as Brevard Engineering College to provide advanced education for professionals working in the space program. During the 2012-2013 academic year, FIT served approximately 16,000 students. Similar to FIT, Embry-Riddle Aeronautical University also offers a number of aviation-related degree programs. Embry-Riddle was founded in 1925 in Cincinnati, Ohio, for the purpose of training airmail pilots. Since 1965, the main campus has been the Daytona Beach location. Approximately 32,000 students are enrolled annually in the various undergraduate and graduate programs offered at Embry-Riddle.

2.3 Airport Issues

The aviation climate is constantly evolving with advances in technology, changes in the economy, and new and updated regulatory requirements. Understanding the numerous factors that can influence aviation in Florida, both GA and commercial airline service, during the 20-year planning period is important to prepare the system appropriately. These factors could potentially influence many characteristics of aviation within the state, including operational activity, flight hours, navigation, pilot growth, and other facets of aviation:

- Aging population
- Airline pilot shortage
- Autonomous vehicles (ground-based)
- Competition for space operations
- Contract towers
- Customs & Immigration
- Electric aircraft
- Florida economy
- Future of aviation gasoline (avgas)
- Legalization of gambling
- Medical certificate reform for Part 91 operations
- Next Generation Air Transportation System (NextGen) requirements (navigation and communication)
- Opening of Cuba market
- Pandemic fears

- Price of oil
- Reaction to terrorist activity
- Reduction in numbers of GA pilots
- Reliance on tourism
- Remote control towers
- Shortfall of aviation maintenance personnel
- Sustainability
- Transportation Security Administration (TSA) staffing
- Unmanned aircraft systems

Each of these topics is discussed in this section determine their impact, duration, and immediacy on both commercial service and GA study airports in the FASP. A more detailed industry perspective of a few of these topics is included in **Section 2.4 – Aviation Industry Trends.**

2.3.1 Aging Population

The demand for both commercial and GA services is closely tied to various demographic factors, most importantly population. Indicators that have been proven by the FAA to have a high correlation with demand for aviation services include population trends and growing demand on the aviation system. According to U.S. Census population data, Florida has been and will continue to be one of the fastest growing states in the U.S.

Aging population highlights:

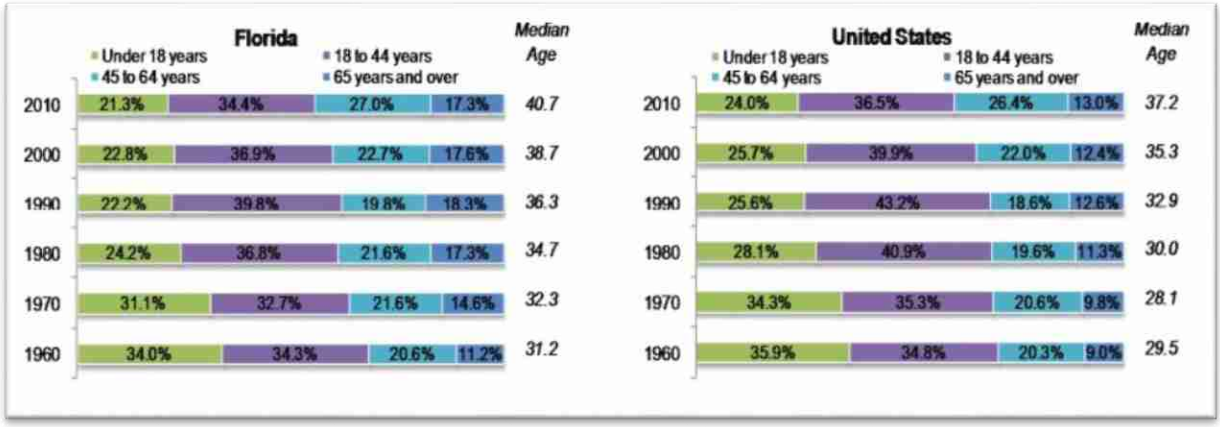
- Current population growth and growth trends are expected to continue, causing increasing congestion on Florida's modal transportation. Air travel and aviation facilities are key to meeting Florida's in-state travel needs now and in the future.[5]
- Each day, more than 900 new residents move to Florida. In 1970, the state had fewer than 7 million residents. Today, there are almost 19 million. An increase to 24 million residents is expected by 2025.
- Rapid growth strains all state infrastructures, especially the airport system. As the state's population continues to grow, demand for in-state, domestic, and international air travel will increase, as will the need to ship and receive goods by air.[5]
- The West Central Metropolitan Area (Tampa), the East Central Metropolitan Area (Orlando), and the Southeast Florida Metropolitan Area (Palm Beach, Fort Lauderdale, and Miami) have and will continue to have the highest concentrations of the state's population through 2025. The areas around Jacksonville, Fort Myers, and Pensacola are also projected to experience rapid population growth,[5] thus affecting the major airports in these regions of the state.
- Florida's population will become steadily older as the Baby Boom generation enters retirement (see **Table 2-2**). The senior age group will account for almost 40 percent of Florida's projected population increase between now and 2025. Florida's airports need

[5] http://www.cfaspp.com/FASP/Documents/634763253312886250-Florida_2025_Revised_2012.pdf

to become senior-friendly in their signage, audio systems, passenger accommodations, and intermodal connections.[5]

- Between 2010 and 2030, Florida's population is forecast to grow by almost 4.8 million. Florida's older population (age 60 and older) will account for most of Florida's population growth, representing 56.9 percent of the gains.[6]
- In order to accommodate the transportation needs of the elderly, consideration should be given to programs that offer increased mobility to the elderly through alternative transportation options. Providing more public transportation for the elderly and for caregivers, more private sector transportation from businesses that serve the elderly, and improved mass transit and the image of mass transit to the gaining population.

Table 2-2: Comparison of Florida Median Age and National Averages, 1960 – 2010



Source: The Florida Legislature Office of Economic and Demographic Research; Economic Future and Impact of Aging[7]

2.3.2 Airline Pilot Shortage

There are significant concerns about the coming shortage of airline pilots in the U.S. Boeing forecasts the need for 88,000 new commercial airline pilots over the next two decades.[8] Approximately 20,000 U.S. airline pilots are expected to retire over the next seven years due to the FAA's mandate for retirement at age 65.[9] Concurrently, there are too few students opting for careers as airline pilots for reasons that include low starting pay, strict flight hours requirements for new pilots, and the high cost of an aviation college education and flight training. With the demand for pilots high and the supply low, there are concerns that smaller airports, which are served by regional airlines, will lose air service as flights are cut due to the dearth of pilots.[10]

[6] http://edr.state.fl.us/Content/presentations/economic/FIEconomicFuture&theImpactofAging_3-17-14.pdf
[7] http://edr.state.fl.us/Content/presentations/economic/FIEconomicFuture&theImpactofAging_3-17-14.pdf
[8] http://www.prnewswire.com/news-releases/airline-industry-leaders-gather-at-embry-riddle-to-discuss-pilot-shortage-300019100.html
[9] http://aviationweek.com/commercial-aviation/coming-us-pilot-shortage-real
[10] http://www.albanyherald.com/news/2015/mar/02/airport-director-pilot-shortage-cause-of-flight/

Conversely, the Airline Pilots Association (ALPA) claims the pilot shortage is a myth, and points to a 2014 Government Accountability Office report (GAO-14-232) titled *Aviation Workforce – Current and Future Availability of Airline Pilots* that supports its argument.[11] According to the ALPA, there is not a lack of qualified pilots. Rather, there is a lack of pilots who want to work for low pay and poor benefits.

Airline pilot shortage highlights:

- Regional airlines are already feeling the crunch of the airline pilot shortage, as increasing numbers of regional airline pilots leave the regional airlines for higher pay at the major airlines and the regional airlines are not able to fill new pilot training classes.[12]
- Flight cuts at smaller airports due to the shortage of pilots at regional airlines means fewer enplanements and less revenue at those airports.[13]
- For decades, U.S. airline pilots were hired from the ranks of retiring military pilots, but a gradual decline in military pilots has resulted in the airlines looking for civilian-trained pilots.[14]
- In response to the 2009 Colgan Air Flight 3407 accident in Buffalo, New York, the FAA published a new rule that requires first officers to hold an Airline Transport Pilot (ATP) certificate, requiring 1,500 hours total time as a pilot. Previously, first officers were required to have only a commercial pilot certificate, which requires 250 hours of flight time.[15, 16] This is an important factor that has discouraged students from choosing careers as airline pilots.
- Other reasons cited for the lack of students choosing to become airline pilots include the expense of a 4-year college degree (about $50,000 per year at Embry-Riddle Aeronautical University or the University of North Dakota), which is preferred by the airlines; low starting pay at the regional airlines (long-held at $20,000, lately increasing to $30,000 thanks to signing bonuses, retention pay, and other incentives); and the lack of interest in the lifestyle of a pilot, which can be affected by the heavy travel schedule and instability in the airline industry.[17]
- The ALPA states there are more than 700 ALPA pilots currently on furlough in North America and hundreds of other qualified pilots work abroad at airlines such as Emirates Airline, China Eastern Airlines, and Etihad Airways, because the pay is commensurate with skills and experience.[18]
- The 2014 GAO report that supports ALPA's argument concludes that 1) there is a large pool of qualified pilots relative to projected demand, and 2) data on wage earnings and employment growth are not consistent with the existence of an airline pilot shortage.

---

[11] http://www.alpa.org/portals/alpa/payandbenefitsshortage/Pilot-Shortage-Fact-Sheet.pdf
[12] http://aviationweek.com/commercial-aviation/coming-us-pilot-shortage-real
[13] http://www.albanyherald.com/news/2015/mar/02/airport-director-pilot-shortage-cause-of-flight/
[14] http://aviationweek.com/commercial-aviation/coming-us-pilot-shortage-real
[15] http://www.tulsaworld.com/business/aerospace/pilot-shortage-impacts-flight-frequency-market-service/article_09f210d3-2210-5f4a-b574-4cd384d3dfb0.html
[16] https://www.faa.gov/news/press_releases/news_story.cfm?newsId=14838
[17] http://aviationweek.com/commercial-aviation/coming-us-pilot-shortage-real
[18] http://www.alpa.org/portals/alpa/payandbenefitsshortage/Pilot-Shortage-Fact-Sheet.pdf

Section 2.4.4 explores the factors contributing to the commercial pilot shortage. **Chapter 8 – Alternative Scenarios** provides a look at alternative scenarios resulting from a reduction in the aviation workforce, including commercial ATP pilots.

2.3.3 Autonomous Vehicles (Ground Based)

Improvements in technology are driving towards a future where cars and other ground vehicles will no longer depend on or even require an onboard operator. Companies including Google and many major car companies are working to make self-driving cars a reality. This technological achievement has the potential to impact the operations on and around airports. However, regulatory and technological hurdles have yet to be overcome in a number of areas.

Autonomous vehicles (ground based) highlights:

- Autonomous ground vehicles will have implications for airport operations both airside and landside.
    - Airside operations will be impacted by the introduction of autonomous ground tugs, baggage carts, and other self-driving ground handling equipment.
    - Landside operations will need to figure out how to deal with self-driving cars, both privately owned and commercial.
- Commercial airports may experience a loss of auto parking revenue since departing passengers may opt to be dropped off at the airport by a self-driving car instead of having to park it in the airport garage.

Section 2.4.2 includes a detailed review of the impact of ground- and air-based autonomous vehicles on the aviation system.

2.3.4 Competition for Space Operations

Florida is an unquestioned leader nationally and internationally in the global aerospace industry (see **Figure 2-8**). Florida consistently ranks in the top five U.S. states for aerospace industry employment, with more than 20,000 aerospace and aerospace manufacturing companies across the state, employing more than 141,000 employees in 2014.[19]

The following facilities are unique to Florida and foster the growth of the aerospace industry:

- National Aeronautics and Space Administration (NASA) and U.S. Air Force rocket launching at Cape Canaveral
- Development of navigation and guidance control systems in Orlando and Clearwater
- Manufacturing of rocket engines and advanced helicopter systems in West Palm Beach
- Small satellite development in Gainesville
- Significant maintenance, repair, and overhaul (MRO) centers around the state, with particular strength in Miami, Jacksonville, Melbourne, and the Pensacola to Panama City corridor

[19] http://floridaspaceday.com/fsd-content/uploads/2013/07/County-by-County-2014.pdf

- Business jet research and development, and manufacturing in Melbourne

Space operations highlights:

- In 2014, the aerospace industry contributed more than $19.2 billion in revenue to Florida's economy.[20]
- Florida is a hub for the growing commercial space industry, with current and planned major operations for path-breaking companies such as SpaceX and XCOR.
- SpaceX currently leases two orbital launch sites at Cape Canaveral Air Force Station Space Launch Complex 40. These sites will accommodate both Falcon Heavy (spaceflight heavy lift launch vehicle) flights starting in 2017 and passenger-carrying flight missions in 2018.[21] XCOR Aerospace currently operates from the Kennedy Space Center Shuttle Landing Facility with manufacturing and assembly centers for the Lynx suborbital vehicle nearby.[22]
- Florida currently has the capacity to launch any class of launch vehicle using its existing infrastructure (with infrastructure improvements or modifications), and the ability to launch a large number of flights per year. The challenge for Florida is largely not one of physical infrastructure, but of positioning itself to stay competitive in nurturing existing industry and attracting emerging markets.

[20] http://www.spaceflorida.gov/why-florida
[21] http://www.spacex.com/
[22] http://xcor.com/press/2012/12-08-23_XCOR_to_establish_operations_in_florida.html

Figure 2-8: Florida's Existing Spaceport System and Assets

SYSTEM COMPONENT	DEFINITION	FLORIDA ASSETS
Spaceport	A public gateway to space that typically provides both launch and re-entry sites. In the U.S., launch facilities that serve commercial, non-governmental customers must be licensed by the Federal Aviation Administration (FAA).	• **Cape Canaveral Spaceport**: commercial facilities at Kennedy Space Center (KSC) and the 45th Wing at Cape Canaveral Air Force Station (CCAFS). • **Cecil Spaceport**: a newly licensed facility in western Jacksonville.
Control Centers and Airspace	Centers that coordinate the details for space flight operations. Airspace in space transportation is primarily concerned with *ranges*, a flight path area used for launching rockets, missiles, and vehicles designed to reach high altitudes.	• **Launch Control Center** (LCC) at KSC. • **Morrell Operations Center (MOC)** at CCAFS, manages the 15-million square mile Eastern Range. • **Dedicated Launch Vehicle Control Centers for the Atlas V, Delta IV, and Falcon 9,**
Launch Vehicles and Spacecraft	A *launch vehicle* is a rocket used to launch a spacecraft or satellite into high altitude or orbit. Typically they are classified as reusable (RLVs) or expendable (ELVs). *Spacecraft* are manned or unmanned vehicles that are designed to operate in space to accomplish a specific mission.	• The **Atlas V**, **Delta IV**, and the **Falcon 9** that will launch from CCAFS. • Development of the **Space Launch System (SLS)** at KSC. • **Suborbital-ready facilities** at Cecil Spaceport.
Payload Processing Facilities	Facilities that prepare payloads (the cargo necessary to complete a mission or flight's purpose) for launch, and processing following the flight.	• **12 major facilities at KSC and CCAFSs** with the capability to process a variety of payload types and sizes. • **Astrotech** in Titusville,
Intermodal Connections	Transportation modes that enable the movement of people and goods to spaceports, including roadways, airports, seaports, and rail lines.	• **Strategic Intermodal System (SIS)**, a system of key roadway, rail, airport, seaports, and spaceport infrastructure identified by the Florida Department of Transportation (FDOT).

Source: Space Florida, http://www.spaceflorida.gov/docs/spaceport-ops/florida-spaceport-systems-plan-2013_final.pdf?sfvrsn=2

2.3.5 Contract Towers

The FAA's Federal Contract Tower (FCT) program comprises over 100 contract towers nationwide and provides services to a wide range of users, including GA, commercial, air cargo, and military operators. Controllers at contract towers perform a host of important functions, including separating aircraft, issuing safety and weather alerts, and assisting with military, emergency response, and medical flights.[23]

FDOT has supported the FCT program by funding the construction of a number of air traffic control towers in Florida. However, FDOT is prohibited by statute from funding the operations of these towers should the federal government decide to cease funding them. One concern with allowing FDOT to fund some federal contract towers is that it may provide an incentive for the FAA to turn over responsibility for funding all federal contract towers in Florida to FDOT.

In 2013, the FAA was required to meet its $637 million in target savings under sequester. To accommodate the sequestration, the administration made the decision to close 149 federal contract towers nationwide as part of its sequestration implementation plan, including more than a dozen federal contract towers in Florida. Timely legislation allowed the FAA to reverse its tower closure decision, but the dilemma illustrated how vulnerable contract towers are to shifting political winds. Contract towers continue to provide air traffic control services at a lower cost than similar FAA towers.

Contract tower highlights:

- Based on a review of 30 randomly selected contract and 30 FAA towers with a comparable level of operations, a contract tower cost, on average, about $1.5 million less to operate than a similar FAA tower, based on FY 2010 data. This difference was mainly due to lower staffing and salary levels at contract towers versus similar FAA towers.[24]
- Benefits of the FAA FCT program: 1. enhanced aviation safety at smaller airports; 2. significant cost savings to the FAA and taxpayers; 3. retention and development of commercial air service and GA at smaller airports; 4. promotion of economic development and job creation; 5. connection to smaller airports and communities with the national air transportation system, and 6. higher customer service rankings from aviation users and pilots.[25]
- Advocates for pilots and airports said shutting the towers will harm safety and impose economic hardship on businesses such as flight schools that rely on controllers to guide planes.
- Without the towers, small airports are relying on pilots to alert each other by radio to their positions and to sequence landings and takeoffs. While that system works at less-

[23] http://www.bloomberg.com/news/articles/2013-03-22/faa-to-close-149-u-s-airport-towers-after-budget-cuts
[24] FAA (2012), *Contract Towers Continue to Provide Cost-Effective and Safe Air Traffic Services, but Improved Oversight of the Program is Needed.*
[25] http://contracttower.org/ctaannual/July2014_newsletter.pdf

trafficked airports, directors at busier airports worry about the risk of accidents without their control towers.[26]

- The companies currently operating towers under the FAA FCT program in Florida are Robinson Aviation (RVA) and Midwest Air Traffic Control.

2.3.6 Customs & Immigration

The continued threat of terrorism is impacting aviation by imposing new costs on the industry through regulation by the U.S. Department of Homeland Security.

Customs & Immigration highlights:

- Nearly 51,000 transportation security officers, transportation security inspectors, and behavior detection officers serve at more than 450 U.S. airports. Prior to September 11, 2001 (9/11), limited federal security requirements existed for cargo and baggage screening.[27]
- In early 2015, a proposal was presented by the President to increase TSA's aviation security efforts and raise the current funding allocations from $4.9 billion to $5.8 billion.[28]
- The costs associated with meeting new Customs & Immigrations standards are sometimes excessive. For example, U.S. Customs and Border Protection (CBP) requirements dictate that a minimum staffing level at an airport is eight agents, though many small and non-hub commercial service airports could be safely and efficiently served by a single agent.[29]
- There is a disparity in funding opportunities for customs projects. FDOT provides 80 percent of the cost of the customs project in some districts, and only 50 percent in other districts. This is also true in terms of charges for clearing international passengers. Some boating operations are not charged, while aviation operations are always assessed a fee.[30]
- Lack of funding for the U.S. Department of Homeland Security has the ability to halt hiring and training, research and development (including cargo screening initiatives), and furlough TSA staff.[31] CBP would remain stable, as these services are primarily funded through fees.[32]

2.3.7 Electric Aircraft

Sustainability in the aviation industry calls for aircraft that are significantly quieter, environmentally friendly, and more fuel efficient than today's fleet. Development of advanced

[26] http://www.reuters.com/article/2013/03/18/usa-fiscal-airports-idUSL1N0C5HD520130318
[27] http://www.dhs.gov/aviation-security
[28] http://www.washingtonpost.com/blogs/federal-eye/wp/2015/02/02/white-house-budget-homeland-agenda-includes-airport-security-and-plugging-gaps/
[29] Comment received during CRT meeting on August 20, 2015 in Orlando
[30] Comment received during CRT meeting on August 20, 2015 in Orlando
[31] http://mashable.com/2015/02/27/tsa-funding-shutdown/
[32] http://www.nytimes.com/2015/02/24/us/concerns-mount-as-homeland-security-shutdown-looks-likely.html?_r=0

technologies has led to increased interest in electric aircraft as a means to address these concerns.

The introduction of electric aircraft into the market has the possibility to:

- Increase opportunity in manufacturing sectors
- Increase employment opportunities
- Benefit training facilities across the state of Florida (education and operation)
- Make flying more affordable

Electric aircraft highlights:

- Companies such as Safran, S.A., Boeing, Airbus, and Raytheon have already revealed plans to re-conceptualize the modern plane. Boeing's concept aircraft, SUGAR Volt, combines electric and fuel to power flight. Airbus is planning a two-place trainer and a four-place personal aircraft for the U.S. GA market. The trainer is a battery-powered electric, the four-placer a hybrid drive. Airbus hopes to bring the battery-powered aircraft to market by 2017.
- It is estimated that the electric aircraft market is projected to reach over $22 billion in sales over the next 15 years.[33]
- Benefits of electric aircraft include increased reliability, elimination of risk of aviation fuel-fed fires, more quiet operations, improved comfort and maintenance, reduced life cycle costs, and no emissions.
- Growth in the aviation sector as cost of aircraft ownership decreases. The average electric aircraft takes the maintenance and fuel costs down potentially as much as 80 to 90 percent. Additionally, aircraft cost has the potential to be significantly less to purchase.[34]
- Various flight schools across the nation are exploring the options of electric aircraft for training and from an economic standpoint. Each of the solar-electric training aircraft cost about $200,000, a little less than a traditional trainer and, as previously discussed, has the potential to decrease operational and overall ownership costs. A full charge would enable the plane to fly for about three hours, a perfect amount of time for training flights.[35]
- In order for airports to properly allocate the costs of electricity for electric aircraft owners, airports may need to add electric meters to hangars.[36]
- Fuel sales, which are a prime source of revenue for most GA airports, can be expected to decline if electric aircraft are adopted.[37]

---

[33] http://www.theatlantic.com/sponsored/thomson-reuters-why-2025-matters/electric-flight/208/
[34] http://www.tulsaworld.com/businesshomepage1/spartan-school-of-aeronautics-fleet-to-include-solar-electric-aircraft/article_e7d921b6-12fa-5129-8e0c-4ed3b9aae672.html
[35] http://www.tulsaworld.com/businesshomepage1/spartan-school-of-aeronautics-fleet-to-include-solar-electric-aircraft/article_e7d921b6-12fa-5129-8e0c-4ed3b9aae672.html
[36] Comment received during CRT meeting on August 20, 2015 in Orlando. Commenter pointed out that at one airport, a T-hangar occupant, with fixed rent that includes electric, plugs his Tesla in while he is out flying.
[37] Comment received during CRT meeting on August 20, 2015 in Orlando

- Florida's $0.069 per gallon aviation fuel tax funds a substantial part of the Florida aviation budget. Electric aircraft would reduce demand for aviation fuel, diminishing this important revenue stream for the state.

2.3.8 Florida's Economy

Aviation demand in Florida is closely tied to the state's socioeconomic and demographic characteristics. As population, employment, and income levels rise in the state, so too does demand for air travel, air cargo shipments, and other aviation-related activities. The statistics below help explain the strong demand for aviation-related activities in Florida, and suggest this demand should continue well into the future.

Florida economy highlights:

- Florida's population grew from 16.0 million in 2000 to nearly 19.9 million in 2014. This represents a compound annual growth rate (CAGR) of 1.6 percent. The U.S. population grew at a CAGR of 0.9 percent during the same period.[38]
- Florida's 2014 estimated population of nearly 19.9 million people makes it the third most populated state in the U.S.[39]
- Florida's population is estimated to grow from nearly 19.9 million in 2014 to approximately 21.1 million by 2020 and approximately 25.6 million by 2040.[40]
- Florida's gross state product (the state equivalent of gross domestic product, or GDP) in 2013 was nearly $800.5 billion, ranking fourth in the U.S. This was an increase of 3.8 percent annually from $491.5 billion in 2000. By comparison, the national GDP also grew 3.8 percent annually during the same period.[41]
- Total employment in Florida grew from 8.9 million workers in 2000[42] to nearly 10.6 million workers in 2013, representing a CAGR of 1.3 percent. For the U.S. as a whole, total employment grew from 165.5 million workers in 2000 to 182.3 million workers in 2013 at a CAGR of 0.8 percent. This ranks Florida fourth in the U.S. in terms of total employment in 2013 and eighth in terms of total employment CAGR during the 2000 to 2014 time period.[43]
- Florida's total employment is projected to increase to nearly 12.0 million workers by 2020 and 14.0 million workers by 2030.[44]
- Florida's per capita personal income was $29,570 in 2000 and grew to $42,645 by 2014. This change represents a CAGR of 2.7 percent. On the national level, per capita personal income was $30,587 in 2000 and grew to $46,129 by 2014, representing a CAGR of 3.0

[38] U.S. Census Bureau
[39] U.S. Census Bureau
[40] http://edr.state.fl.us/Content/population-demographics/data/Medium_Projections.pdf
[41] Bureau of Economic Analysis
[42] 2014 *Florida Statewide Aviation Economic Impact Study Update*
[43] Bureau of Economic Analysis
[44] Woods and Poole Economics, Inc., 2015

percent. Florida ranks 29th in the U.S. in terms of per capita personal income in 2014 and 43rd in terms of per capita personal income CAGR during the 2000 to 2014 time period.[45]

- *Business Insider* recently ranked the economies of the 50 states on six measures: recent change in housing prices, nonfarm payroll job growth, unemployment rate, GDP per capita, average weekly wage, and state government surplus and deficit. Florida's economy ranked seventh best in the analysis.[46]

2.3.9 Future of Avgas

Avgas is the only remaining transportation fuel still containing lead. Lead acts as a protectant against engine knock or detonation in piston aircraft. The FAA is currently working with stakeholders, such as aircraft manufacturers, fuel producers, the Environmental Protection Agency (EPA), and aviation industry associations to develop a new, lead-free version of avgas that will make the smallest impact on the current GA fleet. This effort is called the Piston Aviation Fuels Initiative (PAFI).

Avgas highlights:

- More than 200,000 piston-engine aircraft rely on 100 low lead avgas for fuel.
- The PAFI steering committee includes the FAA, Aircraft Owners and Pilots Association (AOPA), American Petroleum Institute, the EAA, General Aviation Manufacturers Association, National Air Transportation Association, and National Business Aviation Association.
- PAFI has a goal of establishing an unleaded avgas for GA by 2018.
- In July of 2014, a replacement fuel proposal was submitted to the FAA. Factors considered in the fuel evaluation include toxicology, environmental impact, impact on existing GA fleet, production and distribution infrastructure, and cost of aircraft operations.
- In September of 2014, four fuels began further testing under Phase 1 of the program (one fuel each from Shell and TOTAL, and two fuels from Swift Fuels).
- Two or three fuels will be selected for Phase 2, which is expected to take two years.
- Airport managers have voiced the opinion that maintaining avgas is a losing proposition.[47]

2.3.10 Legalization of Gambling

Gambling in Florida is currently limited to Native American casinos (the Seminole Tribe) and slot casinos in Broward and Miami-Dade counties. The Seminole Tribe's gambling compact with the state gives it exclusive rights to offer table games. The compact includes a 25 percent revenue share for Florida (higher than any other state). Proposed expansion of casino gambling to other

[45] Bureau of Economic Analysis
[46] http://www.businessinsider.com/state-economy-rankings-q1-2015-2015-3#7-florida-44
[47] Comment received during CRT meeting on August 20, 2015 in Orlando

parts of the state would likely cut into the Seminole Tribe's revenues, and as a result, the state's share of that revenue.

Gambling highlights:

- During the fiscal year ending June 30, 2014, the Seminole Tribe generated $230 million for the state through their compact. During the same fiscal year, the Tribe reported an estimated $2.1 billion in revenue.
- The Seminole Tribe currently employs over 10,000 people at casinos.
- Outside of Native American casinos, slots are currently allowed only in Broward and Miami-Dade counties. Casinos at dog and horse tracks and jai-alai frontons generated $358 million and employed 3,452 people in 2013.
- In April of 2015, Florida House Bill 1233 proposed the expansion of state-authorized gambling at non-Tribe locations and passed (though the bill later died in review prior to becoming law).
- Results of an independent study performed by the Spectrum Gaming Group state that widespread expansion of Florida gaming would likely not have a drastically positive impact on the Florida economy. Expanding casino gambling throughout the state but forgoing the revenue share that results from the Seminole Tribe gaming compact may actually result in a net loss in gambling revenue in Florida.

2.3.11 Medical Certificate Reform for Part 91 Operations

During the past 25 years, the AOPA, EAA, and other organizations have submitted numerous requests to the FAA to eliminate or relax the third-class medical certificate[48] for various airmen certificates.[49] On July 15, 2016 President Barack Obama signed third class medical reforms into law as part of an FAA authorization extension passed by the U.S. House and Senate. On January 10, 2017, the FAA released a final rule on third class medical reform, though it won't be effective until May 1, 2017. After meeting the initial requirements to fly under the reform, pilots will need to visit any state-licensed physician at least once every four years and take the free aeromedical factors online course every two years.

Highlights of the new program, titled BasicMed, include:[50]

- Aircraft specifications: Up to six seats, up to 6,000 pounds (no limitations on horsepower, number of engines, or gear type)
- Flight rules: Day or night, visual flight rules (VFR) or instrument flight rules (IFR)
- Passengers: Up to five passengers
- Aeromedical factors: Pilots must take a free online course every two years and visit their personal physician every four years
- Altitude restriction: Up to 18,000 feet msl

[48] The FAA designates medical certificates for pilots as first-class, second-class, or third-class. Generally, first-class is designed for the airline transport pilot; second-class for the commercial pilot; and third-class for the student, recreational, and private pilot.
[49] http://www.aopa.org/Advocacy/Regulatory-,-a-,-Certification-Policy/AOPA-EAA-Medical-Exemption-FAQ#q1
[50] https://www.aopa.org/news-and-media/all-news/2017/january/10/faa-releases-final-rule-for-third-class-medical-reform

- Airspeed limitation: 250 knots indicated airspeed
- Pilot limitation: Cannot operate for compensation or hire

2.3.12 NextGen

NextGen is a long-term plan by the FAA to transform the way the U.S. air transportation system operates. Very broadly, it aims to shift air navigation from a ground-based system to a satellite-based system through modernization of aircraft tracking systems, communication systems, and weather monitoring and forecasting systems. The benefits of this transformation include shorter flight routes, increased operational efficiencies, reduced fuel consumption, reduced congestion and delay, reduced environmental impacts, airport and airspace capacity maximization, and greater safety for aircraft.

The $40 billion program has been criticized by the GAO for being more than $4 billion over budget and falling behind schedule.[51] Other complaints about the system include the high cost for equipping aircraft in comparison to the benefits received (especially for GA) and security issues surrounding the NextGen system.

NextGen highlights:

- Automatic Dependent Surveillance-Broadcast (ADS-B) uses a combination of ground stations, aircraft avionics, and the satellite global positioning system (GPS), to provide air traffic controllers with an aircraft's position, altitude, airspeed, and other information critical to ensuring aircraft separation (termed ADS-B Out). Because it relies on satellites instead of ground-based radars, ADS-B Out improves the coverage and situational awareness of air traffic controllers, including tracking of aircraft while taxiing at airports with adequate surveillance equipment.
- The ADS-B system is also capable of providing weather and aircraft position information for collision avoidance (termed ADS-B In) to properly equipped aircraft.
- The FAA has mandated that aircraft using most airspace in the U.S. be equipped with ADS-B Out by 2020. The minimum cost to do this is several thousand dollars per aircraft, which is comparatively less significant for the airlines compared to private aircraft owners, for whom the cost can be a substantial, potentially prohibitive burden. Furthermore, the biggest advantage for GA aircraft comes from ADS-B In, which imposes additional equipment and costs on the aircraft owner.
- The weather component of the NextGen system consists of several improvements to the collection and dissemination of weather information. The NextGen Weather Processor will identify weather hazards in the terminal and enroute environments. The Aviation Weather Display consolidates current weather displays and provides consistent weather information for terminal and enroute users. The Common Support Services modernizes information management services for weather and provides tailored weather products with the national airspace system through System Wide Information Management (see

[51] GAO (2012). *Air Traffic Control Modernization: Management Challenges Associated with Program Costs and Schedules Could Hinder NextGen Implementation*, GAO-12-223

below). Improved weather information is expected to yield dividends in the areas of reduced weather delays and enhanced safety.

- The System Wide Information Management (SWIM) infrastructure is aimed at allowing more efficient data sharing among aviation users. It accomplishes this by establishing data format standards, translating data from different data systems into standard formats, and consolidating multiple data connections into a single access point. One example of how SWIM results in operational efficiencies is that the system allows collaboration between airline dispatchers and traffic managers by providing both user groups access to current weather and flight planning information. Using SWIM-enabled data, these two groups are able to cooperatively reroute traffic and take advantage of the most current information on weather, air traffic control traffic management initiatives, runway configurations, and airport deicing operations.
- By switching to the NextGen system, the FAA will be able to phase out older navigation equipment, which becomes costlier to maintain as it ages.

The impacts of NextGen are reviewed in greater detail in **Section 2.4.1**.

2.3.13 Opening of Cuba Market

In late 2014, the federal government announced the reopening of diplomatic relationships with Cuba after more than 50 years of hostility, trade embargo, and greatly restricted travel between the nations. In the past, special charter companies have offered travel between the U.S. and Cuba for those traveling for one of 12 specific purposes. On January 15, 2015, Cuban sanctions were eased, affecting travel to the country. The updated travel regulations state that those visiting Cuba must still fall under one of 12 permitted reasons for travel, but a specialized license issued by the U.S. government is no longer required. Travelers now require only a general license. This is effectively the government trusting that travelers that are traveling for one of 12 authorized reasons. However, the 2017 change in administration may place greater restrictions on travel to Cuba once again.

Cuba market highlights:

- There are 12 reasons for authorized travel:
    1. Family visits
    2. Official business of the U.S. government, foreign governments, and certain intergovernmental organizations
    3. Journalistic activity
    4. Professional research and professional meetings
    5. Educational activities
    6. Religious activities
    7. Public performances, clinics, workshops, athletic and other competitions and exhibitions
    8. Support for the Cuban people
    9. Humanitarian projects
    10. Activities of private foundations or research or educational institutes

11. Exportation, importation, or transmission of information or information materials
12. Certain authorized export transactions

- Eased travel restrictions include lifting per diem restrictions on expenses within Cuba, and the authorization to use U.S. credit and debit cards in Cuba.
- Eased restrictions are anticipated to cause a spike in family visits between the U.S. and Cuba.
- Several airlines added flights to Cuba, including American, Delta, United, JetBlue, and Southwest, many departing from Florida airports. After an initial surge in commercial service demand, airlines are reducing route frequency, using smaller aircraft, or cancelling service altogether to Cuba as a result of lower sustained demand.[52]
- Tourism is a major industry in Cuba, with over three million visitors each year. Nearly one million visitors come from Canada annually, while approximately 65,000 Americans visit Cuba each year.
- The potential for expanding tourism from American markets exists, but it would require substantial investment in lodging, utility, and transportation infrastructure in Cuba.

2.3.14 Pandemic Fears

In a globalized society, epidemics can turn to pandemics if not controlled. In recent years, outbreaks of swine and bird flus, SARS, and Ebola in foreign countries have caused concern that control methods are not sufficient to prevent an outbreak in the U.S. Public fear and panic over possible pandemics have already caused an impact to the aviation industry, and may continue to do so.

Pandemic highlights:

- British Airways Asia Pacific region traffic fell 27 percent during the height of the 2003 SARS scare in April and May. A $68.8 million loss resulted for the quarter.
- Mexican flight capacity took nearly eight months to bounce back to previous levels following the Mexican swine flu epidemic in 2009.
- In these cases, airlines experienced losses but activity eventually recovered to normal levels.
- In 2015, the Zika virus intensified and spread across more than a dozen countries. Warnings for travel to the tropical and subtropical regions of the Americas are still in place today, especially for women who are pregnant or plan to become pregnant due to the risk of brain anomalies in infants.
- The aviation industry is careful to add precautions without adding to the public's perception of risk.
- Global aviation and healthcare organizations formed the Collaborative Arrangement for the Prevention and Management of Public Health Events in Civil Aviation (CAPSCA). One major objective of CAPSCA is to assist states and territories in the establishment of national aviation pandemic preparedness plans.

[52] https://www.nbcnews.com/news/latino/why-u-s-airlines-are-dropping-flights-cuba-n733616

2.3.15 Price of Oil

The price of crude oil per barrel has fluctuated greatly over the last 10 to 15 years, directly affecting the cost of aviation fuel. The fluctuating cost of fuel is the largest variable in costs to airlines and airline customers. Many airlines have countered the unstable nature of fuel prices by agreeing to fuel hedge contracts which establish a fixed or capped cost. Such hedge agreements are greatly beneficial when costs fluctuate around a generally fixed mean, but when fuel costs drop dramatically (as they have in 2014 – 2015), they may result in airlines paying far more than market value for aviation fuel. Higher jet fuel costs also affect jet-based GA.

Oil price highlights:

- Price of crude oil per peaked in June 2008 at $144.51 per barrel.
- Price of crude oil bottomed out in February 2009 at $43.59 per barrel, but rose back to over $70 per barrel by June 2009 and fluctuated between that price and just over $115 per barrel until late 2014.
- In March 2015, the price of crude oil reached a six-year low at $47.72 per barrel.
- Lower oil prices have not yet resulted in dramatically lower airline ticket prices for multiple reasons.
    - The fuel hedging policies of many airlines have resulted in paying above market value for fuel during times of low cost per barrel, and therefore having little savings to pass along.
    - Some carriers, such as American Airlines, have not recently signed hedging contracts, but still benchmark their prices against all other airlines, banking additional profit as opposed to passing savings along to customers.

Chapter 8 – Alternative Scenarios explores, in more detail, the impacts of fluctuating oil prices on the commercial service and GA industries.

2.3.16 Reaction to Terrorist Activity

The 9/11 terrorist attacks caused widespread and long-lasting effects on the aviation industry, including both GA and commercial service. Immediate effects included public concern over the safety of commercial flight and a decrease in enplanements and industry revenues. Longer lasting effects include a substantial expansion to aviation security, including the passing of the Aviation and Transportation Security Act and founding of TSA, changes to passenger screening, and changes to commercial aircraft cockpit doors.

Terrorist activity reaction highlights:

- Worldwide commercial passenger enplanements fell by 2.7 percent in 2001.
- Airlines lost $13 billion in 2001 and $11.3 billion in 2002. The first post-9/11 profit year came in 2006.
- Passenger enplanements surpassed 2000 levels in 2003.

- Security measures foiled aviation-based terrorist attacks in 2001, 2006, 2009, and 2010. A terrorist attack in Russia was not prevented in 2004, and resulted in the destruction of two aircraft.
- Passenger information and record keeping has increased substantially worldwide.
- TSA employs approximately 47,000 Transportation Security Officers.
- TSA has an annual budget of approximately $7.6 billion.
- TSA has ramped up screening efforts since its inception, including restrictions on aerosols and gels and increasing screening technology and more extensive pat-down procedures.

2.3.17 Reduction in Numbers of GA Pilots

The number of private and recreational pilots has decreased significantly over the past several decades. The total number of pilots in the U.S. has plummeted from approximately 827,000 in 1980 to approximately 584,000 in 2016.[53, 54] At the same time, the number of single-engine aircraft manufactured in the U.S. fell from approximately 8,600 to approximately 700.[55] With fewer pilots and aircraft, the future of GA is in question.

GA pilot reduction highlights:

- Small on-airport businesses that cater to GA pilots, such as aircraft maintenance and repair, flight training schools, parts manufacturers, and air cargo companies are suffering because there are fewer pilots to buy their products and services.[56]
- Explanations for the declines in pilots and aircraft have been attributed to rising fuel prices, decreased interest in flying, heightened flying restrictions since the 9/11 terrorist attacks, and the lingering effects of the economic downturn, which left fewer people with discretionary income.[57]
- Some, however, have attributed the declines to excessive federal regulations that deter pilots from obtaining and renewing their licenses. Of these regulations, the most burdensome is the FAA's medical certification requirements, which is discussed in **Section 2.4.4.3.5.**
- The decline in GA pilots could impact the commercial airlines, since airline pilots come primarily from GA.[58]

[53] http://www.washingtonpost.com/business/on-small-business/small-aviation-businesses-say-pilot-shortage-could-drive-industry-into-the-ground/2014/02/08/2422cadc-8f5c-11e3-b46a-5a3d0d2130da_story.html
[54] FAA. *Aerospace Forecast FY 2015 – 2035*
[55] https://gama.aero/wp-content/uploads/2016-GAMA-Databook_forWeb.pdf
[56] http://www.washingtonpost.com/business/on-small-business/small-aviation-businesses-say-pilot-shortage-could-drive-industry-into-the-ground/2014/02/08/2422cadc-8f5c-11e3-b46a-5a3d0d2130da_story.html
[57] http://www.washingtonpost.com/business/on-small-business/small-aviation-businesses-say-pilot-shortage-could-drive-industry-into-the-ground/2014/02/08/2422cadc-8f5c-11e3-b46a-5a3d0d2130da_story.html
[58] http://www.washingtonpost.com/business/on-small-business/small-aviation-businesses-say-pilot-shortage-could-drive-industry-into-the-ground/2014/02/08/2422cadc-8f5c-11e3-b46a-5a3d0d2130da_story.html

Section 2.4.4.4.2 explores GA pilot growth trends and **Chapter 8 – Alternative Scenarios** documents historical GA activity in the state and factors that may contribute to fluctuation, including fuel prices.

2.3.18 Reliance on Tourism

Florida has a well-established tourism infrastructure, developed around its natural and man-made attractions and enjoyed by visitors of all ages. Tourism is the number one provider of jobs for Floridians. It is a major provider of tax revenue for cities, counties, and the state of Florida.

Tourism highlights:

- Tourism in Florida has gone from 82.3 million people in 2010 to nearly 115 million in 2016.[59] Part of that activity includes stops at GA airports by plane owners.[60]
- Nearly 50 percent of all of Florida's visitors arrive by air.
- Tourism related employment grew 53 straight months as of August 2014. For every 85 visitors to the state, one Florida job is supported.[61]

Section 2.4.5.1.3 includes a look at the impact of tourism as a part of the Boeing and Airbus industry outlooks. See **Chapter 8 – Alternative Scenarios** for an in-depth look at the history of tourism in the state and the associated economic impact.

2.3.19 Remote Control Towers

Remotely operated air traffic control systems are an emerging suite of technologies that provide full air traffic control capabilities to an airport without the need for a physical tower. The concept brings with it potential cost efficiencies by centrally locating controllers away from the airports they control. The application is viewed as having the greatest potential benefit at airports with existing towers and relatively low aircraft operational counts or those without towers and relatively high operational counts. In the U.S., GA reliever airports are thought to be most suitable but small commercial service airports may also benefit from the technology.

In the U.S., the use of remote towers is in the prototype stage. Leesburg Executive Airport in Leesburg, Virginia, partnered with Saab and the Virginia SATSLab, Inc. for a 90-day demonstration of remote tower technologies during the summer of 2015. Leesburg Executive Airport is a designated reliever for Washington-Dulles International Airport and is the second busiest GA airport in Virginia by operations.[62] The FAA will evaluate the results of the demonstration and decide whether to continue its assessment of the technology.

More recently, in October 2015, the FAA announced that Fort Collins-Loveland Municipal Airport was selected as the official test facility for the new Virtual Air Traffic Control Tower technology program. The project's $5.9 million test phase is fully funded by the Colorado Department of

[59] http://www.visitfloridamediablog.com/home/florida-facts/research/
[60] http://www.theledger.com/article/20140404/news/140409673; Statement by Governor Rick Scott in 2014
[61] http://www.flchamber.com/wp-content/uploads/FutureofFlorida_201409_WILL-SECCOMBE.pdf
[62] http://www.leesburgva.gov/government/departments/airport/remote-air-traffic-control-tower/remote-tower-faq-s

Transportation (CDOT) Aeronautics Division, while the technology was developed jointly by the FAA and CDOT.[63]

Remote towers present a middle ground between a fully-staffed tower and no tower at all. They may prove particularly useful at airports that routinely experience seasonal fluctuations in traffic. Using temporary remote towers during large sporting events could also be a suitable application. Large commercial service airports could potentially benefit from this technology—not replacing manned towers but complementing them by providing visibility in areas of the airport that are not visible from the tower. An example is Miami International Airport, where the sheer size of the airport and the many obstructions limit complete visibility for the tower. A combination of a traditional manned-tower with remote camera displays could be a major safety enhancement, allowing controllers to see all ground traffic.[64]

A remote tower center can control several airports or supplement large ones, operating on demand with flexible hours or around the clock. By dividing the relatively low workloads of several small airports to a single control center, operators can save on installation and running costs, adapt to changing traffic patterns, increase safety, and improve contingency operations in emergencies. The remote tower concept does not eliminate the human element, it is simply made less location-dependent.[65]

2.3.20 Shortfall of Aviation Maintenance Personnel

There are growing concerns in the aviation industry regarding a current and future shortage of aviation maintenance personnel. Chuck Horning, chair of the Aviation Maintenance Science program at Embry-Riddle Aeronautical University, has stated that despite the attention given in the news about the pilot shortage, there is actually a greater shortage of aviation maintenance technicians.[66] Evidence of the shortage can be found in a 2014 poll of Aeronautical Repair Station Association (ARSA) members at that trade group's annual symposium. In that poll, 86 percent of ARSA members reported having difficulty searching for qualified workers, and 26 percent said the search was "very difficult."[67] This trend is expected to continue as many current maintenance workers are reaching retirement age and enrollment in airframe and powerplant schools has dropped.[68] Boeing has predicted that about 600,000 aviation maintenance technicians will be needed by 2031, compared to the approximately 500,000 additional pilots needed to fill cockpits.[69]

One recently released report, however, does not substantiate the aviation industry's concerns. The report, titled *Aviation Workforce: Current and Future Availability of Aviation Engineering and*

[63] http://content.govdelivery.com/accounts/CODOT/bulletins/11d0af7?reqfrom=share
[64] http://airfactsjournal.com/2014/08/remote-atc-towers-coming-to-an-airport-near-you/
[65] http://www.gizmag.com/saab-remote-tower-system/37191/
[66] http://www.ainonline.com/aviation-news/business-aviation/2014-05-18/new-maintenance-techs-short-numbers-skills
[67] http://www.ainonline.com/aviation-news/business-aviation/2014-05-18/new-maintenance-techs-short-numbers-skills
[68] http://www.ainonline.com/aviation-news/business-aviation/2014-05-18/new-maintenance-techs-short-numbers-skills
[69] http://www.ainonline.com/aviation-news/business-aviation/2014-05-18/new-maintenance-techs-short-numbers-skills

Maintenance Professionals, was released by the GAO in February 2014.[70] The GAO was unable to find conclusive evidence of an aviation maintenance personnel shortage.

Maintenance personnel highlights:

- According to the *2015 Global Fleet and MRO Economic Assessment* released by ARSA in March 2015 and prepared by CAVOK, the total worldwide market for commercial aviation maintenance activity will surpass $100 billion by 2025. In the U.S., the aviation maintenance industry employs nearly 300,000 workers and generates more than $43 billion in economic activity, while producing more than $5 billion in federal corporate and individual income taxes.[71]
- In the *2015 Global Fleet and MRO Economic Assessment*, CAVOK estimates that California, Florida, Georgia, and Texas combined represent 35 percent of the total U.S. civil aviation maintenance employment with an estimated 101,147 employees. Total maintenance employment in Florida is estimated at nearly 19,700 workers. Total economic activity tied to aviation maintenance in Florida is estimated at nearly $2 billion.[72]
- According to Mike Lee, director of maintenance training business development for Flight Safety International, the market leader in business aviation training for pilots and technicians, "qualified people are just not available" for aviation maintenance positions.[73]
- Embry-Riddle Aeronautical University's Aviation Maintenance Science program has a placement rate at nearly 100 percent, according to Chuck Horning.[74]
- Online employment board operator JSfirm.com reports the skills most in demand in the corporate aviation sector are maintenance and avionics technicians, which account for 30 percent of expected hiring, whereas pilots represent only 7.5 percent.[75]
- There are several reasons for the decrease in the number of students enrolling in aviation maintenance programs: 1. reduced pay and benefits offered to aviation mechanics compared to other occupations such as auto repair and computer repair, 2. the cost of training and becoming certified is high, and increases as the number of schools for mechanics decreases, and 3. the aviation industry has lost its former glamour in the eyes of Generation X and Y, as aircraft are not seen as high-tech.[76, 77]
- The GAO's 2014 report specifically stated the following: "Data provide less support for a shortage of aircraft mechanics; while the occupation has had a low unemployment rate, both employment and earnings have stayed about the same, suggesting that demand for this occupation has not outstripped supply." The report also states that,

[70] http://gao.gov/assets/670/661239.pdf
[71] http://arsa.org/2015-legislative-day-arsa-lands-on-capitol-hill/
[72] http://arsa.org/wp-content/uploads/2015/03/ARSA-CAVOK-2015USOverview-20150330.pdf
[73] http://www.ainonline.com/aviation-news/business-aviation/2014-05-18/new-maintenance-techs-short-numbers-skills
[74] http://www.ainonline.com/aviation-news/business-aviation/2014-05-18/new-maintenance-techs-short-numbers-skills
[75] http://www.ainonline.com/aviation-news/business-aviation/2014-05-18/new-maintenance-techs-short-numbers-skills
[76] http://www.forbes.com/sites/johngoglia/2014/01/04/2014-outlook-for-aviation-careers-brightens-with-looming-pilot-and-mechanic-shortages/
[77] http://www.ainonline.com/aviation-news/business-aviation/2014-05-18/new-maintenance-techs-short-numbers-skills

according to Bureau of Labor Statistics employment projections, slower than average or no growth is expected for this occupation over the next 10 years.[78]

Chapter 8 – Alternative Scenarios documents the impacts of the aviation workforce shortage and adaptation strategies.

2.3.21 Sustainability

Airport sustainability is the practice of more efficiently using resources in an effort to reduce operational and capital costs resulting in a more self-sufficient airport. It accomplishes this through policies, procedures, and practices that are focused on reducing waste and increasing the productivity of airport resources. For example, sustainability planning and performance benchmarking and tracking can have a profound impact on costs, both hard and soft, as a result of reduced resource usage (typically resulting in fewer greenhouse gas emissions), improved passenger satisfaction (leading to increased terminal concessions revenue and positive public relations implications), a more strategic use of airport property (increasing non-aeronautical revenue and decreasing airport-wide costs), and reduced waste generation and increased recycling (lowering waste management fees).

In 2010, the FAA published guidance for its Sustainability Master Plan Pilot Program. The program—now complete—provided Airport Improvement Program (AIP) grants to airports for sustainability planning studies. In general, these planning studies take two forms. One is a sustainable master plan, where sustainability is considered for all aspects of a long-range facility plan. The other is a stand-alone sustainability management plan that examines how sustainability can be incorporated into an organization through its administrative, procurement, operations, maintenance, planning, design, and construction functions. The FAA has since expanded its AIP program to allow funding of sustainability studies.

The Airport Cooperative Research Program (ACRP) produced *ACRP Synthesis 10: Airport Sustainability Practices* to help inform airport operators, stakeholders, and policy makers about the most current sustainability trends in the industry.

In an effort to summarize the guidance available to airports on sustainability, FDOT set out to develop a statewide resource document that can be used by airports to develop sustainability-related documents, such as sustainable master plans and sustainability management plans, or to incorporate sustainability into their capital improvement planning processes.

Sustainability highlights:

- The FAA awarded sustainability grants to 44 airports under its pilot program. Four airports in Florida received grants—Fort Lauderdale-Hollywood International, Northeast Florida Regional Airport, Tampa International Airport, and Vero Beach Regional Airport.
- Vero Beach Regional Airport used its grant to conduct a sustainable master plan.

[78] http://gao.gov/assets/670/661239.pdf

- Tampa International Airport used its grant to conduct a sustainability management plan.

2.3.22 TSA Staffing

According to various sources, TSA will likely face continuing challenges to address projected growth in passenger airline travel while maintaining and improving upon the efficiency and effectiveness of passenger screening operations. Current issues facing TSA staffing include budget cuts resulting in staff reduction and privatization of screening operations. Impacts to the commercial service airports in the state are already apparent, with longer lines for screening and increased passenger wait times.

TSA staffing highlights:

- Privatization of TSA services holds the potential of addressing TSA service shortfalls. TSA's Screening Partnership Program is a program created by Congress to allow hiring of private screeners at various airports. The program currently operates at roughly 20 airports nationwide. In 2014, the TSA selected Trinity Technology Group Inc. as the private screening contractor for Orlando-Sanford International Airport under the partnership program. Orlando-Sanford International Airport and Key West International Airport are the only airports currently operating in Florida under the program.[79] As of March 2015, Orlando International Airport is considering making the transition to private screening.[80]
- Cuts to TSA staff could cause checkpoint delays that would get worse during busier travel times, such as for spring break and for summer holidays, with less ability to pay overtime to match a surge in flights.
- TSA says cuts to overtime, and a hiring freeze, will result in increased waiting times at security checkpoints. TSA said passengers can expect to spend two or three times longer waiting at checkpoints during peak periods.[81]
- The inability of TSA to pre-approve exit lane technology means that airports have to install this equipment and risk having TSA determine it doesn't meet its standards after the fact.[82]

2.3.23 Unmanned Aircraft Systems

Unmanned aerial systems (UAS) have grown in popularity in recent years due to a variety of factors. While remote-controlled aircraft have been in use for decades, improvements in engine technology, battery life, and miniaturization of components have resulted in decreased costs for easy-to-operate UAS. These lower costs have caused UAS use to proliferate, with many companies looking to exploit the advantages of UAS. The potential commercial uses of UAS range from surveillance of crops to package delivery by Amazon.

[79] http://www.tsa.gov/press/releases/2014/09/19/tsa-awards-private-screening-contract-orlando-sanford-international and http://www.usatoday.com/story/travel/news/2014/01/14/tsa-private-screeners-airports-mica-orlando-connolly/4473961/
[80] http://www.npr.org/2015/03/02/390119261/orlando-airport-considers-hiring-private-screeners
[81] http://miami.cbslocal.com/2013/03/18/tsa-cut-backs-cause-delays-at-mia/
[82] Comment received during CRT meeting on August 20, 2015 in Orlando

UAS highlights:

- The FAA finalized the first operational rules for routine commercial use of small unmanned aircraft systems under the Part 107 rule which went into effect in August 2016.
- Additional operations by UAS may have ramifications on airspace capacity, but it is unlikely that airport capacity will be significantly affected since a large number of UAS aircraft do not require runways to operate.
- Even after the FAA publishes a final UAS rule, there will still be unresolved issues, such as the coordination of responses to UAS complaints—what organization has the primary responsibility for handling UAS complaints and how do they coordinate with local authorities in the resolution of the complaint.[83]
- One idea for addressing some of these unresolved issues involves a state statute authorizing local law enforcement to take action against unauthorized UAS operations.[84]

Section 2.4.2.1 reviews the impact of UAS on the state system.

2.3.24 Airport Issues Summary

Each of the aforementioned airport issues are currently affecting or have the potential to affect both commercial service and GA airports in Florida. It is important to have a solid understanding of each topic in order to better plan and prepare for their impacts on Florida's aviation system. Each issue is unique in its varying degrees of influence on the system, which are identified as impact, duration, and immediacy. **Table 2-3** summarizes each airport issue and its corresponding measures.

Table 2-3: Airport Issues Summary Table

Issue	Impact		Duration		Immediacy	
	CS	GA	CS	GA	CS	GA
Aging population	Med	Low	Long	Long	Now	Now
Airline pilot shortage	High	Med	Long	Long	Now	Now
Autonomous vehicles (ground-based)	Med	Low	Long	Long	Near term	Near term
Competition for space operations	Low	Low	Short	Short	Now	Now
Contract towers	Low	Med	Unknown	Unknown	Near term	Near term
Customs & Immigration	High	Low	Unknown	Unknown	Now	Now
Electric aircraft	Low	Med	Long	Long	Far term	Far term
Florida economy	High	High	Long	Long	Far term	Far term

[83] Comment received during CRT meeting on August 20, 2015 in Orlando.
[84] Comment received during CRT meeting on August 20, 2015 in Orlando.

Issue	Impact		Duration		Immediacy	
	CS	GA	CS	GA	CS	GA
Future of avgas	Low	High	Unknown	Long	Near term	Near term
Legalization of gambling	Low	Low	Short	Short	Near term	Near term
Medical certificate reform for Part 91 operations	High	High	Long	Long	Near term	Near term
NextGen requirements (navigation and communication)	High	Med	Long	Long	Near term	Near term
Opening of Cuba market	Med	Med	Long	Long	Now	Now
Pandemic fears	High	Med	Short	Short	Near term	Near term
Price of oil	High	High	Long	Long	Now	Now
Reaction to terrorist activity	High	Med	Long	Long	Now	Now
Reduction in numbers of GA pilots	High	High	Long	Long	Now	Now
Reliance on tourism	Low	Low	Long	Long	Far term	Far term
Remote control towers	Low	Low	Long	Long	Now	Now
Shortfall of aviation maintenance personnel	High	High	Long	Long	Near term	Near term
Sustainability	Low	Low	Long	Long	Now	Now
TSA staffing	High	Med	Short	Unknown	Now	Now
Unmanned aircraft systems	High	Med	Long	Long	Now	Now

Near term = within 5 years
Long term = beyond 5 years

Figure 2-9 graphically depicts each airport issue within a matrix identifying the measures of impact, duration, and immediacy on commercial service airports, while **Figure 2-10** does the same for GA airports.

Figure 2-9: Florida's Existing Spaceport System and Assets

Duration	Impact: Low	Impact: Medium	Impact: High
Short	Competition for space operations Legalization of gambling		Pandemic fears TSA staffing
Unknown	Contract towers Future of avgas		Customs & Immigration
Long	Electric aircraft Reliance on tourism Remote control towers Sustainability	Aging population Opening of Cuba market Autonomous vehicles	Airline pilot shortage Florida economy Medical certificate reform for Part 91 Operations NextGen requirements (navigation and communication) Price of oil Reduction in numbers of GA pilots Shortfall of aviation maintenance personnel Reaction to terrorist activity Unmanned aircraft systems

Timeline: Red = Now, Purple = Within 5 years, Green = Beyond 5 years

Source: CDM Smith

Figure 2-10: GA Issues

Duration	Impact: Low	Impact: Medium	Impact: High
Short	Competition for space operations Legalization of gambling	Pandemic fears	
Unknown	Customs & Immigration	Contract towers TSA staffing	
Long	Aging population Autonomous vehicles Reliance on tourism Remote control towers Sustainability	Airline pilot shortage Electric aircraft NextGen requirements (navigation and communication) Opening of Cuba market Reaction to terrorist activity Unmanned aircraft systems	Florida economy Future of avgas Medical certificate reform for Part 91 operations Price of oil Reduction in numbers of GA pilots Shortfall of aviation maintenance personnel

Timeline: Red = Now, Purple = Within 5 years, Green = Beyond 5 years

Source: CDM Smith

2.4 Aviation Industry Trends

Section 2.3 contains a high-level overview of issues that may impact Florida airports over the planning period. This section provides a more detailed industry perspective on a few of those issues and the potential impact on Florida's aviation system. These include both initiatives driven by the state and the FAA, as well as market-driven trends that could alter how aviation operates in Florida. The trends listed below are discussed in the following sections.

- NextGen Air Transportation System
- Unmanned Vehicles
- Aviation Activities Occurring Within the state of Florida
- Commercial and GA Pilot Growth Trends
- Review of Boeing and Airbus Industry Outlook

2.4.1 NextGen Air Transportation System

NextGen is a long-term plan by the FAA to transform the way the U.S. air transportation system operates. Very broadly, it aims to shift air navigation from a ground-based system to a satellite-based system through modernization of aircraft tracking systems, communication systems, and weather monitoring and forecasting systems. The benefits of this transformation include shorter flight routes and reduced congestion.

2.4.1.1 History

NextGen originated with the Vision 100 – Century of Aviation Reauthorization Act, which was signed into law in December 2003. This legislation endorsed the concept of NextGen and set into motion the planning for the implementation of NextGen. Coordination of this large-scale effort was vested in the Joint Planning and Development Office (JPDO), a multi-agency, public/private organization formed under the FAA. JPDO was tasked with planning and coordinating the multi-billion-dollar effort involving the U.S. Department of Transportation, Department of Defense, Department of Commerce, NASA, and White House Office of Science and Technology Policy. In 2014, Congress canceled funding for JPDO, and the FAA replaced it with the Interagency Planning Office, which is now responsible for coordinating the various aspects of NextGen implementation.

In 2012, the GAO reviewed the major acquisition programs that enabled the transition to NextGen. The $40 billion program has been criticized by the GAO for being more than $4 billion over budget and falling behind schedule. Their review found that 11 of the 30 programs had cost overruns totaling $4.2 billion and 15 programs experienced schedule delays, ranging from two months to 14 years.[85]

More recently, concerns were raised over the unencrypted nature of the signals sent out by aircraft to support NextGen technologies. The president of the National Business Aviation Association, Ed Bolen, pointed out that under the NextGen system, each properly equipped

[85] GAO (2012). *Air Traffic Control Modernization: Management Challenges Associated with Program Costs and Schedules Could Hinder NextGen Implementation*, GAO-12-223

aircraft broadcasts its aircraft type, position, airspeed, and unique identification in real time. "Anyone with the right equipment can capture that real-time data and potentially use it for nefarious purposes," Bolen said.[86]

A final concern is the high cost of equipping aircraft to operate within the NextGen system. For commercial airlines and aircraft used in business, this cost may be passed along to consumers. For private aircraft owners, this is not an option, and this additional cost to operate within NextGen airspace may lead to decreased GA operations.

2.4.1.2 NextGen Components and Status of Implementation

NextGen is a complex system comprised of multiple components. This section summarizes the major components of NextGen and their current implementation status.

2.4.1.2.1 AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST (ADS-B)

ADS-B is a key component of NextGen and has two systems—ADS-B Out and ADS-B In. Using a combination of ground stations, aircraft avionics, and the satellite GPS, ADS-B Out provides air traffic controllers with an aircraft's position, altitude, airspeed, and other information critical to ensuring aircraft separation. Because it relies on satellites instead of ground-based radars, ADS-B Out improves the coverage and situational awareness of air traffic controllers, including tracking of aircraft while taxiing at airports with adequate surveillance equipment.

ADS-B In transmits weather and aircraft position information (for collision avoidance) to properly equipped aircraft.[87]

In 2014, the FAA established a network of 634 ground stations, which relay data broadcast from aircraft to air traffic control, enabling improved surveillance of aircraft. The FAA plans to continue improvements in operations of the ADS-B system until all required aircraft are ADS-B Out equipped. The FAA has established a deadline of January 1, 2020 for all aircraft operating in airspace under air traffic control jurisdiction to be equipped with ADS-B Out avionics[88] (the FAA does not require aircraft to be equipped with ADS-B In). The cost to equip and install ADS-B Out is several thousand dollars per aircraft, which is fairly insignificant for the airlines, but can be a substantial financial burden on private aircraft owners. Furthermore, the biggest advantage for GA aircraft is from ADS-B In, which imposes additional equipment and costs on the aircraft owner.

2.4.1.2.2 COLLABORATIVE AIR TRAFFIC MANAGEMENT TECHNOLOGIES (CATMT)

The Collaborative Air Traffic Management Technologies (CATMT) is focused on improving the FAA's Traffic Flow Management System, which is a wide-ranging system that delivers air traffic data to users through a variety of interfaces with the intention of improving the picture of the national air transportation system.[89] Users include airlines, military, air traffic control, and the

[86] Grady, M. (2015). NBAA Raises Concerns over ADS-B Security. AVweb, May 26, 2015; http://www.avweb.com/avwebflash/news/NBAA-Raises-Concerns-Over-ADS-B-Security.html on May 29
[87] FAA Office of NextGen (2015). *NextGen Implementation Plan 2015*
[88] Ibid
[89] http://aspmhelp.faa.gov/index.php/Traffic_Flow_Management_System_(TFMS)

traveling public. The data available is extensive, and includes weather and its impacts on the national airspace system, flight schedules, and air traffic control actions that influence the national airspace system.

2.4.1.2.3 DATA COMMUNICATIONS (DATA COMM)

The Data Communications (Data Comm) portion of NextGen enables controllers and pilots to communicate with digitally written messages instead of voice messages over the radio. This will allow complex messages, such as flight plan routings, to be transmitted quickly and with reduced risk of communication error to and from the aircraft cockpit.

The FAA began Data Comm in 2013 by delivering departure clearances (the initial routing an aircraft is expected to take) to flight crews operating at Memphis International Airport and Newark Liberty International Airport. The trials at Memphis and Newark have shown that use of the system can result in faster taxi outs, reduced delays, and reduced pilot and controller workload.[90] As of May 2015, the FAA estimated that 800 aircraft were equipped to use Data Comm.[91] The FAA hopes that 1,900 aircraft will be using the system by 2019, and plans call for expanding this service to 56 airports by 2019.[92] The FAA plans to expand its Data Comm services from air traffic control towers to all 20 air route traffic control centers (the facilities, commonly referred to as "centers," that provide air traffic control services during most of the enroute portion of a flight) by 2021.[93]

The FAA has implemented Data Comm at four airports in Florida as of April 2017.[94] Those four airports are:

- Orlando International Airport
- Miami International Airport
- Fort Lauderdale-Hollywood International Airport
- Tampa International Airport

2.4.1.2.4 NATIONAL AIRSPACE SYSTEM VOICE SYSTEM (NVS)

The National Airspace System Voice System (NVS) will replace the current switch-based voice communication system used by air traffic control with a router-based system that provides a nationwide networking, monitoring, and communication sharing capabilities. NVS is expected to enable direct communication between air traffic controllers and air crews, including operators of UAS vehicles.

Current communication technology limits the air traffic control facilities that an aircraft crew can reach based on geography. The NVS envisions an interconnected air traffic control communication system that can allow aircraft crews to reach any air traffic control facility

[90] FAA Office of NextGen (2015). *NextGen Implementation Plan 2015*
[91] Grady, M. (2015). *FAA Expands Data Comm Service*. AVweb, May 25, 2015; http://www.avweb.com/avwebflash/news/FAA-Expands-Data-Comm-Service-224145-1.html
[92] FAA Office of NextGen (2015). *NextGen Implementation Plan 2015*
[93] FAA Office of NextGen (2015). *NextGen Implementation Plan 2015*
[94] https://www.faa.gov/nextgen/update/progress_and_plans/data_comm/

networked into the NVS. This is important for purposes of shifting workload between facilities, or in the event that an air traffic control facility is out of service and its communications need to be switched to another facility. The NVS is undergoing testing with full operational capability planned for 2026.

2.4.1.2.5 NEXTGEN WEATHER

The weather component of the NextGen system consists of several improvements to the collection and dissemination of weather information. The NextGen Weather Processor will identify weather hazards in the terminal and enroute environments. The Aviation Weather Display consolidates current weather displays and provides consistent weather information for terminal and enroute users. The Common Support Services modernizes information management services for weather, and provides tailored weather products with the national airspace system through System Wide Information Management (see below). Improved weather information is expected to yield dividends in the areas of reduced weather delays and enhanced safety.

2.4.1.2.6 SYSTEM WIDE INFORMATION MANAGEMENT (SWIM)

The SWIM infrastructure is aimed at allowing more efficient data sharing among aviation users. It accomplishes this by establishing data format standards, translating data from different data systems into standard formats, and consolidating multiple data connections into a single access point. SWIM results in operational efficiencies by allowing collaboration between airline dispatchers and traffic managers and providing both user groups access to current weather and flight planning information. Using SWIM-enabled data, these two groups are able to cooperatively reroute traffic and take advantage of the most current information on weather, air traffic control traffic management initiatives, runway configurations, and airport deicing operations.[95]

2.4.1.2.7 EN ROUTE AUTOMATION MODERNIZATION (ERAM)

En Route Automation Modernization (ERAM) consists of improvements to equipment at air route traffic control centers that will better automate a number of air traffic control functions, extend surveillance range, and increase the tracking capacity for each center from its current limit of 1,100 aircraft to 1,900.[96] As of March 2015, ERAM was operational at all 20 of the continental centers. Additional enhancements are planned through 2017.

2.4.1.2.8 TERMINAL AUTOMATION MODERNIZATION AND REPLACEMENT (TAMR)

Terminal Automation Modernization and Replacement (TAMR) is an equipment upgrade program similar to ERAM, but for air traffic control towers and terminal radar approach control (TRACON) facilities. This is accomplished through the installation of a common automation platform called Standard Terminal Automation Replacement System (STARS). The FAA plans to

[95] FAA (2015). *System Wide Information Management (SWIM) Information Access to Transform the Aviation Community*
[96] FAA Office of NextGen (2015). *NextGen Implementation Plan 2015*

install STARS at more than 100 locations that lack this technology. TAMR is scheduled for completion by 2020.[97]

2.4.1.3 Making the Transition to NextGen in Florida

The state of Florida is well positioned to transition to the NextGen system, with several technologies either being tested or already implemented in Florida. Southern Florida served as the initial test bed for ADS-B operations in the U.S. with 11 ground stations becoming operational in late 2008. This was followed by the FAA extending ADS-B coverage over the Gulf of Mexico in late 2009, with the aid of ground stations based along Florida's Gulf Coast.

The FAA encourages airports to prepare for the transition to NextGen in several ways. The FAA has published a brochure[98] specifically for airports that details what NextGen will do for GA airports and for commercial airports. The FAA also encourages airports to learn how AIP funds can help finance NextGen improvements at airports. For example, AIP can fund surveys, obstruction mitigation, and runway lighting that may be needed for new satellite-based instrument approaches or for lower approach minimums on existing instrument approaches. The FAA is also considering allowing AIP funds to be used for ADS-B avionics installation in ground vehicles used on airports to reduce the risk of collision with aircraft.

The one area in need of the most support concerning the transition to NextGen is equipping GA aircraft with the proper avionics equipment. Without proper avionics installed, aircraft will be denied use of the majority of airspace by 2020. This unfunded mandatory upgrade for GA aircraft reduces the anticipated benefits from NextGen.

2.4.1.4 NextGen Summary

The components of the NextGen system aim to deliver a modernized air traffic control system based on satellite navigation and communication that improves upon the safety and efficiency of the current system. Some of the components have already demonstrated benefits; however, the FAA has found it challenging to deliver on these improvements within the budget and schedule originally set.

Aviation stakeholders have voiced concerns over the security of the unencrypted information transmitted by aircraft in the NextGen system. Furthermore, the burden of the cost to equip aircraft so they can operate within the NextGen system is of concern, particularly for private aircraft owners.

2.4.2 Unmanned Vehicles

As previously noted, improvements in technology are driving towards a future where many vehicles will no longer depend on or even require an onboard operator. This is already the case with UAS. Companies including Google and many major car companies are working to make driverless vehicles a reality. Both of these developments have the potential to impact the

[97] FAA Office of NextGen (2015). *NextGen Implementation Plan 2015*
[98] The FAA brochure is available at https://www.faa.gov/nextgen/media/nextgenForAirports.pdf

operations on and around airports. This section will first look at the status of UAS operations, and then examine developments with autonomous vehicles.

2.4.2.1 Unmanned Aerial Systems (UAS)

The popularity of UAS has grown exponentially in recent years, thanks to improvements in engine technology, battery life, and miniaturization of components that have resulted in decreased costs for easy-to-operate UAS. These lower costs have caused UAS use to proliferate, with many companies looking to exploit the advantages of UAS. The following industries are just a sample of the businesses that are looking to capitalize on UAS growth.

- Agriculture: UAS operations will provide farmers with information on how their crops are performing and provide the ability to apply pesticides, fertilizer, and seed to specific areas.
- Energy: Currently, pipeline and power line inspections are carried out by manned aircraft. UAS operations have the potential to conduct these inspections for reduced costs.
- Film Industry: The movie and TV industry expect to make use of UAS as aerial filming platforms.
- Insurance: UAS operations will provide the insurance industry with information more quickly and efficiently than current methods. For example, UAS can be used to inspect roofs to evaluate a homeowner's policy, or survey damage from a tornado to speed claims.
- Real Estate: UAS use is expected be a boon for the real estate industry, giving the ability to view hard to reach areas of properties and provide views that are inaccessible to those on the ground.
- Law Enforcement: Police departments are interested in using UAS to aid in tracking suspects and monitoring for illegal activity.
- Search and Rescue: UAS operations are ideal for when search and rescue is undertaken in remote areas where access is limited.

With tremendous growth happening in UAS operations, one issue of concern to airports and aviators is how the vehicles will be integrated safely into the national airspace system. The technology that would allow these aircraft to "see and avoid" as manned aircraft are required to do in order to help avoid collisions is still under development. Other considerations include the airspace these aircraft will be allowed to operate in, and the impact they will have on capacity. Many UAS aircraft are small enough that they can operate from almost anywhere, so adding to airport congestion is unlikely to be an issue.

In June 2016, the FAA finalized the first operational rules for routine commercial use of small UAS under the Part 107 rule which went into effect in August 2016.[99]

Under the final rule, the person actually flying a drone must be at least 16 years old and have a remote pilot certificate with a small UAS rating, or be directly supervised by someone with such a

[99] https://www.faa.gov/news/press_releases/news_story.cfm?newsId=20515

certificate. To qualify for a remote pilot certificate, an individual must either pass an initial aeronautical knowledge test at an FAA-approved knowledge testing center or have an existing non-student Part 61 pilot certificate. If qualifying under the latter provision, a pilot must have completed a flight review in the previous 24 months and must take a UAS online training course provided by the FAA. TSA will conduct a security background check of all remote pilot applications prior to issuance of a certificate.[100]

2.4.2.2 Autonomous Ground Vehicles

Improvements in technology are driving the future of ground transportation toward autonomous operations. These autonomous vehicles, more commonly called self-driving or driverless cars, are expected to have a profound impact on personal transportation. Additionally, these vehicles are likely to impact how operations are conducted at airports, both airside and landside.

2.4.2.2.1 AIRSIDE IMPACTS OF DRIVERLESS CARS

Airside operations are likely to be impacted by driverless cars in a number of ways. According to Dr. Alain Kornhauser, the faculty chairman of the Princeton Autonomous Vehicle Engineering department, one of the earliest areas likely to embrace autonomous vehicles are the ground handling vehicles servicing aircraft.[101] This includes baggage handling carts, aircraft tugs, cargo handling, and other aircraft servicing vehicles. Kornhauser said experts believe that fully autonomous vehicles will be operating by 2030.

2.4.2.2.2 LANDSIDE IMPACTS OF DRIVERLESS CARS

On the landside of airports, Kornhauser said that people mover systems, which already rely on driverless systems at many airports, are likely to expand operations from their exclusive pathways to non-exclusive pathways to take advantage of driverless technologies. Heathrow Airport in London is already making use of driverless technology with its Podcar system that operates four-seat transport pods that travel autonomously between Terminal 5 and the business car park.

Kornhauser predicted that rental car companies would take advantage of driverless cars by redesigning the way they store and deliver cars for arriving airport passengers.

2.4.2.2.3 OTHER IMPACTS OF DRIVERLESS CARS ON AIRPORTS

Kornhauser postulated that the biggest impact from driverless cars could be in reducing congestion at airports. For starters, Kornhauser said that driverless cars have the potential of making driving safer and more tolerable over longer distances, which could erode the demand for air travel in markets under 300 miles. This could lead airlines to consolidate routes and concentrate air travel even further at major airports.

Additionally, the availability of driverless cars may result in reduced parking revenue for airports as passengers can send their driverless car home after getting dropped off at the airport.

[100] https://www.faa.gov/news/press_releases/news_story.cfm?newsId=20515
[101] Kornhauser, A. (2013). *Impact of Driverless Cars on the Future of Airports*, Passenger Terminal Conference

2.4.2.3 Unmanned Vehicles Summary

Advances in technology are leading to the development of both unmanned aircraft and unmanned ground vehicles. The pace of driverless car technology is somewhat slower than UAS development, with fully autonomous vehicles expected no sooner than 2030, according to Kornhauser. Nevertheless, the technology is expected to shape operations at airports, from ground handling around aircraft to movement of passengers to, from, and around airport terminals. Additionally, driverless cars could compete with airline service on routes of less than 300 miles, and has the potential for undermining airport parking revenues when departing passengers no longer need to park at the airport but can send their driverless car back home instead.

2.4.3 Aviation Activities Occurring Within the State of Florida

Florida is one of the most active aviation states in the U.S. due to its tourist attractions, cargo operations, favorable weather, and flight training activity. Because of this diverse set of activities, there are a number of different types of aircraft that regularly operate at Florida airports which range from LSA to commercial jetliners. This section documents several notable types of aviation activities that commonly occur within the commercial service and GA sectors throughout Florida as well as recent trends in the growth of those activities. Continued growth in these activities could have implications for the future of Florida and its system of airports.

2.4.3.1 Commercial Service Activity

The state of Florida has a comprehensive network of 128 public-use airports to serve the needs of its citizens, businesses, and visitors. According to the FAA's *2015-2019 National Plan of Integrated Airport Systems (NPIAS) Report*, 19 of these airports are classified as commercial service airports. These airports include the following:

- Daytona Beach International Airport
- Destin-Fort Walton Beach Airport
- Fort Lauderdale-Hollywood International Airport
- Gainesville Regional Airport
- Jacksonville International Airport
- Key West International Airport
- Melbourne International Airport
- Miami International Airport
- Northwest Florida-Beaches International Airport
- Orlando International Airport
- Orlando-Sanford International Airport
- Palm Beach International Airport
- Pensacola International Airport
- Punta Gorda Airport
- Sarasota Bradenton International Airport
- Southwest Florida International Airport
- St. Pete-Clearwater International Airport

- Tallahassee International Airport
- Tampa International Airport

In addition, Northeast Florida Regional Airport, although not classified as a commercial service airport in the NPIAS, has been served by Frontier Airlines since May 2014 and is included as a commercial service airport in this discussion. All 20 of these airports (the 19 NPIAS airports and Northeast Florida Regional Airport) are critical transportation hubs that accommodate varying levels of air passenger and air cargo activity. These activities and associated trends are discussed below.

2.4.3.1.1 AIR PASSENGER SERVICE

Because of Florida's year-round good weather, multitude of tourist attractions, and excellent business climate, the state's commercial service airports serve as a gateway for millions of business and leisure visitors who arrive in Florida on scheduled airlines each year. According to the FDOT ASO's *Florida Statewide Aviation Economic Impact Study Update* completed in August 2014, approximately 43.1 million visitors come to Florida each year on commercial airlines. While in Florida, these visitors have expenditures for lodging, food, retail, transportation, recreation, and entertainment. These expenditures help to support many jobs in Florida and the annual payroll associated with these jobs. Total annual economic impacts, including multiplier impacts, supported by visitors arriving on commercial airlines in Florida in 2013 was as follows:[102]

- Total Jobs – 765,225
- Total Annual Payroll – $20.7 billion
- Total Annual Economic Activity (Output) – $67.2 billion

In the NPIAS, the FAA groups airports into two major categories: primary and nonprimary. Primary airports include airports that have scheduled airline service with 10,000 or more enplanements per year. Nonprimary airports are predominantly used by GA aircraft. Within the primary airports group, the FAA categorizes airports as large, medium, small, and non-hub based on the percentage of total U.S. passenger enplanements that occur at them. Large hubs are airports that account for one percent or more of total U.S. passenger enplanements. Medium hubs are defined as airports that each account for between 0.25 percent and one percent of total U.S. passenger enplanements. Small hubs are defined as those airports that enplane 0.05 percent to 0.25 percent of total U.S. passenger enplanements. Commercial service airports that enplane less than 0.05 percent of all commercial passenger enplanements but have more than 10,000 annual enplanements are categorized as nonhub primary airports. It should be noted that included in the nonprimary category of airports are nonprimary commercial service airports, which are defined as public airports receiving scheduled passenger service and between 2,500 and 9,999 enplaned passengers per year. None of Florida's airports included in the NPIAS meet this criterion. **Table 2-4** identifies the NPIAS hub designation of Florida's commercial service airports. Northeast Florida Regional Airport is not included in Table 2-4 since it is not classified as a commercial service airport in the NPIAS.

[102] 2014 *Florida Statewide Aviation Economic Impact Study Update*

Table 2-4: NPIAS Hub Designation of Florida Commercial Service Airports

Associated City	Airport Name	FAA ID
Large Hub: 1% or more of annual passenger boardings		
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL
Miami	Miami International Airport	MIA
Orlando	Orlando International Airport	MCO
Tampa	Tampa International Airport	TPA
Medium Hub: between 0.25% and 1% of annual passenger boardings		
Fort Myers	Southwest Florida International Airport	RSW
Jacksonville	Jacksonville International Airport	JAX
West Palm Beach	Palm Beach International Airport	PBI
Small Hub: between 0.05% and 0.25% of annual passenger boardings		
Key West	Key West International Airport	EYW
Orlando	Orlando-Sanford International Airport	SFB
Panama City	Northwest Florida-Beaches International Airport	ECP
Pensacola	Pensacola International Airport	PNS
Sarasota	Sarasota/Bradenton International Airport	SRQ
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE
Valparaiso	Destin-Fort Walton Beach Airport	VPS
Non-Hub: more than 10,000 but less than 0.05% of annual passenger boardings		
Daytona Beach	Daytona Beach International Airport	DAB
Gainesville	Gainesville Regional Airport	GNV
Melbourne	Melbourne International Airport	MLB
Punta Gorda	Punta Gorda Airport	PGD
Tallahassee	Tallahassee International Airport	TLH

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO)

As shown in Table 2-4, four airports are designated large hubs, three airports are designated medium hubs, seven airports are categorized as small hubs, and five airports are classified as non-hubs.

Table 2-5 presents the number of enplanements at Florida's commercial service airports in 2010 and 2014. In 2010, there were nearly 68.2 million enplanements at Florida's commercial service

airports. By 2014, this figure grew to nearly 74.5 million enplanements, representing a CAGR of 2.2 percent. As shown in Table 2-5, all of Florida's commercial service airports experienced growth in passenger enplanements during the 2010 to 2014 period except for Jacksonville International Airport and Sarasota Bradenton International Airport, which saw declines of 1.7 percent and 2.7 percent, respectively. Punta Gorda Airport experienced the most rapid growth, increasing at a CAGR of 39 percent.

Table 2-5: Enplanements at Florida Commercial Service Airports, 2010 – 2014

Associated City	Airport Name	FAA ID	2010 Enplanements	2014 Enplanements	CAGR[1]
Large Hub: 1% or more of annual passenger boardings					
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	11,190,053	12,330,000	2.45%
Miami	Miami International Airport	MIA	17,713,056	20,255,009	3.41%
Orlando	Orlando International Airport	MCO	17,017,491	17,779,891	1.10%
Tampa	Tampa International Airport	TPA	8,368,499	8,790,177	1.24%
Medium Hub: between 0.25% and 1% of annual passenger boardings					
Fort Myers	Southwest Florida International Airport	RSW	3,791,110	4,060,599	1.73%
Jacksonville	Jacksonville International Airport	JAX	2,808,989	2,621,650	-1.71%
West Palm Beach	Palm Beach International Airport	PBI	2,936,763	2,940,798	0.03%
Small Hub: between 0.05% and 0.25% of annual passenger boardings					
Key West	Key West International Airport	EYW	287,359	383,776	7.50%
Orlando	Orlando-Sanford International Airport	SFB	566,995	1,080,252	17.49%
Panama City	Northwest Florida-Beaches International Airport	ECP	312,114	406,351	6.82%
Pensacola	Pensacola International Airport	PNS	742,301	778,233	1.19%
Sarasota/ Bradenton	Sarasota Bradenton International Airport	SRQ	670,992	601,486	-2.70%

Associated City	Airport Name	FAA ID	2010 Enplanements	2014 Enplanements	CAGR[1]
St. Petersburg/ Clearwater	St. Pete-Clearwater International Airport	PIE	384,394	663,810	14.63%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	348,979	360,542	0.82%
Non-Hub: more than 10,000 but less than 0.05% of annual passenger boardings					
Daytona Beach	Daytona Beach International Airport	DAB	246,627	317,129	6.49%
Gainesville	Gainesville Regional Airport	GNV	164,977	213,014	6.60%
Melbourne	Melbourne International Airport	MLB	180,441	214,704	4.44%
Punta Gorda	Punta Gorda Airport	PGD	90,240	336,905	39.00%
Tallahassee	Tallahassee International Airport	TLH	336,598	353,244	1.21%
Non-Hub: more than 10,000 but less than 0.05% of annual passenger boardings					
St. Augustine	Northeast Florida Regional Airport	SGJ	0	21,000	100.00 %
Total			**68,157,978**	**74,508,570**	**2.25%**

Source: Airport Records, Florida Aviation Database (FAD); Federal Aviation Administration (FAA)
[1] CAGR = Compound Annual Growth Rate

An important trend observed at Florida's large hubs during the 2010 to 2014 period is the growth in international visitors. The large hubs—Miami International Airport, Orlando International Airport, Fort Lauderdale-Hollywood International Airport, and Tampa International Airport—serve as the primary gateways for international visitors arriving by commercial airline service in Florida. International visitors are an increasingly important segment of Florida's total annual visitors because they tend to stay longer and have higher expenditures than domestic visitors, which results in greater economic impacts for the state.[103] **Table 2-6** illustrates this trend, showing total international enplanements at the large hubs grew from more than 11.8 million enplanements to more than 14.6 million enplanements between 2010 and 2014. This growth represents a CAGR of 5.4 percent.

[103] http://www.flchamber.com/article/did-you-know-in-2014-more-than-97-million-visitors-came-to-florida/

Table 2-6: International Enplanements at Florida's Large Hubs, 2010 – 2014

Associated City	Airport Name	FAA ID	2010 International Enplanements	2014 International Enplanements	CAGR[1]
Large Hub: 1% or more of annual passenger boardings					
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	1,721,857	2,329,878	7.85%
Miami	Miami International Airport	MIA	8,339,061	9,848,845	4.25%
Orlando	Orlando International Airport	MCO	1,590,000[2]	2,144,112	7.76%
Tampa	Tampa International Airport	TPA	195,039	304,767	11.81%
Total			**11,845,957**	**14,627,602**	**5.41%**

Source: Airport Records

[1] CAGR = Compound Annual Growth Rate

[2] Source: "Fitch Affirms Greater Orlando Aviation Authority, FL's Sr Revs at 'AA-'; Outlook Stable," Press Release, Reuters, May 23, 2013.

2.4.3.1.2 AIR CARGO ACTIVITY

In addition to their air passenger role, Florida's commercial service airports serve as a critical air cargo system that supports the transport of air cargo in and out of Florida to other airports in the U.S., as well as Latin America, the Caribbean, Europe, and Asia. Significant volumes of air cargo are transported each year on integrated express carriers such as FedEx, UPS, and DHL; all cargo-carriers such as China Airlines and AmeriJet; and commercial passenger carriers such as Delta, American, and Lufthansa with either dedicated all-cargo or wide-body passenger aircraft. Many businesses in Florida rely on this transport of air cargo.

The economic impacts Florida realizes from air cargo activity at its commercial service airports are impressive. **Table 2-7** presents these economic impacts for 2013, as estimated in the 2014 *Florida Statewide Aviation Economic Impact Study Update*. Note that economic impacts tied to off-airport air cargo activity, such as off-airport businesses dedicated to the sorting, storing, and ground movement of air cargo, and U.S. Postal Service activity associated with the transport of First Class mail, is also presented.[104] In all, air cargo activity at Florida's commercial service airports was responsible for nearly $10.3 billion in total annual economic activity (output) in 2013, which supported nearly 129,300 total jobs earning a total annual payroll of more than

[104] First Class mail originating in Florida or destined to the state moves by air. As a result, a portion of the economic activity of the U.S. Postal Service is supported by aviation.

$5.0 billion.[105] Economic impacts tied to on- and off-airport air cargo activity at Florida's GA airports are not included in Table 2-7.

Table 2-7: Total Economic Impacts of Air Cargo Activity at Florida Commercial Service Airports, 2013

Activity	Total Jobs[1]	Total Annual Payroll[1]	Total Annual Economic Activity[1]
On-Airport Air Cargo	22,362	$804,731,000	$1,376,682,000
Off-Airport Air Cargo	30,178	$1,243,495,000	$3,786,712,000
Off-Airport USPS	76,724	$2,969,817,000	$5,123,127,000
Total	**129,264**	**$5,018,043,000**	**$10,286,521,000**

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) 2014, Florida Statewide Aviation Economic Impact Study Update
[1] Includes multiplier impacts.

Table 2-8 identifies the volumes of air cargo loaded and unloaded on aircraft at Florida's commercial service airports between 2010 and 2014. Total tonnage handled during this time period increased from more than 2.5 million short tons in 2010 to more than 2.7 million short tons in 2014, a CAGR of 2.1 percent.[106] As shown in Table 2-8, Pensacola International Airport experienced the largest CAGR (116.2 percent), but Miami International Airport (CAGR of 2.1 percent) accounted for most of the state's increase.

Table 2-8: Total Air Cargo Tonnage Handled at Florida Commercial Service Airports, 2010 – 2014

Associated City	Airport Name	FAA ID	2010 Total Tonnage (Short Tons)	2014 Total Tonnage (Short Tons)	CAGR
Daytona Beach	Daytona Beach International Airport	DAB	93	146	11.9%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	98,068	99,289	0.3%
Fort Myers	Southwest Florida International Airport	RSW	17,084	16,735	-0.5%
Gainesville	Gainesville Regional Airport	GNV	117	3	-60.0%
Jacksonville	Jacksonville International Airport	JAX	73,474	71,308	-0.7%
Key West	Key West International Airport	EYW	508	510	0.1%
Melbourne	Melbourne International Airport	MLB	79	126	12.4%

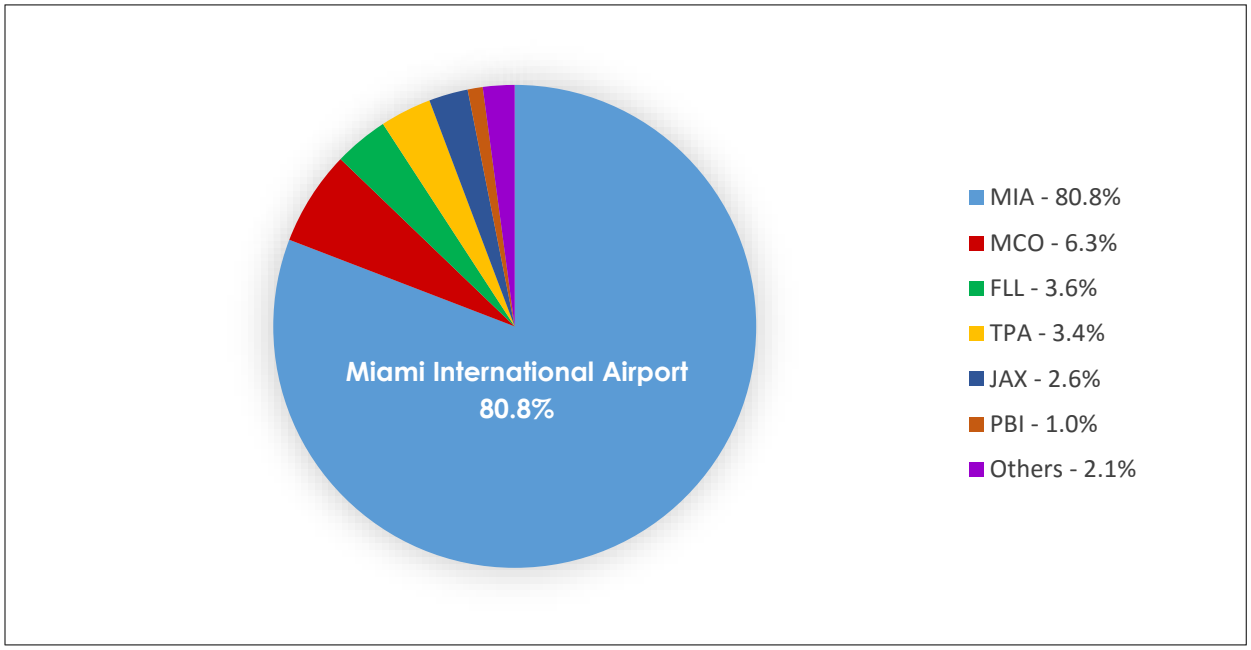
[105] All impacts include multiplier impacts
[106] One short ton equals 2,000 pounds

Associated City	Airport Name	FAA ID	2010 Total Tonnage (Short Tons)	2014 Total Tonnage (Short Tons)	CAGR
Miami	Miami International Airport	MIA	2,024,032	2,203,726	2.1%
Orlando	Orlando International Airport	MCO	149,799	172,869	3.6%
Orlando	Orlando-Sanford International Airport	SFB	3,555	1,627	-17.7%
Panama City	Northwest Florida-Beaches International Airport	ECP	8	51	58.9%
Pensacola	Pensacola International Airport	PNS	305	6,668	116.2%
Punta Gorda	Punta Gorda Airport	PGD	0	0	0.0%
Sarasota	Sarasota Bradenton International Airport	SRQ	215	230	1.7%
St. Augustine	Northeast Florida Regional Airport	SGJ	0	0	0.0%
St. Petersburg/ Clearwater	St. Pete-Clearwater International Airport	PIE	15,591	21,771	8.7%
Tallahassee	Tallahassee International Airport	TLH	10,417	9,796	-1.5%
Tampa	Tampa International Airport	TPA	96,890	93,684	-0.8%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	24	19	-5.7%
West Palm Beach	Palm Beach International Airport	PBI	19,018	27,642	9.8%
Total			**2,509,277**	**2,726,200**	**2.1%**

Source: Airport Records; Airports Council International – North America; USDOT BTS T-100
[1] CAGR = Compound Annual Growth Rate

Miami International Airport is a major international gateway that drives the air cargo landscape within Florida. As shown in **Figure 2-11**, Miami International Airport handled nearly 81percent of the total annual tonnage at Florida's commercial service airports in 2014.

Figure 2-11: Percentage of Total Air Cargo Tonnage Handled at Florida Commercial Service Airports, 2014[1]



Source: Airport Records; Airports Council International – North America; USDOT BTS T-100
[1] Percentages may not sum due to rounding

2.4.3.2 GA Activity

GA comprises an additional component of the aviation activity that occurs throughout Florida. GA flights not only occur at most of Florida's commercial service airports, but also at the 110 GA airports that comprise the Florida airport system. A wide variety of GA flights occur at Florida's airports, some of which Florida is particularly well known for, including training flights, air charter operations, and LSA activity. These activities and associated recent growth trends are discussed in the following sections.

2.4.3.2.1 FLIGHT TRAINING

Florida has long been known as a world leader in providing many types of aviation-related education, including flight training. Many of Florida's flight schools attract students from beyond the state, and often from international locations. Florida appeals to students seeking flight training due to the state's ideal climate, diverse population, availability of numerous training providers, and international accessibility through several commercial service airports. Examples of highly respected flight schools found in Florida include Embry-Riddle Aeronautical University at Daytona Beach International Airport, FIT Aviation at Melbourne International Airport, Aerosim Flight Academy at Orlando-Sanford International Airport, Bristow Academy at Space Coast Regional Airport, Europe-American Aviation at Naples Municipal Airport, and Broward College's Aviation Institute at North Perry Airport.

The significant economic impacts that aviation education have in Florida were documented in FDOT's 2014 *Florida Statewide Aviation Economic Impact Study Update*. These impacts,

generated through the training of pilots, mechanics, flight attendants, air traffic controllers, aviation managers, and other aviation professionals, are identified in **Table 2-9**. As shown in the table, which presents both on- and off-airport impacts, total economic impacts of aviation education in 2013, including multiplier impacts, were approximately 11,900 total jobs, $488.0 million in total annual payroll, and $983.0 million in total annual economic activity (output).

Table 2-9: Total Economic Impacts of Aviation Education in Florida, 2013

	Total Jobs[1]	Total Annual Payroll[1]	Total Annual Economic Activity[1]
On-Airport Aviation Education	10,700	$427,889,000	$851,357,000
Off-Airport Aviation Education	1,191	$59,971,000	$132,027,000
Total	**11,891**	**$487,860,000**	**$983,384,000**

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) 2014, Florida Statewide Aviation Economic Impact Study Update
[1] Includes multiplier impacts.

Table 2-10 presents data from the FAA's Air Traffic Activity Data System (ATADS) on total local GA aircraft operations from 2010 to 2014 at the 43 airports in the Florida airport system with air traffic control towers.[107] The FAA defines local GA operations as those performed by aircraft that:

- Operate in the local traffic pattern or within sight of an airport,
- Are known to be departing for or arriving from flight in local practice areas within a 20-mile radius of the airport, or
- Are executing practice instrument approaches.

All other operations are considered itinerant.

While not all local GA aircraft operations at an airport are flight training-related, it is widely accepted that many of them are associated with flight training. This means these operations can be used as an indication of the level of flight training activity that occurs at the facility. Table 2-10 shows that local GA operations at the towered airports grew from nearly 1.5 million operations to more than 1.8 million operations at a CAGR of 5.4 percent. Based on this data, there appears to be an increase in flight training activity at Florida's towered airports since 2010.

[107] Only airports with air traffic control towers were included in this analysis of flight training operations due to the reliability of aircraft operations data at those airports.

Table 2-10: Local GA Operations at Florida Airports, 2010 – 2014

	2010 Local GA Operations	2014 Local GA Operations	CAGR[1]
Commercial Service Airports[2]	402,739	418,304	1.0%
GA Airports[2]	1,090,884	1,423,660	6.9%
Total	**1,493,623**	**1,841,964**	**5.4%**

Source: Federal Aviation Administration (FAA) Air Traffic Activity Data System (ATADS)
[1] CAGR = Compound Annual Growth Rate
[2] Includes only the 43 airports in the Florida airport system with air traffic control towers.

2.4.3.2.2 AIR CHARTER ACTIVITY

For people and businesses seeking opportunities to better utilize their time, use of charter aircraft has become indispensable. Air charter refers to a variety of services available that allow individuals, corporations, or groups to move people and cargo in the fastest, most efficient manner available today. It can include the transporting of business people to open new markets, the transfer of patients during medical emergencies, the shipping of time-sensitive cargo, as well as any other use where time and convenience are of the essence. More specifically, air charter is defined as the business of providing nonscheduled flights that carry passengers or cargo where the party receives the exclusive use of the aircraft. The aircraft can be large or small, and flights can be one-way or round-trip. The charter could be made on a flight-only basis, or could be part of a complete travel package.

Air charter can eliminate logistical ineffectiveness by providing immediate point-to-point travel services that are fast and reliable. Moreover, flight time itself is much more productive as charter aircraft have the capability to allow their passengers to operate much as they would in a professional office. Air charter operators board passengers closer to their points of origin and deliver them closer to their final destination by effectively utilizing the country's vast GA airport network. This not only makes travel more convenient, it also allows businesses to operate in, or develop markets outside of major metropolitan areas due to the speed and accessibility provided by air charter.

Florida realizes and benefits from significant air charter operations throughout its airport system. With more than 70 companies providing air charter services based at Florida airports, air charter is a driving force within the state.[108] Examples of these companies include Hop-A-Jet Worldwide Jet Charter at Fort Lauderdale Executive Airport, ExecuJet Charter Service at Tampa International Airport, Noble Air Charter at Miami-Opa Locka Executive Airport, Fair Wind Air Charter at Witham Field, Bay Air Charter at Albert Whitted Airport, and Naples Air Inc. at Naples Municipal Airport. As evidenced by the pronounced use of Florida airports by operators such as NetJets, Flight Options, XOJET, and Hop-A-Jet, air charter is an important tool that helps businesses to continue to operate, while also serving as a potential incentive for new businesses to locate within the state. Since Florida is an internationally recognized vacation destination,

[108] 2014 *Florida Statewide Aviation Economic Impact Study Update*

charter aircraft operations have proven to be a critical component in moving tourists to and from distant destinations. Air charter operations are also regularly used to support professional and collegiate sports teams and their fans as they travel for games and tournaments. Additionally, an important aspect of air charter service is that it can serve as a lifeline during emergency medical events where immediacy and accessibility save lives. These are just a few of the ways that air charter is used in Florida and how it benefits the state.

Table 2-11 sheds light on recent growth trends in air charter activity in Florida. Data presented in the table shows total itinerant air taxi operations for the 2010 to 2014 period at Florida's 24 GA airports in the airport system with air traffic control towers.[109] The FAA uses the term "air taxi" as the general term used for all types of chartered aircraft.[110] Itinerant air taxi operations grew from approximately 62,500 operations to approximately 85,600 operations between 2010 and 2014, which represents a CAGR of 8.2 percent.

Table 2-11: Itinerant Air Taxi Operations at Florida GA Airports, 2010 – 2014

	2010 Itinerant Air Taxi Operations	2014 Itinerant Air Taxi Operations	CAGR[1]
GA Airports[2]	62,529	85,633	8.2%

Source: Federal Aviation Administration (FAA) Air Traffic Activity Data System (ATADS)
[1] CAGR = Compound Annual Growth Rate
[2] Includes only the 24 GA airports in the Florida airport system with air traffic control towers.

2.4.3.2.3 LIGHT SPORT AIRCRAFT (LSA) ACTIVITY

A component of GA that is gaining popularity across the country as well as in Florida is LSA activity. LSA is a relatively new category of aircraft created in 2004 by the FAA in a joint effort by the ultralight aircraft manufacturers and organizations that had supported and controlled the ultralight industry, including Aerosports Connection (ASC), U.S. Ultralight Association (USUA), and the EAA.[111] The intent of the regulation was to fill the gap between ultralight aircraft and GA aircraft.[112] The FAA defines LSAs as meeting the following criteria:

- A maximum of two occupants,
- A maximum takeoff weight of 1,320 pounds (seaplanes 1,430 pounds),
- A 45-knot maximum stall speed,
- A 120-knot top speed in level flight,
- A maximum of one engine/motor (if powered),
- A fixed-pitch or ground adjustable propeller,
- An unpressurized cabin, and

[109] Air taxi operations at the commercial service airports are not included, since the FAA includes operations conducted by regional/commuter airlines in the air taxi category in ATADS.
[110] https://www.faa.gov/about/office_org/field_offices/fsdo/fat/local_more/media/consumers_guide_to_chartering_aircraft.pdf
[111] http://www.sportpilotaviation.com/index.php?option=com_content&view=article&id=87&Itemid=229
[112] http://www.bydanjohnson.com/index.cfm?b=6

- Fixed landing gear (except for seaplanes and gliders).[113]

LSAs include fixed-wing aircraft, weight-shift control aircraft (trikes), powered parachutes, gliders, gyroplanes, and lighter-than-air aircraft (balloons and airships).

Included in the regulation introducing this new class of aircraft was the creation of the new sport pilot certificate that is required to fly an LSA.[114] A sport pilot is permitted to fly any aircraft meeting the above-referenced criteria that he/she is trained and authorized to fly through logbook endorsement. [115] Flying must occur using VFR, during daylight hours, below ten thousand feet above mean sea level and 2,000 feet above ground level, in Class E and G airspace (and B, C, and D airspace with appropriate training), and be for transportation (not for hire) or recreation only. Further, three statute mile visibility and visual contact with the ground are also required.[116]

The requirements to earn and maintain a sport pilot certificate are much less stringent than those required for more advanced pilot certificates, with the training process being comparable to driver's education. For example, because sport pilots fly with fewer occupants and must fly during the daylight in good weather and at a slower speed, the minimum number of training hours required to earn a sport pilot certificate ranges from only 20 hours to fly a fixed-wing LSA, gyroplane, airship, or trike to a mere seven hours to fly a balloon.[117] A private pilot certificate, on the other hand, requires a minimum of 35 or 40 hours of training time, depending on the curriculum.[118] This is because private pilots are allowed to fly with an unrestricted number of occupants at higher speeds in varying weather conditions into more complicated airspace managed by air traffic control towers.[119] Another significant difference between a sport pilot certificate and other pilot certificates is that sport pilots do not need to undergo a medical examination on a regular basis to verify their medical fitness to fly. For example, a third-class medical certificate, which is the most basic medical certificate a pilot other than a sport pilot can possess, requires a medical examination a minimum of once every two years. A sport pilot is only required to possess a valid U.S. driver's license as evidence of their medical fitness.[120]

The introduction of the LSA category of aircraft and the associated sport pilot certificate has provided the opportunity to people who have dreamed of flying, but were deterred due to the time and expense involved in earning a private pilot certificate. It has also provided the prospect of flying for pilots who may not be able to maintain an FAA medical certificate required for more advanced pilot certificates. An additional advantage of this category of flying is the cost. The purchase cost of LSAs are much lower (although not as low as originally hoped

---

[113] https://www.eaa.org/en/eaa/aviation-communities-and-interests/light-sport-aircraft/getting-started-in-light-sport-aircraft-flying/become-a-sport-pilot-and-fly-light-sport-aircraft/faa-sport-pilot-rule
[114] Any certificated pilot can fly an LSA, but sport pilots can only fly aircraft that meet the definition of an LSA.
[115] http://www.sportpilotaviation.com/index.php?option=com_content&view=article&id=87&Itemid=229
[116] https://www.eaa.org/en/eaa/aviation-communities-and-interests/light-sport-aircraft/getting-started-in-light-sport-aircraft-flying/become-a-sport-pilot-and-fly-light-sport-aircraft/sport-pilot-limitations-and-privileges
[117] https://www.eaa.org/en/eaa/aviation-communities-and-interests/aviation-beginners-and-newcomers/learn-how-to-fly-and-discover-the-freedom-of-flight/how-to-become-a-sport-pilot
[118] Ibid
[119] Sport pilots can receive further training to attain more flying privileges, such as flying in controlled airspace.
[120] http://www.bydanjohnson.com/index.cfm?b=6&m=4&i=7/

when the LSA category was first introduced) than standard aircraft,[121] and since they run on standard automobile gasoline (also known as mogas), LSAs are much less expensive to operate.[122] The result has been LSAs are growing in popularity in ways nobody thought possible.

In Florida, evidence of the popularity of LSAs is seen in the large number of LSA businesses located throughout the state. ByDanJohnson.com is a website published by Dan Johnson, one of the foremost authorities on LSA, ultralight aircraft, and homebuilt aircraft that sport pilots may fly. According to the "Flight Instruction, Rental, and Maintenance for Light-Sport Aircraft List" on this website, there are 25 verified businesses in Florida that provide LSA flight instruction, rental, and/or maintenance.[123] Florida and California (which also has 25 LSA businesses that provide these services) have the most LSA businesses in the country. Texas ranks third with 12 businesses. Examples of Florida LSA businesses include First Landings Aviation at Orlando Apopka Airport, Renegade Light Sport Aircraft LLC at DeLand Municipal-Sidney H. Taylor Field, Breezer Aircraft USA LLC at Lakeland Linder Regional Airport, and Flamingo Aviation at Miami Executive Airport. It should be noted that the 25 businesses in Florida do not include LSA manufacturers or businesses that provide LSA sales only, several of which are also located in the state. Internet research identified 22 additional companies engaged in these activities. Examples include Evolution Trikes at Zephyrhills Municipal Airport, Progressive Aerodyne in Tavares, and Phoenix Air USA at Melbourne International Airport.

Sebring Regional Airport in Sebring, Florida is a particularly notable location for LSA activity. Several LSA companies cluster at the airport, including Float Planes and Amphibs (FPNA), Lockwood Aviation, Sebring Aviation, and Tecnam US Inc., a leading manufacturer of LSAs. Also, the airport hosts the annual U.S. Sport Aviation Expo, which draws aviation enthusiasts from around the U.S. and several foreign countries. Established in 2004, this event's mission is to encourage interest in and promote recreational sport aviation. The Expo originally focused on being a showcase for sport pilots and LSA, but it recently expanded to include ultralights, homebuilt aircraft, and refurbished production aircraft.[124] The show is known in the aviation world as the premier event for aircraft manufacturers and other exhibitors to display aircraft and accessories for sale and for buyers and sellers to interact. In fact, the January 2015 Expo set a new record with approximately 18,500 attendees[125] visiting nearly 140 exhibitors covering over 21 acres of exhibit space.[126]

ByDanJohnson.com collects data that illustrates the growth in LSA activity in the U.S. since the FAA created the LSA aircraft category in 2004. According to this website, through December 2014 there were a total of 2,786 fixed-wing Special LSAs (SLSAs) registered with the FAA since the

---

[121] Lee, Marc C. (2015). "Light-Sport Aircraft – A New Way to Adventure," *Plane&Pilot*.
[122] http://www.pipmarketing.com/florida-is-one-of-three-lsa-manufacturers-in-the-world/
[123] The Flight Instruction, Rental, and Maintenance List published on ByDanJohnson.com is regarded as a premium resource directory composed exclusively of verified LSA businesses. The staff of ByDanJohnson.com personally contacted the flight instruction and rental businesses on the list to confirm the N-numbers of LSAs that can be used for flight instruction and solo flights. Maintenance organizations were contacted to verify that they possess an A&P Mechanic or LSA Repairman certificate.
[124] Expo News (2015). "Expo 2016 Marks 12th Annual Event," *Expo News*, May 20, 2015.
[125] Expo News (2015). "Exhibitors and Final Numbers Give 2015 U.S. Sport Aviation Expo Good Grades – 2016 Exhibitor Registration to Open Soon," *Expo News*, March 12, 2015.
[126] Expo News (2015). "The U.S. Sport Aviation Expo… A Unique Experience," *Expo News*, January 20, 2015.

first aircraft was accepted by the FAA in April 2005.[127] SLSAs are fully manufactured LSAs, as opposed to Experimental Amateur Built (EAB), or homebuilt, aircraft and Experimental LSAs (ELSAs), which owners are responsible for assembling a certain percentage of the aircraft from kits. As shown in **Table 2-12**, the total number of registered SLSAs in the U.S. increased at a CAGR of 9.2 percent from 2010 to 2014.[128]

Table 2-12: Total Registered Special LSAs in the U.S., 2010 – 2014

	2010	2014	CAGR[1]
Special LSAs[2]	1,960	2,786	9.2%

Source: ByDanJohnson.com
[1] CAGR = Compound Annual Growth Rate
[2] SLSAs are fully manufactured aircraft. Data includes only fixed-wing aircraft. Weight-shift control aircraft, powered parachutes, gliders, gyroplanes, and others are excluded due to the lack of reliable data.

Another measure of the growth in LSA activity is the number of sport pilot certificates held in the U.S. The annual FAA Aerospace Forecast summarizes historic and anticipated trends in several components of civil aviation activity. One of the components included in the forecast is active pilots. **Table 2-13** presents data on the number of sport pilot certificates held in the U.S. during the 2010 to 2014 period. Sport pilot certificates increased from 3,682 certificates to 5,157 certificates, representing a CAGR of 8.8 percent.

Table 2-13: Sport Pilot Certificates Held in the U.S., 2010 – 2014

	2010	2014	CAGR[1]
Sport Pilot Certificates	3,682	5,157	8.8%

Source: Federal Aviation Administration (FAA) Aerospace Forecast FY 2015 – 2035
[1] CAGR = Compound Annual Growth Rate

Data indicating historic growth in LSA activity in Florida is limited. Available data includes sport and recreational pilot certificates held in Florida, which the FAA combines into one category in its statewide data. Sport and recreational pilot certificates held in Florida grew from 329 in 2010 to 473 in 2014 at a CAGR of 9.5 percent (see **Table 2-14**).

Table 2-14: Sport and Recreational Pilot Certificates Held in Florida, 2010 – 2014

	2010	2014	CAGR[1]
Sport and Recreational Pilot Certificates	329	473	9.5%

Source: Federal Aviation Administration (FAA)
[1] CAGR = Compound Annual Growth Rate

[127] The data excludes weight-shift control aircraft, powered parachutes, gliders, gyroplanes, and others due to unreliable information, per ByDanJohnson.com.
[128] Florida-specific data on registered LSAs is not available.

2.4.3.3 Aviation Activities Summary

Florida is fortunate to have an abundance of airports that range in size from large hubs able to accommodate aircraft as large as the Airbus A380, such as Miami International Airport, to small, privately owned airfields with turf runways serving single engine airplanes, such as Flying Ten Airport. Florida's airports support a wide variety of commercial service and GA activities, including air passenger service, air cargo operations, flight training, air charter flights, and LSA activity, among many others. The combination of these aviation activities and Florida's geography, climate, and diverse and expanding population generates a significant number of economic impacts for the state, as confirmed in the 2014 *Florida Statewide Aviation Economic Impact Study Update*. Since evidence of growth in each of these activities has been observed since 2010, a well-planned airport system capable of meeting the demand will be required to accommodate future growth.

2.4.4 Commercial and GA Pilot Growth Trends

The benefits Florida realizes from aviation industry is intrinsically tied to the aircraft and pilots. Since the aviation industry is a large economic generator for Florida's economy, a reduction in the number of trained pilots will negatively impact both the aviation industry and the state's economy. This section examines commercial and GA pilot growth trends and projections and discusses their potential impact on the future of the Florida aviation industry.

2.4.4.1 Historical Growth Trends of the Pilot Population

The sections below provide an overview of historical growth trends in the number of pilots nationwide and in Florida.

2.4.4.1.1 THE U.S. PILOT POPULATION

The FAA publishes annual forecasts that summarize anticipated trends in most components of civil aviation activity. Each published forecast, known as the FAA Aerospace Forecast, revisits previous activity forecasts and updates them after examining the prior year's trends in aviation and economic activity. Many factors are considered in the FAA's development of forecasts, some of the most important of which are U.S. and international economic growth and anticipated trends in fuel costs. The FAA Aerospace Forecast generally provides one of the most detailed analyses of historic and forecasted aviation trends and provide the framework for examining future levels of aviation activity for the nation as well as in specific states and regions.

One measure of national aviation activity which is monitored and projected in the annual FAA Aerospace Forecast is the number of active pilots. The FAA Aerospace Forecast categorizes pilot certificates into one of eight classifications. These classifications include:

- Student Pilot: Pilots in training. Student pilots may fly aircraft solo when properly authorized by a flight instructor. In 2010, the FAA eased the requirements for a student pilot, resulting in a significant increase in student pilots.
- Sport Pilot: Certified to fly LSA. Limited to 2-seats and day-time flying only. This category did not exist in 2000.

- Recreational Pilot: Certified to fly aircraft with up to 180 horsepower and four seats. Limited to day-time flying only.
- Private Pilot: Certified to fly aircraft, as long as it is not for compensation or hire.
- Commercial Pilot: Certified to fly for compensation or hire. Required to have 250 hours of flight time.
- Airline Transport Pilot: Certified to fly as pilot in command for a scheduled airline. In 2010, the FAA required all Part 121 (scheduled airline) flight crew members to hold an ATP certificate by August 2013. The ATP certificate requires 1,500 hours of flight time. This new requirement resulted in a decline in the number of commercial pilots accompanied by an increase in the number of ATPs, as commercial pilots previously serving as second in command airline pilots obtained the higher-level ATP certificate.
- Rotorcraft Pilot: Pilots certified to fly helicopters and gyrocopters. This category includes those people who are certified to fly only rotorcraft. Pilots who are certified to fly both fixed wing and rotorcraft are included in the appropriate previously mentioned categories.
- Glider Pilot: Pilots certified to fly gliders and sailplanes. This category includes those people who are certified to fly only gliders. Pilots who are certified to fly aircraft in addition to gliders are included in the appropriate previously mentioned categories. In 2002, the FAA changed the method of counting glider pilots, resulting in a large increase.

Table 2-15 identifies the number of pilot certificates held in the U.S. in 2000 and 2014, according to the FAA Aerospace Forecast. As shown, the total number of pilots in the U.S. has fallen by 5.1 percent since 2000, despite changes in counting methodology that significantly boosted student and glider pilot numbers during the period.

Table 2-15: Pilot Certificates Held in the U.S.

Pilot Certificate	Number of Certificates		Percent Change
	2000	2014	
Airline Transport Pilot	141,596	152,933	8.0%
Commercial	121,858	104,322	-14.4%
Private	251,561	174,883	-30.5%
Recreational	340	220	-35.3%
Sport	0	5,157	N.A.
Student	93,064	120,546	29.5%
Rotorcraft	7,775	15,511	99.5%
Glider	9,387	19,927	112.3%
Total Certificates	**625,581**	**593,499**	**-5.1%**

Source: Federal Aviation Administration (FAA) Aerospace Forecast FY 2009 – 2025 and FY 2015 – 2035

2.4.4.1.2 THE FLORIDA PILOT POPULATION

The number of active FAA certified pilots in Florida (**Table 2-16**) has increased for almost all certificate types, with the exception of recreational, private, and commercial.

Table 2-16: Active FAA Certified Pilots and Flight Instructors in Florida

Year	Total Pilots	Students	Recreational	Sport	Private	Commercial	Airline Transport	Rotor, Glider, & Balloon	Remote Pilot	Flight Instructor
2007	48,244	7,510	13	137	15,614	10,331	14,639	*	*	8,147
2008	49,991	7,467	13	198	16,307	11,102	14,904	*	*	8,359
2009	48,163	6,543	12	262	15,462	11,000	14,884	*	*	8,638
2010	51,671	10,917	13	316	14,857	10,727	14,841	*	*	8,805
2011	52,037	11,572	11	357	14,490	10,515	15,092	*	*	8,965
2012	52,566	11,946	8	397	14,302	10,336	15,577	*	*	9,138
2013	52,437	12,185	6	434	13,694	9,953	16,165	7,031	*	9,283
2014	52,967	12,501	7	466	13,437	9,786	16,770	6,999	*	9,592
2015	54,254	13,177	7	499	13,552	9,797	17,222	6,984	*	9,904
2016	55,692	13,844	6	544	13,090	9,959	18,249	7,167	1,783	10,183
Diff. (2007 – 2016)	**+7,448**	**+6,334**	**-7**	**+407**	**-2,524**	**-372**	**+3,610**	**+7,167**	**+1,783**	**+2,036**

**info not available*
Source: General Aviation Manufacturers Association (GAMA)General Aviation Statistical Databook & Industry Outlook (2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016)

2.4.4.1.3 DECLINE IN THE PILOT POPULATION

The overall trend in the national pilot population since 2000 has been a decline in pilots, primarily private pilots. Although the total number of pilots in Florida has increased since 2000, the trend in the reduction of private pilots is also evident, with the number of private pilots decreasing from approximately 16,000 pilots to approximately 13,000 pilots (see Table 2-16).

The drop in private pilots is of particular concern since this is the single largest segment of pilots, and represents the pool of pilots from which future airline pilots will come. The decline in private pilots can be explained by a number of factors, including rising fuel prices, waning interest and heightened flying restrictions following the 9/11 terrorist attacks, fewer people with discretionary income following the 2007 – 2009 recession, and the FAA's medical certification requirements. Some of these factors are discussed in more detail in the section below.

2.4.4.2 Forecasts of Pilot Population and Demand

The following sections examine forecasts of the U.S. pilot population and pilot demand. Forecasts of pilots on the national level include the FAA Aerospace Forecast and Boeing's *Current Market Outlook 2015 – 2034*, while future pilot projections for Florida were gleaned from the Florida Research and Economic Information Database Application.

2.4.4.2.1 FORECAST OF PILOTS IN THE U.S.

The FAA Aerospace Forecast of the active pilot population in the U.S. through 2035 is presented in **Table 2-17**. As shown in the table, the total number of pilots is projected to increase from 593,500 pilots in 2014 to 617,000 pilots by 2035 at an average annual growth rate of 0.2 percent. This is an increase of 23,500 pilots. Sport and rotorcraft pilots are anticipated to see the most rapid growth, with average annual growth rates of 5.2 percent and 2.2 percent, respectively, forecast through 2035. Air transport and commercial pilots are both projected to experience moderate growth of 0.5 percent and 0.4 percent, respectively. Private pilots are forecast to see negative growth, with a decrease of nearly 11,300 pilots expected by 2035.

Table 2-17: Forecast of Active Pilot Population in the U.S.

Year	Students	Recreational	Sport Pilot	Private	Commercial	Airline Transport	Rotorcraft	Glider	Total Pilots
2014	120,546	220	5,157	174,883	104,322	152,933	15,511	19,927	593,499
2015[E]	119,650	220	5,600	173,750	104,250	153,000	15,335	19,885	591,690
2020	118,250	220	7,700	171,950	105,550	154,300	16,440	19,815	594,225
2025	116,300	215	9,900	168,650	107,050	158,100	20,300	19,615	600,130
2030	114,350	210	12,450	165,900	109,700	162,900	23,010	19,730	608,250
2035	112,200	210	14,950	163,600	113,350	168,600	24,440	19,650	617,000
Average Annual Growth									
2014–24	-0.3%	-0.2%	6.2%	-0.3%	0.2%	0.3%	2.3%	-0.2%	0.1%
2014–35	-0.3%	-0.2%	5.2%	-0.3%	0.4%	0.5%	2.2%	-0.1%	0.2%

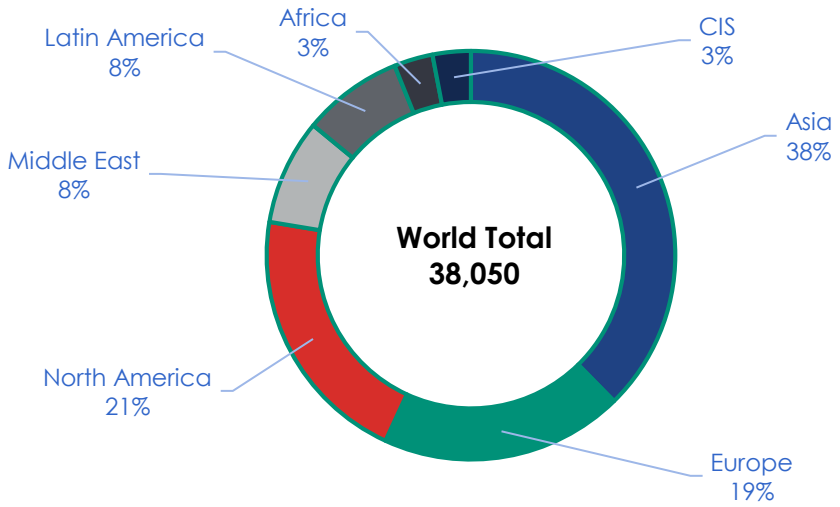
Source: Federal Aviation Administration (FAA) Aerospace Forecast FY 2015 – 2035
E = Estimate

The Boeing Company, the world's largest aerospace company and leading manufacturer of commercial jetliners and defense, space and security systems, issues an annual long-term forecast of air traffic volumes, airplane demand, and pilot and technician demand. In this forecast, Boeing factors the effects of current business conditions and developments into its analysis of the long-term drivers of air travel. The forecast not only assists Boeing with its product

strategy and long-term business planning, but since it is shared with the public, it also informs decisions by airlines, suppliers, and the financial community.

In its *Current Market Outlook 2015 – 2034*, Boeing projects significant expansion of the world's airlines during the forecast period. As shown in **Figure 2-12**, Boeing projects 38,050 new jetliners will be added to the global fleet over the next 20 years. Nearly 7,900 of these aircraft will be added in North America, where demand is driven largely by the U.S.

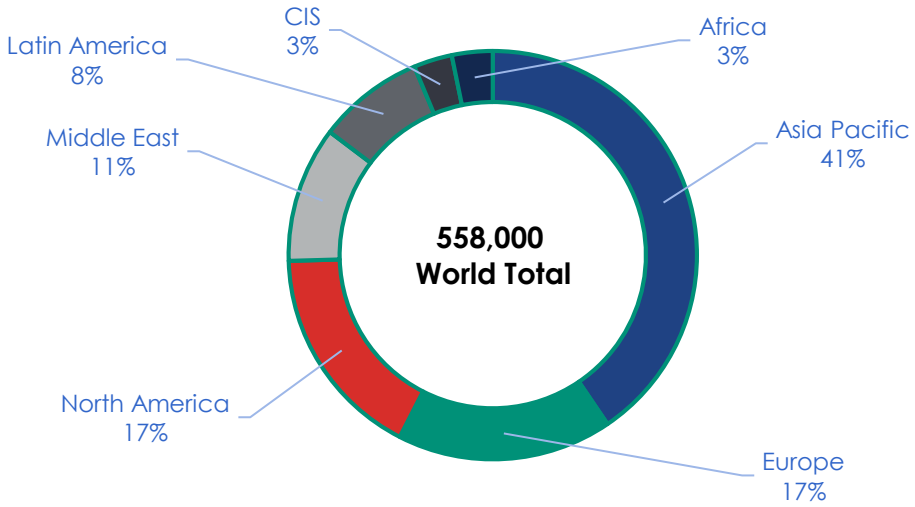
Figure 2-12: New Airplanes by Region 2015 – 2034



Source: Boeing Current Market Outlook 2015 – 2034

As the airlines take delivery of thousands of new jetliners over the next 20 years, Boeing projects an unprecedented demand for pilots to fly these aircraft. **Figure 2-13** shows that the world will need 558,000 new commercial airline pilots between 2015 and 2034, with 95,000 needed in North America.

Figure 2-13: New Pilots by Region 2015 – 2034



Source: Boeing Current Market Outlook 2015 – 2034

2.4.4.2.2 FORECAST OF PILOTS IN FLORIDA

Neither the FAA nor Boeing provide forecasts of pilots on the state level. The Florida Research and Economic Information Database Application (FREIDA), however, provides Occupational Employment Projections for two categories of pilots in Florida for the 2014 – 2022 period: airline pilots, copilots, and flight engineers; and commercial pilots. **Table 2-18** shows that airline pilots, copilots, and flight engineers are forecast to increase from nearly 5,000 positions in 2014 to more than 5,300 positions by 2022. Commercial pilots are expected to grow from approximately 3,100 positions in 2014 to more than 3,400 positions by 2022.

Table 2-18: Occupational Employment Projections for Pilots in Florida, 2014 – 2022

Occupational Title	2014 Estimated Employment	2022 Projected Employment	Total Percent Change
Airline Pilots, Copilots, and Flight Engineers	4,985	5,340	7.1%
Commercial Pilots	3,101	3,413	10.1%
Total	**8,086**	**8,753**	**8.2%**

Source: Florida Research and Economic Information Database Application, August 2015

2.4.4.3 Pilot Shortage

With the historical growth trends and future forecast data provided above serving as a backdrop, there is widespread concern throughout the aviation industry that a pilot shortage is looming or, according to the Regional Airline Association, has already begun.[129] Concerns of a pilot shortage are not new. There have been concerns of imminent pilot shortages for various reasons dating back to the 1940s. Past concerns of pilot shortages were based primarily on the loss of large numbers of military-trained pilots. Both World War I and World War II produced a large number of trained pilots, who, after serving their duty in the military, went on to careers in various commercial airlines and other aviation professions. Each time that particular "wave" of pilots entered retirement age, there were concerns of a pilot shortage. The predicted shortages never materialized, even though the number of pilots retiring, serving, and being trained at any given time has always fluctuated.

The current situation, however, is viewed by many as more likely and worrisome. A 2012 article in the *Wall Street Journal* stated, "U.S. airlines are facing what threatens to be their most serious pilot shortage since the 1960s."[130] John Allen, the FAA's Director of Standards, has referred to the problem as "astounding and dramatic," and has added that "we don't have a system to address this issue."[131] There are several factors causing the potential commercial and GA pilot shortage identified in the media and literature. These factors are discussed below, followed by a brief examination of the other side of the debate, where some industry and government organizations say the impending pilot shortage is a myth.

2.4.4.3.1 RECENT LEGISLATION INCREASING NEW AIRLINE PILOT FLIGHT TIME MINIMUMS

On February 12, 2009, Colgan Air Flight 3407, a scheduled passenger flight en route from Newark, New Jersey to Buffalo, New York, crashed while attempting to land at Buffalo Niagara International Airport, killing 50 people.[132] The cause of the crash was determined to be pilot error. In response to this accident, Congress enacted the Airline Safety and Federal Aviation Administration Extension Act of 2010, which directed the FAA to ensure flight crewmembers have proper qualifications and experience.[133] As previously mentioned, the FAA implemented a new rule for air carrier operations[134] that requires first officers to hold an ATP certificate, effectively increasing the flight time minimums for new airline pilots from approximately 250 hours to 1,500 hours.[135] This new requirement, which went into effect in August 2013, has played a key role in

[129] Pope, S (2015). "RAA: Pilot Shortage has Started," *Flying Magazine*, March 19, 2015.
[130] Carey, S et al. (2012). "Airlines Face Acute Shortage of Pilots," *Wall Street Journal*, November 12, 2012.
[131] Ibid
[132] Garrison, P (2010). "Aftermath: The Mystery of Colgan 3407," *Flying Magazine*, May 27, 2010.
[133] McGee, M (2015). *Air Transport Pilot Supply and Demand: Current State and Effects of Recent Legislation*, Pardee Rand Graduate School.
[134] Air carrier operations include regional airlines (e.g., SkyWest), major airlines (e.g., Delta), and large cargo carriers (e.g., UPS).
[135] The 1,500-hour minimum is reduced by 500 hours for pilots who received their pilot training at an accredited four-year undergraduate institution, 250 hours for pilots who received their pilot training at an accredited two-year undergraduate institution, and 750 hours for pilots who received their training from the U.S. military.

discouraging students from enrolling in professional pilot programs at four-year aviation schools.[136]

2.4.4.3.2 WANING INTEREST IN A CAREER AS AN AIRLINE PILOT

New legislation regarding flight time minimums is not the only factor deterring students from pursuing a career as an airline pilot. College and flight school graduates who choose this career path begin flying as first officers with the regional airlines. In these entry positions, pilots can expect to earn between $29,000 and $38,000 per year. [137] Despite the low initial pay, regional airline pilots can look forward to the promise of pay increases that ultimately may reach six-figure salaries as they build their flight time and are eventually hired away by the major airlines. It is believed that this long lag between the low starting salaries with the regional airlines and the significantly higher pay later in their careers with the major airlines is unappealing to many prospective students.[138]

Beyond a low initial salary, there is concern among some aviation college officials that students no longer desire the lifestyle of a pilot, which despite the glamorous stereotype, can be affected by a heavy travel schedule, furloughs and pension cuts, and industry upheaval due to events such as the 9/11 terrorist attacks, Chapter 11 Bankruptcy reorganizations, and economic recessions.[139] Many students may be opting for more attractive career options in the aviation industry.[140] To illustrate this declining interest in the airline pilot profession, a 2014 GAO report noted that the cumulative number of graduates (completions) of undergraduate professional pilot-degree programs (which are those most likely to pursue a career as an airline pilot) in the U.S. decreased approximately 23 percent from academic years 2000 – 2001 through 2011 – 2012.[141]

2.4.4.3.3 MANDATORY RETIREMENTS

In December 2007, President George W. Bush signed the *Fair Treatment for Experienced Pilots Act*, which raised the mandatory retirement age of airline pilots from 60 to 65. The legislation went into effect in July 2009 and effectively postponed the retirements of a large number of airline pilots. As those pilots have now reached 65, retirements from the airlines started accelerating in 2014 and are expected to continue to do so until they peak at over 3,000 per year in 2021 and remain at that level through 2028.[142]

2.4.4.3.4 DECLINE IN MILITARY PILOTS

As mentioned previously, aviator ranks swelled following World War I and World War II from returning pilots and servicemen who took advantage of the G.I. Bill to earn a pilot certificate. For

---

[136] "The Coming U.S. Pilot Shortage is Real," *Aviation Week & Space Technology*, February 16, 2015.
[137] http://onlinepubs.trb.org/Onlinepubs/trnews/trnews304feature.pdf
[138] Ibid
[139] Ibid
[140] http://www.alpa.org/advocacy/pilot-pay-shortage
[141] *Aviation Workforce: Current and Future Availability of Airline Pilots*, GAO Report to Congressional Requesters, February 2014.
[142] McGee, M (2015). *Air Transport Pilot Supply and Demand: Current State and Effects of Recent Legislation*, Pardee Rand Graduate School.

decades afterwards, U.S. airline pilots were hired from the ranks of retiring military pilots, but that generation of aviators has experienced severe attrition since 2001. Prior to 2001, 70 percent of airline pilots hired came from the military, but this has decreased to 30 percent today.[143] This is due to an average of 2,400 pilots separating from the military each year from FY 2001 through FY 2012.[144] The result has been the airlines seeking civilian-trained pilots to fill their cockpits.[145]

2.4.4.3.5 MEDICAL CERTIFICATION REQUIREMENTS

The reduction in the number of private pilots throughout the U.S. and in Florida is widely attributed to excessive federal regulations that deter pilots from obtaining and renewing their licenses. As previously mentioned, the most burdensome of the regulations is the FAA's medical certification requirements, which currently require private and recreational pilots under age 40 to pass a comprehensive medical exam every five years and every two years once they turn 40.[146]

During the past 25 years, the AOPA, EAA, and other organizations have submitted numerous requests to the FAA to eliminate or relax the third-class medical certificate[147] for various airmen certificates.[148] On July 15, 2016 President Barack Obama signed third class medical reforms into law as part of an FAA authorization extension passed by the U.S. House and Senate. On January 10, 2017, the FAA released a final rule on third class medical reform, though it won't be effective until May 1, 2017. After meeting the initial requirements to fly under the reform, pilots will need to visit any state-licensed physician at least once every four years and take the free aeromedical factors online course every two years.

Highlights of the new program, titled BasicMed, include:[149]

- Aircraft specifications: Up to six seats, up to 6,000 pounds (no limitations on horsepower, number of engines, or gear type)
- Flight rules: Day or night, VFR or IFR
- Passengers: Up to five passengers
- Aeromedical factors: Pilots must take a free online course every two years and visit their personal physician every four years
- Altitude restriction: Up to 18,000 feet msl
- Airspeed limitation: 250 knots indicated airspeed
- Pilot limitation: Cannot operate for compensation or hire

---

[143] *Aviation Workforce: Current and Future Availability of Airline Pilots*, GAO Report to Congressional Requesters, February 2014.
[144] Ibid
[145] "The Coming U.S. Pilot Shortage is Real," *Aviation Week & Space Technology*, February 16, 2015.
[146] Harrison, J.D. (2014). "Small Aviation Businesses Say Pilot Shortage Could Drive Industry into the Ground," *The Washington Post*, February 9, 2014.
[147] The FAA designates medical certificates for pilots as first-class, second-class, or third-class. Generally, first-class is designed for the airline transport pilot; second-class for the commercial pilot; and third-class for the student, recreational, and private pilot.
[148] http://www.aopa.org/Advocacy/Regulatory-,-a-,-Certification-Policy/AOPA-EAA-Medical-Exemption-FAQ#q1
[149] https://www.aopa.org/news-and-media/all-news/2017/january/10/faa-releases-final-rule-for-third-class-medical-reform

2.4.4.3.6 THE OTHER SIDE OF THE DEBATE

It is important to note that some industry and government organizations do not believe a pilot shortage is approaching or currently exists. Most prominent among these organizations is the ALPA, which claims the pilot shortage is a myth. The ALPA argues that low starting pay and benefits and little opportunity for career advancement are making it difficult for the regional airlines to attract new pilots to the profession. Considering that many new pilots complete their college education and training after investing $150,000 or more, the ALPA believes "new pilots need to be compensated commensurate with the level of training, education, and expertise that the flying public expects whenever they board an aircraft."[150] The ALPA also states that there are more than 700 ALPA pilots currently on furlough in North America and hundreds of other qualified pilots who work abroad at airlines such as Emirates Airline, China Eastern Airlines, and Etihad Airways, because the pay is commensurate with skills and experience.[151] Ultimately, according to ALPA president Captain Tim Canoll, "The issue isn't a shortage of qualified pilots but that few pilots are willing to take jobs that pay measly wages and offer no career advancement trajectory."[152]

To support its argument, the ALPA points to a 2014 Government Accountability Office report (GAO-14-232) titled *Aviation Workforce – Current and Future Availability of Airline Pilots*. The GAO examined the pilot shortage issue and concluded that there is a large pool of qualified pilots relative to projected demand, and data on wage earnings and employment growth are not consistent with the existence of an airline pilot shortage.[153]

2.4.4.4 Impacts of a Pilot Shortage on Florida

If the concerns regarding a pilot shortage are valid, there could be significant negative impacts on the aviation industry in Florida in the future. Specific examples of these impacts are discussed below.

2.4.4.4.1 REGIONAL AIR SERVICE

One of the most widely discussed impacts of a pilot shortage found in the media and literature is that a shortage could threaten regional airports across the country, including those in Florida. Regional airports serve smaller cities throughout the U.S. and act as spokes connected to the major airlines' hubs. Passengers are flown by regional airlines from the spoke cities to the hub cities, where they board aircraft flown the major airlines and fly to their ultimate destinations. Some smaller regional airports are already reporting flight frequency cuts by regional airlines due to a shortage of pilots,[154] and this will likely increase the second half of 2015.[155] With fewer flights comes a decrease in revenue and enplanements at the regional airports, which has a negative economic impact on not only the airport itself, but also the community it serves. There is concern

[150] http://www.alpa.org/advocacy/pilot-pay-shortage
[151] http://www.alpa.org/~/media/ALPA/Files/pdfs/advocacy-section/pilot-shortage-fact-sheet.pdf?la=en
[152] http://www.alpa.org/en/advocacy/pilot-pay-shortage
[153] Ibid
[154] Fletcher, C. (2015). "Airport Director: Pilot Shortage Cause of Albany Flight Cuts," *Albany Herald*, March 2, 2015.
[155] Wiegand, J (2015). "Looming Pilot Shortage Threatens Regional Airports," *Alliance for Aviation Across America*, April 12, 2015.

in the industry that some regional airports could potentially close over the next two years due to frequency cuts.[156]

The lack of pilots at the regional airlines stems from the major airlines recruiting pilots from the regionals to fill their staffing needs. When a major airline loses a captain to retirement or adds an aircraft to its fleet, that airline will typically promote a first officer, or co-pilot, of one of its aircraft to fill the captain seat. The major airline will then hire a captain from their smaller regional carrier to fill their vacant first officer seat. The regional pilots typically are eager to move up to the major airlines since, as discussed earlier, they can expect higher salaries and more enticing benefits. The regional airline, having lost one of its captains, will then promote its own first officer to the captain position, but will have difficulty finding a new co-pilot.[157]

Exacerbating this dilemma is the fact that airlines are transitioning away from the 50-seat regional jets that typically operate at the regional airports and flying larger aircraft that are more cost effective to operate. Airlines have been taking additional pilots from the regional jets to fly the larger aircraft. Also, many regional airports are unable to accommodate the larger aircraft, which leads to further service cuts.[158]

Florida could be significantly affected by this problem, since regional airlines are responsible for a substantial percentage of the commercial air service activity at several airports throughout the state, as shown in **Figure 2-14**. For example, 100 percent of the airline departures and 100 percent of the enplanements at Gainesville Regional Airport in 2014 were on regional airlines. At Tallahassee International Airport, these figures were 91 percent and 79 percent, respectively.

[156] Ibid
[157] Ibid
[158] Ibid

Figure 2-14: Regional Air Service in Florida, 2014

Total # of passengers enplaned	
Regionals	5,430,235
Industry	69,605,804
Regional Share	8%

Total # of airline departures	
Regionals	126,800
Industry	624,508
Regional Share	20%

Percentage of Regional Flights and enplanements for each airport

		✈	🧍			✈	🧍
APF	Naples	100%	100%	PBI	West Palm Beach	19%	9%
DAB	Daytona Beach	43%	23%	PGD	Punta Gorda	0%	0%
DSI	Destin	100%	100%	PIE	St. Petersburg	0%	0%
ECP	Panama City	28%	13%	PNS	Pensacola	70%	43%
EYW	Key West	77%	46%	RSW	Fort Myers	15%	5%
FLL	Fort Lauderdale	14%	6%	SFB	Orlando-Sanford	0%	0%
GNV	Gainesville	100%	100%	SRQ	Sarasota/Bradenton	36%	21%
JAX	Jacksonville	50%	31%	TLH	Tallahassee	91%	79%
MCO	Orlando	8%	4%	TPA	Tampa	11%	3%
MIA	Miami	18%	6%	VPS	Fort Walton Beach	90%	79%
MLB	Melbourne	41%	19%				

Source: Regional Airline Association (RAA) 2014 Annual Report
Note: Although the RAA includes Naples Municipal Airport (APF) and Destin Executive Airport (DSI) in Figure 2-14, neither airport is a commercial service airport. Both airports are served only by Part 135 charter operators.

2.4.4.4.2 GA IMPACTS

One of the most startling statistics that illustrates the effects of the decline in the U.S. pilot population is that the annual number of single-engine aircraft manufactured in the U.S., such as the Cessna 172, plummeted from approximately 8,600 aircraft to approximately 700 during the 1980 to 2014 period.[159] Fewer aircraft have been manufactured, as there have been fewer pilots to fly those aircraft.

Florida currently ranks second in the U.S. behind the state of California in terms of the number of aircraft manufacturing and parts establishments.[160] In 2013, Florida was ranked first in the U.S. in the number of engine and engine parts manufacturing establishments.[161] FDOT's 2014 *Florida Statewide Aviation Economic Impact Study Update* estimated the economic impacts of businesses engaged in aircraft and parts manufacturing and aviation maintenance in Florida at more than 76,200 total jobs and $13.6 billion in total economic output.[162] These impacts include aircraft manufacturers such as Piper Aircraft, headquartered in Vero Beach, Florida, and one of the world's leading manufacturers of single- and twin-engine aircraft. The manufacturing of small aircraft in Florida could be negatively impacted if the U.S. pilot population continues to decrease.

[159] General Aviation Manufacturers Association (2014). *2014 General Aviation Statistical Databook & 2015 Industry Outlook*.
[160] Florida TaxWatch (2014). *Ready for Takeoff: Florida Can Lead the Nation in Aircraft Manufacturing*.
[161] Ibid
[162] Figures include multiplier impacts.

There is also concern throughout the GA industry that if the number of private and recreational pilots continues to decline, many small, on-airport businesses such as fixed base operators (FBOs) and aircraft maintenance businesses will suffer. These concerns stem from the fact that private and recreational pilots are the primary customers of many of these on-airport businesses.[163] This problem could impact hundreds of businesses at Florida's GA airports.

2.4.4.5 Pilot Growth Trends Summary

The U.S. pilot population, particularly private pilots, has been decreasing for many years, while there is strong demand for pilots projected over the next 20 years as the major airlines are expected to experience significant growth. Boeing projects demand for 95,000 new commercial airline pilots and 7,890 new jetliners in North America by 2034. With the pilot supply declining and demand increasing, a pilot shortage could be approaching, the implications of which could be severe for the state of Florida and the entire nation. Regional airports could experience flight frequency cuts, which would result in decreased revenues and enplanements. GA aircraft manufacturers could suffer due to the lack of pilots to fly aircraft. Further, hundreds of on-airport businesses that cater to pilots at GA airports could experience reduced profits and eventually close their doors. Policymakers and industry experts are not in agreement of a pending pilot shortage, but they need to determine if a shortage is imminent, so that if necessary, a strategy can be developed that ensures the pilot pipeline continues to be filled with enough new pilots to meet the demand.

Chapter 8 – Alternative Scenarios provides an alternative look at the shortage of aviation professionals, including pilots.

2.4.5 Review of Boeing and Airbus Industry Outlook

Each year, Boeing and Airbus publish their respective industry reports that present forward looking viewpoints of the global air transport sector's evolution, accounting for factors such as demographic and economic growth, tourism trends, oil prices, development of new and existing routes, and ultimately highlighting demand for new aircraft. In addition to Boeing's *Current Market Outlook 2015 – 2034* and Airbus' *Global Market Forecast 2014 – 2033*, both firms release supplemental reports providing a more in-depth focus on the air cargo industry. It is important to have an understanding of industry trends since both segments—passenger and cargo—of the commercial aviation industry are major forces that shape both Florida's economy and its airport system. These documents do not contain Florida-specific forecasts; however, with this industry insight, FDOT can better understand Florida's system in a global context and anticipate changing conditions.

A summary of the key takeaways from each of the following documents is provided in this section, and were considered in the development of the FASP 2035 Update:

- Boeing *Current Market Outlook 2014 – 2033*

[163] Harrison, J.E. (2014). "Small Aviation Businesses Say Pilot Shortage Could Drive Industry into the Ground," *The Washington Post*, February 9, 2014.

- Boeing *Current Market Outlook 2015 – 2034*
- Boeing *World Air Cargo Forecast 2014 – 2015*
- Airbus *Global Market Forecast 2014 – 2033*
- Airbus *Global Market Forecast 2014 Freight*

Information from two successive Boeing documents, *Current Market Outlook 2014 – 2033* and *Current Market Outlook 2015 – 2034*, was incorporated in this section as the latter (*Current Market Outlook 2015-2034)* was published midway through the FASP 2035 development. This report follows the general framework of the Boeing *Current Market Outlook* documents and therefore the majority of the information in this report is Boeing-sourced. Relevant data from the Airbus documents were incorporated where applicable.

2.4.5.1 Economic Environment

The commercial aviation industry is continually evolving in response to internal and external market forces. Key factors that influence the industry are fuel prices, economic growth and development, environmental regulations, infrastructure, market liberalization, airplane capabilities, other modes of transportation, airline business models, and emerging markets. Aviation, like any industry, is subject to the larger economic cycles that impact the demand for its product. Fortunately, since aviation has become an essential component of the global economy a certain level of demand will persist even in the most difficult economic circumstances. However, growth is essential to the health of the aviation industry, and aviation industry growth is more closely tied to global economic growth patterns than the baseline demand. Therefore, understanding the outlook of the global economy is essential to projecting growth of the aviation industry.

After several years of economic recession and slow recovery, the global economy is beginning to pick up accelerate despite lingering potential for new turbulence due to geopolitical issues. This positive outlook is the result of ongoing recovery experienced in developed economies coupled with sustained economic growth in emerging markets. In the U.S., improved household finances, strengthening private investment, and reduced fiscal drag are key drivers behind the improved outlook. Similarly, Western Europe is gaining traction as credit conditions ease and capital spending accelerates. Emerging economies on the other hand, fueled by a growing middle class, provide a more optimistic outlook for growth. The middle class of the Asia-Pacific region is expected to double over the next 20 years.

As a result of this two-speed economic world, the global economy is projected to look very different from today by the end of the 20-year planning period. By 2023, China will move from the second largest economy to the largest, and India will move from tenth to third. However, China and India will be ranked 63rd and 120th in GDP per capita by 2023, indicating a large remaining potential for further economic development in emerging markets. The rapid credit expansion in China has created vulnerabilities in real estate, banking, and local government, but government spending and fiscal policies support near-term growth.

2.4.5.1.1 ENERGY

Over the past several decades, worldwide oil demand has increased in response to economic growth; however, supply has not fully kept pace due to lack of investment. External geopolitical events such as military conflict or civil unrest has triggered supply disruptions on a more consistent basis in various parts of the world. At the same time, China, India, and other emerging markets have added to the global appetite for crude oil.

At the end of the last century, oil prices were as low as $17 per barrel. In 2013, this price rose to $110 per barrel, representing a 540 percent jump in price.[164] During this period, passenger air traffic grew by 70 percent despite the extreme growth in fuel costs. This illustrates both the importance people place on air travel and the improvements in the efficiencies achieved by the air transport industry. Despite recent declines in oil prices, the long-term stability of oil prices remains uncertain.

Forecasting oil price is extremely challenging due to the multitude of variables to consider. At the low end, IHS Energy[165] projects $160 per barrel by 2030 due to a growing supply from non-conventional sources combined with declining demand, whereas on the high the International Monetary Fund (IMF) forecasts greater than $300 per barrel by 2030 as a result of declining supply. Sustainable aviation fuels show great potential to reduce aviation's carbon footprint and balance supply issues from conventional sources, but are currently only proven on a very small scale commercially. Airbus feels it is possible for synthetic aviation fuels to constitute roughly one-third of the fuel supply by 2030 if enough resources are devoted to the cause. In any scenario, airlines must be prepared to face a world of ever-changing fuel costs into the foreseeable future.

Fuel has become the largest single component of airlines cost structure. In 2013 airlines spent more than $200 billion on Jet A, representing more than 30 percent of total operating costs. This figure was only $40 billion and 14 percent in the year 2000. Since aviation currently has no economically viable alternative fuel source, the aviation industry has had a heightened focus on fuel efficiency. Airlines are saving fuel by reducing and more accurately measuring onboard weight, cruising at higher altitudes, making greater use of flight-management systems, and conducting more in-depth analyses of weather conditions. In addition, they are modernizing their fleets with more fuel-efficient aircraft, upgauging aircraft size, increasing passenger density and load factors, redesigning hubs and schedules to alleviate congestion, and purchashing fuel in bulk.

An in-depth look at the impacts of fluctuating oil prices is provided in **Chapter 8 – Alternative Scenarios.**

[164] http://www.macrotrends.net/1369/crude-oil-price-history-chart
[165] IHS Inc. is a global information and analysis firm that produces reports to support the decision-making process of various industries, including aerospace, defense, and energy.

2.4.5.1.2 DEMAND FOR AIR TRAVEL

In 1970, 75 percent of worldwide air passenger capacity originated in the top 10 countries; by 2013, the share of the top 10 countries decreased to below 60 percent with worldwide traffic now more equally distributed. As global population has nearly tripled from 1950 to 2014, the world's economic center of gravity has moved south and east. This trend is expected to continue as the population is projected to grow by another 35 percent by 2050.

Due to massive improvements in agricultural activity, more of the world's population is living in urban areas than ever before. When pollution and congestion are efficiently managed, urban agglomerations result in a more efficient society where there are concentrated activities, economies of scale, lower transportation costs, and effective dissemination of goods and services. The percentage of the world's population living in urban areas grew from 30 percent in 1950 to over 50 percent in 2013, and is projected by the United Nations (UN) to be two-thirds by 2050. Emerging markets in Asia, Latin America, and Africa will remain the primary contributors to this growth in urbanization.

New potential air transport consumers from the middle classes will emerge from urban agglomerations, where workers are able to earn higher wages and as the majority of major metropolitan areas already have strong levels of existing aviation infrastructure in place. In a more globalized world, efficient international mobility has become a necessity. According to the UN World Trade Organization, the purpose of travel in 2012 was 15 percent business, 51 percent leisure, and 27 percent visiting family and friends. Of these three categories of travel purpose, the visiting family and friends category has proven particularly resistant to crises, as people consider it necessary to meet their closest relations in person. International migrants are a major driver of this type of trip, as international migrants have increased from around 150 million in 1990 to 230 million in 2013. International migrants primarily come from advanced economies, but the share of migrants originating in less developed economies has increased to 41 percent in 2013.

2.4.5.1.3 TOURISM

For emerging economies, the development of a tourism industry can be closely linked with the development of an economy, acting for many countries as an "economic growth catalyst." Similarly, the development of tourism can be closely linked with the development of aviation, acting as an "air transport growth catalyst." Both aviation and tourism are codependent on each other. A strong aviation presence is essential to a growing tourism economy, and a growing tourism industry will spur demand for aviation industry growth. Globally, air is the largest of mode of border crossing and is growing faster than any mode. From 1995 to 2012, aviation has been the largest contributor to growth in international tourist arrivals, growing at an average annual rate of 5.5 percent. For comparison, over the same period of international tourist arrivals grew at an annual rate of 4.1 percent by road, 2.3 percent by sea, and 1.5 percent by rail. The share of tourists arriving by air has grown from 45 percent in 1995 to 58 percent in 2012. According to the World Trade Organization's long term forecast, "Tourism 2020 Vision," the number of global tourists is expected to grow from 5.7 percent annually to 1.6 billion by 2020.

International students are another major driver of aviation demand. According to Organisation for Economic Co-operation and Development (OECD) data, the number of international students has tripled over the last 25 years. The younger generation is increasingly more aware of the benefits of having international experiences in a more globalized world.

2.4.5.2 Airline Strategies and Business Models

Strategic planning is a continual process for airlines. Plans must take into account the challenging and ever-changing competitive environment as well as how passengers define value. For example, business travelers are sensitive to flight times and expect a high level of service. Short-haul business travelers tend to be more sensitive to ticket prices than long-haul business travelers. Leisure travelers are more sensitive to price but less demanding about service levels. Over the last several decades, two distinct airlines business models have emerged: low-cost carriers (LCCs) and network carriers.

The LCC business model has grown tremendously over the past two decades. Southwest Airlines in the U.S. and Ryanair in Europe are pioneers of this model. The LCC model focuses on cost saving operational practices, such as operating at secondary airports, operating single aircraft type, high aircraft utilization rates, direct sales, single class, and low labor costs. LCCs have on average 20 to 40 percent lower unit cost versus other carriers, which results in lower fares, subsequently stimulating traffic. As they have grown, recently LCCs have been diversifying their product offering to suit varying passenger tastes; i.e. more frills, longer routes.

At the other end of the spectrum, the network carrier model includes the largest airlines in the world, such as American Airlines, Air-France-KLM, and Lufthansa. In the U.S., network carriers are also referred to as "legacy carriers," having had established interstate routes prior to the Airline Deregulation Act of 1978. Network carriers tend to employ major hub operations, have large and complex fleets, are members of airline alliances, and provide a broad array of services such as lounges, meals, and cabin products. Their hubs, which serve domestic, regional, and international operations, enable one-stop connections to around the globe and increase the network reach of the airline and the alliance of airlines in which the hub airline is a member of. Airlines hubs use their geographic advantages to capitalize on both short- and long-haul traffic. Long-haul traffic has seen strong growth over the past decade.

Alliances are powerful tools for expanding networks, enhancing revenue, and reducing costs. The three major alliances (OneWorld, SkyTeam, and Star Alliance) account for over 60 percent of global capacity and 76 percent of long-haul available-seat-kilometers (ASKs). Code-sharing[166] has grown by eight percent over the last decade. Joint ventures and equity stakes are other methods used by airlines to open new markets, obtain new traffic, and rationalize costs. Mergers have catalyzed industry consolidation, allowing participants to remain competitive. Subsidiaries allow airlines to expand brands to foreign countries and stay within regulatory limits.

[166] As defined by the U.S. Department of Transportation, code sharing is a marketing arrangement in which an airline places its designator code on a flight operated by another airline and sells tickets for that flight, thereby strengthening its market presence and competitive ability.

2.4.5.3 Network and Hub Analysis

Airline networks are constantly evolving to stay competitive and grow as efficiently as possible. Only about 40 percent of ASKs are flown on routes that were operated 20 years ago. Airline networks are now relatively stable, suggesting new route driven fragmentation has matured. Network stability is also a result of airlines' ability to better access the impact of network development decisions and focus on profitable routes. Future growth is expected to be met with increasing aircraft size and frequency rather than new routes. Growth strategies employed by airlines include frequency growth, new market expansion, and hub development. The most successful airlines blend frequency growth and network expansion to develop and compete profitably.

Since daily service is the key to establishing a market foothold, established airlines can increase market share with schedule-conscious travelers by adding frequency. Frequency growth boosts connectivity; for example, approximately 60 percent of domestic growth in China over the last decade came from frequency increases. In more mature networks such as the U.S. and Europe, frequency growth has slowed as these markets reach saturation. The recent trend in these markets is moving towards increasing available seats in particular markets by upping aircraft gauge. Over the past 20 years, the average capacity of narrow body aircraft has increased by 20 seats, a trend that is projected to continue as airlines optimize configurations for unit cost efficiency and demand for seats.

Airline network growth is most impacted by new market expansion, which brings in new revenue streams for the carrier and accelerates economic growth in the newly connected market. New, more efficient long-range aircraft such as the Boeing 787 and Airbus A350 are enabling airlines to open new market segments, better matching capacity to market demand. Examples of new "long, thin routes" made possible by the introduction of the Boeing 787 include Tokyo (NRT) to Dusseldorf (DUS), London (LHR) to Austin (AUS), San Francisco (SFO) to Chengdu (CTU), and Beijing (PEK) to Boston (BOS).

Airline hubs are also important components of airline networks, as the hub-and-spoke model aims to serve as many large spokes as possible. Once a hub reaches a critical size, the cost to open a new route reduces, allowing opening of routes with lower direct traffic potential. The short haul threshold for a new route is about 50 passengers per day, while long haul is about 150 per day. Many of the largest hubs are in what Airbus calls an "aviation mega-city." Aviation mega-cities are cities where at least 10,000 daily long-haul passengers are handled. In 2013, there were 42 global aviation mega-cities, and Airbus predicts that there will by 91 aviation mega-cities in 2033. Approximately 95 percent of all long-haul widebody flights operate between aviation mega-cities.

2.4.5.4 Technology and Capabilities

Technology developments in commercial aviation sector are aimed at improving operating economics, which in turn enhance airlines' bottom lines. Since fuel is expected to remain the largest component of an airline's operating cost, the latest generation of aircraft focus on

reducing fuel consumption through the application of new engine technology, lightweight materials (composites), aerodynamics, and manufacturing techniques to drive improvements. Reduced fuel consumption improves range and payload capabilities, consequently expanding airline networks and passenger/cargo capacity while simultaneously increasing profit potential.

In the air, several technologies are enhancing operations. Electronic flight bags allow pilots to quickly upload the latest navigation charts to their devices and monitor weather in flight, adjust flight plans to optimize fuel use, use moving runway and taxiway maps for improved situational awareness, and use a variety of applications to improve crew productivity and safety. The growing prevalence of personal electronic devices among passengers is allowing airlines to eliminate costly and weighty in-flight entertainment systems in favor of streamed content as onboard Wi-Fi speeds improve.

On the ground, advances in information technology (IT) can improve all parts of an airline's planning cycle in real time, such as crew legality, weather, airport traffic congestion, baggage handlers, gate agents, caterers, fuel providers, and passengers on the ground. Maintenance and engineering benefit through updated engine management systems that provide better prognostic capabilities, with the ability to predict maintenance events and connect with maintenance during flight. This can minimize the number and duration of flight disruptions, improving system wide performance. Other improvements involve digital delivery of manuals and technical information, supply chain solutions optimizing inventory management/parts procurement, and loadable software airplane parts (LSAP).

Despite these advancements in technology and productivity, the fact that such significant gains occurred in the last decade suggests that there is still much room for improvement. The IT infrastructure of many developing economies remains a challenge to carriers operating there, particularly new entrants. Once the IT infrastructure is developed, airlines in these markets can compete more effectively with global carriers. Cyber security is a growing concern for the aviation industry, requiring manufacturers, regulators, and IT vendors to work together to better understand and reduce the risks of cyber-attacks. The benefits realized by the higher levels of IT connectivity brings with it more inherent risk.

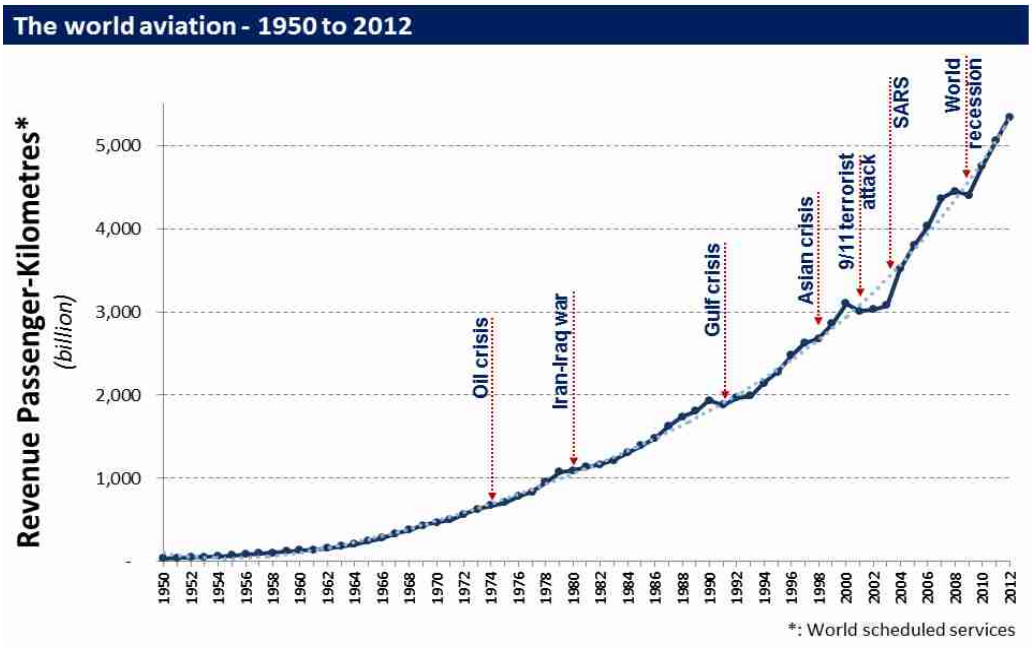
Airlines face competition primarily from high speed rail in developed economies such as Europe, China, Taiwan, and Asia. Unlike aviation, high speed rail requires major infrastructure investment on the ground, which makes it less cost effective on longer distances. Airline assets provide the highest level of network connectivity that are highly flexible, more deployable, all with a much lower requirement for infrastructure investment. Potential intermodal solutions between high speed rail and aviation do exist, albeit in limited situations. Short haul airline networks in Europe and China face the strongest competition from high speed rail, but overall it is not a major threat to aviation demand.

2.4.5.5 Traffic and Market Outlook

Like any industry, aviation is subject to occasional shocks, but the demand has proven to be resilient. Commercial airline service is essential to serve the travel needs of business, family events, and vacations. The demand for these types of travel needs will fluctuate with disruptions;

however, a certain level of demand remains. Air travel is an established component of the global economy. Over the last 30 years, the aviation industry has experienced four recessions, two financial crises, two Gulf Wars, one oil shock, one near pandemic (H1N1 influenza virus), and 9/11. Despite these disruptions, global air traffic continued to grow at five percent annually. **Figure 2-15** illustrates the growth in global aviation demand juxtaposed with disruptive global events.

Figure 2-15: Historic Global Aviation Growth



Source: International Civil Aviation Organization (ICAO)

Over the past several years, airlines have been focusing on consolidation to match demand with capacity. This has resulted in minimal revenue-passenger-kilometer (RPK) growth, but profitability has been improved drastically. The rise of LCCs has traditionally led to lower fares, higher traffic stimulation, and subsequently more rapid RPK growth for those markets than those same markets might have achieved in the otherwise.

2.4.5.5.1 EVOLVING AIR TRAVEL DEMAND

Air travel is a discretionary expenditure for emerging markets, but it is one of the first discretionary items to be added as consumers join the middle class. As emerging markets develop, nonscheduled service to leisure destinations is generally the first step, then demand may migrate to scheduled service on LCCs, then network carriers will enter the market to serve business and leisure passengers. In developed markets, the demand for essential travel has typically already been met and growth comes in discretionary travel, which is influenced less by GDP. The propensity to travel increases with increases in per capita income of a particular geography.

2.4.5.5.2 KEY INDICATORS

GDP is a strong indicator for Boeing's Current Market Outlook. IHS Economics is forecasting global GDP to grow at 3.1 percent over the next 20 years, where regional variations are prevalent and emerging economies grow at a faster pace than established economies. Based on the expected GDP growth, global airline passenger traffic (in RPKs) is projected by Boeing to grow at 4.9 percent annually from 2015 to 2034. By market region, China's domestic market is projected to grow the fastest at 6.2 percent annually, eventually overtaking North America by 2034 as the largest travel market. For comparison, RPKs within Europe and North America, which were the two largest markets in 2014, are projected to grow at a pace of 3.3 percent and 2.4 percent annually.

In North America, the strong economy is strengthening domestic traffic, while globally, greater diversification continues among the world's airlines. Twenty years ago, the majority of passengers traveled on airlines based in Europe or North America, but by 2014 this number had shrunk to 49 percent, and is projected to be 39 percent in 2034.

2.4.5.5.3 FLEET DEVELOPMENTS

According to Boeing, in 2014 there were approximately 21,600 jets in commercial operation, with the largest fleets based in the U.S., China, Russia, the United Kingdom, and Germany. The global fleet is projected to double over the next 20 years, which creates a need for over 38,000 new airplanes. Forty-two percent will be for replacement of aging aircraft in mature markets (U.S., Europe), while 58 percent will be driven by growth in emerging markets (Latin America and Asia Pacific), LCC growth, and Gulf Carrier growth (Sixth Freedom[167] business model). The need for these new aircraft will be relatively well-balanced among world regions, with Asia needing 40 percent, Europe and North America combined needing 40 percent, and remaining regions will combine for the remaining 20 percent.

The 160-seat aircraft size remains the heart of the single-aisle market, currently representing approximately 65 percent of the global fleet and will likely be 70 percent by 2033. Over the past 20 years, the average aircraft size across short, medium, and long regional routes has been converging on 160 seats. This size aircraft provides the flexibility to fly more directly, more often, and more efficiently. Within the short- and medium-haul regional sectors, high fuel prices drove carriers to shift towards larger aircraft in order to achieve lower unit cost. Airplane size on the longer-haul regional sector (i.e. transcontinental missions) has flattened over the past 15 years right around 160 seats, which is right in the sweet spot of the Boeing 737-800 and Airbus A320-200. These two aircraft models continue to be the heart of market in this size category and will continue to be over the next 20 years with forthcoming updates. In current aircraft backlog, approximately 75 percent of airplanes to be delivered are in this size category.

In the widebody segment, fleet growth continues as airlines expand their international footprint into new markets using right-sized airplane range and capacity. Boeing projects that over the next 20 years, long-haul international traffic will grow five percent annually, driving a need for

[167] Sixth freedom of the air is the right to carry passengers or cargo from a second country to a third country by stopping in one's own country.

about 8,800 new widebody aircraft. Over the past 20 years, airlines have moved away from the large widebody aircraft such as the Boeing 747 in favor of small and medium widebody aircraft as they focus on flexibility and efficiency. In 1994, large widebody aircraft accounted for 24 percent of all widebody aircraft, whereas in 2014 this number had dropped to 15 percent. By 2034, this number is expected to account for only five percent of the widebody fleet as airlines increase the number of medium widebody aircraft in operation. Geographically, the Asia Pacific, Europe, and Middle East regions will account for 90 percent of new widebody demand over the next 20 years due to the prevalence of high traffic trunk routes in these regions.

2.4.5.5.4 BUSINESS MODELS

The once clear division between network carriers, LCCs, and charter carriers is now much less clear. Network carriers are operating low-cost, short-haul subsidiaries, while LCCs are providing frequencies and higher levels of services to attract business passengers. Several LCCs have entered into long-haul and international service. Some charter carriers are even venturing into single seat sales. LCCs are the fast-growing business segment of the U.S. market, having taken advantage of the flight reductions of rationalized network carriers and backfill on those routes. LCCs have growth from roughly seven percent of the world market in 2003 to 16 percent in 2013, and are projected by Boeing to reach 21 percent by 2033. In contrast, network carriers declined from 66 percent in 2003 to 62 percent in 2013, and are projected to comprise 56 percent in 2033.

2.4.5.6 Outlook by Region

As emerging markets grow and aviation continues to become an integral part of life, there is greater geographical diversity in the airplane customer base. In 1994, more than 73 percent of all traffic was carried by airlines in Europe and North America. By 2033 that proportion will shrink to 38 percent as Asia Pacific and the Middle East become more prominent in global aviation. The LCC business model continues to grow as a viable option in emerging markets, allowing consumers to choose air over traditional modes of transportation. Modern widebody aircraft allow smaller operators to compete on longer routes traditionally dominated by foreign carriers.

Each region responds to its unique situation and conditions with specialized requirements. In the Middle East, airlines continue to focus on widebodies with premium services to leverage the area's geographic advantages and prominence in business travel. In Europe and North America, airlines respond to growing competition from LCCs by replacing older, less fuel-efficient aircraft with more economical narrowbody aircraft. The large existing fleet of aircraft in these regions generates a considerable need for replacement aircraft, even though growth is slower than in other parts of the world. Asia will see rising demand for all types of wide and narrowbody aircraft. All regions face similar challenges of fuel price volatility, emission control regulations, and airport congestion as the world fleet seeks to keep pace with growing demand for air travel.

North America and Europe have, by far, the highest propensity to fly, but this is shifting with the middle-class growth of emerging markets. Mirroring the fact that economic growth in emerging markets is outpacing that of developed economies, all of the top 20 fastest growing origin and destination (O&D) traffic flows are between or within emerging markets.

2.4.5.6.1 NORTH AMERICA

North America leads global profitability and is riding a five-year wave of record profits, which is all the more striking by the fact that it comes after a decade of massive losses. According to Boeing, the International Air Transport Association (IATA) calculates the 2014 net income of North America airlines, fueled largely by U.S. airline performance, at more than $12 billion, which is two-thirds of the projected net income for the entire global airline industry. The resurgence of U.S. airlines can be attributed to the significant restructuring undertaken, including mergers and acquisitions, fleet and network rationalization, capacity discipline, and strict focus on financial performance. The four major airline mergers that have occurred since 2008 have resulted in four airlines holding about 85 percent of all ASKs.

Boeing projects that the U.S. domestic market will grow in the range of 2.5 to 3.0 percent from 2015 to 2020. With a load factor of 83 percent in 2014 and an average over 80 percent over the past five years, network carriers may be prompted to ease capacity discipline as a result of competitive pressures and continued economic recovery. Boeing's forecasts a need of nearly 7,900 aircraft over the next 20 years in North America, with narrowbody aircraft comprising 64 percent of demand. Growth in total RPKs between North America and all world regions (including within North America) is projected to grow at a rate of 3.4 percent annually from 2,119 billion RPKs in 2014 to 4,056 billion RPKs in 2034. Worldwide, total RPKs are projected to grow at 4.9 percent annually, while growth within North America is projected at 2.4 percent annually. The fastest growing market flow involving North America is projected to be Africa-North America at 6.2 percent annually.

2.4.5.6.2 ALL REGIONS

Boeing projects global RPKs to grow an average annual rate of 4.9 percent from 2014 to 2034, while Airbus projects global RPKS to increase at a rate of 4.7 percent annually between 2013 and 2033. **Table 2-19** lists Boeing's 20-year growth projection of RPKs by regional flow (excludes passenger flows not involving North America), in descending order.

Table 2-19: Boeing Forecast of Regional Passenger Traffic Flows 2014 – 2034

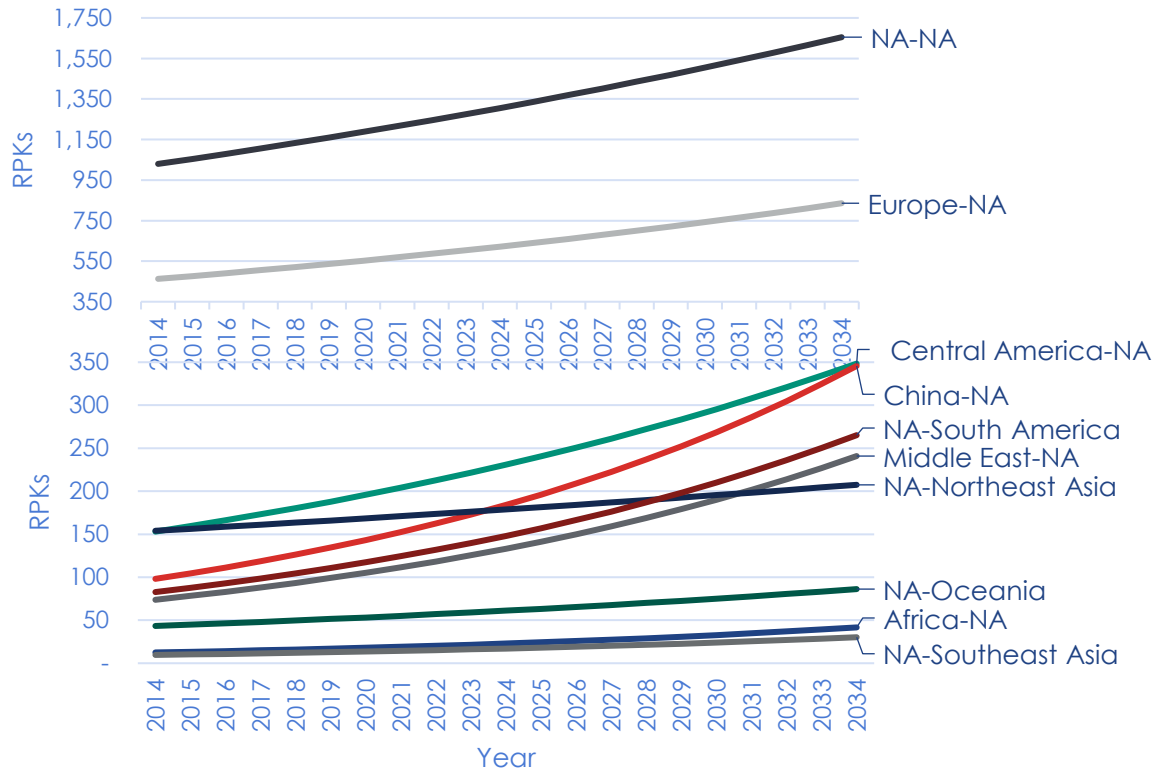
	RPK Growth (in billions)		
Regional Flow of Passenger Traffic	**2014**	**2034**	**AAGR**
China-North America	98.1	345.7	6.5%
Africa-North America	12.5	41.6	6.2%
Middle East-North America	73.7	240.9	6.1%
North America-South America	82.7	265.2	6.0%
North America-Southeast Asia	9.6	30.2	5.9%
Central America-North America	153.0	348.4	4.2%
North America-Oceania	43.3	86.2	3.5%

Regional Flow of Passenger Traffic	RPK Growth (in billions) 2014	2034	AAGR
Europe-North America	462.7	835.7	3.0%
North America-North America	1,029.9	1,655.0	2.4%
North America-Northeast Asia	154.0	207.4	1.5%
All North America Flows	2,119.5	4,056.2	3.3%
Global Total (all regions)	**6,246.0**	**16,153.2**	**4.9%**

Source: Boeing Current Market Outlook 2015 – 2034

Measured in RPKs, Boeing projects the fastest growing regional flow of passengers to be North America-China with an annual growth rate of 6.5 percent from 2014 to 2034. North America-China is closely followed by North America-Africa, North America-Middle East, and North America-South America, each with an annual growth rate above 6.0 percent. North America-Southeast Asia rounds out the top five with a projected growth rate of 5.9 percent. Intra North America flows will grow at a rate of 2.4 percent annually, while the combined growth rate of flows between North America and all regions will be 3.3 percent annually. This compares to a global growth rate of 3.3 percent annually. These projected growth rates of regional passenger flow are illustrated in **Figure 2-16**.

Figure 2-16: Boeing Forecast of Regional Passenger Traffic Flows 2014 – 2034



Source: Boeing Current Market Outlook 2015 – 2034

Airbus' growth forecast primarily includes larger world regions with the exception of a few major countries such as the U.S., Canada, Mexico, PRC (China), Japan, and India. As shown in **Table 2-20**, Airbus forecasts that the regional flows with the most rapid growth in RPKs between 2013 and 2033 will be U.S.-Middle East, and U.S.-PRC, with both growing at an annual rate of 6.6 percent. The passenger flow of India-U.S. will be third fastest with a 6.3 percent annual growth rate, while flows involving Canada and various regions comprise the next six rankings. Passenger traffic flying to, from, and within North America is forecast to grow at 3.4 percent annually. Traffic between the U.S. and Latin American markets, a segment where Florida airports play a major role, is projected to exhibit strong growth.

Table 2-20: Airbus Forecast of Country Passenger Traffic Flows 2013 – 2033

Passenger Traffic Flow	AAGR 2013 – 2033
Middle East-U.S.	6.6%
PRC-U.S.	6.6%
Indian SC-U.S.	6.4%
Canada-PRC	6.3%
Canada-Indian SC	5.8%
Canada-South America	5.6%
Canada-Caribbean	5.5%
Canada-Middle East	5.5%
Canada-Central America	5.3%
South America-U.S.	5.3%
Central America-U.S.	4.9%
Domestic U.S.	1.9%
Global Total	**4.7%**

Source: Airbus Global Market Forecast 2014 – 2033
Note: Includes Top-10 North America-involved flows plus Domestic U.S.

2.4.5.6.3 FLEET GROWTH

From the perspective of a major aircraft manufacturer, the primary purpose for conducting a 20-year global forecast each year is to gain a better understanding of the global aviation market and the economic forces that shape it in order to better position the company to capitalize on industry needs and ultimately sell aircraft. Boeing and Airbus both include projections of new aircraft deliveries by region and aircraft category for the 20-year planning period. Through a combination of new deliveries, freighter conversions, and retirements, Boeing forecasts that the global fleet of 21,600 aircraft will grow to 43,560 by 2034 (including freighters). **Table 2-21** summarizes Boeing's forecast of new aircraft deliveries by region.

Table 2-21: Boeing Forecast of New Aircraft Deliveries by Region*

Aircraft Category	Asia	North America	Europe	Middle East	Latin America	CIS	Africa	World
Large wide-body	140	20	40	300	-	40	-	540
Medium wide-body	1,530	490	510	880	30	40	40	3,520
Small wide-body	1,920	690	910	560	310	120	260	4,770
Single aisle	10,370	5,070	5,770	1,410	2,520	760	830	26,730
Regional jets	370	1,620	80	30	160	190	40	2,490
Total	**14,330**	**7,890**	**7,310**	**3,180**	**3,020**	**1,150**	**1,170**	**38,050**

Source: Boeing Current Market Outlook 2015 – 2034
**Note: Includes Passenger and Freighter Aircraft*

In terms of global aircraft fleet growth, Boeing forecasts a need of over 38,000 new aircraft by 2034, 70 percent of which will be narrowbody and 23 percent will be widebody. Due to the growth in traffic demand, the majority of the new aircraft deliveries will be to airlines in Asia. North America and Europe follow with approximately 7,900 and 7,300 new aircraft deliveries by 2034.

Excluding freighters under 10 metric tons and passenger aircraft under 100 seats, Airbus projects the global fleet of will grow from 18,460 in 2013 to 37,463 by 2033. Airbus projects a global need for 31,358 new aircraft between 2013 and 2033. As shown in **Table 2-22**, the Asia Pacific region is forecast to have the most aircraft deliveries of any region (over 12,000), which is also consistent with the region's projections of high passenger growth rates. With roughly half the projected aircraft deliveries of Asia-Pacific, Europe ranks second and North America third. Due to the relative maturity of these markets, Europe and North America fleets generally have the oldest average aircraft age, increasing their need for replacement aircraft.

Table 2-22: Airbus' Forecast of New Aircraft Deliveries by Region*

Aircraft Category	Africa	Asia-Pacific	CIS	Europe	Latin America & Caribbean	Middle East	North America	World
Single-Aisle	734	8,066	1,036	4,895	1,784	826	4,730	22,071
Small Twin-Aisle	162	2,535	134	763	356	486	709	5,145
Intermediate Twin-Aisle	57	1,147	39	410	125	543	320	2,641
Very Large Aircraft	32	724	32	185	29	387	112	1,501
Total	**985**	**12,472**	**1,241**	**6,253**	**2,294**	**2,242**	**5,871**	**31,358**

Source: Airbus Global Market Forecast 2014 – 2033
**Note: Includes Passenger Aircraft ≥100 Seats & Freighter Aircraft ≥10 Metric Tons*

It is important to note that unlike Boeing's forecast of new aircraft deliveries, Airbus' forecast only includes passenger aircraft with 100 seats or more and freighter aircraft of 10 metric tons or greater. This excludes the regional jets counted by Boeing. Both the Boeing and Airbus forecasts of new aircraft deliveries include both passenger and freight aircraft; however, freight aircraft comprise a relatively small percentage of the projected total aircraft deliveries. Airbus and Boeing both estimate that freight aircraft will only make up about 2.5 percent of the global total of new aircraft deliveries by 2034. It is common for many older, less-efficient passenger aircraft to be converted for use as freighters, subsequently reducing the need for new dedicated freighter aircraft.

2.4.5.7 Pilot and Technicians Outlook

The projected increase in global passenger traffic will require a major increase in the worldwide fleet of aircraft. To meet this demand, Boeing projects that 533,000 new commercial airlines pilots and 584,000 new maintenance technicians will be needed to fly and maintain the world fleet over the next 20 years. The greatest need will be in the Asia Pacific region, but the projections of pilots and technicians in the Middle East have increased dramatically, reflecting expected fleet expansion plans by the region's airlines.

Airlines across the world are expanding fleets and schedules to meet surging aviation demand in emerging markets. Emerging markets that have historically relied heavily on recruitment of pilots from outside their home markets will need to establish strong pilot training programs. As shown in **Table 2-23**, the Asia Pacific region is projected to see the largest growth new pilots and technicians by 2034—twice as many as in Europe, the next highest region. North America is projected to require 88,000 new pilots and 109,000 new technicians by 2034.

Table 2-23: Boeing Forecast of New Pilots and Technicians Needed by 2034

Region	Pilots	Technicians
Asia Pacific	216,000	224,000
Europe	94,000	102,000
North America	88,000	109,000
Middle East	55,000	62,000
Latin America	45,000	44,000
CIS	18,000	24,000
Africa	17,000	19,000
Total	**533,000**	**584,000**

Source: Boeing Current Market Outlook 2015 – 2034

As new generation aircraft become increasingly prevalent in airline fleets, reliability will improve and maintenance intervals will lengthen. Although this trend will moderate growth, the global requirement for maintenance technicians remains significant. The projected growth of the global fleet coupled with the increasing trend of outsourcing MRO services to third parties in emerging markets will drive the need for the number of qualified technicians to increase and geographical sources of trained technicians to expand.

2.4.5.8 Air Cargo Outlook

Although generally a smaller focus than the commercial passenger sector, air cargo is a vital component of the global aviation industry. Air cargo growth is both a contributor to and bellwether of a region's economic health. Air cargo is typically among the first services cut during difficult economic conditions, and is often one of the last to resume after a rebound. This section draws upon Boeing's *World Air Cargo Forecast 2014 – 2015* and Airbus' *Global Market Forecast 2014 Freight* to provide an outlook of the air cargo industry.

Air cargo is essential to global trade, as it transports approximately 33 percent of total trade by value. Much like with passenger airlines, emerging markets are the key to growth as advanced economies have a more mature air cargo market. The forces of globalization, urbanization, and industrialization has resulted in rapid middle class expansion in emerging markets, which is a major drivers of air cargo growth.

The air cargo industry rapidly expanded during the 1980s and 1990s, but slowed significantly through the 2000s as a result of various factors such as 9/11, high fuel costs, an economic recession, and an ongoing modal shift. As air cargo customers became less sensitive to shipping time and more sensitive to shipping cost, air cargo lost market share to the trucking and containerized shipping industries. However, the modal shift only exists for certain commodities and has been occurring long before any crises. The shift is cyclical in that old generation products continually become cheaper and move onto sea transport, replaced in cargo aircraft by higher end products. For example, personal computers once delivered by aircraft in the

1990s gave way to smartphones and tablet computers towards the late 2000s. Evolving business models also influence air cargo, as the increased prevalence of zero-stock policies increases the share of air transportation as need for faster transport increases. High value, time-sensitive commodities such as perishables and pharmaceuticals are largely immune to transport costs.

Despite the fact that overall air cargo growth stagnated over the past decade, the international express market has been more resilient to crises, having grown by a total of 50 percent from 2006 to 2013. International express now accounts for approximately 16 percent of total international air freight, focusing on high tech products and heavy machinery.

Trends in passenger airlines also influence air cargo trends, as significant quantities of air freight are carried as belly cargo in the lower decks of passenger aircraft. Over the past 40 years, belly capacity on widebody aircraft has nearly doubled as aircraft size increases to accommodate increasing numbers of passengers. Despite this growth, belly capacity is not a driving force behind aircraft design—passenger capacity is. The belly capacity per passenger has remained stable over this timeframe. Worldwide, widebody belly capacity has always been about twice as high as the demand for air cargo traffic, meaning all cargo could have been transported using only passenger belly capacity. However, passenger and cargo capacities don't always align on the same routes. Dedicated freighters are important for specific flows such as Europe-Africa, unlike U.S.-Europe, which has substantial belly capacity on passenger aircraft.

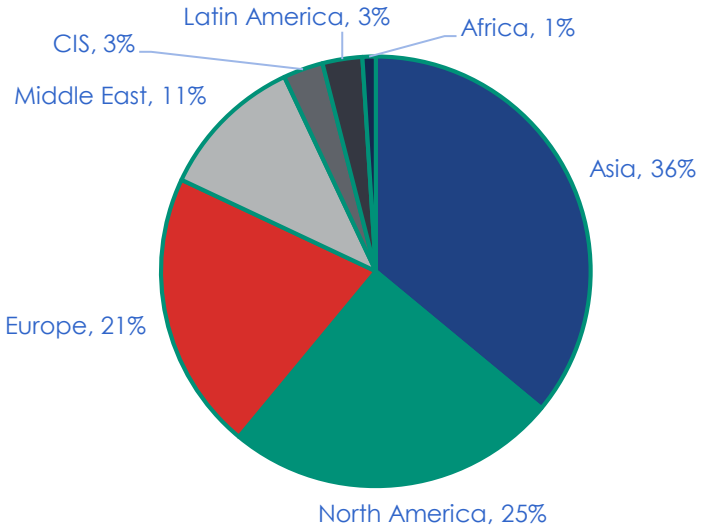
In 2013, 51 percent of air cargo volume was belly cargo. As passenger traffic is projected to outgrow dedicated cargo traffic, this figure is projected by Airbus to grow to 56 percent by 2033. This will be especially true on long-haul flows where large freighters compete with widebody passenger aircraft.

After rebounding more than 19 percent in 2010 after the depressed levels of 2009, world air cargo traffic stagnated from mid-2011 to early 2013. This prolonged period of weak growth can be attributed to two factors: a weak world economy and lagging trade growth. Since the onset of the global economic crisis in 2008, world air cargo traffic averaged only 1.7 percent growth per year through 2013. On a positive note, world air cargo traffic began to grow again in the second quarter of 2013. By July 2014, traffic had grown 4.4 percent compared with the first seven months of 2013.

2.4.5.8.1 MARKET SHARE BY REGION

Air cargo growth varies by an airline's home market. The market share of airlines based in Asia and the Middle East has grown relative to that of airlines based in other regions. Of the 207.8 billion revenue-ton-kilometers (RTKs) carried by the global air cargo industry in 2013, Asia makes up the largest market share with 36 percent of the total. This reflects the rapid expansion of Asian export markets. North America, Europe, and the Middle East follow with 25 percent, 21 percent, and 11 percent. Since 2000, carriers based in the Middle East have capitalized on their geographic position at the crossroads between Africa, Asia, and Europe by rapidly expanding their widebody passenger and freighter fleets, allowing them to increase their market share from 4.0 percent in 2004 to 11 percent in 2013. **Figure 2-17** illustrates the global air cargo market share by region in 2013.

Figure 2-17: 2013 World Air Cargo Market Share by Region



Source: Boeing World Air Cargo Forecast 2014 – 2015

2.4.5.8.2 GLOBAL AIR CARGO GROWTH

World air cargo traffic is defined as the sum of freight and mail. World air freight is strongly related to GDP and average yield. The world airmail component, however, depends less on yield and therefore correlates most strongly with GDP. Boeing projects low, baseline, and high growth scenarios for both world air freight and world airmail. High and low scenarios correspond to GDP growth of 0.5 percent above or below long-term projections, respectively. This results in forecasted world air cargo (freight + airmail) growth scenarios of 5.5 percent, 4.7 percent, and 4.0 percent. At a baseline growth rate of 4.7 percent per year, world air cargo will more than double from 207.8 billion RTKs in 2013 to more than 520 billion RTKs by 2033. Sustained economic growth, along with decreasing yields, contributes significantly to the growth of the air cargo industry. Boeing's world air cargo growth scenarios are presented in **Table 2-24**.

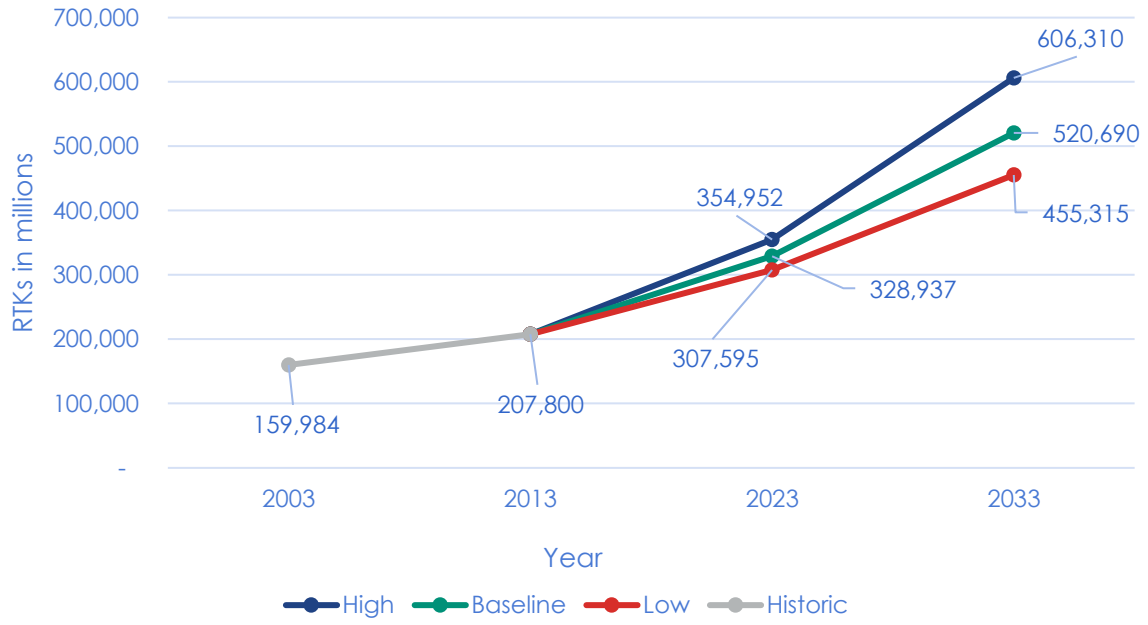
Table 2-24: Boeing World Air Cargo Forecast Scenarios 2013 – 2033

2013 – 2033 Growth Scenario	World Air Freight AAGR	World Airmail AAGR	World Air Cargo (Freight + Airmail) AAGR	2033 World Air Cargo RTKs (in millions)
High	5.6%	1.2%	5.5%	606,310
Baseline	4.8%	1.0%	4.7%	520,689
Low	4.1%	0.9%	4.0%	455,315

Source: Boeing World Air Cargo Forecast 2014 – 2015

Airbus projects a similar growth rate of 4.5 percent annually for global air cargo from 2013 to 2033. The high, baseline, and low growth scenarios for world air cargo projected by Boeing are illustrated in **Figure 2-18** in 10-year increments from 2003 through 2033.

Figure 2-18: Boeing World Air Cargo Forecast Scenarios 2003 – 2033



Source: Boeing World Air Cargo Forecast 2014 – 2015

2.4.5.8.3 GROWTH BY REGION

Air cargo traffic growth will be largely driven by emerging markets, which are projected to represent 75 percent of total air cargo traffic in 2033. The single largest regional flow of air cargo in 2013 was Asia-North America, while the Europe-Asia traffic ranked as the second largest flow by RTKs. By forecasted growth, Intra-Asia traffic is projected to grow faster than any other international world market, averaging 6.5 percent growth per year through 2033. The Asia-North America and Europe-Asia markets will grow at an average of 5.4 percent and 5.3 percent per year. Domestic China will be the fastest growing contiguous market in the world, averaging 6.7 percent annual growth through the forecast period.

The mature markets of North America and Intra-Europe will grow more slowly at 2.1 percent and 2.0 percent per year. Also projected to trail behind the world average growth rate of 4.7 percent are the market flows of Europe-North America at 3.1 percent, Middle East-Europe at 4.0 percent, and Africa-Europe at 4.3 percent growth.

Other markets projected to grow at or above the world average growth rate are South Asia-Europe, Latin America-Europe, and Latin America-North America at 4.7 percent, 4.8 percent, and 5.2 percent, respectively. Intra-Asia is currently the fifth largest air cargo market, but because it is projected to grow 6.5 percent per year it will become the third largest market by 2033. The share of world air cargo markets associated with Asia, including domestic China and domestic Japan, will increase from 51.3 percent in 2013 to 61.1 percent in 2033. Boeing's projected air cargo growth rates of various global markets are presented in **Table 2-25**.

Table 2-25: Boeing Regional Air Cargo Growth Rates

Regional Flow	2013 RTK Ranking	2003 – 2013 RTK AAGR	2013 – 2033 RTK AAGR
Asia-North America	1	2.3%	5.4%
Europe-Asia	2	4.8%	5.3%
Intra-Asia	5	3.0%	6.5%
Europe-North America	4	0.6%	3.1%
Intra-North America	3	-1.6%	2.1%
Domestic China	7	9.9%	6.7%
Latin America-Europe	6	5.0%	4.8%
Latin America-North America	8	2.5%	5.2%
Africa-Europe	9	1.0%	4.3%
South Asia-Europe	11	5.1%	4.7%
Middle East-Europe	10	4.1%	4.0%
Intra-Europe	12	1.6%	2.0%
World		**2.6%**	**4.7%**

Source: Boeing World Air Cargo Forecast 2014 – 2015

2.4.5.8.4 NORTH AMERICA

In 2013, air cargo moving to, from, and within the U.S. and Canada accounted for 9.1 percent of the world's air cargo traffic in terms of RTKs and 14.1 percent in terms of tonnage alone. The U.S. domestic market, accounts for 95.9 percent of the North American market, while Canadian domestic cargo accounts for 2.2 percent. Transborder traffic between the two countries accounted for 1.6 percent of the 2013 North American market. North America air cargo traffic is projected to average 2.1 percent growth from 2013 to 2033. The U.S. domestic market, which is the largest influence on North American growth rates, is projected to grow at an average annual rate of 2.1 percent through 2033. The Canadian domestic market will grow at an average annual rate of 2.3 percent over the same period, while transborder air trade between the two countries will grow by 4.4 percent annually.

Air cargo trade between North America and Europe accounted for approximately of 6.6 percent of global air cargo tonnage and 8.4 percent of global RTKs. Since the global economic recession, air cargo between Europe and North America has been volatile, decreasing a total of 16.3 percent from its peak in 2007 to 2013. The U.S. accounted for 91 percent of North America's air exports to Europe and 90 percent of the region's air imports from Europe in 2013. Seventy percent of the commodities moved between Europe and North America are industrial products and manufactured goods. Air cargo trade between Europe and North America is projected to grow by 3.1 percent over 20 years. This relatively low growth rate is due to assumption that both continents will continue to focus on trade with Asia.

Latin America is another major trade partner with North America, specifically the U.S. and Florida in particular. The U.S. accounts for 90 percent of Latin America's imports from North America and 93 percent of its exports to North America. Boeing defines Latin America as South America, Central America (including Mexico), and the Caribbean. Trade between North America and each of these sub regions is unevenly distributed, with South America being the largest trade flow by a wide margin. Commodities data shows that cargo flows to Latin America consist primarily of higher value manufactured commodities, while flows from Latin America were made up primarily of perishables. Florida, and Miami International Airport in particular, is a major gateway for the perishables import sector, handling nearly 72 percent of total U.S. perishables imports in 2013. Miami International Airport controls the north-south cargo flows in the Western Hemisphere, handling 85 percent of all air imports and 80 percent of all exports from the Latin American/Caribbean region.[168] The air cargo market between Latin America and North America is projected to grow by 5.2 percent per year between 2013 and 2033. By subregion, South America, Central America, and the Caribbean will grow by 5.3 percent, 5.4 percent, and 1.8 percent annually.

2.4.5.9 Boeing and Airbus Forecast Summary

The forecasts by Boeing and Airbus provide two different viewpoints on the expected growth of the commercial aviation industry in terms of both passengers and air cargo. As shown in **Table 2-26**, Boeing's projections for global GDP, airplane fleet, airline RPKs, and cargo RTKs are more optimistic than those of Airbus, but only slightly as they differ by only a few tenths of a percentage.

Table 2-26: Comparison of Airbus and Boeing Forecasts

Projected Growth by Category (AAGR)	Airbus GMF 2013 – 2033	Boeing CMO 2013 – 2033	Boeing CMO 2014 – 2034
World Economy GDP	2.9%	3.2%	3.1%
Airplane Fleet	2.8%	3.6%	3.6%
Airline RPK	4.7%	5.0%	4.9%
Cargo RTK	4.5%	4.7%	4.7%

Source: Airbus Global Market Forecast 2014 – 2033; Boeing Current Market Outlook 2015 – 2034

2.5 Summary

With numerous issues and trends that have the potential to impact Florida's aviation system, it is critical for the FASP to identify and explore possible outcomes. As such, a high-level review of 23 issues is provided in this Chapter, along with a more detailed exploration of the most prominent industry trends currently impacting or with future potential to impact aviation in Florida. **Chapter 8 – Alternative Scenarios** includes alternative scenarios related to oil price fluctuations, resiliency,

[168] www.miami-airport.com/pdfdoc/MIA_Cargo_Brochure.pdf

and tourism in the state. With insight into these aviation industry trends, the FASP 2035 is better positioned to prepare the system for changing conditions.

3 Airport System and Classifications

3.1 Introduction

One of the first steps in the system planning process is to identify the airports to be included in the system. States utilize different methods for defining the airports considered for inclusion in their state aviation transportation networks. Inclusion criteria could relate to ownership and use, while the impact of inclusion could affect funding eligibility or regulatory impacts. Once system airports are identified, further stratification or classification of facilities helps organize the system according to the types of users served and role in the statewide system.

3.2 Aviation Facilities in Florida

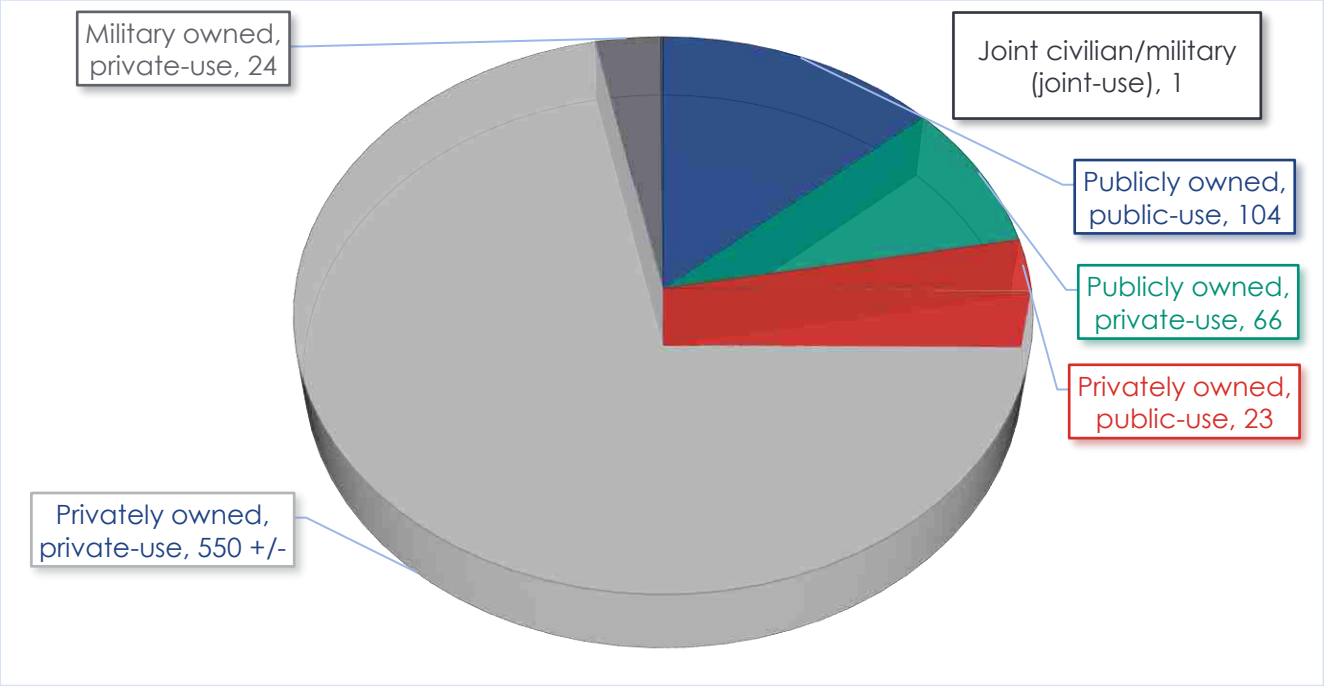
A considerable number of aviation facilities are located in Florida. According to Federal Aviation Administration (FAA) airport facilities data as of August 2017, there were 768 aviation facilities located throughout the state. These facilities primarily consist of airports and heliports; however, approximately 10 percent of the aviation facilities consists of gliderports, seaplane bases, and ultralight facilities. These facilities are made up of airports with different ownership and uses across six categories (see **Figure 3-1**):

1. **Publicly-owned, public-use**. Of all aviation facilities located throughout Florida, 104 are publicly-owned and operated as public-use facilities. These facilities are owned by counties or municipalities or through the establishment of a special district (airport authority). A significant number of these facilities were originally military installations that were transferred from the U.S. government to local agencies. Many of these airport owners have accepted state and/or federal grant funding for new construction, maintenance, or other airport improvements. The acceptance and use of these grants comes with certain assurances, one of which requires that the airport continues to be operated as an airport for a specified duration as determined by the FAA, typically 20 years after the acceptance and use of grant funding.
2. **Privately-owned, public-use**. Twenty-three privately-owned aviation facilities are open to the public throughout Florida. These facilities generally comprise fly-in communities with grass strips or contain short paved runways that primarily serve the recreational flying, general aviation (GA) public. Although these facilities are owned and operated by private individuals or companies, the facilities are open to the public for aviation use.
3. **Joint civilian/military (joint-use)**. Eglin Air Force Base, located in Valparaiso, is the only joint-use airport facility in the state. It is also known as the Destin-Fort Walton Beach Airport. This airport is one of few military installations throughout the country that serve as both a military and commercial service airport open for use by the public. It is important to note that many airports in Florida experience military activity; however, the distinction is that military-owned airports are owned by the armed forces, not just used by them.
4. **Publicly-owned, private-use**. Some aviation facilities located throughout the state are publicly-owned, private-use facilities. These facilities are operated by a public entity such

as a municipality or county, but are not open to the public. These account for 66 airports in the state. Most of these facilities consist of heliports or airports that serve a public function. Some of these entities include the Department of Corrections, the National Aeronautics and Space Administration (NASA), publicly-owned hospitals, sheriffs, mosquito control, and police and fire departments.

5. **Privately-owned, private-use**. This form of ownership and operation comprises the largest number of aviation facilities throughout the state. Approximately three-quarters of the state's aviation facilities are privately-owned, private-use facilities. While the number of privately-owned, private-use facilities changes fairly frequently, the number hovers around 550 facilities at any given time. Some of these facilities consist of grass strips or paved runways that support small GA aircraft activity associated with fly-in communities. Others are owned by private companies, such as privately-owned hospitals or private individuals on their own land.
6. **Military owned, private-use**. There are 24 airports and heliports within the state that are categorized as military owned, private-use facilities. Most of these facilities are larger military installations that are off-limits to the public due to concerns of national security and safety. Military aviation facilities fall under a separate funding program and are necessary to continue to function in the interest of the nation's defense.

Figure 3-1: Florida Aviation Facilities



Source: Florida Aviation Database (FAD), accessed August 2017; Kimley-Horn

3.3 Florida's Airport System

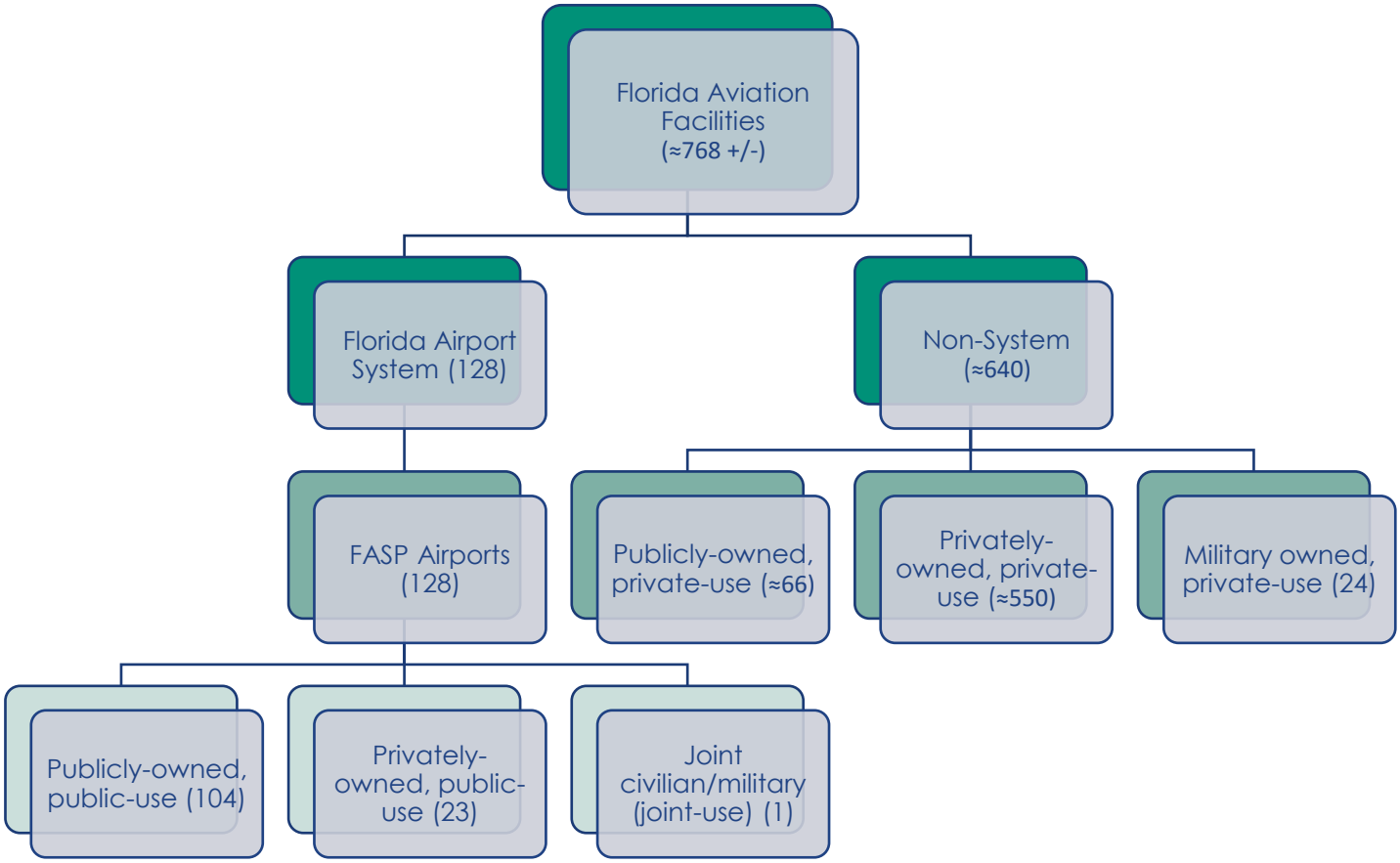
As per Florida Statute (F.S.) Chapter 332, the "Florida Airport System" includes all existing public-use airports that are owned and operated within the state and those public-use airports which will be developed and made operational in the future. According to the Florida Aviation Database (FAD), as of April 2015 when the Florida Aviation System Plan (FASP) was initiated there are 128 public-use airports, accounting for approximately 15 percent of all aviation facilities in the state.

Historically, the airports included in the FASP have been defined as all public-use airports that have been accepted into the Florida Airport System. Acceptance into the system is a process outlined in Florida Department of Transportation (FDOT) Procedure 725-040-210-f, *New Public Airport Funding Eligibility*.

At the outset of this FASP 2035 Update, the Tavares Seaplane Base met the criteria to be included in Florida's Airport System but had not completed the process to be included as an FASP airport. Therefore, the number of Florida Airport System airports was 128, compared to 127 FASP airports. Tavares Seaplane Base went through the evaluation process outlined in the FDOT procedure and was admitted to the FASP, through the Continuing Florida Aviation System Planning Process (CFASPP), in February 2017. As such, the number of Florida Airport System and FASP airports is the same at 128.

Figure 3-2 depicts the organization of the Florida Aviation Facilities indicating the relationship between the airports included in the Florida Airport System, the FASP, and those not in the system.

Figure 3-2: Current Florida Aviation Facilities



Source: Kimley-Horn

The 128 airports in Florida that meet the F.S. Chapter 332 definition to be included in the Florida Airport System and meet the criteria for inclusion in the FASP are presented in **Table 3-1** in alphabetical order by their associated city, broken down according to those with commercial service and those that serve only GA.

Table 3-1: FASP Airports

Associated City	Airport Name	FAA ID
Commercial Service		
Daytona Beach	Daytona Beach International Airport	DAB
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL
Fort Myers	Southwest Florida International Airport	RSW
Gainesville	Gainesville Regional Airport	GNV

Associated City	Airport Name	FAA ID
Jacksonville	Jacksonville International Airport	JAX
Key West	Key West International Airport	EYW
Melbourne	Melbourne International Airport	MLB
Miami	Miami International Airport	MIA
Orlando	Orlando International Airport	MCO
Orlando	Orlando-Sanford International Airport	SFB
Panama City	Northwest Florida Beaches International Airport	ECP
Pensacola	Pensacola International Airport	PNS
Punta Gorda	Punta Gorda Airport	PGD
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ
St. Augustine	Northeast Florida Regional Airport	SGJ
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE
Tallahassee	Tallahassee International Airport	TLH
Tampa	Tampa International Airport	TPA
Valparaiso	Destin-Ft. Walton Beach Airport	VPS
West Palm Beach	Palm Beach International Airport	PBI
General Aviation		
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF
Apalachicola	St. George Island Airport	F47
Apopka	Orlando Apopka Airport	X04
Arcadia	Arcadia Municipal Airport	X06
Archer	Flying Ten Airport	0J8
Avon Park	Avon Park Executive Airport	AVO
Bartow	Bartow Municipal Airport	BOW
Belle Glade	Belle Glade State Municipal Airport	X10
Blountstown	Calhoun County Airport	F95
Boca Raton	Boca Raton Airport	BCT
Bonifay	Tri-County Airport	1J0
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV
Brooksville	Pilot Country Airport	X05

Associated City	Airport Name	FAA ID
Carrabelle	Carrabelle-Thompson Airport	X13
Cedar Key	George T. Lewis Airport	CDK
Clearwater	Clearwater Air Park	CLW
Clewiston	Airglades Airport	2IS
Crestview	Bob Sikes Airport	CEW
Cross City	Cross City Airport	CTY
Crystal River	Crystal River-Captain Tom Davis Field	CGC
DeFuniak Springs	DeFuniak Springs Airport	54J
Deland	Bob Lee Flight Strip	1J6
Deland	Deland Municipal-Sidney H Taylor Field	DED
Destin	Destin Executive Airport	DTS
Dunnellon	Marion County Airport	X35
Englewood	Buchan Airport	X36
Eustis	Mid Florida Air Service Airport	X55
Everglades	Everglades Airpark	X01
Fernandina Beach	Fernandina Beach Municipal Airport	FHB
Fort Lauderdale	Downtown Fort Lauderdale Helistop[2]	DT1
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE
Fort Myers	Page Field	FMY
Fort Pierce	Treasure Coast International Airport	FPR
High Springs	Oak Tree Landing Airport	6J8
Hilliard	Hilliard Airpark	01J
Hollywood	North Perry Airport	HWO
Homestead	Miami Homestead General Aviation Airport	X51
Immokalee	Immokalee Regional Airport	IMM
Indiantown	Indiantown Airport	X58
Inverness	Inverness Airport	INF
Jacksonville	Cecil Airport	VQQ
Jacksonville	Herlong Recreational Airport	HEG
Jacksonville	Jacksonville Executive at Craig Airport	CRG

Associated City	Airport Name	FAA ID
Keystone Heights	Keystone Airpark	42J
La Belle	La Belle Municipal Airport	X14
Lake City	Lake City Gateway Airport	LCQ
Lake Wales	Chalet Suzanne Air Strip	X25
Lake Wales	Lake Wales Municipal Airport	X07
Lakeland	Lakeland Linder Regional Airport	LAL
Lakeland	South Lakeland Airport	X49
Leesburg	Leesburg International Airport	LEE
Live Oak	Suwannee County Airport	24J
Marathon	The Florida Keys Marathon International Airport	MTH
Marco Island	Marco Island Airport	MKY
Marianna	Marianna Municipal Airport	MAI
Merritt Island	Merritt Island Airport	COI
Miami	Dade-Collier Training and Transition Airport	TNT
Miami	Miami Executive Airport	TMB
Miami	Miami Seaplane Base[1]	X44
Miami	Miami-Opa Locka Executive Airport	OPF
Milton	Peter Prince Field	2R4
Naples	Naples Municipal Airport	APF
Navarre	Fort Walton Beach Airport	1J9
New Smyrna Beach	Massey Ranch Airpark	X50
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB
Ocala	Ocala International-Jim Taylor Field	OCF
Okeechobee	Okeechobee County Airport	OBE
Orlando	Executive Airport	ORL
Orlando	Kissimmee Gateway Airport	ISM
Ormond Beach	Ormond Beach Municipal Airport	OMN
Pahokee	Palm Beach County Glades Airport	PHK
Palatka	Palatka Municipal-Lt Kay Larkin Field	28J
Palm Coast	Flagler Executive Airport	FIN

Associated City	Airport Name	FAA ID
Palmetto	Airport Manatee	48X
Panacea	Wakulla County Airport	2J0
Pensacola	Ferguson Airport	82J
Perry	Perry-Foley Airport	40J
Pierson	Pierson Municipal Airport	2J8
Plant City	Plant City Airport	PCM
Pompano Beach	Pompano Beach Airpark	PMP
Port St. Joe	Costin Airport	A51
Punta Gorda	Shell Creek Airpark	F13
Quincy	Quincy Municipal Airport	2J9
River Ranch	River Ranch Resort Airport	2RR
Sebastian	Sebastian Municipal Airport	X26
Sebring	Sebring Regional Airport	SEF
St. Petersburg	Albert Whitted Airport	SPG
Stuart	Witham Field	SUA
Tallahassee /Havana/	Tallahassee Commercial Airport	68J
Tampa	Peter O. Knight Airport	TPF
Tampa	Tampa Executive Airport	VDF
Tampa	Tampa North Aero Park	X39
Tavares	Tavares Seaplane Base[1]	FA1
Titusville	Arthur Dunn Air Park	X21
Titusville	Space Coast Regional Airport	TIX
Umatilla	Umatilla Municipal Airport	X23
Valkaria	Valkaria Airport	X59
Venice	Venice Municipal Airport	VNC
Vero Beach	New Hibiscus Airpark	X52
Vero Beach	Vero Beach Regional Airport	VRB
Wauchula	Wauchula Municipal Airport	CHN
West Palm Beach	North Palm Beach County General Aviation Airport	F45

Associated City	Airport Name	FAA ID
West Palm Beach	Palm Beach County Park Airport	LNA
Williston	Williston Municipal Airport	X60
Winter Haven	Jack Browns Seaplane Base[1]	F57
Winter Haven	Winter Haven's Gilbert Field	GIF
Zellwood	Bob White Field	X61
Zephyrhills	Zephyrhills Municipal Airport	ZPH

Note: [1]Seaplane Base; [2] Heliport
Sources: Florida Aviation Database (FAD), accessed August 2017; Kimley-Horn

Figure 3-3 depicts the FASP airports, including the 20 commercial service airports and 108 GA airports.

Figure 3-3: FASP Airports

Source: Florida Department of Transportation (FDOT) Aviation and Spaceport Office (ASO); Kimley-Horn

3.4 FASP Airport Classifications or Roles

Airports in Florida are stratified by role in a number of different studies, each with differing purposes. Stratifying airports can help with providing perspective on how airports relate to one another, grouping into funding categories, and evaluating how the airport system is performing by examining how airport services are distributed around the state.

The stratification of aviation facilities is the sorting or categorization of study airports by their role, type, function, capabilities, facilities, economic impact, or even by their annual volume of activity (e.g., enplanements, operations, etc.). A review of the existing stratification methodologies used on the state's airports that were created as components of previous studies is a useful means of understanding the purpose behind airport system stratification. Four reports that stratified Florida's airports were examined. These four studies included the following:

- FAA *Report to Congress National Plan of Integrated Airport Systems (NPIAS) 2017 – 2012*
- FAA *General Aviation Airports: A National Asset (ASSET 1) and ASSET 2: In-Depth Review of the 497 Unclassified Airports*
- FDOT *Florida Aviation System Plan 2025*
- FDOT *Florida's Strategic Intermodal System (SIS)*

The following sections describe these reports and the associated stratification methods that were implemented within each report.

3.4.1 NPIAS

The *NPIAS* is an FAA report prepared for Congress that is updated every two years in accordance with Title 49 U.S. Code, section 47103. The *2017 – 2021 NPIAS* identified 3,332 public-use airports throughout the U.S. (which does not include eight proposed airports identified in the *NPIAS*) that are considered important to the national air transportation system and are therefore eligible to receive grant funding under the FAA's Airport Improvement Program. The *NPIAS* classifies commercial service and GA airport facilities that are designated as NPIAS airports. In total, the *NPIAS* stratified 100 airports throughout the state of Florida (20 commercial service airports and 80 GA airports).

The *NPIAS* classifies airports into two major categories—primary and nonprimary—with most commercial airports falling under the primary category. Nationwide, only 382 airports are classified as primary airports in the *NPIAS*—the remainder are nonprimary airports.

3.4.1.1 Primary Airports

Primary airports are defined as public airports with scheduled air carrier service that generate 10,000 enplanements or more per year. Primary airports are further classified by their share of U.S. enplanements as follows:

- Large Hub Airport: Account for one percent or more of all passenger enplanements within the U.S.

- Medium Hub Airport: Account for between .25 percent and one percent of all passenger enplanements within the U.S.
- Small Hub Airport: Account for .05 percent to .25 percent of all passenger enplanements within the U.S.
- Non-Hub Airports: Enplane less than .05 percent of all commercial passenger enplanements but have at least 10,000 annual enplanements.

In Florida, the *NPIAS* classifies four airports as large hubs, three airports as medium hubs, six airports as small hubs, and seven as non-hubs. **Table 3-2** lists the names and respective categories of commercial service airports within the state of Florida that were classified as primary airports within the *NPIAS*.

Table 3-2: Florida's Primary NPIAS Airports

NPIAS Classification	Florida Airports
Large Hub Airports (4)	Fort Lauderdale-Hollywood International (FLL) Miami International (MIA) Orlando International (MCO) Tampa International (TPA)
Medium Hub Airports (3)	Jacksonville International (JAX) Palm Beach International (PBI) Southwest Florida International (RSW)
Small Hub Airports (6)	Key West International (EYW) Northwest Florida Beaches International (ECP) Orlando-Sanford International (SFB) Pensacola International (PNS) St. Pete-Clearwater International (PIE) Sarasota Bradenton International (SRQ)
Non-Hub Airports (7)	Daytona Beach (DAB) Destin-Ft. Walton Beach (VPS)Tallahassee International (TLH) Gainesville Regional (GNV) Melbourne International (MLB) Northeast Florida Regional (SGJ) Punta Gorda (PGD)

Source: National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021

3.4.1.2 Nonprimary Airports

The nonprimary airports category includes both GA airports and commercial service airports having 9,999 annual enplanements or fewer. However, no commercial service airports within the state of Florida currently fall into the nonprimary airport category. The *NPIAS* considers all nonprimary airports as GA airports regardless of whether commercial service is provided. The *NPIAS* further describes the three sub-categories of nonprimary airports as follows:

- Nonprimary Commercial Service Airports: Airports that have at least 2,500 but no more than 10,000 annual enplanements are categorized as nonprimary commercial service airports.
- Reliever Airports: The *NPIAS* classifies nonprimary airports that serve as alternatives to congested commercial service hub airports as relievers. To be eligible for this designation, the airport must be open to the public and have 100 or more based aircraft or have 25,000 or more annual itinerant operations.
- General Aviation Airports: The *NPIAS* classifies all nonprimary airports that are not designated as nonprimary commercial service or reliever airports as GA airports.

The *NPIAS* also includes classifications based on the FAA's *ASSET Study*, which is described in more detail in the next section.

Out of Florida's 100 NPIAS airports, 80 are designated as nonprimary airports. None of these are classified as nonprimary commercial service airports. Out of those 80 nonprimary airports, 21 are classified as reliever airports. At the national level, primary airports outnumber reliever airports 389 to 264, but in Florida, the opposite is true. Florida has more reliever airports than primary airports, which is an indicator of the significance of GA activity in the state.

3.4.2 ASSET

Because an in-depth review of GA airports had not been accomplished in nearly 40 years, the FAA undertook a study focused on GA airports. The resulting report, *General Aviation Airports: A National Asset (ASSET 1)*, published in May 2012, documented nearly 3,000 nonprimary airports, heliports, and seaplane bases within the *NPIAS* and defined four new categories of GA airports: national, regional, local, and basic. Of the airports evaluated, 2,455 were assigned to one of these four categories, leaving 497 airports unclassified. As a follow-up to the 2012 study, the FAA published a second report in March 2014. The report, *ASSET 2: In Depth Review of the 497 Unclassified Airports*, gathered additional data on the unclassified NPIAS airports and determined that 212 met the criteria for inclusion into one of the four previously-established categories. There are 285 GA airports in the *NPIAS* that remain unclassified.

The ASSET studies used a variety of data to define each of the four categories, including level of activity, number of based aircraft, and type of aircraft activity. Each category was also explained as follows:

National airports support the national and state systems by providing communities with access to national and international markets. The criteria for this category are:

1. 5,000+ instrument operations, 11+ based jets, 20+ international flights, or 500+ interstate departures; or
2. 10,000+ enplanements and at least one charter enplanement by a large certificated air carrier; or
3. 500+ million pounds of landed cargo weight.

Regional airports support regional economies by connecting communities to statewide and interstate markets. The criteria for this category are:

1. Metropolitan Statistical Area (MSA) (metro or micro) and 10+ domestic flights over 500 miles, 1,000+ instrument operations, 1+ based jet, or 100+ based aircraft; or
2. The airport is located in a metropolitan or micropolitan statistical area, and the airport meets the definition of commercial service.

Local airports supplement communities by providing access to primarily intrastate and some interstate markets. The criteria for this category are:

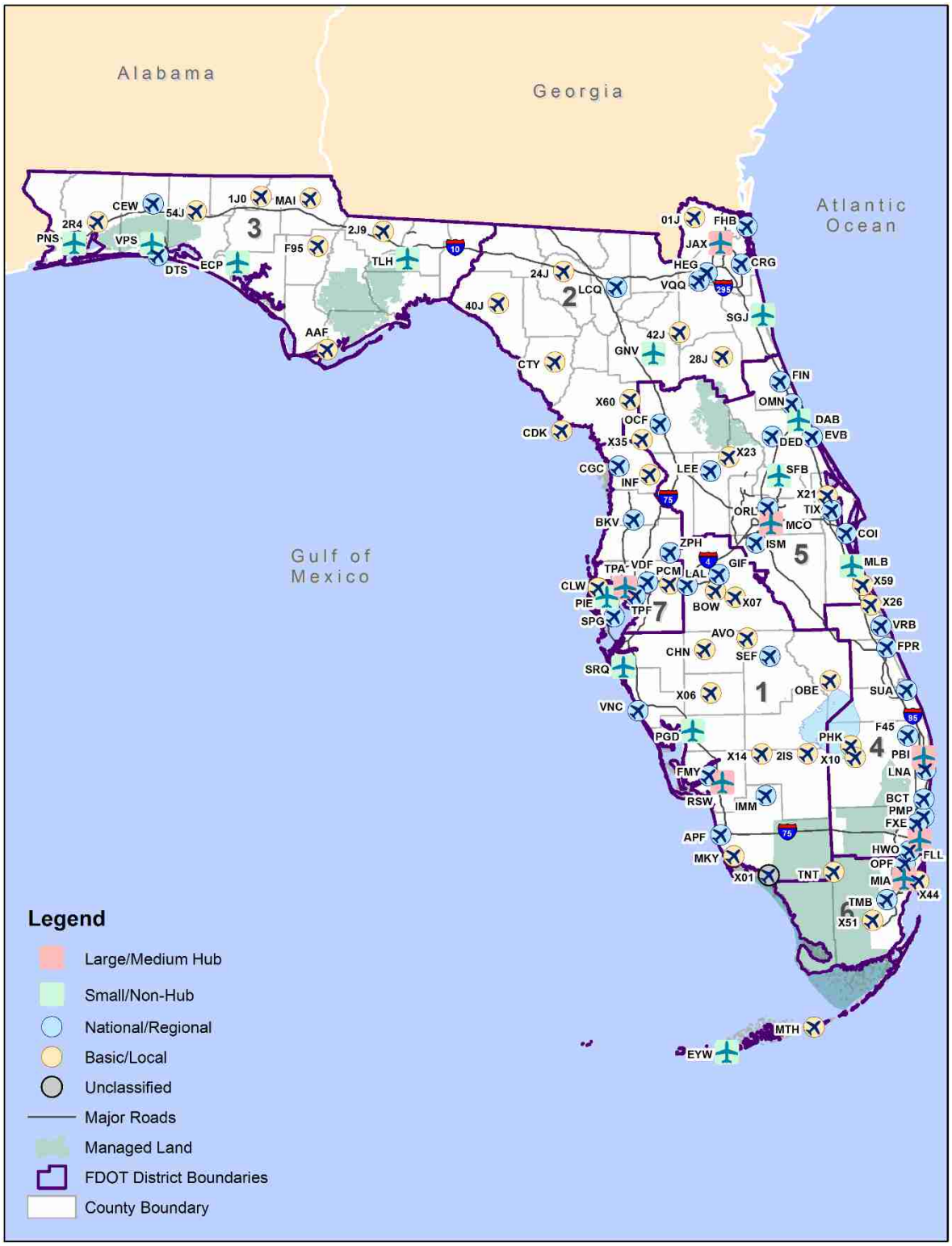
1. 10+ instrument operations and 15+ based aircraft; or
2. 2,500+ passenger enplanements.

Basic airports link the community with the national airport system and support GA activities (e.g., emergency services, charter or critical passenger service, cargo operations, flight training, and personal flying). The criteria for this category are:

1. 10+ based aircraft; or
2. 4+ based helicopters; or
3. The airport is located 30+ miles from the nearest NPIAS airport; or
4. The airport is identified and used by the U.S. Forest Service, or U.S. Marshals, or U.S. Customs and Border Protection (designated, international, or landing rights), or U.S. Postal Service (air stops), or has Essential Air Service; or
5. The airport is a new or replacement facility activated after January 1, 2001; and
6. Publicly-owned or privately-owned and designated as a reliever with a minimum of 90 based aircraft.

Of the 80 Florida nonprimary airports identified within the FAA ASSET studies, 10 are categorized as national, 31 are regional, 30 are local, and eight are basic. Only one nonprimary airport within the state currently remains unclassified—Everglades Airpark. **Figure 3-4** shows the locations and classifications of Florida's NPIAS airports.

Figure 3-4: Florida NPIAS Airports



Source: National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021; Kimley-Horn

3.4.3 CFASPP Regions

Florida has the most established continuous system planning process in the nation. Instituted in the 1980s, the CFASPP provides FDOT Aviation and Spaceports Office (ASO), the FAA, airports, and aviation stakeholders the opportunity to offer input, obtain information, and coordinate activities that are relevant to implementing the FASP and maintaining the statewide airport system.

Through a committee structure comprised of airport representatives, the state has identified nine centers of aviation activity. Each center is referred to as a CFASPP "region" or "metropolitan area" (MA). A CFASPP region is an area containing several communities with common aviation ties to each other due to geographic and economic characteristics. A CFASPP MA is an area of the state with interrelationships between airports that have a common economic base due to contiguous urban development. The CFASPP contains five regions and four MAs. The current CFASPP boundaries and names are presented in **Figure 3-5**. The determination of which airports are within each region or MA is made by each airport sponsor who can petition to change from one region or MA to another based on their ties to other areas, whether due to economic activity or geographic characteristics.

Dividing the state into regions allows for enhanced regional planning and collaboration between airports with similar environments. FDOT uses the CFASPP to continually monitor the aviation environment in Florida to ensure that Florida's public-use airports remain responsive to the transportation needs of the state and can accommodate the evolving demands placed upon on the aviation system. **Table 3-3** lists airports by CFASPP region.

Figure 3-5: CFASPP Boundaries

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO); Kimley-Horn

3.4.4 FDOT Districts

CFASPP regions are used by airports to identify with other airports in Florida; however, there are other boundaries that are used to categorize airports in Florida. FDOT uses Districts for purposes of funding and coordination of activities. **Figure 3-6** depicts the locations of airports within the FDOT Districts.

FDOT is decentralized in accordance with legislative mandates, with a Central Office and seven Districts that are responsible for maintaining a balanced state transportation system to serve all areas of the state. Each District is managed by a District Secretary, with similar organizational structures that include divisions such as Administration, Planning, Production, and Operations. Each District has a District Aviation Coordinator to assist airports with aviation grant program implementation, including developing and funding capital projects, implementing the FASP, and providing technical assistance and help with local governmental coordination and stakeholder outreach.

There are seven Districts, compared to nine CFASPP regions. While there are many overlaps between the boundaries of each, the primary differences between the boundaries are as follows related to the airport locations:

- All Central CFASPP airports are in District 1
- All Southwest CFASPP airports are included in District 1
- Treasure Coast CFASPP airports are included in Districts 1 and 4
- All Northeast CFASPP airports are in District 2
- North Central CFASPP airports are included in Districts 2, 5, and 7
- All Northwest CFASPP airports are in District 3
- Southeast CFASPP airports are included in Districts 4 and 6
- All East Central CFASPP airports are in District 5
- All West Central CFASPP airports are included in District 7

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO); Kimley-Horn

Table 3-3 lists airports by FDOT District. Due to the allocation and distribution of funding to Districts, this FASP 2035 Update utilized Districts in the evaluation of the system's performance and needs (reviewed in **Chapter 7 – System Analysis**). While crosswalks are provided within the plan to CFASPP regions and MAs, the Districts were the primary regional divisions analyzed in this FASP 2035 Update.

Figure 3-6: FDOT District Boundaries

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO); Kimley-Horn

Table 3-3: FASP Airports by CFASPP Regions and FDOT Districts

Associated City	Airport Name	FAA ID	Ownership	CFASPP Region	FDOT District
Commercial Service					
Daytona Beach	Daytona Beach International Airport	DAB	Public	East Central	5
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	Public	Southeast	4
Fort Myers	Southwest Florida International Airport	RSW	Public	Southwest	1
Gainesville	Gainesville Regional Airport	GNV	Public	North Central	2
Jacksonville	Jacksonville International Airport	JAX	Public	Northeast	2
Key West	Key West International Airport	EYW	Public	Southeast	6
Melbourne	Melbourne International Airport	MLB	Public	East Central	5
Miami	Miami International Airport	MIA	Public	Southeast	6
Orlando	Orlando International Airport	MCO	Public	East Central	5
Orlando	Orlando-Sanford International Airport	SFB	Public	East Central	5
Panama City	Northwest Florida Beaches International Airport	ECP	Public	Northwest	3
Pensacola	Pensacola International Airport	PNS	Public	Northwest	3
Punta Gorda	Punta Gorda Airport	PGD	Public	Southwest	1
Sarasota/ Bradenton	Sarasota Bradenton International Airport	SRQ	Public	Southwest	1
St. Augustine	Northeast Florida Regional Airport	SGJ	Public	Northeast	2
St. Petersburg/ Clearwater	St. Pete-Clearwater International Airport	PIE	Public	West Central	7
Tallahassee	Tallahassee International Airport	TLH	Public	Northwest	3
Tampa	Tampa International Airport	TPA	Public	West Central	7
Valparaiso	Destin-Ft. Walton Beach Airport	VPS	MA	Northwest	3
West Palm Beach	Palm Beach International Airport	PBI	Public	Southeast	4

Associated City	Airport Name	FAA ID	Ownership	CFASPP Region	FDOT District
General Aviation					
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	Public	Northwest	3
Apalachicola	St. George Island Airport	F47	Private	Northwest	3
Apopka	Orlando Apopka Airport	X04	Private	East Central	5
Arcadia	Arcadia Municipal Airport	X06	Public	Central	1
Archer	Flying Ten Airport	0J8	Private	North Central	2
Avon Park	Avon Park Executive Airport	AVO	Public	Central	1
Bartow	Bartow Municipal Airport	BOW	Public	Central	1
Belle Glade	Belle Glade State Municipal Airport	X10	Public	Southeast	4
Blountstown	Calhoun County Airport	F95	Public	Northwest	3
Boca Raton	Boca Raton Airport	BCT	Public	Southeast	4
Bonifay	Tri-County Airport	1J0	Public	Northwest	3
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	Public	West Central	7
Brooksville	Pilot Country Airport	X05	Private	West Central	7
Carrabelle	Carrabelle-Thompson Airport	X13	Public	Northwest	3
Cedar Key	George T. Lewis Airport	CDK	Public	North Central	2
Clearwater	Clearwater Air Park	CLW	Public	West Central	7
Clewiston	Airglades Airport	2IS	Public	Southwest	1
Crestview	Bob Sikes Airport	CEW	Public	Northwest	3
Cross City	Cross City Airport	CTY	Public	North Central	2
Crystal River	Crystal River-Captain Tom Davis Field	CGC	Public	North Central	7
DeFuniak Springs	DeFuniak Springs Airport	54J	Public	Northwest	3
Deland	Bob Lee Flight Strip	1J6	Private	East Central	5
Deland	Deland Municipal-Sidney H Taylor Field	DED	Public	East Central	5
Destin	Destin Executive Airport	DTS	Public	Northwest	3
Dunnellon	Marion County Airport	X35	Public	North Central	5
Englewood	Buchan Airport	X36	Public	Southwest	1

Associated City	Airport Name	FAA ID	Ownership	CFASPP Region	FDOT District
Eustis	Mid Florida Air Service Airport	X55	Private	East Central	5
Everglades	Everglades Airpark	X01	Public	Southwest	1
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	Public	Northeast	2
Fort Lauderdale	Downtown Fort Lauderdale Helistop	DT1	Public	Southeast	4
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	Public	Southeast	4
Fort Myers	Page Field	FMY	Public	Southwest	1
Fort Pierce	Treasure Coast International Airport	FPR	Public	Treasure Coast	4
High Springs	Oak Tree Landing Airport	6J8	Private	North Central	2
Hilliard	Hilliard Airpark	01J	Public	Northeast	2
Hollywood	North Perry Airport	HWO	Public	Southeast	4
Homestead	Miami Homestead General Aviation Airport	X51	Public	Southeast	6
Immokalee	Immokalee Regional Airport	IMM	Public	Southwest	1
Indiantown	Indiantown Airport	X58	Private	Treasure Coast	4
Inverness	Inverness Airport	INF	Public	North Central	7
Jacksonville	Cecil Airport	VQQ	Public	Northeast	2
Jacksonville	Herlong Recreational Airport	HEG	Public	Northeast	2
Jacksonville	Jacksonville Executive At Craig Airport	CRG	Public	Northeast	2
Keystone Heights	Keystone Airpark	42J	Public	Northeast	2
La Belle	La Belle Municipal Airport	X14	Public	Southwest	1
Lake City	Lake City Gateway Airport	LCQ	Public	North Central	2
Lake Wales	Chalet Suzanne Air Strip	X25	Private	Central	1
Lake Wales	Lake Wales Municipal Airport	X07	Public	Central	1
Lakeland	Lakeland Linder Regional Airport	LAL	Public	Central	1
Lakeland	South Lakeland Airport	X49	Private	Central	1
Leesburg	Leesburg International Airport	LEE	Public	East Central	5

Associated City	Airport Name	FAA ID	Ownership	CFASPP Region	FDOT District
Live Oak	Suwannee County Airport	24J	Public	North Central	2
Marathon	The Florida Keys Marathon International Airport	MTH	Public	Southeast	6
Marco Island	Marco Island Airport	MKY	Public	Southwest	1
Marianna	Marianna Municipal Airport	MAI	Public	Northwest	3
Merritt Island	Merritt Island Airport	COI	Public	East Central	5
Miami	Dade-Collier Training And Transition Airport	TNT	Public	Southeast	6
Miami	Miami Executive Airport	TMB	Public	Southeast	6
Miami	Miami-Opa Locka Executive Airport	OPF	Public	Southeast	6
Miami	Miami Seaplane Base	X44	Private	Southeast	6
Milton	Peter Prince Field	2R4	Public	Northwest	3
Naples	Naples Municipal Airport	APF	Public	Southwest	1
Navarre	Fort Walton Beach Airport	1J9	Private	Northwest	3
New Smyrna Beach	Massey Ranch Airpark	X50	Private	East Central	5
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	Public	East Central	5
Ocala	Ocala International-Jim Taylor Field	OCF	Public	North Central	5
Okeechobee	Okeechobee County Airport	OBE	Public	Treasure Coast	1
Orlando	Executive Airport	ORL	Public	East Central	5
Orlando	Kissimmee Gateway Airport	ISM	Public	East Central	5
Ormond Beach	Ormond Beach Municipal Airport	OMN	Public	East Central	5
Pahokee	Palm Beach County Glades Airport	PHK	Public	Southeast	4
Palatka	Palatka Municipal-Lt Kay Larkin Field	28J	Public	Northeast	2
Palm Coast	Flagler Executive Airport	FIN	Public	East Central	5
Palmetto	Airport Manatee	48X	Private	Southwest	1
Panacea	Wakulla County Airport	2J0	Public	Northwest	3
Pensacola	Ferguson Airport	82J	Private	Northwest	3
Perry	Perry-Foley Airport	40J	Public	North Central	2

Associated City	Airport Name	FAA ID	Ownership	CFASPP Region	FDOT District
Pierson	Pierson Municipal Airport	2J8	Public	East Central	5
Plant City	Plant City Airport	PCM	Public	West Central	7
Pompano Beach	Pompano Beach Airpark	PMP	Public	Southeast	4
Port St. Joe	Costin Airport	A51	Private	Northwest	3
Punta Gorda	Shell Creek Airpark	F13	Private	Southwest	1
Quincy	Quincy Municipal Airport	2J9	Public	Northwest	3
River Ranch	River Ranch Resort Airport	2RR	Private	Central	1
Sebastian	Sebastian Municipal Airport	X26	Public	Treasure Coast	4
Sebring	Sebring Regional Airport	SEF	Public	Central	1
St Petersburg	Albert Whitted Airport	SPG	Public	West Central	7
Stuart	Witham Field	SUA	Public	Treasure Coast	4
Tallahassee /Havana/	Tallahassee Commercial Airport	68J	Private	Northwest	3
Tampa	Peter O. Knight Airport	TPF	Public	West Central	7
Tampa	Tampa Executive Airport	VDF	Public	West Central	7
Tampa	Tampa North Aero Park	X39	Private	West Central	7
Tavares	Tavares Seaplane Base	FA1	Public	East Central	5
Titusville	Arthur Dunn Air Park	X21	Public	East Central	5
Titusville	Space Coast Regional Airport	TIX	Public	East Central	5
Umatilla	Umatilla Municipal Airport	X23	Public	East Central	5
Valkaria	Valkaria Airport	X59	Public	East Central	5
Venice	Venice Municipal Airport	VNC	Public	Southwest	1
Vero Beach	New Hibiscus Airpark	X52	Private	Treasure Coast	4
Vero Beach	Vero Beach Regional Airport	VRB	Public	Treasure Coast	4
Wauchula	Wauchula Municipal Airport	CHN	Public	Central	1
West Palm Beach	North Palm Beach County General Aviation Airport	F45	Public	Southeast	4
West Palm Beach	Palm Beach County Park Airport	LNA	Public	Southeast	4
Williston	Williston Municipal Airport	X60	Public	North Central	2
Winter Haven	Jack Browns Seaplane Base	F57	Private	Central	1
Winter Haven	Winter Haven's Gilbert Field	GIF	Public	Central	1
Zellwood	Bob White Field	X61	Private	East Central	5

Associated City	Airport Name	FAA ID	Ownership	CFASPP Region	FDOT District
Zephyrhills	Zephyrhills Municipal Airport	ZPH	Public	West Central	7

Source: Florida Aviation Database (FAD), accessed August 2017; Kimley-Horn

3.4.5 Strategic Intermodal System (SIS)

In 2003, the Florida Legislature and Governor established the SIS in order to identify transportation facilities within Florida that are significant to the movement of people and goods and to economic activity. The SIS is an investment plan developed by FDOT that identifies policies for the planning, allocation of funding, and implementation of strategic projects in the system. The plan identifies various transportation facilities including highways, railways, seaports, waterways, airports, and spaceports that must be maintained and improved in order to allow the state to compete more effectively in both domestic and global economies.

There are three categories of SIS airports—SIS airports, Emerging SIS airports, and SIS GA reliever airports. The designation and eligibility criterion for the three SIS airport categories are described below in **Table 3-4**. Twenty of Florida's 128 airports are designated as SIS or Emerging SIS facilities, including 18 commercial service and two GA reliever airports, as shown in **Table 3-5**.

Table 3-4: Summary of Adopted SIS Airport Types, Criteria, and Thresholds[1]

Designation	Criteria
Airports (Commercial Service)	
SIS	– Provides scheduled commercial passenger and/or air cargo services (AND) – 0.25% of U.S. total annual passenger enplanements or annual freight and mail tonnage (enplaned and deplaned)
Emerging SIS	– More than 50 miles along SIS corridors and/or connectors from an SIS commercial service airport services (AND) – 0.05% of U.S. total annual passenger enplanements or annual freight and mail tonnage (enplaned and deplaned) (OR) – Serves clusters of aviation-dependent industries in or adjacent to counties with projected population growth among top 25% statewide
Airports (General Aviation Reliever)	
SIS	– Identified by FAA as a GA reliever airport to an SIS airport (AND) – Handles at least 75,000 itinerant flight operations per year (AND) – Has a runway with length exceeding 5,000 linear feet (AND)

Designation	Criteria
	– Has a runway capable of handling 60,000-pound dual wheel aircraft and serviced by precision instrument approach (AND) – Serves a cluster of aviation-dependent industries in or adjacent to counties with projected population growth among top 25% statewide
Emerging SIS	Same criteria as SIS. The designation of a GA reliever airport (SIS or Emerging SIS) is the same as the airport it relieves.

Source: Florida Department of Transportation (FDOT) 2014. 2010 SIS Strategic Plan: Implementation Guidance for Changes to Designation Criteria and Threshold.

Table 3-5: Florida SIS Airports

Associated City	Airport Name	FAA ID
SIS Airports		
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL
Fort Myers	Southwest Florida International Airport	RSW
Jacksonville	Jacksonville International Airport	JAX
Miami	Miami International Airport	MIA
Orlando	Orlando International Airport	MCO
Tampa	Tampa International Airport	TPA
West Palm Beach	Palm Beach International Airport	PBI
Emerging SIS Airports		
Daytona Beach	Daytona Beach International Airport	DAB
Gainesville	Gainesville Regional Airport	GNV
Melbourne	Melbourne International Airport	MLB
Orlando	Orlando-Sanford International Airport	SFB
Panama City	Northwest Florida Beaches International Airport	ECP
Pensacola	Pensacola International Airport	PNS
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ
St. Petersburg-Clearwater	St. Pete-Clearwater International Airport	PIE
Tallahassee	Tallahassee International Airport	TLH
Valparaiso	Destin-Ft. Walton Beach Airport	VPS
GA Reliever SIS Airports		

Associated City	Airport Name	FAA ID
Miami	Miami Executive Airport	TMB
Orlando	Kissimmee Gateway Airport	ISM

Source: Florida's Strategic Intermodal System (SIS) Strategic Plan

3.5 Summary

Airports in the Florida Airport System have been stratified in many ways. As noted, each stratification methodology has been tailored to serve a specific purpose. Aviation system plans generally stratify airports in an effort to group similar airports for purposes of providing perspective, aiding in funding decisions, and evaluating the performance of the airport system through analyses of how its services are disseminated about the state. It has been shown that various stratification methodologies of Florida's airports accomplish these aims, but no single stratification system is tailored to achieve all of them. As such, the 2035 FASP uses existing stratification systems as needed based upon their purpose and results, without designating any one system as the preferred classification methodology. Recommendations for identifying and classifying airports in the Florida Airport System in subsequent updates of the FASP are provided in **Chapter 10 – Recommendations.**

4 System Goals

4.1 Introduction

In previous Florida Aviation System Plan (FASP) documents, seven goals were established to identify the priorities of Florida's aviation system. As part of the FASP 2035 Update, these goals were revalidated and, in some cases, slightly modified, to support the overall aviation industry in Florida. These goals were developed as a collaborative effort between the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), Florida's public-use airports, the Federal Aviation Administration (FAA), and other interested parties, including stakeholder groups that were included in the outreach efforts of the FASP.

To support the goals of the FASP, a comprehensive set of FASP objectives, performance measures (PMs), and performance indicators (PIs) were developed using the SMART philosophy that requires them to be **S**pecific, **M**easurable, **A**ttainable, **R**ealistic, and **T**ime-Sensitive. **It is important to note that this effort serves only as a mechanism for the FDOT ASO to evaluate itself and the Aviation Grant Program as opposed to evaluating, measuring, or grading individual airports.** The differentiation between these evaluation components is provided below.

Goals – These are broad targets or aiming points that FDOT, stakeholders (Districts, Florida Aviation System Plan Review Team [FASPRT], Comprehensive Review Team [CRT]), and the aviation public are striving to achieve for the Florida aviation system.

Objectives – Objectives are more detailed and descriptive than goals. They define specific areas where progress is desired in order to achieve the goal. Because goals tend to be broad in nature, multiple objectives are typically needed to support the achievement of each goal.

Performance Measures – PMs quantitatively assess a particular objective. PMs evaluate specific aspects of system performance. PMs are generally based on factors that FDOT and airports can influence through funding, projects, policies, and procedures.

Performance Indicators – PIs also quantitatively assess a particular objective. PIs also evaluate specific aspects of the system's performance; however, their purpose is to report information that informs but for which no direct action or change can be effected by FDOT.

4.2 Selection of Goals

As previously mentioned, significant stakeholder outreach was conducted to identify goals that align with and reflect stakeholder feedback. Many of these goals are carried forward from the *FASP 2025* as they continue to reflect the mission of the FDOT ASO and the stakeholders' vision for the system's future. These goals were further evaluated, revised, and updated to reflect current Florida aviation system needs. Ultimately, these seven goals serve to guide the evaluation and recommendations of Florida's system of airports:

1. Provide efficient, safe, 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 and exhibiting social responsibility.
3. Support and enhance the position of leadership and prominence held by Florida's aviation industry.
4. Protect airspace and promote compatible land uses around public airports.
5. Foster technological innovation and support 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.

Each of these goals and their associated objectives, PMs, and PIs are discussed in more detail in the following sections. The actual analysis of the system against these measurements is provided in **Chapter 7 – System Analysis.**

4.3 Goal 1: Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors

For Florida airports to fulfill their role in Florida's multimodal transportation system, they must be efficient and safe. Further, airports in Florida should provide convenient access for the state's residents, businesses, and visitors. The objectives, performance measures, and PIs used to evaluate this goal are shown in **Table 4-1**.

Table 4-1: Goal 1 Objectives, Performance Measures, and Performance Indicators

Objectives		Performance Measures		Performance Indicators	
1.1	Ensure that FASP airports operate at an efficient demand/capacity (D/C) ratio.	1.1.1	The number of FASP airports with an annual airfield D/C ratio of 60% or more (FDOT PM).[1]	1.1.1	The number of FASP airports with terminal-related development projects (building, rental car, parking) and the amount of Joint Automated Capital Improvement Program (JACIP) funding identified for these projects.
		1.1.2	The number of FASP airports with an annual airfield D/C ratio of 80% or more (FDOT PM).[1]	1.1.2	The percentage of "on time" flights relative to departure reliability (FDOT PM).[1]
		1.1.3	The number of FASP airports identified in FAA Future Airport Capacity Task (FACT)		

Objectives		Performance Measures		Performance Indicators	
			reports for capacity concerns.		
1.2	Achieve and maintain 100% of primary runways at FASP airports in compliance with FAA and Florida Administrative Code (FAC) 14-60 Runway Safety Area (RSA) standards.	1.2.1	The number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their primary runway.		
1.3	Achieve and maintain 100% of nonprimary runways at FASP airports in compliance with FAA and FAC 14-60 RSA standards.	1.3.1	The number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their nonprimary runways.		
1.4	Support protection of people and appropriate land uses and controls of runway protection zones (RPZs) at FASP airports.	1.4.1	The number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for the RPZs of the primary runway.	1.4.1	The number of FASP airports that have incompatible land uses within the RPZs of the primary runway.
		1.4.2	The number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for the RPZs of nonprimary runways.	1.4.2	The number of FASP airports that have incompatible land uses within the RPZs of the nonprimary runways.
1.5	Achieve compliance with Florida Statute (F.S.) regarding security plans.			1.5.1	The number of FASP airports with a runway greater or equal to 5,000 feet in length that report having a security plan.
1.6	Ensure FASP airports can maintain operational capabilities during disasters.			1.6.1	The number of FASP airports with standby emergency power for airfield lighting.

Objectives		Performance Measures		Performance Indicators	
				1.6.2	The number of FASP airports with standby emergency power for fueling operations.
				1.6.3	The number of FASP airports with standby emergency power for its terminal.
1.7	Ensure FASP airports address wildlife incompatible uses through appropriate means.	1.7.1	The number of FASP airports with completed wildlife hazard site visits, assessments, and/or management plans.		
1.8	Support FASP airports in meeting FAA airfield geometric design criteria to promote operational safety.	1.8.1	The number of FAA-obligated FASP airports that meet current FAA taxiway design standards.		
		1.8.2	The number of FAA-obligated FASP airports that have FAA designated airfield "hot spots."		

Source: FASP 2035

[1] FDOT PM = Aviation PMs that are reported in the FDOT Source Book

4.4 Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment and exhibiting social responsibility

There are many factors that influence airports and their ability to serve residents and visitors of a community. This goal is meant to assess how well airports are connected to their community based on numerous intermodal service factors as well as how well airports are marketing and promoting themselves through the development of business plans, master plans, and sustainability plans. A summary of the objectives and PIs that are associated with this goal are shown in **Table 4-2**. There are no PMs associated with this goal.

Table 4-2: Goal 2 Objectives and Performance Indicators

Objectives		Performance Indicators	
2.1	Encourage revenue generation at FASP airports to enhance airport self-sufficiency by assisting airports to develop business plans in accordance with FDOT's *Florida General Aviation Airport Business Plan Guidebook*.	2.1.1	The number of FASP airports that report having a business/marketing plan.
2.2	Enhance the competitiveness of Florida Strategic Intermodal System (SIS) airports for intermodal enhancement funding. Provide seamless transportation for Florida's travelers from point of departure to destination.	2.2.1	The number of commercial service SIS airports reporting direct bus service.
		2.2.2	The number of commercial service SIS airports reporting direct passenger rail connections.
		2.2.3	The percentage of levels of service (LOS) on SIS Highway Airport Connectors that are LOS A through C (FDOT PM).[1]
2.3	Encourage economic, environmental, and community sustainability planning for FASP airports.	2.2.4	The number of airports that have plans on file with FDOT (master plans and sustainability plans).

Source: FASP 2035

[1] FDOT PM = Aviation PMs that are reported in the FDOT Source Book

4.5 Goal 3: Support and enhance the position of leadership and prominence held by Florida's aviation industry

Florida is a known leader in the aviation industry; therefore, the goal to support and enhance the position of leadership and prominence held by Florida's aviation industry is critical to the long-term success of Florida's aviation industry. A summary of the objectives and PIs that are associated with this goal are shown in **Table 4-3.** There are no PMs associated with this goal.

Table 4-3: Goal 3 Objectives and Performance Indicators

Objectives		Performance Indicators	
3.1	Maintain Florida's status as a national leader in supporting aviation.	3.1.1	The amount of Florida's aviation funding in relation to other states.
		3.1.2	The amount of Florida's aviation economic impact in relation to other states.

		3.1.3	The number of pilot certificates held in Florida (by category).
		3.1.4	The number of United States (U.S.) Parachute Association licenses issued in Florida.
		3.1.5	The number of revenue passengers boarding aircraft (FDOT PM).[1]
		3.1.6	The tonnage of all air cargo landed at FASP airports (FDOT PM).[1]
		3.1.7	The value of air cargo transported at FASP airports (FDOT PM).[1]
		3.1.8	The number of based aircraft in Florida.

Source: FASP 2035

[1] FDOT PM = Aviation PMs that are reported in the FDOT Source Book

4.6 Goal 4: Protect airspace and promote compatible land uses around public airports

Protecting the land use and airspace around an airport is critical to the long-term viability of aviation activity. Incompatible land uses near airports may lead to reductions in operational efficiency and may require a reduction in airport services. Protecting airspace is equally important. The presence of obstructions that limit airspace can drastically affect the operational viability of an airport. A summary of the objectives and PMs that are associated with this goal are shown in **Table 4-4**. There are no PIs associated with this goal.

Table 4-4: Goal 4 Objectives and Performance Measures

Objectives		Performance Measures	
4.1	Encourage FASP airports to work with communities to enact airport zoning ordinances compatible with F.S. Chapter 333 and FDOT's *Florida Airport Compatible Land Use Guidebook*.	4.1.1	The number of FASP airports reporting that surrounding municipalities have enacted airport zoning ordinances compatible with F.S. Chapter 333.
4.2	Encourage mapping at FASP airports that is compatible with FAA's electronic airport layout plan (eALP) standards.	4.2.1	The number of FASP airports reporting that they have mapping compatible with FAA eALP standards.

Source: FASP 2035

4.7 Goal 5: Foster technological innovation and support implementation of new technologies

Technology across all industries is changing at a rapid pace, including the aviation industry. Keeping up with these advancements is critical to the future of aviation. This goal promotes the development of improved approach procedures at airports to allow for a greater operational efficiency as well as compliance with the FAA's Next Generation Air Transportation System (NextGen) requirements. A summary of the objectives and PMs and PIs that are associated with this goal are shown in **Table 4-5**.

Table 4-5: Goal 5 Objectives, Performance Measures, and Performance Indicators

Objectives		Performance Measures		Performance Indicators	
5.1	Encourage the development of global positioning system (GPS)-based instrument approaches.	5.1.1	The number of FASP airports with a GPS approach.		
5.2	Encourage readiness of FASP airports to meet NextGen requirements.			5.2.1	The number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima between 3/4 mile and less than one mile.
				5.2.2	The number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima less than 3/4 mile.
5.3	Ensure unmanned aerial system (UAS) operations are considered in the state infrastructure and airway system in accordance with FAA directives.			5.3.1	The number of coordination events with various UAS stakeholders (e.g., institutions of higher learning, UAS manufacturers, etc.) in the development of UAS technologies.

Source: FASP 2035

4.8 Goal 6: Promote support for aviation from business, government, and the public

Florida's aviation system is a significant economic engine that supports numerous industries throughout the state. From manufacturing aircraft to training the world's pilots, bringing visitors from domestic and international locations, and providing support during emergencies, airports provide a tremendous range of qualitative and quantitative impacts that many businesses, governments, and the public may or may not understand. This goal aims to continue promoting the need for airport support to these groups. A summary of the objectives and PIs that are associated with this goal are shown in **Table 4-6**. There are no PMs associated with this goal.

Table 4-6: Goal 6 Objectives and Performance Indicators

Objectives		Performance Indicators	
6.1	Quantify and communicate the economic impact of FASP airports.	6.1.1	The change in the economic impact of FASP airports.
6.2	Coordinate with Enterprise Florida to advertise the availability of resources and developable land at FASP airports to aviation-minded businesses around the country.	6.2.1	The number of coordination meetings with Enterprise Florida representatives to communicate economic impact and business development opportunities of FASP airports.
6.3	Encourage airports to maintain pavement in an above-average level of condition.	6.3.1	The number of airport pavement condition index (PCI) inspections per year.

Source: FASP 2035

4.9 Goal 7: Foster Florida's reputation as a military- and aerospace-friendly state

Military activity is critical to the state of Florida. Similarly, Florida is a national leader in aerospace activity, including space launching capabilities, which are part of Florida's economic vitality. Not only do these activities provide jobs and economic impact (see **Table 4-7** for a summary of military aviation impacts), they both also have direct and significant impacts on the state's airports and airspace. As such, coordination with the military agencies and aerospace industry as well as promoting the benefits to the state's aviation system is critical to long-term success. This goal fosters Florida's reputation as a military- and aerospace-friendly state.

Table 4-7: The Amount of Florida's Aviation Economic Impact with Military Aviation Units and Airports Included

	Employment	Annual Payroll	Annual Economic Activity
Military Aviation	137,482	$6,409,021,000	$12,786,113,000

Source: 2014 Florida Department of Transportation (FDOT) Economic Impact Study

A summary of the objectives and PIs that are associated with this goal are shown in **Table 4-8**. There are no PMs associated with this goal.

Table 4-8: Goal 7 Objectives and Performance Indicators

Objectives		Performance Indicators	
7.1	Coordinate with military aviation representatives as it relates to the Florida aviation system.	7.1.1	The number of military officials participating in the Continuing Florida Aviation Systems Planning Process (CFASPP).
		7.1.2	The number of task force meetings held with military officials.
7.2	Coordinate with military on emergency response coordination efforts.	7.2.1	The number of coordination meetings held with emergency response officials, including the military.
7.3	Measure the economic impact of military aviation in Florida.	7.3.1	The amount of Florida's aviation economic impact with military aviation units and airports included.

Source: FASP 2035

4.10 Comprehensive Review Team Survey of Goals and Objectives

Not all goals and objectives are created equal, and while they are all important to the future of Florida's aviation system, some have a greater impact on airports than others. During the development of goals, objectives, PMs, and PIs with stakeholder groups, participants were asked to rate the impact of each objective on their airport and/or organization. This was first done by a survey of CRT members on issues affecting the aviation industry in Florida. **Table 4-9** shows the results of this survey in descending order.

Table 4-9: Impact of Airport Issues Sorted

Airport Issue	Weighted Impact (Max = 10)
Florida economy	9
Reduction in numbers of GA pilots	9
Aging population	8

Airport Issue	Weighted Impact (Max = 10)
Future of aviation gasoline (avgas)	7
Price of oil	7
NextGen requirements (navigation and communication)	6
Reaction to terrorist activity	6
Reliance on tourism	6
Sustainability	6
Contract towers	5
Medical Certificate Reform for Part 91 Operations	5
Opening of Cuba market	5
Shortfall of aviation maintenance personnel	5
UASs	5
Customs & Immigration	4
Legalization of gambling	4
Competition for space operations	3
Pandemic fears	3
Remote control towers	3
Transportation Security Administration (TSA) staffing	3
Airline pilot shortage	2
Electric aircraft	2
Autonomous vehicles (ground-based)	1

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO); Comprehensive Review Team (CRT) Members

The results of the survey returned a wide range of weighted impact ratings, which allows for the ranking/prioritization of the individual objectives. From this ranking/prioritization, conclusions can be drawn upon the order of magnitude and relative importance of each goal and objective of the FASP 2035. **Table 4-10** presents the individual goal objectives by impact, also in descending order.

Table 4-10: Impact of Goal Objectives Sorted

Goal	Objective	Impact (Max = 10)
Goal 2	Use aviation assets to bring new companies to Florida and expand employment at existing companies	10
Goal 3	Protect and preserve Florida's existing public airports	10
Goal 4	Encourage airports to work with communities to enact airport zoning ordinances compatible with F. S. 333 and encourage airports to have master plans incorporated in comprehensive plans of overlying local governments	10
Goal 1	Maintain Florida's public-use airports in a safe operating condition	9
Goal 1	Address security needs at all community airports	9
Goal 2	Promote Florida's assets for the mutual benefit of aviation and community development	9
Goal 3	Safeguard current, and position for the future growth in, funding levels for the State's Aviation Capital Improvement Program fund	9
Goal 3	Enhance Florida airports fiscal planning	9
Goal 1	Encourage the use of appropriate airports for corporate and business type aircraft through targeted marketing	8
Goal 1	Protect Florida airports from over-regulation in the area of security systems	8
Goal 2	Maintain an appropriate mix of airport services within each of Florida's regional economies consistent with market demand	8
Goal 2	Increase coordination with other agencies and groups involved in tourism, and economic and workforce development	8
Goal 4	Protect public-use airports from incompatible land uses	8
Goal 1	Ensure that the airport system can fulfill its role in the state's emergency response and medical evacuation (medevac) systems	7
Goal 2	Through the FASP, encourage a well-planned distribution of airport roles throughout the state	7
Goal 6	Provide the public with information that details how commercial and community airports contribute to Florida's economy and quality of life	7
Goal 6	Promote aviation within the K-12 school system	7
Goal 1	Provide adequate funding to capital projects aimed at alleviating flight training operational shortfalls at selected airports	6

Goal	Objective	Impact (Max = 10)
Goal 3	Over time, evaluate and refine the aviation strategic planning framework	6
Goal 5	Modernize airport technology	6
Goal 5	Encourage public/private partnerships to enhance technology development within the state aviation system	6
Goal 6	Encourage each Florida airport to produce regular reports detailing its contributions to the regional economy	6
Goal 1	Expand or raise the service delivery capabilities of airports with unmet demand for aviation services	5
Goal 1	Maximize support to Florida's air cargo industry	5
Goal 2	Promote existing or planned multimodal connection opportunities at Florida's commercial service airports through capital funding and master planning guidance	5
Goal 3	Preserve private, public-use airports	5
Goal 3	Ensure that business airports in the state system have some type of on-site ground transportation services	5
Goal 3	Annually review aviation trends within the state	5
Goal 5	Encourage the implementation of Small Aircraft Transportation System (SATS)-related technologies at selected Florida airports	5
Goal 4	Assist airports that are constrained by intermodal access problems	4
Goal 4	Enhance airports' compatibility with natural and manmade environments	4
Goal 7	Encourage military operators to participate in the system planning process	4
Goal 7	Evolve a system for improved coordination of Military Training Routes	2

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO); Comprehensive Review Team (CRT) Members

The results of the CRT survey allow each goal to be ranked based on the average impact of the objectives associated with each goal. By determining the average objective impact for each goal, goals can be prioritized, as shown in **Table 4-11.** Goal 2 has the highest average weighted impact, followed by Goal 1 and Goal 3.

Table 4-11: Average Goal Impact Sorted

Goal		Number of Objectives	Sum of Objectives' Impact	Average Impact (Max = 10)
Goal 2	Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment and exhibiting social responsibility.	6	47	7.8
Goal 1	Provide efficient, safe, and convenient service to Florida's citizens, businesses, and visitors.	8	57	7.1
Goal 3	Support and enhance the position of leadership and prominence held by Florida's aviation industry.	7	49	7.0
Goal 6	Promote support for aviation from business, government, and the public.	3	20	6.7
Goal 4	Protect airspace and promote compatible land uses around public airports.	4	26	6.5
Goal 5	Foster technological innovation and support implementation of new technologies.	3	17	5.7
Goal 7	Foster Florida's reputation as a military- and aerospace-friendly state.	2	6	3.0

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO); Comprehensive Review Team (CRT) Members

4.11 Alignment with FDOT *Source Book*

In addition to evaluating the state's aviation system, FDOT produces a document titled the *Florida Multimodal Mobility Performance Measures Source Book*. The book documents "current and historical data and analysis describing the performance of Florida's transportation system. It is intended to be the primary source of mobility performance measure results for the State of Florida." As such, seven of the PMs and PIs introduced in this Chapter are noted as "FDOT PMs" in the previous goal tables. This signifies that they are one of the Aviation PMs that are reported in the FDOT *Source Book*. These include:

- PM 1.1.1 – The number of FASP airports with an annual airfield D/C ratio of 60% or more (FDOT PM)
- PM 1.1.2 – The number of FASP airports with an annual airfield D/C ratio of 80% or more (FDOT PM)
- PI 1.1.2 – The percentage of "on-time" flights relative to departure reliability (FDOT PM)

- PI 2.2.3 – The percentage of LOS on SIS Highway Airport Connectors that are LOS A through C (FDOT PM)
- PI 3.1.5 – The number of revenue passengers boarding aircraft (FDOT PM)
- PI 3.1.6 – The tonnage of all air cargo landed at FASP airports (FDOT PM)
- PI 3.1.7 – The value of air cargo transported at FASP airports (FDOT PM)

4.12 Alignment with Florida Transportation Plan Goals

The Florida Transportation Plan (FTP) is the overarching long-range transportation plan guiding the future of Florida's transportation system. The FTP is a plan for all of Florida and provides direction and guidance for the multiple agencies and organizations involved in the planning, management, and regulation of transportation networks throughout the state, including air, road, rail, and multimodal alternatives. It also provides a policy framework for the expenditure of state and federal transportation funds.

FDOT released the Vision and Policy elements of the most recent FTP in 2015 following an extensive engagement process with public- and private-sector stakeholders and participants from across the state. This process envisioned the future of Florida's transportation system over the next 50 years and defined specific goals and objectives to advance that vision over the next 25 years.

As a key element of that process, FDOT authored the *FTP Policy Element*, which "establishes the policy framework for expenditure of state and federal transportation funds flowing through FDOT's work program." The *Policy Element* comprises seven long-range goals and priorities. Goals 1 through 4 target the performance of Florida's transportation system, and Goals 5 through 7 focus on how transportation supports statewide priorities:[1]

1. Safety and security for residents, businesses, and visitors
2. Agile, resilient, and quality infrastructure
3. Efficient and reliable mobility for people and freight
4. More transportation choices for people and freight
5. Transportation solutions that support Florida's global economic competitiveness
6. Transportation solutions that support quality places to live, learn, work, and play
7. Transportation solutions that enhance Florida's environment and conserve energy

In addition to the FTP, FDOT has developed mode-specific strategic plans for various components of Florida's transportation network, including the FASP. Each modal plan identifies specific goals and objectives relevant to the issues and needs of the mode. The FASP is one of the few modal plans that develops its own goals that complement the FTP but specifically meet goals reflective of the aviation system. It is important that the FASP goals reflect the FTP goals that establish the policy framework for state funding decisions.

An evaluation of the most current FTP goals in the context of their relevance and appropriateness was conducted during the development of the FASP 2035 goals presented in

[1] Note that the 2015 FTP removed "Preservation of the System" as an independent goal as included in the previous FTP; however, the principle is incorporated into other FTP goals.

this Chapter. Extensive stakeholder involvement during this process helped identify the relationship between FTP and FASP 2035 goals, as presented in **Table 4-12**.

Table 4-12: Relationship of FASP 2035 and FTP Goals

FTP	FASP: Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors	Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment	Support and enhance the national position of leadership and prominence held by Florida's aviation	Protect airspace and promote compatible land uses around public airports	Foster technological innovation and support the implementation of new technologies	Promote support for aviation from business, government, and the public	Foster Florida's reputation as a military- and aerospace industry- friendly state
Safety and security for residents, visitors, and businesses	★	☆	☆ A	★ B	★	☆	☆
Agile, resilient, and quality infrastructure	★	☆	☆ C	☆	☆	★ D	☆ E
Efficient and reliable mobility for people and freight	★	☆	☆	☆ F	☆	☆	☆ G
More transportation choices for people and freight	☆ H	★	☆	☆ I	☆	☆	☆
Transportation solutions that support Florida's global economic competitiveness	☆	★	★	☆ J	☆ K	☆	☆
Transportation solutions that support quality places to live, learn, work, and play	☆	★	☆	☆	☆	☆	☆
Transportation solutions that enhance Florida's environment and conserve energy	☆	★	☆	☆	☆	☆	☆

Source: Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), Comprehensive Review Team (CRT) Members

★ High Relationship ☆ Medium Relationship ☆ Low Relationship

A. FASP goal relates explicitly to funding/ economics. Relatively low relationship compared to other FASP goals.

B. Key element of airport-compatible land use is the safety of people and property.

C. While air travel use may rise with quality, well-maintained infrastructure, relationship is relatively low in context.

D. Above-average pavement condition.

E. Low relationship between land use and efficient/reliable service.

F. Emergency response coordination.

G. Need for reliable mobility as part of emergency response strategy.

H. FTP goal is primarily (though not entirely) concerned with providing transportation alternatives. FASP goal relates to improving air service's safety/security. Relationship exists but is not directly connected.

I. Low relationship between land use and availability of transportation alternatives.

J. Low relationship between land use and economic competitive-ness/ transportation connectivity/ workforce development.

K. Objectives of FASP do not seem to align specifically with the FTP; however, overall goal seems to support the FTP priorities.

The FASP goals are a critical component of the study and to the FDOT ASO. Ensuring a link between the FASP and the FTP enhances the understanding of FDOT's funding priorities, including understanding projects that advance the state's vision for its aviation and transportation future.

4.13 Summary

The goals, objectives, PMs, and PIs in this document were developed by starting with the previously established goals, objectives, and PMs contained in the *FASP 2025*. Through a collaborative effort involving the CRT and FDOT ASO, it was determined that the same general goals from the *FASP 2025* were applicable to the FASP 2035, with minor revisions. However, a revised set of objectives, PMs, and PIs were developed with stakeholder input to address the evolving conditions of the aviation industry and the Florida airport system. These components serve as the base upon which the system is measured. Analysis of the system in meeting the established measurements is provided in **Chapter 7 – System Analysis**.

5 Data Collection and Inventory

In order to gauge how the system is performing in meeting the goals, objectives, performance measures (PMs), and performance indicators (PIs) introduced in **Chapter 4 – System Goals**, an extensive data collection and inventory was conducted for Florida's 128 system airports. The information collected during this process formed a baseline of existing infrastructure and services offered by Florida's aviation system, and was integral to the system performance assessment and mapping analyses presented in **Chapter 7 – System Analysis**. Information about the inventory process for these two tasks, including the source and methodology for each data point, is provided in the following sections. Data collection efforts for other tasks (such as forecasting) are detailed in their respective sections.

5.1 Statewide System Performance Assessment

The system performance assessment evaluated the ability of Florida's airport system to achieve the seven goals of the Florida Aviation System Plan (FASP). Data for the statewide performance assessment were obtained from several sources, including the National Flight Data Center (NFDC), the Florida Aviation Database (FAD), and other Florida Department of Transportation (FDOT) and Federal Aviation Administration (FAA) sources. Additionally, a survey was administered to all system airports to gather data on six specific PMs and PIs as described in **Table 5-1**. Survey questions were first incorporated into a broader online survey conducted by the FDOT Aviation and Spaceports Office (ASO) in the fall of 2016. Airports that did not respond to this first attempt were contacted to complete a FASP-specific online survey in January 2017. In-person, hard copy surveys were administered to the remaining airports that didn't respond to the second online request during the February/March 2017 Continuing Florida Aviation System Planning Process (CFASPP) meetings.

Table 5-1 summarizes the source and methodology for each of the data points collected for the system performance assessment. PMs are shaded with light blue, while PIs are denoted in light green.

Table 5-1: Statewide Performance Assessment Data Source and Methodology

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
Goal 1: Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors					
1.1	Ensure that FASP airports operate at an efficient demand/capacity (D/C) ratio.	PM 1.1.1	Number of FASP airports with an annual airfield D/C ratio of 60% or more	FASP Phase I Analysis (2015) FASP 2035 Update utilizing *FAA 5010 Airport Master Records* (retrieved October 2016), *Terminal Area Forecast (TAF)* (2014), and the *FAA Aerospace Forecast 2017 – 2037* (2017)	The D/C analyses required airports' annual service volumes (ASVs) and forecasts of total aircraft operations. ASVs were collected from the FASP Phase I analysis as based on models developed during the *2012 FASP Airport D/C Study*. ASVs were also collected from individual airport master plans and other planning studies, as available. Forecasts of total aircraft operations were generated during the FASP 2035 Update. D/C ratios were developed by comparing the
		PM 1.1.2	Number of FASP airports with an annual airfield D/C ratio of 80% or more		

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
					forecasted activity data with the ASV estimates for base-year 2014 and projection-years 2020, 2025, and 2035.
		PM 1.1.3	Number of FASP airports identified in FAA Future Airport Capacity Task (FACT) reports for capacity concerns	*FACT3: Airport Capacity Needs in the National Airspace System (FAA FACT3)* (2015)	The FAA's *FACT3* report was downloaded from www.faa.gov/airports/resources/publications/reports and evaluated for the inclusion of Florida airports.
		PI 1.1.1	Number of FASP airports with terminal-related development projects (building, rental car, parking) and the amount of Joint Automated Capital Improvement Program (JACIP) funding identified for these projects	FDOT's JACIP (2016)	Florida airports request project funding through the JACIP. All existing funding requests were downloaded from the JACIP; all projects coded related to terminal-related improvements were then extracted from the dataset.

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
		PI 1.1.2	Percentage of "on-time" flights relative to departure reliability	United States (U.S.) Department of Transportation Bureau of Transportation Statistics (DOT BTS) (2016)	The U.S. DOT BTS provides data on the on-time reliability of airlines that serve commercial service airports. Reliability data was extracted for 18 of Florida's 20 commercial service airports. Orlando-Sanford International and St. Pete-Clearwater International airports were excluded from the analysis due to lack of available information.
1.2	Achieve and maintain 100% of primary runways at FASP airports in compliance with FAA and Florida Administrative Code (FAC) 14-60 Runway Safety	PM 1.2.1	Number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their primary runways	FDOT inspections as available in the FAD; individual airport inspections are updated annually (data collected March 2017)	FDOT conducts annual inspections at every public and non-Part 139 airport in Florida, including an evaluation of RSA obstructions. Airport-specific

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
	Area (RSA) standards				inspection records were extracted from the FAD to identify any RSA issues.
1.3	Achieve and maintain 100% of nonprimary runways at FASP airports in compliance with FAA and FAC 14-60 RSA standard	PM 1.3.1	Number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their nonprimary runways		
1.4	Support protection of people and appropriate land uses and controls of runway protection zones (RPZs) at FASP airports	PM 1.4.1	Number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for RPZ of the primary runway	Not applicable (N/A)	This PM will be evaluated during a future study.
		PI 1.4.1	Number of FASP airports that have incompatible land uses within the RPZs of the primary runway	Individual airport layout plans (ALPs) as available through FDOT and the FAA (various)	The FASP 2035 Update collected all individual ALPs available through FDOT and the FAA. A statewide database of RPZs was then developed in CADD and

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
					Google Earth. Using the Google Earth format, a visual assessment was then conducted to identify buildings, vegetation, roads, and other incompatible land uses within the RPZs of Florida's primary and nonprimary runways.
		PM 1.4.2	Number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for the RPZs of nonprimary runways	N/A	This PM will be evaluated during a future study.
		PI 1.4.2	Number of FASP airports that have incompatible land uses within the RPZs	Individual ALPs as available through FDOT and the FAA (various)	A visual assessment was conducted to identify incompatible land

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
			of the nonprimary runways		uses within the RPZs of Florida's nonprimary runways using Google Earth RPZ database described above.
1.5	Achieve compliance with Florida Statute (F.S.) regarding security plans	PI 1.5.1	Number of FASP airports with a runway greater or equal to 5,000 feet in length that report having a security plan	FAD (2016)	Airports are able to upload their security plans to the FAD. The analysis identified airports with a 5,000-foot-long runway that had uploaded a security plan into the FAD.
1.6	Ensure FASP airports can maintain operational capabilities during disasters	PI 1.6.1	Number of FASP airports with standby emergency power for airfield lighting	Statewide survey (2016 – 2017)	As part of the FASP 2035 Update process, all Florida system airports completed an online or hard copy survey to provide data regarding the availability of standby emergency power
		PI 1.6.2	Number of FASP airports with standby emergency power for fueling operations		

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
		PI 1.6.3	Number of FASP airports with standby emergency power for its terminal		for airfield lighting, fueling operations, and terminal buildings.
1.7	Ensure FASP airports address wildlife hazards through appropriate means	PM 1.7.1	Number of FASP airports with completed wildlife hazard site visits, assessments, and/or management plans	Statewide survey (2016 – 2017)	As part of the FASP 2035 Update process, all Florida system airports completed an online or hard copy survey to determine the number of airports that had completed some type of wildlife hazard mitigation study or plan.
1.8	Support FASP airports in meeting FAA airfield geometric design criteria to promote operational safety	PM 1.8.1	Number of FAA-obligated FASP airports that meet current FAA taxiway design standards	Google Earth (2016)	A visual assessment was conducted using Google Earth to identify system airports with taxiway deficiencies, including perpendicular access to runways from parking

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
					areas, wide expanses of pavement, and three or more node conflicts.
		PM 1.8.2	Number of FAA-obligated FASP airports that have FAA designated airfield "hot spots"	FAA *Hot Spot Report* (2016)	Because hot spots require the heightened attention of pilots and drivers, the FAA tabulates a list of current runway hot spots in the FAA Airport/Facility Directory (A/FD). Runway Hot Spot Reports are then compiled by state and provided at www.faa.gov/airports/runway_safety/hotspots/hotspots_list. The FAA *Runway Hot Spot Report* was used to identify airports with one or more hot spots.
Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment					

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
2.1	Encourage revenue generation at FASP airports to enhance airport self-sufficiency by assisting airports to develop business plans in accordance with FDOT's *Florida General Aviation Airport Business Plan Guidebook*.	PI 2.1.1	Number of FASP airports that report having a business/marketing plan	Statewide survey (2016 – 2017)	As part of the FASP 2035 Update process, all Florida system airports completed an online or hard copy survey to determine the number of airports that report having a business or marketing plan.
2.2	Enhance the competitiveness of Florida Strategic Intermodal System (SIS) airports for intermodal enhancement funding. Provide seamless transportation for Florida's travelers from point of departure to destination.	PI 2.2.1	Number of commercial service SIS airports reporting direct bus service	City and county bus maps (2016)	All city and county bus maps in areas within the vicinity of an SIS airport were reviewed to identify direct connections between bus service and SIS airports.
		PI 2.2.2	Number of commercial service SIS airports reporting direct passenger rail connections	City and county transit maps (2016)	All city and county transit maps in areas within the vicinity of an SIS airport were reviewed to identify direct connections

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
					between rail service and SIS airports.
		PI 2.2.3	Percentage of levels of service (LOS) on SIS Highway Airport Connectors that are LOS A through C	Local comprehensive plans (various)	Local comprehensive plans were downloaded to determine the LOS on SIS highway airport connectors. The analysis assessed the data to determine the percentage of LOS A through C SIS highway airport connectors.
2.3	Encourage economic, environmental, and community sustainability planning for FASP airports.	PI 2.3.1	Number of airports that have plans on file with FDOT (master plans and sustainability plans)	FDOT (2016)	Airports were identified using an Excel spreadsheet provided by FDOT that documents the airports that have filed master and/or sustainability plans with the agency.
Goal 3: Support and enhance the national position of leadership and prominence held by Florida's aviation industry					

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
3.1	Maintain Florida's status as a national leader in supporting aviation.	PI 3.1.1	Amount of Florida's aviation funding in relation to other states	FDOT *Aviation Project Handbook* (2016)	The FDOT *Aviation Project Handbook* was used to report the state appropriation for aviation from fiscal year (FY) 1990/1991 through FY 2016/2017. This document is available at www.fdot.gov/aviation/flpub.shtm.
		PI 3.1.2	Amount of Florida's aviation economic impact in relation to other states	FAA's *The Economic Impact of Civil Aviation on the U.S. Economy* (2015)	While many states, including Florida, publish statewide aviation economic impact studies, the data, timing, methodologies, and statistical programs vary significantly. To maintain consistency, the FASP 2035 Update used *The Economic Impact of Civil Aviation on the U.S. Economy* published by the FAA to determine

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
					the amount of Florida's aviation economic impact in relation to other states. This report is available at www.faa.gov/air_traffic/publications/media/2015-economic-impact-report.pdf.
		PI 3.1.3	Number of pilot certificates held in Florida (by category)	FAA *U.S. Civil Airmen Statistics* (2016)	The *U.S. Civil Airmen Statistics* is an annual FAA study that contains statistics about pilot and non-pilot airmen. This report was used to determine the number of pilot certificates held in Florida by category. The report is available at www.faa.gov/data_research/aviation_data_statistics/civil_airmen_statistics.

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
		PI 3.1.4	Number of U.S. Parachute Association (USPA) licenses issued in Florida	USPA (2017)	The USPA issues four types of licenses, indicating a jumper's level of skill and accomplishment. Data obtained from the USPA was used to determine the number of licenses issued in Florida by type.
		PI 3.1.5	Number of revenue passengers boarding aircraft	FAA Air Carrier Activity Information System (FAA ACAIS) (2015)	The FAA ACAIS was used to determine the number of revenue passengers boarding aircraft for the top 10 states, including Florida. The ACAIS is a database maintained by the FAA that contains revenue passenger boarding and all-cargo data at U.S. airports. The database is used

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
					to determine Airport Improvement Program (AIP) entitlements per fiscal year based on the previous calendar year's data. Current and historic data are available at www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger.
		PI 3.1.6	Tonnage of all air cargo landed at FASP airports	FDOT *Florida Air Cargo System Plan* (2016)	FDOT commissioned the *Florida Air Cargo System Plan* to evaluate statistics related to air cargo in Florida (report uses 2014 data). This plan was used to determine the total tonnage and value of all air cargo landed at Florida's system airports. The study
		PI 3.1.7	Value of air cargo transported at FASP airports		

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
					is available at www.fdot.gov/Aviation/planning.shtm.
		PI 3.1.8	Number of based aircraft in Florida	Basedaircraft.com (FAA, retrieved October 2016)	The number of based aircraft in Florida was determined using Basedaircraft.com (as retrieved in October 2016). Because this website relies on Airport IQ Airport Master Records, the data likely reflects slightly different source years depending on the date of the airport's most recent FAA 5010 inspection.
Goal 4: Protect airspace and promote compatible land uses around public airports					

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
4.1	Encourage FASP airports to work with communities to enact airport zoning ordinances compatible with F.S. Chapter 333 and FDOT's *Florida Airport Compatible Land Use Guidebook*.	PM 4.1.1	Number of FASP airports reporting that surrounding municipalities have enacted airport zoning ordinances compatible with F.S. Chapter 333	FDOT (2016)	The FDOT ASO directly provided data regarding city and county compliance with F.S. Chapter 333
4.2	Encourage mapping at FASP airports that is compatible with FAA's electronic Airport Layout Plan (eALP) standards.	PM 4.2.1	Number of FASP airports reporting that they have mapping compatible with FAA eALP standards	Statewide survey (2016 – 2017)	As part of the FASP 2035 Update process, all Florida system airports completed an online or hard copy survey to determine the number of airports that report having mapping compatible with FAA eALP standards.
Goal 5: Foster technological innovation and support the implementation of new technologies					
5.1	Encourage the development of global positioning system (GPS)-based	PM 5.1.1	Number of FASP airports with a GPS approach	FAA's Satellite Navigation – GPS/WAAS Approach	The FAA provides information about the availability of Wide Area

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
	instrument approaches.			Database (2017), *FDOT FASP* (2004)	Augmentation System (WAAS)-capable approach procedures in the U.S. at www.faa.gov/about/office_org/headquarters_offices/ato/service_units/techops/navservices/gnss/approaches. This database was used to determine the number of current GPS approaches in Florida. Historic records for comparison were obtained from the *2004 FASP*.
5.2	Encourage readiness of FASP airports to meet Next Generation Air Transportation System (NextGen) requirements.	PI 5.2.1	Number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima between 3/4 mile and less than one mile	FAA's Satellite Navigation – GPS/WAAS Approach Database (2017), *FDOT FASP* (2004)	Data on airport-specific approach procedures were obtained from the FAA's Satellite Navigation Database as described above. This data was then categorized by

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
		PI 5.2.2	Number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima less than 3/4 mile		those airports with visibility minima between 3/4 mile and less than one mile, as well as visibility minima less than 3/4 mile as determined by the FAA. This analysis assumed that all privately owned, public-use airports in the Florida system have visual approaches.
5.3	Ensure unmanned aerial system (UAS) operations are considered in the state infrastructure and airway system in accordance with FAA directives	PI 5.3.1	Number of coordination events with various UAS stakeholders (e.g., institutions of higher learning, UAS manufacturers, etc.) in the development of UAS technologies	N/A	Data for this PI is not yet available; however, it is recommended that FDOT implement measures to track coordination efforts with UAS stakeholders in the future.
Goal 6: Promote support for aviation from business, government, and the public					

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
6.1	Quantify and communicate the economic impact of FASP airports	PI 6.1.1	Change in the economic impact of FASP airports	FDOT *Florida Statewide Aviation Economic Impact Study* (2010, 2014)	The *Florida Statewide Aviation Economic Impact Study* quantified the economic impacts of 121 public-use airports and 11 military aviation facilities in Florida. The FASP 2035 Update assessed the differences reported between the 2010 and 2014 reports. Note that a new impact study is underway as of June 2017 with an anticipated fall 2018 completion date. The full 2014 study, as well as individual airport results, is available at www.fdot.gov/aviation/economicimpact.shtm
6.2	Coordinate with Enterprise Florida to	PI 6.2.1	Number of coordination	N/A	Data for this PI is not yet available;

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
	advertise the availability of resources and developable land at FASP airports to aviation-minded businesses around the country		meetings with Enterprise Florida representatives to communicate the economic impact and business development opportunities of FASP airports		however, it is recommended that FDOT implement measures to track coordination efforts with Enterprise Florida in the future.
6.3	Encourage airports to maintain pavement in an above-average level of condition	PI 6.3.1	Number of airport pavement condition index (PCI) inspections per year	Statewide Airfield Pavement Management Program (SAPMP) (2010 – 2012 and 2013 – 2015)	FDOT tracks pavement conditions, associated maintenance and rehabilitation needs, and costs in the SAPMP. This database was used to determine the annual number of PCI inspections. To date, there have been two cycles of inspections (2010 – 2012 and 2013 – 2015); the third cycle is currently underway (2016 – 2018).

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
Goal 7: Foster Florida's reputation as a military- and aerospace-friendly state					
7.1	Coordinate with military aviation representatives as it relates to the Florida aviation system	PI 7.1.1	Number of military officials participating in the CFASPP process	N/A	Data for this PI is not yet available; however, it is recommended that FDOT implement measures to track the number of the following for future FASP efforts: • Military officials who participate in the CFASPP • Task force meetings held with military officials • Coordination meetings with emergency-response officials, including the military
		PI 7.1.2	Number of task force meetings held with military officials		
7.2	Coordinate with military on emergency response coordination efforts	PI 7.2.1	Number of coordination meetings held with emergency response officials, including the military		
7.3	Measure the economic impact of military aviation in Florida	PI 7.3.1	Amount of Florida's aviation economic impact with military	FDOT *Florida Statewide Aviation Economic Impact Study* (FDOT, 2014)	The 2014 *Florida Statewide Aviation Economic Impact Study* was utilized

Objectives		Performance Measure/Performance Indicator		Data Source (year)	Methodology
			aviation units and airports included		to measure the total economic impact of military aviation in Florida.

Source: FASP 2035—individual data sources are provided in the table

5.2 Existing and Future Mapping Analysis

The mapping analyses of the FASP 2035 (presented in **Chapter 7 – System Analysis**) evaluated the percent of Florida's existing (2016) and future (2035) populations with access to airports with specific services and infrastructure within a 30-minute drive time. The existing and future access analyses were prepared using ESRI Community Analyst software, which determines drive time based on posted speed limits on the applicable roadway segment. For future population analyses, the software accounts for varying growth rates across the state based on forecasted demographics. In addition to ESRI Community Analyst, several other data sources were used to identify the airports with specific characteristics under evaluation. **Table 5-2** provides the data source and methodology used to identify the airport criteria evaluated during the existing and future mapping analysis.

Table 5-2: Data Source and Methodology for the Existing and Future Mapping Analysis

Airport Characteristic	Data Source (author, year)	Methodology
Airports with Airport Traffic Control Towers (ATCTs)	NFDC (NFDC, 2016)	The NFDC is part of the FAA's Aeronautical Information Services group, which is the nation's civil aviation authority providing the foundations for flight in the national airspace system (NAS). The database includes all aeronautical data to support the capacity, efficiency, and predictability in the airspace, routes, and airports of the NAS. Airports with ATCTs were identified in the NFDC at www.faa.gov/air_traffic/flight_info/aeronav.
Airports with Jet A fuel	FAD (FDOT, 2017)	Airports with Jet A fuel were identified in the FAD.
Airports with 100LL fuel (Avgas)	FAD (FDOT, 2017)	Airports with 100LL were identified in the FAD.
Airports by National Plan of Integrated Airport Systems (NPIAS) and ASSET categorization	2017 – 2021 NPIAS (FAA, 2016)	The FAA designates airports for inclusion in the NPIAS based on a set of criteria designed to identify those airports that are significant to national air transportation in the U.S. The associated ASSET classifications are designed to recognize the unique contributions of the nation's general aviation facilities. Florida's NPIAS airports and specific categorizations were identified using the *2017 – 2021 NPIAS* available at www.faa.gov/airports/planning_capacity/npias/reports/.
SIS airports	SIS (FDOT, 2017)	Florida's SIS-designated facilities have been deemed to the state's economic competitiveness and mobility. Airports within the SIS were identified using the resources available at www.fdot.gov/planning/sis.
Airports with flight training activity	FAD (FDOT, 2017)	Airports with flight training activity were identified in the FAD.
Airports with surface weather observation stations	FAD (FDOT, 2017)	Airports with surface weather observation stations were identified in the FAD.
Airports with runways of various lengths	FAD (FDOT, 2017)	The runway lengths of Florida's system airports were identified in the FAD.
Airports with at least one instrument approach	NFDC (FAA, 2016)	As the repository of all data related to the airspace, routes, and airports of the NAS, the NFDC was utilized to identify airports with at least one instrument approach.
Airports with at least one precision approach	NFDC (FAA, 2016)	The NFDC was utilized to identify airports with at least one precision approach.

Airport Characteristic	Data Source (author, year)	Methodology
Airports that have features to accommodate business users	FAD (FDOT, 2017), NFDC (FAA, 2016)	The FASP 2035 Update defined the attributes required to accommodate the average business user as having at least a 5,000-foot runway, Jet A fuel, instrument approach, and an Automated Weather Observation Stations (AWOS). These data points were extracted from the FAD and NFDC as described in the rows above.

Source: FASP 2035—individual data sources are provided in the table

In addition to the drive time analyses, the existing and future population analysis mapped several other conditions that will affect the future of aviation in Florida. These additional data sources are summarized in **Table 5-3**.

Table 5-3: Additional Data Affecting Aviation in Florida

Condition Impacting Aviation	Data Source (year)	Methodology
Conservation areas in Florida	Florida Natural Areas Inventory (FNAI) (2016)	The FNAI regularly updates the GIS shapefiles showing the locations and names of managed conservation areas around the state of Florida. These major locations were identified in the mapping and have been included within the analysis.
Planned roadway improvements	FDOT Five Year Work Program GIS Files (2016)	The Five Year Work Program information was collected and select roadway projects that add capacity improvements were reflected within the report and mapping.
Tourism employment projections	Florida Department of Economic Opportunity (DEO) (2016)	The DEO maintains historic and projected five-year future data on employment by industry at the statewide level. Occupational projections for Florida as utilized by the FASP 2035 Update are available at www.floridajobs.org/labor-market-information/data-center/statistical-programs/employment-projections. The FASP 2035 Update utilized the Occupational Projection Data for 2016 – 2021.
Retirement and seasonal residents	Visit Florida (2015) and ESRI Community Analysist (2016)	Tourism information was gathered from Visit Florida, using the data they gathered from 2015 visitor estimates. Population and age figures were developed using the ESRI Community Analysist Software (2016 population estimates), which uses Census (2010) data and a proprietary population projection methodology.

Source: FASP 2035—individual data sources are provided in the table

5.3 Summary

The cooperation of airports during the survey effort along with participation from multiple state agencies and other national and state resources was integral to the development of a comprehensive inventory. This inventory is key to the evaluation of the system in meeting FASP goals, objectives, PMs, and PIs to identify progress and areas for improvement moving forward. The analysis of the system using this inventory data is provided in **Chapter 7 – System Analysis**.

6 Aviation Activity Forecasts

6.1 Introduction

The development of aviation activity forecasts or projections for Florida's system of airports is a necessary step in assessing the need for and phasing of future airport development. The activity projections presented in this Chapter are used in part to determine the role of airports within the Florida system, evaluate the ability of the existing system to accommodate projected aviation demand, and plan future facilities for the system. Furthermore, understanding projected activity assists airports, Florida Department of Transportation (FDOT) Districts, and the FDOT Aviation and Spaceports Office (ASO) in identifying potential opportunities for the development of facilities at the local, regional, and statewide levels.

In order to determine future needs, forecasts of based aircraft and general aviation (GA) operations were conducted. These two indicators are important in the evaluation of activities and capacity needs at many of Florida's airports, primarily for the GA airports. It should be noted that 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, such as airline consolidation, route restructuring, and fleet modification. Commercial operations are forecast as part of the Federal Aviation Administration's (FAA's) Terminal Area Forecast (TAF) and by airports during other planning and financial analyses.

The forecasts prepared in this Chapter use calendar year 2014 as the base year, as it was the most recent year in which a full year of data was available at the start of Phase 1 of the Florida Aviation System Plan (FASP) 2035. Future forecasts of activity were prepared for years 2020, 2025, and 2035 for all FASP system airports for both based aircraft and GA operations. These forecasts, while not as comprehensive as those developed as part of the airport master planning process, describe anticipated demand based on numerous factors, including historical activity, local population trends occurring in the county in which an airport is located, state and FAA forecasts of activity, regional drivers of activity, and others. These forecasts are not meant to replace master planning forecasts but are used in the FASP 2035 to evaluate the system-level demand and its impact on system needs. When the situation dictates, the forecasts included in the FASP can be used by an airport as documentation of previous forecasts as part of its master plan.

Multiple methodologies were used to forecast future GA aircraft operations and based aircraft at Florida's airports. Methodologies were tailored to each airport category for both GA operations and based aircraft. Some of the preferred methodologies selected for each airport category are the same, although multiple methodologies were examined for all categories of airports.

Operational forecasts were evaluated to identify airports that have significant operations by aircraft that exceed their existing Airport Reference Code (ARC). The estimation of aircraft operations that exceed an airport's ARC helps identify airports that may be experiencing activity

more demanding than what the airport is currently designed to accommodate on a regular basis. Though an airport might be experiencing operations by aircraft above its ARC, that does not mean that those operations or the airport itself is unsafe. Rather, it indicates the need for additional evaluation during the individual airport's master planning process to identify changes to the airfield to address the new fleet mix of aircraft operating at the airport.

Additionally, a demand/capacity (D/C) analysis was conducted to identify individual airports that may need to enhance airfield capacity currently or in the future and to identify any specific geographical areas in the state that may currently experience issues with airport capacity, or that are anticipated to in the future.

Finally, an analysis of the *2016 Florida Air Cargo Study* and *2016 Florida Air Service Study* was undertaken to highlight commercial air service and air cargo activities that are expected to influence activity forecasts in Florida.

6.2 Airport Categories

Due to the large number of airports in the FASP, and the wide-ranging levels of activity at these airports, it was identified early in the planning process that development of airport categories for forecasting efforts would be an important component to achieve accurate activity projections to the extent possible. The primary factors that influenced the categorization of airports included classification as a commercial service or GA facility, presence of an airport traffic control tower (ATCT), and level of aviation activity (high, medium, or low).

It should be noted that several additional airport categories for both based aircraft and GA operations were examined, including those based on an airport's role as defined in the *2017 – 2021 National Plan of Integrated Airport Systems (NPIAS) Report.* While these roles and classifications are important to acknowledge, in general, the selected airport categories presented in the following two sections are primarily influenced by volume of activity and ability to accurately report activity.

Based Aircraft Categories:

- Primary Commercial Service Airport
- GA Airport (High Activity): 200+ Based Aircraft
- GA Airport (Medium Activity): 50 to 199 Based Aircraft
- GA Airport (Low Activity): Fewer than 50 Based Aircraft

GA Aircraft Operations Categories:

- Primary Commercial Service Airport
- GA Airport with ATCT
- GA Airport (High Activity): 50,000+ Annual Operations
- GA Airport (Medium Activity): 20,000 to 50,000 Annual Operations
- GA Airport (Low Activity): Fewer than 20,000 Annual Operations

It should be noted that base year 2014 data for based aircraft and aircraft operations were obtained from the FAA's 2016 TAF, issued January 2017. Commercial operations were identified as operations categorized by the FAA as either air carrier or air taxi/commuter. Air carrier operations are typically scheduled commercial flights that require an operating certificate from the FAA and are conducted on aircraft with 31 or more seats. Air taxi/commuter operations can be either scheduled commercial flights with an operating certificate from the FAA on an aircraft with 30 or fewer seats, or they can be privately chartered flights on aircraft with no more than 60 seats.

Based on these parameters, airports that are classified as GA facilities can still accommodate commercial operations if they fall into the air taxi/commuter category. Air taxi/commuter operations for both commercial and GA airports are not included in forecasts of GA activity but are included in total operations forecasts as they pertain to the D/C analysis presented in **Section 6.8.** For purposes of the forecasts, all other aircraft operations, including military, are defined as GA operations.

A listing of individual airports by category for based aircraft is shown in **Table 6-1** through **Table 6-4.** A listing of individual airports by category for GA aircraft operations are shown in **Table 6-5** through **Table 6-9.** Airports are listed in alphabetical order.

Table 6-1: Based Aircraft: Commercial Airports

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	Hub Size	ATCT Y/N	2014 Based Aircraft
Based Aircraft: Commercial Airports: 20 Airports							
Daytona Beach	Daytona Beach International Airport	DAB	5	Commercial Service	Non-Hub	Y	269
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	4	Commercial Service	Large Hub	Y	94
Fort Myers	Southwest Florida International Airport	RSW	1	Commercial Service	Medium Hub	Y	4
Gainesville	Gainesville Regional Airport	GNV	2	Commercial Service	Non-Hub	Y	146
Jacksonville	Jacksonville International Airport	JAX	2	Commercial Service	Medium Hub	Y	60
Key West	Key West International Airport	EYW	6	Commercial Service	Small Hub	Y	66
Melbourne	Melbourne International Airport	MLB	5	Commercial Service	Non-Hub	Y	235
Miami	Miami International Airport	MIA	6	Commercial Service	Large Hub	Y	28
Orlando	Orlando-Sanford International Airport	SFB	5	Commercial Service	Small Hub	Y	344
Orlando	Orlando International Airport	MCO	5	Commercial Service	Large Hub	Y	34
Panama City	Northwest Florida-Beaches International Airport	ECP	3	Commercial Service	Small Hub	Y	110
Pensacola	Pensacola International Airport	PNS	3	Commercial Service	Small Hub	Y	88
Punta Gorda	Punta Gorda Airport	PGD	1	Commercial Service	Non-Hub	Y	316
Sarasota	Sarasota Bradenton International Airport	SRQ	1	Commercial Service	Small Hub	Y	226
St. Augustine	Northeast Florida Regional Airport	SGJ	2	Commercial Service	Non-Hub	Y	202
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	7	Commercial Service	Small Hub	Y	310
Tallahassee	Tallahassee International Airport	TLH	3	Commercial Service	Non-Hub	Y	98
Tampa	Tampa International Airport	TPA	7	Commercial Service	Large Hub	Y	65
Valparaiso	Destin-Fort Walton Beach Airport	VPS	3	Commercial Service	Non-Hub	Y	0
West Palm Beach	Palm Beach International Airport	PBI	4	Commercial Service	Medium Hub	Y	148

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

Table 6-2: Based Aircraft: High Activity GA Airports

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	ATCT Y/N	2014 Based Aircraft
Based Aircraft: High Activity GA Airports (200+ Based Aircraft): 13 Airports								
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	4	GA	National	Reliever	Y	817
Fort Myers	Page Field	FMY	1	GA	Regional	Reliever	Y	252
Fort Pierce	Treasure Coast International Airport	FPR	4	GA	National	GA	Y	216
Hollywood	North Perry Airport	HWO	4	GA	Regional	Reliever	Y	258
Jacksonville	Jacksonville Executive At Craig Airport	CRG	2	GA	National	Reliever	Y	226
Lakeland	Lakeland Linder Regional Airport	LAL	1	GA	National	Reliever	Y	201
Miami	Miami Executive Airport	TMB	6	GA	National	Reliever	Y	445
Miami	Miami-Opa Locka Executive Airport	OPF	6	GA	National	Reliever	Y	287
Naples	Naples Municipal Airport	APF	1	GA	National	GA	Y	365
Venice	Venice Municipal Airport	VNC	1	GA	Regional	Reliever	N	255
Vero Beach	Vero Beach Regional Airport	VRB	4	GA	Regional	GA	Y	209
West Palm Beach	North Palm Beach County General Aviation Airport	F45	4	GA	Regional	Reliever	N	336
West Palm Beach	Palm Beach County Park Airport	LNA	4	GA	Regional	Reliever	N	294

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

Table 6-3: Based Aircraft: Medium Activity GA Airports

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	ATCT Y/N	2014 Based Aircraft
Based Aircraft: Medium Activity GA Airports (50-199 Based Aircraft): 44 Airports								
Apopka	Orlando Apopka Airport	X04	5	GA	N/A	N/A	N	127
Bartow	Bartow Municipal Airport	BOW	1	GA	Local	GA	Y	101
Boca Raton	Boca Raton Airport	BCT	4	GA	National	Reliever	Y	182
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	7	GA	Regional	GA	Y	148
Clearwater	Clearwater Air Park	CLW	7	GA	Local	Reliever	N	85
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	5	GA	Regional	Reliever	N	197
Dunnellon	Marion County Airport	X35	5	GA	Local	GA	N	104

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	ATCT Y/N	2014 Based Aircraft
Eustis	Mid Florida Air Service Airport	X55	5	GA	N/A	N/A	N	63
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	2	GA	Regional	GA	N	65
Homestead	Miami Homestead General Aviation Airport	X51	6	GA	Local	GA	N	68
Immokalee	Immokalee Regional Airport	IMM	1	GA	Regional	GA	N	60
Indiantown	Indiantown Airport	X58	4	GA	N/A	N/A	N	65
Jacksonville	Herlong Recreational Airport	HEG	2	GA	Regional	Reliever	N	187
Jacksonville	Cecil Airport	VQQ	2	GA	Regional	GA	Y	93
Keystone Heights	Keystone Airpark	42J	2	GA	Local	GA	N	53
Lakeland	South Lakeland Airport	X49	1	GA	N/A	N/A	N	70
Leesburg	Leesburg International Airport	LEE	5	GA	Regional	GA	Y	149
Marathon	The Florida Keys Marathon Airport	MTH	6	GA	Local	GA	N	74
Merritt Island	Merritt Island Airport	COI	5	GA	Regional	GA	N	156
Milton	Peter Prince Field	2R4	3	GA	Local	GA	N	96
New Smyrna Beach	Massey Ranch Airpark	X50	5	GA	N/A	N/A	N	98
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	5	GA	Regional	Reliever	Y	90
Ocala	Ocala International-Jim Taylor Field	OCF	5	GA	Regional	GA	Y	116
Orlando	Executive Airport	ORL	5	GA	National	Reliever	Y	197
Orlando	Kissimmee Gateway Airport	ISM	5	GA	Regional	Reliever	Y	147
Ormond Beach	Ormond Beach Municipal Airport	OMN	5	GA	Regional	Reliever	Y	97
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	2	GA	Local	GA	N	52
Palm Coast	Flagler County Airport	FIN	5	GA	Regional	GA	Y	75
Palmetto	Airport Manatee	48X	1	GA	N/A	N/A	N	55
Plant City	Plant City Airport	PCM	7	GA	Local	GA	N	89
Pompano Beach	Pompano Beach Airpark	PMP	4	GA	Regional	GA	Y	74
Quincy	Quincy Municipal Airport	2J9	3	GA	Local	GA	N	60
Sebring	Sebring Regional Airport	SEF	1	GA	Regional	GA	N	71
St. Petersburg	Albert Whitted Airport	SPG	7	GA	Regional	Reliever	Y	141
Stuart	Witham Field	SUA	4	GA	National	GA	Y	198

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	ATCT Y/N	2014 Based Aircraft
Tampa	Tampa Executive Airport	VDF	7	GA	Regional	Reliever	N	138
Tampa	Peter O. Knight Airport	TPF	7	GA	Regional	Reliever	N	106
Titusville	Space Coast Regional Airport	TIX	5	GA	Regional	GA	Y	133
Titusville	Arthur Dunn Air Park	X21	5	GA	Local	GA	N	73
Valkaria	Valkaria Airport	X59	5	GA	Local	GA	N	62
Williston	Williston Municipal Airport	X60	2	GA	Local	GA	N	51
Winter Haven	Winter Haven's Gilbert Airport	GIF	1	GA	Regional	GA	N	145
Zellwood	Bob White Field	X61	5	GA	N/A	N/A	N	76
Zephyrhills	Zephyrhills Municipal Airport	ZPH	7	GA	Regional	GA	N	175

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

Table 6-4: Based Aircraft: Low Activity GA Airports

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	ATCT Y/N	2014 Based Aircraft
Based Aircraft: Low Activity GA Airports (Fewer than 50 Based Aircraft): 51 Airports								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	3	GA	Local	GA	N	24
Apalachicola	St. George Island Airport	F47	3	GA	N/A	N/A	N	0
Arcadia	Arcadia Municipal Airport	X06	1	GA	Basic	GA	N	3
Archer	Flying Ten Airport	0J8	2	GA	N/A	N/A	N	11
Avon Park	Avon Park Executive Airport	AVO	1	GA	Local	GA	N	37
Belle Glade	Belle Glade State Municipal Airport	X10	4	GA	Basic	GA	N	11
Blountstown	Calhoun County Airport	F95	3	GA	Basic	GA	N	12
Bonifay	Tri-County Airport	1J0	3	GA	Local	GA	N	24
Brooksville	Pilot Country Airport	X05	7	GA	Regional	GA	N	27
Carrabelle	Carrabelle-Thompson Airport	X13	3	GA	N/A	N/A	N	10
Cedar Key	George T. Lewis Airport	CDK	2	GA	Basic	GA	N	4
Clewiston	Airglades Airport	2IS	1	GA	Local	GA	N	23
Crestview	Bob Sikes Airport	CEW	3	GA	Regional	GA	N	43

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	ATCT Y/N	2014 Based Aircraft
Cross City	Cross City Airport	CTY	2	GA	Basic	GA	N	12
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	7	GA	Regional	GA	N	40
DeFuniak Springs	DeFuniak Springs Airport	54J	3	GA	Local	GA	N	29
DeLand	Bob Lee Flight Strip	1J6	5	GA	N/A	N/A	N	16
Destin	Destin Executive Airport	DTS	3	GA	Regional	GA	N	23
Englewood	Buchan Airport	X36	1	GA	N/A	N/A	N	8
Everglades	Everglades Airpark	X01	1	GA	Unclassified	GA	N	7
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	4	GA	N/A	N/A	N	0
High Springs	Oak Tree Landing Airport	6J8	2	GA	N/A	N/A	N	0
Hilliard	Hilliard Airpark	01J	2	GA	Local	GA	N	30
Inverness	Inverness Airport	INF	7	GA	Local	GA	N	28
La Belle	La Belle Municipal Airport	X14	1	GA	Local	GA	N	49
Lake City	Lake City Gateway Airport	LCQ	2	GA	Regional	GA	Y	32
Lake Wales	Lake Wales Municipal Airport	X07	1	GA	Local	GA	N	32
Lake Wales	Chalet Suzanne Air Strip	X25	1	GA	N/A	N/A	N	6
Live Oak	Suwannee County Airport	24J	2	GA	Local	GA	N	37
Marco Island	Marco Island Airport	MKY	1	GA	Local	GA	N	22
Marianna	Marianna Municipal Airport	MAI	3	GA	Local	GA	N	27
Miami	Dade-Collier Training and Transition Airport	TNT	6	GA	Basic	GA	N	0
Miami	Miami Seaplane Base	X44	6	GA	Basic	GA	N	0
Navarre	Ft. Walton Beach Airport	1J9	3	GA	N/A	N/A	N	8
Okeechobee	Okeechobee County Airport	OBE	1	GA	Local	GA	N	33
Pahokee	Palm Beach County Glades Airport	PHK	4	GA	Local	GA	N	31
Panacea	Wakulla County Airport	2J0	3	GA	N/A	N/A	N	19
Pensacola	Ferguson Airport	82J	3	GA	N/A	N/A	N	33
Perry	Perry-Foley Airport	40J	2	GA	Local	GA	N	16
Pierson	Pierson Municipal Airport	2J8	5	GA	N/A	N/A	N	21
Port St. Joe	Costin Airport	A51	3	GA	N/A	N/A	N	5

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	ATCT Y/N	2014 Based Aircraft
Punta Gorda	Shell Creek Airpark	F13	1	GA	N/A	N/A	N	11
River Ranch	River Ranch Resort Airport	2RR	1	GA	N/A	N/A	N	0
Sebastian	Sebastian Municipal Airport	X26	4	GA	Local	GA	N	40
Tallahassee/Havana*	Tallahassee Commercial Airport	68J	3	GA	N/A	N/A	N	0
Tampa	Tampa North Aero Park	X39	7	GA	N/A	N/A	N	38
Tavares	Tavares Seaplane Base	FA1	5	GA	N/A	N/A	N	4
Umatilla	Umatilla Municipal Airport	X23	5	GA	Basic	GA	N	12
Vero Beach	New Hibiscus Airpark	X52	4	GA	N/A	N/A	N	13
Wauchula	Wauchula Municipal Airport	CHN	1	GA	Local	GA	N	45
Winter Haven	Jack Brown's Seaplane Base	F57	1	GA	N/A	N/A	N	6

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

Table 6-5: Aircraft Operations: Commercial Airports

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	Hub Size	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Operations: Commercial ATCT: 20 Airports									
Daytona Beach	Daytona Beach International Airport	DAB	5	Commercial Service	Non-Hub	Y	10,365	279,171	289,536
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	4	Commercial Service	Large Hub	Y	218,797	35,886	254,683
Fort Myers	Southwest Florida International Airport	RSW	1	Commercial Service	Medium Hub	Y	68,888	8,768	77,656
Gainesville	Gainesville Regional Airport	GNV	2	Commercial Service	Non-Hub	Y	11,967	47,527	59,494
Jacksonville	Jacksonville International Airport	JAX	2	Commercial Service	Medium Hub	Y	69,704	18,218	87,922
Key West	Key West International Airport	EYW	6	Commercial Service	Small Hub	Y	23,725	30,100	53,825
Melbourne	Melbourne International Airport	MLB	5	Commercial Service	Non-Hub	Y	6,846	125,470	132,316
Miami	Miami International Airport	MIA	6	Commercial Service	Large Hub	Y	381,609	19,213	400,822
Orlando	Orlando International Airport	MCO	5	Commercial Service	Large Hub	Y	279,487	15,916	295,403
Orlando	Orlando-Sanford International Airport	SFB	5	Commercial Service	Small Hub	Y	35,331	170,915	206,246
Panama City	Northwest Florida-Beaches International Airport	ECP	3	Commercial Service	Small Hub	Y	14,239	42,969	57,208
Pensacola	Pensacola International Airport	PNS	3	Commercial Service	Small Hub	Y	25,997	79,696	105,693

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	Hub Size	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Punta Gorda	Punta Gorda Airport	PGD	1	Commercial Service	Non-Hub	Y	4,075	49,997	54,072
Sarasota	Sarasota/Bradenton International Airport	SRQ	1	Commercial Service	Small Hub	Y	16,362	84,527	100,889
St. Augustine	Northeast Florida Regional Airport	SGJ	2	Commercial Service	Non-Hub	Y	6,264	129,815	136,079
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	7	Commercial Service	Small Hub	Y	11,200	117,212	128,412
Tallahassee	Tallahassee International Airport	TLH	3	Commercial Service	Non-Hub	Y	16,084	40,304	56,388
Tampa	Tampa International Airport	TPA	7	Commercial Service	Large Hub	Y	162,059	21,872	183,931
Valparaiso	Destin-Fort Walton Beach Airport	VPS	3	Commercial Service	Non-Hub	Y	12,856	39,285	52,141
West Palm Beach	Palm Beach International Airport	PBI	4	Commercial Service	Medium Hub	Y	77,863	60,122	137,985

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

Table 6-6: Aircraft Operations: GA Airports (with ATCT)

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Operations: GA ATCT: 26 Airports										
Bartow	Bartow Municipal Airport	BOW	1	GA	Local	GA	Y	0	27,759	27,759
Boca Raton	Boca Raton Airport	BCT	4	GA	National	Reliever	Y	7,504	49,077	56,581
Brooksville	Brooksville - Tampa Bay Regional Airport	BKV	7	GA	Regional	GA	Y	1,823	45,573	47,396
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	4	GA	National	Reliever	Y	14,969	153,104	168,073
Fort Myers	Page Field	FMY	1	GA	Regional	Reliever	Y	1,999	87,743	89,742
Fort Pierce	Treasure Coast International Airport	FPR	4	GA	National	GA	Y	1,816	152,589	154,405
Hollywood	North Perry Airport	HWO	4	GA	Regional	Reliever	Y	256	154,552	154,808
Jacksonville	Jacksonville Executive At Craig Airport	CRG	2	GA	National	Reliever	Y	1,066	100,073	101,139
Jacksonville	Cecil Airport	VQQ	2	GA	Regional	GA	Y	1,132	91,167	92,299
Lake City	Lake City Gateway Airport	LCQ	2	GA	Regional	GA	Y	1,300	27,414	28,714
Lakeland	Lakeland Linder Regional Airport	LAL	1	GA	National	Reliever	Y	986	96,741	97,727
Leesburg	Leesburg International Airport	LEE	5	GA	Regional	GA	Y	583	51,561	52,144
Miami	Miami Executive Airport	TMB	6	GA	National	Reliever	Y	2,079	252,274	254,353
Miami	Miami-Opa Locka Executive Airport	OPF	6	GA	National	Reliever	Y	7,861	123,975	131,836
Naples	Naples Municipal Airport	APF	1	GA	National	GA	Y	10,452	82,843	93,295

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	5	GA	Regional	Reliever	Y	2,296	155,979	158,275
Ocala	Ocala International-Jim Taylor Field	OCF	5	GA	Regional	GA	Y	1,123	48,193	49,316
Orlando	Executive Airport	ORL	5	GA	National	Reliever	Y	5,601	104,177	109,778
Orlando	Kissimmee Gateway Airport	ISM	5	GA	Regional	Reliever	Y	2,989	82,719	85,708
Ormond Beach	Ormond Beach Municipal Airport	OMN	5	GA	Regional	Reliever	Y	3	109,444	109,447
Palm Coast	Flagler County Airport	FIN	5	GA	Regional	GA	Y	262	148,264	148,526
Pompano Beach	Pompano Beach Airpark	PMP	4	GA	Regional	GA	Y	841	132,964	133,805
St. Petersburg	Albert Whitted Airport	SPG	7	GA	Regional	Reliever	Y	4,382	93,535	97,917
Stuart	Witham Field	SUA	4	GA	National	GA	Y	4,990	74,784	79,774
Titusville	Space Coast Regional Airport	TIX	5	GA	Regional	GA	Y	252	97,186	97,438
Vero Beach	Vero Beach Regional Airport	VRB	4	GA	Regional	GA	Y	3,424	207,776	211,200

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

Table 6-7: Aircraft Operations: High Activity GA Airports

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Operations: High Activity GA (50,000+ Operations): 17 Airports										
Clearwater	Clearwater Air Park	CLW	7	GA	Local	Reliever	N	30	50,560	50,590
DeLand	DeLand Municipal - Sidney H. Taylor Field	DED	5	GA	Regional	Reliever	N	400	117,060	117,460
Destin	Destin Executive Airport	DTS	3	GA	Regional	GA	N	600	62,400	63,000
Homestead	Miami Homestead General Aviation Airport	X51	6	GA	Local	GA	N	2,100	74,517	76,617
Jacksonville	Herlong Recreational Airport	HEG	2	GA	Regional	Reliever	N	0	80,700	80,700
Marathon	The Florida Keys Marathon Airport	MTH	6	GA	Local	GA	N	4,360	63,593	67,953
Merritt Island	Merritt Island Airport	COI	5	GA	Regional	GA	N	1,500	112,000	113,500
Milton	Peter Prince Field	2R4	3	GA	Local	GA	N	0	93,950	93,950
Okeechobee	Okeechobee County Airport	OBE	1	GA	Local	GA	N	0	50,000	50,000
Pensacola	Ferguson Airport	82J	3	GA	N/A	N/A	N	0	67,500	67,500
Sebring	Sebring Regional Airport	SEF	1	GA	Regional	GA	N	0	103,087	103,087
Tampa	Tampa Executive Airport	VDF	7	GA	Regional	Reliever	N	520	94,070	94,590

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Tampa	Peter O. Knight Airport	TPF	7	GA	Regional	Reliever	N	3,800	50,000	53,800
Venice	Venice Municipal Airport	VNC	1	GA	Regional	Reliever	N	0	60,834	60,834
West Palm Beach	Palm Beach County Park Airport	LNA	4	GA	Regional	Reliever	N	2,000	124,750	126,750
West Palm Beach	North Palm Beach County General Aviation Airport	F45	4	GA	Regional	Reliever	N	7,300	90,100	97,400
Winter Haven	Winter Haven's Gilbert Airport	GIF	1	GA	Regional	GA	N	0	60,000	60,000

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

Table 6-8: Aircraft Operations: Medium Activity GA Airports

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Operations: GA Medium Activity (20,000-50,000 Operations): 25 Airports										
Apalachicola	Apalachicola Regional - Cleve Randolph Field	AAF	3	GA	Local	GA	N	1,228	23,147	24,375
Apopka	Orlando Apopka Airport	X04	5	GA	N/A	N/A	N	0	21,900	21,900
Archer	Flying Ten Airport	0J8	2	GA	N/A	N/A	N	0	30,000	30,000
Avon Park	Avon Park Executive Airport	AVO	1	GA	Local	GA	N	0	32,400	32,400
Bonifay	Tri-County Airport	1J0	3	GA	Local	GA	N	104	28,272	28,376
Crestview	Bob Sikes Airport	CEW	3	GA	Regional	GA	N	200	48,400	48,600
Crystal River	Crystal River Airport - Captain Tom Davis Field	CGC	7	GA	Regional	GA	N	416	27,896	28,312
Dunnellon	Marion County Airport	X35	5	GA	Local	GA	N	38,603	0	38,603
Eustis	Mid Florida Air Service Airport	X55	5	GA	N/A	N/A	N	1,000	20,024	21,024
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	2	GA	Regional	GA	N	1,600	45,400	47,000
Immokalee	Immokalee Regional Airport	IMM	1	GA	Regional	GA	N	0	36,500	36,500
Keystone Heights	Keystone Airpark	42J	2	GA	Local	GA	N	500	31,900	32,400
La Belle	La Belle Municipal Airport	X14	1	GA	Local	GA	N	120	21,880	22,000
Lake Wales	Lake Wales Municipal Airport	X07	1	GA	Local	GA	N	800	19,200	20,000
Marco Island	Marco Island Airport	MKY	1	GA	Local	GA	N	3,000	17,000	20,000
Marianna	Marianna Municipal Airport	MAI	3	GA	Local	GA	N	0	28,016	28,016
Pahokee	Palm Beach County Glades Airport	PHK	4	GA	Local	GA	N	250	36,500	36,750
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	2	GA	Local	GA	N	280	36,906	37,186

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Plant City	Plant City Airport	PCM	7	GA	Local	GA	N	200	47,775	47,975
Sebastian	Sebastian Municipal Airport	X26	4	GA	Local	GA	N	1,000	36,240	37,240
Titusville	Arthur Dunn Air Park	X21	5	GA	Local	GA	N	0	40,450	40,450
Valkaria	Valkaria Airport	X59	5	GA	Local	GA	N	0	33,100	33,100
Vero Beach	New Hibiscus Airpark	X52	4	GA	N/A	N/A	N	0	22,000	22,000
Zellwood	Bob White Field	X61	5	GA	N/A	N/A	N	0	20,000	20,000
Zephyrhills	Zephyrhills Municipal Airport	ZPH	7	GA	Regional	GA	N	150	49,275	49,425

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

Table 6-9: Aircraft Operations: Low Activity GA Airports

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Operations: GA Low Activity (Fewer than 20,000 Operations): 40 Airports										
Apalachicola	St. George Island Airport	F47	3	GA	N/A	N/A	N	0	500	500
Arcadia	Arcadia Municipal Airport	X06	1	GA	Basic	GA	N	30	19,340	19,370
Belle Glade	Belle Glade State Municipal Airport	X10	4	GA	Basic	GA	N	1,800	0	1,800
Blountstown	Calhoun County Airport	F95	3	GA	Basic	GA	N	1,020	0	1,020
Brooksville	Pilot Country Airport	X05	7	GA	Regional	GA	N	0	10,176	10,176
Carrabelle	Carrabelle - Thompson Airport	X13	3	GA	N/A	N/A	N	0	4,261	4,261
Cedar Key	George T. Lewis Airport	CDK	2	GA	Basic	GA	N	0	4,000	4,000
Clewiston	Airglades Airport	2IS	1	GA	Local	GA	N	0	11,527	11,527
Cross City	Cross City Airport	CTY	2	GA	Basic	GA	N	0	18,000	18,000
DeFuniak Springs	DeFuniak Springs Airport	54J	3	GA	Local	GA	N	200	16,000	16,200
DeLand	Bob Lee Flight Strip	1J6	5	GA	N/A	N/A	N	0	6,000	6,000
Englewood	Buchan Airport	X36	1	GA	N/A	N/A	N	0	2,701	2,701
Everglades	Everglades Airpark	X01	1	GA	Unclassified	GA	N	200	6,000	6,200
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	4	GA	N/A	N/A	N	0	0	0
High Springs	Oak Tree Landing Airport	6J8	2	GA	N/A	N/A	N	0	200	200
Hilliard	Hilliard Airpark	01J	2	GA	Local	GA	N	0	5,000	5,000

Associated City	Airport Name	FAA ID	FDOT District	Airport Classification	NPIAS Role	ASSET Classification	Tower Y/N	2014 Commercial Operations	2014 GA Operations	2014 Total Operations
Indiantown	Indiantown Airport	X58	4	GA	N/A	N/A	N	0	5,000	5,000
Inverness	Inverness Airport	INF	7	GA	Local	GA	N	0	15,000	15,000
Lake Wales	Chalet Suzanne Air Strip	X25	1	GA	N/A	N/A	N	60	2,412	2,472
Lakeland	South Lakeland Airport	X49	1	GA	N/A	N/A	N	0	12,000	12,000
Live Oak	Suwannee County Airport	24J	2	GA	Local	GA	N	0	16,300	16,300
Miami	Dade-Collier Training and Transition Airport	TNT	6	GA	Basic	GA	N	0	14,468	14,468
Miami	Miami Seaplane Base	X44	6	GA	Basic	GA	N	1,950	0	1,950
Navarre	Ft. Walton Beach Airport	1J9	3	GA	N/A	N/A	N	0	8,030	8,030
New Smyrna Beach	Massey Ranch Airpark	X50	5	GA	N/A	N/A	N	0	9,750	9,750
Palmetto	Airport Manatee	48X	1	GA	N/A	N/A	N	0	7,100	7,100
Panacea	Wakulla County Airport	2J0	3	GA	N/A	N/A	N	0	2,380	2,380
Perry	Perry-Foley Airport	40J	2	GA	Local	GA	N	200	18,200	18,400
Pierson	Pierson Municipal Airport	2J8	5	GA	N/A	N/A	N	0	14,040	14,040
Port St. Joe	Costin Airport	A51	3	GA	N/A	N/A	N	0	12,500	12,500
Punta Gorda	Shell Creek Airpark	F13	1	GA	N/A	N/A	N	0	2,190	2,190
Quincy	Quincy Municipal Airport	2J9	3	GA	Local	GA	N	0	6,240	6,240
River Ranch	River Ranch Resort Airport	2RR	1	GA	N/A	N/A	N	0	0	0
Tallahassee/Havana*	Tallahassee Commercial Airport	68J	3	GA	N/A	N/A	N	0	0	0
Tampa	Tampa North Aero Park	X39	7	GA	N/A	N/A	N	0	11,000	11,000
Tavares	Tavares Seaplane Base	FA1	5	GA	N/A	N/A	N	0	7,000	7,000
Umatilla	Umatilla Municipal Airport	X23	5	GA	Basic	GA	N	0	5,000	5,000
Wauchula	Wauchula Municipal Airport	CHN	1	GA	Local	GA	N	0	8,200	8,200
Williston	Williston Municipal Airport	X60	2	GA	Local	GA	N	0	16,250	16,250
Winter Haven	Jack Brown's Seaplane Base	F57	1	GA	N/A	N/A	N	0	10,000	10,000

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

6.3 Data Collection

As previously mentioned, the forecasting element of the FASP 2035 considers two metrics of activity—based aircraft and GA operations. Based aircraft are defined as aircraft that are considered airworthy and stored at an airport for the majority of the year. Per FDOT guidance, GA operations that are evaluated in the FASP include all aircraft operations categorized by the FAA as GA or military. The FAA categories included under this definition include local GA, itinerant GA, local military, and itinerant military operations. The forecasts do not include air taxi operations regardless if they are scheduled or non-scheduled; however, these operations are included in the D/C analysis presented in **Section 6.8.** Data used for the forecasts of these two metrics were obtained from several sources summarized in the following sections.

It is important to note that while most Florida airports, including commercial service airports, accommodate some level of GA activity, many are within proximity of airports that serve as "relievers" to attract GA activity from the commercial airport to a facility that "relieves" congestion and allows for greater capacity at the commercial service airport. While GA operations forecasts are included for commercial service airports in this analysis, it is important to remember that some of the factors and industry trends that impact GA are not experienced at commercial service airports. As such, individual airport master plan forecasts were reviewed as a measure to obtain more "in-depth" forecasting data for GA operations at commercial service airports. The information provided in these sources, while reliable, proved difficult to incorporate into FASP 2035 forecasts because the various planning studies were not completed in the same general timeframe. Trends that were occurring at the time those forecasts were developed were not consistent from airport to airport and resulted in wide ranges of projected activity. As such, FAA TAF data was utilized for all base year estimates of based aircraft and GA operations at both GA airports and commercial service airports. Where TAF data were not available, 5010 Airport Master Record data were utilized for base year estimates. The 5010 Airport Master Record is encouraged by the FAA to be updated annually. Based aircraft data were obtained from this database in January 2017, indicating that counts would likely reflect individual airport based aircraft from 2016 or 2015. If should be noted that data obtained from the 5010 Airport Master Record were primarily at lower-activity airports, and the number of based aircraft at these types of airports typically does not fluctuate significantly over short periods of time.

As previously noted, commercial operations (air carrier and air taxi) are excluded from this evaluation and forecasts of these types of operations are not provided. However, total operations including air carrier and air taxi operations are incorporated into the calculation of the number of operations that exceed an airport's ARC found in **Section 6.6**, and are also included as part of the D/C analysis in **Section 6.8**.

6.3.1 Based Aircraft Data Sources

For the preparation of based aircraft forecasts, three sources were utilized to obtain base year data and indicators of industry growth. These sources are described below:

- **FAA TAF:** Base year 2014 based aircraft data were obtained from the FAA's TAF issued January 2017 for all airports included in the FAA's NPIAS, meaning they are eligible for FAA Airport Improvement Program (AIP) funding. This database is the official FAA forecast used for airport planning and investment for NPIAS facilities. The database contains historical based aircraft and aircraft operations data from 1990 through 2015, and estimates of projected activity for 2016 through 2040. Of the 128 airports examined in the FASP, 100 are included in the NPIAS.
- **5010 Airport Master Records:** Base year 2014 based aircraft data for the 28 non-NPIAS airports were obtained from the 5010 Airport Master Record. While data identified in the 5010 Airport Master Record is regularly updated, not all data are specific to calendar year 2014; some have been updated more recently. For the purposes of the FASP 2035, it is assumed that based aircraft data identified in the 5010 Airport Master Record are applicable for base year 2014, regardless of the year that an individual airport may have updated it.
- ***FAA Aerospace Forecast 2017 – 2037:*** The *FAA Aerospace Forecast* is an annually updated report that identifies historical economic, airline, and aviation industry trends as well as 20-year forecasts of demand for a variety of commercial and GA industry elements. As it pertains to based aircraft forecasts presented in this Chapter, the *FAA Aerospace Forecast 2017 – 2037* was consulted for growth rate estimates of active aircraft in the United States (U.S.) GA fleet. Active aircraft are used by FAA in relation to based aircraft.

6.3.2 GA Aircraft Operations Data Sources

For the preparation of GA operation forecasts, four sources were utilized to obtain base year data and indicators of industry growth. These sources are described below:

- **FAA TAF:** For base year 2014 GA operations data, the FAA TAF issued January 2017 was utilized for all Florida NPIAS airports. As previously noted, per FDOT guidance, GA operations include all that are not classified as air taxi or air carrier. The FAA TAF identifies historical operations data from 1990 to 2015, and estimates of projected activity for 2016 through 2040.
- **5010 Airport Master Record:** Base year 2014 GA operations data for all non-NPIAS airports were obtained from the 5010 Airport Master Record. While data identified in the 5010 Airport Master Record is regularly updated, not all data are specific to calendar year 2014; some have been updated more recently. For the purposes of the FASP 2035, it is assumed that airport activity data identified in the 5010 Airport Master Record are applicable for base year 2014, regardless of the year that an individual airport may have updated it.
- ***FAA Aerospace Forecast 2017 – 2037:*** As previously noted, the *FAA Aerospace Forecast* is an annual report that identifies historical and projected economic trends and aviation activity. For GA operation forecasts, this report was consulted to identify projected growth rates of GA operations in the U.S. through 2035.

- **FAA Traffic Flow Management System Counts (TFMSC) Database:** To identify the number of operations that exceeded an airport's ARC in 2016, the FAA's TFMSC database was utilized. This database includes data for flights that fly under Instrument Flight Rules (IFR) and are captured by the FAA's enroute computers. TFMSC source data are created when pilots file flight plans and/or when flights are detected by the National Airspace System (NAS), usually via RADAR. The TFMSC database also identifies operations by type of equipment (aircraft type), which was used to produce the number of operations that exceeded each airport's ARC

6.3.3 Socioeconomic Data Source

Socioeconomic data can often indicate the strength of an area's economy. This information can be used to make assumptions about a local population base's propensity for aviation-related activity. To assist with the development of socioeconomic methodologies of based aircraft and GA operation forecasts, historical and projected data were obtained from Woods & Poole, Inc., an independent firm that specializes in long-term county economic and demographic projections. Population data for all Florida counties were obtained from Woods & Poole. One of the forecast methodologies used for both based aircraft and GA operations assumed that activity would increase at the same rate as projected population growth for each airport's host county.

6.4 Based Aircraft Forecast

The number of based aircraft at an airport determines aircraft parking apron needs and aircraft storage requirements, such as tie-downs, T-hangar spaces, and executive or box hangars. These are important indicators to understand, as the space preserved for airside and landside facilities can become constrained without proper planning. Based aircraft can also impact operations at an airport as the aircraft travel from the local airport to other airports and return.

6.4.1 Based Aircraft Methodologies

The based aircraft forecasts presented in this Chapter were produced using two methodologies for commercial airports and three methodologies for GA airports. **Table 6-10** below identifies the methodologies used for each of the airport categories identified in **Section 6.2.**

Table 6-10: Airport Category Methodologies: Based Aircraft

Airport Category	Methodology 1	Methodology 2	Methodology 3
Airport Category Methodologies: Based Aircraft			
Commercial Service	County Population Growth	N/A	FAA TAF or Straight-Line
High Activity GA	County Population Growth	FAA Aerospace Forecast	FAA TAF or Straight-Line
Medium Activity GA	County Population Growth	FAA Aerospace Forecast	FAA TAF or Straight-Line
Low Activity GA	County Population Growth	FAA Aerospace Forecast	FAA TAF or Straight-Line

Source: Kimley-Horn. Prepared April 2017.

- **County Population Growth:** This methodology assumes that the growth in the number of based aircraft at an airport will mimic the projected growth rate of population for the county in which it is located. For each airport, the number of based aircraft in base year 2014 is assumed to grow at the same rate as population projections obtained from Woods & Poole, Inc. through 2035.
- **FAA Aerospace Forecast:** The *FAA Aerospace Forecast 2017 – 2037* identifies that the active GA fleet in the U.S. is anticipated to increase 0.1 percent annually through 2035. While the FAA projects a decrease in the number of piston-powered aircraft in the U.S. fleet through 2035, overall growth is projected to be fueled by turboprop, jet, and rotorcraft type aircraft. In general, the number of based aircraft at Florida's airports and Florida's GA sector has not been impacted on the same level as has been experienced nationwide. The economic downturn that occurred between 2008 and 2010 negatively influenced GA activity throughout the U.S. and aircraft ownership has been declining for several years. While several airports in Florida also experienced declines in activity during the economic turmoil, the state as a whole fared relatively well compared to the nation in terms of GA activity. This speaks to the strength of Florida's GA system, as tourism, flight schools, hospitable flying climate, and other drivers of activity remain strong. Because of these factors, the FAA Aerospace Forecast methodology applies Florida-specific growth rates for each airport category to project based aircraft at the GA airports. As noted in Table 6-10, this methodology is not applied to commercial service airports. It is assumed that GA airports with higher levels of activity have a greater proportion of based turboprop, jet, and rotorcraft aircraft compared with lower-activity airports. As such, this methodology applies a 0.2 percent annual growth rate (twice FAA Aerospace growth rate) in the number of based aircraft at High Activity GA airports through 2035. For Medium Activity GA airports, it is assumed that there is a more balanced based aircraft fleet, and the FAA Aerospace annual growth rate of 0.1 percent is applied from 2014 through 2035. For Low Activity GA airports, it is assumed that most of the based aircraft fleet is comprised of single-engine and multi-engine piston aircraft. As such, a 0.05

percent annual growth rate (half the FAA Aerospace Forecast growth rate) is applied from 2014 through 2035.

- **FAA TAF or Straight-Line Methodology:** For all categories of airports, this methodology applies projected levels of based aircraft identified in the FAA TAF to all NPIAS airports through 2035. For non-NPIAS airports, this methodology assumes that number of based aircraft will remain constant from base year 2014 through 2035. This "straight-line" growth assumption is consistent with FAA TAF forecasts for lower activity airports.

6.4.2 Based Aircraft Forecast Results

Results for each of the based aircraft forecast methodologies are presented in the following pages. Forecasts are presented for each individual methodology and summarized by airport category. A summary table detailing the preferred methodology for based aircraft for each airport category is presented in **Section 6.4.2.4**. Individual airport forecasts for each of the methodologies are presented in **Appendix B – Forecasting Tables.**

6.4.2.1 County Population Growth Rate Methodology

The first methodology utilized county population projections obtained from Woods & Poole, Inc. Population rates can provide insight into the health of a local economy, as people tend to migrate toward areas that offer ample employment, lower tax rates, educational opportunities, and other quality-of-life incentives. A region with an increasing population and growing economy often experiences a corresponding rise in aviation-related activity.

The County Population Growth Rate Methodology assumes that the number of based aircraft at an airport in base year 2014 will increase at the same rate as the population of the county in which it is located. Results are shown in **Table 6-11**. As shown, this methodology projects an increase in based aircraft in Florida from 12,628 in 2014 to 16,704 in 2035, which reflects an average annual growth rate (AAGR) of 1.54 percent.

Table 6-11: Based Aircraft Forecast: County Population Growth Rate Methodology

Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: County Population Growth					
Commercial Service	2,843	3,052	3,239	3,655	1.36%
High Activity GA	4,101	4,459	4,783	5,508	1.63%
Medium Activity GA	4,722	5,118	5,476	6,276	1.57%
Low Activity GA	962	1,039	1,108	1,264	1.49%
State Total	**12,628**	**13,668**	**14,606**	**16,704**	**1.54%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Woods and Poole, Inc.; Kimley-Horn. Prepared April 2017.

6.4.2.2 FAA Aerospace Forecast Methodology

As previously presented, the FAA develops economic and aviation-related forecasts in its *Aerospace Forecast*, a report that is updated annually. As identified in the *FAA Aerospace Forecast 2017 – 2037*, the active GA fleet in the U.S. is anticipated to increase 0.1 percent annually through 2035. This modest growth is attributed to an expected decrease in piston-powered aircraft and strong growth in jet, turboprop, and rotorcraft type aircraft.

The FAA Aerospace Forecast Methodology assumes that higher activity airports in Florida have a greater proportion of jet, turboprop, and rotorcraft aircraft, and that lower activity airports have mostly piston-powered aircraft. As such, between base year 2014 and 2035, this methodology applies a 0.2 percent growth rate in based aircraft at High Activity GA airports, a 0.1 percent growth rate at Medium Activity GA airports, and a 0.05 percent growth rate at Low Activity GA airports. It should be noted that changes in the number of based aircraft at commercial airports do not always follow industry trends. As referenced earlier in Table 6-10, this methodology is only applied to GA airports. Results of this methodology are shown in **Table 6-12**. As shown, this methodology projects an increase from 9,785 based aircraft at GA airports in 2014, to 10,072 based aircraft in 2035, which represents an AAGR of 0.14 percent.

Table 6-12: Based Aircraft Forecast: FAA Aerospace Forecast

Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)					
Commercial Service	N/A	N/A	N/A	N/A	N/A
High Activity GA	4,101	4,150	4,192	4,277	0.20%
Medium Activity GA	4,722	4,750	4,774	4,822	0.10%
Low Activity GA	962	965	967	972	0.05%
State Total (minus commercial service airports)	**9,785**	**9,866**	**9,934**	**10,071**	**0.14%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

6.4.2.3 FAA TAF/Straight-Line Growth Methodology

As discussed earlier, 100 of the 128 airports examined in the FASP 2035 are NPIAS facilities. The FAA maintains forecasts of aviation-related activity for all NPIAS airports. For NPIAS airports, the FAA TAF/Straight-Line Growth Methodology incorporates projections of based aircraft listed in the FAA TAF, issued January 2017. For non-NPIAS airports, this methodology assumes flat growth through the projection period, which is consistent with FAA TAF projections at lower-activity airports. Results of this methodology are shown in **Table 6-13**. As shown, this methodology

projects an increase in based aircraft from 12,628 in 2014 to 15,595 in 2035, which represents an AAGR of 1.12 percent.

It should be noted that several airports experienced declines in the number of based aircraft at their facility between base year 2014 and the time when the most recent version of the FAA TAF was released (January 2017). As such, TAF projections have been updated to reflect these declines leading to negative projected growth rates at some airports even if growth rates in the TAF between 2016 and 2035 are actually positive. For airport categories whose preferred methodology is the FAA TAF/Straight-Line Growth Methodology, **Table B-5** in **Appendix B – Forecasting Tables** compares based aircraft growth rates for individual airports for the years 2014 – 2035 as well as 2016 – 2035 to indicate if an airport is actually projected to lose based aircraft or if the negative growth rate is attributed to a decrease that occurred between 2014 and 2016.

Table 6-13: Based Aircraft Forecast: FAA TAF or Straight-Line Methodology

Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate					
Commercial Service	2,843	2,980	3,222	3,734	1.49%
High Activity GA	4,101	4,265	4,592	5,305	1.40%
Medium Activity GA	4,722	4,787	5,072	5,603	0.89%
Low Activity GA	962	919	933	953	-0.04%
State Total	**12,628**	**12,951**	**13,819**	**15,595**	**1.12%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

6.4.2.4 Preferred Methodology

Based on an analysis of historical activity, Florida county socioeconomic projections, and aviation industry trends, preferred based aircraft forecast methodologies have been selected for each of the airport categories described at the beginning of this Chapter. The preferred methodologies for each airport category are listed below:

- Commercial Service: FAA TAF/Straight-Line Methodology
- High Activity GA: FAA TAF/Straight-Line Methodology
- Medium Activity GA: County Population Growth Rate Methodology
- Low Activity GA: County Population Growth Rate Methodology

A summary of preferred based aircraft methodology results is shown in **Table 6-14.** As shown, the preferred methodologies result in an increase in based aircraft from 12,628 in base year 2014 to 16,579 in 2035, which represents an AAGR of 1.49 percent. Based aircraft forecast

methodologies and preferred methodologies for individual airports can be found in **Tables B-1** through **B-4** listed in **Appendix B – Forecasting Tables.**

As part of this forecasting effort, a sensitivity analysis representing an anticipated range of projected based aircraft for each airport in the system was conducted. This analysis assumes that the likely range of based aircraft will be ±10 percent of the preferred methodology. The results of this analysis can provide airports, FDOT Districts, and the state with a better understanding of potential based aircraft for planning and funding purposes. The sensitivity analysis for based aircraft is summarized in **Table B-11** listed in **Appendix B – Forecasting Tables.**

Table 6-14: Based Aircraft Forecast: Preferred Methodology

Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology					
Commercial Service	2,843	2,980	3,222	3,734	1.49%
High Activity GA	4,101	4,265	4,592	5,305	1.40%
Medium Activity GA	4,722	5,118	5,476	6,276	1.57%
Low Activity GA	962	1,039	1,108	1,264	1.49%
State Total	**12,628**	**13,402**	**14,398**	**16,579**	**1.49%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Woods and Poole, Inc.; Kimley-Horn. Prepared April 2017.

6.4.2.5 Preferred Based Aircraft Forecast: FDOT Districts

A specific element for this task is to identify based aircraft forecasts for each of the seven FDOT Districts. Knowledge of projected activity assists the Districts in understanding trends in local growth as well as aids in facility planning and making funding decisions. **Table 6-15** depicts the preferred forecast methodology results categorized by FDOT District. As shown, the AAGRs for the various Districts between 2014 and 2036 range from 0.57 percent (District 6) to 1.77 percent (District 2). **Figure 6-1** identifies the overall proportion of based aircraft by District between 2014 and 2036. As shown, these proportions are anticipated to remain relatively stable throughout the projection period.

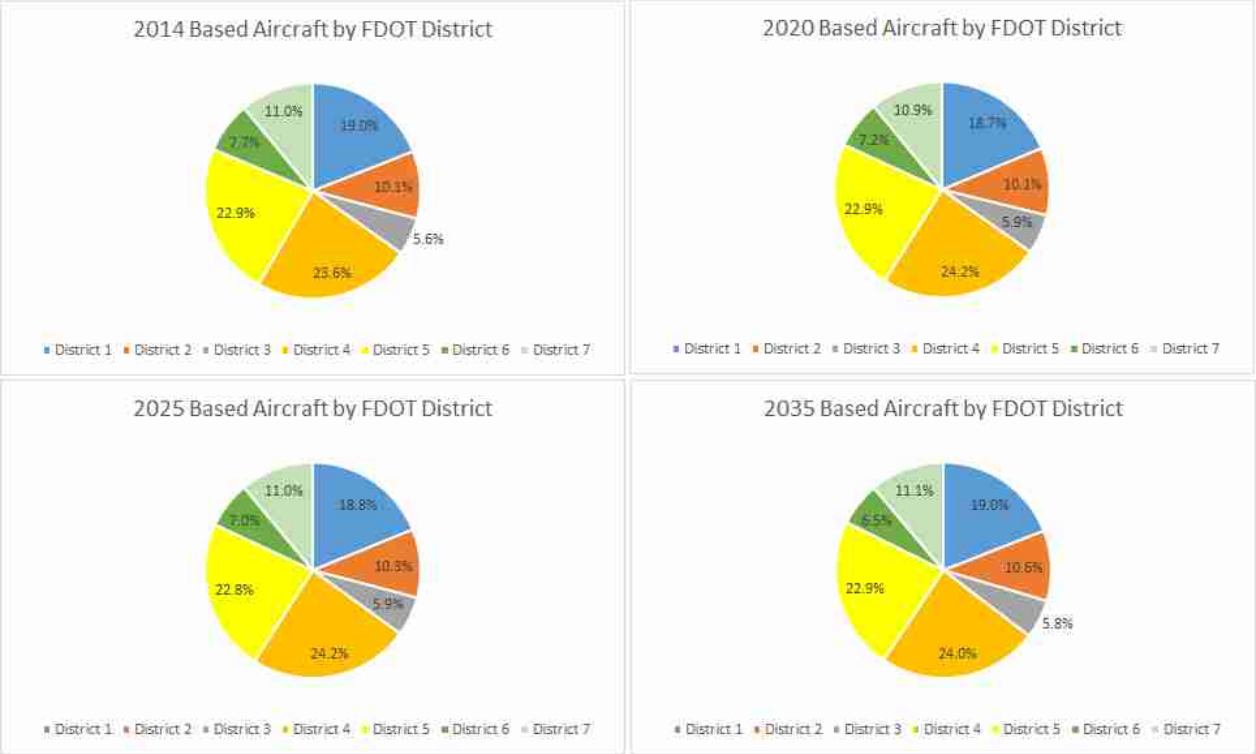
Table 6-15: Preferred Based Aircraft Forecast: FDOT Districts

FDOT District	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by FDOT District					
1	2,403	2,508	2,711	3,156	1.49%
2	1,277	1,354	1,479	1,751	1.77%

FDOT District	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
3	709	796	846	961	1.69%
4	2,986	3,244	3,478	3,977	1.58%
5	2,895	3,066	3,290	3,803	1.49%
6	968	969	1,009	1,083	0.57%
7	1,390	1,464	1,586	1,847	1.57%
State Total	**12,628**	**13,402**	**14,398**	**16,579**	**1.49%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Woods and Poole, Inc.; Kimley-Horn. Prepared April 2017.

Figure 6-1: Preferred Based Aircraft Forecast: FDOT Districts



Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Woods and Poole, Inc.; Kimley-Horn. Prepared April 2017.

6.5 GA Operations Forecast

Forecasts of GA operations are important, as the number of operations at an airport can impact airfield capacity and airside facility needs as well as affect the useful life of aircraft movement areas, including runways, taxiways, and parking aprons. As noted, forecasts presented in this

Chapter include non-scheduled GA and military operations. This is important to note, as factors that impact GA activity are often different than those that affect commercial activity.

6.5.1 GA Operations Methodologies

Similar to forecasts of based aircraft, GA operations forecasts include one methodology for commercial airports, and three methodologies for each of the GA airport categories. The methodologies employed for forecasts of GA operations for each airport category are identified in **Table 6-16**. Descriptions of each of the methodologies are provided following the table.

Table 6-16: Airport Category Methodologies: GA Operations

Airport Category	Methodology 1	Methodology 2	Methodology 3
Airport Category Methodologies: GA Operations			
Commercial Service	N/A	N/A	FAA TAF
ATCT GA	County Population Growth	FAA Aerospace Forecast	FAA TAF
High Activity GA	County Population Growth	FAA Aerospace Forecast	FAA TAF (or Straight-Line)
Medium Activity GA	County Population Growth	FAA Aerospace Forecast	FAA TAF (or Straight-Line)
Low Activity GA	County Population Growth	FAA Aerospace Forecast	FAA TAF (or Straight-Line)

Source: Kimley-Horn. Prepared April 2017.

- **County Population Growth:** As noted previously, this methodology assumes that the number of GA operations at an airport will mimic the projected growth rate of population for the county in which it is located. For each airport, the number of GA operations in base year 2014 is assumed to grow at the same rate as population projections obtained from Woods & Poole, Inc. through 2035. This methodology was not employed for commercial service airports.
- **FAA Aerospace Forecast:** The *FAA Aerospace Forecast 2017 – 2037* projects that total GA operations at airports with FAA and contract ATCTs are anticipated to increase 0.3 percent annually through 2035. Similar to based aircraft, while several airports in Florida experienced declines in activity during the economic turmoil that occurred between 2008 and 2010, the state as a whole fared relatively well compared to the nation in terms of aviation-related activity. As noted in the matrix above, this methodology is not applied to commercial service airports. This methodology assumes that higher activity GA airports will experience greater than national average growth in operations and lower activity airports will experience lower than national average growth in operations. As such, this methodology applies a 0.6 percent annual growth rate (twice the FAA Aerospace Forecast growth rate) to the number of GA operations in base year 2014 at GA airports equipped with an ATCT through 2035. For High Activity and Medium Activity GA airports, this methodology assumes that the national average growth rate of 0.3 percent will

occur, and for Low Activity GA airports, it is assumed that 0.15 percent annual growth (half the FAA Aerospace Forecast growth rate) will occur through 2035.

- **FAA TAF or Straight-Line Methodology:** For all categories of airports, this methodology applies the actual FAA TAF forecast estimate to all NPIAS airports through 2035. For non-NPIAS airports, this methodology assumes that activity in the number of GA operations will remain constant from base year 2014 through 2035. Similar to based aircraft, this "straight-line" growth assumption is consistent with FAA TAF forecasts for lower activity airports.

6.5.2 GA Operations Forecast Results

Results for each of the GA operations forecast methodologies are presented in the following sections. Forecasts are presented for each individual methodology and summarized by airport category. A summary table detailing the preferred methodology for GA operations for each aircraft category is presented in **Section 6.5.2.4.** Individual airport forecasts for each of the methodologies and the preferred methodology are presented in **Tables B-6** through **B-10** in **Appendix B – Forecasting Tables**.

6.5.2.1 County Population Growth Rate Methodology

Similar to based aircraft forecasts, this methodology applies projected county population growth rates through 2035 to the number of GA operations at an airport in base year 2014. This methodology is applied to all GA category airports, and results are presented in **Table 6-17**. As shown, this methodology projects an increase in GA operations from 5,209,356 in 2014 to 6,888,934 in 2035, which represents an AAGR of 1.54 percent.

Table 6-17: GA Operations Forecast: County Population Growth Methodology (GA Airports Only)

Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: County Population Growth (GA Airports)					
Commercial Service	N/A	N/A	N/A	N/A	N/A
ATCT GA	2,751,866	2,984,955	3,195,836	3,668,477	1.09%
High Activity GA	1,355,121	1,456,393	1,547,462	1,749,867	0.96%
Medium Activity GA	792,784	861,555	923,831	1,063,549	1.12%
Low Activity GA	309,585	334,318	356,718	407,041	1.04%
State Total	**5,209,356**	**5,637,221**	**6,023,847**	**6,888,934**	**1.54%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Woods and Poole, Inc.; Kimley-Horn. Prepared April 2017.

6.5.2.2 FAA Aerospace Forecast Methodology

The *FAA Aerospace Forecast 2017 – 2037* was consulted to examine appropriate growth rates for GA operations that incorporate national trends, but that are also tailored to projected activity in Florida. The FAA anticipates 0.3 percent growth in GA operations at airports with FAA and contract towers nationwide through 2035. Similar to based aircraft forecasts, this methodology assumes that operations at busier airports consist of a greater proportion of jet, turboprop, and rotorcraft aircraft, which are projected to experience strong growth through 2035. Lower activity airports are expected to see less than average growth, as they experience a higher proportion of piston-powered aircraft operations.

This methodology assumes that GA airports equipped with an ATCT will experience 0.6 percent annual growth through 2035, High and Medium Activity GA airports will see 0.3 percent annual growth, and Low Activity GA airports will see 0.15 percent annual growth during this timeframe. Results of this methodology are shown in **Table 6-18**. As shown, this methodology projects an increase from 5,209,356 GA operations at GA airports in base year 2014 to 5,727,063 operations in 2035, an AAGR of 0.47 percent.

Table 6-18: GA Operations Forecast: FAA Aerospace Forecast Methodology (GA Airports Only)

Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA Aerospace Forecast (GA Airports)					
Commercial Service	N/A	N/A	N/A	N/A	N/A
ATCT GA	2,751,866	2,852,431	2,939,037	3,120,218	0.60%
High Activity GA	1,355,121	1,379,697	1,400,517	1,443,104	0.30%
Medium Activity GA	792,784	807,162	819,342	844,257	0.30%
Low Activity GA	309,585	312,382	314,732	319,485	0.15%
State Total	**5,209,356**	**5,351,671**	**5,473,627**	**5,727,063**	**0.47%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; FAA Aerospace Forecast 2017 – 2037; Kimley-Horn. Prepared April 2017.

6.5.2.3 FAA TAF/Straight-Line Growth Methodology

The final methodology used to project GA operations at Florida airports involves the application of FAA TAF forecasts to NPIAS airports, and a flat growth rate to non-NPIAS airports. This flat growth rate is consistent with FAA TAF forecasts for lower-activity airports. Similar to the scenario described for based aircraft, several airports experienced declines in the number of GA operations at their facility between base year 2014 and 2016, which is reflected in the FAA TAF issued January 2017. For airport categories whose preferred methodology is the FAA TAF/Straight-Line Growth Methodology, **Table B-10** in **Appendix B – Forecasting Tables** compares GA operations growth rates for individual airports for the years 2014 – 2035 as well as 2016 – 2035

to indicate if an airport is actually projected to experience declines in GA operations or if the negative growth rate is attributed to a decrease that occurred between 2014 and 2016.

Results of the FAA TAF/Straight-Line Growth Methodology are shown in **Table 6-19**. As shown, this methodology, which includes GA operations at commercial airports that account for 1,416,983 GA operations in 2014, projects a collective increase for all airports in GA operations from 6,626,339 in base year 2014 to 7,528,751 in 2035, which represents an AAGR of 0.65 percent.

Table 6-19: GA Operations Forecast: FAA TAF or Straight-Line Methodology

Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA TAF or Straight-Line Methodology					
Commercial Service	1,416,983	1,346,668	1,364,094	1,400,416	-0.06%
ATCT GA	2,751,866	2,912,114	2,962,456	3,068,361	0.55%
High Activity GA	1,355,121	1,460,907	1,558,165	1,782,619	1.50%
Medium Activity GA	792,784	843,280	876,202	954,411	0.97%
Low Activity GA	309,585	315,331	317,639	322,944	0.21%
State Total	**6,626,339**	**6,878,300**	**7,078,556**	**7,528,751**	**0.65%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

6.5.2.4 Preferred Methodology

Based on historical and projected aviation industry trends, FAA forecasts, and local socioeconomic forecasts, preferred GA operations forecast methodologies have been selected for each of the airport categories described at the beginning of this section. The preferred methodologies for each airport category are listed below:

- Commercial Service: FAA TAF/Straight-Line Methodology
- ATCT GA: County Population Growth Rate Methodology
- High Activity GA: County Population Growth Rate Methodology
- Medium Activity GA: County Population Growth Rate Methodology
- Low Activity GA: FAA Aerospace Forecast Methodology

A summary of preferred GA operations methodology results is shown in **Table 6-20**. As shown, the preferred methodologies project an increase in GA operations from 6,626,339 in base year 2014 to 8,201,794 in 2035, which represents an AAGR of 1.13 percent. GA forecast methodologies and preferred methodologies for individual airports can be found in **Tables B-6** through **B-10** in **Appendix B – Forecasting Tables**.

Similar to based aircraft, a sensitivity analysis representing an anticipated range of projected GA operations for each airport in the system was conducted. This analysis assumes that the likely range of GA operations will be ±10 percent of the preferred methodology. The results of this analysis are incorporated into the D/C analysis in **Section 6.8**. The sensitivity analysis for GA operations is summarized in **Table B-12** in **Appendix B – Forecasting Tables**.

Table 6-20: GA Operations Forecast: Preferred Methodology

Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: Preferred Methodology					
Commercial Service	1,416,983	1,346,668	1,364,094	1,400,416	-0.06%
ATCT GA	2,751,866	2,984,955	3,195,836	3,668,477	1.59%
High Activity GA	1,355,121	1,456,393	1,547,462	1,749,867	1.39%
Medium Activity GA	792,784	861,555	923,831	1,063,549	1.63%
Low Activity GA	309,585	312,382	314,732	319,485	0.15%
State Total	**6,626,339**	**6,961,953**	**7,345,954**	**8,201,794**	**1.13%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; Woods & Poole, Inc. Prepared April 2017.

6.5.2.5 Preferred GA Operations Forecast: FDOT Districts

Knowledge of projected operational activity assists FDOT Districts and Central Office in understanding trends in local growth, airport system capacity, and facility planning needs. Preferred GA operations forecasts for individual FDOT Districts and the state as a whole are presented in **Table 6-21**. The AAGRs for the various Districts from 2014 to 2036 are anticipated to increase from 0.77 percent (District 5) to 1.76 percent (District 4). **Figure 6-2** identifies the overall proportion of GA operations by District between 2014 and 2036. As shown, these proportions are anticipated to remain relatively stable throughout the projection period.

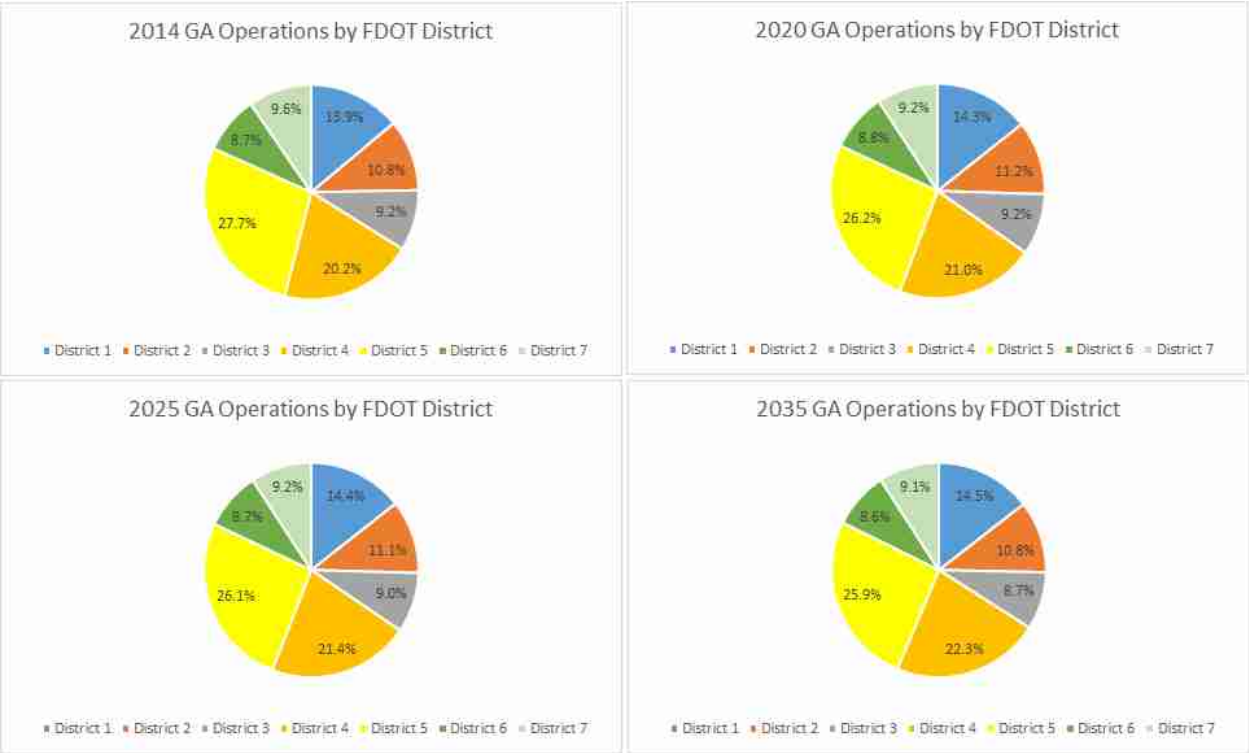
Table 6-21: Preferred GA Operations Forecast: FDOT District

FDOT District	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FDOT Districts					
1	920,749	997,711	1,056,971	1,189,580	1.39%
2	717,070	778,164	813,014	889,389	1.14%
3	607,495	643,717	665,030	712,364	0.82%
4	1,337,244	1,463,068	1,576,161	1,831,592	1.76%

FDOT District	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
5	1,833,922	1,823,851	1,918,342	2,128,577	0.77%
6	578,140	614,409	642,501	703,093	1.03%
7	634,344	643,682	676,604	749,909	0.87%
State Total	**6,628,964**	**6,964,602**	**7,348,623**	**8,204,503**	**1.13%**

Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; Woods & Poole, Inc. Prepared April 2017.

Figure 6-2: Preferred GA Operations Forecast: FDOT Districts



Source: Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; Woods & Poole, Inc. Prepared April 2017.

6.6 Forecasts of Operations Above Airport ARC

Aircraft operations at all system airports were evaluated to identify those by aircraft that exceed an airport's ARC. The ARC is an airport designation that is used for planning and design and indicates the size and type of aircraft that operate at a particular facility. The ARC is comprised of two components: the Aircraft Approach Category (AAC) and the Airplane Design Group (ADG). The AAC is represented by a letter A through E that indicates the approach speed of an

airport's design aircraft (the most demanding aircraft or group of similar aircraft that conducts 500 annual operations). The ADG is represented by a Roman numeral I through VI that indicates the wingspan and tail height of an airport's design aircraft. The combination of the AAC and ADG represents an airport's ARC. ARCs for individual airports were obtained from individual airport master plans and airport layout plans.

In general, smaller ARCs (A-I through B-I) are represented by small, single- and multi-piston aircraft, while ARCs in the B-II to C-III categories are represented by turbo-prop and corporate aircraft. The largest categories (C-IV and up) are generally represented by commercial airliners and heavy military aircraft.

Data from the FAA's TFMSC database were obtained for calendar year 2016 for all Florida system airports. This database is designed to provide information on traffic counts by aircraft that filed flight plans by airport for various data groupings, such as by aircraft type or by hour of the day.

TFMSC source data are created when pilots file flight plans and/or when flights are detected by the National Airspace System (NAS), usually via RADAR. TFMSC records are assembled by the FAA Air Traffic Airspace (ATA) Lab by combining electronic messages transmitted to the Host (En Route) computer for each flight into a complete record of that flight. It includes data for flights that fly under IFR and are captured by the FAA's enroute computers. Most Visual Flight Rules (VFR) and some non-enroute IFR traffic is excluded.

The TFMSC database contains every flight record constructed. It includes information about commercial traffic (air carriers and air taxis), GA, and military to and from every landing facility both in the U.S. and in nearby countries that participate in the TFMSC system. While this database does not necessarily capture every aircraft operation that exceeds an airport's ARC, it provides the most reliable data available for this analysis.

Data for each individual airport were examined, and operations that were equal to or below an airport's ARC were removed from the dataset. The result is the number of total operations that exceed each airport's ARC. As noted, an airport's ARC is based off the most demanding aircraft or group of similar aircraft that conducts 500 operations annually. In total, the analysis identified 14 system airports that experienced at least 500 operations that exceeded their ARC in 2016.

Based on an analysis of the airports that experienced over 500 operations exceeding their ARC, it was determined that activity at these airports generally fit into one of two conditions:

1. The airport is a GA airport with an ARC in the B-I to C-II range but experienced significant corporate activity that exceeded its designation.
2. The airport is a commercial service facility where larger scheduled airline aircraft exceeded the airport's designation.

Examples of the latter condition include Miami International Airport and Fort Lauderdale-Hollywood International Airport, where the airports have high ARCs, but scheduled commercial aircraft such as the Airbus A-380 or Boeing DC 10 operate there. This analysis is useful to indicate

where activity by larger aircraft is occurring and may influence FASP 2035 study recommendations. It is important to recognize that many of the design standards for different ARCs are the same, so even if an airport has over 500 operations that exceed its ARC, it does not pose any threat to safe operations at the facility. Airports whose total aircraft operations exceeded its ARC are shown in **Table 6-22**. It should be noted that ARCs were not available for 15 airports in the system. These airports included 11 NPIAS and 4 non-NPIAS facilities that did not have an airport master plan or airport layout plan available.

Table 6-22: Total Aircraft Operations Exceeding ARC

Associated City	Airport Name	FAA ID	Commercial/GA	FDOT District	Airport ARC	2016 Total Operations Above ARC	Primary ARCs Exceeding Existing
Total Aircraft Operations Exceeding ARC							
Boca Raton	Boca Raton Airport	BCT	GA	4	C-II	952	C-III, D-I, D-III
Destin	Destin Executive Airport	DTS	GA	3	B-II	2,224	C-I, C-II, D-I
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	Commercial Service	4	D-IV	1,673	C-V
Marathon	The Florida Keys Marathon Airport	MTH	GA	6	B-II	992	C-I, C-II
Marco Island	Marco Island Airport	MKY	GA	1	B-II	652	C-I, C-II
Miami	Miami International Airport	MIA	Commercial Service	6	D-V	3,318	D-VI
Orlando	Executive Airport	ORL	GA	5	C-II	538	C-III, D-I, D-III
Panama City	Northwest Florida-Beaches International Airport	ECP	Commercial Service	3	C-III	2,961	C-IV, D-III
Pensacola	Pensacola International Airport	PNS	Commercial Service	3	C-III	4,854	C-IV, D-III
Punta Gorda	Punta Gorda Airport	PGD	Commercial Service	1	C-III	692	D-I, D-III
St. Augustine	Northeast Florida Regional Airport	SGJ	Commercial Service	2	C-II	738	C-III, D-III
St. Petersburg	Albert Whitted Airport	SPG	GA	7	B-I	674	A-II, B-II
Tallahassee	Tallahassee International Airport	TLH	Commercial Service	3	C-IV	1,268	D-I, D-III
Tampa	Peter O. Knight Airport	TPF	GA	7	B-I	537	A-II, B-II

Source: Federal Aviation Administration (FAA) Traffic Flow Management System Counts (TFMSC) Database; Kimley-Horn. Prepared April 2017.

6.7 Coordination with Forecasting Methodology Tool Update

During the FASP 2035 development, the FDOT ASO was also underway with a project to update the forecast methodology used for a variety of aviation forecasts within the Florida Aviation Database (FAD). Since the forecasting methodology study was not far enough along to guide the FASP forecasts, the FASP forecasts reviewed and tested a variety of methodologies as previously noted. To best align the forecasting efforts of the FASP with the forecasting methodology study, the FDOT ASO provided input during the methodology study on the findings of the FASP forecasting effort. The methodology study was completed in Fall 2017 and will be used during subsequent updates of the FASP to provide continuity between FDOT ASO forecasting efforts.

6.8 D/C Analysis

To evaluate the future needs of Florida's aviation system at the FDOT District and statewide levels, an updated D/C analysis was conducted based on forecasts of total aircraft operations at all Florida system airports.

Forecasts of total aircraft operations were determined by combining preferred methodology GA operations described in **Section 6.5.2.4** and commercial operations (defined as air taxi or air carrier operations) obtained from the FAA TAF issued January 2017. The D/C analysis compared operational activity in base year 2014, and forecast years 2020, 2025, and 2035 with individual airports' annual service volume (ASV) obtained from airport master plans and other system plan data collection efforts.

There are two primary objectives associated with the D/C analysis:

1. Identify individual airports that may need to enhance airfield capacity currently or in the future
2. Identify any specific geographical areas in the state that may currently experience (or are anticipated to experience) issues with airport capacity

The results of the D/C analysis assist the FDOT ASO in understanding gaps or opportunities within the system of airports and identifying expansion or capacity enhancement needs at a local or regional level.

6.8.1 D/C Process

Individual airports' ASV were calculated based on metrics detailed in *FAA Advisory Circular 150/5060-5, Airport Capacity and Delay*. The FAA defines ASV as a reasonable estimate of an airport's annual capacity accounting for runway use, taxiway configuration, presence of a control tower, aircraft fleet mix, weather conditions, and other factors. The ASV values were compared to total operational counts in 2014 and forecast years 2020, 2025, and 2035, resulting in D/C ratios for each airport for each timeframe.

According to the FAA, when the ratio of an airport's annual operations to its ASV reaches 60 percent, an airport should begin planning for capacity enhancements. When this ratio reaches

80 percent, implementation (construction) of airport capacity enhancements should begin. It should be noted that ASV estimates were not available for five airports included in FASP 2035. These airports include:

- Downtown Fort Lauderdale Heliport
- Miami Seaplane Base
- Tallahassee Commercial Airport (closed)
- Jack Browns Seaplane Base
- Tavares Seaplane Base

D/C ratios for these airports were not calculated, and these airports are not included in FDOT District D/C analyses presented in this section.

6.8.2 D/C Methodology and Results

As noted, total operation forecasts for individual airports were developed by combining GA operations forecasts from **Section 6.5.2.4** and commercial operations from the FAA TAF issued January 2017. Base year and projected total operations were compared with ASV calculations to identify existing and projected D/C ratios. Results of this analysis for individual airports are shown in **Table 6-23**. Results for FDOT Districts are shown in **Table 6-24.**

As shown in **Table 6-23**, in base year 2014, there were five airports that exceeded the FAA's recommended 60 percent D/C ratio threshold to plan for capacity enhancements (highlighted in yellow), and three airports that exceeded the 80 percent threshold to start implementation for capacity enhancements (highlighted in orange). By 2035, it is projected that 11 airports will exceed the 60 percent threshold, six will exceed the 80 percent threshold, and three will exceed their ASV altogether (highlighted in red). It should be noted that ASV isn't necessarily an effective indicator of capacity for larger commercial airports. *ACRP Report 104: Defining and Measuring Aircraft Delay and Airport Capacity Thresholds* offers guidance to help airports, particularly larger commercial airports, understand, select, calculate, and report measures of delay and capacity that may be more effective than the calculations outlined in this analysis. Of the previously noted 20 airports that are projected to exceed the 60 percent, 80 percent, and 100 percent capacity thresholds, seven are designated as commercial service.

The majority of airports that are projected to see D/C ratios of 60 percent or above by 2035 are concentrated in FDOT Districts 4, 5, and 6. As part of FASP 2035, additional follow-on studies are recommended in **Chapter 10 – Recommendations** to continuously monitor the performance of the state's aviation system. Additional D/C analyses for the previously noted FDOT Districts are included as recommended follow-on studies. Another recommendation is that FDOT maintain a version of the D/C analysis presented in FASP 2035 and update spreadsheets as individual airport master plans and other planning-study forecasts are submitted. This will assist FDOT to not only identify impacts on District capacity and help identify when follow-on studies may be needed, but also prepare for individual airport capacity enhancements that may be needed in the future.

Table 6-23: FASP 2035 Airport D/C Ratios

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
D/C Analysis by Airport															
Apalachicola	St. George Island Airport	F47	GA	500	149,500	0.3%	505	149,500	0.3%	508	149,500	0.3%	516	149,500	0.3%
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA	24,375	319,500	7.6%	26,015	319,500	8.1%	27,470	319,500	8.6%	30,642	319,500	9.6%
Apopka	Orlando Apopka Airport	X04	GA	21,900	210,000	10.4%	23,991	210,000	11.4%	25,886	210,000	12.3%	30,135	210,000	14.3%
Arcadia	Arcadia Municipal Airport	X06	GA	19,370	184,000	10.5%	19,545	184,000	10.6%	19,692	184,000	10.7%	19,988	184,000	10.9%
Archer	Flying Ten Airport	0J8	GA	30,000	126,500	23.7%	31,971	126,500	25.3%	33,712	126,500	26.6%	37,484	126,500	29.6%
Avon Park	Avon Park Executive Airport	AVO	GA	32,400	211,548	15.3%	35,869	211,548	17.0%	39,043	211,548	18.5%	46,257	211,548	21.9%
Bartow	Bartow Municipal Airport	BOW	GA	27,759	275,000	10.1%	29,733	275,000	10.8%	31,485	275,000	11.4%	35,305	275,000	12.8%
Belle Glade	Belle Glade State Municipal Airport	X10	GA	1,800	195,500	0.9%	1,816	195,500	0.9%	1,830	195,500	0.9%	1,858	195,500	1.0%
Blountstown	Calhoun County Airport	F95	GA	1,020	195,500	0.5%	1,029	195,500	0.5%	1,037	195,500	0.5%	1,053	195,500	0.5%
Boca Raton	Boca Raton Airport	BCT	GA	56,581	185,250	30.5%	64,353	185,250	34.7%	70,196	185,250	37.9%	83,503	185,250	45.1%
Bonifay	Tri-County Airport	1J0	GA	28,376	195,500	14.5%	30,076	195,500	15.4%	31,570	195,500	16.1%	34,786	195,500	17.8%
Brooksville	Pilot Country Airport	X05	GA	10,176	195,500	5.2%	10,268	195,500	5.3%	10,345	195,500	5.3%	10,501	195,500	5.4%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA	47,396	230,000	20.6%	52,125	230,000	22.7%	56,560	230,000	24.6%	66,597	230,000	29.0%
Carrabelle	Carrabelle-Thompson Airport	X13	GA	4,261	195,500	2.2%	4,299	195,500	2.2%	4,332	195,500	2.2%	4,397	195,500	2.2%
Cedar Key	George T. Lewis Airport	CDK	GA	4,000	161,000	2.5%	4,036	161,000	2.5%	4,066	161,000	2.5%	4,128	161,000	2.6%
Clearwater	Clearwater Air Park	CLW	GA	50,590	184,000	27.5%	52,104	184,000	28.3%	53,401	184,000	29.0%	56,092	184,000	30.5%
Clewiston	Airglades Airport	2IS	GA	11,527	195,500	5.9%	11,631	195,500	5.9%	11,719	195,500	6.0%	11,896	195,500	6.1%
Crestview	Bob Sikes Airport	CEW	GA	48,600	230,000	21.1%	50,601	230,000	22.0%	52,333	230,000	22.8%	55,974	230,000	24.3%
Cross City	Cross City Airport	CTY	GA	18,000	195,500	9.2%	18,163	195,500	9.3%	18,299	195,500	9.4%	18,576	195,500	9.5%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA	28,312	173,077	16.4%	30,917	173,077	17.9%	33,277	173,077	19.2%	38,552	173,077	22.3%
Daytona Beach	Daytona Beach International Airport	DAB	CS	289,536	485,000	59.7%	314,453	485,000	64.8%	322,947	485,000	66.6%	340,873	485,000	70.3%
DeFuniak Springs	DeFuniak Springs Airport	54J	GA	16,200	184,000	8.8%	16,345	184,000	8.9%	16,466	184,000	8.9%	16,712	184,000	9.1%
DeLand	Bob Lee Flight Strip	1J6	GA	6,000	132,250	4.5%	6,054	132,250	4.6%	6,100	132,250	4.6%	6,192	132,250	4.7%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA	117,460	230,000	51.1%	123,179	230,000	53.6%	128,158	230,000	55.7%	138,730	230,000	60.3%
Destin	Destin Executive Airport	DTS	GA	63,000	230,000	27.4%	65,610	230,000	28.5%	67,877	230,000	29.5%	72,645	230,000	31.6%
Dunnellon	Marion County Airport	X35	GA	38,603	152,833	25.3%	42,201	152,833	27.6%	45,455	152,833	29.7%	52,733	152,833	34.5%
Englewood	Buchan Airport	X36	GA	2,701	126,500	2.1%	2,725	126,500	2.2%	2,746	126,500	2.2%	2,787	126,500	2.2%

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
Eustis	Mid Florida Air Service Airport	X55	GA	21,024	126,500	16.6%	23,518	126,500	18.6%	25,831	126,500	20.4%	31,196	126,500	24.7%
Everglades	Everglades Airpark	X01	GA	6,200	184,000	3.4%	6,254	184,000	3.4%	6,300	184,000	3.4%	6,392	184,000	3.5%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA	47,000	169,304	27.8%	52,185	169,304	30.8%	56,955	169,304	33.6%	67,887	169,304	40.1%
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA	168,073	192,100	87.5%	179,626	192,100	93.5%	191,564	192,100	99.7%	217,890	192,100	113.4%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	254,683	565,000	45.1%	324,488	565,000	57.4%	355,234	565,000	62.9%	421,752	565,000	74.6%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Fort Myers	Page Field	FMY	GA	89,742	202,699	44.3%	99,558	202,699	49.1%	107,558	202,699	53.1%	125,602	202,699	62.0%
Fort Myers	Southwest Florida International Airport	RSW	CS	77,656	210,000	37.0%	82,153	210,000	39.1%	89,824	210,000	42.8%	107,126	210,000	51.0%
Fort Pierce	Treasure Coast International Airport	FPR	GA	154,405	369,192	41.8%	173,497	369,192	47.0%	191,405	369,192	51.8%	233,014	369,192	63.1%
Gainesville	Gainesville Regional Airport	GNV	CS	59,494	255,045	23.3%	63,223	255,045	24.8%	62,814	255,045	24.6%	64,171	255,045	25.2%
High Springs	Oak Tree Landing Airport	6J8	GA	200	126,500	0.2%	202	126,500	0.2%	203	126,500	0.2%	206	126,500	0.2%
Hilliard	Hilliard Airpark	01J	GA	5,000	126,500	4.0%	5,045	126,500	4.0%	5,083	126,500	4.0%	5,160	126,500	4.1%
Hollywood	North Perry Airport	HWO	GA	154,808	440,000	35.2%	167,331	440,000	38.0%	178,667	440,000	40.6%	203,697	440,000	46.3%
Miami	Miami Homestead General Aviation Airport	X51	GA	76,617	221,000	34.7%	81,376	221,000	36.8%	85,574	221,000	38.7%	94,647	221,000	42.8%
Immokalee	Immokalee Regional Airport	IMM	GA	36,500	230,000	15.9%	40,962	230,000	17.8%	45,095	230,000	19.6%	54,653	230,000	23.8%
Indiantown	Indiantown Airport	X58	GA	5,000	126,500	4.0%	5,045	126,500	4.0%	5,083	126,500	4.0%	5,160	126,500	4.1%
Inverness	Inverness Airport	INF	GA	15,000	230,000	6.5%	15,136	230,000	6.6%	15,249	230,000	6.6%	15,480	230,000	6.7%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA	101,139	197,449	51.2%	108,597	197,449	55.0%	114,759	197,449	58.1%	128,175	197,449	64.9%
Jacksonville	Herlong Recreational Airport	HEG	GA	80,700	204,128	39.5%	86,165	204,128	42.2%	91,000	204,128	44.6%	101,501	204,128	49.7%
Jacksonville	Cecil Airport	VQQ	GA	92,299	264,890	34.8%	98,925	264,890	37.3%	104,387	264,890	39.4%	116,250	264,890	43.9%
Jacksonville	Jacksonville International Airport	JAX	CS	87,922	334,000	26.3%	109,908	334,000	32.9%	117,585	334,000	35.2%	134,301	334,000	40.2%
Key West	Key West International Airport	EYW	CS	53,825	165,792	32.5%	55,061	165,792	33.2%	57,178	165,792	34.5%	61,294	165,792	37.0%
Keystone Heights	Keystone Airpark	42J	GA	32,400	229,500	14.1%	36,236	229,500	15.8%	39,782	229,500	17.3%	47,965	229,500	20.9%
La Belle	La Belle Municipal Airport	X14	GA	22,000	195,500	11.3%	23,551	195,500	12.0%	24,927	195,500	12.8%	27,926	195,500	14.3%
Lake City	Lake City Gateway Airport	LCQ	GA	28,714	230,000	12.5%	30,830	230,000	13.4%	32,748	230,000	14.2%	36,979	230,000	16.1%
Lake Wales	Chalet Suzanne Air Strip	X25	GA	3,212	126,500	2.5%	3,234	126,500	2.6%	3,252	126,500	2.6%	3,289	126,500	2.6%
Lake Wales	Lake Wales Municipal Airport	X07	GA	19,260	163,045	11.8%	20,626	163,045	12.7%	21,837	163,045	13.4%	24,479	163,045	15.0%
Lakeland	South Lakeland Airport	X49	GA	12,000	161,000	7.5%	12,108	161,000	7.5%	12,199	161,000	7.6%	12,384	161,000	7.7%
Lakeland	Lakeland Linder Regional Airport	LAL	GA	97,727	230,000	42.5%	104,649	230,000	45.5%	110,755	230,000	48.2%	124,068	230,000	53.9%

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
Leesburg	Leesburg International Airport	LEE	GA	52,144	230,000	22.7%	58,908	230,000	25.6%	64,865	230,000	28.2%	78,679	230,000	34.2%
Live Oak	Suwannee County Airport	24J	GA	16,300	195,500	8.3%	16,447	195,500	8.4%	16,571	195,500	8.5%	16,821	195,500	8.6%
Marathon	The Florida Keys Marathon Airport	MTH	GA	67,953	195,500	34.8%	71,114	195,500	36.4%	73,851	195,500	37.8%	79,528	195,500	40.7%
Marco Island	Marco Island Airport	MKY	GA	20,000	218,500	9.2%	22,078	218,500	10.1%	24,003	218,500	11.0%	28,455	218,500	13.0%
Marianna	Marianna Municipal Airport	MAI	GA	28,016	195,500	14.3%	29,228	195,500	15.0%	30,279	195,500	15.5%	32,494	195,500	16.6%
Melbourne	Melbourne International Airport	MLB	CS	132,316	374,500	35.3%	99,236	374,500	26.5%	100,742	374,500	26.9%	106,864	374,500	28.5%
Merritt Island	Merritt Island Airport	COI	GA	113,500	196,634	57.7%	119,679	196,634	60.9%	125,089	196,634	63.6%	136,661	196,634	69.5%
Miami	Miami-Opa Locka Executive Airport	OPF	GA	131,836	163,020	80.9%	142,755	163,020	87.6%	150,811	163,020	92.5%	168,403	163,020	103.3%
Miami	Dade-Collier Training and Transition Airport	TNT	GA	14,468	189,000	7.7%	14,599	189,000	7.7%	14,709	189,000	7.8%	14,931	189,000	7.9%
Miami	Miami Executive Airport	TMB	GA	254,353	256,752	99.1%	270,640	256,752	105.4%	284,850	256,752	110.9%	315,568	256,752	122.9%
Miami	Miami International Airport	MIA	CS	400,822	658,000	60.9%	439,449	658,000	66.8%	472,961	658,000	71.9%	554,213	658,000	84.2%
Miami	Miami Seaplane Base	X44	GA	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Milton	Peter Prince Field	2R4	GA	93,950	195,500	48.1%	105,799	195,500	54.1%	116,808	195,500	59.7%	142,379	195,500	72.8%
Naples	Naples Municipal Airport	APF	GA	93,295	230,000	40.6%	105,846	230,000	46.0%	115,472	230,000	50.2%	137,685	230,000	59.9%
Navarre	Ft. Walton Beach Airport	1J9	GA	8,030	126,500	6.3%	8,103	126,500	6.4%	8,163	126,500	6.5%	8,287	126,500	6.6%
New Smyrna Beach	Massey Ranch Airpark	X50	GA	12,046	195,500	6.2%	11,628	195,500	5.9%	11,702	195,500	6.0%	11,852	195,500	6.1%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA	158,275	230,000	68.8%	165,390	230,000	71.9%	172,024	230,000	74.8%	186,111	230,000	80.9%
Ocala	Ocala International-Jim Taylor Field	OCF	GA	49,316	225,000	21.9%	53,880	225,000	23.9%	57,997	225,000	25.8%	67,194	225,000	29.9%
Okeechobee	Okeechobee County Airport	OBE	GA	50,000	195,500	25.6%	52,049	195,500	26.6%	53,821	195,500	27.5%	57,548	195,500	29.4%
Orlando	Kissimmee Gateway Airport	ISM	GA	85,708	230,000	37.3%	94,151	230,000	40.9%	101,706	230,000	44.2%	118,712	230,000	51.6%
Orlando	Executive Airport	ORL	GA	109,778	267,300	41.1%	120,177	267,300	45.0%	129,189	267,300	48.3%	149,402	267,300	55.9%
Orlando	Orlando-Sanford International Airport	SFB	CS	206,246	406,089	50.8%	296,306	406,089	73.0%	307,209	406,089	75.7%	327,397	406,089	80.6%
Orlando	Orlando International Airport	MCO	CS	295,403	740,000	39.9%	353,875	740,000	47.8%	393,744	740,000	53.2%	479,088	740,000	64.7%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA	109,447	218,500	50.1%	114,796	218,500	52.5%	119,451	218,500	54.7%	129,335	218,500	59.2%
Pahokee	Palm Beach County Glades Airport	PHK	GA	36,750	69,253	53.1%	40,627	69,253	58.7%	44,171	69,253	63.8%	52,218	69,253	75.4%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA	37,186	319,500	11.6%	38,960	319,500	12.2%	40,502	319,500	12.7%	43,775	319,500	13.7%
Palm Coast	Flagler County Airport	FIN	GA	148,526	259,300	57.3%	170,022	259,300	65.6%	190,290	259,300	73.4%	238,374	259,300	91.9%
Palmetto	Airport Manatee	48X	GA	7,100	126,500	5.6%	7,164	126,500	5.7%	7,218	126,500	5.7%	7,327	126,500	5.8%
Panacea	Wakulla County Airport	2J0	GA	2,380	126,500	1.9%	2,402	126,500	1.9%	2,420	126,500	1.9%	2,456	126,500	1.9%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	57,208	225,000	25.4%	64,913	225,000	28.9%	66,409	225,000	29.5%	69,591	225,000	30.9%

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
Pensacola	Ferguson Airport	82J	GA	67,500	149,500	45.2%	69,455	149,500	46.5%	71,126	149,500	47.6%	74,592	149,500	49.9%
Pensacola	Pensacola International Airport	PNS	CS	105,693	215,000	49.2%	109,258	215,000	50.8%	110,195	215,000	51.3%	114,369	215,000	53.2%
Perry	Perry-Foley Airport	40J	GA	18,400	301,750	6.1%	18,564	301,750	6.2%	18,703	301,750	6.2%	18,982	301,750	6.3%
Pierson	Pierson Municipal Airport	2J8	GA	14,040	126,500	11.1%	14,167	126,500	11.2%	14,273	126,500	11.3%	14,489	126,500	11.5%
Plant City	Plant City Airport	PCM	GA	47,975	195,500	24.5%	52,676	195,500	26.9%	56,947	195,500	29.1%	66,558	195,500	34.0%
Pompano Beach	Pompano Beach Airpark	PMP	GA	133,805	230,000	58.2%	144,174	230,000	62.7%	153,927	230,000	66.9%	175,460	230,000	76.3%
Port St. Joe	Costin Airport	A51	GA	12,500	126,500	9.9%	12,613	126,500	10.0%	12,708	126,500	10.0%	12,900	126,500	10.2%
Punta Gorda	Shell Creek Airpark	F13	GA	2,190	149,500	1.5%	2,210	149,500	1.5%	2,226	149,500	1.5%	2,260	149,500	1.5%
Punta Gorda	Punta Gorda Airport	PGD	CS	54,072	355,000	15.2%	74,312	355,000	20.9%	76,785	355,000	21.6%	82,025	355,000	23.1%
Quincy	Quincy Municipal Airport	2J9	GA	6,240	195,500	3.2%	6,296	195,500	3.2%	6,344	195,500	3.2%	6,440	195,500	3.3%
River Ranch	River Ranch Resort Airport	2RR	GA	0	172,500	0.0%	0	172,500	0.0%	0	172,500	0.0%	0	172,500	0.0%
Sarasota	Sarasota Bradenton International Airport	SRQ	CS	100,889	243,600	41.4%	104,509	243,600	42.9%	106,795	243,600	43.8%	111,684	243,600	45.8%
Sebastian	Sebastian Municipal Airport	X26	GA	37,240	200,313	18.6%	41,089	200,313	20.5%	44,607	200,313	22.3%	52,596	200,313	26.3%
Sebring	Sebring Regional Airport	SEF	GA	103,087	355,000	29.0%	114,126	355,000	32.1%	124,223	355,000	35.0%	147,175	355,000	41.5%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	136,079	188,930	72.0%	148,623	188,930	78.7%	153,458	188,930	81.2%	163,758	188,930	86.7%
St. Petersburg	Albert Whitted Airport	SPG	GA	98,317	218,500	45.0%	99,132	218,500	45.4%	101,541	218,500	46.5%	106,540	218,500	48.8%
St. Petersburg/ Clearwater	St. Pete-Clearwater International Airport	PIE	CS	128,412	215,000	59.7%	110,677	215,000	51.5%	112,795	215,000	52.5%	117,366	215,000	54.6%
Stuart	Witham Field	SUA	GA	79,774	221,840	36.0%	88,079	221,840	39.7%	94,994	221,840	42.8%	110,614	221,840	49.9%
Tallahassee/ Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0%	0	0	0%	0	0	0%	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	56,388	235,721	23.9%	56,010	235,721	23.8%	56,334	235,721	23.9%	58,898	235,721	25.0%
Tampa	Tampa North Aero Park	X39	GA	11,000	161,000	6.8%	11,099	161,000	6.9%	11,183	161,000	6.9%	11,352	161,000	7.1%
Tampa	Peter O. Knight Airport	TPF	GA	53,800	195,500	27.5%	58,879	195,500	30.1%	63,505	195,500	32.5%	73,884	195,500	37.8%
Tampa	Tampa Executive Airport	VDF	GA	94,590	270,000	35.0%	103,802	270,000	38.4%	112,165	270,000	41.5%	130,976	270,000	48.5%
Tampa	Tampa International Airport	TPA	CS	183,931	575,000	32.0%	196,925	575,000	34.2%	213,111	575,000	37.1%	248,742	575,000	43.3%
Tavares	Tavares Seaplane Base	FA1	GA	7,000	N/A	N/A	7,063	N/A	N/A	7,116	N/A	N/A	7,224	N/A	N/A
Titusville	Arthur Dunn Air Park	X21	GA	40,702	184,000	22.1%	42,879	184,000	23.3%	44,832	184,000	24.4%	49,012	184,000	26.6%
Titusville	Space Coast Regional Airport	TIX	GA	97,438	340,789	28.6%	102,745	340,789	30.1%	107,439	340,789	31.5%	117,481	340,789	34.5%
Umatilla	Umatilla Municipal Airport	X23	GA	5,000	195,500	2.6%	5,045	195,500	2.6%	5,083	195,500	2.6%	5,160	195,500	2.6%
Valkaria	Valkaria Airport	X59	GA	33,100	230,000	14.4%	34,926	230,000	15.2%	36,525	230,000	15.9%	39,945	230,000	17.4%

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	52,141	230,000	22.7%	55,016	230,000	23.9%	56,608	230,000	24.6%	60,210	230,000	26.2%
Venice	Venice Municipal Airport	VNC	GA	60,834	230,000	26.4%	65,032	230,000	28.3%	68,752	230,000	29.9%	76,840	230,000	33.4%
Vero Beach	New Hibiscus Airpark	X52	GA	25,424	126,500	20.1%	28,627	126,500	22.6%	30,762	126,500	24.3%	35,612	126,500	28.2%
Vero Beach	Vero Beach Regional Airport	VRB	GA	211,200	337,250	62.6%	234,133	337,250	69.4%	254,303	337,250	75.4%	300,107	337,250	89.0%
Wauchula	Wauchula Municipal Airport	CHN	GA	8,200	195,500	4.2%	8,274	195,500	4.2%	8,336	195,500	4.3%	8,462	195,500	4.3%
West Palm Beach	Palm Beach International Airport	PBI	CS	137,985	221,039	62.4%	149,503	221,039	67.6%	156,839	221,039	71.0%	172,731	221,039	78.1%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA	97,400	280,912	34.7%	106,970	280,912	38.1%	115,718	280,912	41.2%	135,583	280,912	48.3%
West Palm Beach	Palm Beach County Park Airport	LNA	GA	126,750	447,139	28.3%	140,001	447,139	31.3%	152,113	447,139	34.0%	179,618	447,139	40.2%
Williston	Williston Municipal Airport	X60	GA	16,250	221,000	7.4%	16,397	221,000	7.4%	16,520	221,000	7.5%	16,770	221,000	7.6%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA	60,000	208,896	28.7%	64,267	208,896	30.8%	68,054	208,896	32.6%	76,311	208,896	36.5%
Winter Haven	Jack Browns Seaplane Base	F57	GA	10,000	N/A	N/A	10,090	N/A	N/A	10,166	N/A	N/A	10,320	N/A	N/A
Zellwood	Bob White Field	X61	GA	20,000	161,000	12.4%	21,910	161,000	13.6%	23,640	161,000	14.7%	27,520	161,000	17.1%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA	49,425	226,200	21.9%	54,501	226,200	24.1%	59,127	226,200	26.1%	69,596	226,200	30.8%

Source: Florida Aviation System Plan (FASP) 2035 Phase 1 Airport Demand/Capacity Analysis; Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

As shown in **Table 6-24**, capacity constraints are anticipated to occur primarily in FDOT District 6, and to a lesser extent, Districts 4 and 5. While the results of this analysis do not necessarily trigger a need for FDOT Districts to implement capacity enhancements at airports, they do identify geographical areas that could face capacity constraints in the future. As such, it is recommended that these FDOT Districts be monitored for activity and trends in the future to identify if capacity enhancements at specific airports or in specific districts may be needed.

Table 6-24: FASP 2035 FDOT District D/C Ratios

FDOT District	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
D/C Analysis by FDOT District												
1	1,017,721	5,375,788	18.9%	1,112,468	5,375,788	20.7%	1,182,117	5,375,788	22.0%	1,337,924	5,375,788	24.9%
2	811,083	3,846,996	21.1%	884,475	3,846,996	23.0%	927,149	3,846,996	24.1%	1,022,889	3,846,996	26.6%
3	676,378	3,720,721	18.2%	713,572	3,720,721	19.2%	738,986	3,720,721	19.9%	799,340	3,720,721	21.5%
4	1,681,678	4,207,788	40.0%	1,889,360	4,207,788	44.9%	2,041,412	4,207,788	48.5%	2,381,414	4,207,788	56.6%
5	2,177,508	6,147,195	35.4%	2,413,117	6,147,195	39.3%	2,560,176	6,147,195	41.6%	2,883,135	6,147,195	46.9%
6	999,874	1,849,064	54.1%	1,074,994	1,849,064	58.1%	1,139,933	1,849,064	61.6%	1,288,584	1,849,064	69.7%
7	818,924	3,069,277	26.7%	848,240	3,069,277	27.6%	899,207	3,069,277	29.3%	1,012,236	3,069,277	33.0%
State Total	**8,183,166**	**28,216,829**	**29.0%**	**8,936,226**	**28,216,829**	**31.7%**	**9,488,981**	**28,216,829**	**33.6%**	**10,725,520**	**28,216,829**	**38.0%**

Source: Florida Aviation System Plan (FASP) 2035 Phase 1 Airport Demand/Capacity Analysis; Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; Kimley-Horn. Prepared April 2017.

Based on forecasts of GA operations presented in **Section 6.5.2.4**, a sensitivity analysis was developed, which is presented In **Appendix B – Forecasting Tables**. This sensitivity analysis identified GA operations by airport with a low growth scenario (10 percent below preferred forecast) and a high growth scenario (10 percent above preferred forecast). This analysis was developed to provide a range of potential activity levels to help FDOT and airports plan in the event that forecasted activity exceeds or falls short of the preferred forecast. GA operations identified in the high growth scenario from **Appendix B – Forecasting Tables** are combined with commercial operations to determine total operations. A summary of the high growth scenario from the sensitivity analysis is shown in **Table 6-25**. As shown, by 2035 under the high growth scenario described in the sensitivity analysis, it is projected that 11 airports will exceed the 60 percent threshold, nine will exceed the 80 percent threshold, and four will exceed their ASV altogether.

Table 6-25: FASP 2035 Airport D/C Ratios: Sensitivity Analysis High Growth

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
D/C Analysis by Airport: Sensitivity Analysis															
Apalachicola	St. George Island Airport	F47	GA	500	149,500	0.3%	555	149,500	0.4%	559	149,500	0.4%	568	149,500	0.4%
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA	24,375	319,500	7.6%	28,494	319,500	8.9%	30,094	319,500	9.4%	33,583	319,500	10.5%
Apopka	Orlando Apopka Airport	X04	GA	21,900	210,000	10.4%	26,390	210,000	12.6%	28,474	210,000	13.6%	33,148	210,000	15.8%
Arcadia	Arcadia Municipal Airport	X06	GA	19,370	184,000	10.5%	21,496	184,000	11.7%	21,658	184,000	11.8%	21,984	184,000	11.9%
Archer	Flying Ten Airport	0J8	GA	30,000	126,500	23.7%	35,168	126,500	27.8%	37,083	126,500	29.3%	41,232	126,500	32.6%
Avon Park	Avon Park Executive Airport	AVO	GA	32,400	211,548	15.3%	39,456	211,548	18.7%	42,947	211,548	20.3%	50,882	211,548	24.1%
Bartow	Bartow Municipal Airport	BOW	GA	27,759	275,000	10.1%	32,707	275,000	11.9%	34,634	275,000	12.6%	38,836	275,000	14.1%
Belle Glade	Belle Glade State Municipal Airport	X10	GA	1,800	195,500	0.9%	1,998	195,500	1.0%	2,013	195,500	1.0%	2,043	195,500	1.0%
Blountstown	Calhoun County Airport	F95	GA	1,020	195,500	0.5%	1,132	195,500	0.6%	1,141	195,500	0.6%	1,158	195,500	0.6%
Boca Raton	Boca Raton Airport	BCT	GA	56,581	185,250	30.5%	69,782	185,250	37.7%	76,101	185,250	41.1%	90,491	185,250	48.8%
Bonifay	Tri-County Airport	1J0	GA	28,376	195,500	14.5%	33,073	195,500	16.9%	34,717	195,500	17.8%	38,254	195,500	19.6%
Brooksville	Pilot Country Airport	X05	GA	10,176	195,500	5.2%	11,295	195,500	5.8%	11,380	195,500	5.8%	11,552	195,500	5.9%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA	47,396	230,000	20.6%	57,156	230,000	24.9%	62,023	230,000	27.0%	73,039	230,000	31.8%
Carrabelle	Carrabelle-Thompson Airport	X13	GA	4,261	195,500	2.2%	4,729	195,500	2.4%	4,765	195,500	2.4%	4,837	195,500	2.5%
Cedar Key	George T. Lewis Airport	CDK	GA	4,000	161,000	2.5%	4,440	161,000	2.8%	4,473	161,000	2.8%	4,541	161,000	2.8%
Clearwater	Clearwater Air Park	CLW	GA	50,590	184,000	27.5%	57,312	184,000	31.1%	58,738	184,000	31.9%	61,698	184,000	33.5%
Clewiston	Airglades Airport	2IS	GA	11,527	195,500	5.9%	12,794	195,500	6.5%	12,890	195,500	6.6%	13,085	195,500	6.7%
Crestview	Bob Sikes Airport	CEW	GA	48,600	230,000	21.1%	55,639	230,000	24.2%	57,543	230,000	25.0%	61,545	230,000	26.8%
Cross City	Cross City Airport	CTY	GA	18,000	195,500	9.2%	19,979	195,500	10.2%	20,129	195,500	10.3%	20,433	195,500	10.5%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA	28,312	173,077	16.4%	33,964	173,077	19.6%	36,557	173,077	21.1%	42,352	173,077	24.5%
Daytona Beach	Daytona Beach International Airport	DAB	CS	289,536	485,000	59.7%	334,550	485,000	69.0%	343,280	485,000	70.8%	361,687	485,000	74.6%
DeFuniak Springs	DeFuniak Springs Airport	54J	GA	16,200	184,000	8.8%	17,959	184,000	9.8%	18,093	184,000	9.8%	18,363	184,000	10.0%
DeLand	Bob Lee Flight Strip	1J6	GA	6,000	132,250	4.5%	6,660	132,250	5.0%	6,710	132,250	5.1%	6,811	132,250	5.2%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA	117,460	230,000	51.1%	135,457	230,000	58.9%	140,934	230,000	61.3%	152,563	230,000	66.3%
Destin	Destin Executive Airport	DTS	GA	63,000	230,000	27.4%	72,106	230,000	31.4%	74,594	230,000	32.4%	79,828	230,000	34.7%
Dunnellon	Marion County Airport	X35	GA	38,603	152,833	25.3%	46,421	152,833	30.4%	50,000	152,833	32.7%	58,007	152,833	38.0%

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
Englewood	Buchan Airport	X36	GA	2,701	126,500	2.1%	2,998	126,500	2.4%	3,020	126,500	2.4%	3,066	126,500	2.4%
Eustis	Mid Florida Air Service Airport	X55	GA	21,024	126,500	16.6%	25,769	126,500	20.4%	28,314	126,500	22.4%	34,215	126,500	27.0%
Everglades	Everglades Airpark	X01	GA	6,200	184,000	3.4%	6,860	184,000	3.7%	6,910	184,000	3.8%	7,011	184,000	3.8%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA	47,000	169,304	27.8%	57,243	169,304	33.8%	62,490	169,304	36.9%	74,516	169,304	44.0%
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA	168,073	192,100	87.5%	196,190	192,100	102.1%	209,252	192,100	108.9%	238,057	192,100	123.9%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	254,683	565,000	45.1%	328,148	565,000	58.1%	358,894	565,000	63.5%	425,412	565,000	75.3%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Fort Myers	Page Field	FMY	GA	89,742	202,699	44.3%	109,212	202,699	53.9%	118,012	202,699	58.2%	137,860	202,699	68.0%
Fort Myers	Southwest Florida International Airport	RSW	CS	77,656	210,000	37.0%	82,940	210,000	39.5%	90,592	210,000	43.1%	107,856	210,000	51.4%
Fort Pierce	Treasure Coast International Airport	FPR	GA	154,405	369,192	41.8%	190,684	369,192	51.6%	210,382	369,192	57.0%	256,152	369,192	69.4%
Gainesville	Gainesville Regional Airport	GNV	CS	59,494	255,045	23.3%	68,670	255,045	26.9%	68,271	255,045	26.8%	69,647	255,045	27.3%
High Springs	Oak Tree Landing Airport	6J8	GA	200	126,500	0.2%	222	126,500	0.2%	224	126,500	0.2%	227	126,500	0.2%
Hilliard	Hilliard Airpark	01J	GA	5,000	126,500	4.0%	5,550	126,500	4.4%	5,591	126,500	4.4%	5,676	126,500	4.5%
Hollywood	North Perry Airport	HWO	GA	154,808	440,000	35.2%	184,052	440,000	41.8%	196,522	440,000	44.7%	224,054	440,000	50.9%
Miami	Miami Homestead General Aviation Airport	X51	GA	76,617	221,000	34.7%	89,304	221,000	40.4%	93,921	221,000	42.5%	103,902	221,000	47.0%
Immokalee	Immokalee Regional Airport	IMM	GA	36,500	230,000	15.9%	45,059	230,000	19.6%	49,605	230,000	21.6%	60,119	230,000	26.1%
Indiantown	Indiantown Airport	X58	GA	5,000	126,500	4.0%	5,550	126,500	4.4%	5,591	126,500	4.4%	5,676	126,500	4.5%
Inverness	Inverness Airport	INF	GA	15,000	230,000	6.5%	16,649	230,000	7.2%	16,774	230,000	7.3%	17,028	230,000	7.4%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA	101,139	197,449	51.2%	119,282	197,449	60.4%	126,044	197,449	63.8%	140,761	197,449	71.3%
Jacksonville	Herlong Recreational Airport	HEG	GA	80,700	204,128	39.5%	94,781	204,128	46.4%	100,101	204,128	49.0%	111,651	204,128	54.7%
Jacksonville	Cecil Airport	VQQ	GA	92,299	264,890	34.8%	108,659	264,890	41.0%	114,668	264,890	43.3%	127,717	264,890	48.2%
Jacksonville	Jacksonville International Airport	JAX	CS	87,922	334,000	26.3%	112,834	334,000	33.8%	120,526	334,000	36.1%	137,276	334,000	41.1%
Key West	Key West International Airport	EYW	CS	53,825	165,792	32.5%	58,510	165,792	35.3%	60,644	165,792	36.6%	64,799	165,792	39.1%
Keystone Heights	Keystone Airpark	42J	GA	32,400	229,500	14.1%	39,809	229,500	17.3%	43,710	229,500	19.0%	52,712	229,500	23.0%
La Belle	La Belle Municipal Airport	X14	GA	22,000	195,500	11.3%	25,894	195,500	13.2%	27,407	195,500	14.0%	30,707	195,500	15.7%
Lake City	Lake City Gateway Airport	LCQ	GA	28,714	230,000	12.5%	33,768	230,000	14.7%	35,861	230,000	15.6%	40,474	230,000	17.6%
Lake Wales	Chalet Suzanne Air Strip	X25	GA	3,212	126,500	2.5%	3,477	126,500	2.7%	3,497	126,500	2.8%	3,538	126,500	2.8%
Lake Wales	Lake Wales Municipal Airport	X07	GA	19,260	163,045	11.8%	22,682	163,045	13.9%	24,015	163,045	14.7%	26,921	163,045	16.5%
Lakeland	South Lakeland Airport	X49	GA	12,000	161,000	7.5%	13,319	161,000	8.3%	13,419	161,000	8.3%	13,622	161,000	8.5%

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
Lakeland	Lakeland Linder Regional Airport	LAL	GA	97,727	230,000	42.5%	115,011	230,000	50.0%	121,728	230,000	52.9%	136,372	230,000	59.3%
Leesburg	Leesburg International Airport	LEE	GA	52,144	230,000	22.7%	64,706	230,000	28.1%	71,259	230,000	31.0%	86,454	230,000	37.6%
Live Oak	Suwannee County Airport	24J	GA	16,300	195,500	8.3%	18,092	195,500	9.3%	18,228	195,500	9.3%	18,503	195,500	9.5%
Marathon	The Florida Keys Marathon Airport	MTH	GA	67,953	195,500	34.8%	77,752	195,500	39.8%	80,730	195,500	41.3%	86,917	195,500	44.5%
Marco Island	Marco Island Airport	MKY	GA	20,000	218,500	9.2%	23,986	218,500	11.0%	26,103	218,500	11.9%	31,000	218,500	14.2%
Marianna	Marianna Municipal Airport	MAI	GA	28,016	195,500	14.3%	32,151	195,500	16.4%	33,307	195,500	17.0%	35,743	195,500	18.3%
Melbourne	Melbourne International Airport	MLB	CS	132,316	374,500	35.3%	108,252	374,500	28.9%	109,990	374,500	29.4%	116,598	374,500	31.1%
Merritt Island	Merritt Island Airport	COI	GA	113,500	196,634	57.7%	131,497	196,634	66.9%	137,447	196,634	69.9%	150,177	196,634	76.4%
Miami	Miami-Opa Locka Executive Airport	OPF	GA	131,836	163,020	80.9%	155,945	163,020	95.7%	164,698	163,020	101.0%	183,800	163,020	112.7%
Miami	Dade-Collier Training and Transition Airport	TNT	GA	14,468	189,000	7.7%	16,059	189,000	8.5%	16,179	189,000	8.6%	16,424	189,000	8.7%
Miami	Miami Executive Airport	TMB	GA	254,353	256,752	99.1%	297,478	256,752	115.9%	313,110	256,752	122.0%	346,900	256,752	135.1%
Miami	Miami International Airport	MIA	CS	400,822	658,000	60.9%	441,388	658,000	67.1%	474,900	658,000	72.2%	556,152	658,000	84.5%
Miami	Miami Seaplane Base	X44	GA	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A	0	N/A	N/A
Milton	Peter Prince Field	2R4	GA	93,950	195,500	48.1%	116,379	195,500	59.5%	128,488	195,500	65.7%	156,617	195,500	80.1%
Naples	Naples Municipal Airport	APF	GA	93,295	230,000	40.6%	115,143	230,000	50.1%	125,707	230,000	54.7%	150,089	230,000	65.3%
Navarre	Ft. Walton Beach Airport	1J9	GA	8,030	126,500	6.3%	8,913	126,500	7.0%	8,980	126,500	7.1%	9,115	126,500	7.2%
New Smyrna Beach	Massey Ranch Airpark	X50	GA	12,046	195,500	6.2%	12,612	195,500	6.5%	12,693	195,500	6.5%	12,858	195,500	6.6%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA	158,275	230,000	68.8%	181,750	230,000	79.0%	189,048	230,000	82.2%	204,543	230,000	88.9%
Ocala	Ocala International-Jim Taylor Field	OCF	GA	49,316	225,000	21.9%	59,149	225,000	26.3%	63,671	225,000	28.3%	73,777	225,000	32.8%
Okeechobee	Okeechobee County Airport	OBE	GA	50,000	195,500	25.6%	57,254	195,500	29.3%	59,203	195,500	30.3%	63,303	195,500	32.4%
Orlando	Kissimmee Gateway Airport	ISM	GA	85,708	230,000	37.3%	103,212	230,000	44.9%	111,483	230,000	48.5%	130,094	230,000	56.6%
Orlando	Executive Airport	ORL	GA	109,778	267,300	41.1%	131,590	267,300	49.2%	141,502	267,300	52.9%	163,737	267,300	61.3%
Orlando	Orlando-Sanford International Airport	SFB	CS	206,246	406,089	50.8%	314,313	406,089	77.4%	325,609	406,089	80.2%	346,612	406,089	85.4%
Orlando	Orlando International Airport	MCO	CS	295,403	740,000	39.9%	355,395	740,000	48.0%	395,264	740,000	53.4%	480,608	740,000	64.9%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA	109,447	218,500	50.1%	126,275	218,500	57.8%	131,396	218,500	60.1%	142,268	218,500	65.1%
Pahokee	Palm Beach County Glades Airport	PHK	GA	36,750	69,253	53.1%	44,665	69,253	64.5%	48,563	69,253	70.1%	57,415	69,253	82.9%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA	37,186	319,500	11.6%	42,827	319,500	13.4%	44,525	319,500	13.9%	48,125	319,500	15.1%
Palm Coast	Flagler County Airport	FIN	GA	148,526	259,300	57.3%	186,998	259,300	72.1%	209,292	259,300	80.7%	262,184	259,300	101.1%
Palmetto	Airport Manatee	48X	GA	7,100	126,500	5.6%	7,881	126,500	6.2%	7,940	126,500	6.3%	8,060	126,500	6.4%

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
Panacea	Wakulla County Airport	2J0	GA	2,380	126,500	1.9%	2,642	126,500	2.1%	2,662	126,500	2.1%	2,702	126,500	2.1%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	57,208	225,000	25.4%	70,053	225,000	31.1%	71,579	225,000	31.8%	74,821	225,000	33.3%
Pensacola	Ferguson Airport	82J	GA	67,500	149,500	45.2%	76,400	149,500	51.1%	78,239	149,500	52.3%	82,051	149,500	54.9%
Pensacola	Pensacola International Airport	PNS	CS	105,693	215,000	49.2%	117,624	215,000	54.7%	118,561	215,000	55.1%	122,735	215,000	57.1%
Perry	Perry-Foley Airport	40J	GA	18,400	301,750	6.1%	20,401	301,750	6.8%	20,553	301,750	6.8%	20,860	301,750	6.9%
Pierson	Pierson Municipal Airport	2J8	GA	14,040	126,500	11.1%	15,584	126,500	12.3%	15,701	126,500	12.4%	15,938	126,500	12.6%
Plant City	Plant City Airport	PCM	GA	47,975	195,500	24.5%	57,921	195,500	29.6%	62,617	195,500	32.0%	73,183	195,500	37.4%
Pompano Beach	Pompano Beach Airpark	PMP	GA	133,805	230,000	58.2%	158,560	230,000	68.9%	169,287	230,000	73.6%	192,974	230,000	83.9%
Port St. Joe	Costin Airport	A51	GA	12,500	126,500	9.9%	13,874	126,500	11.0%	13,979	126,500	11.1%	14,190	126,500	11.2%
Punta Gorda	Shell Creek Airpark	F13	GA	2,190	149,500	1.5%	2,431	149,500	1.6%	2,449	149,500	1.6%	2,486	149,500	1.7%
Punta Gorda	Punta Gorda Airport	PGD	CS	54,072	355,000	15.2%	80,654	355,000	22.7%	83,287	355,000	23.5%	88,858	355,000	25.0%
Quincy	Quincy Municipal Airport	2J9	GA	6,240	195,500	3.2%	6,926	195,500	3.5%	6,978	195,500	3.6%	7,083	195,500	3.6%
River Ranch	River Ranch Resort Airport	2RR	GA	0	172,500	0.0%	0	172,500	0.0%	0	172,500	0.0%	0	172,500	0.0%
Sarasota	Sarasota Bradenton International Airport	SRQ	CS	100,889	243,600	41.4%	113,106	243,600	46.4%	115,473	243,600	47.4%	120,528	243,600	49.5%
Sebastian	Sebastian Municipal Airport	X26	GA	37,240	200,313	18.6%	45,098	200,313	22.5%	48,968	200,313	24.4%	57,756	200,313	28.8%
Sebring	Sebring Regional Airport	SEF	GA	103,087	355,000	29.0%	125,538	355,000	35.4%	136,645	355,000	38.5%	161,892	355,000	45.6%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	136,079	188,930	72.0%	162,530	188,930	86.0%	167,801	188,930	88.8%	179,031	188,930	94.8%
St. Petersburg	Albert Whitted Airport	SPG	GA	98,317	218,500	45.0%	108,807	218,500	49.8%	111,456	218,500	51.0%	116,956	218,500	53.5%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	128,412	215,000	59.7%	119,742	215,000	55.7%	121,923	215,000	56.7%	126,622	215,000	58.9%
Stuart	Witham Field	SUA	GA	79,774	221,840	36.0%	96,317	221,840	43.4%	103,923	221,840	46.8%	121,105	221,840	54.6%
Tallahassee/Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0%	0	0	0%	0	0	0%	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	56,388	235,721	23.9%	60,084	235,721	25.5%	60,408	235,721	25.6%	62,972	235,721	26.7%
Tampa	Tampa North Aero Park	X39	GA	11,000	161,000	6.8%	12,209	161,000	7.6%	12,301	161,000	7.6%	12,487	161,000	7.8%
Tampa	Peter O. Knight Airport	TPF	GA	53,800	195,500	27.5%	64,368	195,500	32.9%	69,439	195,500	35.5%	80,818	195,500	41.3%
Tampa	Tampa Executive Airport	VDF	GA	94,590	270,000	35.0%	114,131	270,000	42.3%	123,329	270,000	45.7%	144,021	270,000	53.3%
Tampa	Tampa International Airport	TPA	CS	183,931	575,000	32.0%	199,119	575,000	34.6%	215,304	575,000	37.4%	250,932	575,000	43.6%
Tavares	Tavares Seaplane Base	FA1	GA	7,000	N/A	N/A	7,770	N/A	N/A	7,828	N/A	N/A	7,946	N/A	N/A
Titusville	Arthur Dunn Air Park	X21	GA	40,702	184,000	22.1%	47,147	184,000	25.6%	49,296	184,000	26.8%	53,893	184,000	29.3%
Titusville	Space Coast Regional Airport	TIX	GA	97,438	340,789	28.6%	113,000	340,789	33.2%	118,163	340,789	34.7%	129,209	340,789	37.9%

Associated City	Airport Name	FAA ID	CS/ GA	2014 Total Operations	ASV	D/C Ratio	2020 Total Operations	ASV	D/C Ratio	2025 Total Operations	ASV	D/C Ratio	2035 Total Operations	ASV	D/C Ratio
Umatilla	Umatilla Municipal Airport	X23	GA	5,000	195,500	2.6%	5,550	195,500	2.8%	5,591	195,500	2.9%	5,676	195,500	2.9%
Valkaria	Valkaria Airport	X59	GA	33,100	230,000	14.4%	38,419	230,000	16.7%	40,177	230,000	17.5%	43,939	230,000	19.1%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	52,141	230,000	22.7%	58,945	230,000	25.6%	60,537	230,000	26.3%	64,139	230,000	27.9%
Venice	Venice Municipal Airport	VNC	GA	60,834	230,000	26.4%	71,536	230,000	31.1%	75,627	230,000	32.9%	84,524	230,000	36.7%
Vero Beach	New Hibiscus Airpark	X52	GA	25,424	126,500	20.1%	31,060	126,500	24.6%	33,409	126,500	26.4%	38,744	126,500	30.6%
Vero Beach	Vero Beach Regional Airport	VRB	GA	211,200	337,250	62.6%	257,118	337,250	76.2%	279,304	337,250	82.8%	329,689	337,250	97.8%
Wauchula	Wauchula Municipal Airport	CHN	GA	8,200	195,500	4.2%	9,101	195,500	4.7%	9,170	195,500	4.7%	9,308	195,500	4.8%
West Palm Beach	Palm Beach International Airport	PBI	CS	137,985	221,039	62.4%	155,709	221,039	70.4%	163,136	221,039	73.8%	179,213	221,039	81.1%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA	97,400	280,912	34.7%	116,938	280,912	41.6%	126,560	280,912	45.1%	148,412	280,912	52.8%
West Palm Beach	Palm Beach County Park Airport	LNA	GA	126,750	447,139	28.3%	153,801	447,139	34.4%	167,124	447,139	37.4%	197,380	447,139	44.1%
Williston	Williston Municipal Airport	X60	GA	16,250	221,000	7.4%	18,036	221,000	8.2%	18,172	221,000	8.2%	18,447	221,000	8.3%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA	60,000	208,896	28.7%	70,694	208,896	33.8%	74,860	208,896	35.8%	83,942	208,896	40.2%
Winter Haven	Jack Browns Seaplane Base	F57	GA	10,000	N/A	N/A	11,099	N/A	N/A	11,183	N/A	N/A	11,352	N/A	N/A
Zellwood	Bob White Field	X61	GA	20,000	161,000	12.4%	24,101	161,000	15.0%	26,004	161,000	16.2%	30,272	161,000	18.8%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA	49,425	226,200	21.9%	59,936	226,200	26.5%	65,025	226,200	28.7%	76,541	226,200	33.8%

Source: Florida Aviation System Plan (FASP) 2035 Phase 1 Airport Demand/Capacity Analysis; Federal Aviation Administration (FAA) Terminal Area Forecasts (TAF), issued January 2017; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

6.9 Air Service & Air Cargo

An analysis of the *2016 Florida Air Cargo Study* and 2016 *Florida Air Service Study* was conducted to highlight how commercial air service and air cargo activities have changed over time, as well as how they have and will continue to influence aviation in Florida. The information contained in these reports is useful in planning for future airside and landside facilities—just as the forecasts in this Chapter are also useful in identifying future system capacity needs.

6.9.1 Overview of the 2016 Florida Air Cargo System Plan Study (2016)

With a robust multimodal infrastructure, business-friendly climate, skilled workforce, and diverse business and cultural connections, Florida is a hub for domestic and international trade. Imports and exports rely on Florida's transportation infrastructure and the state serves as a gateway between the U.S., the Caribbean, and Latin America.

Air cargo serves as a vital link of this complex network by securely, reliably, and efficiently transporting goods between their points of origin and final destinations. Air cargo is typified by time-sensitive, high-value, low-volume shipments. In 2014, the world's airlines transported 51.3 million metric tons of air cargo, representing more than 35 percent of global trade by value, but less than one percent by volume.

FDOT conducted the *Florida Air Cargo Study* in 2016 to comprehensively review global air cargo trends and their implications for the Florida air cargo market. The state's air cargo system spans airports ranging from Miami International Airport, one of the world's most important international hubs, to small GA facilities like the Florida Keys Marathon Airport, which plays an important role in the local business community. According to the Air Cargo Study, "air cargo is a necessary part of Florida's industrial fabric and provides many benefits to local economies in the form of jobs, payroll, and airline sales." Overall, Florida's commercial airports provide air cargo services and fill a variety of roles from major international gateways to regional and secondary airports serving small- and medium-size metropolitan areas.

6.9.1.1 Global and Local Air Cargo Usage

Based on an analysis of historical air cargo data, the *Florida Air Cargo Study* discusses a number of global, regional, and statewide trends within the industry. On a global scale, revenues steadily rose between the early 1980s and 2008, before experiencing a decline following the Great Recession of 2008 and 2009. While revenues rebounded in 2010 and reached a highpoint in 2011, growth has flattened in recent years. Rising fuel prices after 2005 were primarily responsible for the slowdown as shippers began to divert freight to less expensive modes of travel (e.g., trucks and ships). As of 2013, Asia has held the largest market share of the global air cargo industry, followed by North America, Europe, and the Middle East, respectively.

Florida experienced a similar trend, with total emplaned and deplaned cargo totaling between 2.6 and 2.8 U.S. tons in the late 1990s, declining to approximately 2.2 million tons in 2008, then

rising again to nearly 2.7 million tons in 2014.[1] Miami International Airport witnessed one of the largest gains from 2010 to 2014, reaching a total of over 2.2 million tons. The airport also has a significant majority of the market (81.3 percent), followed by Orlando International Airport (6.4 percent), Tampa International Airport (3.5 percent), and Fort Lauderdale-Hollywood International Airport (3.2 percent).

Several other airports also experienced notable growth between 2010 and 2014, including Orlando International Airport, Jacksonville International Airport, Palm Beach International Airport, Pensacola International Airport, and St. Pete-Clearwater International Airport. Conversely, total tonnage declined for six Florida airports, with Fort Lauderdale-Hollywood International Airport experiencing the most significant decline since 2010 (3.2 percent). However, air cargo at Fort Lauderdale-Hollywood International Airport increased by six percent between 2015 and 2016 based on a review of airport records, which may be attributed to the opening of a new runway in September 2014, constructed to alleviate airfield congestion.[2] **Table 6-26** presents the total air cargo tonnage trends from 2010 to 2014 for Florida's 20 commercial service airports.

[1] One U.S. ton or "short ton" is equivalent to 2,000 pounds.
[2] 2015 – 2016 information was added in February 2017 after the *Air Cargo Study* was published and based on airport records (Monthly FLL Stats, December 2016, available at www.broward.org/Airport/About/Pages/Statistics.aspx [accessed February 22, 2017]). The initial Study utilized the Airports Council International – North America air cargo database, which reports data slightly differently.

Table 6-26: Historic Air Cargo Tonnage at Florida Commercial Service Airports, 2010 – 2014 (in U.S. Short Tons)

	Airport	2010	2011	2012	2013	2014	Percentage of Total (2014)	2012 – 2014 CAGR	2010 – 2014 CAGR
Daytona Beach	Daytona Beach International Airport	93	108	139	155	146	0.0%	2.5%	11.9%
Fort Myers	Southwest Florida International Airport	17,083	16,274	17,589	16,085	16,735	0.6%	-2.5%	-0.5%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	98,067	95,931	96,935	84,115	85,945	3.2%	-5.8%	-3.2%
Gainesville	Gainesville Regional Airport	117	31	2	3	1	0.0%	-29.3%	-69.6%
Jacksonville	Jacksonville International Airport	59,962	72,658	74,897	73,061	71,308	2.6%	-2.4%	4.4%
Key West	Key West International Airport	-	-	-	-	510	0.0%	100.0%	100.0%
Melbourne	Melbourne International Airport	79	554	783	-	134	0.0%	-58.6%	14.1%
Miami	Miami International Airport	2,023,617	2,030,377	2,127,336	2,144,007	2,203,725	81.3%	1.8%	2.2%
Orlando	Orlando International Airport	149,798	161,462	190,647	187,015	172,869	6.4%	-4.8%	3.6%
Orlando	Orlando-Sanford International Airport	3,919	3,331	3,504	3,431	1,793	0.1%	-28.5%	-17.8%
Panama City	Northwest Florida Beaches International Airport	-	-	-	-	51	0.0%	100.0%	100.0%
Pensacola	Pensacola International Airport	305	1,456	6,444	6,506	6,668	0.2%	1.7%	116.2%
Punta Gorda	Punta Gorda Airport	-	-	-	-	-	0.0%	-	-
Sarasota/ Bradenton	Sarasota Bradenton International Airport	215	199	208	201	224	0.0%	3.8%	1.0%
St. Augustine	Northeast Florida Regional Airport	-	-	-	-	-	0.0%	-	-

	Airport	2010	2011	2012	2013	2014	Percentage of Total (2014)	2012 – 2014 CAGR	2010 – 2014 CAGR
St. Petersburg/ Clearwater	St. Pete-Clearwater International Airport	15,508	15,060	18,779	19,845	21,570	0.8%	7.2%	8.6%
Tallahassee	Tallahassee International Airport	10,417	10,688	9,929	8,439	7,893	0.3%	-10.8%	-6.7%
Tampa	Tampa International Airport	96,873	95,876	94,253	93,557	93,684	3.5%	-0.3%	-0.8%
Valparaiso	Destin-Ft. Walton Beach Airport	-	-	-	-	-	0.0%	-	-
West Palm Beach	Palm Beach International Airport	19,014	20,118	20,613	21,889	27,642	1.0%	15.8%	9.8%
Total		**2,495,067**	**2,524,123**	**2,662,058**	**2,658,309**	**2,710,898**	**100%**	**0.9%**	**2.1%**

Source: Airport Records; Airports Council International; CDM Smith

Notes: CAGR = compound annual growth rate; 2014 (base year) uses a combination of the above sources; 2009 – 2014 uses Airports Council International – North America (ACI-NA) due to data availability

While each of these airports fills an important role in the market, Miami International Airport is undoubtedly the most significant player in the international trade arena. The airport is the leader in the Americas in international freight and controls north/south cargo in the Western Hemisphere. Total air trade in 2014 was valued at $61.6 billion, or 96 percent of the dollar value of Florida's total air imports and exports. In 2016, the top international destinations originating at the airport include Bogotá, Colombia; Cotopaxi, Ecuador; and Bueno Aires, Argentina.

Domestically, Tampa to Memphis provides the largest trade lane from Florida, followed by Orlando to Louisville, and Miami to New York (via John F. Kennedy International Airport).

6.9.1.2 Emerging Market Trends

The shifting demands on the air cargo industry that have spurred the changes at these airports are driven by a number of domestic and international trends affecting Florida's airport system. The stronger U.S. dollar coupled with lower oil prices has led to fewer outbound shipments and more imports. The e-commerce industry, clustering around the Lakeland and Davenport areas along the Interstate 4 corridor, is also experiencing rapid growth.

Much of this growth is driven by Florida's aging population. By 2030, the over-60 age bracket is projected to reach 9.5 million residents—nearly doubling today's population for this group. This group will also increasingly depend on the home delivery of retail and medical pharmaceutical products ordered online. The rapid expansion of the e-commerce industry pressures logistics systems to find new and ever-faster ways to deliver goods to the marketplace, catalyzing growth in both air cargo and the trucking networks required to transport goods on the final legs of their journeys.

This final trend alludes to one of the most significant factors affecting air cargo demands. Over the last decade, trucking and air cargo have formed an increasingly interdependent relationship. Logistics systems rely on intermodal transport systems to provide connectivity between producers and consumers. Better technologies are emerging to facilitate the point of connection between airports and the customer or freight forwarder. As a result, airports must develop the infrastructure required to seamlessly transition goods from the air to the surface network. Yet airports only have limited control over this transition, as roadways at and adjacent to airports can severely impact air cargo services.

The *Florida Air Cargo Study* examined a number of Florida's transportation system plans that discuss the issue of traffic bottlenecks at airports, including the *Florida Freight Mobility and Trade Plan*, the Florida Transportation and Strategic Intermodal System Policy Plans, FDOT District freight planning efforts, and metropolitan planning organizations' (MPOs') plans and studies. Traffic bottlenecks limit the ability of airports to serve the new larger cargo aircraft entering service and can delay and hinder intermodal connections required for freight services. Notably, the *Unclogging America's Arteries 2015* study identified several locations adjacent to Miami International Airport as three of the nation's 50 worst traffic bottlenecks. I-4 congestion north of Orland-Sanford International Airport is another problematic area.

Concurrently, a robust trucking industry can be a major competitor to air cargo. Trucking is not constrained by enhanced security regulations, many of the fuel surcharges imposed in 2008 have not yet been lifted by air carriers, and cargo tracking information systems have improved over time. Industry guidelines estimate that trucking is seven to ten times less expensive than air shipments. In some case, both passenger and cargo airlines use trucking services, known as road feeder service (RFS), as a substitute for air shipment. Alternatively, some commodities are switching to maritime transport, although the expansion of the Panama Canal is not anticipated to impact air cargo in Florida.

Other factors limiting the expansion of air cargo services include basic infrastructure requirements, including flight support services necessary for operations; adequate runway lengths, lighting, aprons, and taxiways; and access to aircraft and cargo processing facilities for trucks. Airports must also meet air cargo security requirements and have sufficient U.S. Customs and Border Patrol staff to improve cargo clearance times at international airports.

6.9.1.3 Commercial Service Air Cargo Forecasts

While air transport has not yet returned to the historic, pre-recession growth rates in the state, commercial service aviation forecasts project a modest to substantial increase in both annual air cargo tonnage and dedicated cargo aircraft operations. The development of such projections helps assess the need for and phasing of future air cargo-related improvements, evaluate the future capacity of the air cargo system, and plan for future airside and landside facilities.

Based on a review of available industry guidelines on forecast methodology, the *Florida Air Cargo Study* conducted four variations of a simple growth rate methodology to forecast Florida's air cargo industry over the five-, 10-, and 20-year planning horizons. Based on its reasonable and conservative compound annual growth rate (CAGR) and several other factors, the *Florida Air Cargo Study* selected the Historical Growth Rate Methodology to project air cargo tonnage and dedicated cargo operations for Florida's commercial service airports. **Table 6-27** presents the *Florida Air Cargo Study*'s preferred air cargo tonnage and dedicated cargo operations forecasts.

Table 6-27: Commercial Service Airports Air Cargo Tonnage and Cargo Operations Preferred Forecasts

	Year	Air cargo tonnage (short tons)	Dedicated cargo aircraft operations
Current	2014	2,710,891	56,230
Projected	2019	3,006,350	59,180
	2024	3,333,970	62,270
	2034	4,100,250	68,960
CAGR		**2.1%**	**1.0%**

Source: 2016 Florida Air Cargo Study

Indicative of this positive forecast, Boeing anticipates the worldwide freighter fleet to increase nearly 50 percent as the demand for air cargo services more than doubles in the next 20 years. North American carriers will receive the second-highest number of new freighters after Asian companies and the highest percentage of widebody aircraft. The Boeing 767 (B767) is the most common air cargo aircraft in Florida, comprising over 90 percent of all cargo operations at Miami International Airport and 29 percent of statewide operations. Other common aircraft include the Pilatus PC12, Boeing 757 and 747, and Airbus 300-6.

6.9.1.4 GA Air Cargo Forecasts

A full air cargo analysis of GA airports will be conducted as part of Phase B of the Florida Air Cargo Study. Preliminary investigations have already been conducted to set the stage for the second phase of this study. Initial analyses revealed that five of the GA airports with scheduled air cargo services in 2012 saw declines in total air cargo operations. Cecil Airport, The Florida Key Marathon Airport, and Tampa Executive Airport were the only GA airports to experience an increase in air cargo operations, at 19 percent, eight percent, and one percent, respectively.

6.9.2 Overview of the 2016 Air Service Study

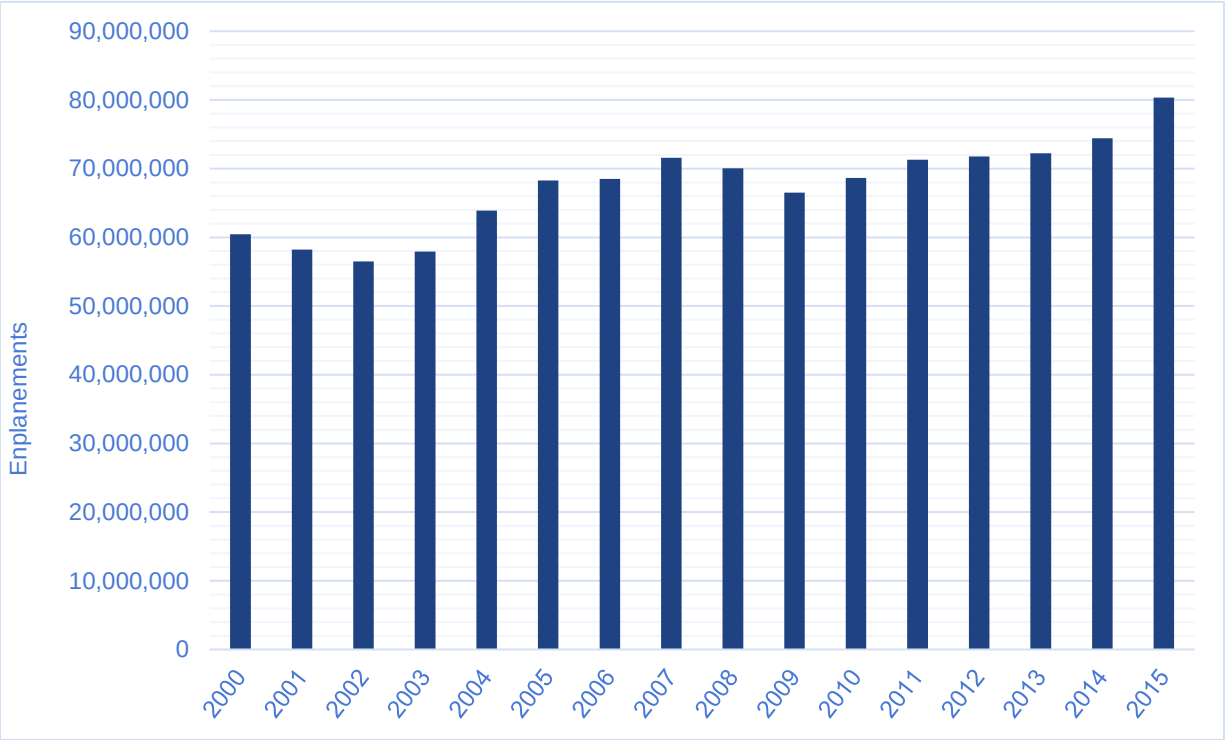
The *2016 Air Service Study* (*Air Service Study*) presents detailed information about Florida's 20 commercial service airports. The study is aimed at providing the FDOT ASO, FDOT District Offices, and Florida's commercial service airports with current data and statistics to assist in planning and development. The study updates previous analyses conducted in 2000, 2001, 2003, 2005, 2007, 2008, 2011, and 2014.

Since the study was last completed in 2014, a number of emerging trends have arisen in the aviation industry. These trends can be divided in regulatory, demographic and social, economic, technological, and airline impacts. Some of these trends impact global and national markets, while others primarily affect aviation in the state. **Chapter 2 – Florida's Aviation History and Identification of Current Issues** of this 2035 FASP Update summarizes some of these trends.

Most notably, emerging trends in security and immigration policy are generally tightening restrictions. These trends have widespread implications for airport capacity, efficiency, and revenue; passenger wait times, throughput, ticket costs, and satisfaction; pilot wages; and safety and security in the terminal and in-flight. Furthermore, air carrier consolidations are occurring and new types of carriers are entering the market. These shifts are changing passengers' options and expectations while placing new demands on airport capacity.

With 20 airports offering regularly scheduled commercial service, Florida continues to have one of the most comprehensive interstate aviation systems in the U.S., and statistics generally indicate that the system has expanded since 2013. Notably, the Northeast Florida Regional Airport added commercial service and annual statewide enplanements have continued to trend upward, growing approximately 2.6 percent between 2013 and 2015. **Figure 6-3** depicts statewide annual enplanements from 2000 to 2015.

Figure 6-3: Statewide Annual Enplanements



Source: Summarized from U.S. Department of Transportation DB1B Market Fare Data and O&D Survey, reconciled from Schedules T-100

The number of nonstop domestic destinations served by Florida's airports has increased from 127 in 2013 to 132 in 2015. 2015 also saw the highest number of international flight departures of any year of the report, with 2,414 weekly departures, representing an overall increase of approximately 10 percent since the previous report.

While service levels have trended upward, the types of services offered at each specific airport have remained fairly consistent. In all study years, Orlando International Airport has had the highest number of domestic destinations served and departing domestic seats. Miami International Airport offers the highest number of intrastate flights. Miami International Airport also offers the highest number of international departures with 1,516 weekly departures, representing 71 percent of statewide totals. Fort Lauderdale-Hollywood International Airport offers 476 weekly departures (20 percent), followed by Orlando International Airport with 335 weekly flights (14 percent) to international destinations.

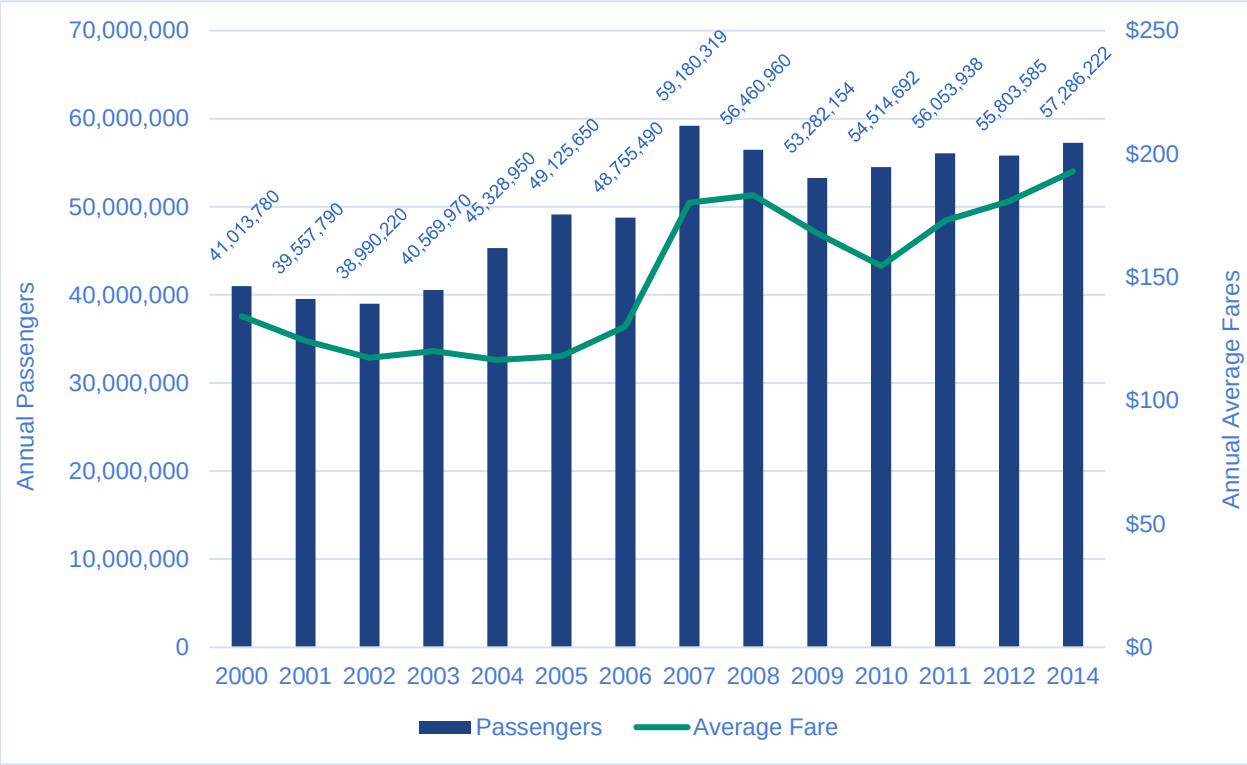
Top international destinations include Central and South America (43 percent of departures), the Caribbean and Atlantic (38 percent), Europe (10 percent), and Canada (eight percent). Top domestic destinations include cities in the southeastern part of the U.S., followed by locations in the Northeast, Midwest, and Northwest, listed in order of popularity.

While weekly flights, enplanements, and destinations served are trending upwards in Florida, factors indicate that the Florida system may not offer the same level of service as peer markets.

Large hub and non-hub airports are generally comparable; however, both small and medium hub airports offer a below-average level of service with few exceptions. Southwest Florida International Airport (medium hub) is above-average in the number of non-stop destinations served, and Pensacola International Airport (small hub) offers about 30 flights per week more than comparable airports. Destin-Fort Walton Beach Airport had the highest level of annual enplanements in the non-hub category and exceeded the annual enplanements of comparable markets. The study notes that Florida's excellent interstate and highway system, geographic location, and the intense competition faced by small and non-hub airports by medium and large hub airports likely contribute to the service levels provided by the statewide system.

In 2014, the average one-way fare for all of Florida was $192.96, up significantly from the statewide average fare in 2000 of $157.93. However, Florida domestic fares remain below the 2014 national average of $217.43. Every airport in the system except Orlando-Sanford International Airport and St. Pete-Clearwater International Airport has seen an increase in average fare since 2012. Higher fares are likely due to the continuing economic recovery and the ability and willingness of consumers to purchase tickets. **Figure 6-4** depicts statewide average fares and passengers between 2000 and 2014.

Figure 6-4: Statewide Average Fares and Passengers



Source: Summarized from U.S. Department of Transportation DB1B Market Fare Data and O&D Survey and Official Airline Guide, Schedules Analyzer

6.10 Summary

Knowledge of projected operational activity assists FDOT Districts and Central Office in understanding trends in local growth, airport system capacity, and facility planning needs. Based aircraft and GA operation forecasts show steady growth over the forecast period. Based aircraft growth rates range from 0.57 percent (District 6) to 1.77 percent (District 2) AAGR. GA operation forecasts show anticipated AAGR ranging from 0.77 percent (District 5) to 1.76 percent (District 4). While growth is occurring across the state, some airports are especially impacted by the increased activity and are quickly reaching or exceeding the recommended D/C ratios for planning and/or implementing capacity enhancements. In base year 2014, there were five airports that exceeded the FAA's recommended 60 percent D/C ratio threshold to plan for capacity enhancements, and three airports that exceeded the 80 percent threshold to start implementation for capacity enhancements. By 2035, it is projected that 11 airports will exceed the 60 percent threshold, six will exceed the 80 percent threshold, and three will exceed their ASV altogether.

To further understand the aviation activity demand in the state, the *2016 Florida Air Cargo Study* and *2016 Florida Air Service Study* reveal that Florida's aviation system continues to expand and evolve in the midst of economic, technological, regulatory, and social changes that have challenged industries across the globe. Since the economic downturn of 2008, Florida's aviation industry has continued to rebound after facing a nearly unprecedented economic contraction, with levels of service increasing in nearly all categories evaluated by these studies.

7 System Analysis

7.1 Introduction

There are many ways to gauge the performance of Florida's aviation system in meeting the needs of users and achieving system goals. This Chapter includes the results of several Florida Aviation System Plan (FASP) analyses, starting with the measurement of system performance in meeting overarching goals, objectives, performance measures (PMs), and performance indicators (PIs). For most of the PMs and PIs presented, analyses were completed at the statewide level as well as by Florida Department of Transportation (FDOT) District. Due to the allocation and distribution of funding to Districts, this FASP 2035 Update utilized Districts in the evaluation of the system's performance and needs, as compared to Continuing Florida Aviation Systems Planning Process (CFASPP) Regions. This dual-level analysis provides FDOT an understanding of the performance in the Districts that coordinate most closely with airports and make decisions on project funding.

Evaluating system accessibility from the ground and the air is also an important exercise in reviewing system success. Airports should be accessible from the ground as people travel to and from airports and from the air by pilots looking for certain airport characteristics. A drive time analysis was completed to gauge the accessibility of Florida's airports and identify locational gaps in access.

An intermodal connectivity analysis was completed to identify existing connections between Florida's airports and other modes of transportation across the state to further evaluate accessibility. The connectivity of the modes is an essential aspect of the airport system's accessibility from the ground, and, as such, linkages between the airports and highway, passenger rail, transit, rental car, and other applicable modes were examined.

Florida is a national and global leader for aviation, providing a gateway between the United States (U.S.) and major international markets, a skilled labor pool, a complex ground transportation network, and tax incentives designed to draw industries to the state. However, despite this statewide strength, the aviation industry is unequally distributed across regions throughout the state, with significant differences in both the type and volume of activity that occurs. This is due in large part to Florida's clustering of population, business, and tourism centers. A demand drivers analysis was conducted to evaluate the drivers that foster aviation industry activity in Florida.

The results of each of these four analyses are presented in the following sections.

7.2 System Performance

Data for this analysis was obtained from many different sources as detailed in **Chapter 5 – Data Collection and Inventory**, including statewide airport surveys, the National Flight Data Center (NFDC), the Florida Aviation Database (FAD), as well as other FDOT and Federal Aviation Administration (FAA) sources. Different sources are required to fulfill the analysis of all PMs and PIs, as the information is not available from only a single source. The following sections present the goals of the FASP as well as provide a summary of the PMs and PIs associated with each goal.

7.2.1 Goal 1: Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors.

For Florida airports to fulfill their role in Florida's multimodal transportation system, they must be efficient and safe. Further, airports in Florida should provide convenient access for the state's residents, businesses, and visitors. The objectives, performance measures, and PIs used to evaluate this goal are shown in **Table 7-1** and the system evaluation of each is provided immediately following.

Table 7-1: Goal 1 Objectives, Performance Measures, and Performance Indicators

Objectives		Performance Measures		Performance Indicators	
1.1	Ensure that FASP airports operate at an efficient demand/capacity (D/C) ratio.	1.1.1	The number of FASP airports with an annual airfield D/C ratio of 60 percent or more (FDOT PM).[1]	1.1.1	The number of FASP airports with terminal-related development projects (building, rental car, parking) and the amount of Joint Automated Capital Improvement Program (JACIP) funding identified for these projects.
		1.1.2	The number of FASP airports with an annual airfield D/C ratio of 80 percent or more (FDOT PM).[1]	1.1.2	The percentage of "on time" flights relative to departure reliability (FDOT PM).[1]
		1.1.3	The number of FASP airports identified in FAA Future Airport Capacity Task (FACT) reports for capacity concerns.		
1.2	Achieve and maintain 100 percent of primary runways at FASP airports in compliance with FAA and Florida Administrative Code (FAC) 14-60 Runway Safety Area (RSA) standards.	1.2.1	The number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their primary runway.		
1.3	Achieve and maintain 100 percent of nonprimary runways at	1.3.1	The number of FASP airports identified by FDOT inspection that		

Objectives		Performance Measures		Performance Indicators	
	FASP airports in compliance with FAA and FAC 14-60 RSA standards.		do not meet relevant RSA standards on their nonprimary runways.		
1.4	Support protection of people and appropriate land uses and controls of runway protection zones (RPZs) at FASP airports.	1.4.1	The number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for the RPZs of the primary runway.	1.4.1	The number of FASP airports that have incompatible land uses within the RPZs of the primary runway.
		1.4.2	The number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for the RPZs of nonprimary runways.	1.4.2	The number of FASP airports that have incompatible land uses within the RPZs of the nonprimary runways.
1.5	Achieve compliance with Florida Statute (F.S.) regarding security plans.			1.5.1	The number of FASP airports with a runway greater or equal to 5,000 feet in length that report having a security plan.
1.6	Ensure FASP airports can maintain operational capabilities during disasters.			1.6.1	The number of FASP airports with standby emergency power for airfield lighting.
				1.6.2	The number of FASP airports with standby emergency power for fueling operations.
				1.6.3	The number of FASP airports with standby emergency power for its terminal.
1.7	Ensure FASP airports address wildlife incompatible uses through appropriate means.	1.7.1	The number of FASP airports with completed wildlife hazard site visits,		

Objectives		Performance Measures		Performance Indicators	
			assessments, and/or management plans.		
1.8	Support FASP airports in meeting FAA airfield geometric design criteria to promote operational safety.	1.8.1	The number of FAA-obligated FASP airports that meet current FAA taxiway design standards.		
		1.8.2	The number of FAA-obligated FASP airports that have FAA-designated airfield "hot spots."		

Source: Florida Aviation System Plan (FASP) 2035
[1] FDOT PM = Aviation PMs that are reported in the FDOT Source Book

7.2.1.1 Objective 1.1: Ensure that FASP airports operate at an efficient D/C ratio.

Ensuring that Florida's airports have adequate capacity to handle the demand for aircraft at their airport is paramount to the overall success of the system. If users are not able to quickly and efficiently access an airport, the overall viability of the system greatly diminishes. As such, a set of three PMs and two PIs were developed to support this objective:

- PM 1.1.1 – The number of FASP airports with an annual airfield D/C ratio of 60 percent or more (FDOT PM).
- PM 1.1.2 – The number of FASP airports with an annual airfield D/C ratio of 80 percent or more (FDOT PM).
- PM 1.1.3 – The number of FASP airports identified in FAA FACT reports for capacity concerns.
- PI 1.1.1 – The number of FASP airports with terminal-related development projects (building, rental car, parking) and the amount of JACIP funding identified for these projects.
- PI 1.1.2 – The percentage of "on time" flights relative to departure reliability.

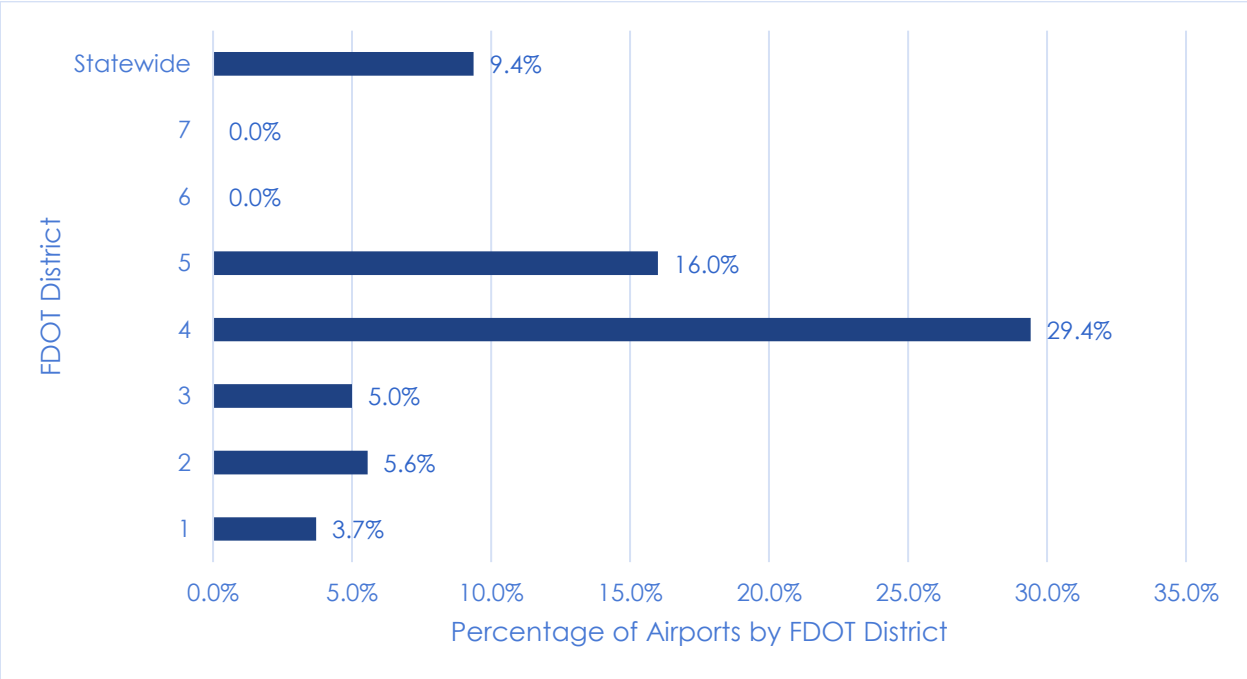
The system evaluation of each is provided in the following sections.

7.2.1.1.1 **PM 1.1.1** – THE NUMBER OF FASP AIRPORTS WITH AN ANNUAL AIRFIELD D/C RATIO OF 60 PERCENT OR MORE (FDOT PM)

Ensuring that Florida's airports have adequate capacity to handle the demand for aircraft at their airport is paramount to the overall success of the system. If users are not able to quickly and efficiently access an airport, the overall viability of the system greatly diminishes. To assess this PM and achieve the objective, the ratio of airfield demand to capacity was analyzed to understand the number of airports that currently have a D/C of 60 percent or greater. A D/C ratio of 60 percent indicates that planning should be initiated to improve capacity. (Note: D/C ratios of 80 percent and greater were also reviewed. Data for this PM includes airports with D/C

ratios of greater than 60 percent but less than 80 percent). D/C ratios depend on several factors, including runway alignment, number of runways, type of operations at an airport, and others. Data for this PM was obtained from the D/C analysis in **Chapter 6 – Aviation Activity Forecasts**. Airports were grouped by FDOT District to provide an understanding of statewide performance by region. Based on the analysis, approximately nine percent of airports statewide have a D/C ratio between 60 and 80 percent. Most notably, 29 percent of airports in District 4 are above this threshold, while no airports in FDOT District 6 and 7 are within this threshold. A summary of this PM is provided in **Figure 7-1**.

Figure 7-1: Percentage of FASP Airports with a D/C Ratio Greater than 60 Percent and Less than 80 Percent



Source: Florida Aviation System Plan (FASP) Analysis

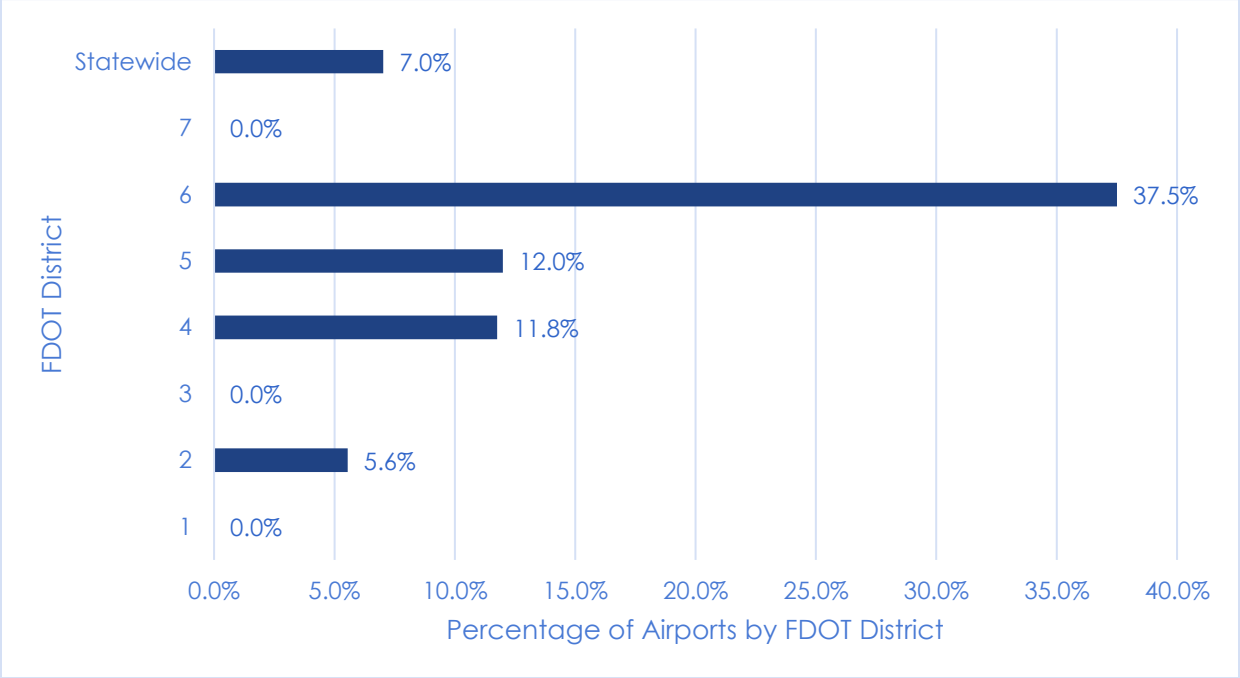
This data indicates that, statewide, airfield capacity is not a major concern; however, a more complete look at the system's capacity includes the evaluation of airports with a D/C ratio of 80 percent or more. This analysis is provided in the following section.

7.2.1.1.2 **PM 1.1.2** – THE NUMBER OF FASP AIRPORTS WITH AN ANNUAL AIRFIELD D/C RATIO OF 80 PERCENT OR MORE (FDOT PM)

Similar to the previous analysis, the ratio of airfield D/C was analyzed to understand the number of airports that currently have a D/C of 80 percent or greater. Airports with a D/C ratio of 80 percent should be implementing steps to enhance airfield capacity to reduce the likely delay that is associated with such a high D/C ratio. Based on the analysis, seven percent of airports statewide have a D/C ratio of 80 percent or greater. FDOT District 6 has the greatest percentage of airports that are at or above this high D/C ratio. Additionally, FDOT Districts 4 and 5 both report

having approximately 12 percent of airports meeting this threshold. No other FDOT District reported a significant percentage. A summary of this PM is provided in **Figure 7-2**.

Figure 7-2: Percentage of FASP Airports with a D/C Ratio of 80 Percent or More



Source: Florida Aviation System Plan (FASP) Analysis

When considering both the 60 – 79 percent D/C ratios and the 80+ percent D/C ratios, there does not appear to be a significant overall capacity concern in Florida. Certain FDOT Districts (4, 5, and 6) did report higher than average D/C ratios, so an evaluation of those areas regarding airfield capacity may be warranted. It is especially important to look at the specific airports with a potential capacity concern if those airports are commercial service or are general aviation (GA) airports supporting the state's business and industry, including those with significant flight training. **Chapter 10 – Recommendations** includes a recommendation for a more detailed capacity study, looking specifically at FDOT Districts 4, 5, and 6.

7.2.1.1.3 **PM 1.1.3** – THE NUMBER OF FASP AIRPORTS IDENTIFIED IN FAA FACT REPORTS FOR CAPACITY CONCERNS

The FAA's FACT report was first developed in 2003 with the goal of assessing future capacity needs at domestic airports. Since the original report, there have been two updates, the most recent being *FACT3: Airport Capacity Needs in the National Airspace System (FACT3)*, published January 2015. Per *FACT3*,

> "In addition to updated forecasts, the *FACT3* analysis includes current aircraft fleet mix projections, updated NextGen planning, and modeling of gate and surface constraints on airport capacity. *FACT3* also contains refined modeling and selection criteria."

Each published FACT report identified capacity concerns over a 20-year planning horizon on the national and major airport levels. For *FACT3*, the base year was 2011, with projections for 2020 and 2030. (Note: *FACT1* provided data for 2004, 2013, and 2020 while *FACT2* provided data for 2007, 2015, and 2025). For each study, airports were categorized as having one of two types of constraints:

1. Constrained in reference case (currently constrained), but unconstrained if planned improvements are implemented.
2. Constrained even after all planned improvements are implemented; additional capacity enhancement is needed; or constrained in base year.

FACT3 evaluated and analyzed 48 airports across the U.S. for capacity concerns. In Florida, six airports were included in this evaluation:

- Fort Lauderdale Executive Airport (FXE)
- Fort Lauderdale-Hollywood International Airport (FLL)
- Orlando International Airport (MCO)
- Miami International Airport (MIA)
- Kendall-Tamiami Executive Airport (now Miami Executive Airport) (TMB)
- Tampa International Airport (TPA)

Of the six Florida airports, only one was identified by *FACT3* to have future constraints: Fort Lauderdale-Hollywood International Airport. *FACT3* identified that the airport would be "constrained in reference case, but unconstrained if planned improvements are implemented" in 2030. No other airports in Florida were listed in *FACT3*. (Note: Miami International Airport was identified in *FACT1*, but not included in subsequent reports).

Based on this analysis, it does not appear that any of Florida's major airports are expected to experience a significant capacity constraint that would be a hindrance to the national airspace system.

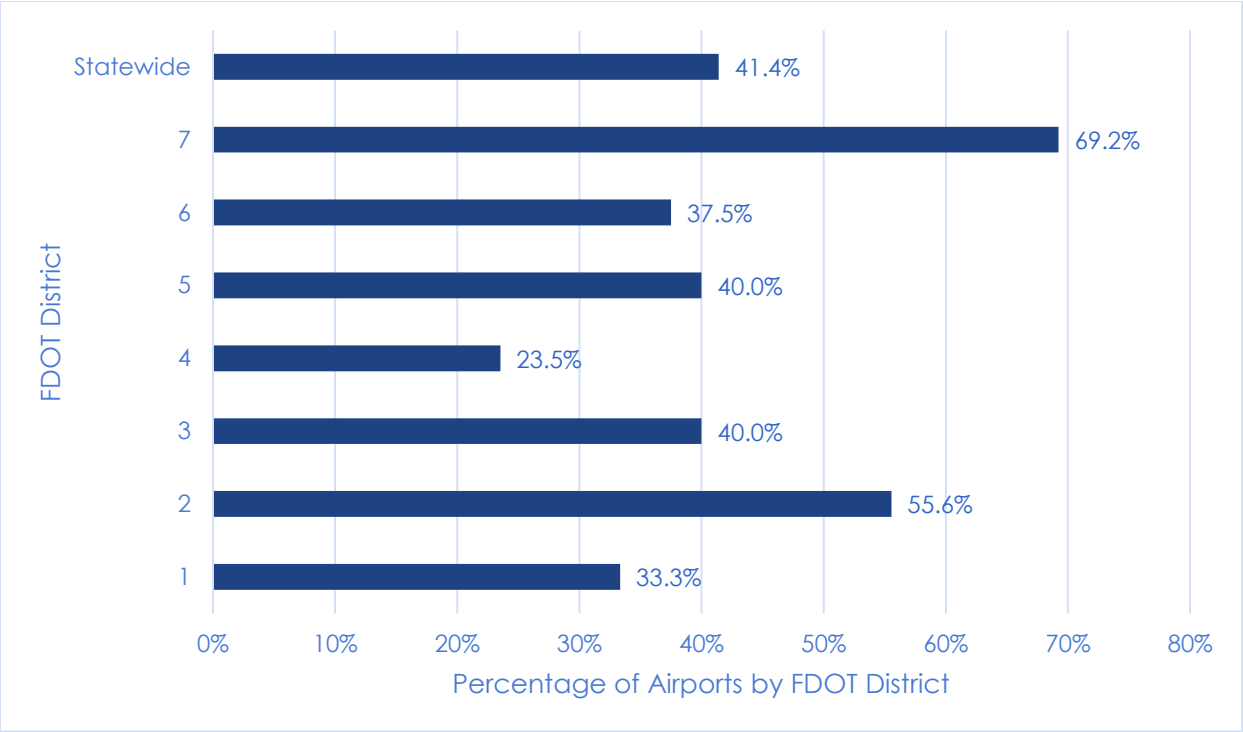
7.2.1.1.4 **PI 1.1.1** – THE NUMBER OF FASP AIRPORTS WITH TERMINAL-RELATED DEVELOPMENT PROJECTS (BUILDING, RENTAL CAR, PARKING) AND THE AMOUNT OF JACIP FUNDING IDENTIFIED FOR THESE PROJECTS

Airport terminals are the vehicle through which passengers move from their arrival at an airport to their aircraft and vice versa. For commercial service airports, this includes ticketing and baggage, security, and ultimately the terminal and gates. For GA airports, pilots often use terminal facilities for flight planning, to rest, or to eat between flights. Terminal projects are critical to the continued viability of an airport and often include some of the largest projects at an airport. To gain an understanding of the demand for enhanced or new terminal facilities, an analysis was conducted to determine the number of FASP airports that have terminal (or terminal-related) projects programmed in the JACIP. (Note: The JACIP is housed in the FAD and is the program used by airports, FDOT, and the FAA to program and fund projects at airports).

As shown in **Figure 7-3**, over 40 percent of airports in Florida have requested funding for a terminal project between 2017 and 2022. FDOT District 7 reported the highest percentage, with

just under 70 percent of the airports requesting funds for terminal projects, while FDOT District 4 had the lowest percentage (23.5). Across all other districts, an average of approximately 40 percent of airports requested funding for terminal projects between 2017 and 2022. **Table 7-2** provides a summary of the funding, by year, that is identified in JACIP for these terminal projects.

Figure 7-3: The Percentage of FASP Airports with Terminal-Related Development Projects (2017 – 2022)



Source: Joint Automated Capital Improvement Program (JACIP) database; Florida Aviation System Plan (FASP) Analysis

Table 7-2: Total Funding, By Year, for Terminal-Related Projects (2017 – 2022)

Year	Funding
2017	18,094,707
2018	36,666,375
2019	47,226,216
2020	27,650,000
2022	27,500,000

Source: Joint Automated Capital Improvement Program (JACIP) database; Florida Aviation System Plan (FASP) Analysis

7.2.1.1.5 **PI 1.1.2** – THE PERCENTAGE OF "ON TIME" FLIGHTS RELATIVE TO DEPARTURE RELIABILITY (FDOT PM)

The U.S. Department of Transportation (DOT) provides data on the on-time reliability of airlines that serve the nation's commercial service airports. Though delays can be caused by several factors (air carrier, weather, national aviation system, security, late arriving aircraft, cancelled flights, or diverted flights) they all combine to delay aircraft from departing on time. As such, understanding how departure reliability impacts Florida's airports can indicate the overall reliability of Florida's aviation system, regardless of what is influencing reliability. In Florida, 18 airports have "on time" data reported by the U.S. DOT. Of the 20 designated commercial service airports in Florida, two did not have any data reported (Orlando-Sanford International Airport and St. Pete-Clearwater International Airport). As shown in **Table 7-3**, on-time departure reliability ranged from 76 to 89 percent with an overall average of 83 percent. Airports are listed in descending order of reliability.

Table 7-3: The Percentage of "On Time" Flights Relative to Departure Reliability

Associated City	Airport Name	FAA ID	FDOT District	Percentage of "on time" flights relative to departure reliability
Daytona Beach	Daytona Beach International Airport	DAB	5	86%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	4	77%
Ft. Myers	Southwest Florida International Airport	RSW	1	82%
Gainesville	Gainesville Regional Airport	GNV	2	83%
Jacksonville	Jacksonville International Airport	JAX	2	84%
Key West	Key West International Airport	EYW	6	89%
Melbourne	Melbourne International Airport	MLB	5	87%
Miami	Miami International Airport	MIA	6	77%
Orlando	Orlando International Airport	MCO	5	80%
Panama City	Northwest Florida Beaches International Airport	ECP	3	88%
Pensacola	Pensacola International Airport	PNS	3	87%
Punta Gorda	Punta Gorda Airport	PGD	1	76%
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	1	80%
St. Augustine	Northeast Florida Regional Airport	SGJ	2	80%
Tallahassee	Tallahassee International Airport	TLH	3	87%
Tampa	Tampa International Airport	TPA	7	82%

Associated City	Airport Name	FAA ID	FDOT District	Percentage of "on time" flights relative to departure reliability
Valparaiso/Destin-Ft. Walton Beach	Destin-Ft Walton Beach Airport	VPS	3	86%
West Palm Beach	Palm Beach International Airport	PBI	4	77%
			Average	**83%**

Source: United States Department of Transportation (U.S. DOT), 2016 data, www.transtats.bts.gov/airports.asp?pn=1

7.2.1.2 Objective 1.2: Achieve and maintain 100 percent of primary runways at FASP airports in compliance with FAA and FAC 14-60 RSA standards

Providing compliant RSAs on primary runways at Florida's airports helps promote operational safety in the event of an aircraft overshoot or underrun. As such, the following PM was developed to support this objective:

- PM 1.2.1 – The number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their primary runway.

7.2.1.2.1 **PM 1.2.1** – THE NUMBER OF FASP AIRPORTS IDENTIFIED BY FDOT INSPECTION THAT DO NOT MEET RELEVANT RSA STANDARDS ON THEIR PRIMARY RUNWAY

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 RSA is a rectangular box surrounding the runway and is based on the runway design code. The dimensions range from 120 feet to 500 feet in width and 240 feet to 1000 feet in length beyond the departure end of the runway."

In addition to the federal standards provided by the FAA, the state of Florida, through FAC 14-60.007, provides the minimum standards for licensed airports shown in **Table 7-4**. All airports licensed by the state, whether public or private, shall comply with these minimum airfield standards.

Table 7-4: Runway Safety Areas Standards in FAC 14-60.007

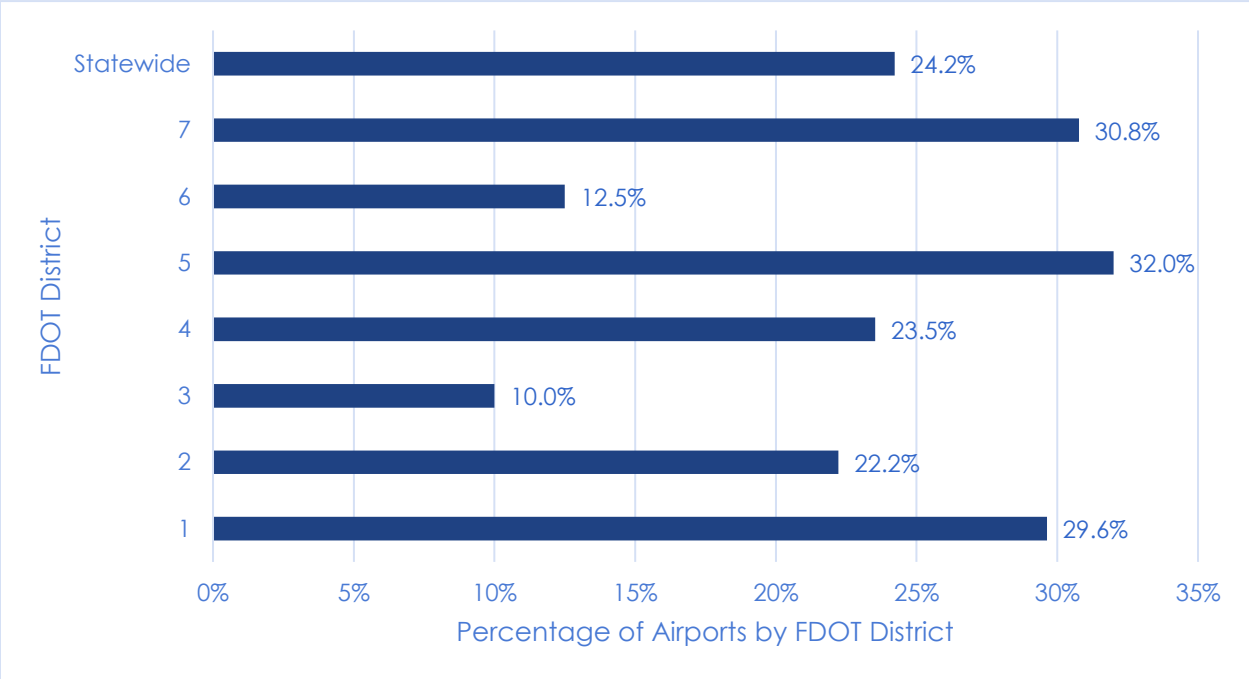
Runway Safety Areas		
Landing Area Type	**Safety Area Length**	**Safety Area Width**
Runway (Not Paved)	End of Runway	120 Feet
Runway (Paved)	240 Feet Beyond End of Runway	120 Feet
Ultralight	300 Feet	150 Feet
Heliport	20 Feet Beyond FATO[1]	20 Feet Beyond FATO[1]

Runway Safety Areas		
Landing Area Type	**Safety Area Length**	**Safety Area Width**
Seaplane	N/A	N/A

Source: Florida Administrative Code (FAC)14-60.007
[1] FATO = Final Approach and Take-Off area

As part of their regularly scheduled airport inspections, FDOT identifies any inconsistencies in RSA standards on each runway at an airport. Following each inspection, runways that are not in compliance with FAC 14-60.007 are identified (Note: This PI is based on compliance with FAC 14-60.007 standards, not FAA standards). This information is uploaded into the FAD where the type of obstruction is identified. This data was used to assess this PI. As shown in **Figure 7-4**, over 24 percent of airports statewide do not meet RSA standards on their primary runway. Notably, FDOT Districts 1, 5, and 7 have approximately 30 percent of their airports not meeting this threshold on primary runways, while FDOT Districts 3 and 6 have close to 10 percent.

Figure 7-4: The Percentage of FASP Airports Identified by FDOT Inspection That Do Not Meet Relevant RSA Standards on Their Primary Runway



Source: Florida Aviation Database (FAD), Florida Aviation System Plan (FASP) Analysis

7.2.1.3 Objective 1.3: Achieve and maintain 100 percent of nonprimary runways at FASP airports in compliance with FAA and FAC 14-60 RSA standards

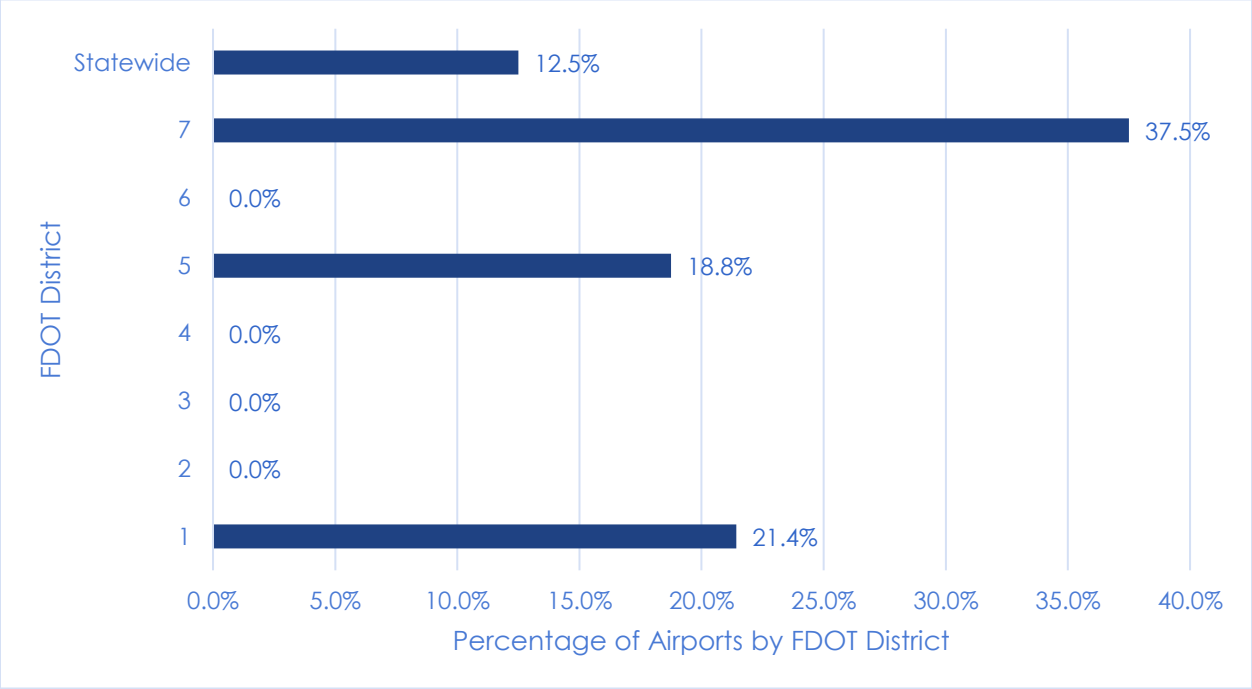
In addition to primary runways, it is important that Florida's airports provide compliant RSAs on all of their runways to promote operational safety in the event of an aircraft overshoot or underrun. The following PM was developed to support this objective:

- PM 1.3.1 – The number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their nonprimary runways.

7.2.1.3.1 **PM 1.3.1** – THE NUMBER OF FASP AIRPORTS IDENTIFIED BY FDOT INSPECTION THAT DO NOT MEET RELEVANT RSA STANDARDS ON THEIR NONPRIMARY RUNWAYS

In addition to understanding RSA compliance for the primary runways, an analysis was completed to see how many airports had deficiencies in the RSA standards for any of their nonprimary runways. Statewide, 72 airports have more than one runway. Based on the findings, just over 12 percent of airports with two runways were identified as having RSA deficiencies on one of their nonprimary runways during FDOT inspections. As shown in **Figure 7-5**, only FDOT Districts 1, 5, and 7 reported having these deficiencies, with FDOT District 7 reporting close to 38 percent of their airports have deficient RSAs for the nonprimary runways. In total, nine airports were identified as having RSA deficiencies during their FDOT inspections.

Figure 7-5: The Percentage of FASP Airports (with two or more runways) Identified by FDOT Inspection That Do Not Meet Relevant RSA Standards on Their Nonprimary Runways



Source: Florida Aviation Database (FAD); Florida Aviation System Plan (FASP) Analysis

7.2.1.4 Objective 1.4: Support protection of people and appropriate land uses and controls of RPZs at FASP airports

RPZs are "trapezoidal areas off the end of the runway end that serve to enhance the protection of people and property on the ground in the event an aircraft lands or crashes beyond the runway end." The dimensions of each runway end's RPZ are based on numerous factors, including aircraft approach categories, airplane design groups, and visibility minimums. Both federal and state guidance strongly encourage airports to remove all potential incompatibilities

from the RPZ area. As such, the following four PMs and PIs were developed to assess this objective at a statewide level.

- PM 1.4.1 – The number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for the RPZs of the primary runway
- PM 1.4.2 – The number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for the RPZs of nonprimary runways
- PI 1.4.1 – The number of FASP airports that have incompatible land uses within the RPZs of the primary runway
- PI 1.4.2 – The number of FASP airports that have incompatible land uses within the RPZs of the nonprimary runways

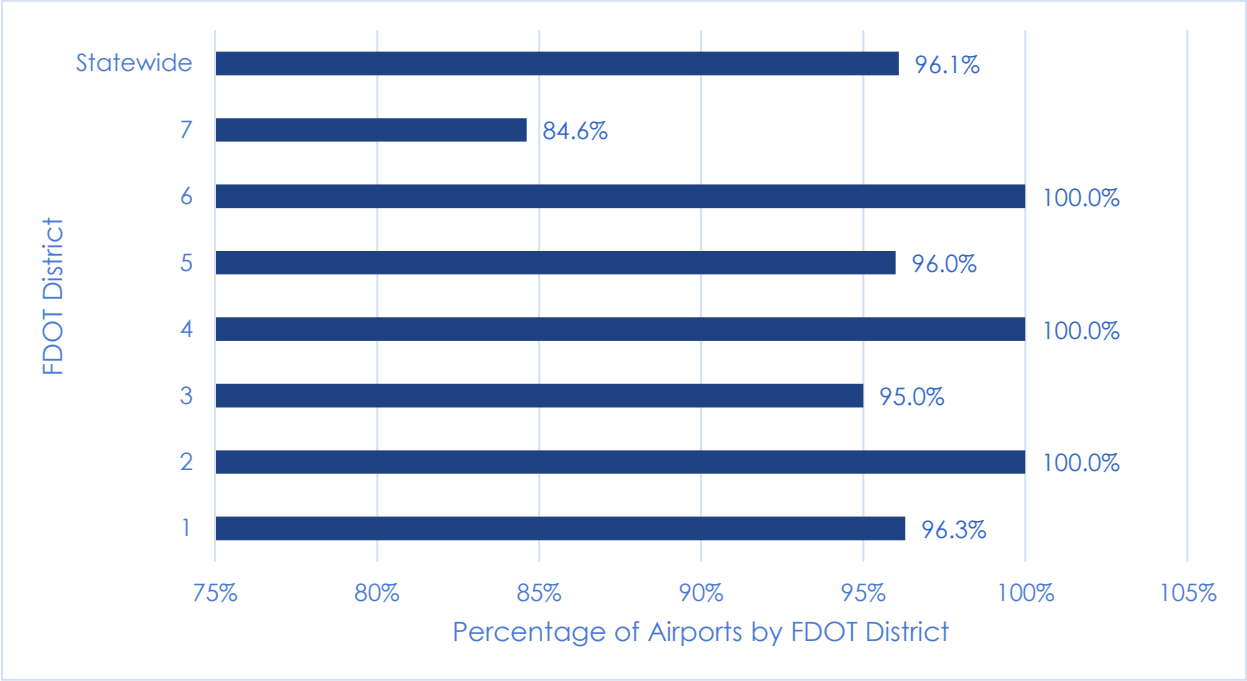
The two PMs above were identified during Phase I of the FASP to be tracked and measured as part of the FASP Update. This data was anticipated to be supplied through an alternative study expected to be completed by FDOT that would assess compliance with recent amendments to F.S. Ultimately, this statewide database of land use was never completed and obtaining complete data for evaluation of these PMs was not possible as a part of the FASP 2035. In the future, it is recommended that FDOT pursue the completion of this statewide database for future evaluation of these PMs in future updates to the FASP. **Chapter 10 – Recommendations** includes this recommendation.

7.2.1.4.1 **PI 1.4.1** – THE NUMBER OF FASP AIRPORTS THAT HAVE INCOMPATIBLE LAND USES WITHIN THE RPZS OF THE PRIMARY RUNWAY

An analysis was conducted to identify the presence of incompatible uses in RPZs including roads, vegetation, buildings, or other incompatible elements within the RPZs of each airport's primary runway. The data for this analysis was obtained from airport layout plans (ALPs) on file with the FAA and FDOT. For each runway, the aircraft approach category and airplane design group information as well as the visibility minimums were noted. This information was then used to identify the dimensions of the RPZs based on the standards provided in the *Runway Design Standards Matrix in FAA Advisory Circular 150/5300-13A*. Using these dimensions, a visual analysis was conducted, overlaying Google Earth aerials to determine if any incompatible land uses could be identified. Data to develop the RPZs came from ALPs on file with the FAA and FDOT.

As identified in **Figure 7-6**, approximately 96 percent of Florida's airports were found to have at least one incompatible use within the RPZs of their primary runway. In three FDOT Districts, the primary runway RPZs for all airports were noted to have incompatible uses. No FDOT District was determined to have less than 80 percent of their airports with having incompatible uses in the RPZ of their primary runway, with many reporting over 90 percent. RPZ protection is a significant issue throughout Florida's airport system.

Figure 7-6: The Percentage of FASP Airports That Have Incompatible Land Uses within the RPZs of the Primary Runway

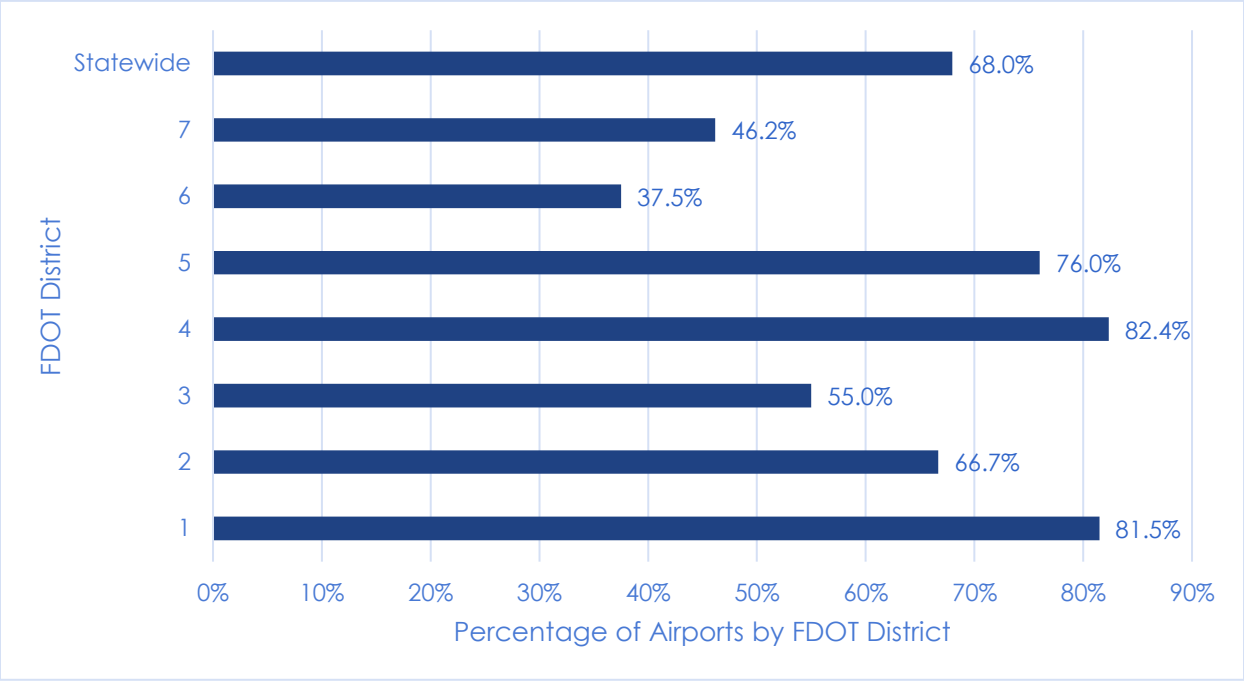


Source: Airport Layout Plans (ALPs); Florida Aviation System Plan (FASP) Analysis

7.2.1.4.2 **PI 1.4.2** – THE NUMBER OF FASP AIRPORTS THAT HAVE INCOMPATIBLE LAND USES WITHIN THE RPZS OF THE NONPRIMARY RUNWAYS

In addition to analyzing the RPZs of Florida airports' primary runways, a review of incompatible uses in the RPZs of the nonprimary runways was also conducted. As shown in **Figure 7-7**, 68 percent of airports have incompatible uses within the RPZ of their nonprimary runways. Two FDOT Districts, 1 and 4, both reported over 80 percent of their airports having incompatible uses in the RPZ of a nonprimary runway while FDOT Districts 2, 3, and 5 all had over 50 percent of airports with incompatible uses.

Figure 7-7: The Percentage of FASP Airports That Have Incompatible Land Uses within the RPZs of the Nonprimary Runways



Source: Airport Layout Plans (ALPs); Florida Aviation System Plan (FASP) Analysis

7.2.1.5 Objective 1.5: Achieve compliance with F.S. regarding security plans

Florida takes compliance with F.S. very seriously. The ability of airports to meet state statutes regarding security plans was evaluated to determine compliance. The following PI was developed to support this objective:

- PI 1.5.1 – The number of FASP airports with a runway grater or equal to 5,000 feet in length that report having a security plan.

7.2.1.5.1 **PI 1.5.1** – THE NUMBER OF FASP AIRPORTS WITH A RUNWAY GREATER OR EQUAL TO 5,000 FEET IN LENGTH THAT REPORT HAVING A SECURITY PLAN

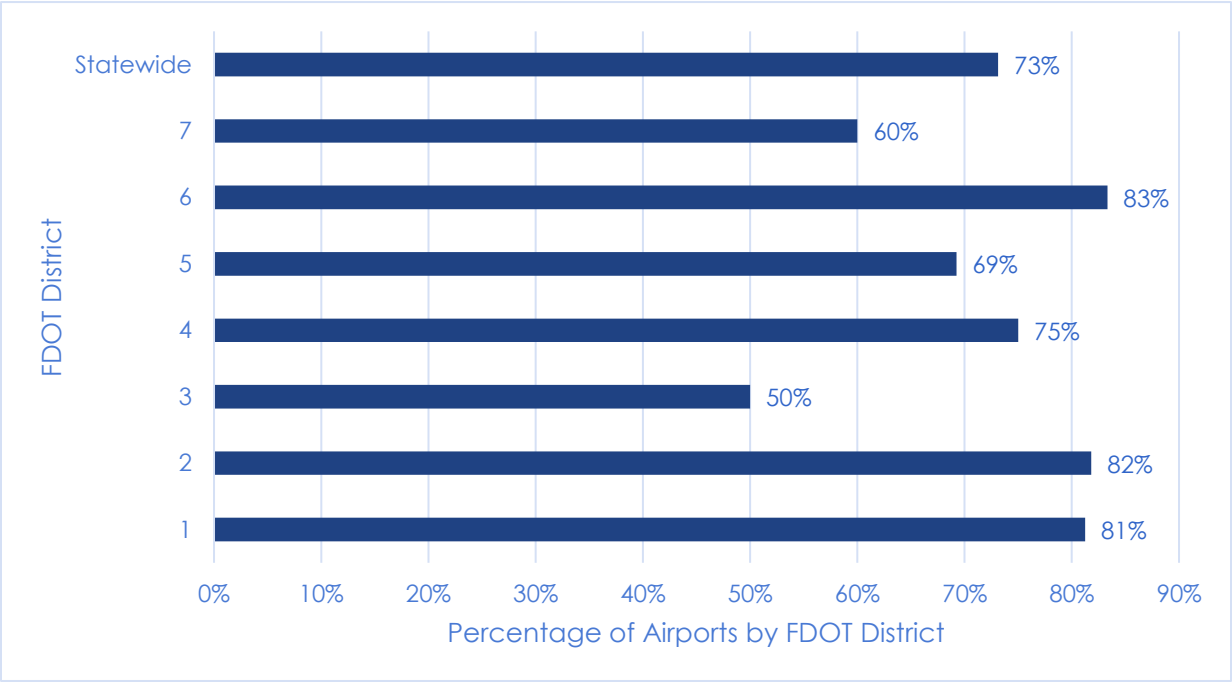
Security at all airports is important, but as the facilities at an airport become more complex, having a detailed security plan in place is important to ensure the continued security of the airport. As an airport's storage capacity and use increase, security becomes even more important. Additionally, per F.S. Chapter 330:

> "After initial licensure, a license of a publicly or privately owned GA airport that is open to the public, that has at least one runway greater than 4,999 feet in length, and that does not host scheduled passenger-carrying commercial service operations regulated under 14 C.F.R. Part 139 shall not be renewed or reissued unless an approved security plan has been filed with the department, except when the department determines that the airport is working in good faith toward completion and filing of the plan."

Security plans can provide information on several different elements of the airport, including fencing, closed caption TV (CCTV), perimeter access gates, and numerous other components. For this analysis, airports with at least one runway longer than 4,999 feet were evaluated to determine if they had a security plan on file with FDOT. Both the runway data and security plan information were obtained from the FAD.

As shown in **Figure 7-8**, statewide, 73 percent of airports with runways of at least 5,000 feet had a security plan on file with FDOT, indicating that 27 percent of airports with a runway of at least 5,000 feet do not have a security plan on file. Statewide, 38 percent of all airports were found to have a runway of at least 5,000 feet and a security plan on file with FDOT. Most notably, FDOT District 6 reported over 83 percent of the required airports have a security plan, while FDOT Districts 3 and 7 had 50 and 60 percent, respectively. All other FDOT Districts reported having between 70 and 85 percent of airports meeting this PI. Figure 7-8 provides a summary of this PI statewide.

Figure 7-8: The Percentage of FASP Airports with a Runway Greater or Equal To 5,000 Feet in Length That Report Having a Security Plan



Source: Florida Aviation Database (FAD); Florida Aviation System Plan (FASP) Analysis

7.2.1.6 Objective 1.6: Ensure FASP airports can maintain operational capabilities during disasters

Disasters, both natural and manmade, can have serious effects on communities, states, and residents. Being able to remain operational throughout such tragedies is critical to the movement of people, goods, and equipment to service affected areas. To assess this, three PIs were evaluated to determine how Florida's airports are prepared to remain operational during a disaster. These PIs include:

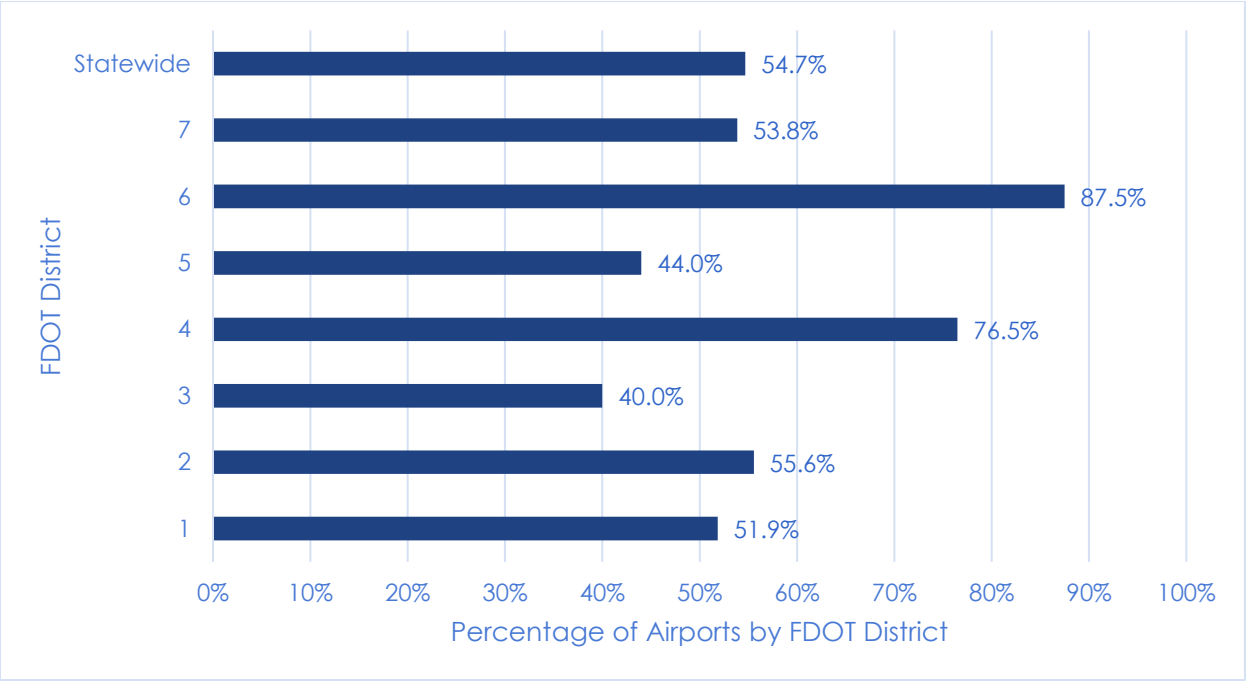
- PI 1.6.1 – The number of FASP airports with standby emergency power for airfield lighting
- PI 1.6.2 – The number of FASP airports with standby emergency power for fueling operations
- PI 1.6.3 – The number of FASP airports with standby emergency power for its terminal

Together, the performance of these PIs identifies how prepared airports statewide are to remain operational following a disaster. Data for these PIs was collected as part of a statewide survey to airports and are self-reported. Brief summaries of each of these PIs are provided in **Figure 7-9** through **Figure 7-11**.

7.2.1.6.1 **PI 1.6.1** – THE NUMBER OF FASP AIRPORTS WITH STANDBY EMERGENCY POWER FOR AIRFIELD LIGHTING

As shown in Figure 7-9, over 54 percent of airports statewide reported having standby emergency power for airfield lighting. This is important for emergencies because it allows for continued nighttime or low visibility operations even if local power has been cut off.

Figure 7-9: The Percentage of FASP Airports with Standby Emergency Power for Airfield Lighting

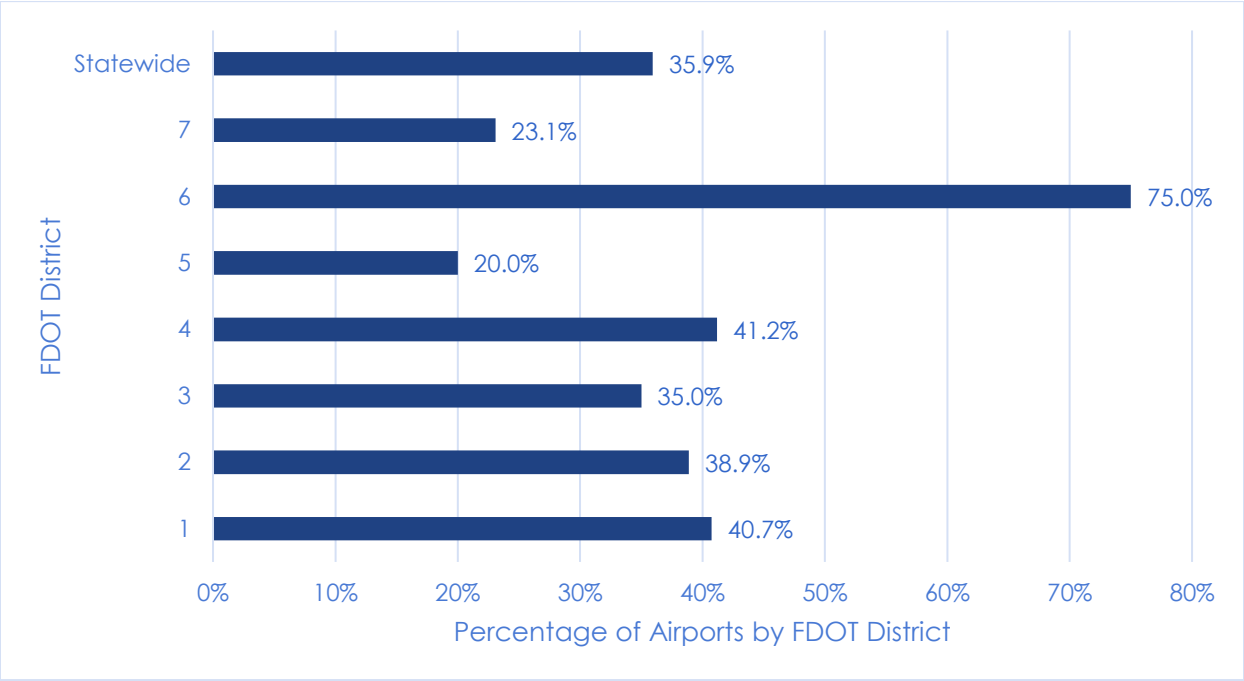


Source: Airport Survey; Florida Aviation System Plan (FASP) Analysis

7.2.1.6.2 **PI 1.6.2** – THE NUMBER OF FASP AIRPORTS WITH STANDBY EMERGENCY POWER FOR FUELING OPERATIONS

As shown in **Figure 7-10**, close to 36 percent of airports statewide reported having standby emergency power for fueling operations. It is important to be able to provide fuel to emergency responders, even if there is no power, to ensure that emergency services remain operational throughout a disaster.

Figure 7-10: The Percentage of FASP Airports with Standby Emergency Power for Fueling Operations

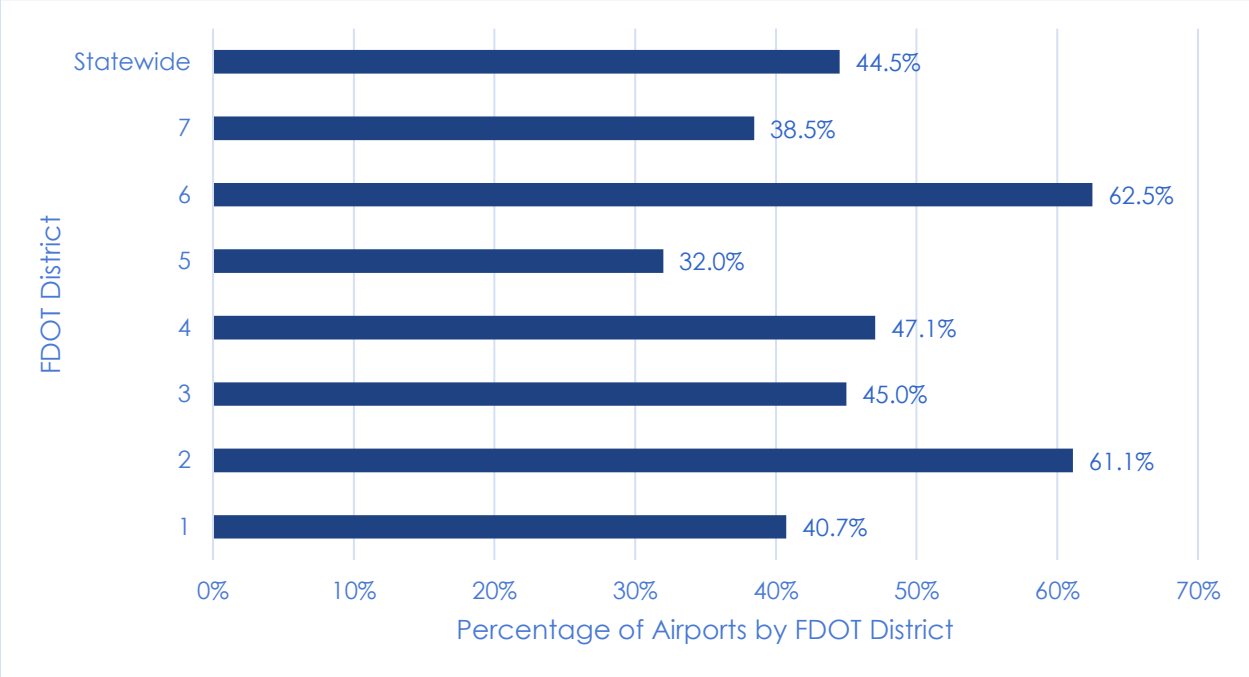


Source: Airport Survey; Florida Aviation System Plan (FASP) Analysis

7.2.1.6.3 **PI 1.6.3** – THE NUMBER OF FASP AIRPORTS WITH STANDBY EMERGENCY POWER FOR THEIR TERMINAL

As shown in Figure 7-11, over 44 percent of airports statewide have standby emergency power for their terminals. Keeping terminals open for operations allows for the continued movement of people, which is critical following a disaster.

Figure 7-11: The Percentage of FASP Airports with Standby Emergency Power for Their Terminal



Source: Airport Survey, Florida Aviation System Plan (FASP) Analysis

7.2.1.7 Objective 1.7: Ensure FASP airports address wildlife incompatible uses through appropriate means

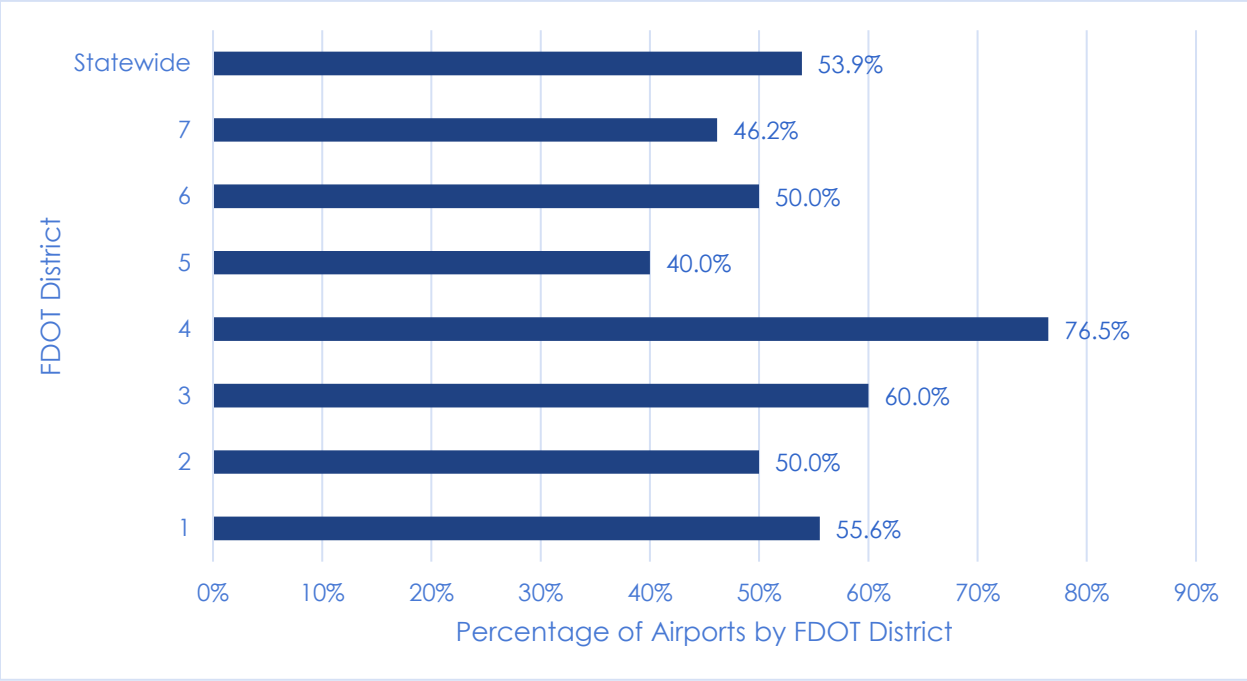
In recent years, the FAA has emphasized the need to control wildlife near airports. Determining the appropriate measures to do this requires conducting at least a site visit, with the potential need for more aggressive methods to assess and/or manage wildlife hazards that are identified. The following PM was developed to support this objective:

- PM 1.7.1 – The number of FASP airports with completed wildlife hazard site visits, assessments, and/or management plans.

7.2.1.7.1 **PM 1.7.1** – THE NUMBER OF FASP AIRPORTS WITH COMPLETED WILDLIFE HAZARD SITE VISITS, ASSESSMENTS, AND/OR MANAGEMENT PLANS

Wildlife can present as an incompatible use at airports when animals are in proximity to an airfield and cause concern for the safe and efficient operation of users. Though birds are the most common type of wildlife hazard at an airport, representing 97 percent of reported strikes, animals such as deer, coyotes, and alligators have also been reported in Florida. To mitigate against these threats, airports can perform wildlife site visits to understand what potential threats exist for their airport or develop wildlife hazard assessments or management plans to develop a strategy for mitigating against these hazards. To assess this PM, data was collected statewide through a survey to airports to determine which airports had completed wildlife hazard site visits, assessments, and/or management plans. As shown in **Figure 7-12**, nearly 54 percent of airports statewide reported completing at least one wildlife hazard document.

Figure 7-12: The Percentage of FASP Airports with Completed Wildlife Hazard Site Visits, Assessments, and/or Management Plans



Source: Airport Survey; Florida Aviation System Plan (FASP) Analysis

7.2.1.8 Objective 1.8: Support FASP airports in meeting FAA airfield geometric design criteria to promote operational safety

In recent years, federal standards for airfield geometric design have been amended to increase the overall operational safety of airports. This includes the development of new taxiway design standards, as well as the identification of airport "hot spots" to identify where there are significant deficiencies in airfield geometry. For this objective, two PMs were developed to evaluate how well Florida's system is meeting FAA airfield geometric design criteria.

- PM 1.8.1 – The number of FAA-obligated FASP airports that meet current FAA taxiway design standards
- PM 1.8.2 – The number of FAA-obligated FASP airports that have FAA-designated airfield "hot spots"

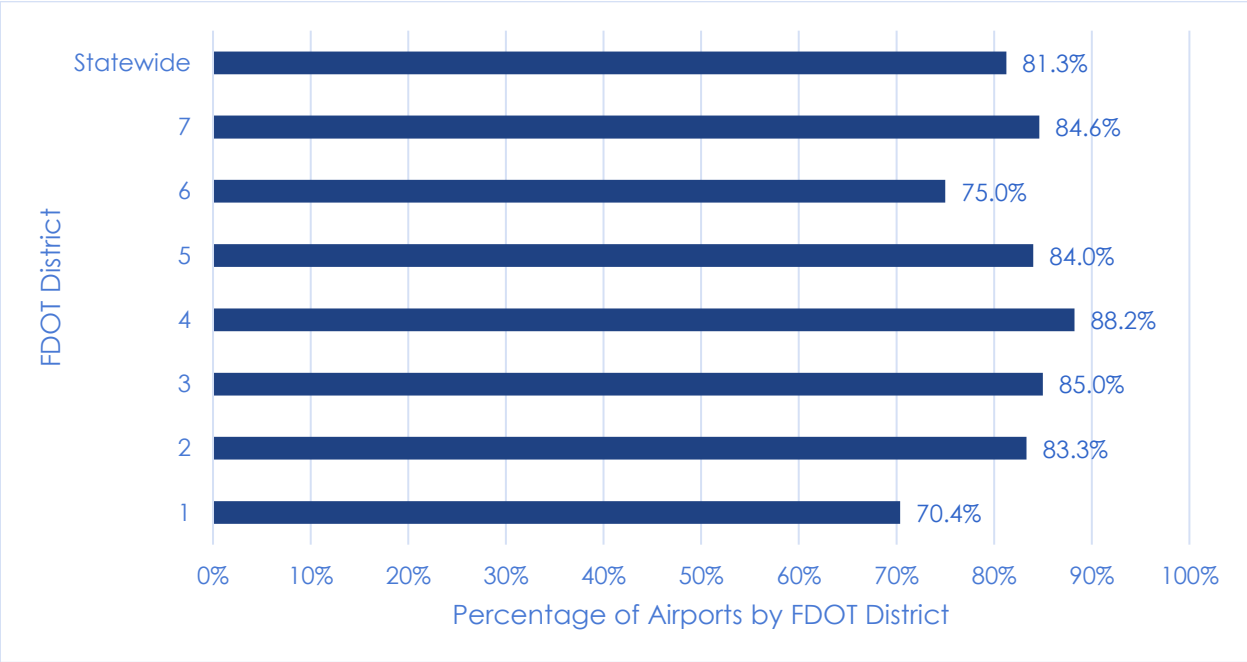
A summary of these PMs is provided in the following sections.

7.2.1.8.1 **PM 1.8.1** – THE NUMBER OF FAA-OBLIGATED FASP AIRPORTS THAT MEET CURRENT FAA TAXIWAY DESIGN STANDARDS

The current FAA design standards identify three types of taxiway design deficiencies: direct runway access, wide expanse of pavement, and three-node conflicts. For this PM, only airports with paved runways were evaluated. (Note: Sixteen grass strip airports were not included in this PM). To perform this analysis, a visual survey was completed using Google Earth to determine if

any of these deficiencies existed. As shown in **Figure 7-13**, approximately 81 percent of Florida's airports are not meeting the current FAA taxiway design standard, with all FDOT Districts reporting over 70 percent of airports not meeting the criteria.

Figure 7-13: The Percentage of FAA-Obligated FASP Airports That Do Not Meet Current FAA Taxiway Design Standards

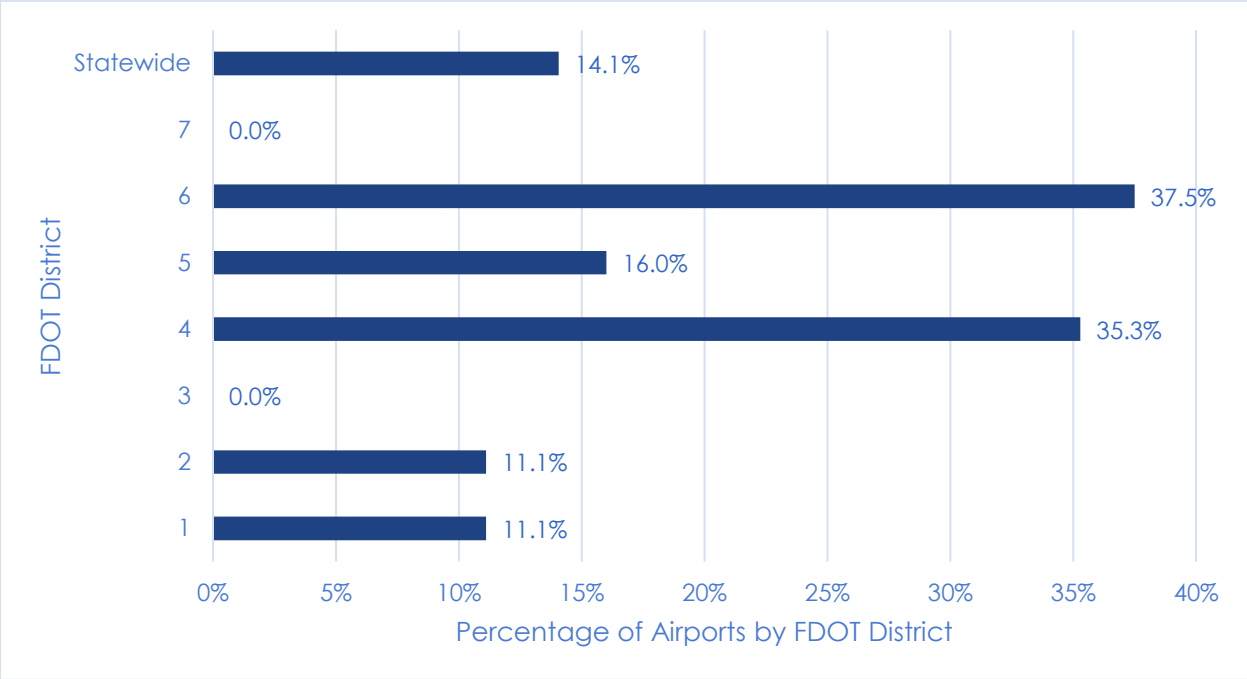


Source: Statewide review of aerials; Florida Aviation System Plan (FASP) Analysis

7.2.1.8.2 **PM 1.8.2** – THE NUMBER OF FAA-OBLIGATED FASP AIRPORTS THAT HAVE FAA DESIGNATED AIRFIELD "HOT SPOTS"

According to the FAA, "A 'hot spot' is a runway safety related problem area or intersection on an airport. Typically, it is a complex or confusing taxiway/taxiway or taxiway/runway intersection. A confusing condition may be compounded by a miscommunication between a controller and a pilot, and may cause an aircraft separation standard to be compromised. The area may have a history of surface incidents or the potential for surface incidents." To assess this PM, the FAA's hot spot list was reviewed to determine the number of Florida airports that were reported to have hot spots, as defined by the FAA. As shown in **Figure 7-14**, just over 14 percent of airports statewide were identified by FAA to have designated hot spots. Notably, FDOT Districts 4 and 6 reported having over 35 percent of their airports having FAA-designated hot spots. Two FDOT Districts, 3 and 7, reported having no FAA-designated hot spots.

Figure 7-14: The Percentage of FAA-Obligated FASP Airports That Have FAA-Designated Airfield "Hot Spots"



Source: Federal Aviation Administration (FAA) Hot Spot Report

7.2.2 Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment

There are many factors that influence airports and their ability to serve residents and visitors of a community. This goal is meant to assess how well airports are connected to their community based on numerous intermodal service factors as well as how well airports are marketing and promoting themselves through the development of business plans, master plans, and sustainability plans. A summary of the objectives and PIs that are associated with this goal are shown in **Table 7-5**. There are no PMs associated with this goal.

Table 7-5: Goal 2 Objectives and Performance Indicators

Objectives		Performance Indicators	
2.1	Encourage revenue generation at FASP airports to enhance airport self-sufficiency by assisting airports to develop business plans in accordance with FDOT's *Florida General Aviation Airport Business Plan Guidebook*.	2.1.1	The number of FASP airports that report having a business/marketing plan.

Objectives		Performance Indicators	
2.2	Enhance the competitiveness of Florida Strategic Intermodal System (SIS) airports for intermodal enhancement funding. Provide seamless transportation for Florida's travelers from point of departure to destination.	2.2.1	The number of commercial service SIS airports reporting direct bus service.
		2.2.2	The number of commercial service SIS airports reporting direct passenger rail connections.
		2.2.3	The percentage of levels of service (LOS) on SIS Highway Airport Connectors that are LOS A through C (FDOT PM).[1]
2.3	Encourage economic, environmental, and community sustainability planning for FASP airports.	2.3.1	The number of airports that have plans on file with FDOT (master plans and sustainability plans).

Source: Florida Aviation System Plan (FASP) 2035

[1] FDOT PM = Aviation PMs that are reported in the FDOT Source Book

7.2.2.1 Objective 2.1: Encourage revenue generation at FASP airports to enhance airport self-sufficiency by assisting airports to develop business plans in accordance with FDOT's *Florida General Aviation Airport Business Plan Guidebook*

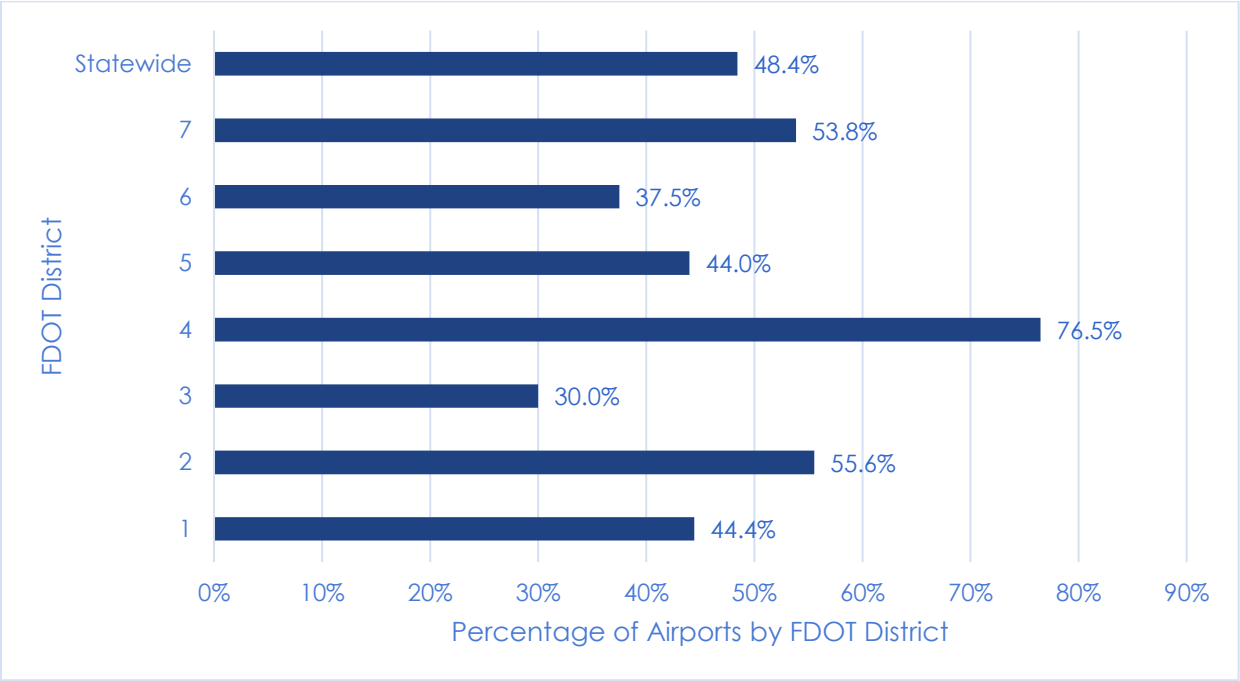
Airports are encouraged to be self-sufficient, generating income to cover the costs of operations and capital needs. For many airports, this is a challenging goal. FDOT developed the *Florida General Aviation Airport Business Plan Guidebook* to provide suggestions and ideas for addressing this goal. The following PI was developed to support this associated objective:

- PI 2.1.1 – The number of FASP airports that report having a business/marketing plan.

7.2.2.1.1 **PI 2.1.1** – THE NUMBER OF FASP AIRPORTS THAT REPORT HAVING A BUSINESS/MARKETING PLAN

Being self-sufficient is a goal of every airport in Florida and is included in both federal and state grant assurances. As such, FDOT has provided resource documents such as the *Business Plan Guidebook* to help airports develop and implement business and marketing plans to promote revenue generating development at airports. This PI evaluated the number of airports in Florida that reported having a business or marketing plan. Data for this PI was collected from a statewide survey of airports. As shown in **Figure 7-15**, 48.4 percent of airports statewide have completed one of these plans. Most notably, over 75 percent of airports in FDOT District 4 reported having a business or marketing plan.

Figure 7-15: The Percentage of FASP Airports That Report Having a Business/Marketing Plan



Source: Statewide survey; Florida Aviation System Plan (FASP) Analysis

7.2.2.2 Objective 2.2: Enhance the competitiveness of Florida SIS airports for intermodal enhancement funding. Provide seamless transportation for Florida's travelers from point of departure to destination

Intermodal connectivity is a critical aspect of Florida's statewide transportation infrastructure. To support intermodal connectivity, FDOT developed the SIS to promote Florida's most critical transportation facilities. In total, there are 20 SIS airports, 18 commercial service airports, and two GA airports in Florida. To assess this objective, commercial service SIS airports were evaluated using the following PIs:

- PI 2.2.1 – The number of commercial service SIS airports reporting direct bus service
- PI 2.2.2 – The number of commercial service SIS airports reporting direct passenger rail connections
- PI 2.2.3 – The percentage of LOS on SIS Highway Airport Connectors that are LOS A through C

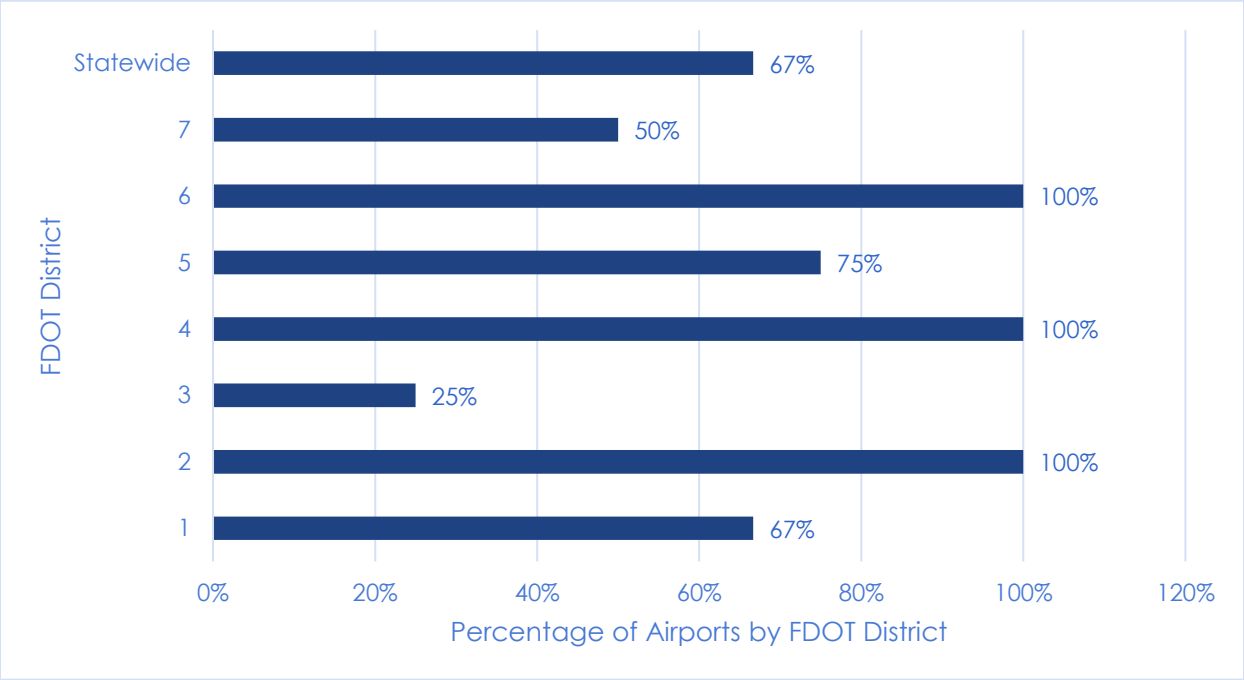
Together, these PIs provide insight as to how well Florida's SIS facilities are providing intermodal access.

7.2.2.2.1 **PI 2.2.1** – THE NUMBER OF COMMERCIAL SERVICE SIS AIRPORTS REPORTING DIRECT BUS SERVICE

Bus service provides users with a cost-effective mode of transportation that can provide connections throughout most metropolitan areas in Florida. Bus service is commonly provided at a local level, so the services that are provided vary throughout the state. For this analysis, a review was conducted using information available from municipalities to determine if bus

service is provided to the airport. As shown in **Figure 7-16**, 67 percent of Florida's commercial service SIS airports were found to have direct bus service available. Statewide, three FDOT Districts—2, 4, and 6—reported having 100 percent of SIS commercial service airports with bus service while FDOT District 3 reported only 25 percent.

Figure 7-16: The Percentage of Commercial Service SIS Airports Reporting Direct Bus Service

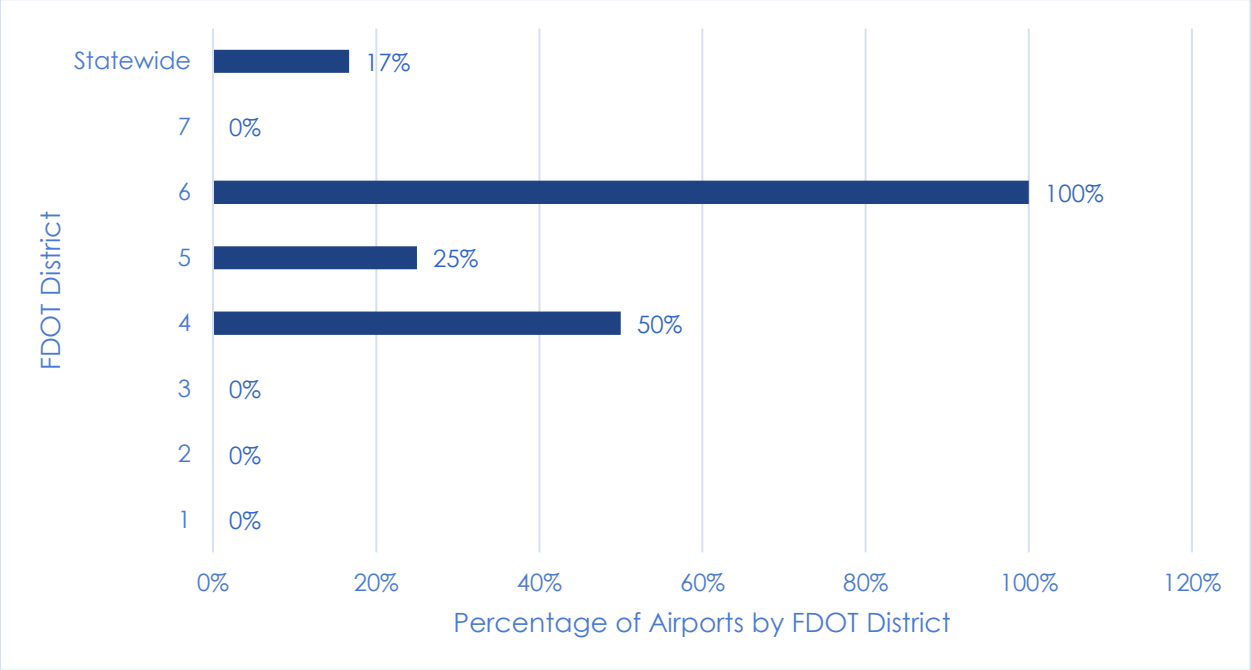


Source: Statewide review of local bus routes; Florida Aviation System Plan (FASP) Analysis

7.2.2.2.2 **PI 2.2.2** – THE NUMBER OF COMMERCIAL SERVICE SIS AIRPORTS REPORTING DIRECT PASSENGER RAIL CONNECTIONS

Passenger rail provides users with access to airports via grade separated facilities. Passenger rail is very expensive to develop and incorporate into an airport environment, so very few airports in Florida reported having service. For this analysis, a review was conducted using information available from municipalities to determine if rail service is provided to the airport. As shown in **Figure 7-17**, just 17 percent of SIS commercial service airports in the state reported having a passenger rail connection. Notably, all the SIS commercial service airports in FDOT District 6 have passenger rail connections, while FDOT Districts 4 and 5 have 50 and 25 percent, respectively. No other FDOT Districts were found to have passenger rail connections.

Figure 7-17: The Percentage of Commercial Service SIS Airports Reporting Direct Passenger Rail Connections

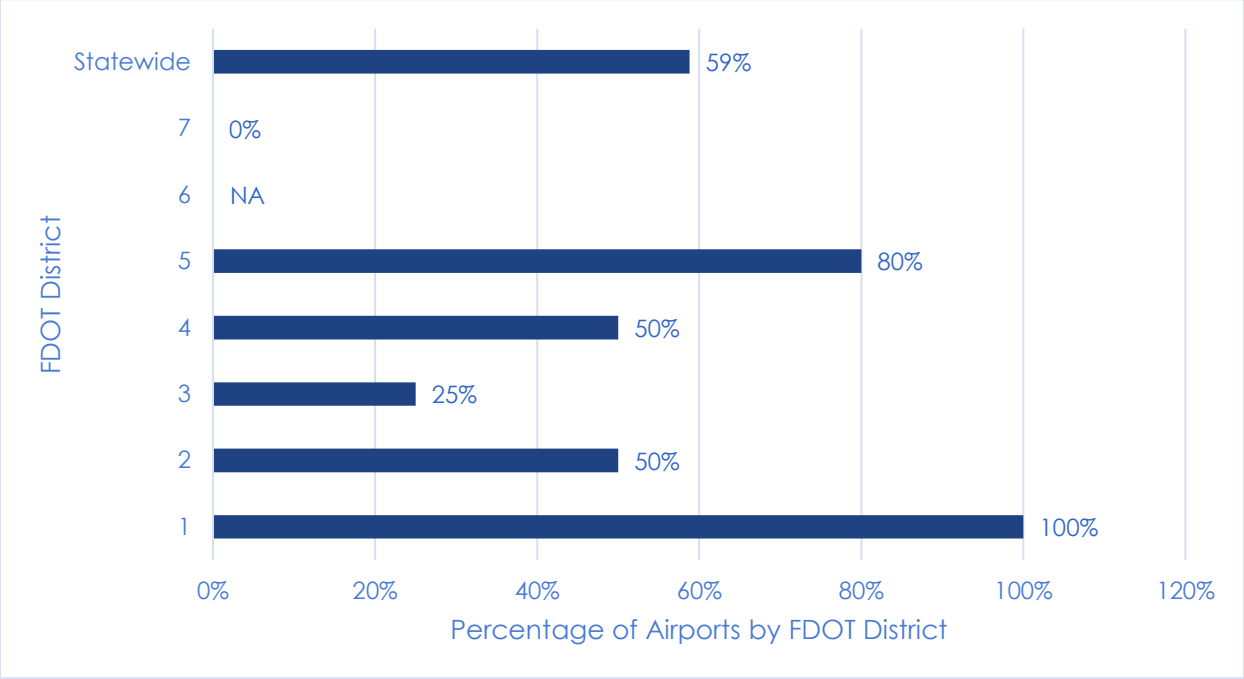


Source: Statewide review of rail connections; Florida Aviation System Plan (FASP) Analysis

7.2.2.2.3 **PI 2.2.3** – THE PERCENTAGE OF LOS ON SIS HIGHWAY AIRPORT CONNECTORS THAT ARE LOS A THROUGH C

LOS is a metric that provides a score for how well traffic can move on a roadway. LOS scores range from A through F, with A being free flowing traffic and F being heavy congestion and delays. All SIS airports have direct highway connections known as SIS connectors. For this PI, these SIS connectors were evaluated for their LOS in the areas leading into the airports. LOS scores were obtained from local planning documents or transportation plans. LOS scores are not provided at a statewide level. **Figure 7-18** provides a summary of the percentage of all SIS airports that reported having an LOS of A, B, or C on their highway connections. (Note: LOS data was not available for three of the 20 SIS airports). As shown, 59 percent of SIS commercial service airports that data was available for had a LOS of C or better for their SIS airport connectors. FDOT Districts 1 and 5 both reported having over 80 percent of SIS airports with this LOS while FDOT Districts 2 and 4 all reported 50 percent of their airports achieving this metric. Data for FDOT District 6 was not available, so no analysis was completed, while FDOT District 7 only had data for one airport, whose LOS standard was below C.

Figure 7-18: The Percentage of LOS on SIS Highway Airport Connectors That Are LOS A Through C



Source: Local transportation plans; Florida Aviation System Plan (FASP) Analysis

7.2.2.3 Objective 2.3: Encourage economic, environmental, and community sustainability planning for FASP airports

Planning is a first step in evaluating airport needs and can encompass a wide range of activities. From master plans to economic impact studies, environmental documentation, and sustainability planning, airports conduct planning efforts to better understand their future needs and associated impacts. FDOT is interested in maintaining copies of these plans on file for use in working with airports to support aviation needs. The following PI was developed to support this objective:

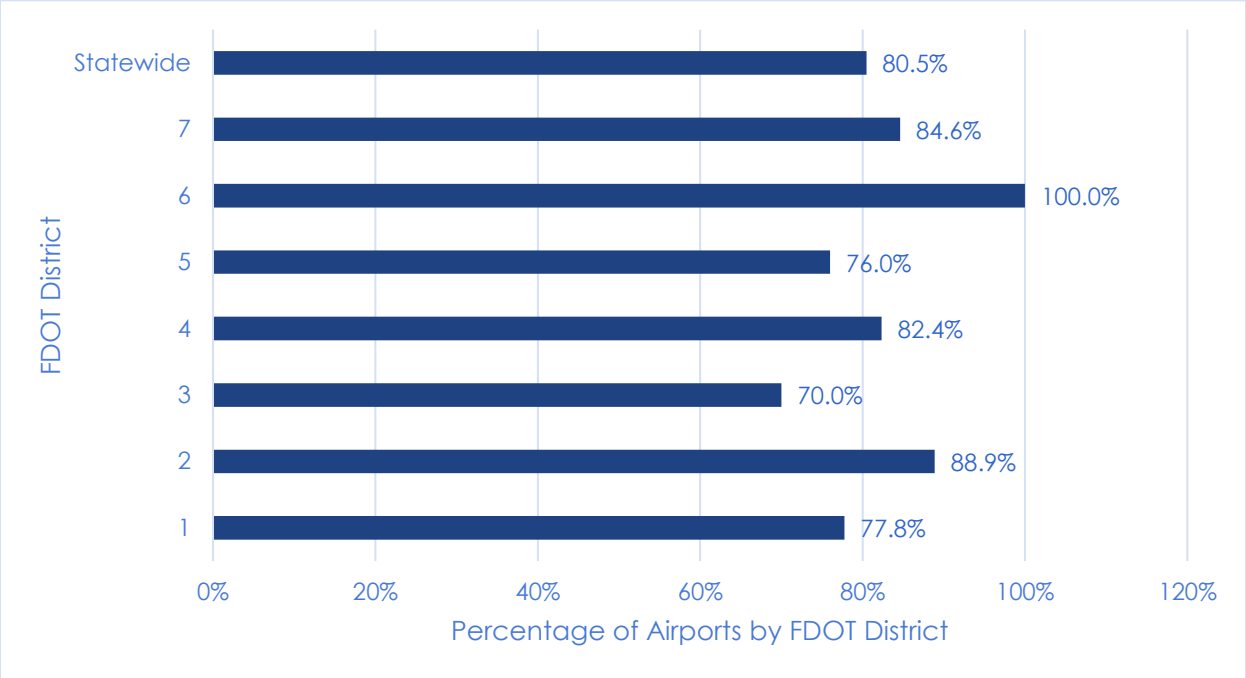
- PI 2.3.1 – The number of airports that have plans on file with FDOT (master plans and sustainability plans).

7.2.2.3.1 **PI 2.3.1** – THE NUMBER OF AIRPORTS THAT HAVE PLANS ON FILE WITH FDOT (MASTER PLANS AND SUSTAINABILITY PLANS)

Planning documents are important to airports, as they identify airport needs and establish future development or other activities. These documents are also important to FDOT, as they assist in the evaluation of project and funding needs. For this PI, the number of airports that have master plans and sustainability plans on file with FDOT was analyzed to see how well FDOT is doing in collecting this information. Data for this PI was provided by FDOT and include the date the plan was completed as well as the date of the last ALP. It should be noted that privately owned airports are not required to provide master plans to FDOT; therefore, they are responsible for a significant percentage of airports that do not have master plans on file.

Because sustainability planning is a relatively new initiative for the state and many airports, data for these plans is limited; therefore, only data for master plans is presented. As shown in **Figure 7-19**, over 80 percent of airports statewide have master plans on file with FDOT. Notably, FDOT District 6 reported 100 percent of airports having master plans on file and no FDOT District reported having less than 70 percent of airports on file with FDOT.

Figure 7-19: The Percentage of Airports That Have Master Plans on File with FDOT



Source: Florida Department of Transportation (FDOT) Master Plan Records; Florida Aviation System Plan (FASP) Analysis

7.2.3 Goal 3: Support and enhance the national position of leadership and prominence held by Florida's aviation industry

Florida is a known leader in the aviation industry; therefore, the goal to support and enhance the position of leadership and prominence held by Florida's aviation industry is critical to the long-term success of Florida's aviation industry. A summary of the objectives and PIs that are associated with this goal are shown in **Table 7-6.** There are no PMs associated with this goal.

Table 7-6: Goal 3 Objectives and Performance Indicators

Objectives		Performance Indicators	
3.1	Maintain Florida's status as a national leader in supporting aviation.	3.1.1	The amount of Florida's aviation funding in relation to other states.
		3.1.2	The amount of Florida's aviation economic impact in relation to other states.

Objectives			Performance Indicators
		3.1.3	The number of pilot certificates held in Florida (by category).
		3.1.4	The number of U.S. Parachute Association (USPA) licenses issued in Florida.
		3.1.5	The number of revenue passengers boarding aircraft (FDOT PM).[1]
		3.1.6	The tonnage of all air cargo landed at FASP airports (FDOT PM).[1]
		3.1.7	The value of air cargo transported at FASP airports (FDOT PM).[1]
		3.1.8	The number of based aircraft in Florida.

Source: Florida Aviation System Plan (FASP) 2035
[1] FDOT PM = Aviation PMs that are reported in the FDOT Source Book

7.2.3.1 Objective 3.1: Maintain Florida's status as a national leader in supporting aviation

Florida has one of the most dynamic and unique aviation systems in the world. Boasting 128 public-use airports, including 20 designated commercial service airports and 10 national ASSET category GA airports, Florida is truly a national leader in supporting aviation. A series of eight PIs were developed to evaluate how well the objective is being met:

- PI 3.1.1 – The amount of Florida's aviation funding in relation to other states
- PI 3.1.2 – The amount of Florida's aviation economic impact in relation to other states
- PI 3.1.3 – The number of pilot certificates held in Florida (by category)
- PI 3.1.4 – The number of USPA licenses issued in Florida
- PI 3.1.5 – The number of revenue passengers boarding aircraft (FDOT PM)
- PI 3.1.6 – The tonnage of all air cargo landed at FASP airports (FDOT PM)
- PI 3.1.7 – The value of air cargo transported at FASP airports (FDOT PM)
- PI 3.1.8 – The number of based aircraft in Florida

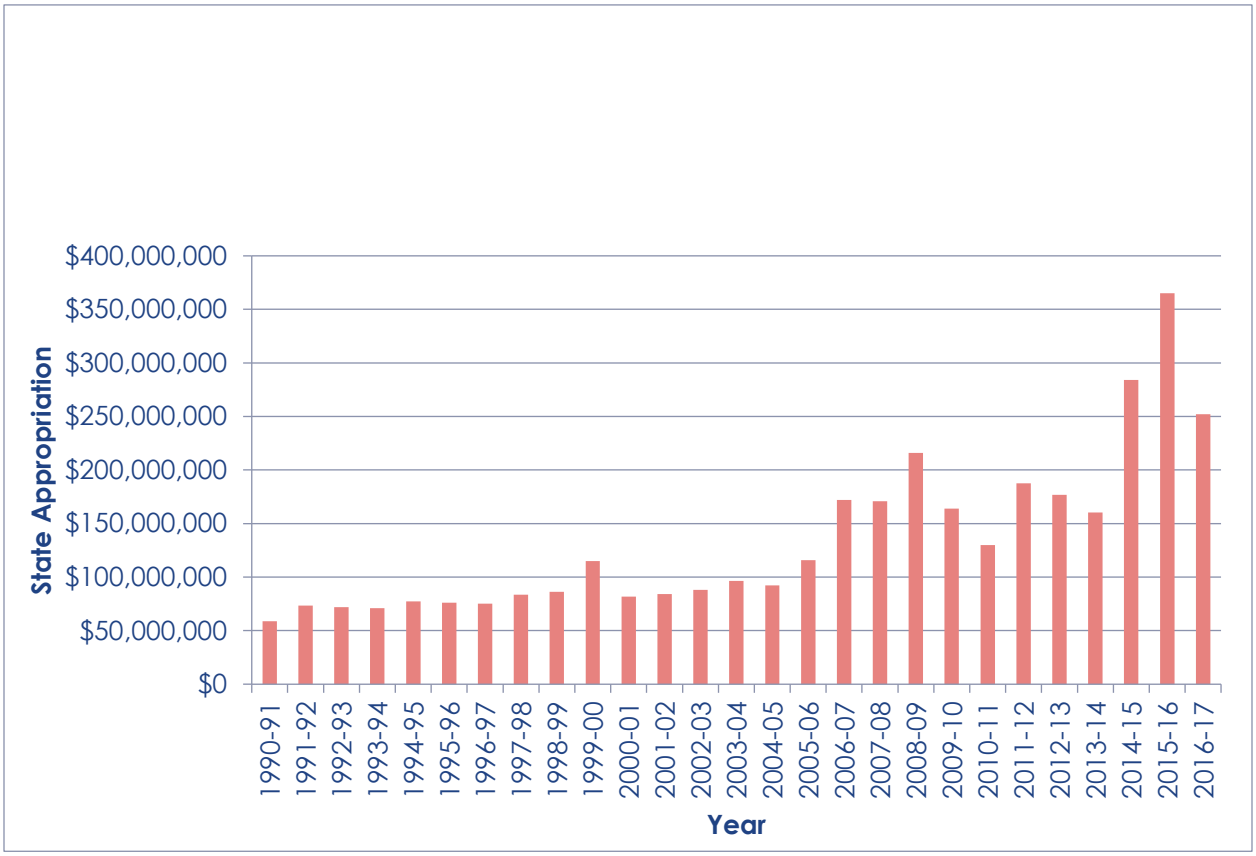
A summary of these PIs is provided in the following sections.

7.2.3.1.1 **PI 3.1.1** – THE AMOUNT OF FLORIDA'S AVIATION FUNDING IN RELATION TO OTHER STATES

FDOT supports Florida's airports through a robust state grant program. In fact, per the *Florida Aviation Project Handbook*, "as of January 1, 2014, a 6.9¢ per gallon tax is imposed on qualifying aviation fuel sales. After administrative costs and commercial carrier refunds are obtained out of the collected taxes, 92 percent of the remaining aviation fuel tax is deposited into the State Transportation Trust Fund (STTF). The outstanding eight percent of the remainder is deposited into the general revenue fund. Over $3 billion has been appropriated by the Florida Legislature towards the Aviation program since 1990…The Florida Aviation Grant Program is funded from the

STTF. The aviation industry contributes to this fund through Florida's aviation fuel tax. By Statute, at least 15 percent of the STTF revenues must be set aside for the office of Freight, Logistics and Passenger Operations (FLP). The FLP office then allocates funding to the four modal offices, including the Aviation and Spaceports Office." In fiscal year (FY) 2016/2017, over $250 million was programmed for the state aviation grant program. As much as $370 million was previously allocated in FY 2015/2016. For reference, previous years of funding are provided in **Table 7-7**.

Table 7-7: **Florida's Historic State Aviation Funding**



Source: Florida Department of Transportation (FDOT) Project Handbook, 2016

7.2.3.1.2 **PI 3.1.2** – THE AMOUNT OF FLORIDA'S AVIATION ECONOMIC IMPACT IN RELATION TO OTHER STATES

Airports are a significant driver of economic activity throughout the U.S. Because of the important role that airports play in both state and local economies, this PI identifies how Florida's aviation economic impact compares to other states. It should be noted that Florida, as well as many other states, develops its own statewide economic impact studies; however, the timing of the data and the methodologies and statistical programs used vary greatly. As such, the FAA document *The Statewide Impact of Aviation in the U.S. Economy*, of January 2015, was used for this analysis. **Table 7-8** provides a summary of the findings of this report in descending order of

output. As shown, Florida ranks third in total economic output but second in earnings, value added, and jobs.[1]

Table 7-8: Economic Impact by State

State	Output ($ Millions)	Earnings ($ Millions)	Value Added ($ Millions)	Jobs	% of GDP	Aviation Related Jobs (% of Total Jobs)
California	168,651	50,478	93,986	1,202,537	4.7	5.8
Texas	97,817	28,958	53,793	777,753	3.8	5.1
Florida	**94,047**	**29,530**	**55,716**	**832,608**	**7.2**	**8.1**
New York	80,663	22,198	48,293	552,473	4	4.9
Illinois	51,034	15,030	28,924	366,165	4.2	4.9
Washington	48,787	13,723	25,201	335,092	6.7	8.7
Georgia	44,996	13,253	24,661	352,553	5.7	6.5
Arizona	38,161	11,423	21,071	291,313	7.9	8.8
Pennsylvania	31,614	8,860	17,804	258,655	3	3.6
Colorado	29,797	9,165	16,911	243,926	6.2	7.5
Nevada	27,072	8,324	16,168	224,207	12.1	14.7
North Carolina	26,136	7,698	14,481	241,553	3	4.5
Ohio	25,407	7,067	13,486	199,612	2.6	3
Massachusetts	22,727	6,665	13,408	165,894	3.3	3.9
Tennessee	22,528	6,284	12,950	172,768	4.7	4.7
New Jersey	22,523	6,174	13,044	151,833	3	3
Hawaii	21,989	6,771	12,995	187,037	17.9	21.8
Michigan	19,831	5,900	11,299	181,586	2.8	3.5
Connecticut	19,187	4,978	9,757	106,275	4.3	4.8
Missouri	17,431	4,736	9,801	139,127	3.8	3.9
Virginia	16,639	4,703	9,569	134,140	2.1	2.8

[1] The state-level estimates that appear in this report are based on the same methodology as the estimates that appear in the National Report and represent direct and indirect expenditures on aviation-related economic activities. These direct and indirect expenditures are called primary impacts. Civil aviation-related economic activities include: airline operations, airport operations, GA, aircraft related manufacturing, air couriers, visitor expenditures, and travel arrangements. These state-level primary expenditures are entered into the Regional Input-Output Modeling System (RIMS II) for each state to produce estimates of the secondary effects of the expenditures on economic output, earnings, and jobs. These secondary impacts, or induced impacts, comprise spending by businesses and individuals who receive aviation-related direct and indirect expenditures as revenue or earnings.

State	Output ($ Millions)	Earnings ($ Millions)	Value Added ($ Millions)	Jobs	% of GDP	Aviation Related Jobs (% of Total Jobs)
Minnesota	16,526	4,921	9,342	146,029	3.2	4.2
Kansas	13,510	3,228	6,260	77,633	4.5	4.2
Maryland	13,466	3,747	7,826	92,490	2.5	2.7
Utah	12,965	3,861	7,255	118,886	5.6	7
Kentucky	12,543	3,280	7,015	98,017	4	4.1
Indiana	12,162	3,440	6,565	108,684	2.2	3
Oregon	11,933	3,348	6,944	109,310	3.5	4.9
Wisconsin	10,865	3,182	5,981	109,682	2.3	3.1
Louisiana	9,345	2,726	5,103	75,936	2.1	2.9
Alaska	6,847	2,054	3,882	59,870	7.5	13
District of Columbia	6,696	574	3,918	15,188	4	2
Alabama	6,609	1,912	3,552	63,105	1.9	2.5
Oklahoma	6,366	1,895	3,471	61,602	2.2	2.8
South Carolina	6,307	1,856	3,543	59,855	2	2.4
Arkansas	5,409	1,500	2,764	47,188	2.5	3
Nebraska	3,901	1,113	2,242	42,267	2.3	3.4
New Mexico	3,864	1,173	2,180	38,452	3	3.6
Maine	2,938	792	1,493	26,657	2.8	3.3
Iowa	2,927	847	1,651	30,819	1.1	1.5
Mississippi	2,915	803	1,500	23,895	1.5	1.6
Montana	2,772	855	1,580	31,804	3.9	5.1
Idaho	2,702	825	1,547	30,992	2.7	3.5
Rhode Island	2,645	757	1,580	22,443	3	3.8
New Hampshire	2,356	675	1,383	20,768	2	2.5
North Dakota	2,162	571	1,192	20,949	3	3.7
West Virginia	1,617	413	845	12,501	1	1.4
South Dakota	1,359	417	785	15,333	2	2.7
Vermont	1,124	316	622	11,081	2.3	2.6

State	Output ($ Millions)	Earnings ($ Millions)	Value Added ($ Millions)	Jobs	% of GDP	Aviation Related Jobs (% of Total Jobs)
Wyoming	1,045	307	594	10,273	1.5	2.6
Delaware	477	119	275	3,938	0.4	0.7

Source: Federal Aviation Administration (FAA), 2015. www.faa.gov/air_traffic/publications/media/2015-economic-impact-report.pdf

7.2.3.1.3 **PI 3.1.3** – THE NUMBER OF PILOT CERTIFICATES HELD IN FLORIDA (BY CATEGORY)

There are numerous types of pilots' licenses that a person can get, depending on the type of aircraft that is flown and the different types of flying that a person conducts. For this PI, six different types of pilots' certificates were evaluated: student, private, commercial, airline transport, flight instructor, and remote pilot. As summary of these is provided in **Table 7-9**. As shown, Florida has over 55,000 pilot certificate holders, representing over 10 percent of all pilots' certificates in the U.S. Of all other states, only California has more total pilot certificate holders, with 58,008 being reported. Florida ranks first in student, airline transport, and flight instructor pilots' certificate holders. Data for this analysis was obtained from the FAA's 2016 *Civil Airmen Statistics Report*.

Table 7-9: **The Number of Pilot Certificates Held (national ranking) in Florida (By Category)**

State	Total Pilots	Students	Private*	Commercial	Airline Transport	Misc.	Flight Instructor	Remote Pilots
Florida	55,692	13,844	13,090	9,959	18,249	550	10,183	1,783
Ranking	2	1	3	2	1	1	1	2

Source: Federal Aviation Administration (FAA) U.S. Civil Airmen Statistics, 2016
**Includes those with an airplane and/or a helicopter and/or glider certificate. Pilots under the "Rotorcraft (only)" and "Glider (only)"*

7.2.3.1.4 **PI 3.1.4** – THE NUMBER OF USPA LICENSES ISSUED IN FLORIDA

Skydiving is a common activity that occurs at many airports in Florida and around the U.S. While many people skydive as a one-time activity, the USPA also issues licenses for registered skydivers. There are four primary license types, each that have their own requirements and allowances. Below is a summary of the different license type and a summary of each. (Note: Each license type had additional requirements that can be accessed at http://www.uspa.org/Safety-Training/Licenses).

- A License: Persons holding a USPA A license may jump without supervision, pack their own main parachute, engage in basic group jumps, and perform water jumps
- B License: Persons holding a USPA B license are able to exercise all privileges of an A License holder, perform night jumps, and with 100 jumps are eligible for the USPA Coach Rating

- C License: Persons holding a USPA C license are able to exercise all privileges of a B License holder, are eligible for the USPA Instructor rating (except USPA Tandem Instructor), participate in certain demonstration jumps, and may ride as passenger on USPA Tandem Instructor training and rating renewal jumps
- D License: Persons holding a USPA D license are able to exercise all privileges of a C License holder and are eligible for all USPA ratings

As shown in **Table 7-10**, Florida has a total of 2,567 skydiving license holders.

Table 7-10: **Number and Type of USPA License Holders in Florida**

License Type	Number of License Holders
A	1,916
B	1,227
C	1,102
D	1,093
Total*	**2,567**

Source: U.S. Parachute Association (USPA), as of March 2017
** Does not add-up to 2,567 since many have multiple licenses*

7.2.3.1.5 **PI 3.1.5** – THE NUMBER OF REVENUE PASSENGERS BOARDING AIRCRAFT (FDOT PM)

To support the development of the Airport Improvement Program (AIP), the FAA produces a report that summarizes revenue passenger boardings at U.S. airports. This report, published each fall, provides the most current full year of data by both airport and state. **Table 7-11** provides the top 10 states in terms of revenue passenger boardings. As shown, Florida ranked third based on calendar year (CY) 2015 and represented over 10 percent of total revenue passenger boardings in the U.S. that year.

Table 7-11: **Number of Revenue Passenger Boardings**

Rank	State	Revenue Passengers
1	CA	98,654,715
2	TX	79,669,001
3	**FL**	**78,074,209**
4	GA	50,764,114
5	NY	50,021,973
6	IL	48,364,870
7	NC	29,127,000

Rank	State	Revenue Passengers
8	CO	27,914,676
9	VA	25,755,881
10	AZ	24,338,312

Source: Federal Aviation Administration (FAA) Calendar Year (CY) 2015 Passenger Boarding Data

7.2.3.1.6 **PI 3.1.6** – THE TONNAGE OF ALL AIR CARGO LANDED AT FASP AIRPORTS (FDOT PM)

See following PI below.

7.2.3.1.7 **PI 3.1.7** – THE VALUE OF AIR CARGO TRANSPORTED AT FASP AIRPORTS (FDOT PM)

Air cargo is a significant part of the overall state aviation system. To support this fact, FDOT commissioned the Florida Air Cargo System Plan to evaluate statistics related to air cargo in Florida. To support PI 3.1.6 and 3.1.7, cargo information from this report was used to determine both the tonnage and value of cargo at Florida's airports. For this report, only freight data was reported, but it was noted that cargo data was provided.

As shown in **Table 7-12**, Florida landed 560,001 tons of air freight in 2014.

Table 7-12: FDOT Freight and Cargo Study

	Tons	Value (m$)	Value/Ton	% Tons	% Value
Exports					
From Florida	174,363	$28,652	$164,326	14%	22%
From Other U.S.	263,997	$26,603	$100,771	21%	20%
Exports Total	438,360	$55,256	$126,051	35%	42%
Imports					
To Florida	560,001	$16,129	$28,802	45%	12%
To Other U.S.	103,603	$49,471	$477,509	8%	37%
Imports Total	663,604	$65,601	$98,855	54%	49%
Domestic (Intra-National)					
Intrastate	2,856	$139	$48,786	0%	0%
Inbound	69,291	$6,680	$96,399	6%	5%
Outbound	63,159	$4,866	$77,045	5%	4%
Domestic Total	135,305	$11,685	$86,360	11%	9%

	Tons	Value (m$)	Value/Ton	% Tons	% Value
Total					
Florida-Relevant	869,669	$56,466	$64,929	70%	43%
Other U.S.	367,600	$76,075	$206,949	30%	57%
Total	**1,237,269**	**$132,541**	**$107,124**	**100%**	**100%**

Source: Florida Department of Transportation (FDOT) Freight and Cargo Study

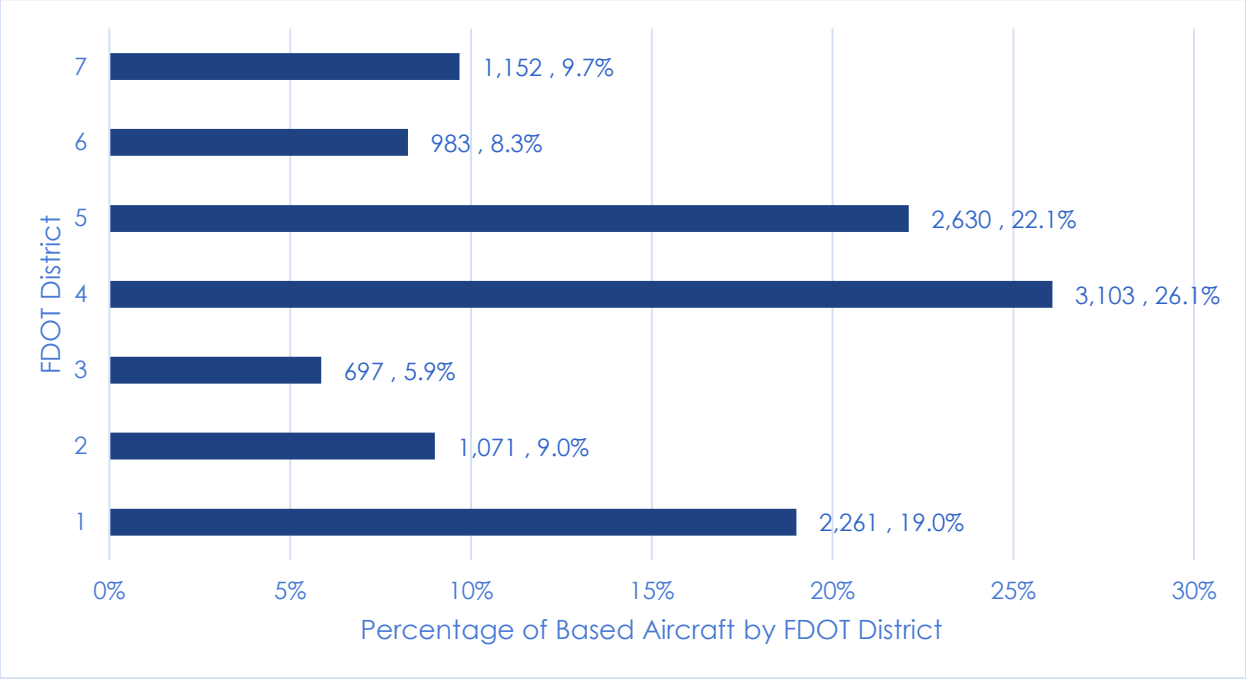
7.2.3.1.8 **PI 3.1.8** – THE NUMBER OF BASED AIRCRAFT IN FLORIDA

According to the FAA, a based aircraft is "an aircraft that is operational and air worthy, which is typically based at your facility for a majority of the year." Accurate based aircraft information is important to both the FAA and FDOT to assist in "planning and forecasting the growth in the GA community and approaches and other system-wide improvements. Based aircraft counts are one of the criteria used to determine eligibility for inclusion in the National Plan of Integrated Airport Systems (NPIAS), which is a requirement to receive Federal funds. Inaccurate counts can negatively impact the proper planning and may cause improper sizing of key capital improvement projects at airports."

Using data accessed in October 2016, 11,897 based aircraft were reported at Florida airports per BasedAircraft.com and the Airport IQ Airport Master Records.

Figure 7-20 provides a summary of based aircraft by District. As shown, FDOT District 4 has the largest percentage of based aircraft in the state, followed by FDOT Districts 1 and 5. Together, these three Districts account for almost 70 percent of total based aircraft in Florida. FDOT Districts 2, 6, and 7 all reported around 10 percent of total statewide based aircraft while District 3 accounted for just six percent.

Figure 7-20: The Number (and Percentage of State Total) of Based Aircraft in Florida



Source: Basedaircraft.com

7.2.4 Goal 4: Protect airspace and promote compatible land uses around airports

Protecting the land use and airspace around an airport is critical to the long-term viability of aviation activity. Incompatible land uses near airports may lead to reductions in operational efficiency and may require a reduction in airport services. Protecting airspace is equally important. The presence of obstructions that limit airspace can drastically affect the operational viability of an airport. A summary of the objectives and PMs that are associated with this goal are shown in **Table 7-13**. There are no PIs associated with this goal.

Table 7-13: Goal 4 Objectives and Performance Measures

Objectives		Performance Measures	
4.1	Encourage FASP airports to work with communities to enact airport zoning ordinances compatible with F.S. Chapter 333 and FDOT's *Florida Airport Compatible Land Use Guidebook*.	4.1.1	The number of FASP airports reporting that surrounding municipalities have enacted airport zoning ordinances compatible with F.S. Chapter 333
4.2	Encourage mapping at FASP airports that is compatible with FAA's electronic airport layout plan (eALP) standards.	4.2.1	The number of FASP airports reporting that they have mapping compatible with FAA eALP standards.

Source: Florida Aviation System Plan (FASP) 2035

7.2.4.1 Objective 4.1: Encourage FASP airports to work with communities to enact airport zoning ordinances compatible with F.S. Chapter 333 and FDOT's *Florida Airport Compatible Land Use Guidebook*

Florida has long promoted compatible land use planning and has continued to support this effort through implementation of F.S. Chapter 333. F.S. Chapter 333 was recently updated and many airports are continuing to evaluate their ability to meet the latest requirements. The following PM was developed to support this objective:

- PM 4.1.1 – The number of FASP airports reporting that surrounding municipalities have enacted airport zoning ordinances compatible with F.S. Chapter 333

7.2.4.1.1 **PM 4.1.1** – THE NUMBER OF FASP AIRPORTS REPORTING THAT SURROUNDING MUNICIPALITIES HAVE ENACTED AIRPORT ZONING ORDINANCES COMPATIBLE WITH F.S. CHAPTER 333

On July 1, 2016, the Florida legislature updated the requirements of F.S. Chapter 333 Per this update, all municipalities and counties in the state were required to enact local zoning ordinances that are compatible with F.S. Chapter 333 In general terms, F.S. Chapter 333 deals with ensuring that zoning around airports does not allow for any incompatible land uses as well as requirements for handling federal height and airspace obstructions. This PM is intended to document how many airports have enacted zoning ordinances compatible with F.S. Chapter 333 Currently, no municipalities or counties have enacted airport zoning ordinances that are compatible with the requirements of the updated F.S. Chapter 333 language. Even though none have been enacted, the requirement is new and most are still evaluating the differences between what ordinances they may currently have in place and the new requirement.

7.2.4.2 Objective 4.2: Encourage mapping at FASP airports that is compatible with FAA's eALP standards

As technology continues to change, the FAA has transitioned to new mapping standards to maintain data on airports. This includes developing eALPs that typically utilize base mapping from aerial imagery that is collected and integrated into a geographic information system (GIS) platform. The following PM was developed to support this objective:

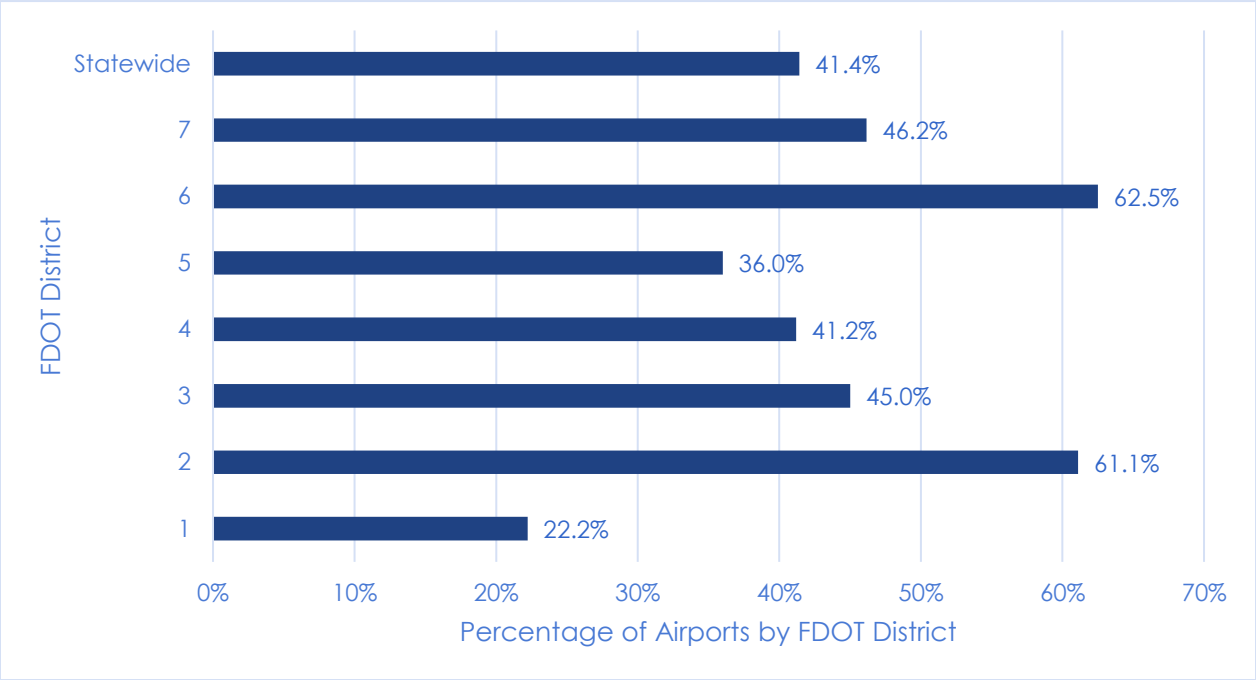
- PM 4.2.1 – The number of FASP airports reporting that they have mapping compatible with FAA eALP standards.

7.2.4.2.1 **PM 4.2.1** – THE NUMBER OF FASP AIRPORTS REPORTING THAT THEY HAVE MAPPING COMPATIBLE WITH FAA EALP STANDARDS

To support the FAA's efforts in implementing NextGen, standards for developing ALPs are shifting towards developing eALPs. The purpose of this shift is to develop and store ALPs and all associated data about the ALP in an electronic format instead of a static map format. To assess this PM, airports were asked (through a statewide survey) if they have mapping that is compatible with eALP standards. As shown in **Figure 7-21**, over 41 percent of airports statewide have mapping compatible with eALP standards. Of note, FDOT Districts 2 and 6 have over 60

percent of airports reporting that their mapping is compatible with eALP standards, while FDOT District 1 reported only 22 percent.

Figure 7-21: The Percentage of FASP Airports Reporting That They Have Mapping Compatible with FAA eALP Standards



Source: Statewide survey; Florida Aviation System Plan (FASP) Analysis

7.2.5 Goal 5: Foster technological innovation and support the implementation of new technologies

Technology across all industries is changing at a rapid pace, including the aviation industry. Keeping up with these advancements is critical to the future of aviation. This goal deals with promoting the development of improved approach procedures at airports to allow for a greater operational efficiency as well as compliance with the FAA's NextGen requirements. A summary of the objectives and PMs and PIs that are associated with this goal are shown in **Table 7-14**.

Table 7-14: Goal 5 Objectives, Performance Measures, and Performance Indicators

Objectives		Performance Measures			Performance Indicators
5.1	Encourage the development of global positioning system (GPS)-based instrument approaches.	5.1.1	The number of FASP airports with a GPS approach.		

	Objectives		Performance Measures		Performance Indicators
5.2	Encourage readiness of FASP airports to meet NextGen requirements.			5.2.1	The number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima between 3/4 mile and less than one mile.
				5.2.2	The number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima less than 3/4 mile.
5.3	Ensure unmanned aerial system (UAS) operations are considered in the state infrastructure and airway system in accordance with FAA directives.			5.3.1	The number of coordination events with various UAS stakeholders (e.g., institutions of higher learning, UAS manufacturers, etc.) in the development of UAS technologies.

Source: Florida Airport System Plan (FASP) 2035

7.2.5.1 Objective 5.1: Encourage the development of GPS-based instrument approaches

The FAA has moved toward a satellite-based system in its efforts to implement NextGen, the future air traffic control system. The FAA continues to develop instrument approach procedures based on GPS satellites that provide more accurate guidance and require less ground equipment to facilitate. The following PM was developed to support this objective:

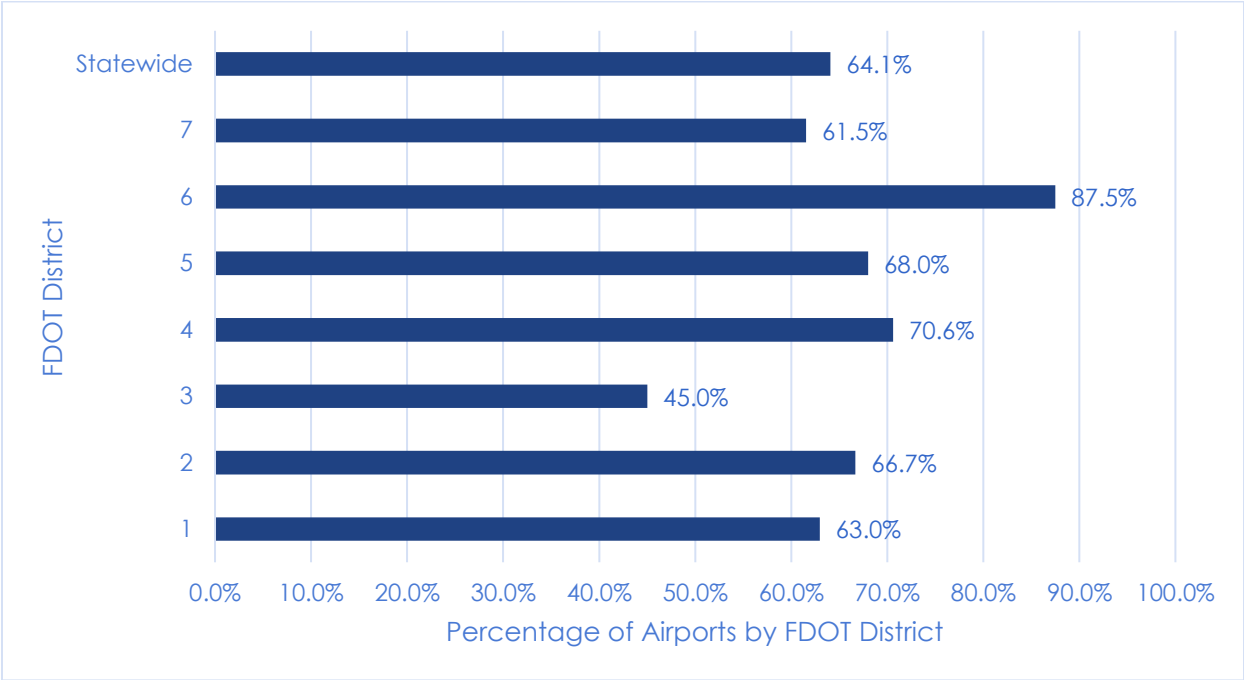
- PM 5.1.1 – The change in the number of FASP airports with a GPS approach.

7.2.5.1.1 **PM 5.1.1** – THE NUMBER OF FASP AIRPORTS WITH A GPS APPROACH

Various types of GPS approaches have been in existence for many years. GPS-based approaches include several different approach types (ex: Localizer Performance with Vertical guidance [LPV], lateral navigation [LNAV], Localizer Performance [LP]) that each provide different levels of guidance to pilots. Data for GPS approaches at Florida's airports was obtained from the FAA's Satellite Navigation Database. Because FDOT is continually seeking to support innovation in technologies that support airports, this PM identifies the change in number of airports with GPS approaches since the last FASP Update. The latest data available for this comparison comes from the 2004 FASP, where it was reported that 54 percent of airports had GPS approaches. Based on current analysis, 64.1 percent of Florida's airports now have a GPS

approach, an increase of 10.1 percent. Further, as shown in **Figure 7-22**, all FDOT Districts except District 3 reported having over 60 percent of airports with GPS approaches.

Figure 7-22: The Percentage of FASP Airports with GPS Approaches



Source: Federal Aviation Administration (FAA) Satellite Navigation – GPS/WAAS Approach Database, effective 4/27/17

7.2.5.2 Objective 5.2: Encourage readiness of FASP airports to meet NextGen requirements

Instrument approaches allow for a greater number of aircraft to utilize the airport as well as allow aircraft to access an airport in less than ideal visibility conditions. Visibility minima are established for each runway end. For this objective, the following two PIs were developed to assess how the state is performing:

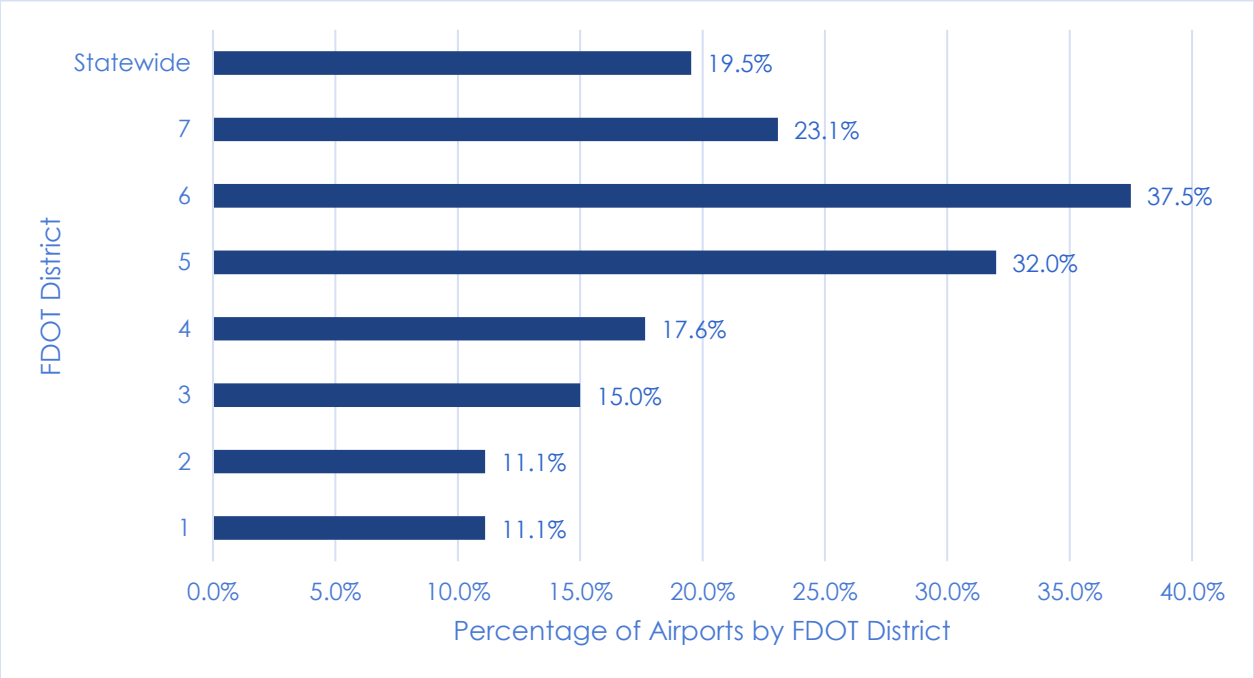
- PI 5.2.1 – The number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima between 3/4 mile and less than one mile
- PI 5.2.2 – The number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima less than 3/4 mile

For these PIs, data on airport-specific instrument approach procedures was obtained from FAA's Satellite Navigation Database and the procedures were categorized according to those with visibility minima between 3/4 mile and less than one mile as well as visibility minima less than 3/4 mile. For this analysis, visibility minima were obtained from the FAA. For this analysis, it was assumed that all privately owned, public-use airports in the state had only visual approach procedures.

7.2.5.2.1 **PI 5.2.1** – THE NUMBER OF FASP AIRPORTS THAT MEET THE FAA STANDARDS FOR AN INSTRUMENT APPROACH PROCEDURE WITH VISIBILITY MINIMA BETWEEN 3/4 MILE AND LESS THAN ONE MILE

As shown in **Figure 7-23**, just over 19 percent of Florida's airports have an instrument approach procedure with visibility minima between 3/4 mile and less than one mile. FDOT Districts 5, 6, and 7 all reported over 20 percent of their airports as meeting this threshold.

Figure 7-23: The Percentage of FASP Airports That Meet the FAA Standards for an Instrument Approach Procedure with Visibility Minima Between 3/4 Mile and Less Than One Mile

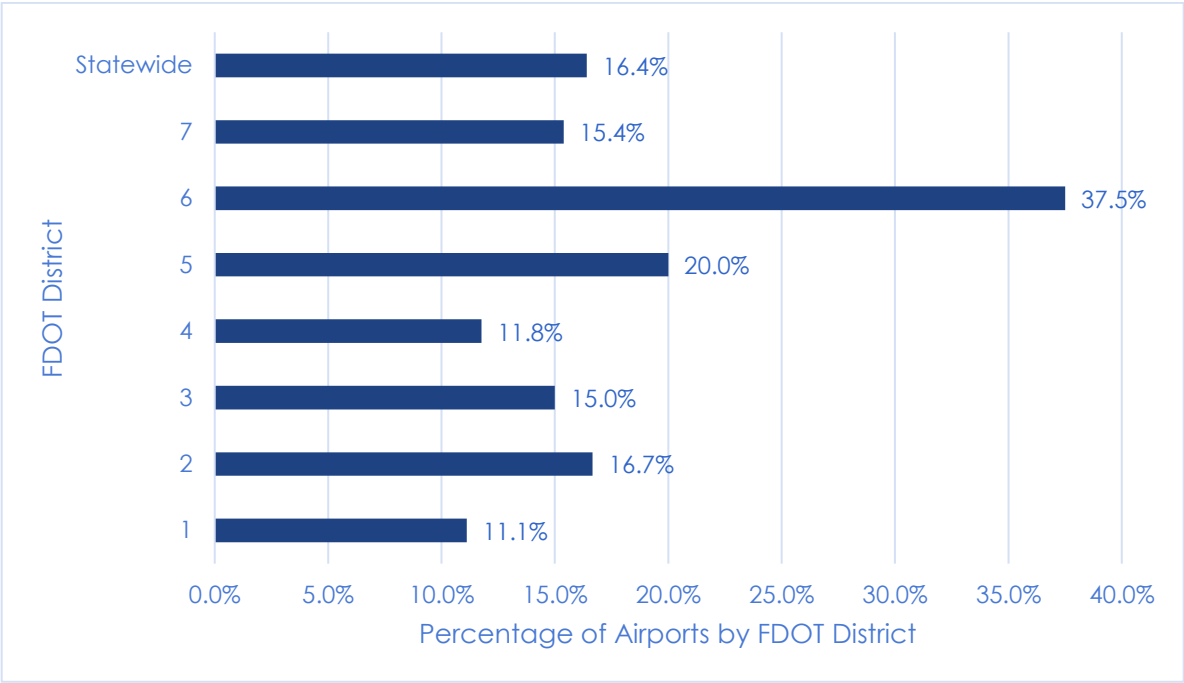


Source: Federal Aviation Administration (FAA) Satellite Navigation – GPS/WAAS Approach Database, effective 4/27/17

7.2.5.2.2 **PI 5.2.2** – THE NUMBER OF FASP AIRPORTS THAT MEET THE FAA STANDARDS FOR AN INSTRUMENT APPROACH PROCEDURE WITH VISIBILITY MINIMA LESS THAN 3/4 MILE

As shown in **Figure 7-24**, over 16 percent of airports were found to have an instrument approach procedure with visibility minima less than 3/4 mile. Common among these were the state's commercial service airports. As identified, over 37 percent of airports in FDOT District 6 meet this standard while all other Districts report 20 percent or under meeting this threshold.

Figure 7-24: The Percentage of FASP Airports That Meet the FAA Standards for An Instrument Approach Procedure with Visibility Minima Less Than 3/4 Mile



Source: Federal Aviation Administration (FAA) Satellite Navigation – GPS/WAAS Approach Database, effective 4/27/17

7.2.5.3 Objective 5.3: Ensure UAS operations are considered in the state infrastructure and airway system in accordance with FAA directives

UAS operations have skyrocketed over the past five years and the technology is now being widely used for many purposes. The FAA continues to evolve its policies on UAS and Florida is monitoring the policies and the growth in the systems. The following PI was developed to support this objective:

- PI 5.3.1 – The number of coordination events with various UAS stakeholders (e.g., institutions of higher learning, UAS manufacturers, etc.) in the development of UAS technologies.

7.2.5.3.1 **PI 5.3.1** – THE NUMBER OF COORDINATION EVENTS WITH VARIOUS UAS STAKEHOLDERS (E.G., INSTITUTIONS OF HIGHER LEARNING, UAS MANUFACTURERS, ETC.) IN THE DEVELOPMENT OF UAS TECHNOLOGIES

As UAS become more pervasive in the national airspace, it will be critical for FDOT to be involved in coordination efforts with various UAS stakeholders. As such, this PI is recommended as a new element for future FDOT tracking and reporting. While FDOT has participated in numerous events with UAS stakeholders, data on the events has not yet been maintained.

7.2.6 Goal 6: Promote support for aviation from business, government, and the public

Florida's aviation system is a significant economic engine that supports numerous industries throughout the state. From the manufacturing of aircraft, to training the world's pilots, bringing visitors from domestic and international locations, and providing support during emergencies, airports provide a tremendous range of qualitative and quantitative impacts that many businesses, governments, and the public may or may not understand. To continue promoting the need for support for airports to these groups, this goal was developed to indicate the level of support provided. A summary of the objectives and PIs that are associated with this goal are shown in **Table 7-15**. There are no PMs associated with this goal.

Table 7-15: **Goal 6 Objectives and Performance Indicators**

Objectives		Performance Indicators	
6.1	Quantify and communicate the economic impact of FASP airports.	6.1.1	The change in the economic impact of FASP airports.
6.2	Coordinate with Enterprise Florida, Inc (EFI) to advertise the availability of resources and developable land at FASP airports to aviation-minded businesses around the country.	6.2.1	The number of coordination meetings with EFI representatives to communicate economic impact and business development opportunities of FASP airports.
6.3	Encourage airports to maintain pavement in an above-average level of condition.	6.3.1	The number of airport pavement condition index (PCI) inspections per year.

Source: Florida Aviation System Plan (FASP) 2035

7.2.6.1 Objective 6.1: Quantify and communicate the economic impact of FASP airports

Airports are significant generators of economic impact. This fact is not always easily recognized by the public and FDOT has conducted several statewide studies to calculate the impacts and provide tools to airports for use in communicating the benefits. The following PI was developed to support this objective:

- PI 6.1.1 – The change in the economic impact of FASP airports.

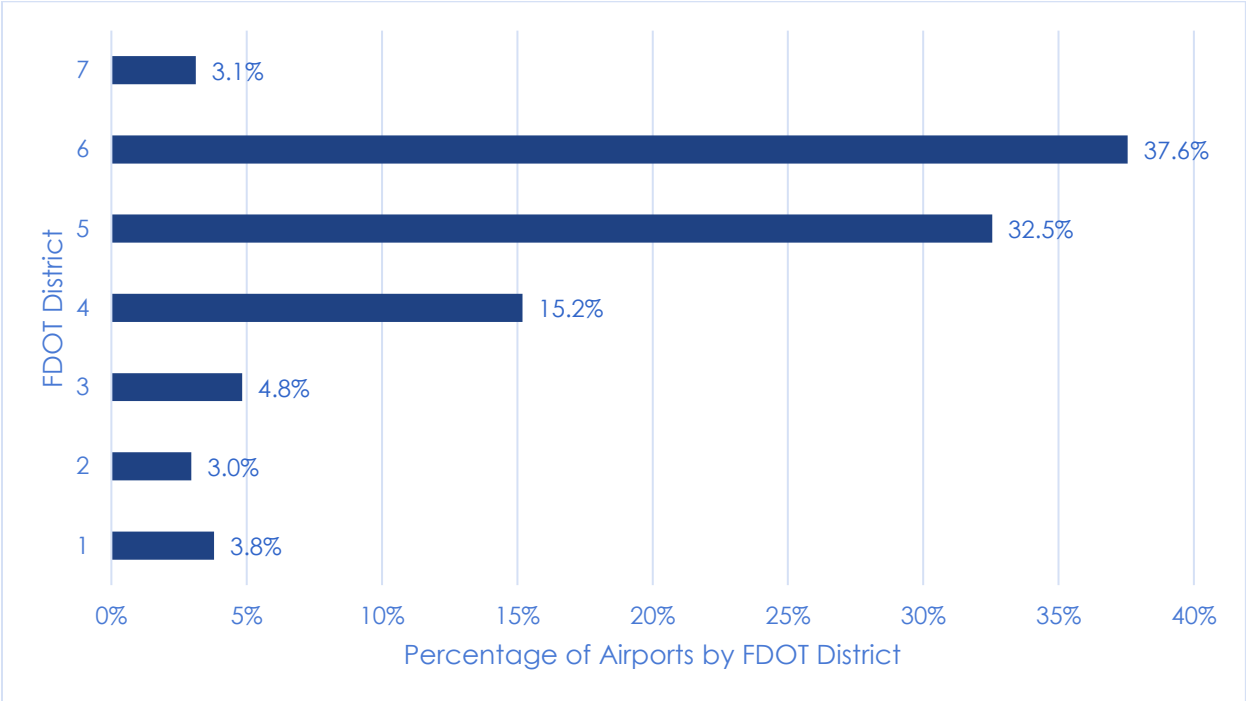
7.2.6.1.1 **PI 6.1.1** – THE CHANGE IN THE ECONOMIC IMPACT OF FASP AIRPORTS

The economic impact of Florida's airports has a profound impact on the state's economy as a whole. Earlier in this analysis, a comparison of Florida's economic impact of airports to other states' impacts was conducted. This comparison utilized a study completed by the FAA that contained data on all 50 states. While this data is adequate for a national comparison, Florida conducts its own economic impact studies that are better able to quantify aviation's impact in the state. The overall impact calculated by the Florida study is significantly higher than the FAA's study estimate; however, different methodologies were utilized. Florida's economic impact study is much more precise due to a comprehensive data collection effort and the proactive participation of the state's airports. For this PI, the changes in economic output between the

previous two studies completed in 2010 and 2014 were identified. (Note: A new economic impact study is underway as of June 2017, with an anticipated completion date in the Fall of 2018). For this analysis, the difference in economic impact by airport was summarized by FDOT District. The growth rates shown in **Figure 7-25** include any negative growth that may have occurred.

In total, the state's aviation economic impact attributable to airports grew by over $19 billion between 2010 and 2014, increasing from $97.0 billion to $116.3 billion. As shown in Figure 7-25, FDOT Districts 5 and 6 accounted for the highest percentage of the growth, with 32.5 and 37.6 percent of total growth, respectively. FDOT District 4 contributed 15 percent of the growth while FDOT Districts 1, 2, 3, and 7 all had under five percent of the total growth.

Figure 7-25: The Change in the Economic Impact of FASP Airports from 2010 to 2014



Source: Florida Department of Transportation (FDOT) Economic Impact Study 2010 and 2014; Florida Airport System Plan (FASP) Analysis

7.2.6.2 Objective 6.2: Coordinate with EFI to advertise the availability of resources and developable land at FASP airports to aviation-minded businesses around the country

EFI is a public-private partnership in the state between business and government and serves as the primary economic development organization in the state. As such, coordination with EFI can help to further compatible development at and near Florida's airports. It is critical that EFI knows the value of airports and aviation in the state and how this can be leveraged for the benefit of all Floridians. The following PI was developed to support this objective:

- PI 6.2.1 – The number of coordination meetings with EFI representatives to communicate the economic impact and business development opportunities of FASP airports.

7.2.6.2.1 **PI 6.2.1** – THE NUMBER OF COORDINATION MEETINGS WITH EFI REPRESENTATIVES TO COMMUNICATE THE ECONOMIC IMPACT AND BUSINESS DEVELOPMENT OPPORTUNITIES OF FASP AIRPORTS

Airports represent a unique opportunity to market Florida as a place where businesses can develop and thrive. Airports can have lease holders that function both for aeronautical and non-aeronautical purposes. Understanding the land that is available for lease, the types of leases, as well as what types of businesses can be served in an airport's land envelope are all significant marketing opportunities for airports to engage to diversify their income and remain financially self-sufficient. As such, this PI was developed to track the number of coordination meetings held with EFI staff to promote airports as an economic driver. EFI is the primary marketing department for the state as a whole. While FDOT has participated in numerous meetings with EFI, data on the meetings has not yet been maintained.

7.2.6.3 Objective 6.3: Encourage airports to maintain pavement in an above average level of condition

One of the most critical infrastructure elements at an airport is pavement. FDOT has long supported the maintenance of airport pavement by implementing a study of the conditions and providing information to airports, as well as significant funding, to address pavement needs. The following PI was developed to support this objective:

- PI 6.3.1 – The number of airport PCI inspections per year.

7.2.6.3.1 **PI 6.3.1** – THE NUMBER OF AIRPORT PCI INSPECTIONS PER YEAR

Airfield pavements represents one of the largest capital investments on an airport. As such, FDOT developed the Statewide Airfield Pavement Management Program (SAPMP) to "identify pavement conditions and the associated maintenance and rehabilitation needs and costs to provide the tools to allow programming of improvements in a cost-effective manner." Ensuring that pavement conditions are evaluated and monitored on a frequent basis so that minor issues can be identified and mitigated against before they become major issues is a critical part of maintaining the viability of the statewide aviation system. As such, tracking the number of pavement inspections that are completed each year is important. In total, 95 Florida airports participate in the pavement inspection program. To date there have been two cycles of inspections (2010 – 2012 and 2013 – 2015), with each cycle being completed in two phases. For each phase, approximately 45 to 50 airports are inspected each year. (Note: FDOT is currently in the middle of the 2016 – 2018 pavement inspection cycle).

7.2.7 Goal 7: Foster Florida's reputation as a military- and aerospace-friendly state

Military activity is critical to the state of Florida. Not only does this activity provide jobs and economic impact, it also has direct and significant impacts on the state's airports and airspace. As such, coordination with the military as well as promoting its benefit to the state's aviation system is critical to long-term success. This goal was developed to foster Florida's reputation as a military-friendly state. A summary of the objectives and PIs that are associated with this goal are shown in **Table 7-16**. There are no PMs associated with this goal.

Table 7-16: Goal 7 Objectives and Performance Indicators

Objectives		Performance Indicators	
7.1	Coordinate with military aviation representatives as it relates to the Florida aviation system.	7.1.1	The number of military officials participating in the CFASPP.
		7.1.2	The number of task force meetings held with military officials.
7.2	Coordinate with military on emergency response coordination efforts.	7.2.1	The number of coordination meetings held with emergency response officials, including the military.
7.3	Measure the economic impact of military aviation in Florida.	7.3.1	The amount of Florida's aviation economic impact with military aviation units and airports included.

Source: Florida Aviation System Plan (FASP) 2035

7.2.7.1 Objective 7.1: Coordinate with military aviation representatives as it relates to the Florida aviation system

Military airports play a critical role in the overall state aviation system. Currently, no data is collected or monitored to understand how frequently or effectively Florida's military aviation officials are being coordinated with as part of the CFASPP meetings or other meetings. As such, the two PIs seek to establish a process to track the coordination efforts. It is suggested that both the number of military officials who participate in the CFASPP process and the number of task force meetings held with military officials be tracked on a regular basis to ensure that this data is available for future updates to the FASP.

7.2.7.1.1 **PI 7.1.1** – THE NUMBER OF MILITARY OFFICIALS PARTICIPATING IN CFASPP PROCESS

See objective above.

7.2.7.1.2 **PI 7.1.2** – THE NUMBER OF TASK FORCE MEETINGS HELD WITH MILITARY OFFICIALS

See objective above.

7.2.7.2 Objective 7.2: Coordinate with military on emergency response coordination efforts

Florida plays a prominent role in supporting the military with bases throughout the state. The state has also experienced more than its fair share of emergency situations, including hurricanes and wildfires, that require emergency response and coordination with military personnel. The following PI was developed to support this objective:

- PM 7.2.1 – The number of coordination meetings held with emergency response officials, including the military.

7.2.7.2.1 **PI 7.2.1** – THE NUMBER OF COORDINATION MEETINGS HELD WITH EMERGENCY RESPONSE OFFICIALS, INCLUDING THE MILITARY

Similar to the previous PIs associated with this goal, there is currently no process in place to track or monitor the interaction with emergency response officials, including the military. As such, it is recommended that this data element be monitored and tracked to be included in future FASP updates.

7.2.7.3 Objective 7.3: Measure the economic impact of military aviation in Florida

Similar to civilian aviation, military aviation generates a high level of economic impact, especially in Florida. From standalone bases to military activities at civilian airports, it is important to quantify the economic impact of this activity on the state. The following PI was developed to support this objective:

- PI 7.3.1 – The amount of Florida's aviation economic impact with military aviation units and airports included.

7.2.7.3.1 **PI 7.3.1** – THE AMOUNT OF FLORIDA'S AVIATION ECONOMIC IMPACT WITH MILITARY AVIATION UNITS AND AIRPORTS INCLUDED

In the *2014 FDOT Statewide Aviation Economic Impact Study Update*, the overall economic impact of military aviation was evaluated and included in the report. Per the report, "analysis was aimed at measuring the statewide impact of military facilities that are aviation related or that have a strong aviation component. The underlying objective of the analysis was to quantify the economic impacts of Florida's military airfields using a methodology consistent with the methodology used to quantify the economic impacts for other aviation groups considered in this statewide study update."

Table 7-17 summarizes the findings of this report. As shown, the total economic impact of military aviation in Florida was nearly $12.8 billion in 2014.

Table 7-17: The Amount of Florida's Aviation Economic Impact with Military Aviation Units and Airports Included

	Employment	Annual Payroll	Annual Economic Activity
Military Aviation	137,482	$6,409,021,000	$12,786,113,000

Source: 2014 Florida Department of Transportation (FDOT) Economic Impact Study

7.3 Mapping Analyses

In addition to analyzing system performance in meeting goals, objectives, PMs, and PIs, evaluating system accessibility from the ground and the air is also an important exercise in reviewing system success. Airports should be accessible both from the ground as people travel to and from airports and from the air by pilots looking for certain airport characteristics. To evaluate the accessibility of Florida's airport system, drive-time analyses were conducted. These drive times focus on the accessibility of the system by people on the ground, including determining the percent of Florida's population that can access airports. The results of these analyses are used to evaluate how well Florida's population is served by the state's airport system, how well certain aviation activities are supported, and help identify any locational gaps that may exist for certain facilities. Further, the evaluation of where facilities are located throughout the system helps to identify where potential redundancies, gaps, and opportunities for new facilities or services may exist.

7.3.1 Drive Time and Population Calculations

The FAA uses 30 minutes as a criterion in determining airports that are eligible for inclusion in the NPIAS, which denotes those airports that are important to the national system and are eligible for FAA funding. The 30-minute distance from an airport criterion has also been noted by businesses that operate GA aircraft as a decision-making factor when they are seeking locations to build or relocate their business. As such, the FASP 2035 utilizes a 30-minute drive time for many of the analyses included in this section. The drive times were prepared using Esri Community Analyst. The Esri Community Analyst software develops the drive time areas using the posted speed limits on the applicable roadway segments. (Note: This analysis does not consider peak traffic periods or differing levels of vehicle congestion throughout the day.)

The 2016 population within each drive time area was calculated with the Esri Community Analyst software. Several of Florida's airports are in close proximity to each other, leading to a significant overlap when looking at the drive times for multiple airports. Populations were determined within each drive time area; however, the analysis was performed at a category wide level, to remove overlaps between the drive time areas of individual airports. By removing the overlapping drive time areas, the report is able to depict the total population within the drive time of each airport category without including the same populations multiple times. The population figures generated throughout this report represent the total population within the selected drive time area of each airport category.

In addition to the 2016 population analysis for 30-minute drive times, the 2035 population was projected to determine the future coverage of Florida's public-use airports. These updated population projections are used to evaluate how future demand may be accommodated within the airport system and how the projected growth will affect the system. Statewide, the projected population is expected to increase by 27.5 percent between 2016 and 2035. Using this percentage, the population in Florida is expected to grow from 20,108,440 in 2016 to 25,638,551 by 2035.[2]

Throughout this section, each drive time map displays a 2035 future population coverage projection that reflects the estimated population that would be served by the corresponding airports within a 30-minute drive time. This future population analysis was conducted using the Esri Community Analyst tool which accounts for varying growth rates across the state. It is important to note the distinction between the percentage of the population within the drive time areas and the overall growth of the state's population. Between 2016 and 2035, the state's population is expected to grow, but in some cases the percentage of the overall population within the drive time areas will be reduced. This decrease in the percentage of the population being served within the drive times is due to the increase in growth across the state in areas outside of the selected drive time areas.

Additionally, assumptions regarding the current airport network have been made in regards to the identification of future population figures. Current airport configurations and categories have been assumed to remain the same through 2035. For example, it is assumed that the number, location, and category of the NPIAS airports will remain the same in 2035 as they are in 2016. This analysis has been conducted to determine the percentage of the projected Florida population within the selected drive times or boundaries of the current airport network. Changes to the network, such as the closing or the creation of airport facilities, have not been considered as part of this analysis.

Results of the drive time analyses presented in this section are organized by FDOT District. **Figure 7-26** illustrates the FASP airports by FDOT District**.** While there is a wide range in the number of airports by District, it is important to recognize that the Districts are unique in terms of the metropolitan and/or rural areas served, the amount of coastline, and the geographic size of the District.

Table 7-18 summarizes the number of airports and the percentage of the state's population residing in each district. The percent of the total population is decreasing in five of the seven FDOT Districts. District 1 (0.7 percent growth) and District 5 (0.9 percent growth) are projected to contain slightly larger percentages of Florida's population by the year 2035.[3] This information shows growth is expected within the southwest and east central areas of Florida. This population growth may present changes to air service demands in the future, causing the existing airports to adapt to the needs of the increasing populations.

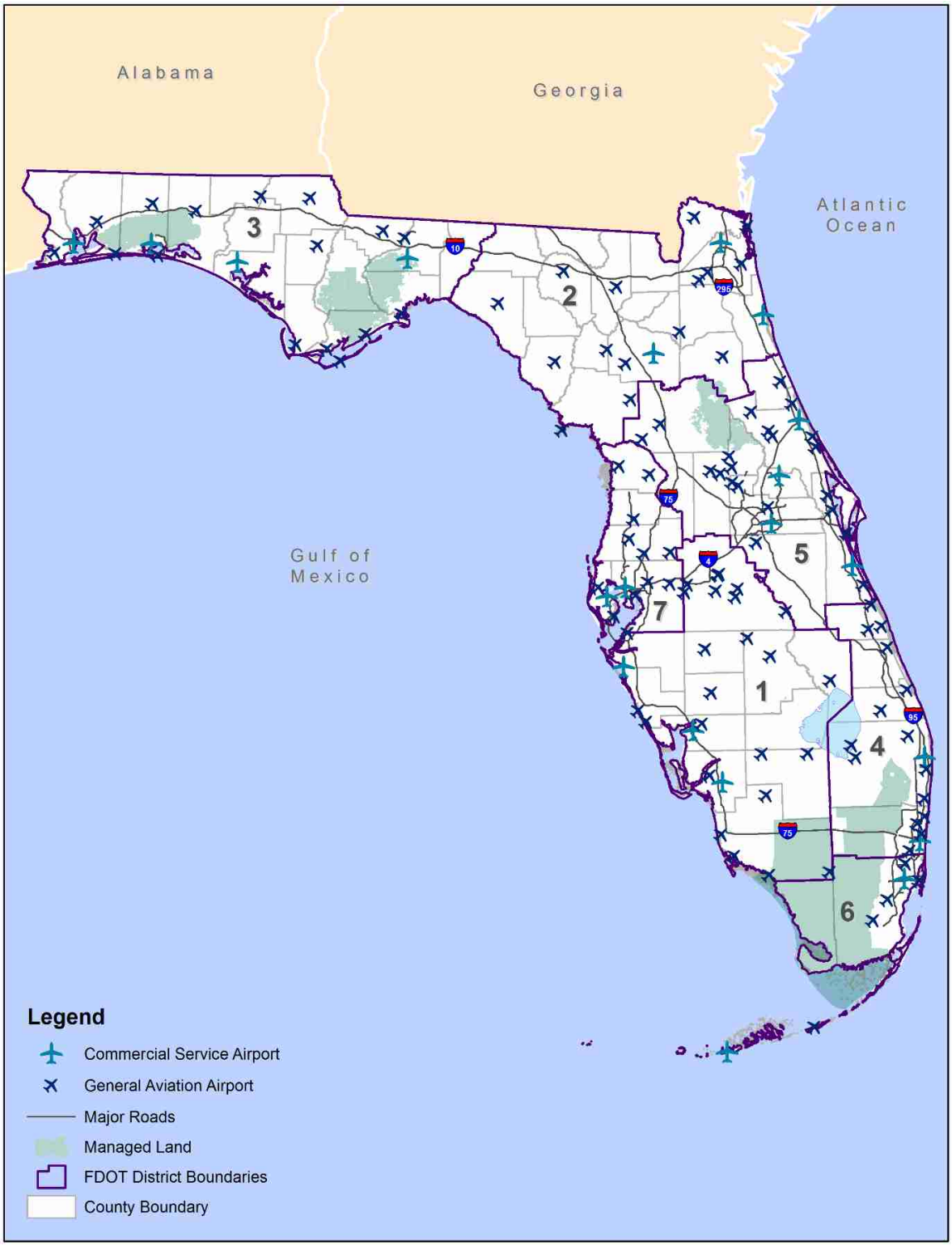
[2] Esri Community Analyst: Population Projection
[3] Esri Community Analyst: Population Projection

Table 7-18: Number of Airports by FDOT District

FDOT District	Percentage of Florida's Population in 2016	Percentage of Florida's Population in 2035	Airports	Commercial Service	General Aviation
1	14.3%	15.0%	27	3	24
2	10.3%	10.0%	18	3	15
3	7.2%	6.7%	20	4	16
4	19.2%	19.1%	17	2	15
5	20.1%	21.2%	25	4	21
6	13.4%	12.9%	8	2	6
7	15.3%	15.0%	13	2	11
Statewide	**~100%**	**~100%**	**128**	**20**	**108**

Source: Florida Department of Transportation (FDOT); Kimley-Horn Analysis

Figure 7-26: Airports by FDOT District



Source: Florida Department of Transportation (FDOT); Kimley-Horn Analysis

7.3.2 Data Sources

Several data sources were used to evaluate Florida's 128 public-use airports for their ability to serve the state based on numerous perspectives, including analysis of accessibility. **Table 7-19** below indicates the source of the data and the date the information was obtained.

Table 7-19: Data Sources

Drive Time Analysis Data Sources	
Data Source	**Date Accessed**
Esri Community Analyst	March 2017
Florida Aviation Database	January – March 2017
National Flight Data Center	October 2016
National Plan of Integrated Airport Systems	October 2016
Strategic Intermodal Systems	February 2017

Source: Florida Aviation System Plan (FASP) Analysis

7.3.2.1 Airport Categories

The specific drive-time analyses were selected through coordination with the FDOT Aviation and Spaceports Office (ASO) to evaluate the Florida aviation system. For this study, drive-time analyses were completed for the following:

- Airports with air traffic control towers (ATCTs)
- Airports with Jet A fuel
- Airports with 100 Low Lead (100LL) fuel (avgas)
- Airports by NPIAS and ASSET categorization
    - Commercial Service
        - Large hub
        - Medium hub
        - Small hub
        - Non-hub
    - GA
        - National
        - Regional
        - Local
        - Basic
- SIS airports
- Airports with flight training activity
- Airports with surface weather observation stations (based on a 30-nautical mile buffer)
- Airports with runways of various lengths
    - 3,200 feet
    - 4,200 feet
    - 5,000 feet
    - 6,500 feet
- Airports with at least one instrument approach (based on visibility minimums)

- Airports with at least one precision approach (based on visibility minimums)
- Airports that have features to accommodate business users
    - 5,000-foot long runway
    - Automated Weather Observing Stations (AWOS)
    - Instrument approach
    - Jet A fuel

The results of these drive time analyses are provided in the following sections.

7.3.3 Airports with ATCT

7.3.3.1 Existing Population Analysis

Across all FDOT Districts, 46 airports have an ATCT, representing 35.9 percent of all Florida airports. For this analysis, both FAA, private, and contract towers were included. ATCT locations were obtained from the NFDC. As shown in **Figure 7-27**, across all Districts, 89.7 percent of Florida's 2016 population was located within a 30-minute drive of an airport with an ATCT. This level of population access is high; however, the distribution of these facilities shows that the ATCTs are primarily located near the major metropolitan areas. Based on the analysis, FDOT District 6 has the highest percentage of airports with ATCTs, while District 3 has the lowest percentage of airports with ATCTs. **Table 7-20** provides a summary of airports with ATCTs by District in both total number and percentage.

Table 7-20: **Airports with ATCTs by FDOT District**

Florida Public-Use Airports with Air Traffic Control Tower		
FDOT District	**Number of Airports with an ATCT**	**Percentage within District**
1	7	25.0%
2	6	33.3%
3	4	20.0%
4	9	52.9%
5	12	48.0%
6	4	57.1%
7	4	30.8%
Total	**46**	**35.9%**

Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

The analysis shows that Florida's population is well supported by airports with ATCTs even if the distribution does not provide access for many areas of the state. The majority of ATCTs are located at the airports that meet the FAA's criteria for levels of activity and benefit/cost ratios that are used to support the FAA's determination of need and are not established due to location criteria. There are three Florida airports which privately pay for an ATCT (Bartow

Municipal Airport, Destin-Ft. Walton Beach Airport, and Lake City Gateway Airport). These towers are referred to as private since they are not evaluated by the FAA and are separate from the FAA and contract tower; however, they are included in this analysis.

As shown, there are substantial geographical gaps in coverage in the south-central portions of the state, spanning large areas of FDOT Districts 1, 4, 5, 6 and 7. FDOT District 2 and 3 also have large areas that do not have access to ATCTs. Though overall land coverage is limited, a large majority of the state's population has access to an airport with an ATCT within a 30-minute drive.

7.3.3.2 Contract and FAA ATCT Comparison

As mentioned above, there are 46 ATCTs which provide support for Florida's airport network. Of these 46 ATCTs, 21 are either privately owned or managed by the FAA. The remaining 25 ATCTs are contract towers. The privately owned and FAA ATCTs serve 73.1 percent of Florida's population, while the contract towers serve 61.5 percent of the population within a 30-minute drive time. Separately, each category of ATCT serves a significant portion of the state's population within a 30-minute drive time. As described above, all of the ATCTs accommodate 89.7 percent of Florida's 2016 population, with the contract towers serving an additional 16.6 percent of the state's population over the 30-minute drive time of the private and FAA towers.

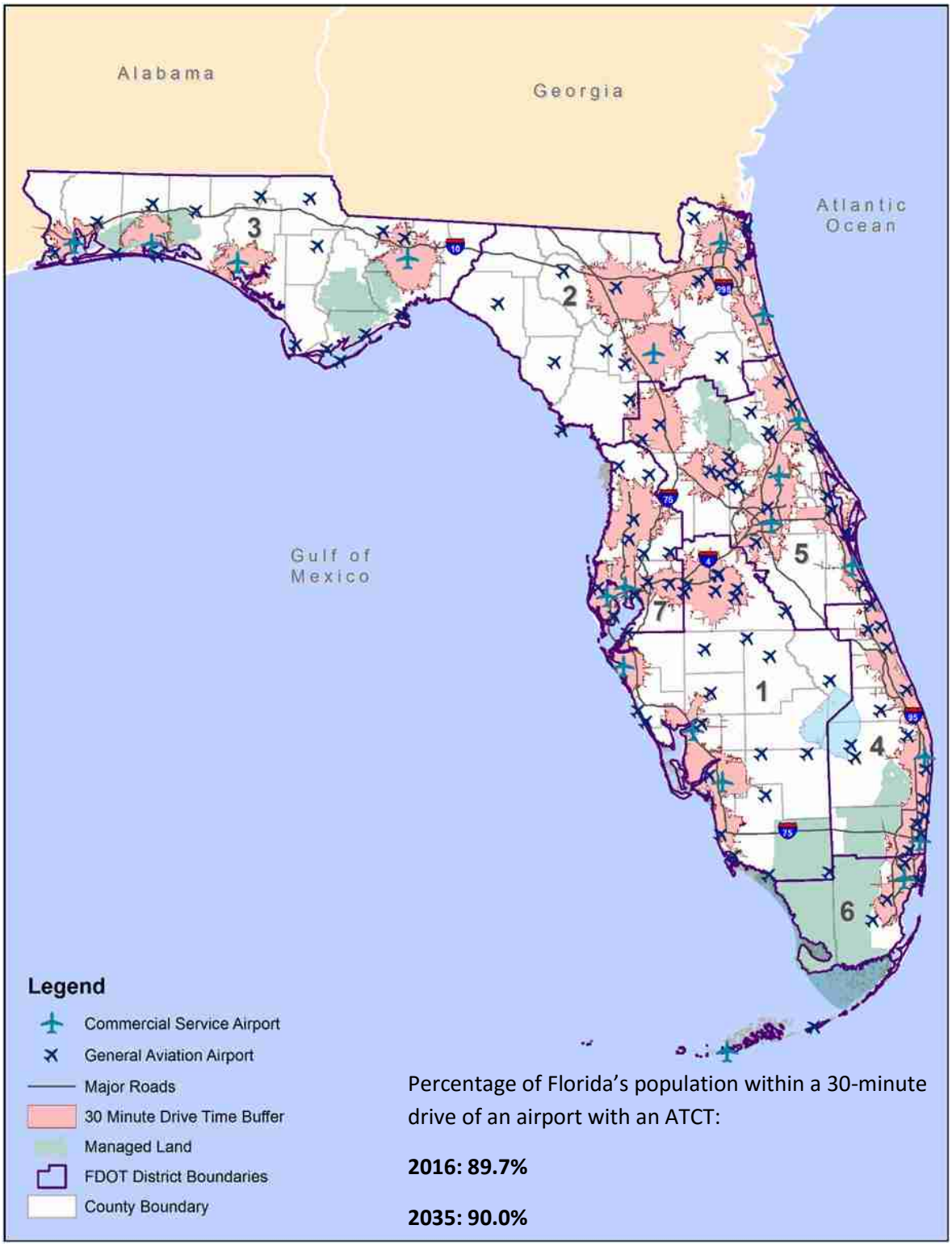
7.3.3.3 Future Population Analysis

The population within the 30-minute drive time around FAA and private towers is expected to experience a 27.2 percent population growth between 2016 and 2035. Over this time period, the population is expected to grow from 14,690,498 in 2016 to 18,689,590 in 2035. This will account for 72.9 percent of Florida's projected population in 2035 within a 30-minute drive time. This figure represents a slight decrease (0.2 percent) in the population being served by private and FAA towers according to 2016 population data. The population within a 30-minute drive time of a contract tower is expected to grow to serve approximately 0.2 percent more of the state's 2035 population. The population within the 30-minute drive time is expected to grow by 23.4 percent from 12,829,362 in 2016 to 15,829,362 in 2035. This represents 61.7 percent of the state's 2035 projected population.

Looking to the future, updated population projections were used to determine the population being served in the year 2035. The population within a 30-minute drive time of airports with ATCTs is expected to increase by 27.9 percent, leading to a projected population of 23,070,121[4] by the year 2035. This represents approximately 90 percent of Florida's projected population in 2035 within a 30-minute drive time of an airport with an ATCT. Figure 7-27 shows this increase in population accommodated by these airports. Based on this information, the airports with ATCTs will accommodate an additional 0.3 percent of Florida's population and will continue to support a large majority of Florida's residents.

[4] Esri Community Analyst: Population Projection

Figure 7-27: Airports with ATCTs by FDOT District



Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

7.3.4 Airports with Jet A Fuel

7.3.4.1 Existing Population Analysis

Across all FDOT Districts, 92 airports report providing Jet A fuel for customers, representing 71.9 percent of Florida's airports. Jet A fuel is used in turbine engines primarily operated by commercial service airlines and many business-class aircraft. Data for the availability of Jet A fuel was obtained from the NFDC. **Figure 7-28** shows that across all Districts, 92.3 percent of Florida's 2016 population is located within a 30-minute drive time of an airport with Jet A fuel. This high level of accessibility is logical considering the facilities that provide Jet A fuel. All commercial service airports provide this service and they are usually located in large, densely populated urban areas. Additionally, GA airports that accommodate jet aircraft that require Jet A fuel are likely to be located in more urbanized areas of the state. Based on the analysis, FDOT District 7 has the highest percentage of airports with Jet A fuel, while District 3 has the lowest percentage of airports. **Table 7-21** provides a summary of airports with Jet A fuel by District in both total number and percentage.

Table 7-21: Airports with Jet A Fuel by FDOT District

Florida Public-Use Airports with Jet A Fuel		
FDOT District	**Number of Airports with Jet A**	**Percentage within District**
1	18	64.3%
2	13	72.2%
3	12	60.0%
4	12	70.6%
5	19	76.0%
6	6	85.7%
7	12	92.3%
Total	**92**	**71.9%**

Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

The analysis reveals that Florida residents are well served by airports with Jet A fuel. Having such a high percentage of Florida's population being located within a 30-minute drive indicates that Florida is well served by airports with Jet A fuel.

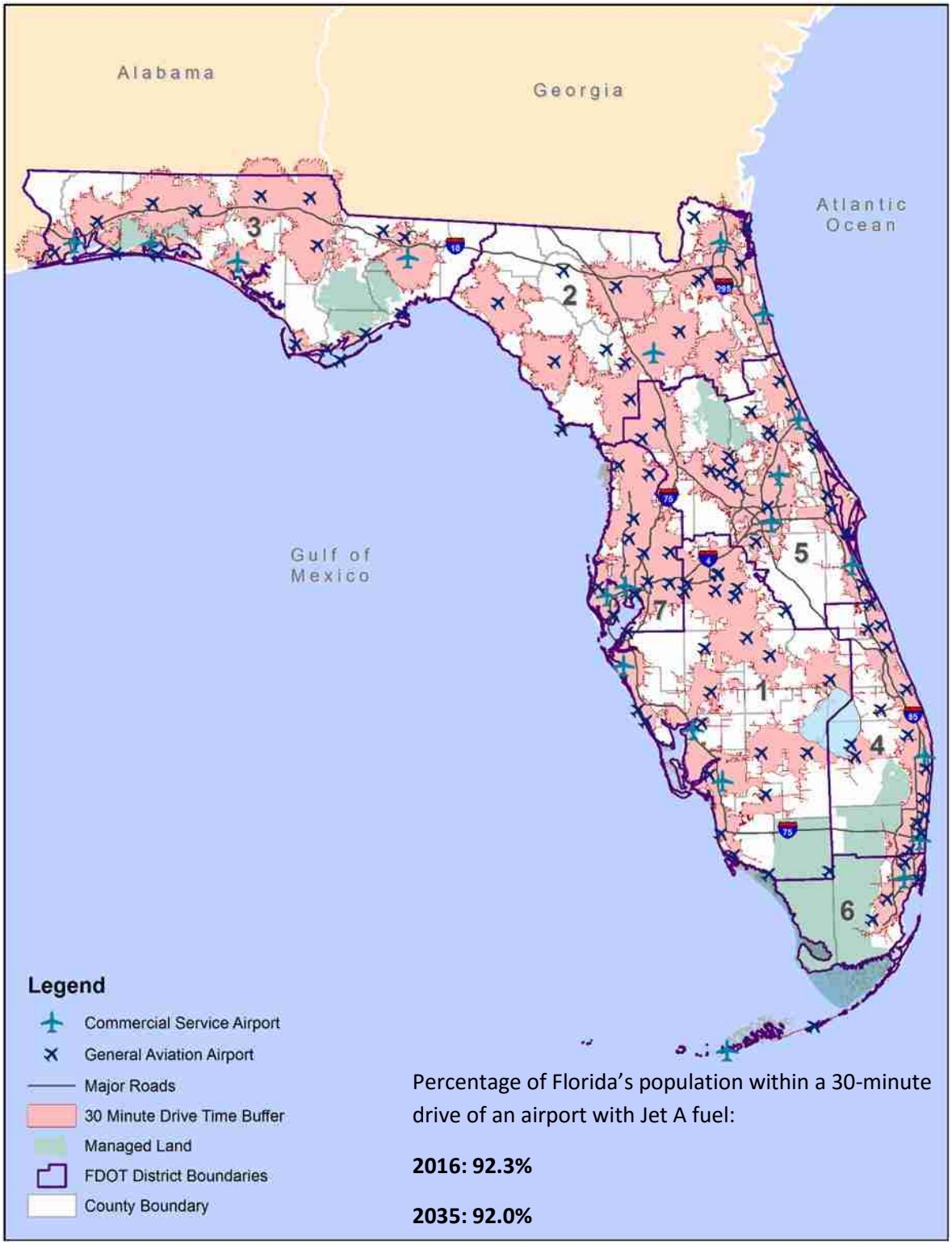
7.3.4.2 Future Population Analysis

For the future population analysis, it is assumed that the same airports with Jet A fuel service will also have this service in 2035. It is possible additional airports will secure this fuel between 2016 and 2035, but no definitive information is available to identify which airports will secure this service.

The 2035 population within a 30-minute drive from airports providing Jet A fuel as of 2016 is expected to increase by 27.1 percent. This predicted growth will increase the population from 18,558,298 in 2016 to 23,583,381 in 2035.[5] The 2035 population projection represents coverage to approximately 92.0 percent of the state's overall population within 30-minutes of an airport providing Jet A fuel, as opposed to the 92.3 percent represented by the 2016 population. Though a slight decrease in the percent of the population within a 30-minute drive time is expected, the vast majority of Florida's population will still have access to airports with Jet A fuel in 2035. Figure 7-28 shows the percentage of the population within 30-minutes of an airport with Jet A fuel for both 2016 and 2035.

[5] Esri Community Analyst: Population Projection

Figure 7-28: Airports with Jet A Fuel by FDOT District



Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

7.3.5 100LL Fuel (avgas)

7.3.5.1 Existing Population Analysis

Review of data from the NFDC reveals that 107 airports in Florida have 100LL gas available for customers, or 83.6 percent of all Florida airports. 100LL gas, also commonly referred to as avgas, is the most common form of gas used by GA aircraft in Florida and the U.S. Across all FDOT Districts, 93.5 percent of Florida's population lives within a 30-minute drive of an airport that currently has avgas. This high percentage is likely because avgas is a very common amenity founds at Florida's airports. A summary of these facilities is provided in **Figure 7-29**. Based on the analysis, it was found that the FDOT District with the highest percentage of airports with avgas available was District 7. Conversely, District 3 had the lowest percentage of airports with avgas gas available. **Table 7-22** provides a summary of airports with avgas fuel by District in both total number and percentage.

Table 7-22: Airports with Avgas by FDOT District

Florida Public-Use Airports with Fuel Type Avgas		
FDOT District	**Number of Airports with Avgas**	**Percentage within District**
1	23	82.1%
2	15	83.3%
3	15	75.0%
4	14	82.4%
5	21	84.0%
6	6	85.7%
7	13	100.0%
Total	**107**	**83.6%**

Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

Based on this analysis, Florida appears well served by airports with avgas, with no notable gaps in this service.

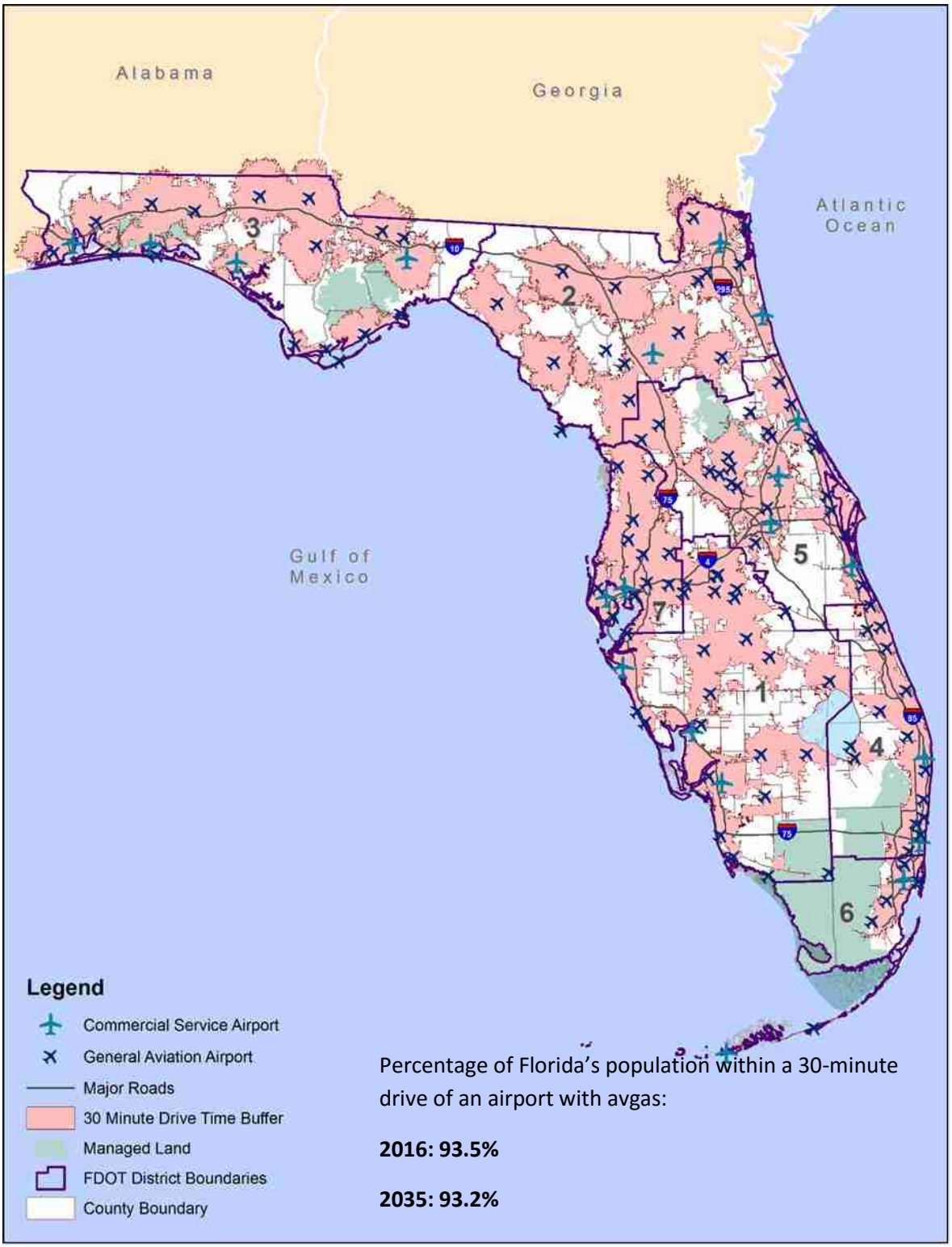
7.3.5.2 Future Population Analysis

Similar to the Jet A fuel analysis, for the future avgas population analysis, it is assumed that the same airports with avgas service will also have this service in 2035. It is possible additional airports will secure this fuel between 2016 and 2035, but no definitive information is available to identify which airports will secure this service. The 2035 population within a 30-minute drive time of airports providing avgas is expected grow by 27.1 percent. This growth will increase the population being accommodated by airports with avgas from 18,807,107 in 2016 to 23,895,045 in

2035.[6] The increased population in 2035 represents 93.2 percent of the state's projected population, a decrease of 0.3 percent when compared to 2016 population percentage. Though the total population percentage is decreased slightly, the majority of the state's population will remain within a 30-minute drive of an airport with avgas in the year 2035. Figure 7-29 displays the percentage of the population within 30-minutes of an airport with avgas for both 2016 and 2035.

[6] Esri Community Analyst: Population Projection

Figure 7-29: Airports with Avgas by FDOT District



Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

7.3.6 NPIAS Airports

The NPIAS is the FAA's primary planning document that categorizes and groups airports that are eligible for AIP funding. The NPIAS categorizes commercial service airports by their hub size and GA airports by ASSET category. Hub sizes include large, medium, small, and non-hub airports, while ASSET categories include national, regional, local, and basic. In total, Florida is home to 100 NPIAS airports, including four large hub commercial service airports and 10 national ASSET classifications, both of which are the most in the U.S. (*2017 – 2021 NPIAS Study*). (Note: The *2017 – 2021 NPIAS* identifies one airport [Everglades Airpark, X01] as unclassified. Everglades Airpark is not included in this analysis; therefore, 99 airports are identified in the evaluation.)

For this analysis, the accessibility to commercial service and GA airports was evaluated by individual NPIAS and ASSET categories and then combined to show the population with access to the airports when the categories are added together to form a more complete network. The combined or cumulative analysis reflects the capacity of larger airports to serve the overlapping needs of the smaller airports, especially for small GA aircraft that can land at any size airport (even if they do not wish to land at large commercial airports). This cumulative analysis reflects the additional population accessibility that is provided by adding airport categories together, and provides the information on coverage for each individual layer or category of airport.

7.3.6.1 Commercial Service Airports

7.3.6.1.1 EXISTING POPULATION ANALYSIS

In total, there are 20 commercial service airports in Florida listed in the *2017 – 2021 NPIAS*. Of these, there are four large hubs, three medium hubs, six small hubs, and seven non-hubs. For the purposes of this analysis, small and non-hub airports are grouped together. As shown in **Table 7-23,** Florida's residents are well served by commercial service airports, especially the large hubs. The large hub airports are in the Miami, Fort Lauderdale, Orlando, and Tampa metropolitan areas, providing access for many of the state's residents and visitors. The medium hub airports provide service to the Jacksonville, Ft. Myers, and West Palm Beach areas of the state, while the small and non-hub airports primarily provide service in the northeast, southwest, and panhandle regions of Florida. The commercial service airport 30-minute drive times have slight overlap in the Tampa, South Florida, and the Orlando metropolitan areas. In total, Florida's NPIAS commercial service airports provide access to 56.5% of Florida's population within a 30-minute drive time. Additionally, Table 7-23, **Figure 7-30, Figure 7-31,** and **Figure 7-32** show the total 2016 population within the 30-minute drive times as the airport hub sizes are combined to create a more complete network. As identified in Figure 7-30, 28.4 percent of Florida's population can reach a large hub airport within a 30-minute drive. Further, as Figure 7-31 identifies, 39.6 percent of the population can reach either a large or medium hub airport within 30 minutes, while 56.5 percent of the population can access one of the 20 commercial service airports in the state within 30 minutes (Figure 7-32). These calculations remove the overlapping populations, ensuring no double counting in the population analysis.

Table 7-23: NPIAS Airports by Commercial Service Hub Size

Commercial Service					
Hub Size	**Percentage of Commercial Service Airports**	**2016: Percentage of Population Within a 30-Minute Drive**	**2016: Percentage of Cumulative Population Within a 30-Minute Drive**	**2035: Percentage of Population Within a 30-Minute Drive**	**2035: Percentage of Cumulative Population Within a 30-Minute Drive**
Large	20% (4 of 20)	28.4%	N/A	28.3%	N/A
Medium	15% (3 of 20)	11.2%	39.6% (Large + Medium)	11.3%	39.6% (Large + Medium)
Small and Non	65% (13 of 20)	23.1%	56.5% (Large + Medium + Small + Non)	22.2%	56.5% (Large + Medium + Small + Non)

Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

The analysis shows that Florida's population appears adequately served by its NPIAS commercial service airports, with service gaps present within Districts 1, 2, 6, and 7. These gap areas are primarily in areas with relatively low populations or large areas of conservation land, indicating a reduced need for a commercial service airport.

7.3.6.1.2 FUTURE POPULATION ANALYSIS

For the future population coverage evaluation, it was assumed that the current NPIAS commercial service airport classifications would be maintained in 2035. While commercial airline service continues to change, it is unknown which airports may gain or lose this service in the future.

The cumulative population within a 30-minute drive time of the NPIAS commercial service airport network in 2035 is expected to grow by 27.6 percent. Table 7-23 depicts how this growth will change the percentage of the population being accommodated in 2035. This projected growth will increase the 2016 population from 11,354,004 to 14,484,846 in 2035. [7] Individually, each of the NPIAS commercial hub categories have experienced slight changes to the percentage of the population being served. The most significant population change can be seen within the small/non-hub categories which will be serving approximately 0.9 percent less of the projected population in 2035.

When looking at the cumulative 30-minute drive times of the NPIAS airports in 2035, the overall population percentage is identical to the coverage provided within 2016. These numbers indicate that the previously mentioned reduction in coverage from the small/non-hub airports will be made up for, or overlapped by the drive times from the other NPIAS categories. Overall, it

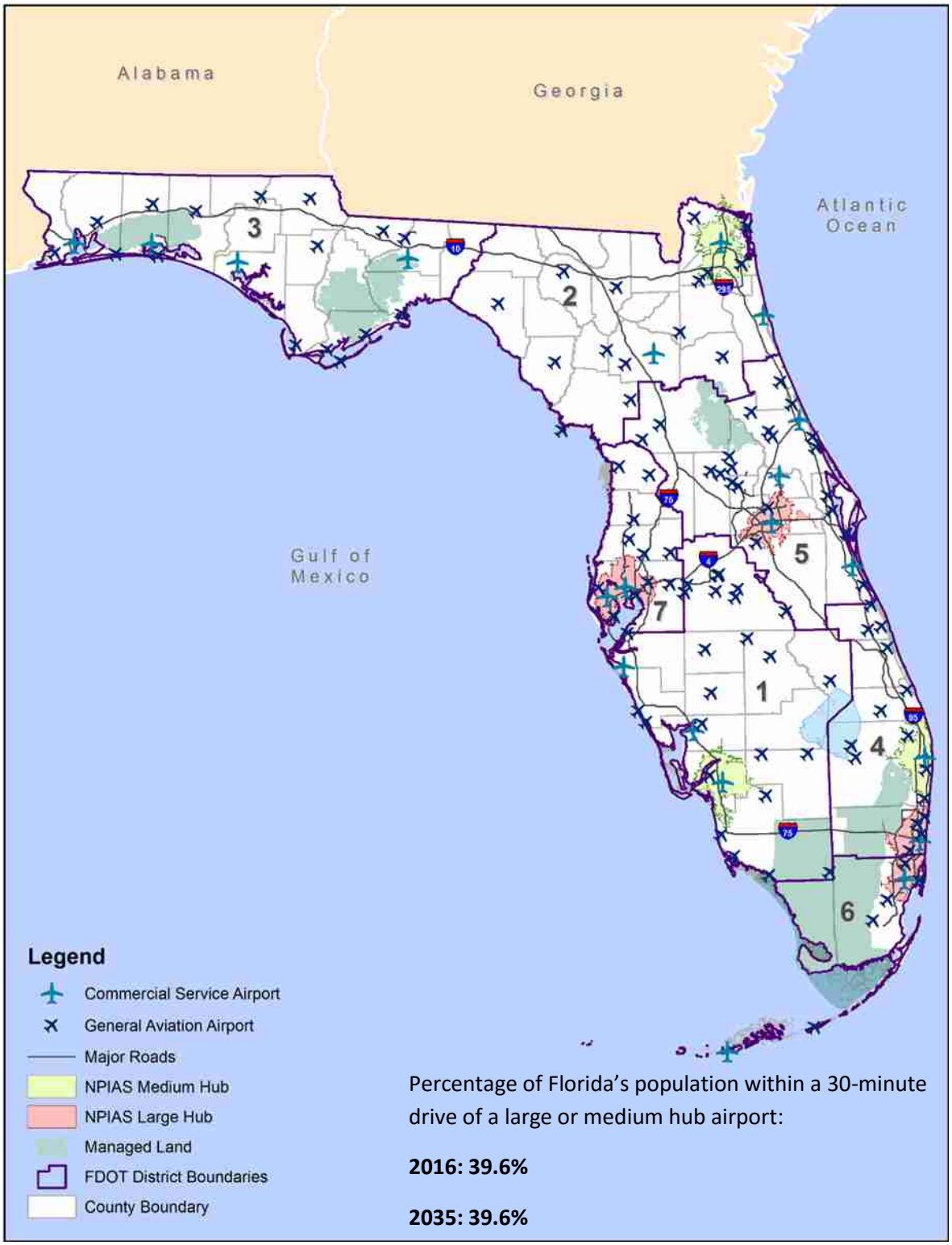
[7] Esri Community Analyst: Population Projection

appears that the coverage of NPIAS commercial service airports will remain at similar levels to present day. Figure 7-30, Figure 7-31, and Figure 7-32 show the percentage of Florida's population being served by the NPIAS commercial service airports for 2016 and 2035.

Figure 7-30: NPIAS Large Hub Airport 30-Minute Drive Times

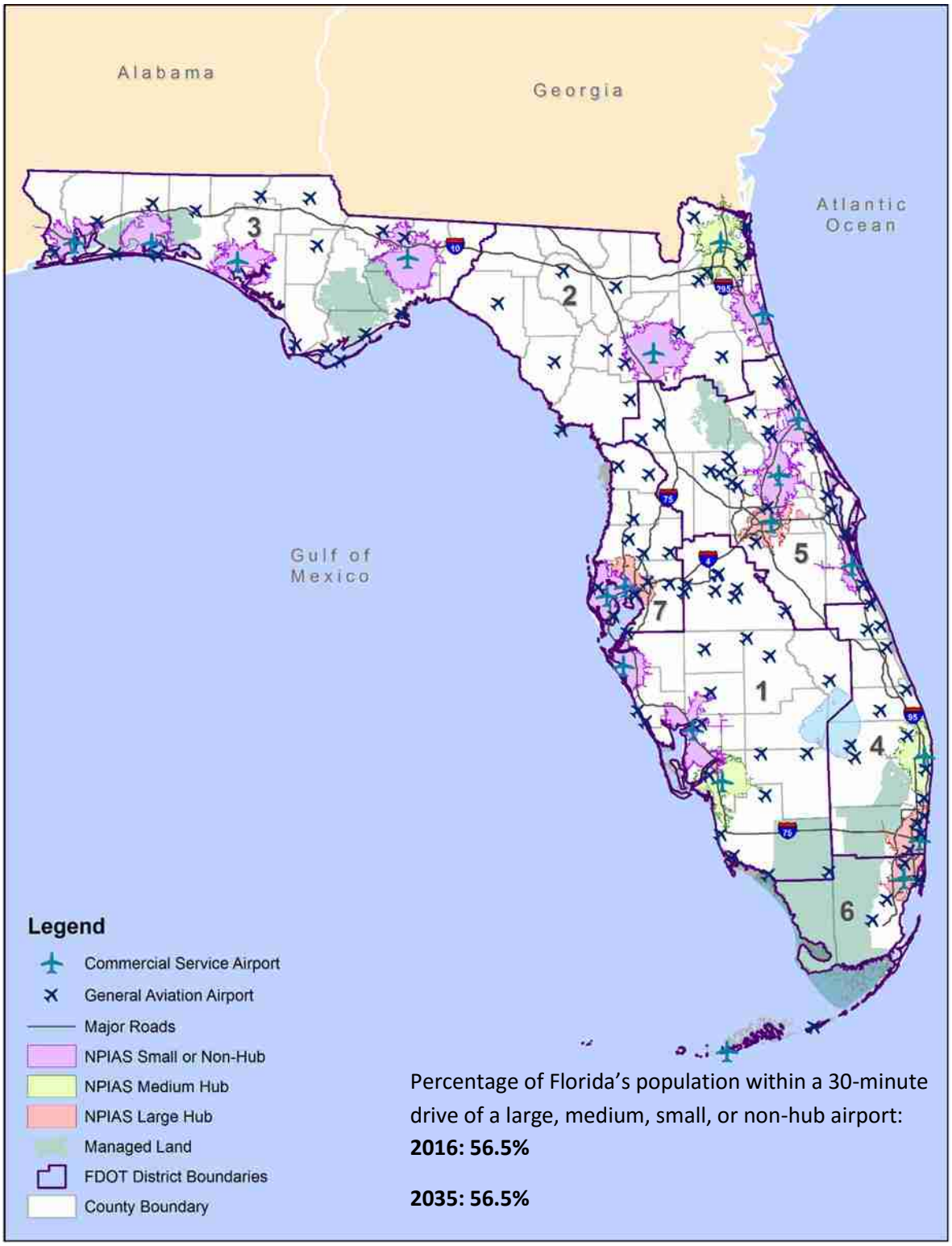
Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

Figure 7-31: NPIAS Large and Medium Hub Airport 30-Minute Drive Times



Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

Figure 7-32: NPIAS Large, Medium, Small, and Non-Hub Airport 30-Minute Drive Times



Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

7.3.6.2 Commercial Service Airports: Expanded Drive Times

7.3.6.2.1 EXISTING POPULATION ANALYSIS

In addition to the 30-minute drive time analysis outlined previously, the 20 NPIAS commercial service airports were analyzed with longer drive times. Large hub airports were expanded to encompass a 90-minute drive time; the medium hub airport drive time was extended to 60 minutes; and the small hub/non-hub airport drive time was expanded to 45-minutes. The increased drive times for each hub size greatly increased the amount of population who could utilize these airports. For example: over 70 percent of Florida's 2016 population is within 90 minutes of a large hub commercial service airport (**Figure 7-33**) and 84.4 percent of the population is within a 90-minute drive of a large hub or a 60-minute drive of a medium hub airport (**Figure 7-34**). Based on the increased drive times, 93.4 percent of Florida's population (**Figure 7-35**) are served by NPIAS commercial service airports based on the expanded drive times, representing an additional 37 percent Florida's population when compared to the 30-minute drive times. The expanded drive times also greatly increased the overlap of drive-time coverage, leading to increased options for users to choose between airport facilities. It is possible that passengers would be willing to drive farther to specific airports based on various factors such as destination, cost, airline, and flight accessibility. These additional factors indicate that the total population being served by commercial service airports is likely larger than the population located within the drive times. **Table 7-24** shows the total population within the expanded drive times as the hubs are combined to create a more complete network. As previously noted, these calculations remove the overlapping populations, ensuring no double counting in the population analysis.

Table 7-24: **NPIAS Airports by Commercial Service Hub Size: With Expanded Drive Time Limits**

Commercial Service					
Hub Size	**Drive Time Area**	**2016: Percentage of Population Within Drive Time**	**2016: Percentage of Cumulative Population Within Drive Time**	**2035: Percentage of Population Within Drive Time**	**2035: Percentage of Cumulative Population Within Drive Time**
Large	90 Minutes	70.5%	N/A	70.9%	N/A
Medium	60 Minutes	27.9%	84.4% (Large + Medium)	28.6%	85.5% (Large + Medium)
Small and Non	45 Minutes	45.5%	93.4% (Large + Medium + Small + Non)	46.1%	94.2% (Large + Medium + Small + Non)

Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

As depicted, the expanded drive times encompass most of Florida's population. Service gap areas are present in the western portion of District 2 and the eastern portion of District 1, but

these gap areas are sparsely populated and lightly developed, reducing the need for a commercial service airport in these areas.

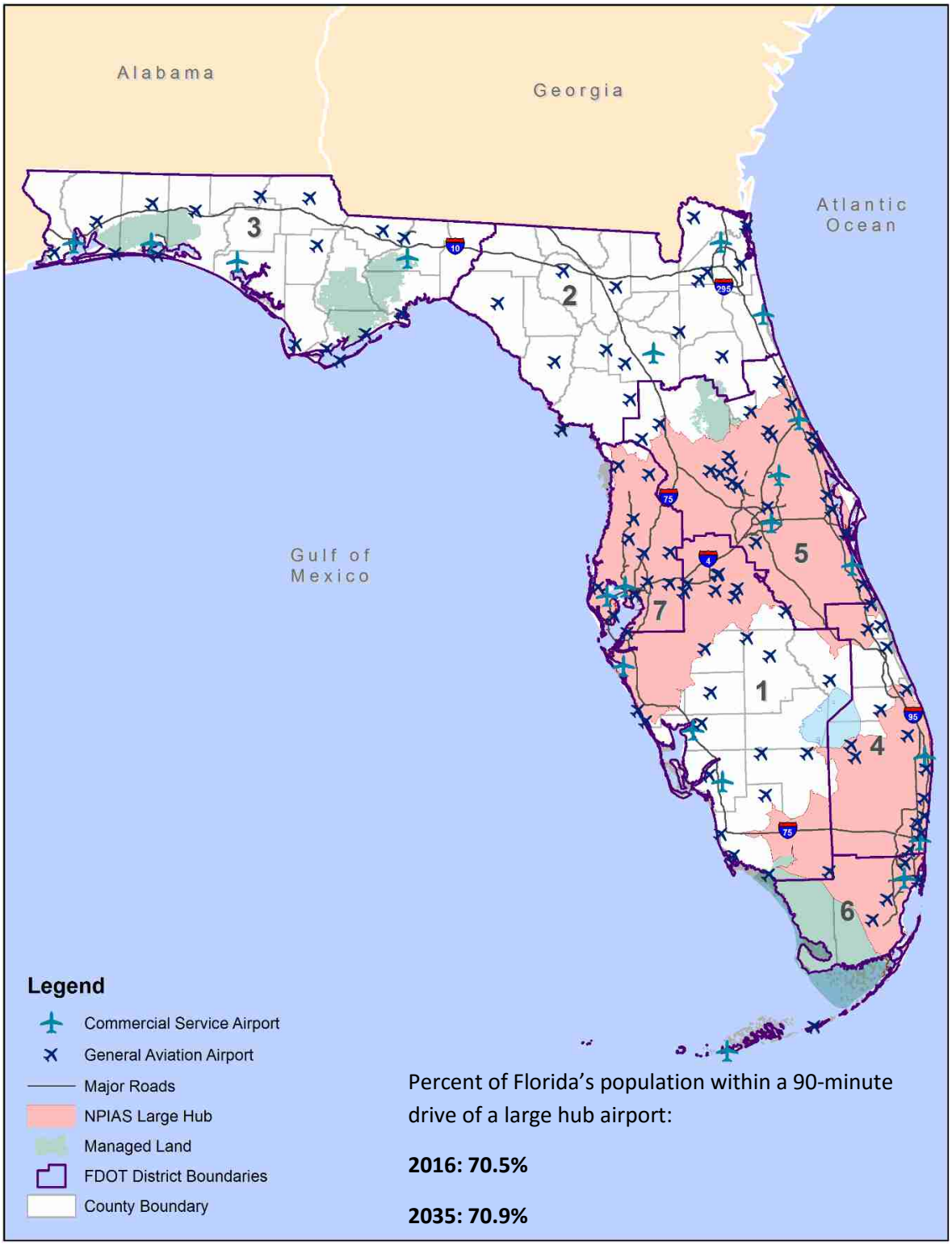
7.3.6.2.2 FUTURE POPULATION ANALYSIS

The cumulative 2016 population within the expanded drive times of the NPIAS commercial service airports is expected grow by 28.6 percent between 2016 and 2035. This growth will lead to an increase in population being accommodated from 18,784,864 in 2016 to 24,153,197 in 2035.[8] Table 7-24 depicts the changes to the percentage of the projected population being served in 2035. Each of the NPIAS commercial service airport categories is expected to increase the total percentage of the population being served by the year 2035. The most significant growth in the percentage of the population will be from the medium hub airports which will accommodate and additional 0.7 percent of the state's population.

Overall, the cumulative percentage of the projected population being accommodated in 2035 will be 94.2 percent. This represents a 0.8 percent increase in the percentage of the population being served, which indicates that the current airport network should provide sufficient coverage for the projected population growth. Figure 7-33, Figure 7-34, and Figure 7-35 depict the percentage of the projected population being accommodated in 2016 and 2035.

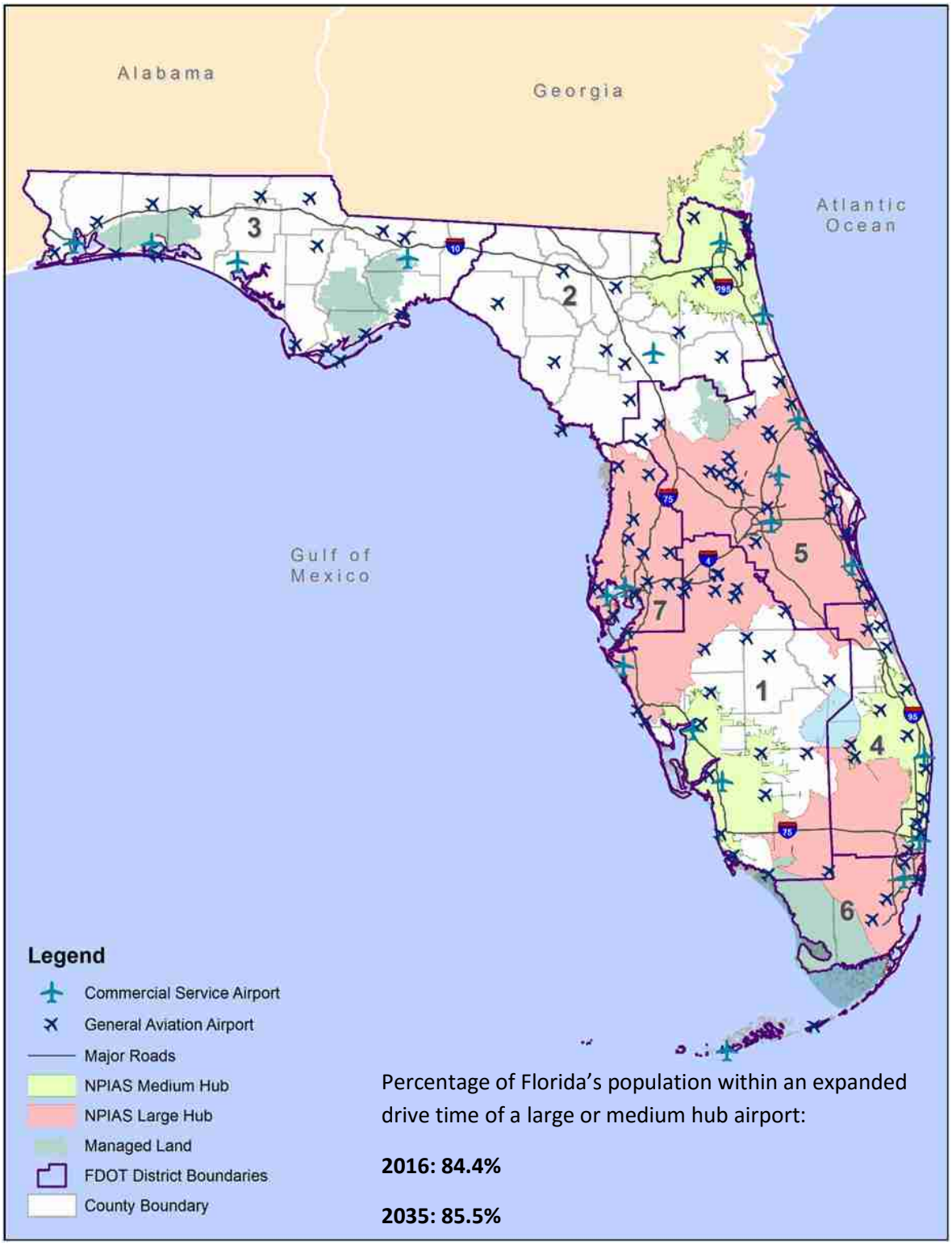
[8] Esri Community Analyst: Population Projection

Figure 7-33: NPIAS Large Hub Airport 90-Minute Drive Times



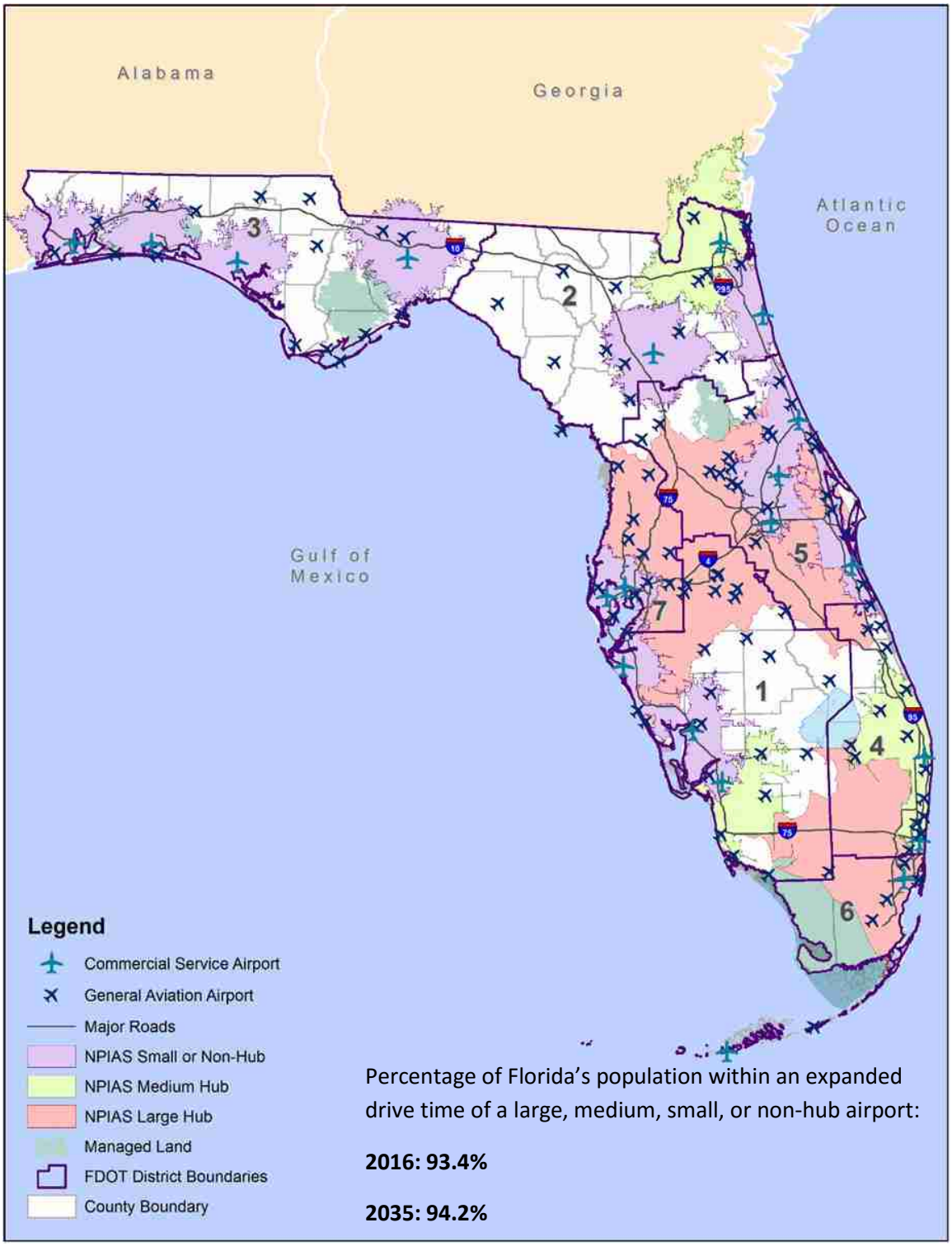
Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

Figure 7-34: NPIAS Large Hub Airport 90-Minute Drive Times and Medium Hub 60-Minute Drive Times



Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

Figure 7-35: NPIAS Large Hub Airport 90-Minute Drive Times, Medium Hub 60-Minute Drive Times, and the Small/Non-Hub 45-Minute Drive Times



Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

7.3.6.3 GA Airports

7.3.6.3.1 EXISTING POPULATION ANALYSIS

Florida is home to 108 public-use GA airports, 80 of which are in the NPIAS. Of these, 10 are categorized as national, 31 are categorized as regional, 30 are categorized as local, and eight are categorized as basic. As previously noted, Everglades Airpark is in the NPIAS but is unclassified and is not included in this analysis. **Table 7-25** provides a summary of the population in Florida that can access these airports within a 30-minute drive time. As shown in Table 7-25 and the figures that follow, 41.5 percent of the 2016 population can reach a national airport (**Figure 7-36**), 54.4 percent can reach a regional airport (**Figure 7-37**), and 23.4 percent can reach a local airport (**Figure 7-38**) within a 30-minute drive time. When drive times are combined for all NPIAS GA airports, removing the overlaps, 85.5 percent of Florida's population is within a 30-minute drive time. The cumulative drive times show that the addition of regional to national adds 38.6 percent additional coverage (15.8 percent is overlapping population coverage). The additional population coverage provided by adding local airports is 5.1 percent, while adding basic to the other three classifications only provides access to an additional 0.3 percent of the population.

Table 7-25: NPIAS Airports by ASSET Classification

General Aviation					
ASSET Category	**Percentage of GA Airports**	**2016: Percentage of Population Within a 30-Minute Drive**	**2016: Percentage of Cumulative Population within a 30-Minute Drive**	**2035: Percentage of Population Within a 30-Minute Drive**	**2035: Percentage of Cumulative Population within a 30-Minute Drive**
National	13% (10 of 80)	41.5%	N/A	41.3%	N/A
Regional	39% (31 of 80)	54.4%	80.1% (National + Regional)	54.1%	80.1% (National + Regional)
Local	38% (30 of 80)	23.4%	85.2% (National + Regional + Local)	22.8%	84.7% (National + Regional + Local)
Basic	10% (8 of 80)	11.1%	85.5% (National + Regional + Local + Basic)	10.4%	85.0% (National + Regional + Local + Basic)

Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

Based on this information, the majority of Florida's population is within a 30-minute drive time of the NPIAS GA airports. No major GA service gaps were identified as part of this analysis.

7.3.6.3.2 FUTURE POPULATION ANALYSIS

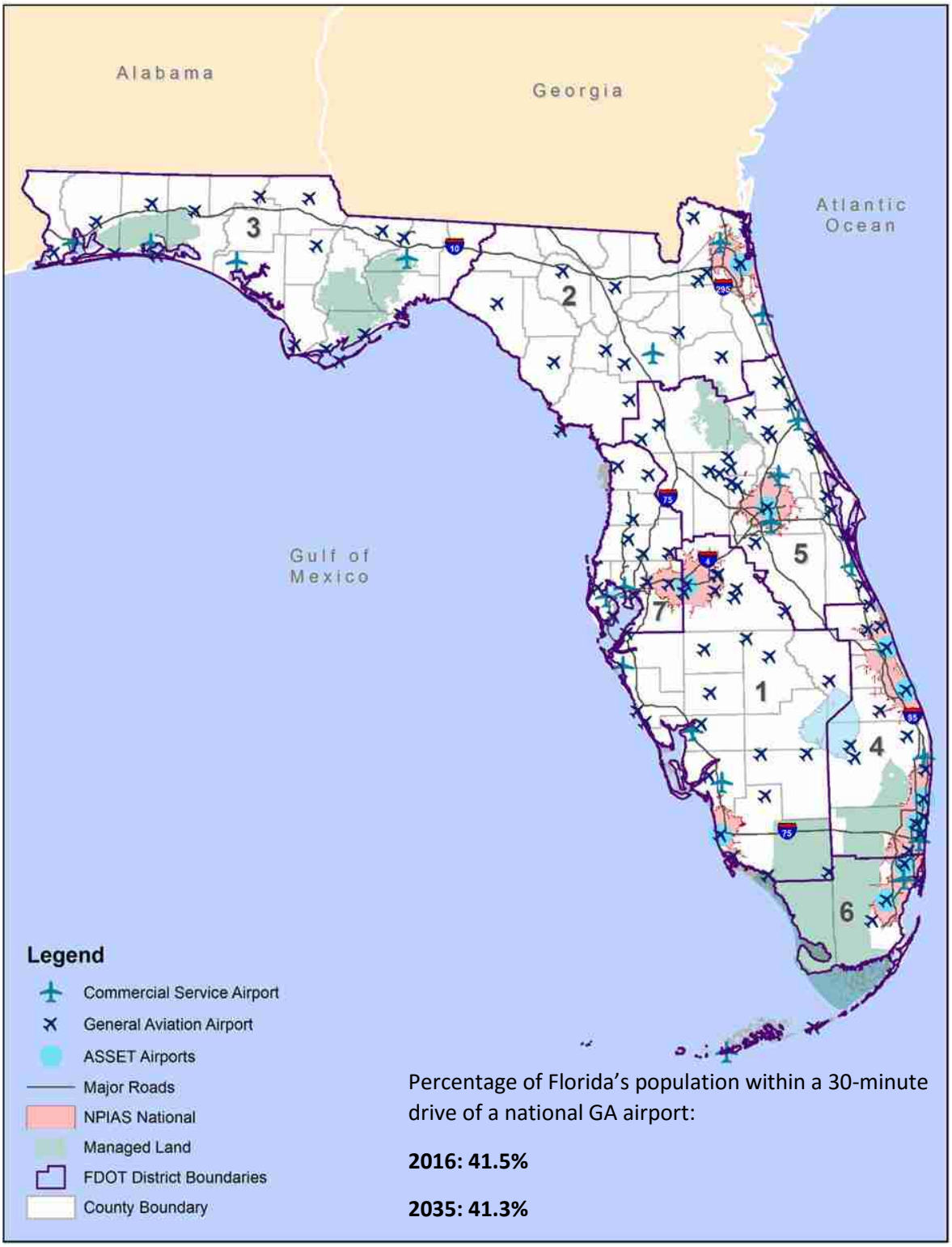
For the future population coverage evaluation, it was assumed that the current ASSET airport classifications would be maintained in 2035. It is unknown which airports (if any) may gain commercial service of change classification in the future.

The cumulative population within the 30-minute drive time of ASSET classification airports is expected to grow by 26.6 percent between 2016 and 2035. Table 7-25 displays the change in percentage of the projected population being accommodated in 2035. This growth will lead to an increase in population within the 30-minute drive time from 17,202,220 in 2016 to 21,786,730 in 2035.[9] The largest change is a decrease of 0.7 percent of the population within 30 minutes of a basic classification airport, followed by a 0.6 percent decrease in the coverage from local classification airports. Decreases in population coverage under a one percent change are within such a small margin of error from the population projections that they will not necessarily indicate the need for additional airports to serve the future population.

Overall, the cumulative population within a 30-minute drive time of the ASSET classification airports will be 85 percent of the projected 2035 population of Florida. This represents a 0.5 percent decrease in the percentage of the state's projected population being accommodated by the ASSET classification airports. This minimal decrease in coverage will not likely require the construction of additional airports within the system. Additionally, new airports would not likely be included within the NPIAS initially, meaning the applicable NPIAS population would not be affected by the additional airport(s). Figure 7-36, Figure 7-37, and Figure 7-38 depict the percentage of the projected population being accommodated in 2035.

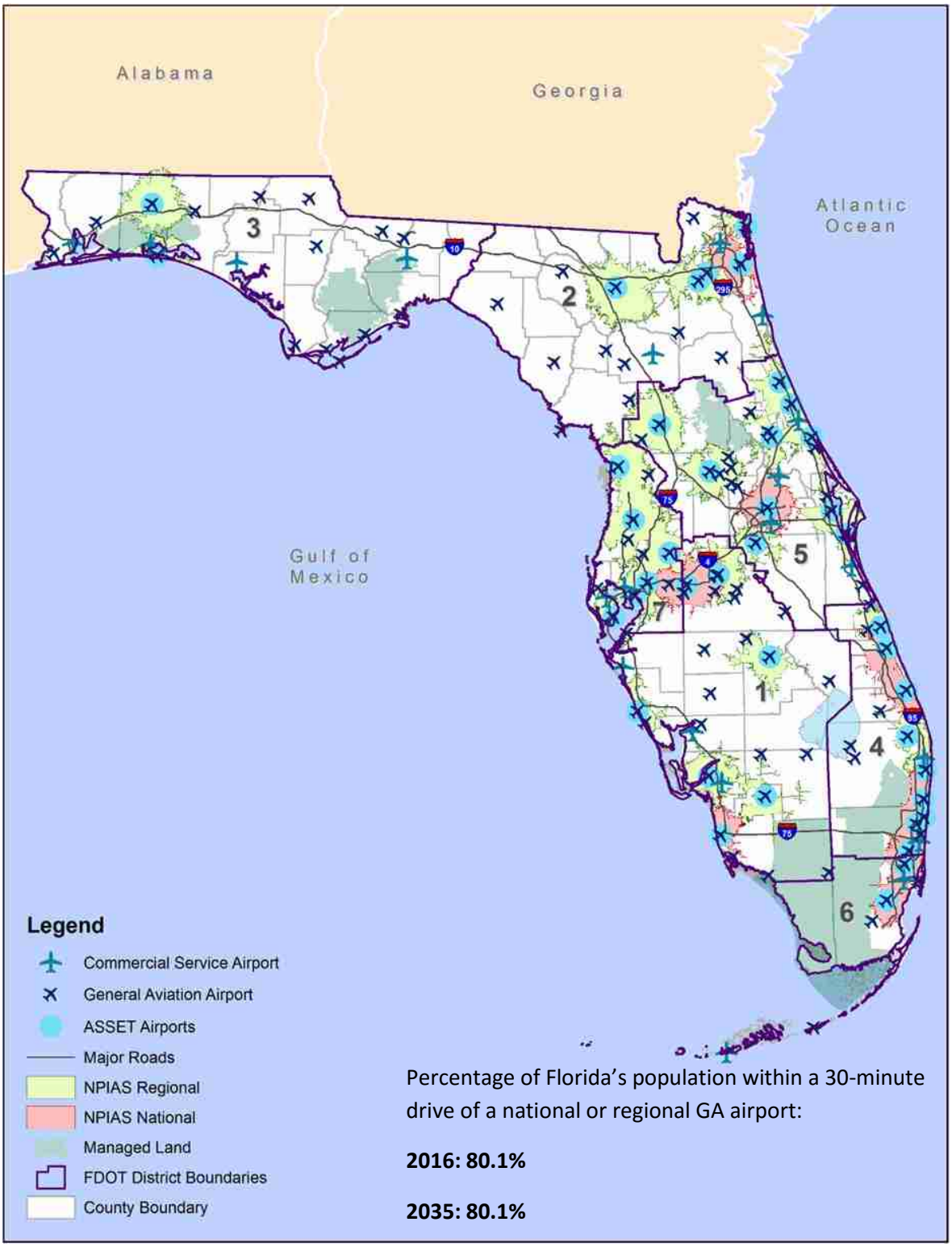
[9] Esri Community Analyst: Population Projection

Figure 7-36: National ASSET Classification Airports 30-Minute Drive Times



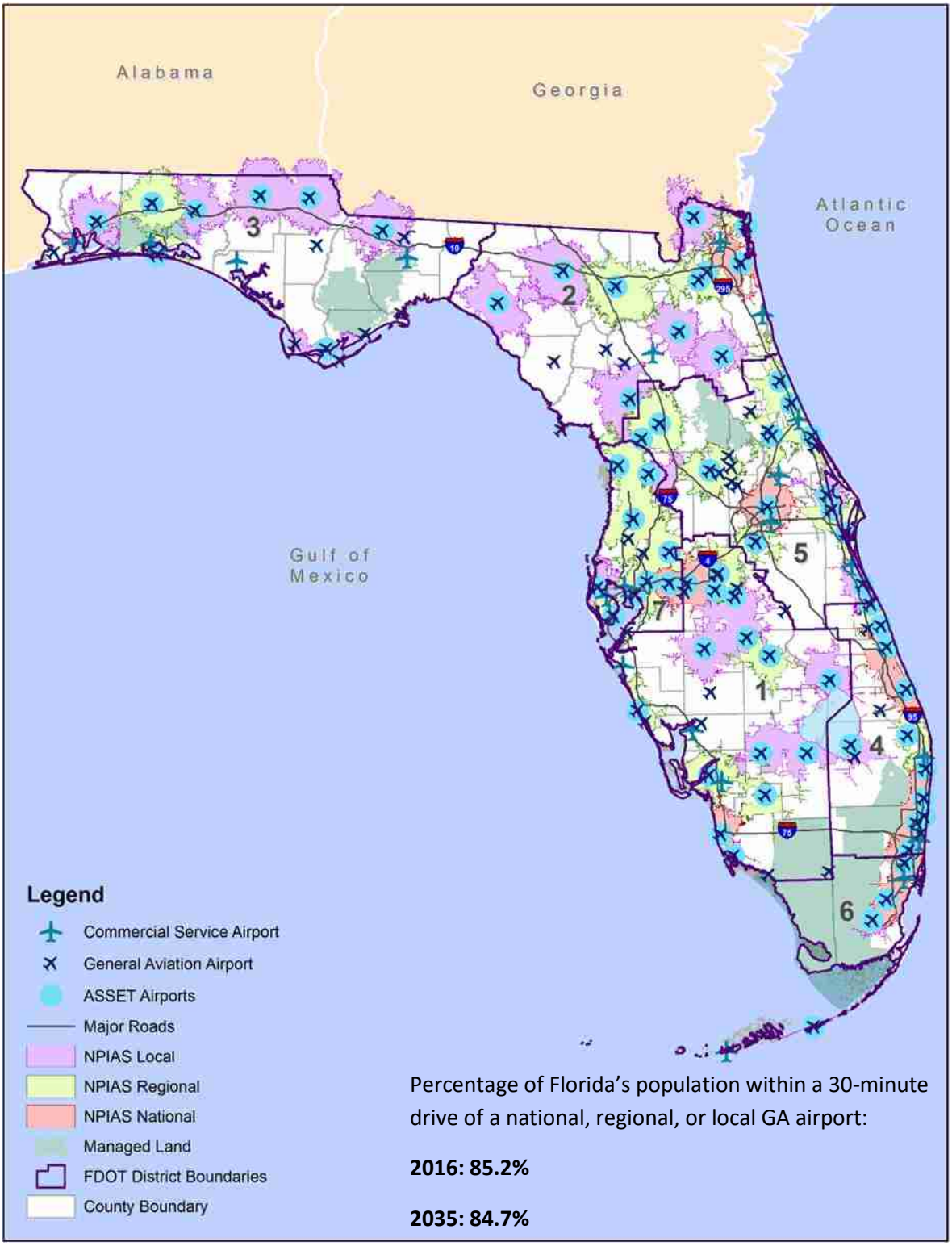
Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

Figure 7-37: National and Regional ASSET Classification Airports 30-Minute Drive Times



Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

Figure 7-38: National, Regional, and Local ASSET Classification Airports 30-Minute Drive Times



Source: National Plan of Integrated Airport Systems (NPIAS); Kimley-Horn Analysis

7.3.7 Strategic Intermodal System (SIS)

In Florida, there are 20 airports that are included in the SIS. The SIS was designed to appropriate special funding for Florida's largest and most strategic transportation infrastructure. Of the 20 SIS airports, 18 are commercial service and two are GA airports. Commercial service SIS airports are categorized as either SIS or Emerging SIS facilities, while the GA airports are categorized as GA relievers. For the purposes of this analysis, all SIS airports were analyzed as a group. SIS facilities are required to meet or exceed a stringent list of eligibility requirements to be designated as SIS facilities. As such, adding airports to the SIS must be evaluated on an airport-by-airport basis. **Table 7-26** provides a summary of SIS airports by District in both total number and percentage.

Table 7-26: SIS Airports by FDOT District

Florida Public-Use SIS Airports		
FDOT District	**Total Number of Airports**	**Percentage within District**
1	3	10.7%
2	2	11.1%
3	4	20.0%
4	2	11.8%
5	5	20.0%
6	2	28.6%
7	2	15.4%
Total	**20**	**15.6%**

Source: Florida Department of Transportation (FDOT) Strategic Intermodal System (SIS); Kimley-Horn Analysis

7.3.7.1 Existing Population Analysis

The 30-minute drive time analysis depicted in **Figure 7-39** shows that 72.4 percent of Florida's population can access an SIS airport, indicating substantial coverage by these facilities. SIS airports have very good coverage of the population and metropolitan areas around Florida. Based on the analysis, it was noted that the FDOT District with the highest percentage of SIS airports was District 6. Conversely, District 1 had the lowest percentage of SIS airports.

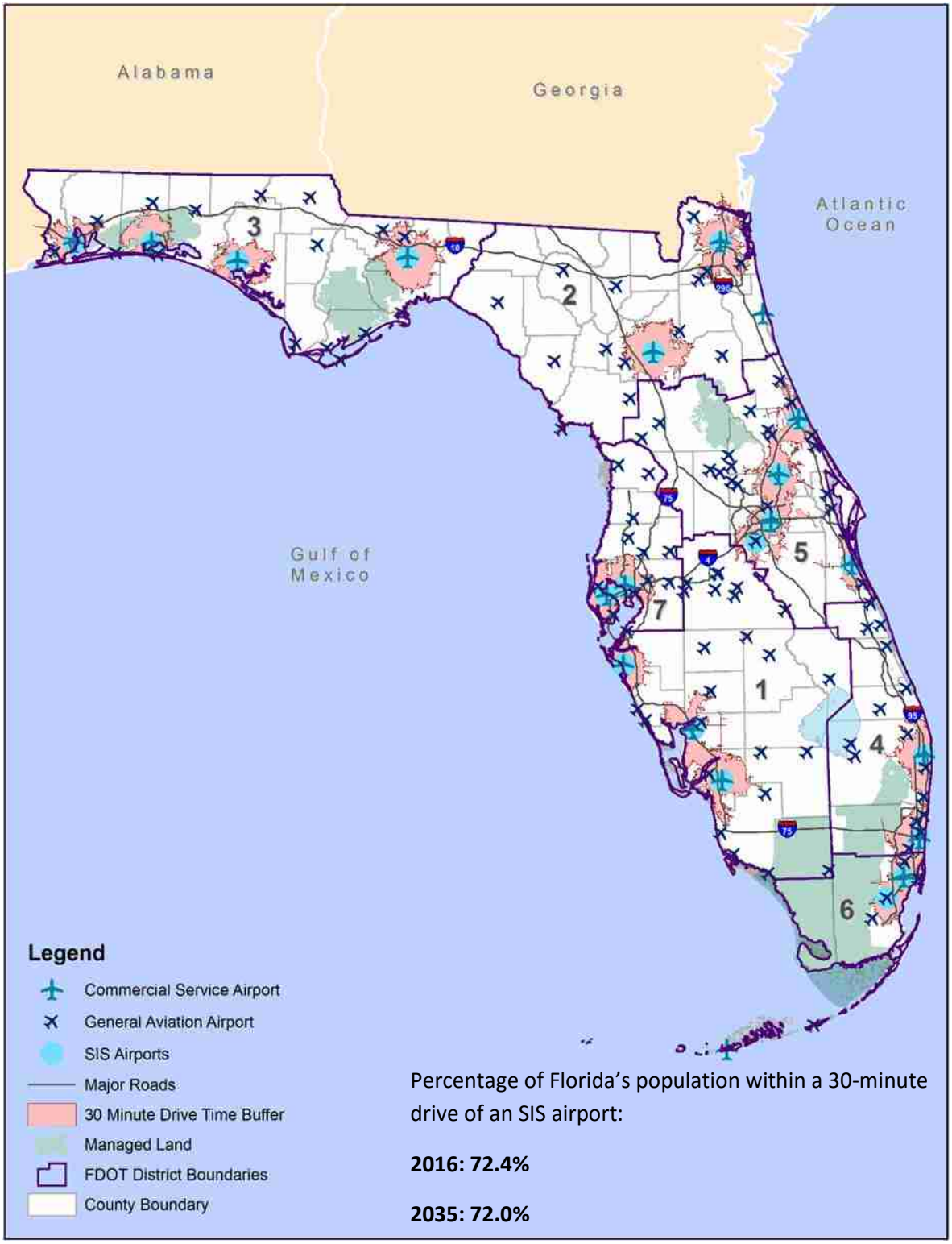
As shown in Figure 7-39, SIS facilities are primarily located in the major metropolitan areas of the state. Though there are gaps in the locations of these facilities, they do provide service to a large percentage of the population.

7.3.7.2 Future Population Analysis

For this analysis, the current number and location of SIS airports is assumed to be the same in 2035 as in 2016. Florida's transportation network is ever changing, leading to the potential inclusion of additional airports into the SIS network. During the creation of this report, no changes to the SIS airport network occurred.

Florida's population within a 30-minute drive time of SIS airports is expected to experience 26.9 percent growth from 2016 to 2035. This growth will lead to an increase in population from 14,555,355 in 2016 to 18,465,070 in 2035. In 2035, 72 percent of the state's projected population will be within a 30-minute drive of an SIS airport. This indicates a 0.4 percent reduction in the percentage of the population being accommodated in the future. By 2035, additional airports may need to be considered for inclusion in the SIS to ensure similar levels of the populations are within 30-minutes of an SIS airport when compared with 2016. Figure 7-39 depicts the percentage of the predicted population being accommodated by SIS airports in 2016 and 2035.

Figure 7-39: SIS Airports by FDOT District



Source: Florida Department of Transportation (FDOT) Strategic Intermodal System (SIS); Kimley-Horn Analysis

7.3.8 Flight Training

7.3.8.1 Existing Population Analysis

Flight training is an extremely important facet of the aviation industry in Florida. In fact, Florida trains more pilots than any other state in the U.S. Providing close, convenient access to airports with flight training is critical to the overall success of the industry, as well as an essential component of the future of aviation both in Florida and around the world. According to data from the FAD, 83 airports in Florida were identified as providing flight training services. Together, these airports provide access within 30 minutes to 92 percent of Florida's 2016 population. Distribution of the activity is also fairly even across all FDOT Districts, as shown in **Figure 7-40** and **Table 7-27**. Based on the analysis, District 2 had the highest percentage of airports reporting flight training activity, while District 3 reported the lowest percentage.

Table 7-27: **Airports with Flight Training Activity by FDOT District**

Florida Public-Use Airports with Based Flight Training Operations		
FDOT District	**Total Number of Airports**	**Percentage within District**
1	15	53.6%
2	15	83.3%
3	8	40.0%
4	11	64.7%
5	20	80.0%
6	5	71.4%
7	9	69.2%
Total	**83**	**64.8%**

Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

Based on the drive time analysis, Districts 1, 4, and 6 appear to have the largest land area coverage gaps. However, the areas without coverage contain relatively low populations and have large areas of undeveloped land.

7.3.8.2 Future Population Analysis

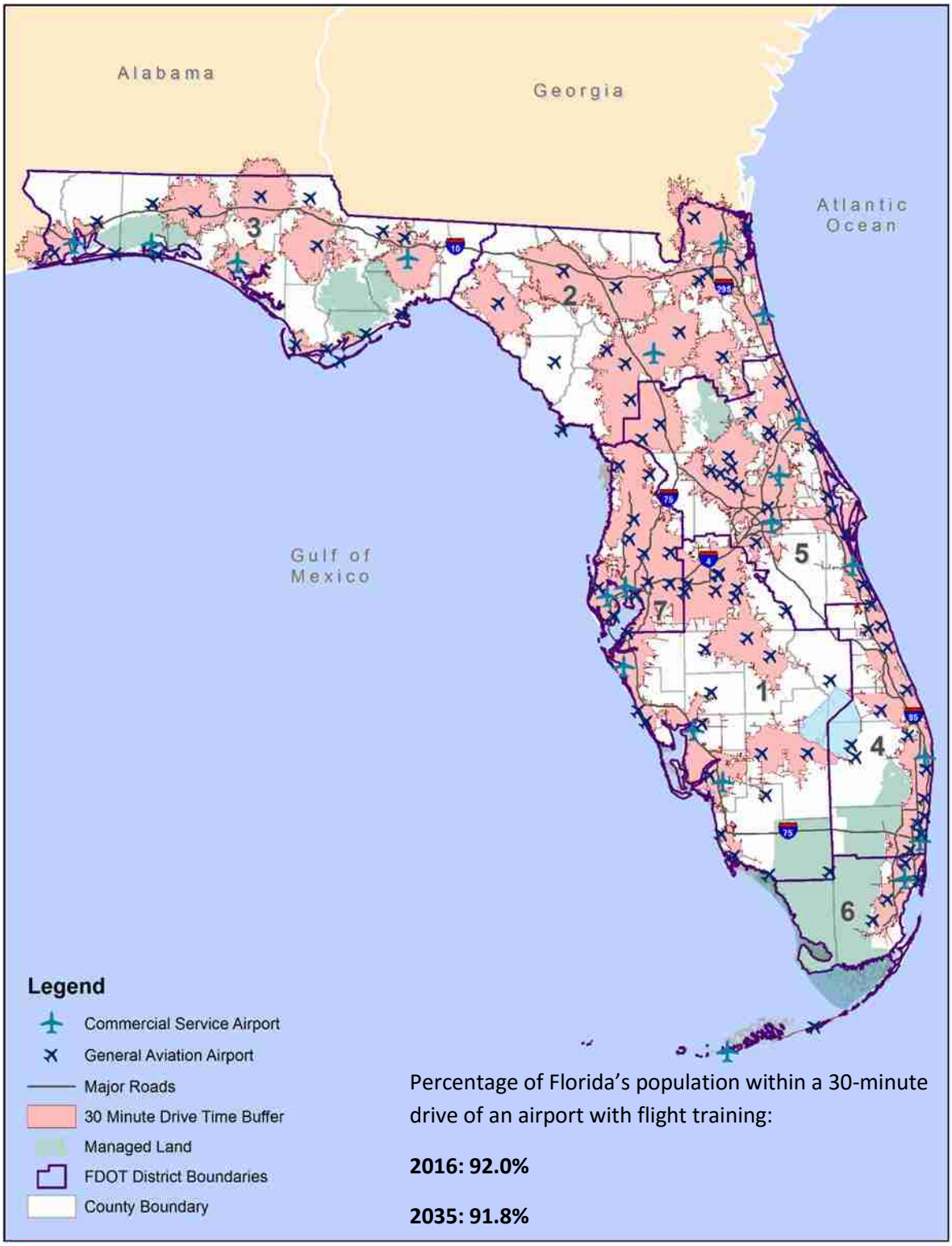
It is assumed that the same airports offering flight training in 2016 will be providing this service in 2035. Flight training and other business uses are subject to market demands which may allow additional airports to provide flight training or may force some of the current providers to cease. This analysis does not take into account market fluctuation and therefore assumes that the number and location of the airports providing flight training will remain the same.

The population within a 30-minute drive time of an airport with flight training is expected to experience 27.2 percent growth between 2016 and 2035. This growth will increase the

population within a 30-minute drive time from 18,504,705 in 2016 to 23,537,338 in 2035.[10] This projected population increase will lead to 91.8 percent of Florida's projected population being accommodated by an airport within flight training. 91.8 percent is a 0.2 percent decrease in the percentage of the population being served when compared to 2016. The 0.2 percent reduction shows that the number of airports providing flight training services may need to increase, but it is clear that the majority of the state's population will continue to be served into the future. Figure 7-40 displays the percentage of the projected population being accommodated by airports with flight training in 2016 and 2035.

[10] Esri Community Analyst: Population Projection

Figure 7-40: Airports with Flight Training Activity by FDOT District



Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

7.3.9 Surface Weather Observation Stations

Weather information is collected and reported using surface weather observation stations located at airports. There are two commonly used systems that are used, AWOS and Automated Surface Observing Stations (ASOS). For the purposes of this analysis AWOS and ASOS are evaluated together. Data for the presence of surface weather observation stations was obtained from the NFDC.

7.3.9.1 Existing Population Analysis with 30-Nautical Mile Buffers[11]

Surface weather stations provide weather forecasts and climate information to pilots as well as the public. Data provided includes wind speed and direction, visibility, cloud coverage, and many other outputs. Though both systems were designed to provide weather data, there are differences between the two. AWOSs are generally owned by an airport at the local level, while ASOSs are owned by the National Weather Service and serve non-aviation roles as well. Another major difference is the fact that AWOS reports wind direction in true north, while ASOS reports winds based on the magnetic direction. Across all FDOT Districts, it was found that 83 airports have weather observation systems, providing access to 99.9 percent of Florida's 2016 population and 98.4 percent of Florida's land area. Weather data and operation stations provide coverage for almost the entirety of the state increasing the overall safety of the airport system. Distribution of the activity is also fairly even across all FDOT Districts, as shown in **Figure 7-41** and **Table 7-28**. Based on the analysis, District 6 had the highest percentage of airports with weather systems, while District 3 reported the lowest percentage.

Table 7-28: **Airports with Surface Weather Observation Stations by FDOT District**

Florida Public-Use Airports with Surface Weather Observation Stations			
FDOT District	**Total Number of Airports**	**Percentage within District**	**Percentage of Land Coverage**
1	16	63.0%	100%
2	13	72.2%	94.8%
3	10	50.0%	98.0%
4	11	64.7%	100%
5	15	60.0%	100%
6	7	87.5%	98.4%
7	11	84.6%	100%
Total	**83**	**64.8%**	**98.4%**

Source: *Federal Aviation Administration (FAA)th AWOS/ASOS Database (www.faa.gov/air_traffic/weather/asos/?state=FL); Florida Aviation Database (FAD); National Flight Data Center (NFDC); Kimley-Horn Analysis*

[11] 30-nautical mile analysis uses 2017 population estimates

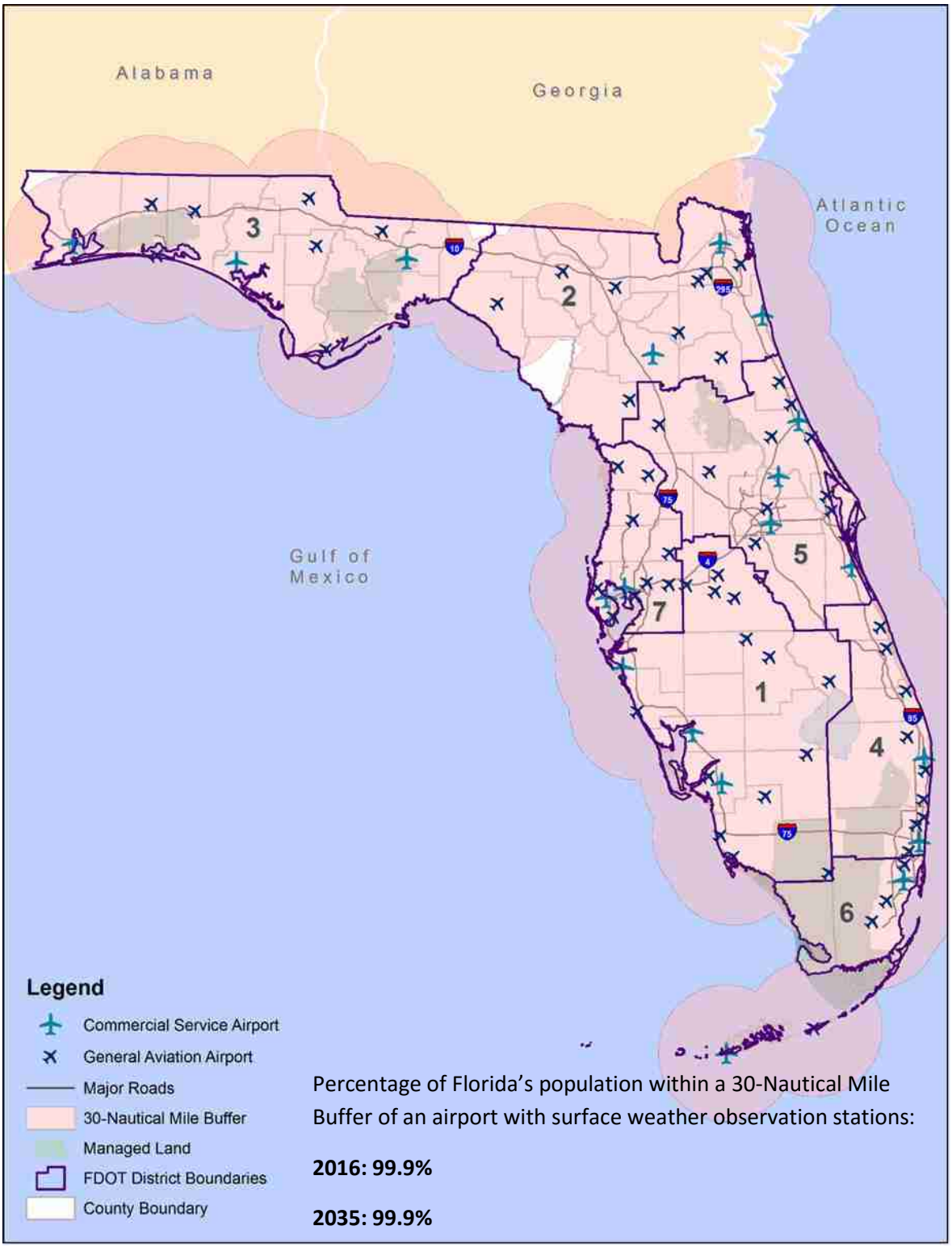
Based on the results, almost the entirety of Florida is within 30-nautical miles of airports with AWOS or ASOS. Located within the southwestern portion of FDOT District 2, Dixie County represents the largest area outside of the 30-nautical mile buffer. The small areas throughout the state without coverage contain relatively low populations consisting of less than one percent of Florida's total population.

7.3.9.2 Future Population Analysis

For this analysis, the number and location of airports with an AWOS or ASOS is assumed to remain the same in 2035 as in 2016. Looking to the future, Florida's population within 30-nautical miles of and airport with an AWOS or ASOS is expected to grow by 27.5 percent from 2016 to 2035. The population being served by airports with AWOS or ASOS is expected to grow from 20,091,508 in 2016 to 25,622,485 in 2035.[12] This increase in population will amount to 99.9 percent of Florida's projected population in 2035. With the most significant coverage gap being located within District 2, the installation of an AWOS or ASOS may be desired at the Cross-City Airport located within the gap. Construction of AWOS or ASOS in this location would close the largest gap in coverage within the state. The population and land coverage percentages show airports with AWOS and ASOS will continue to accommodate the projected future needs. The percentage of the population and land area being accommodated by the airports with AWOS and ASOS can be seen in Figure 7-41.

[12] Esri Community Analyst: Population Projection

Figure 7-41: Airports with Surface Weather Observation Stations by FDOT District



Source: Federal Aviation Administration (FAA) AWOS/ASOS Database (www.faa.gov/air_traffic/weather/asos/?state=FL); Florida Aviation Database (FAD); National Flight Data Center (NFDC); Kimley-Horn Analysis

7.3.10 Runways of Various Lengths

Runway lengths have a direct impact on the size and capabilities of the aircraft that can use them and the access provided to communities throughout the state and nation. Intuitively, longer runways can accommodate traffic from larger and faster aircraft. There are certain thresholds for activity that are triggered based on certain runway lengths; therefore, for this analysis, the number of airports and the population that is able to reach those airports within a 30-minute drive were analyzed across four different runway lengths:

- 6,500 feet
- 5,000 feet
- 4,200 feet
- 3,200 feet

For the purposes of this study, airports were only counted once based on the longest runway length present at the airport. For example, an airport with one 4,700-foot runway and one 6,000-foot runway would be recorded in the 5,000-foot runway category. The runway length data was obtained from the FAD. A summary of these findings is provided in **Table 7-29**.

Table 7-29: **Percentage of Population by Airport Runway Length**

Airport Runway Length				
Runway Length (ft.)	**2016: Percentage of Population Within a 30-Minute Drive**	**2016: Percentage of Cumulative Population Within a 30-Minute Drive**	**2035: Percentage of Population Within a 30-Minute Drive**	**2035: Percentage of Cumulative Population Within a 30-Minute Drive**
6,500 +	84.9%	N/A	84.7%	N/A
5,000-6,499	57.1%	92.6% (5,000 ft. +)	58.1%	92.3% (5,000 ft. +)
4,200-4,999	14.1%	93.0% (4,200 ft. +)	13.7%	92.6% (4,200 ft. +)
3,200-4,199	53.4%	93.6% (3,200 ft. +)	53.5%	93.3% (3,200 ft. +)

Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

7.3.10.1 Existing Population Analysis

As shown in Table 7-29 and **Figure 7-42,** 84.9 percent of Florida's population can reach an airport with a 6,500-foot runway in 30 minutes. **Figure 7-43** identifies that 92.6 percent of the 2016 population can reach an airport with at least a 5,000-foot runway within a 30-minute drive. Including airports that have at least a 4,200-foot or 3,000-foot runway increases population coverage marginally to 93 percent and 93.6 percent, respectively (**Figure 7-44** and **Figure 7-45**). In total, 93.6 percent of Florida's population is within 30 minutes of a runway with a length of at least 3,200 feet.

Based on the results, District 6 has the only notable drive time gap between airports with runways of at least 3,200 feet in length. District 6 is home to very large areas of conservation space such

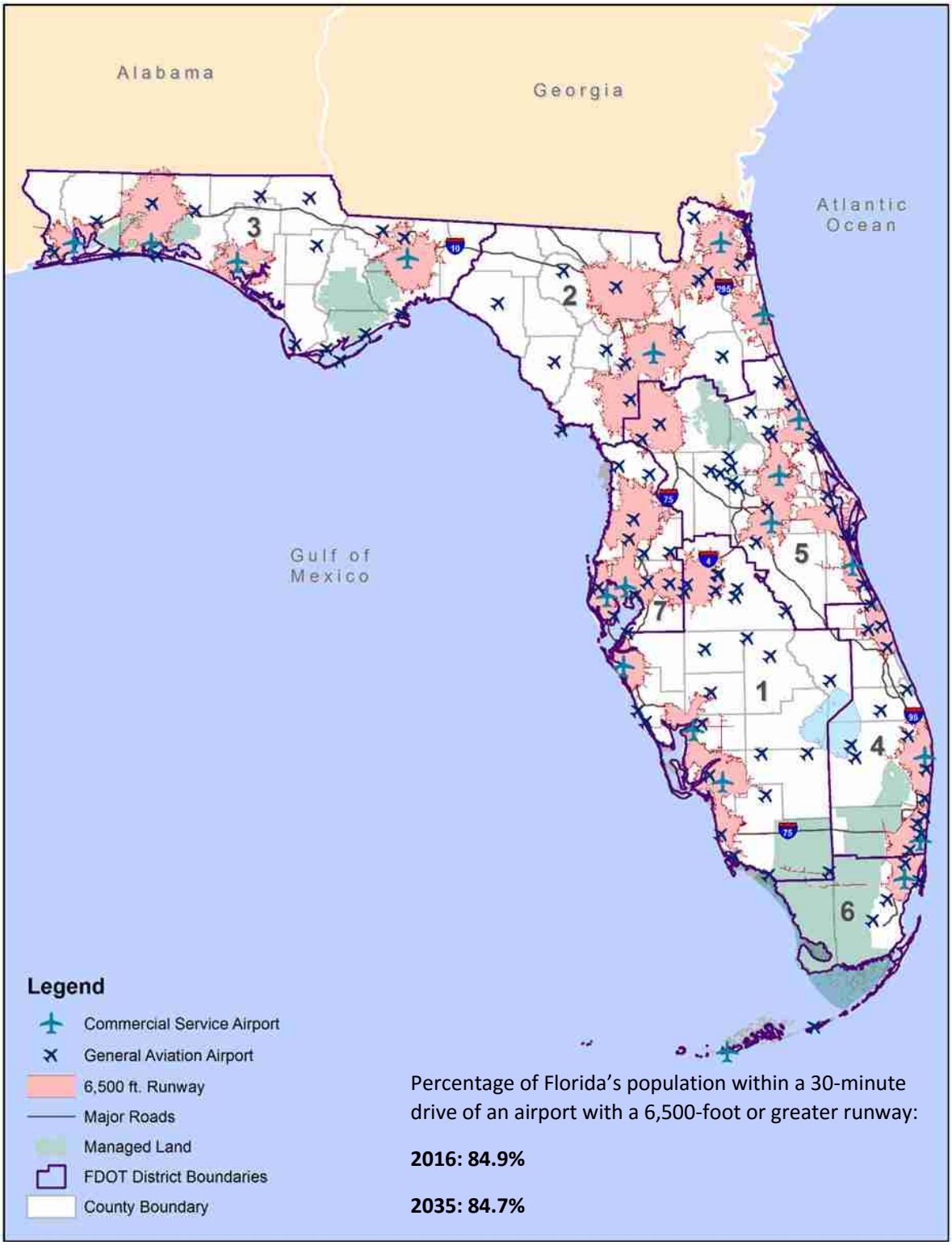
as the Everglades National Park which leads to reduced development and low populations within the area. It is likely that this service gap effects a relatively small portion of Florida's population.

7.3.10.2 Future Population Analysis

It is assumed that the runway length of Florida's airports will remain the same in 2035 as they are in 2016. Over the planning horizon, it is possible that runways may be expanded or in some cases close, but for the purpose of this report runway statistics will remain the same. The population within a 30-minute drive of an airport with a runway of at least 3,200 feet is expected to increase by 27 percent by 2035. With this growth, the population within a 30-minute drive time is expected to increase from 18,824,377 in 2016 to 23,913,079 in 2035.[13] The most significant change in percentage can be seen within the 5,000- to 6,499-foot runway category which is expected to accommodate an additional one percent of the state's projected population. Table 7-29 displays how the percentage of the population being accommodated by airports with various lengths and the percentage of the population being served as these airports are combined into a cumulative network. The projected 2035 population of 23,913,079 represents 93.3 percent of Florida's total population, which is 0.3 percent lower when compared to the 2016 percentage of the population within 30 minutes of the applicable runway lengths. This reduction in the percentage of the population being accommodated may indicate a need for additional airports with runways greater than 3,200 feet in length, but it should be noted that most of Florida's projected population will remain within the drive time. Figure 7-42, Figure 7-43, Figure 7-44, and Figure 7-45 depict the total percentage of the projected population within 30-minutes of the airport network with runways greater than 3,200 feet for 2016 and 2035.

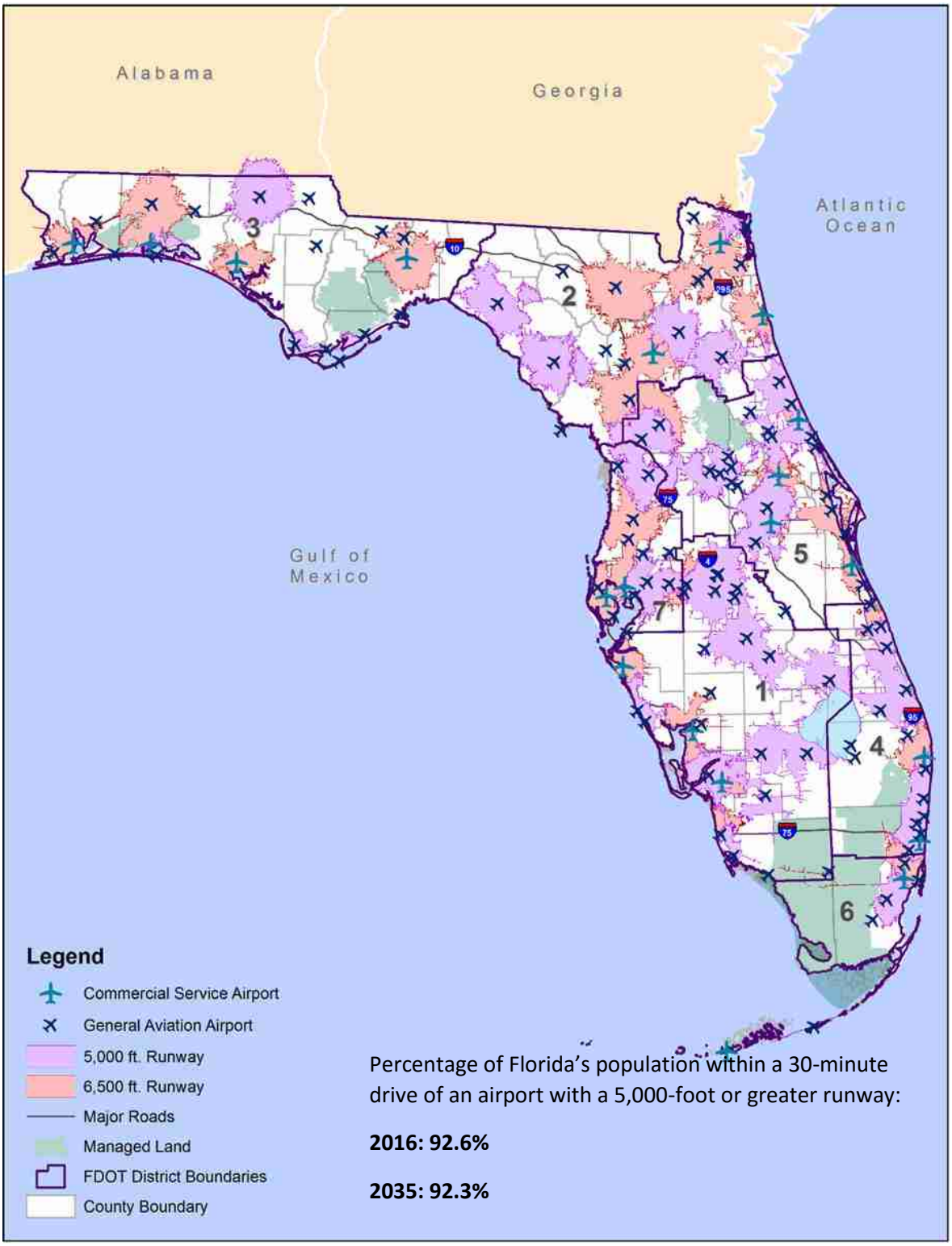
[13] Esri Community Analyst: Population Projection

Figure 7-42: Runways Over 6,500 Feet 30-minute Drive Times



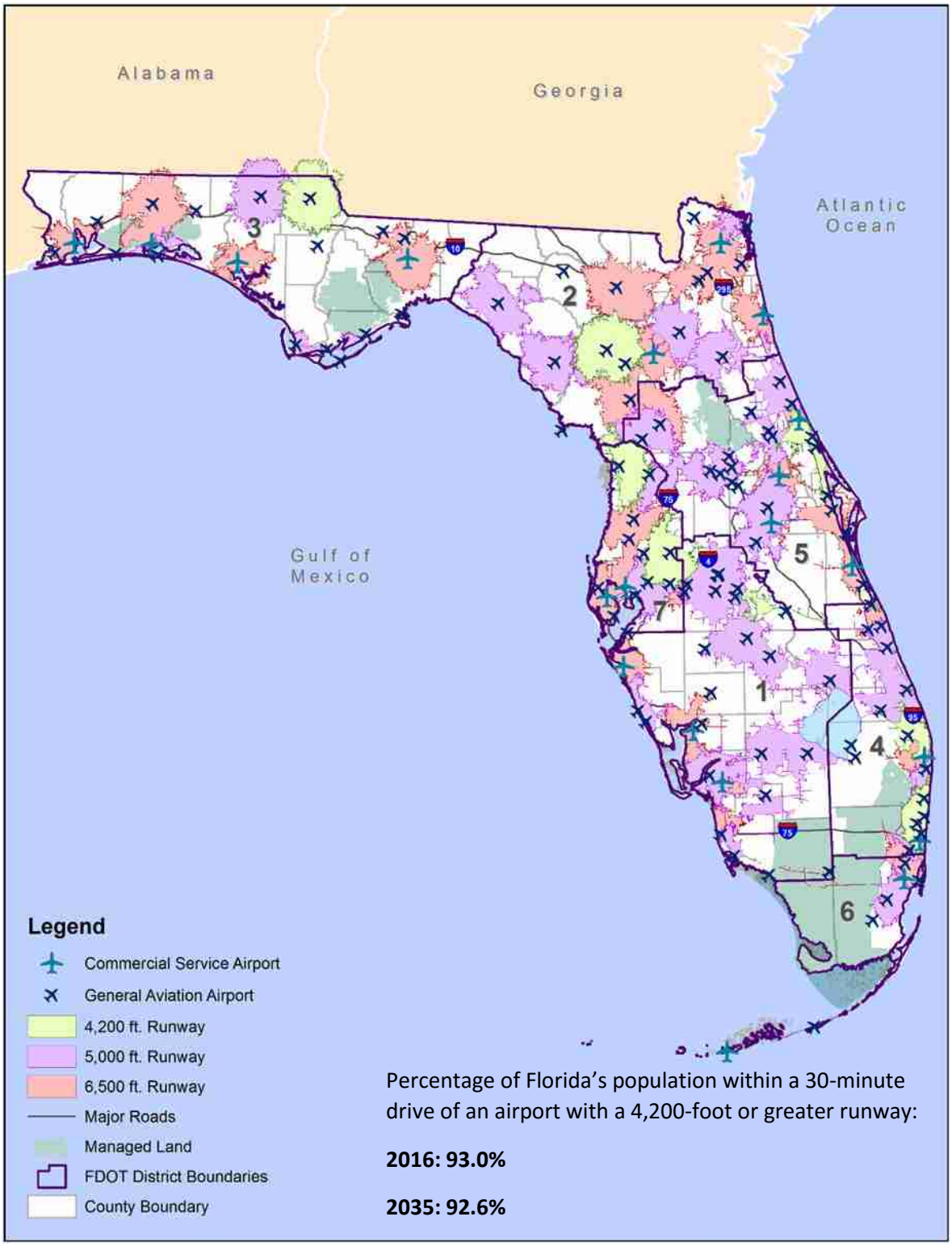
Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

Figure 7-43: Runways Over 5,000 Feet 30-Minute Drive Times



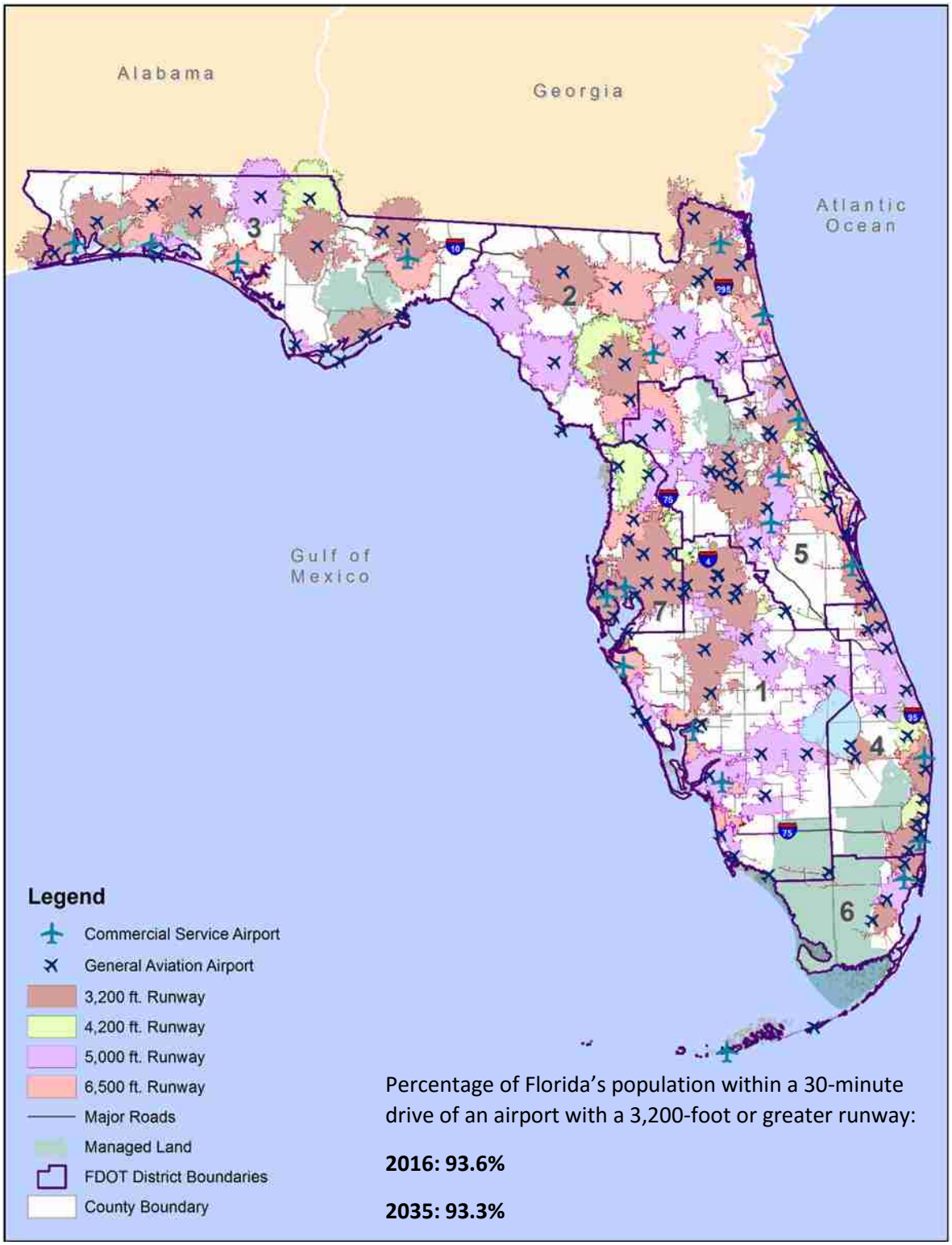
Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

Figure 7-44: Runways Over 4,200 Feet 30-Minute Drive Times



Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

Figure 7-45: Runways Over 3,200 Feet 30-Minute Drive Times



Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

7.3.11 Instrument Approaches

7.3.11.1 Existing Population Analysis

An instrument approach procedure (IAP) is an established set of maneuvers that protect an aircraft from obstacles from their initial approach to safety landing. IAPs can be non-precision, an approach procedure with vertical guidance, or precision. All approaches that do not have an IAP are considered visual. IAPs allow for access in inclement weather conditions. Across all FDOT Districts, 90 airports have some type of an IAP. This equates to 93.1 percent of Florida's 2016 population being located within 30 minutes of an airport with some form of an IAP. As shown in **Figure 7-46**, the distribution of IAPs is fairly even across the state, though there are slight concentrations in central and southeast Florida. As shown, District 7 has the highest percentage of airports with instrument approaches, while District 3 has the lowest. **Table 7-30** provides a summary of airports with IAPs by FDOT District in both total number and percentage.

Table 7-30: **Airports with Instrument Approaches by FDOT District**

Florida Public-Use Airports with an Instrument Approach			
FDOT District	**Total Number of Airports**	**Percentage within District**	**Percentage of Land Coverage (30 Nautical Miles [NM])**
1	19	67.9%	100%
2	14	77.8%	99.7%
3	11	55.0%	97.5%
4	12	70.6%	100%
5	17	68.0%	100%
6	7	100.0%	98.4%
7	10	76.9%	100%
Total	**90**	**70.3%**	**99.4%**

Source: Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

Based on the results of the analysis, the majority of Florida's population is within a 30-minute drive time of an airport with an IAP. The largest drive time gap is within District 6, in a sparsely populated area which primarily consists of conservation land such as the Everglades National Park.

7.3.11.2 Land Coverage within 30-Nautical Mile Buffers

Using a 30-nautical mile buffer around each of the 90 instrument approach airports, nearly the entire state's land area (99.4%) is covered. Although mostly covered, District 7 has the lowest percentage of its land area covered at 97.5 percent. Using this information, it is clear that not only will the majority of the state be covered within 30-nautical miles of instrument approach

airports, but the majority of the population will also be able to access these facilities into the future.

7.3.11.3 Existing Population with 30-Nautical Mile Buffers[14]

Additional analysis of the population within a 30-nautical mile buffer was conducted for the airports with instrument approaches. This analysis indicated that 100% of Florida's 2017 population is located within a 30-nautical mile distance from precision approach airports. With the entire population having access to an instrument approach airport, it is not likely that additional airports will be necessary.

7.3.11.4 Future Population Analysis

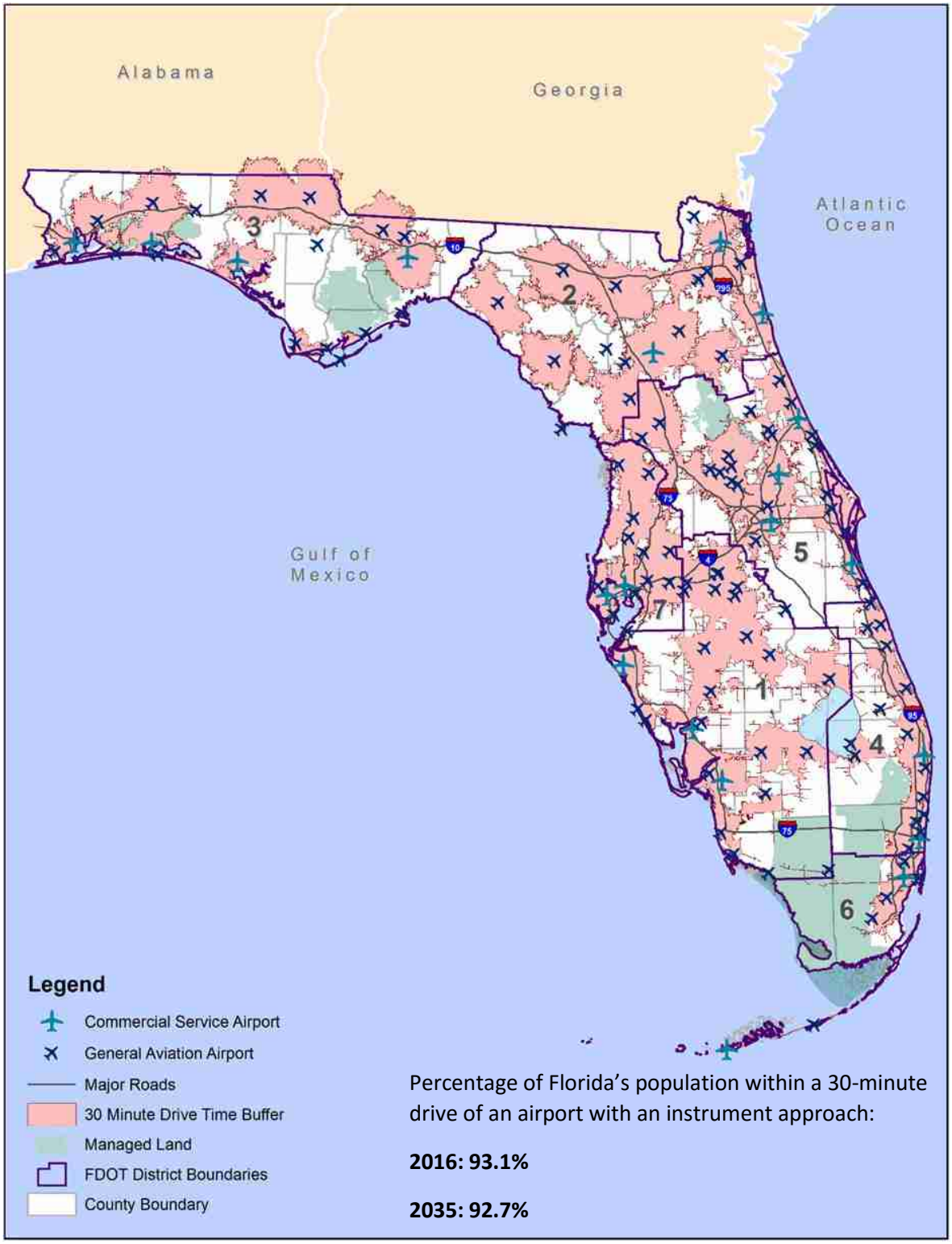
For this analysis, it has been assumed that the number of airports with instrument approaches will remain that same in 2035 as in 2016. Though it is possible that additional airports will develop instrument approaches, this analysis has been conducted under the assumption that the approaches will remain the same.

Looking to the future, Florida's population within 30-minutes of an airport with an instrument approach is expected to grow by 26.9 percent from 2016 to 2035. By applying this percentage, the population being served by airports with instrument approaches will grow from 18,729,511 in 2016 to 23,776,175 in 2035.[15] This increase in will amount to 92.7 percent of Florida's projected population in 2035. 92.7 percent represents a 0.4 percent decrease in the overall population being served by these airports which doesn't likely indicate a need for additional airports with instrument approaches in the future. Even with the reduction in the percentage of population being served, the majority of Florida's population will still be within a 30-minute drive of an airport with an instrument approach in 2035.

When a 30-natical mile buffer is applied around the 90 instrument approach airports, over 99 percent of the state covered. 100 percent of the population is located within 30-nautical miles of an instrument approach airport in 2017 and in 2035. The population within the 30-nautical mile buffer is expected to grow from 20,619,313 in 2017 to 26,304,767 in 2035. Based on the analysis, the areas outside of the buffer are not currently populated, meaning that any additions to the network would have negligible impact on overall population accessibility. Figure 7-46 depicts the percentage of the projected population which will be accommodated by a 30-minute drive time for instrument approach airports for 2016 and 2035. **Figure 7-47** depicts population coverage when using a 30-nautical mile buffer.

[14] 30-nautical mile analysis uses 2017 population estimates
[15] Esri Community Analyst: Population Projection

Figure 7-46: Airports with Instrument Approaches by FDOT District



Source: Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

Figure 7-47: Airports with Instrument Approaches by FDOT District: 30-Nautical Mile Buffer

Source: Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

7.3.12 Precision Approaches

7.3.12.1 Existing Population Analysis

Precision approaches are IAPs that provide lateral and vertical guidance. Precision approaches allow airports to accommodate arriving aircraft during inclement weather and their availability is important to both commercial carriers and corporate aircraft for reliability purposes. This reliability is provided through the ability to remain operational in all weather conditions. Across all FDOT Districts, 33 airports have precision approaches. This equates to 83.9 percent of Florida's 2016 population being located within 30 minutes of an airport with this type of approach. As shown in **Figure 7-48**, the distribution of airports with precision approaches is fairly even across the state, though there are slight concentrations in central and southeast Florida. As shown, District 6 has the highest percentage of airports with precision approaches, while District 1 has the lowest. **Table 7-31** provides a summary of airports with precision approaches by FDOT District in both total number and percentage. Data for precision approaches was obtained from individual ALPs and verified using FAA's digital Terminal Procedures Publication (d-TPP).

Table 7-31: **Airports with Precision Approaches by FDOT District**

Florida Public-Use Airports with Precision Approach			
FDOT District	**Total Number of Airports**	**Percentage within District**	**Percentage of Land Coverage (30 NM)**
1	5	17.9%	69.7%
2	5	27.2%	44.0%
3	5	25.0%	72.6%
4	4	23.5%	85.8%
5	7	28.0%	97.6%
6	4	57.1%	87.1%
7	4	30.8%	100%
Total	**33**	**25.8%**	**73.3%**

Source: Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

Based on the results, large portions of the state are lacking airports with precision approaches. The airports with precision approaches are located primarily in the developed and metropolitan areas. Service gap areas are present within Districts 1, 2, and 6 in areas which have generally lower populations.

7.3.12.2 Land Coverage with 30-Nautical Mile Buffers

Using a 30-nautical mile buffer the 33 airports with precision approaches cover 73.3 percent of Florida's overall land area. When looking at FDOT Districts, the least amount of coverage is

located within District 2 which only has 44.0 percent of its land area within 30-nautical miles of a precision approach airport.

7.3.12.3 Existing Population with 30-Nautical Mile Buffers[16]

Additional analysis of the population within a 30-nautical mile buffer was conducted for the airports with precision approaches. Though only 73.3 percent of Florida is covered by the 30-nautical mile buffer, the population within this area consists of 96.5 percent of the state's 2017 population. With such a significant portion of the population being within the coverage area it is not likely that additional airports will need precision approaches to meet the current population needs.

7.3.12.4 Future Population Analysis

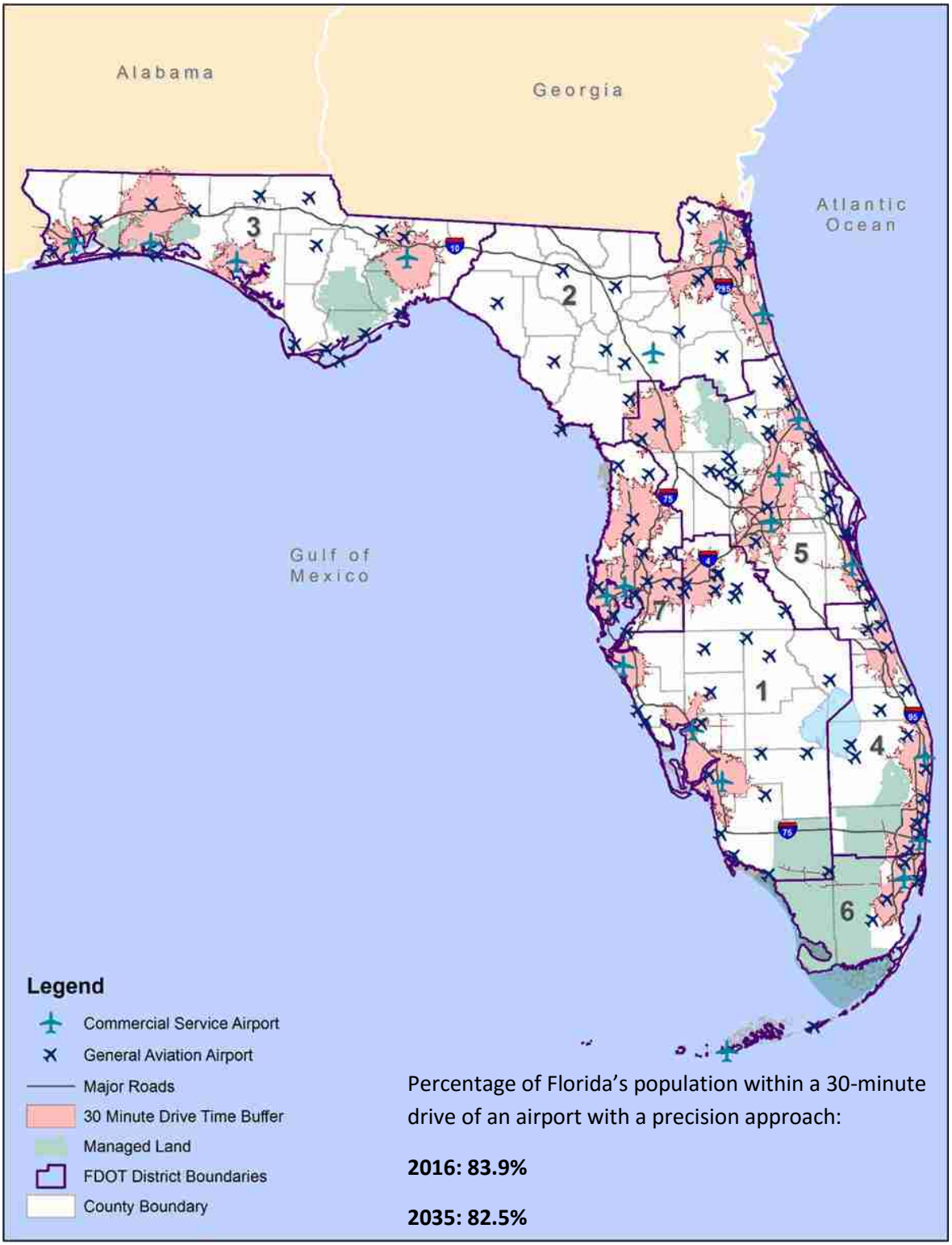
This report assumes that the 33 airports with precision approaches will remain the same in 2035. Additional airports may develop precision approaches in the future, but for this analysis the number of precision approaches has been assumed to remain the same.

Florida's population within a 30-minute drive time of airports with precision approaches is expected to increase by 27.2 percent between 2016 and 2035. With this level of growth, the population within 30 minutes of the airports will increase from 16,630,204 in 2016 to 21,148,184 in 2035.[17] This projected population represents 82.5 percent of the state's projected 2035 population which is a 1.4 percent decrease when compared with 2016. This decrease in the percentage of the population being served indicates a potential need for additional airports with precision approaches to maintain or exceed the current levels of population being served when using a 30-minute drive time.

Florida's population within a 30-nautical mile buffer of the precision airports is expected to increase by 28.3 percent between 2017 and 2035. The expected growth will take the population from 20537,365 in 2017 to 26,204,392 in 2035. This population amounts to 97.0 percent of Florida's predicted population in 2035. Approximately 0.5 percent additional population will be served by precision approach airports in the future. With the majority of the state's population located within the 30-nautical mile buffer, it is unlikely that additional airports with precision approaches will be necessary. If additions are considered, a precision approach airport in the central areas of District 1 and 2 would have the most significant impact on the state's land coverage when using the 30-nautical mile buffer. However, these areas of the state have relatively small populations which will reduce the overall effectiveness of adding additional airports. Figure 7-48 shows the percentage of the projected population within a 30-minute drive time of an airport with a precision approach for 2016 and 2035. **Figure 7-49** depicts the population with access to the precision airports within a 30-nautical mile buffer.

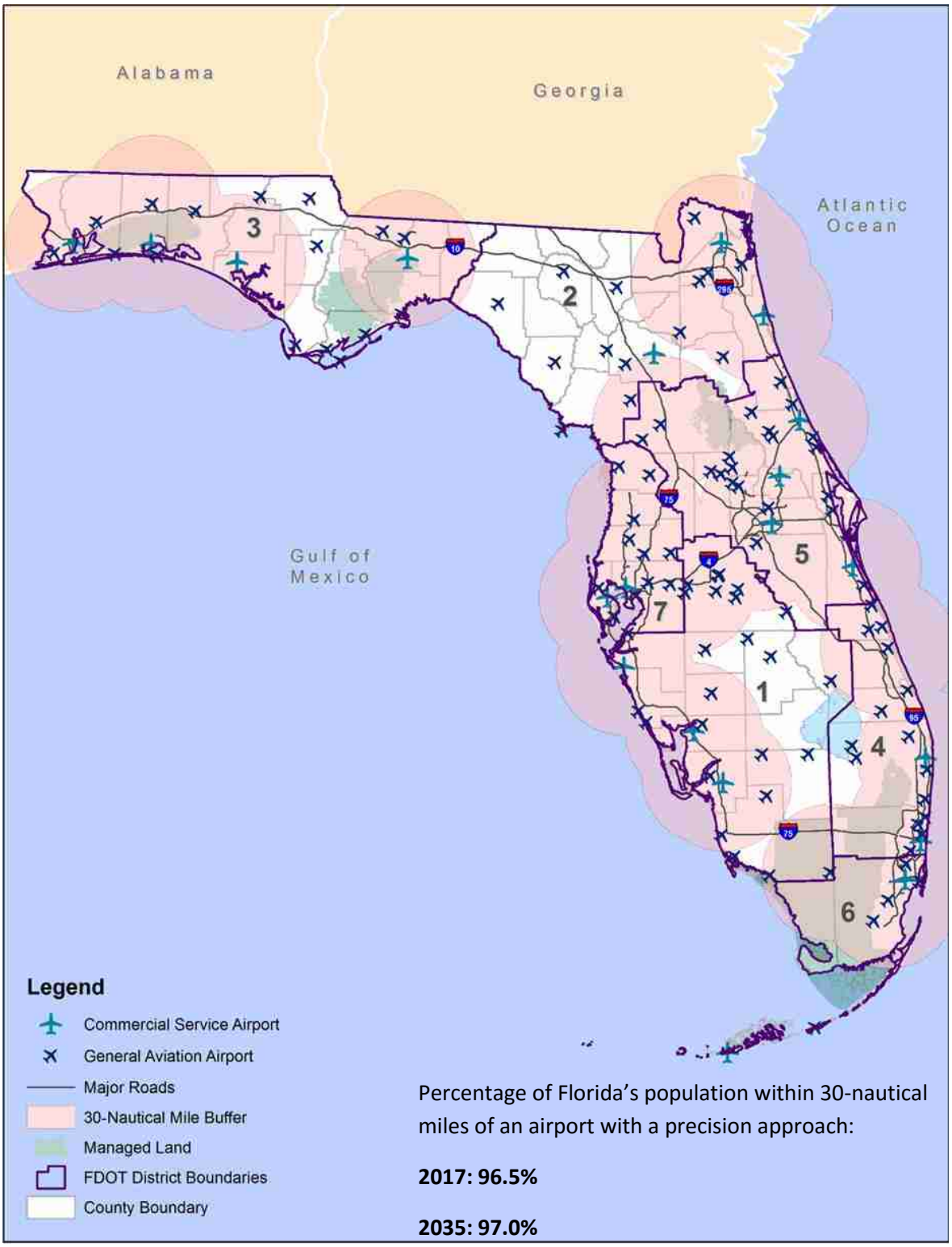
[16] 30-nautical mile analysis uses 2017 population estimates
[17] Esri Community Analyst: Population Projection

Figure 7-48: Airports with Precision Approaches by FDOT District



Source: Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

Figure 7-49: Airports with Precision Approaches by FDOT District: 30-Nautical Mile Buffer



Source: Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

7.3.13 Business User Accessibility

Previous analyses identified the airports with a variety of different resources available to users and their accessibility on the ground in terms of drive times. An evaluation of a combination of resources that are needed to generally support business/corporate aircraft in terms of having the attributes and infrastructure was also conducted. This analysis evaluated which airports had the typical attributes needed to support the average business user including:

- At least a 5,000-foot long runway
- Jet A fuel
- Instrument approach
- AWOS

7.3.13.1 Existing Population Analysis

Across the state, there are 56 airports that have all four of these attributes. These 56 airports are comprised of both commercial and GA airports that are dispersed throughout the state. This equates to 84.9 percent of Florida's 2016 population having access to an airport that meets typical business users' needs within a 30-minute drive. While each FDOT District has at least three airports that have all four attributes, indicating they can support the average business user's needs, they are primarily located in Districts 1, 2, and 5. **Figure 7-50** displays the airports that that meet the four attributes of average business users. As depicted, these airports are located throughout the state, but there are many areas that do not have an airport in proximity that can accommodate an average business user's needs. **Table 7-32** depicts the number of business-use airports by FDOT District.

Table 7-32: Business-Use Airports by FDOT District

Florida Public-Use Airports with: at least 5,000 FT Runway, Jet A Fuel, Instrument Approach, and Automated Weather Reports		
FDOT District	**Total Number of Airports**	**Percentage within District**
1	15	55.6%
2	9	50.0%
3	6	30.0%
4	6	35.2%
5	12	48.0%
6	3	37.5%
7	5	38.5%
Total	**56**	**43.8%**

Source: National Flight Data Center (NFDC); Florida Aviation Database (FAD); Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

Based on the results of the analysis, the largest service gaps can be found in Districts 2, 3, 4, and 6. These gaps represent the areas of the state with large conservation lands and generally low populations which may reduce the need for business-use airports in these areas. It should be noted that most the population centers across the state are being accommodated by airports with business user amenities.

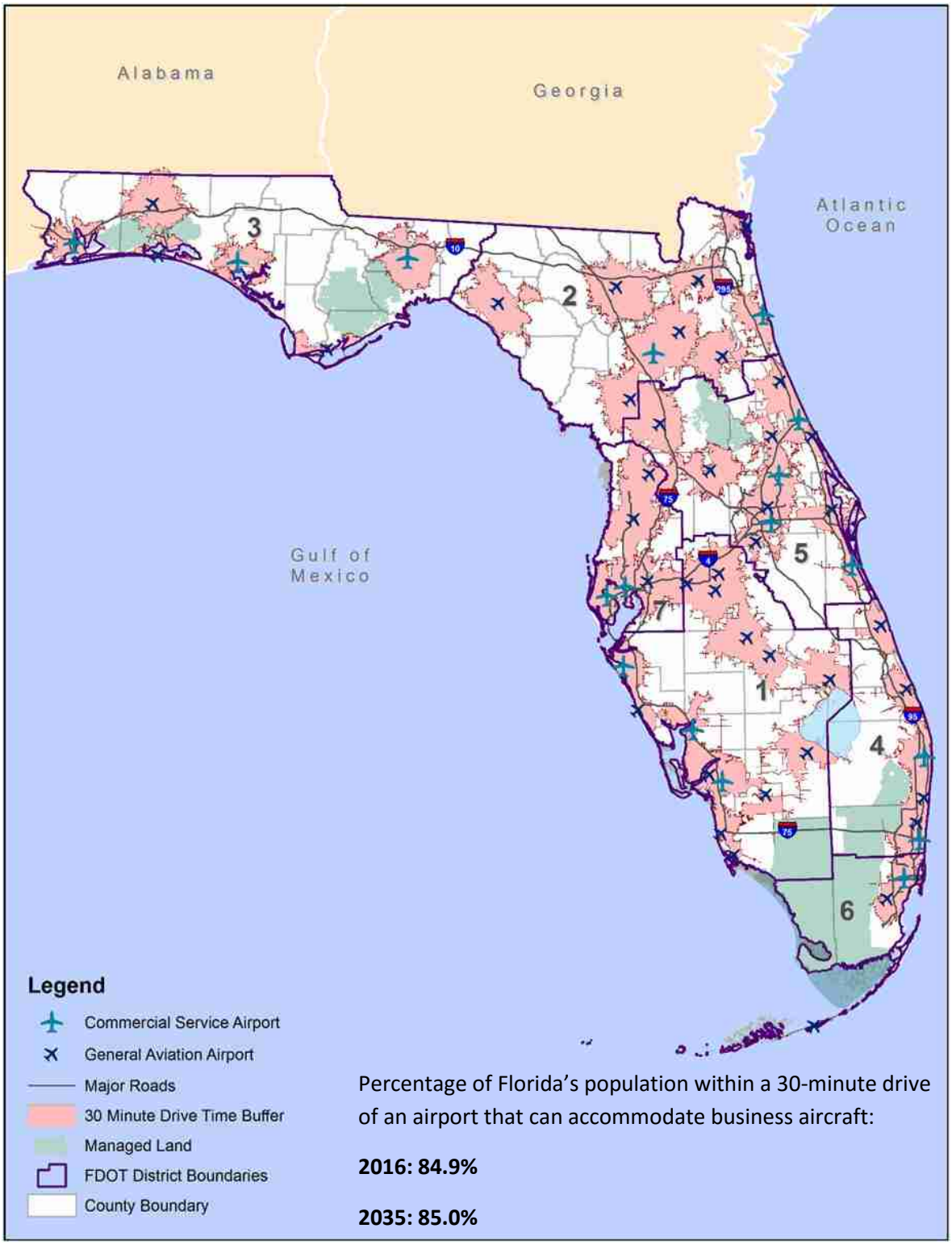
7.3.13.2 Future Population Analysis

It has been assumed that the number and location of business user airports will remain the same in 2035 as in 2016. As the population within Florida continues to grow, there is the potential that additional airports will begin providing the four services necessary to be included within the business-use category, but definite information regarding which airports is not available.

The population within a 30-minute drive time of a business-use airport is expected see an increase of 27.5 percent between 2016 and 2035. The projected population is expected to grow from 17,081,407 in 2016 to 21,785,790 in 2035.[18] The increased population in 2035 represents 85.0 percent of the state's projected population within 30 minutes of an airport with business user accommodations. 85.0 percent indicates a projected increase of 0.1 percent more of the state's population within reach of the services provided by the business airports. Nearly all of the state's projected population will be accommodated with only 15 percent of the population being outside of a 30-minute drive time of an airport with business user amenities. Figure 7-50 displays the projected percentage of the 2016 and 2035 population being accommodated by business-use airports.

[18] Esri Community Analyst: Population Projection

Figure 7-50: Business-Use Airports by FDOT District



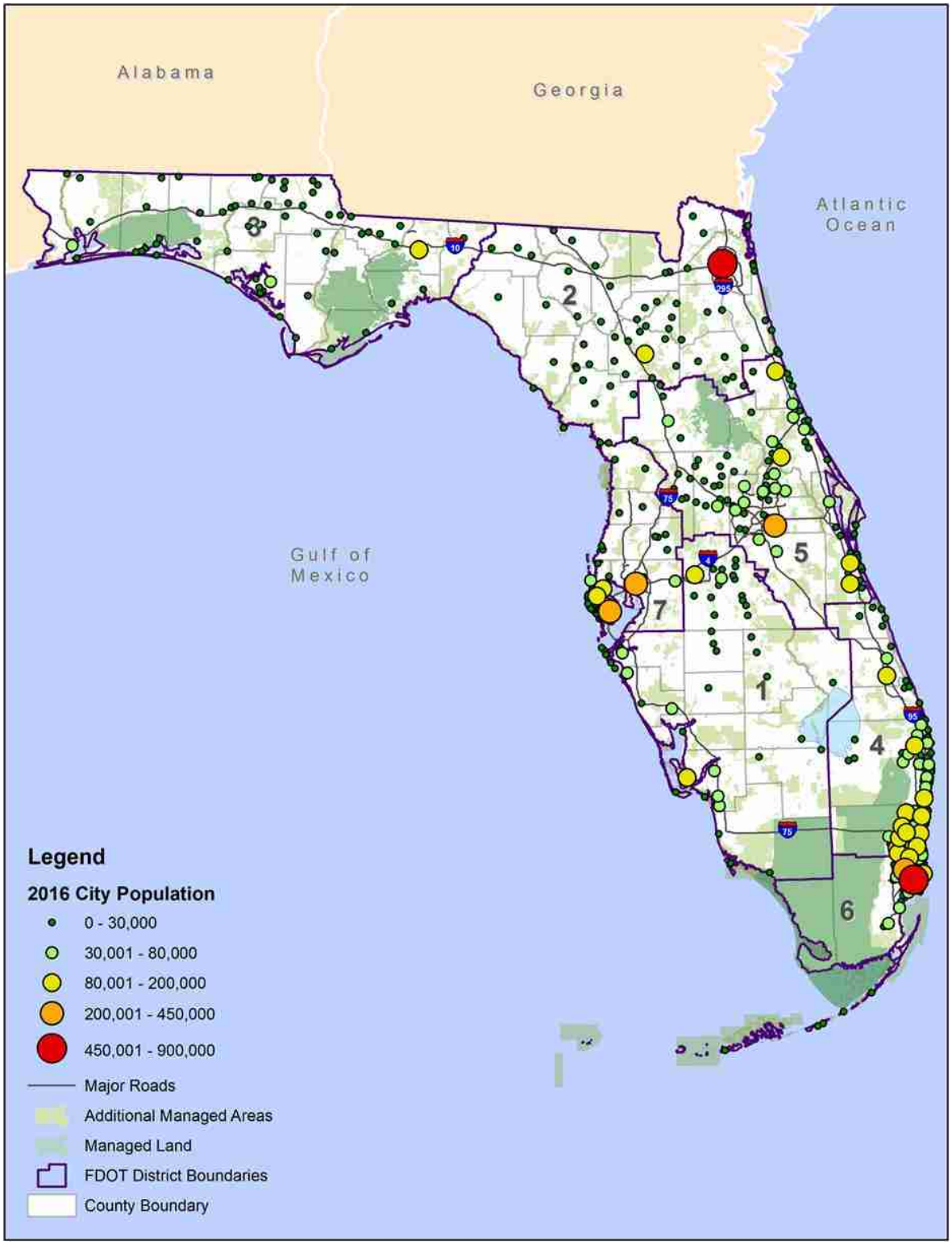
Source: National Flight Data Center (NFDC); Florida Aviation Database (FAD); Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

7.3.14 Conservation Lands and Their Effect on Development

When looking at the existing population data and population projections into the year 2035, the aviation network will continue to accommodate much of the projected population of Florida. Many of the urbanized areas are expected to see additional growth, and in many cases this growth will be in the form of increasing density. Florida is home to many managed and conservation areas which limit the outward development potential in some areas of the state. Most notably, south Florida's development potential is limited by the Everglades National Park and the supporting state/local conservation areas. South Florida is also home to a large portion of the state's population and in many cases the existing development is adjacent to the managed areas. **Figure 7-51** depicts the location of cities and provides a visualization of the 2016 population size of the cities throughout Florida.

The presence of conservation or managed lands which cannot be developed will lead to increased densities in nearby cities as the population grows. This increasing density will likely increase the overall population within the 30-minute drive times of certain airports, leading to potential capacity concerns. As the population grows, the percentage of the population being accommodated by Florida's airports is not expected to vary significantly, but is should be noted that these figures will represent a higher overall population within the drive time area. These population changes may pose concerns for the ability of the existing airport network to meet the needs of this projected population into the future.

Figure 7-51: City Population Size and Managed/Conservation Areas



Source: U.S. Census and the Florida Department of Environmental Protection; Kimley-Horn Analysis

7.3.15 Planned Roadway Improvements

Roadway improvements are planned throughout the state which may also have an impact on the aviation network. Planned improvements to SIS roadways have been identified for their regional impact and the potential for these corridors to benefit large populations. SIS roadway improvements can increase the accessibility to and the effectiveness of the aviation network and improve the population coverage of the airports on an individual level. For the purposes of this report, capacity adding projects such as the addition of auxiliary lanes, travel lanes, and managed lanes have been depicted in **Figure 7-52**. As shown, many of the SIS roadway projects are in three main areas of Florida. The southeast (Miami to West Palm Beach area), central (Tampa to Orlando area), and northeast (Jacksonville area) areas represent the location of the majority of the planned SIS improvements.

7.3.15.1 Major Roadways with Planned Improvements

7.3.15.1.1 INTERSTATE 4 (I-4)

I-4 is a major east/west corridor which provides connections between the east and west coasts of central Florida. Orlando and Tampa are the major cities which benefit from this central Florida roadway. Capacity will be improved along this corridor through the implementation of managed lanes, primarily in the urban parts of Tampa and Orlando. Four nearby commercial service airports will indirectly benefit from increased capacity and regional accessibility:

- Orlando International Airport
- Orlando Sanford Airport
- St. Pete-Clearwater International Airport
- Tampa International Airport

7.3.15.1.2 INTERSTATE 10 (I-10)

I-10 is the major east/west corridor serving north Florida. The implementation of managed lanes and the addition of travel lanes are planned primarily in the easternmost section of the corridor. The planned improvements will provide additional capacity to the area in and around the City of Jacksonville. The planned improvements will likely indirectly increase accessibility to the nearby Jacksonville International Airport.

7.3.15.1.3 INTERSTATE 75 (I-75)

I-75 is a major north/south corridor which runs through north central Florida and along the southwest Florida coast. Throughout the I-75 corridor, additional lanes will be developed to increase capacity. In addition to the lane increases on I-75, managed lanes are planned on the I-275 corridor within the Tampa and St. Petersburg area. The following airports are likely to experience increased accessibility as a result of these planned roadway improvements:

- Punta Gorda Airport
- Southwest Florida International Airport
- St. Pete-Clearwater International Airport
- Tampa International Airport

7.3.15.1.4 INTERSTATE 95 (I-95)

I-95 is one of Florida's major north/south corridors and runs along the east coast. Managed lanes are planned for this roadway in north Florida along with the additional planned development of managed lanes on the I-295 beltway around the City of Jacksonville. The Jacksonville International Airport is likely to see accessibility benefits from the planned roadway improvements in this area. Additional lanes are planned in the southeast which will likely improve accessibility to three nearby airports:

- Fort Lauderdale-Hollywood International Airport
- Miami International Airport
- Palm Beach International Airport

7.3.15.1.5 FLORIDA'S TURNPIKE

Florida's Turnpike is a north/south toll route providing service from central to southeast Florida. The planned improvement consists of widening the turnpike through the addition of travel lanes. These planned improvements are primarily within the Orlando, Palm Beach, and Fort Lauderdale metropolitan areas, servicing a large portion of Florida's population. Four airports are likely to see accessibility improvements through the implementation of the additional roadway capacity. The four airports are as follows:

- Fort Lauderdale-Hollywood International Airport
- Miami International Airport
- Orlando International Airport
- Palm Beach International Airport

Figure 7-52: Planned SIS Roadway Improvements

Source: The Florida Department of Transportation (FDOT) Five Year Work Program; Kimley-Horn Analysis

7.3.16 Retirement and Seasonal Residents

In addition to the popularity of destination and vacation-style tourism, the state sees a great deal of extended stay tourism or seasonal residency lasting weeks or months from retirees. Individuals who stay for extended periods throughout the year generally visit for the winter months. These seasonal residents generally visit Florida in the winter months to avoid the more harsh or colder climates to our north. They help Florida's tourism industry by boosting visitation during the winter months.

Florida has become a major retirement destination and continues to see its elderly population rise. The increasing elderly and retirement population has led to the creation of large age restricted housing developments throughout the state. Large residential developments such as the Villages and On Top of the World cater to Florida's aging population by providing age-specific amenities and establishing age restrictions for residency. Age-restricted and retirement communities have been growing throughout the state to accommodate the increasing need as the population begins to lean toward older age groups. **Table 7-33** below depicts the population in Florida over 50 years old, and how that population is expected to grow into the future.

Table 7-33: **Florida's Aging Population**

Population Over 50 years old		
2016 Median Age in Florida	**2016 Population Percentage Over 50 Years Old**	**2035 Projected Population Percentage Over 50 Years Old**
41.9 Years Old	40.0%	45.4%

Source: Florida Aviation System Plan (FASP) Analysis; Esri Community Analyst: Population Projection

Based on the results of the analysis, the population over 50 years old is expected to increase from 8,010,403 in 2016 to 11,647,926 in 2035.[19] This figure represents 45.4 percent of Florida's projected population in the year 2035. This aging population is expected to grow through the influx of retirees from other states as well as the growth of individuals within Florida. As the population ages, additional planning concerns will be necessary to accommodate this age cohort, including the provision of increased accessibility to and within Florida's airports.

[19] Esri Community Analyst: Population Projection

7.4 Intermodal Requirements and Connectivity

Airports provide access to the national air transportation system, but also require links to other modes of transportation to transport people and goods to and from the airport. The connectivity of the modes is an essential aspect of the airport system's accessibility, and, as such, linkages between the airports and highway, passenger rail, transit, rental car, and other applicable modes was examined. The entire airport system was evaluated for connectivity, with additional emphasis on the connections at airports designated as SIS facilities (identified as beneficial to statewide mobility and economy). The 18 commercial service SIS airports require more connections to facilitate access to airline service, while the two GA reliever SIS airports typically serve a high level of demand and are in metropolitan areas. The following sections summarize the analysis of airport accessibility to other modes of transportation.

7.4.1 Airport Accessibility Summary

7.4.1.1 Courtesy and Rental Car Connectivity

Many of the airports throughout Florida provide access to courtesy car and rental car services. A review of these services has been conducted for all 128 of Florida's public-use airports and the number of participating airports have been outlined by FDOT District. Of the 128 public-use airports, 93 currently have onsite rental car facilities. Rental car facilities allow airport users additional freedom when they land and help reduce their reliance on local pickups, courtesy cars, or on transit systems, if available. **Table 7-34** shows the number of airports within each FDOT district that provide rental car facilities and **Figure 7-53** depicts the airports which are currently providing access to onsite rental car facilities. District 6 has the highest percentage of airports with rental car facilities at 100 percent of airports while District 1 has the lowest percentage at 64 percent of the District's airports.

Figure 7-53: Airports with Rental Car Facilities

Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

Table 7-34: Number and Percentage of Airports with Rental Car Service

FDOT District	Number of Airports with Rental Car Service	Percentage of Total Airports Within the District
1	18	64.3%
2	13	72.2%
3	14	70.0%
4	12	70.6%
5	17	68.0%
6	7	100.0%
7	12	92.3%
Total	**93**	**72.7%**

Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

Currently, 30 of Florida's public-use airports offer airport-sponsored courtesy car services as reported in the FAD (see **Table 7-35**). In addition to this airport-sponsored transportation, many fixed-base operators (FBOs) also offer courtesy car services; however, data on these is not collected by FDOT and the data is inconsistent. Much like rental cars, the ability for travelers to utilize a courtesy car reduces their reliance on rental cars, transit, and local pickups. District 2 has the highest percentage of airports with courtesy car pickups, with nearly 39 percent, while District 4 has the lowest, with zero airports providing courtesy car service.

Table 7-35: Number and Percentage of Airports with Courtesy Cars

FDOT District	Number of Airports with Courtesy Car Services	Percentage of Total Airports Within the District
1	9	32.1%
2	7	38.9%
3	3	15.0%
4	0	0.0%
5	5	20.0%
6	1	14.3%
7	5	38.5%
Total	**30**	**23.4%**

Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

Figure 7-54 below shows the airports which are currently providing courtesy car services throughout the state and districts.

Figure 7-54: Airports with Courtesy Cars

Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

7.4.1.2 Connectivity at Non-SIS airports

In addition to the SIS airports throughout the state, the other 108 public-use airports have been reviewed to determine their roadway connections. For each airport, roadways with direct and indirect access to the airport were reviewed to identify the number of lanes for each of the roadways. **Appendix C – Intermodal Connectivity Data** provides a listing of major roadway connections which includes the type, name, and number of lanes for these major airport connections.

7.4.1.3 SIS Airport Connectivity Analysis

Designated SIS airports are shown in **Figure 7-55**. The connections from the SIS airports to roadways, transit, passenger rail, and rental car facilities were identified in this analysis. While roadways provide access to all airports, the integration of alternative transportation options allows for a more efficient movement of passengers to and from the airport facilities. Intermodal connectivity is also a major attraction for visitors, as it allows passengers to efficiently reach their destinations via multiple transportation methods. The availability of transportation options such as bus transit and passenger rail also helps to promote local use of the airport and can help reduce vehicular volumes on the roadway network. This reduction in traffic volume allows for decreased congestion throughout the surrounding area. A summary of the information provided in this analysis is also provided in **Appendix C – Intermodal Connectivity Data.**

Additionally, the roadway connections to SIS airports were reviewed to determine the LOS. LOS is a measure of the roadway created through the analysis of traffic and roadway conditions which are used to develop a rating between A through F. LOS A indicates that a roadway has no capacity or congestions issues; LOS A through D generally indicate acceptable roadway conditions with limited congestion. Roadways with LOS E and F are considered to have capacity-related congestion issues which could cause delays for users. For this analysis, FDOT District LOS Assessment Reports, Long Range Transportation Plans (LRTPs), State of the System Reports, Transportation Improvement Programs (TIPs), and other reports have been reviewed to determine the roadway LOS near SIS airports.

One of the criteria of being an SIS airport is having access to an existing SIS corridor. The SIS corridors within this FASP are the highway facilities which connect areas of statewide or interregional importance. For example, all of the Interstate roadway facilities within the state are designated as SIS corridors. The 20 SIS airports analyzed have access to SIS corridors either through direct connections or the presence of designated SIS connector roads. SIS connector roads are the highways which connect the SIS corridors with the SIS airports throughout the state. Many of the SIS connector roads near the airports are state road systems that expand beyond the corridor facilities to provide regional access. SIS connector and SIS corridor roadways have been **bolded** and **underlined** within the connectivity outline for each airport.

Figure 7-55: SIS Airports

Source: Florida Department of Transportation (FDOT) Strategic Intermodal System (SIS); Kimley-Horn Analysis

7.4.1.4 SIS Airport Intermodal Services Summary

Many of the SIS airports provide access to intermodal transportation services. **Table 7-36** below indicates the number of SIS airports which provide access to rental car, bus transit, or passenger rail facilities. Currently, all of the SIS airports provide access to rental car facilities and services, while 11 of the SIS airports provide bus transit access. Miami International Airport and Orlando International Airport are the only SIS airports which currently have direct passenger rail service.

Table 7-36: Number of SIS Airports Where Service is Provided

Intermodal Service	Number of SIS Airports Where Service is Provided
Rental Car Service	20
Bus Transit	11
Passenger Rail	2

Source: Florida Aviation Database (FAD)

Table 7-37 below depicts the number of direct access roadways by lane number. This analysis considers the state, U.S. Highway, and Interstate roadways which provide direct access to the SIS airports across the state.

Table 7-37: Direct Roadway Connections Summary

Number of Lanes	Number of Roadways
2-3	3
4-5*	12*
6 +**	14**
Total	**37**

Source: Florida Department of Transportation (FDOT) Strategic Intermodal System (SIS) GIS data
**The 4-lane University Parkway (City of Sarasota; SRQ) has been included within these calculations*
***The 7-lane CR 876 (Lee County; RSW) has been included within these calculations*

Of the 37 direct roadway connections providing direct access to the SIS airports, 22 are designated SIS roadways. **Table 7-38** depicts the number of indirect access roadways by lane number. This analysis considers the state, U.S. Highway, and Interstate roadways which provide indirect access to the SIS airports across the state.

Table 7-38: Indirect Roadway Connection Summary

Number of Lanes	Number of Roadways
2-4	11
5-6	52
6 +	49
Total	**112**

Source: Florida Department of Transportation (FDOT) Strategic Intermodal System (SIS) GIS data

The SIS airports have indirect access to 112 roadway connections, of which 41 connections are to designated SIS roadways.

7.4.2 SIS Intermodal Connectivity and LOS Analysis

The following summarizes the intermodal connectivity and LOS analysis for each of the 20 SIS airports. A summary matrix of the information is provided in **Appendix C**.

7.4.2.1 Daytona Beach International Airport

Daytona Beach International Airport is in Volusia County in District 5 along the eastern coast of Florida. The airport, which is within the boundary of the River to Sea Transportation Planning Organization, is located along the western edge of the Daytona Beach urbanized area and is adjacent to the Daytona International Speedway as well as Embry-Riddle Aeronautical University. It has direct access to U.S. 92 (W International Speedway Boulevard), an east/west SIS connector. U.S. 92 provides access to I-95, which runs along the entire east coast of Florida. Additionally, U.S. 92 provides access to the Speedway and the Atlantic Ocean. Daytona Beach International Airport also has access to SR 483 (S Clyde Morris Boulevard) which bisects the Embry Riddle campus and SR 400 (Beville Road) which provides a connection to I-4 in the south. Considering the airport has a direct connection to U.S. 92, a high capacity roadway, and access to both I-4 and I-95 within a short distance, it appears that Daytona Beach International Airport is well suited with regards to regional connections.

Per the *Congestion Management Process Report*, the direct access to U.S. 92 has LOS C and the nearby I-95 has LOS B south of U.S. 92 and LOS C north of the interchange with U.S. 92. I-4 maintains LOS B at its terminus with I-95. U.S. 92, I-95, and I-4 are currently meeting their designated LOS standards indicating that congestion is not likely to limit travel to and from Daytona Beach International Airport.

Though the airport is not served by direct bus transit or passenger rail transportation, car rental facilities are available on site. A summary of the intermodal connectivity for Daytona Beach International Airport is outlined below:

- No bus transit
- No passenger rail
- Onsite rental car facilities

- Direct Access Roadway(s)
    - One 8-lane U.S. highway (**U.S. 92**)
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-95)
    - One 4-lane interstate (I-4)
    - Two 4-lane state roads (SR 483, SR 400)

7.4.2.2 Destin-Ft. Walton Beach Airport

Destin-Ft. Walton Beach Airport is in Okaloosa County in District 3 and is located directly adjacent to the Choctawhatchee Bay, just northeast of Fort Walton Beach. The airport is a military joint-use facility with the co-located Eglin Air Force Base which also makes use of the facility. Destin-Ft. Walton Beach Airport, located within the boundary of the Okaloosa-Walton Transportation Planning Organization, has direct access to SR 123 (Roger J Clary Highway) which is a designated SIS corridor. SR 189 (Lewis Turner Boulevard) and SR 85 (Eglin Parkway) are both designated as military access routes which service Eglin Air Force Base. SR 85 is a major north/south route which provides access to I-10 to the north. Per the *2035 Long Range Transportation Plan*, SR 123 maintains LOS D while SR 85 operates with LOS A/B in the area surrounding the airport. LOS A/B conditions show low congestion potential while the LOS D indicates a roadway which is more likely to see congestion. Travel to Destin-Ft. Walton Beach Airport is likely predictable with low probability of congestion preventing access to the airport.

Currently, Destin-Ft. Walton Beach Airport does not have passenger rail or bus transit available from the terminal, but car rental facilities are located on site. The intermodal options for the airport are outlined as follows:

- No bus transit
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - Two 4-lane state roads (SR 189, SR 85)
    - One 3-lane state road (**SR 123**)
- Indirect Access Roadway(s)
    - One 4-lane interstate (I-10)
    - One 4-lane U.S. highway (U.S. 98)
    - Four 4-lane state roads (SR 20, SR 85, SR 188, SR 393)
    - One 2-lane state road (SR 293, SR 285)

7.4.2.3 Fort Lauderdale-Hollywood International Airport

Fort Lauderdale-Hollywood International Airport is in Broward County in District 4 in the southeastern portion of Florida. Located in unincorporated Broward County and bordered by the incorporated cities of Fort Lauderdale, Hollywood, and Dania Beach, the airport is within the boundary of the Broward Metropolitan Planning Organization and has direct access to U.S. 1 and the SIS corridor I-595. Fort Lauderdale-Hollywood International Airport has many regional transportation connections; along the I-595 corridor alone, users have access to I-95, I-75, and Florida's Turnpike which are all major roadways within the state. U.S. 1 provides north/south

connections with the urbanized areas along the coast. Located just to the south of the airport, SR 818 (Griffin Road) provides additional connections to both I-95 and the Turnpike west of the airport.

Per the Broward County *2013 Roadway Capacity and Level of Service Analysis*, U.S. 1 north of SR 818 is LOS C and north of 1-595 is LOS F, while I-95 north of SR 818 and I-595 are experiencing LOS F conditions, indicating potential congestion issues. I-595 is experiencing LOS B conditions in the area nearby Fort Lauderdale-Hollywood International Airport indicating better traffic mobility along this roadway. Several of the other roadways within the region around the airport are experiencing LOS F conditions which may affect transportation to and from the airport.

The Broward County Transit bus network provides access to Fort Lauderdale-Hollywood International Airport, but the airport does not have direct access to passenger rail. Access to bus transit may help reduce the overall volume of vehicles currently leading to the LOS F conditions near the airport. Users of this airport also have access to onsite rental car facilities. Fort Lauderdale-Hollywood International Airport has the following intermodal connectivity options:

- Access to bus transit (Broward County Transit)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 6-lane U.S. highway (U.S. 1)
    - One 8-lane interstate (**I-595**)
- Indirect Access Roadway(s)
    - One 10-lane interstate (I-75)
    - One 8-lane interstate (I-95)
    - One 6-lane turnpike (SR 91)
    - Two 4-lane state roads (SR 736, SR A1A)
    - Two 6-lane state roads (SR 818, SR 84)

7.4.2.4 Gainesville Regional Airport

Gainesville Regional Airport is in Central Florida in Alachua County within District 2. Located just northeast of the City of Gainesville, the airport is within the Gainesville Metropolitan Transportation Planning Organization and has direct access to SR 24 and SR 222 (NE 39th Avenue), both of which are designated SIS connectors. SR 24 connects Gainesville Regional Airport with the City of Gainesville, the University of Florida, and the designated SIS corridors U.S. 331 and SR 20 (SE Hawthorne Road). SR 222 provides access to I-75 to the west and meets with SR 26 to form a connection to U.S. 301 to the east.

Per the *Multimodal Level of Service Report*, SR 222 and SR 24 are both operating at LOS C, indicating that the area likely does not experience congestion issues which would limit access to the airport.

Gainesville Regional Airport does not provide access to passenger rail facilities but does provide access to the Regional Transit System bus network. The bus transit likely reduces the nearby roadway volume which may improve transportation to and from the airport into the future. In

addition to transit, Gainesville Regional Airport also has rental car facilities on site. Intermodal connectivity options for the airport are outlined below:

- Access to bus transit (Regional Transit System)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - Two 4-lane state roads (**SR 24**, SR 222)
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-75)
    - Two 4-lane U.S. highways (U.S. 301, U.S. 441)
    - Three 4-lane state roads (SR 12, **SR 20**, SR 26)

7.4.2.5 Jacksonville International Airport

Jacksonville International Airport is in Duval County in northeast Florida in District 2. The airport is in the northern and primarily rural part of the county and is located within the North Florida Transportation Planning Organization. Jacksonville International Airport has direct access with two SIS connectors, SR 102 (Airport Road) and SR 243 (International Airport Boulevard). Indirectly, this airport has access to I-295 which serves as a beltway for Jacksonville and I-95 which provides access to the City of Jacksonville and Nassau County to the north.

Per the *2016 Annual Mobility Report*, all the rural roadways in Jacksonville are meeting or exceeding LOS D. The TIP indicates that Airport Road which connects the airport with I-95 has planned intelligent transportation systems (ITS) improvements. These improvements should increase the flow of traffic to and from the airport for users of I-95. In addition to the ITS changes, a new roadway from Pecan Park road to the north is planned for construction to connect with Airport Road. These two major improvements within the airport area should improve safe and efficient transportation into the future given the likely congestion currently experienced.

Jacksonville International Airport has direct access to the Jacksonville Transportation Authority bus network and has car rental facilities on site, but passenger rail connectivity is not available. The intermodal connectivity options for Jacksonville International Airport are outlined below:

- Access to bus transit (Jacksonville Transportation Authority)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 4-lane state road (**SR 102**)
    - One 5-lane state road (**SR 243**)
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-95)
    - One 4-lane interstate (I-295)
    - One 2-lane U.S. highway (U.S. 17)

7.4.2.6 Kissimmee Gateway Airport

Kissimmee Gateway Airport is in Osceola County directly south of the Orlando area in District 5 and is located within the boundary of the MetroPlan Orlando Metropolitan Planning Organization. Thacker Avenue provides direct access to U.S. 192 (Irlo Bronson Memorial Highway) which is a designated SIS connector. Additionally, M.L.K. Jr Boulevard provides the direct connection from the airport to U.S. 17/92 (John Young Parkway) which travels through some of the less developed areas to the south of Kissimmee. U.S. 192 forms a network with U.S. 441, U.S. 17/92, and Osceola Parkway to reach Florida's Turnpike to the northeast. U.S. 192 also provides access to I-4 which connects the Kissimmee area with Orlando to the north and Lakeland to the southwest.

U.S. 17/92 has LOS F in the area nearby the airport while U.S. 441/192 maintain a LOS C. An LOS F indicates that congestion is likely within the area. With its location so close to Orlando, it is likely that Kissimmee Gateway Airport and the nearby roadways see congestion regularly.

The airport does not currently have access to bus transit or passenger rail transportation options, but car rental facilities are located on site. An outline of the intermodal transportation options available at Kissimmee Gateway Airport is provided below:

- No bus transit
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 6-lane U.S. highway (**U.S. 192**)
    - One 4-lane U.S. highway (U.S. 17/92)
- Indirect Access Roadway(s)
    - One 4-lane interstate (I-4)
    - One 4-lane turnpike (SR 91)
    - Two 4-lane state roads (**SR 417**, SR 535)

7.4.2.7 Melbourne International Airport

Melbourne International Airport is in Brevard County along the eastern coast of Florida in District 5. Located within the boundary of the Space Coast Transportation Planning Organization, the airport's SIS connector is SR 508 (NASA Boulevard). Melbourne International Airport has indirect connections to several additional roadways including I-95, U.S. 1 (South Harbor City Boulevard), and U.S. 192 (W New Haven Avenue). The airport is located near the Indian River and Atlantic Ocean, thereby limiting the overall transportation options to the east. Most of the movement within the Melbourne area is directed north/south along the developed coastal areas.

Per the *2016 State of the System Report*, SR 508, U.S. 1, and U.S. 192 are operating at LOS D, indicating that potential roadway efficiency issues may arise in accessing the airport.

Currently, Melbourne International Airport has access to the Space Coast Area Transit bus system and onsite rental car facilities, but does not have access to passenger rail. A description of the intermodal options available at the airport is provided below:

- Access to bus transit (Space Coast Area Transit)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 4-lane state road (**SR 508**)
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-95)
    - One 6-lane U.S. highway (U.S. 1)
    - One 4-lane U.S. highway (U.S. 192)
    - Three 4-lane state roads (SR 507, SR 518, SR A1A)
    - One 2-lane state road (SR 5054)

7.4.2.8 Miami Executive Airport

Miami Executive Airport is in Miami-Dade County in the southeastern area of Florida in District 6. Located within the boundary of the Miami-Dade Metropolitan Planning Organization, the airport has direct access to SR 825 (Lindgren Road) which serves as an SIS connector along with SR 94 (SW 88th Street) to reach SR 821 (Ronald Reagan Turnpike). SR 825 also provides indirect access to the Dolphin Mall to the north and to Zoo Miami in the south. SR 821 is a north/south designated SIS corridor which connects the Fort Lauderdale area in the north with the Homestead area to the south. SR 94 is an east/west roadway that connects Miami Executive Airport with Biscayne Bay to the east and SR 997 (Krome Avenue) which closely borders the Everglades National Park in the west. Due to the presence of the Everglades National Park and the other conservation areas to the west, much of the transportation within the area is directed along the urbanized coastal areas. LOS data is unavailable for roadways near Miami Executive Airport. Per the 2040 LRTP there are no planned capacity projects in the area nearby to the airport, indicating that the roadways will likely be operating at acceptable levels of efficiency throughout the 2040 planning period.

Currently Miami Executive Airport does not have access to passenger rail or bus transit; however, car rental facilities are located along SR 825 just east of the Airport. An outline of the intermodal options present at the airport is provided below:

- No bus transit
- No passenger rail
- Rental car facilities in close proximity
- Direct Access Roadway(s)
    - One 6-lane state road (**SR 825**)
- Indirect Access Roadway(s)
    - One 6-lane Turnpike (SR 821)
    - One 6-lane U.S. highway (U.S. 1)
    - Two 6-lane state roads (SR 94, SR 874)
    - One 4-lane state road (SR 992)
    - One 2-lane state road (**SR 997**)

7.4.2.9 Miami International Airport

Miami International Airport is in Miami-Dade County near the southeastern coast of Florida in District 6. Located within the boundary of the Miami-Dade Metropolitan Planning Organization, the airport has direct access to SR 953 (Le Jeune Road) and the SIS designated SR 112 (Airport Expressway) with indirect access to I-95, SR 821 (Ronald Reagan Turnpike), U.S. 27, and U.S. 41. Miami International Airport utilizes Perimeter Road and NW 12th Drive to connect with the SIS corridor SR 836 (Dolphin Expressway) to the south, while SR 953 connects the airport to the SIS corridor SR 112 to the north. SR 953 also connects the airport to the SIS corridor SR 826 (Palmetto Expressway), a major north/south roadway located just west of the airport. From a regional perspective, the nearby I-95 and expressways allow for efficient vehicular travel to and from the airport. LOS data is unavailable for roadways near Miami International Airport. SR 836, located just to the south of the airport has planned roadway capacity enhancements within the 2040 planning horizon. These planned enhancements indicate that vehicle travel in the area may soon require improvements. In addition to the roadway connectivity, the airport is located west of the Port of Miami which lies within Biscayne Bay and provides access to the Atlantic Ocean. Miami International Airport, along with the roadway network and waterway connections, creates a location in which transportation and connectivity are abundant.

Currently Miami International Airport has access to the METROBUS and METRORAIL transit systems, as well as onsite rental car facilities. The Miami Intermodal Center (MIC) is a ground transportation hub located just east of the main terminal area. The MIC houses rental car facilities, METRORAIL (Light rail), Tri-Rail (commuter rail), Amtrak, Greyhound bus, intercity bus, airport shuttles, and access to taxi services. This facility is accessed by the MIA Mover, an automated people mover which travels between the airport's terminal area and the MIC. The intermodal connectivity for the airport is outlined below:

- Access to bus transit (METROBUS)
- Access to passenger rail (METRORAIL/Tri-Rail/Amtrak)
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 6-lane state road (SR 953)
    - One 4-lane state road (**SR 112**)
- Indirect Access Roadway(s)
    - One 8-lane interstate (I-95)
    - One 6-lane turnpike (SR 821)
    - One 6-lane U.S. highway (U.S. 27)
    - One 4-lane U.S. highway (U.S. 41)
    - One 8-lane state road (SR 826)
    - Four 6-lane state roads (SR 948, SR 836, SR 9, SR 969)
    - Three 4-lane state roads (SR 968, SR 933, SR 944)

7.4.2.10 Northwest Florida Beaches International Airport

Northwest Florida Beaches International Airport is in a primarily rural area of District 3's Bay County in the Florida panhandle. Located within the boundary of the Bay County Transportation Planning Organization, the airport has direct access to SR 388 which is an SIS connector that

provides east/west connections to the airport. From the airport, SR 388 connects to SR 79 to the west and SR 77 to the east. Both SR 79 and SR 77 provide connections south to Panama City Beach and I-10 to the north.

Per the Bay County Transportation Planning Organization (TPO) *Congestion Management Process Plan*, SR 79 is currently operating at LOS B, while SR 77 is operating at LOS C. Congestion is not likely an issue within the area surrounding the airport, leading to predictable travel times to and from Northwest Florida Beaches International Airport.

Northwest Florida Beaches International Airport has rental car facilities on site, but does not have direct access to public transit or passenger rail.

The intermodal connectivity for the Northwest Florida Beaches International Airport is outlined below:

- No bus transit
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 2-lane state road (**SR 388**)
- Indirect Access Roadways
    - One 7-lane state road (SR 79)
    - One 4-lane state road (SR 77)

7.4.2.11 Orlando International Airport

Orlando International Airport is in Orange County, located southeast of the City of Orlando and east of the Disney and SeaWorld theme parks in District 5. Located within the boundary of the MetroPlan Orlando Metropolitan Planning Organization, the airport has direct access to SR 528 (Martin Andersen Beachline Expressway) and SR 436 (S Semoran Boulevard/Jeff Fuqua Boulevard). SR 436 is an SIS connector providing a direct connection to the designated SIS corridor SR 528. SR 528 connects to I-4 which provides access to tourist attractions along the southwestern side of Orlando. The airport is also well connected by I-4 and Florida's Turnpike, two heavily used SIS corridors that provide statewide transportation options.

Congestion within the Orlando area is expected, but the two direct access roadways appear to have limited congestion issues. Per the *FDOT District 5 LOS Summary Report 2015*, both SR 528 and SR 436 are operating at LOS C, indicating that the travel to and from Orlando International Airport should be consistent.

The airport currently provides access to the LYNX bus transit, Sun Rail passenger rail system, and rental car facilities. Due to the high tourist visitation of the Orlando area, many of the theme parks in the region provide additional bus transportation to and from Orlando International Airport. Theme park provided transportation options likely reduce congestion on public transportation, thereby improving the overall intermodal network serving the airport. The intermodal connectivity outline for the Orlando International Airport can be seen below:

- Access to bus transit (LYNX)

- Access to passenger rail (Sun Rail)
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 5-lane state road (**SR 528**)
    - One 4-lane state road (**SR 436**)
- Indirect Access Roadway(s)
    - One 8-lane interstate (I-4)
    - One 8-lane turnpike (SR 91)
    - One 6-lane U.S. highway (U.S. 441/92/17)
    - Three 6-lane state roads (SR 528, SR 417, SR 408)
    - Two 4-lane state roads (SR 527, SR 552)
    - One 2-lane state road (SR 15)

7.4.2.12 Orlando-Sanford International Airport

Orlando-Sanford International Airport is in Seminole County in the City of Sanford, just north of the City of Orlando and in the northern portion of the MetroPlan Orlando Metropolitan Planning Organization. District 5's Orlando-Sanford International Airport is directly connected to SR 417 via Airport Road, and the network of Red Cleveland Boulevard and E Lake Mary Boulevard which are both SIS connectors. SR 46 (E 25th Street) is just to the north of SFB and provides access to U.S. 17 (S French Avenue) to the west and the more rural areas of the county to the east. Both SR 417 and SR 46 provide access to I-4 to the west, which allows for travel into the more heavily developed Orlando area. SR 417 also allows for north/south transportation along the eastern edge of the Orlando Metro Area and provides indirect access to the University of Central Florida.

Per the *FDOT LOS Summary Report 2015*, U.S. 17 and SR 46 are currently maintaining LOS C while SR 417 has LOS B throughout the area nearby Orlando-Sanford International Airport. With LOS B and C it is likely that the area doesn't experience much congestion leading to predictable travel times to and from the airport.

Orlando-Sanford International Airport does not maintain access to local bus transit or to passenger rail facilities, although rental car facilities are on site. An outline of the intermodal options at the airport is provided below:

- No bus transit
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 6-lane state road (**SR 417**)
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-4)
    - One 4-lane U.S. highway (U.S. 17)
    - One 4-lane state road (SR 415)
    - One 2-lane state road (SR 46)

7.4.2.13 Palm Beach International Airport

Palm Beach International Airport is in Palm Beach County along the eastern coast of Florida in District 4. The airport, located within the boundary of the Palm Beach Metropolitan Planning Organization, has direct access to I-95 via the SIS connector James L Turnage Boulevard. James L Turnage Boulevard also connects with Australian Avenue which provides access to U.S. 98 (Southern Boulevard) to the south and SR 704 (Okeechobee Boulevard) to the north. Palm Beach International Airport also has access to Florida's Turnpike. In the area near the airport, the Turnpike is an SIS corridor allowing for north/south transportation options. Additionally, the airport has indirect access to U.S. 1 (S Dixie Highway) and SR 809 (N Military Trail) which both provide north/south transportation options. Palm Beach International Airport is located near both the Atlantic Ocean and the Intracoastal Waterway, which limit development east of the airport. Based on the geographic limitations of the area, many users will be traveling from either north or south of the airport.

Per the *FDOT LOS Assessment Report 2015*, SR 704 and SR 809 are primarily meeting LOS C. I-95 between U.S. 98 and James L Turnage Boulevard maintains LOS B while the sections north and south are reaching LOS C. U.S. 98 between SR 809 and Australian Avenue is LOS F while the section between Australian Avenue and I-95 is LOS C. With many of the roadways near the airport meeting the LOS standards, travel to and from Palm Beach International Airport is likely efficient due to limited congestion concerns. I-95 has a higher LOS than the many of the adjacent roadways in the area which is indicative of its use as a regional transportation option with high traffic volumes. However, U.S. 98 appears to be one of the more congested roadways adjacent to the airport which may hinder travel for airport users on this roadway.

Currently, Palm Beach International Airport has access to the local Palm Tran bus transit system and onsite car rental facilities but does not have access to passenger rail. An outline of the intermodal facilities associated with the airport follows:

- Access to bus transit (Palm Tran)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 10-lane Interstate (**I-95**)
- Indirect Access Roadway(s)
    - One 5-lane Turnpike (SR 91)
    - One 8-lane U.S. highway (U.S. 98)
    - One 4-lane U.S. highway (U.S. 1)
    - One 8-lane state road (SR 704)
    - Three 6-lane state roads (SR 807, SR 882, SR 809)
    - One 2-lane state road (SR A1A)

7.4.2.14 Pensacola International Airport

Pensacola International Airport is in Escambia County just east of the City of Pensacola near Escambia Bay in District 3. Located in the Florida-Alabama Transportation Planning Organization, the airport is Florida's most western SIS and commercial service airport. This airport is directly

connected with SR 750 (Airport Boulevard), SR 289 (N 9th Avenue), and SR 296 (Bayou Boulevard). SR 750, which is an SIS connector, and SR 296 both provide access to I-110 to the west. I-110 is a north/south SIS corridor providing access to the City of Pensacola to the South and I-10 to the north. The relatively small distance from Pensacola International Airport to I-110 and subsequently to I-10 allows for effective regional transportation to and from the airport. I-10 is North Florida's main east/west corridor beginning within Jacksonville and passing through Pensacola into Alabama. SR 750, SR 289, SR 296, and I-110 are currently functioning at LOS D, indicating potential traffic flow and congestion issues in the area around the airport.

Pensacola International Airport currently has access to the Escambia County Area Transit bus network, and has car rental facilities on site, but does not currently have access to passenger rail opportunities. An outline of the intermodal connectivity at the airport is provided below:

- Access to bus transit (Escambia County Area Transit)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - Three 4-lane state roads (**SR 750**, SR 289, SR 296)
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-110)
    - One 4-lane interstate (I-10)
    - One 4-lane U.S. highway (U.S. 29)
    - One 2-lane U.S. highway (U.S. 90)
    - One 6-lane state road (SR 291)
    - Two 4-lane U.S. highways (SR 295)

7.4.2.15 Punta Gorda Airport

Punta Gorda Airport is in Charlotte County in District 1 near the confluence of the Peace River and Charlotte Harbor. The airport is in the Charlotte County-Punta Gorda Metropolitan Planning Organization and has direct access to I-75 via Piper Road and Jones Loop Road which are designated SIS connectors. PGD is also connects with the SIS corridor U.S. 17 (Duncan Road) via I-75 and the nearby U.S. 41 (Tamiami Trail) using Jones Loop Road or Airport Road.

Per the *FDOT District 1 LOS Assessment Report*, U.S. 41 and U.S. 17 are primarily reaching LOS C, with the section of U.S. 17 east of I-75 improving to LOS B. I-75 south of Jones Loop Road maintains LOS B while the section north of Jones Loop Road reaches LOS C. With the major roadways nearby the airport having LOS B and C conditions, travel time to the airport is likely consistent. Many of the major roadways within this region are in a north/south orientation due to the large amounts of conservation land to the east which likely leads to the lower traffic volumes that contribute to passing LOS levels on the roadways adjacent to Punta Gorda Airport.

Currently Punta Gorda Airport is not served by bus transit or passenger rail, but rental car facilities are available on site. An outline of the intermodal connectivity at the airport is provided below:

- No bus transit
- No passenger rail

- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 4-lane interstate (**I-75**)
- Indirect Access Roadway(s)
    - One 5-lane U.S. highway (U.S. 17)
    - One 4-lane U.S. highway (U.S. 41)

7.4.2.16 Sarasota Bradenton International Airport

Sarasota Bradenton International Airport is located on the northern edge of Sarasota County on the border with Manatee County in District 1. Located within the boundary of the Sarasota/Manatee Metropolitan Planning Organization, the airport is closely adjacent to the Sarasota Bay and has direct connections to U.S. 41 (N Tamiami Trail) and U.S. 301 via the SIS connector University Parkway. University Parkway also connects the airport with I-75 to the east, thereby increasing the capability for regional travel for airport users. U.S. 41 and U.S. 301 run parallel to the coast allowing for north/south travel in this area and connect the Cities of Sarasota and Bradenton.

Per the *FDOT 2014 District 1 LOS Report*, U.S. 41, U.S. 301 and University Parkway are all maintaining LOS C in the area near the airport. Alternatively, I-75 is maintaining a LOS F, meaning that congestion is likely on this major roadway. Local travel to and from Sarasota Bradenton International Airport is not likely to be hindered by the LOS C roadways, but regional travel may be impacted by the failing LOS on I-75.

Access to the Sarasota County Area Transit (SCAT) bus transit and rental car facilities are available at Sarasota Bradenton International Airport, but passenger rail is not currently an option. An outline of the intermodal connectivity present at the airport follows:

- Access to bus transit (SCAT)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - Two 5-lane U.S. highways (U.S. 41, U.S. 301)
    - One 4-lane **University Parkway**
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-75)
    - One 6-lane state road (SR 780)
    - Two 4-lane state roads (SR 789, SR 70)

7.4.2.17 Southwest Florida International Airport

Southwest Florida International Airport is in Lee County in the southwestern portion of Florida in District 1, southeast of the City of Fort Myers. The airport is located within the boundary of the Lee County Metropolitan Planning Organization and has direct access to I-75 via the SIS connector Terminal Access Road and CR 876 (Daniels Parkway). Additionally, the airport has indirect access to U.S. 41 (S Tamiami Trail) as well as SR 82 (Immokalee Road). The surrounding area is generally rural in nature meaning most travelers will likely be using I-75 to travel north/south to reach Southwest Florida International Airport. Much of the development within the area is

located along the coastal area adjacent to the Gulf of Mexico; for this area, much of the traffic will likely utilize U.S. 41 to travel north/south.

Per the *FDOT 2014 District 1 LOS Report*, I-75 and U.S. 41 maintain LOS C in the area near Southwest Florida International Airport. SR 82 has LOS C north of Daniels Parkway but drops to LOS E south of the Parkway. Roadways with LOS C may experience some congestion issues but it appears that travel to and from the airport should be predictable. Congestion is more likely along the SR 82 corridor since sections are reaching LOS E.

Southwest Florida International Airport currently maintains access to the local LeeTran bus network and has onsite rental car facilities but it does not have passenger rail connections. An outline of the intermodal options found at the airport is summarized below:

- Access to bus transit (LeeTran)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 8 lane interstate (**I-75**)
    - One 7-lane county road (CR 876)
- Indirect Access Roadway(s)
    - One 6-lane U.S. highway (U.S. 41)
    - One 4-lane state road (SR 82)

7.4.2.18 St. Pete-Clearwater International Airport

St. Pete-Clearwater International Airport is located on the east edge of Pinellas County bordering Tampa Bay in District 7. The airport is within the boundary of the Forward Pinellas Metropolitan Planning Organization and is directly connected to SR 688 (Ulmerton Road) and the SIS connector SR 686 (Roosevelt Boulevard). Both SR 688 and SR 686 connect with SIS corridor U.S. 19 to the west and SIS corridor I-275 to the east. The I-275 corridor provides access into the City of Tampa to the east and to the City of St. Petersburg to the south. U.S. 19 functions as a north/south corridor that connects Pinellas County with other coastal communities.

Per the *2015 Level of Service Report*, both SR 686 and SR 688 are experiencing LOS F conditions leading to potential efficiency issues in the area near the airport. I-275 has LOS B and C conditions closest to the airport but begins to reach LOS E as it heads toward Tampa over the Howard Frankland Bridge. U.S. 19 primarily maintains an LOS of B/C in the area near St. Pete-Clearwater International Airport, but conditions reach LOS F north of SR 686 and south of SR 688. Per the TIP, both SR 686 and SR 688 have improvement projects planned which will likely increase the flow of traffic through the area and to the airport.

St. Pete-Clearwater International Airport is not currently connected with either passenger rail or bus transit, but the airport does have onsite car rental facilities. The intermodal opportunities at the airport are outlined below:

- No bus transit
- No passenger rail

- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 6-lane state road (SR 688)
    - One 4-lane state road (**SR 686**)
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-275)
    - One 6-lane U.S. highway (U.S. 19)
    - One 4-lane U.S. highway (U.S. 92)
    - One 2-lane U.S. highway (U.S. 19)
    - One 5-lane state road (SR 693)
    - Two 4-lane state roads (SR 60, SR 687)
    - One 2-lane state road (SR 590)

7.4.2.19 Tallahassee International Airport

Tallahassee International Airport is in Leon County, just southwest of the City of Tallahassee, Florida's Capital City, in District 3. The airport is located within the boundary of the Capital Region Transportation Planning Agency and has direct access to SR 263 (Capital Circle SW) which is an SIS connector that provides access to the nearby I-10 to the north. In addition to the interstate, Tallahassee International Airport also has indirect access to U.S. 90 (W Tennessee Street), U.S. 319 (Capital Circle SE), SR 20 (Blountstown Highway), and SR 371 (West Orange Avenue). U.S. 90 and SR 371 are east/west routes through the city which provide access to both sides of the Capital Circle Roadway. SR 20 is another east/west roadway which connects Tallahassee with the more rural areas along Lake Talquin to the west. U.S. 319 provides north/south access to Georgia to the north and Wakulla County to the south.

Per the *Congestion Management Process Report*, SR 263 has LOS F for the area just north of Tallahassee International Airport. Roadway widening projects within the area are anticipated to increase capacity and improve the LOS rating in this area. SR 263 is a popular commuter route into the city, meaning that the airport will likely experience congestion during the work week.

With its location just outside of SR 263, bus transit and passenger rail are not currently offered at Tallahassee International Airport. Though transit options are not available, the maintains rental car facilities on site. An outline of the intermodal options available at the airport are outlined below:

- No bus transit
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 2-lane state road (**SR 263**)
- Indirect Access Roadway(s)
    - One 6-lane interstate (I-10)
    - One 6-lane U.S. highway (U.S. 319)
    - One 4-lane U.S. highway (U.S. 90)
    - One 4-lane state road (SR 20)
    - One 2-lane state road (SR 371)

7.4.2.20 Tampa International Airport

Tampa International Airport is in Hillsborough County on the western coast of Florida, just north of the Old Tampa Bay in District 7. The airport is located within the boundary of the Hillsborough Metropolitan Planning Organization and is directly connected to two SIS corridors, SR 60 (Gulf to Bay Boulevard/Kennedy Boulevard) and I-275. Additionally, the airport also has access to SR 616 (W Spruce Street/W Boy Scout Boulevard) and SR 589 (Veteran's Expressway). Both I-275 and SR 60 provide connections from Tampa to the east with the Clearwater/St. Petersburg area to the west. SR 616 connects Tampa International Airport with SR 60 at the airport entrance and U.S. 92 (Dale Mabry Highway) to the east. Both U.S. 92 and SR 616 are north/south roadways with U.S. 92 connecting Tampa to St. Petersburg to the south, and SR 589 providing access to the counties in the north. Both SR 60 and I-275 are projected to have capacity problems by the end of the 2040 planning horizon. SR 589 just to the west of the airport will primarily be under capacity except for the area surrounding the intersection with SR 60 and Tampa International Airport. Most roadways around the airport are projected to have capacity issues leading to transportation concerns into the future.

Tampa International Airport currently provides access to the Hillsborough Area Regional Transit bus network and rental car facilities, but does not offer access to passenger rail facilities. An outline of the intermodal options present at the airport is provided below:

- Access to bus transit (Hillsborough Area Regional Transit)
- No passenger rail
- Onsite rental car facilities
- Direct Access Roadway(s)
    - One 6-lane interstate (I-275)
    - One 7-6-lane state road (SR-60)
    - One 6-lane state road (SR 616)
    - One 5-lane state road (**SR 589**)
- Indirect Access Roadway(s)
    - One 8-lane interstate (I-4)
    - Two 6-lane U.S. highways (U.S. 92, U.S. 41)
    - One 6-lane state road (SR 580)

7.5 Activity Drivers

At the state level, Florida enjoys a robust aviation industry due to a number of structural conditions and market opportunities. According to a report by the California Research Bureau, specific factors play key roles in the growth and development of aviation-related industries into certain geographic regions. Some of these factors include a skilled workforce, low labor costs, proximity to markets for inputs and outputs, available transportation infrastructure, quality of life, and favorable policies and political support.

Using this framework to evaluate the state aviation system, it is clear why Florida has emerged as a national and global leader for aviation. The state offers a gateway between the U.S. and major international markets (primarily Latin American and the Caribbean, but also Asia, Europe, and Africa), a skilled labor pool and low labor costs, a robust intra- and inter- state roadway

network, and tax incentives and regulatory conditions designed to draw high-value jobs and industries into the state, among other key factors.

However, despite this statewide strength, analyzing aviation activity on a more granular level reveals that the industry is unequally distributed across regions throughout the state, with significant differences in both the type and volume of activity that occurs. Specific regions and localized areas have emerged as focal points for particular industry segments. For example, while Florida is the primary hub for international trade between the U.S. and Latin America, over 80 percent of that trade activity occurs at Miami International Airport. Florida is also the leading provider of flight instruction in the U.S.; however, activity is primarily centralized around major metropolitan areas in the north, southeast, and central areas of the state.

Like the factors that influence the aviation industry at the statewide level, these regional differences occur due to intrastate aviation drivers that foster the development of aviation activities within specific geographic spheres. The availability of modal connectivity; tourist, environmental, and business assets; universities and other research institutions; and local demographics can shape the evolution of an airport or multiple airports in close proximity to one another. These drivers lead to markets and populations that are over- or under-served by particular operational activities, resulting in widely divergent impacts to local and regional economies, transportation connectivity, and the other benefits associated with aviation access.

One of the key drivers impacting the development of aviation-related industries is the presence of businesses and industries with a tendency to use aviation services. In addition to providing fast, flexible, and secure access between markets, airports can open the door to global commerce for small communities and rural populations by linking remote areas with customers across the world.

While many types of businesses rely on aviation services to transport employees, clients, and goods, a closer examination of industry use of aviation services reveals that certain types of business have a particularly high reliance on air transportation. Air cargo, for example, is characterized by high-value, time-sensitive shipments, such as perishables, electronics, and pharmaceuticals. Airports located near facilities that manufacture, handle, or process these types of goods have an inherent incentive to improve the landside facilities required for air transportation. Generally, the presence of industries with a tendency to use aviation services can drive airport development within a particular geographic area.

To understand how the relationship between industry and aviation services is impacting airport development in Florida, the density of industries with a tendency to use aviation services was mapped, along with airport locations across the state based on county boundaries and FDOT Districts. As shown in **Table 7-39**, 12 types of industries were selected using the 2012 North American Industry Classification System (NAICS). A short description of each code is provided following the table.

As shown, Florida supports 427,996 total establishments with a tendency to use aviation with over five million employees across the state. The professional, scientific, and technical services category hosts the highest number of establishments, while the majority of employees work in

the healthcare and social assistance or retail trade categories—likely driven by Florida's flourishing leisure- and business-travel industries, aging demographic, and growing retiree population.

Table 7-39: NAICS Industry Classifications

Code	Definition	Establishments in Florida (No.)	Employees in Florida (No.)
72	Accommodation and food services	38,278	864,029
71	Arts, entertainment, and recreation	7,929	177,762
23	Construction	46,578	332,784
52	Finance and insurance	31,025	333,710
62	Healthcare and social assistance	57,652	1,025,086
51	Information	8,010	163,694
31 – 33	Manufacturing	12,912	284,953
54	Professional, scientific, and technical services	74,102	442,746
53	Real estate and rental and leasing	32,422	156,766
44 – 45	Retail trade	73,196	1,025,788
48 – 49	Transportation and warehousing	13,862	206,761
22	Utilities	737	4,983
Total		**427,996**	**5,318,558**

Source: North American Industry Classification System (NAICS) Code, 2014

7.5.1 Accommodation and Food Service (Code 72)

Accommodation and food service encompasses all types of traveler accommodations, including hotels, motels, boarding houses, and camping facilities, as well as eating and drinking establishments. These facilities are integral to the travel industry for both business and recreational visitors.

7.5.2 Arts, Entertainment, and Recreation (Code 71)

Arts, entertainment, and recreation includes all types of sport and leisure activities, such as cultural institutions, performing arts, spectator sports, and museums and historical sites, as well as the artists, performers, and athletes who participate in such activities.

7.5.3 Construction (Code 23)

Each year, airports undertake capital improvement projects such as runway, apron, and taxiway reconstruction and rehabilitations; hangar developments; and terminal improvements. Many of

these projects are high-dollar initiatives that provide a significant boost to local economies and employment opportunities for residents. Additionally, off-airport construction projects are a positive indicator of economic growth and development and can draw business travelers both during development and after construction.

7.5.4 Finance and Insurance (Code 52)

Finance and insurance is a significant industry in Florida. This activity is driven, in part, by the state's strong international ties with Latin America, as well as intermodal that facilities the efficient movement of goods to their final destinations such as seaports and roadway networks. Business travelers and investors are drawn to the state from around the globe to access both domestic and international financial markets.

7.5.5 Healthcare and Social Assistance (Code 62)

Rural communities depend on Florida's airports to access medical facilities for both specialized and emergency medical care. This qualitative benefit is particularly important for the state's aging population. Additionally, healthcare comprises a significant portion of the state's economic base.

7.5.6 Information (Code 51)

Information encompasses a breadth of industries ranging from newspaper, periodical, book, and software publishing; to motion picture and sound recording; wireless communications; telecommunications; and other news and information outlets. These industries rely on air transportation to quickly travel to destinations in the U.S. and abroad, as well as provide services to rural locations most easily accessible by air.

7.5.7 Manufacturing (Code 31 – 33)

The manufacturing code encompasses the transformation and/or assembly of all types of raw materials, including agricultural; petroleum-, wood-, and metal-based products; and other natural and synthetic materials into usable goods ready for market. The code also provides a specific category for aerospace manufacturing. Air cargo is particularly critical for just-in-time deliveries between suppliers and manufacturers.

7.5.8 Professional, Scientific, and Technical Services (Code 54)

This code describes a wide-range of specialized services ranging from accounting, tax preparation, and business services; engineering and architecture; marketing and public relations; and scientific research. Engineers and architects support landside and airside airport improvement projects, and many other professionals are critical to the ongoing business and management of the aviation industry.

7.5.9 Real Estate and Rental and Leasing (Code 53)

Real estate and rental and leasing encompassing the business of buying, selling, and renting of properties and goods. This industry thrives in Florida, which has a substantial second home and winter visitor population. Real estate tours provide visitors with a birds-eye view of available properties with a broader perspective on surrounding communities and adjacent properties.

7.5.10 Retail Trade (Code 44 – 45)

Retail trade describes the interaction between the manufacturer or distributor with the final consumer. Airports are particularly important for the transfer of perishable goods and high-value, low-volume products, such as electronics. Additionally, the role of airports in retail trade has become increasingly important with the growth of online retail establishments such as Amazon.

7.5.11 Transportation and Warehousing (Code 48 – 49)

Transportation and warehousing includes scheduled and unscheduled air, rail, water, and roadway transportation; postal service; and the storage of goods, as well as the associated logistical support. Airports can serve as the hub of transportation networks and are integral to the movement of people and products.

7.5.12 Utilities (Code 22)

The utilities code includes the generation and transmission of electricity, distribution of natural gas, and water systems. Airports are important for the inspection of such utility systems, and they are part of an airport's critical infrastructure.

As shown in **Table 7-40**, there are 67 counties in Florida. Miami-Dade County ranks first in both number of establishments (68,913) and employees (749,681) in the industries included in this analysis. In total, Miami-Dade County supports 16 percent of the total establishments and 10 percent of the employees within the state. Conversely, Glades County hosts the lowest number of employees (207), representing 0.4 percent of the statewide total. Liberty County supports the fewest number of establishments (578), representing one percent of employees working in the industries with a tendency to use air services.

Table 7-40: Number of Establishments and Employees Working at Businesses with a Tendency to Use Air Services by County

County	Establishments (No.)	Employees (No.)
1. Alachua	4,877	74,025
2. Baker	314	3,717
3. Bay	3,757	53,926
4. Bradford	332	3,015
5. Brevard	10,872	137,177
6. Broward	48,264	521,245

County	Establishments (No.)	Employees (No.)
7. Calhoun	157	1,154
8. Charlotte	3,022	31,748
9. Citrus	2,122	20,567
10. Clay	2,944	32,771
11. Collier	8,878	97,118
12. Columbia	1,112	14,609
13. DeSoto	338	3,147
14. Dixie	133	1,006
15. Duval	19,560	336,768
16. Escambia	5,503	82,657
17. Flagler	1,547	13,963
18. Franklin	268	1,886
19. Gadsden	500	7,180
20. Gilchrist	182	1,123
21. Glades	80	257
22. Gulf	224	1,423
23. Hamilton	139	663
24. Hardee	287	3,686
25. Hendry	449	4,141
26. Hernando	2,467	26,281
27. Highlands	1,474	16,727
28. Hillsborough	28,164	437,196
29. Holmes	212	1,528
30. Indian River	3,233	34,270
31. Jackson	619	6,564
32. Jefferson	194	792
33. Lafayette	71	381
34. Lake	5,370	59,684
35. Lee	13,849	164,967
36. Leon	6,022	80,422

County	Establishments (No.)	Employees (No.)
37. Levy	552	3,849
38. Liberty	57	578
39. Madison	247	2,304
40. Manatee	6,640	74,279
41. Marion	5,573	65,702
42. Martin	4,232	43,417
43. Miami-Dade	68,913	749,681
44. Monroe	3,079	27,997
45. Nassau	1,347	13,570
46. Okaloosa	4,261	48,249
47. Okeechobee	622	5,032
48. Orange	28,128	525,934
49. Osceola	4,373	55,778
50. Palm Beach	37,012	391,365
51. Pasco	7,208	75,056
52. Pinellas	22,272	302,536
53. Polk	8,885	137,129
54. Putnam	971	10,397
55. Santa Rosa	2,060	19,174
56. Sarasota	10,656	113,275
57. Seminole	10,494	122,938
58. St. Johns	4,529	42,708
59. St. Lucie	4,126	46,910
60. Sumter	1,123	16,071
61. Suwannee	534	6,610
62. Taylor	303	3,763
63. Union	105	681
64. Volusia	9,869	114,536
65. Wakulla	335	2,261
66. Walton	1,646	16,114

County	Establishments (No.)	Employees (No.)
67. Washington	308	2,880

Source: North American Industry Classification System (NAICS) Code, 2014

As depicted in **Table 7-41**, FDOT District 4 along Florida's south Atlantic coast, has the highest number of establishments with a tendency to use aviation (96,867), representing 23 percent of the statewide total. District 5, one of the fastest growing regions in Florida, supports the highest number of employees (1,111,783), representing 21 percent of the statewide total. District 5 also hosts the highest total number of airports in the state with 21 GA and four commercial service facilities.

However, a high-level comparison of total number of airports versus establishments and employees does not reveal any broader trends. It should be noted that, while District 6 supports the fewest total number of airports (eight), Miami International Airport experiences the highest number of operations and a significant share of statewide air cargo activity (80 percent). The presence of Miami International Airport in District 6 coupled with the district's relatively small geographic size likely constrains the development of additional airports in the state's southernmost tip.

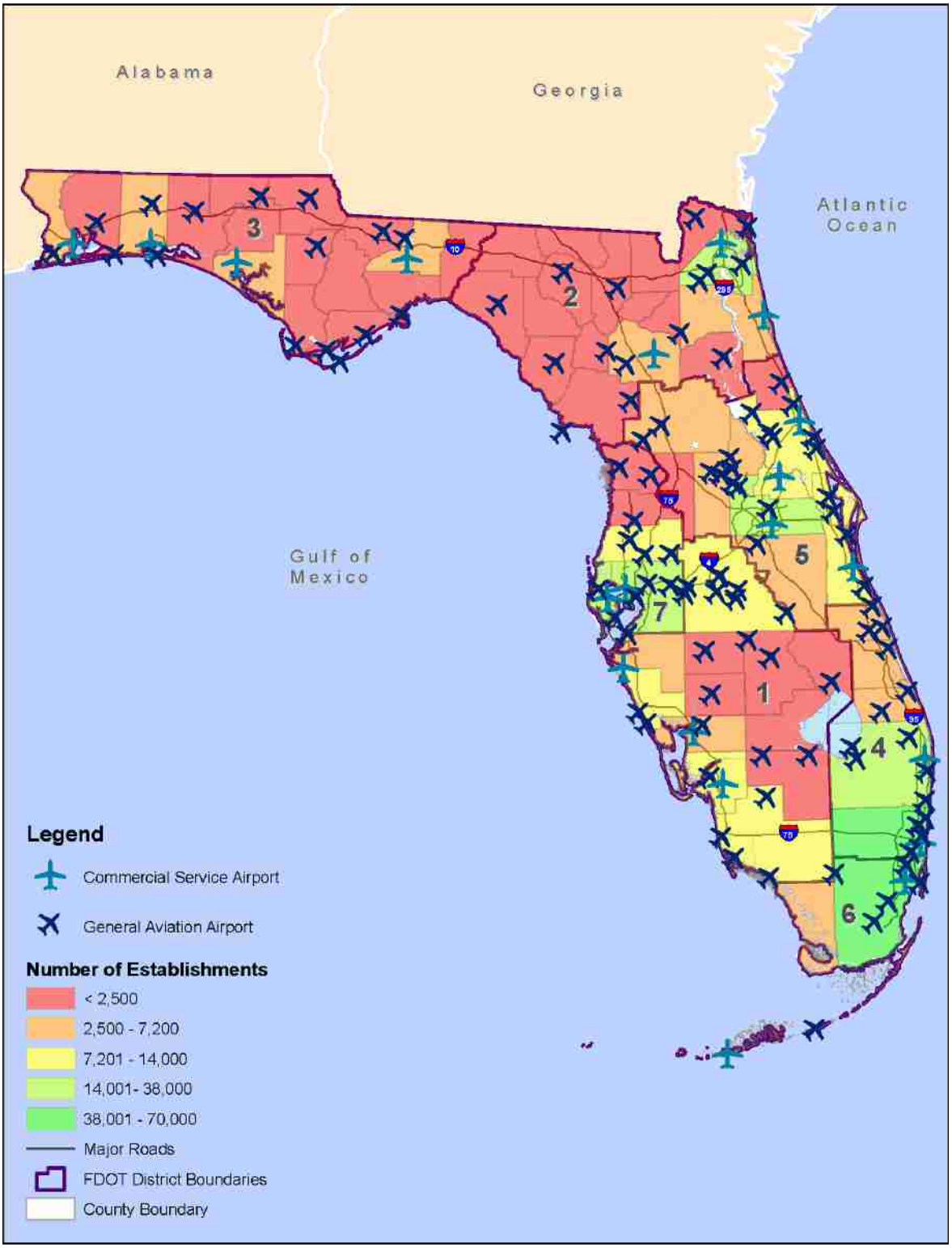
Table 7-41: Number of Establishments and Employees Working at Businesses with a Tendency to Use Air Services by FDOT District

FDOT District	Total Establishments		Total Employees		No. of Airports		
	No.	Percentage (%)	No.	Percentage (%)	Commercial	General Aviation	Total
1	55,180	13%	651,506	12%	3	24	27
2	38,252	9%	551,960	10%	3	15	18
3	26,123	6%	326,788	6%	4	16	20
4	96,867	23%	1,037,207	20%	2	15	17
5	77,349	18%	1,111,783	21%	3	22	25
6	71,992	17%	777,678	15%	2	6	8
7	62,233	15%	861,636	16%	2	11	13

Source: North American Industry Classification System (NAICS) Code, 2014; FDOT; Kimley-Horn, 2017

The density of establishments with a tendency to use aviation on a statewide level is presented in **Figure 7-56**. The highest density of these establishments is near the state's largest metropolitan area in the vicinity of Miami, spanning Districts 6 and the lower portion of District 4. Given that this region is the most densely populated area and home to numerous major corporations, this density of airports is not surprising.

Figure 7-56: Density of Establishments with Tendency to Use Aviation and Public-Use Airports



Source: U.S. Census and the American Community Survey (ACS); Kimley-Horn Analysis

Table 7-42 includes the public-use airports associated with a high-density of establishments associated with businesses with a tendency to use aviation services. Please note these airports were identified on a statewide level based on geographic proximity to businesses with a tendency to use aviation services. A micro-level analysis of actual aviation-related businesses and/or activity at individual airports was not conducted for the FASP 2035.

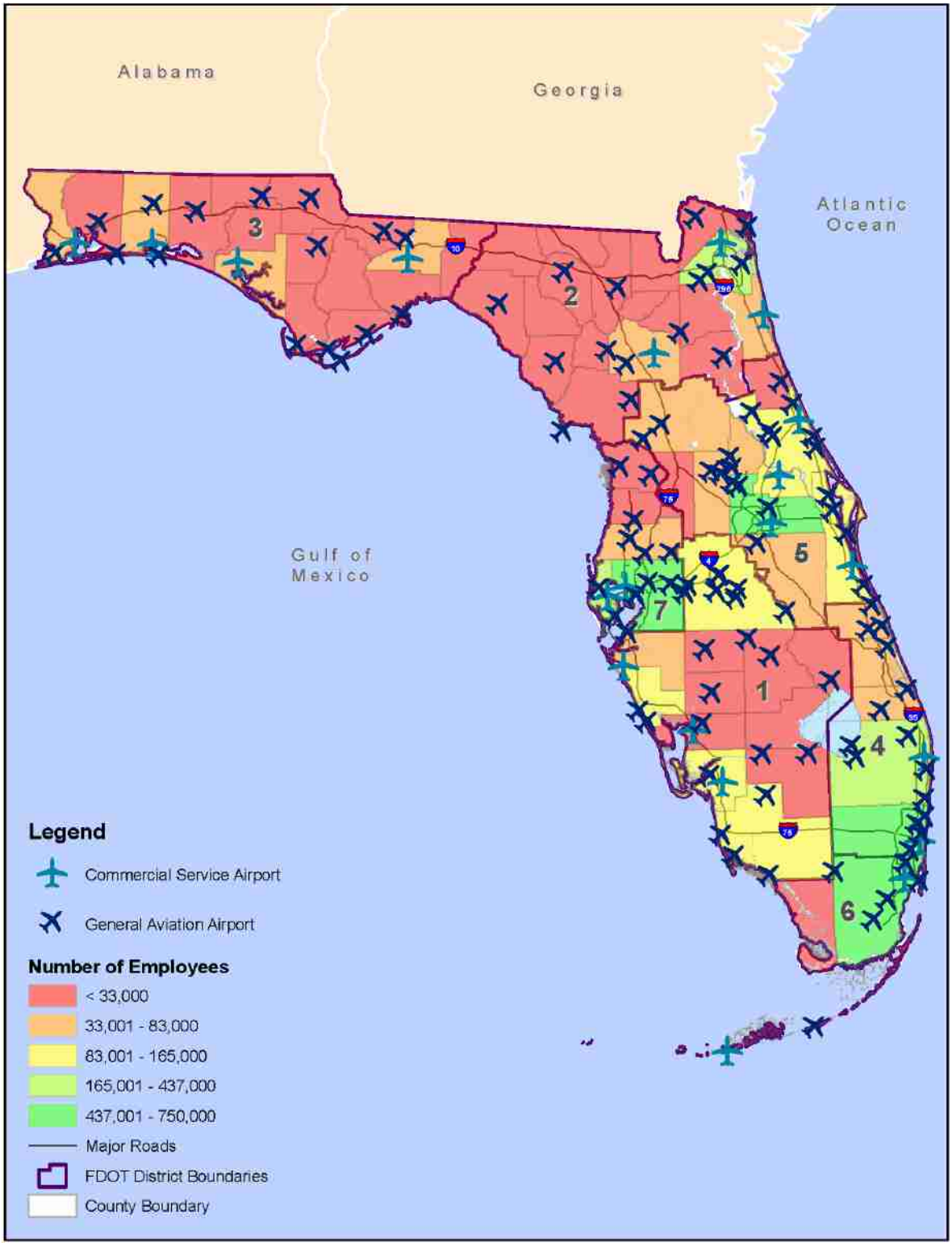
Table 7-42: Airports Associated with a High-Density of Business Establishments

FDOT District	Airport	FAA ID	County
6	Dade-Collier Training and Transition Airport	TNT	Miami-Dade
	Miami Executive Airport	TMB	Miami-Dade
	Miami Homestead General Aviation Airport	X51	Miami-Dade
	Miami International Airport	MIA	Miami-Dade
	Miami Seaplane Base	X44	Miami-Dade
	Miami-Opa Locka Executive Airport	OPF	Miami-Dade
4	Downtown Fort Lauderdale Helistop	DT1	Broward
	Fort Lauderdale Executive Airport	FXE	Broward
	Fort Lauderdale-Hollywood International Airport	FLL	Broward
	North Perry Airport	HWO	Broward
	Pompano Beach Airpark	PMP	Broward

Source: Kimley-Horn, 2017

As depicted in **Figure 7-57,** workers at those establishments are concentrated in District 6, the southern portion of District 4, and within a small pocket within District 5. Mirroring the results of the analysis of establishment density, each of these areas is located in the immediate vicinity of a major metropolitan area providing extensive intermodal connectivity. The area within District 5 serves the Orlando area along the I-4 corridor. While this area does not provide the highest concentration of business establishments (see Figure 7-56), it supports the second highest density of establishments. Thus, while the total number of establishments is less, the businesses in District 5 support a higher number of employees per location.

Figure 7-57: Density of Employees at Businesses with Tendency to Use Aviation and Public-Use Airports



Source: U.S. Census and the American Community Survey (ACS); Kimley-Horn Analysis

Table 7-43 lists the airports located in the areas that support a high-density of employees at businesses with a tendency to use aviation services. As noted above, these airports were identified on a statewide level based on geographic proximity to businesses with a tendency to use aviation services. A micro-level analysis of actual aviation-related businesses and/or activity at individual airports was not conducted for the FASP 2035.

Table 7-43: Airports Associated with a High-Density of Employees Working at Businesses with a Tendency to Use Aviation Services

FDOT District	Airport	FAA ID	County
4	Downtown Fort Lauderdale Helistop	DT1	Broward
	Fort Lauderdale-Hollywood International Airport	FLL	Broward
	Fort Lauderdale Executive Airport	FXE	Broward
	North Perry Airport	HWO	Broward
	Pompano Beach Airpark	PMP	Broward
5	Bob White Field	X61	Orange
	Executive Airport	ORL	Orange
	Orlando Apopka Airport	X04	Orange
	Orlando International Airport	MCO	Orange
6	Dade-Collier Training and Transition Airport	TNT	Miami-Dade
	Miami Executive Airport	TMB	Miami-Dade
	Miami Homestead General Aviation Airport	X51	Miami-Dade
	Miami International Airport	MIA	Miami-Dade
	Miami Seaplane Base	X44	Miami-Dade
	Miami-Opa Locka Executive Airport	OPF	Miami-Dade
7	Peter O Knight Airport	TPF	Hillsborough
	Plant City Airport	PCM	Hillsborough
	Tampa Executive Airport	VDF	Hillsborough
	Tampa International Airport	TPA	Hillsborough

Source: Kimley-Horn, 2017

The two analyses presented above assessed the density of total establishments with a tendency to use aviation services and their employees. While this type of analysis is helpful in identifying areas of high economic output potentially reliant on airports, it does not provide a nuanced assessment of how aviation is impacting regional or local economies. For example, an area with a high total employed population will likely have more employees working at such establishments as a matter of volume. However, businesses with a tendency to use aviation

services may be relatively insignificant when considered within the broader economic context of the area. As such, an assessment of total numbers of establishments and employees can distort the perceived importance of aviation in local and regional economies.

To provide a more refined level of analysis, an assessment of total employment at businesses with a tendency to use aviation services as a percentage of the total employed population was conducted. This more detailed analysis provides valuable insight into those areas that are particularly reliant on aviation for the overall economic health of the community or region.

As shown in **Table 7-44**, there are 67 counties in Florida. Orange County hosts the highest percentage of employees working at establishments with the tendency to use aviation services, with 525,934 aviation-related employees out of a total workforce of 583,518 (90 percent). Glades County hosts the lowest percentage of the employed population working at businesses with a tendency to use aviation services (6.6 percent). Miami-Dade County ranks first in both number of employees working at a business with a tendency to use aviation services (749,681) and total employed population (1,168,193). However, Miami-Dade County ranks 18th in the state by percentage of working population at a business with the tendency to use aviation services (64.2 percent).

Table 7-44: Percentage of Employed Population Working at a Business with the Tendency to Use Air Services by County

County	Employees Working at Businesses with a Tendency to Use Air Services (No.)	Total Employed Population (No.)	Percentage of Employed Population Working at Businesses with a Tendency to Use Air Services (%)
1. Alachua	74,025	114,598	64.6%
2. Baker	3,717	10,040	37.0%
3. Bay	53,926	76,325	70.7%
4. Bradford	3,015	9,094	33.2%
5. Brevard	137,177	226,651	60.5%
6. Broward	521,245	868,504	60.0%
7. Calhoun	1,154	4,590	25.1%
8. Charlotte	31,748	54,955	57.8%
9. Citrus	20,567	43,804	47.0%
10. Clay	32,771	84,412	38.8%
11. Collier	97,118	135,870	71.5%
12. Columbia	14,609	24,543	59.5%
13. DeSoto	3,147	12,240	25.7%

County	Employees Working at Businesses with a Tendency to Use Air Services (No.)	Total Employed Population (No.)	Percentage of Employed Population Working at Businesses with a Tendency to Use Air Services (%)
14. Dixie	1,006	5,179	19.4%
15. Duval	336,768	399,840	84.2%
16. Escambia	82,657	126,728	65.2%
17. Flagler	13,963	35,011	39.9%
18. Franklin	1,886	4,188	45.0%
19. Gadsden	7,180	16,631	43.2%
20. Gilchrist	1,123	5,994	18.7%
21. Glades	257	3,888	6.6%
22. Gulf	1,423	5,583	25.5%
23. Hamilton	663	4,093	16.2%
24. Hardee	3,686	9,281	39.7%
25. Hendry	4,141	14,143	29.3%
26. Hernando	26,281	56,925	46.2%
27. Highlands	16,727	30,510	54.8%
28. Hillsborough	437,196	592,676	73.8%
29. Holmes	1,528	6,244	24.5%
30. Indian River	34,270	52,728	65.0%
31. Jackson	6,564	15,744	41.7%
32. Jefferson	792	5,096	15.5%
33. Lafayette	381	3,024	12.6%
34. Lake	59,684	119,383	50.0%
35. Lee	164,967	253,965	65.0%
36. Leon	80,422	136,982	58.7%
37. Levy	3,849	13,800	27.9%
38. Liberty	578	2,715	21.3%
39. Madison	2,304	6,196	37.2%
40. Manatee	74,279	137,078	54.2%
41. Marion	65,702	116,650	56.3%

County	Employees Working at Businesses with a Tendency to Use Air Services (No.)	Total Employed Population (No.)	Percentage of Employed Population Working at Businesses with a Tendency to Use Air Services (%)
42. Martin	43,417	59,954	72.4%
43. Miami-Dade	749,681	1,168,193	64.2%
44. Monroe	27,997	37,245	75.2%
45. Nassau	13,570	31,488	43.1%
46. Okaloosa	48,249	83,880	57.5%
47. Okeechobee	5,032	13,271	37.9%
48. Orange	525,934	583,518	90.1%
49. Osceola	55,778	125,752	44.4%
50. Palm Beach	391,365	601,892	65.0%
51. Pasco	75,056	183,249	41.0%
52. Pinellas	302,536	416,128	72.7%
53. Polk	137,129	241,665	56.7%
54. Putnam	10,397	24,596	42.3%
55. Santa Rosa	19,174	65,991	29.1%
56. Sarasota	113,275	151,924	74.6%
57. Seminole	122,938	205,734	59.8%
58. St. Johns	42,708	93,903	45.5%
59. St. Lucie	46,910	110,660	42.4%
60. Sumter	16,071	21,858	73.5%
61. Suwannee	6,610	15,673	42.2%
62. Taylor	3,763	7,297	51.6%
63. Union	681	4,274	15.9%
64. Volusia	114,536	195,556	58.6%
65. Wakulla	2,261	12,916	17.5%
66. Walton	16,114	24,815	64.9%
67. Washington	2,880	8,451	34.1%

Source: North American Industry Classification System (NAICS) Code, 2014; American FactFinder, 2017

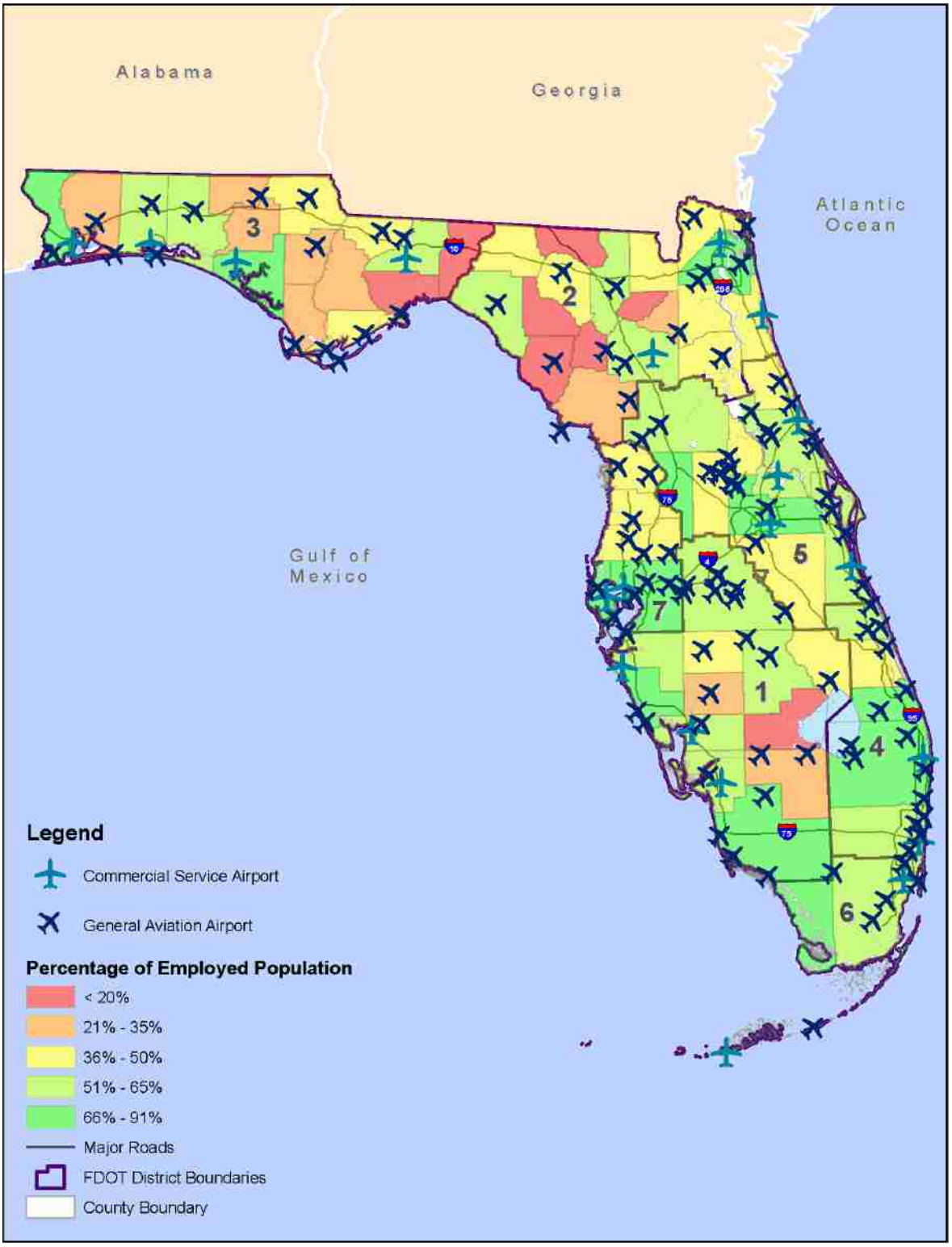
Figure 7-58 presents the density of employees at businesses with a tendency to use aviation as a percentage of the total working population.

While there is some overlap with areas with a high number of total establishments and employees, this analysis reveals several distinct pockets of activity where aviation is particularly impactful to local economies. The most notable differences between the first two analyses, which examined the total density of establishments and their employees (as presented in Figure 7-56 and Figure 7-57, respectively) and this analysis (as presented in Figure 7-58) are found in southern District 1 and western District 3. These districts both experience some of the lowest concentrations of establishments and employees working at businesses with a tendency to use aviation, but highest concentrations of employees as a percentage of the total working population.

This concentration of workers is predictable in District 3, as the area is home to Eglin Air Force Base, Tyndall Air Force Base, and several other major military installations. This federal presence has drawn some of the world's largest aerospace, aviation, and defense contractors to the Florida Panhandle, bringing job opportunities for the specialized professionals who work in these fields. District 1's economy is continuing to rebound from the most recent economic recession and has benefitted from recent population growth catalyzed by new residents moving northward along the coast. As a result, industries such as construction, real estate and leasing, professional services, and finance and insurance are likely experiencing a surge of activity. District 4 along the Gulf Coast is undergoing a similar period of economic growth and diversification.

Other areas with a high percentage of the working population at a business with the tendency to use aviation include southern District 7, central District 5, and eastern District 2. In each case, the workforce density is centered upon a major urban center (Tampa, Orlando, and Jacksonville, respectively). There is also a notable pocket of activity in western District 5 along the I-75 corridor in Sumter County. While this area does not host an airport, a relatively dense concentration of airports is located in Lake County to the east, as well as several facilities in Marion County to the north and Citrus, Hernando, and Pasco counties to the west.

Figure 7-58: Density of Employees at Businesses with Tendency to Use Aviation as a Percentage of Total Working Population



Source: U.S. Census and the American Community Survey (ACS); Kimley-Horn Analysis

Table 7-45 lists the airports located in the areas that support a high-density of employees at businesses with a tendency to use aviation services as a percentage of the total employed workforce.

Table 7-45: Airports Associated with a High-Density of Employees as a Percentage of the Employable Population at Businesses with a Tendency to Use Aviation Services

FDOT District	Airport	FAA ID	County
1	Airport Manatee	48X	Manatee
	Buchan Airport	X36	Sarasota
	Everglades Airpark	X01	Collier
	Immokalee Regional Airport	IMM	Collier
	Marco Island Airport	MKY	Collier
	Naples Municipal Airport	APF	Collier
	Sarasota Bradenton International Airport	SRQ	Sarasota
	Venice Municipal Airport	VNC	Sarasota
2	Cecil Airport	VQQ	Durval
	Herlong Recreational Airport	HEG	Duval
	Jacksonville Executive at Craig Airport	CRG	Duval
	Jacksonville International Airport	JAX	Duval
3	Ferguson Airport	82J	Escambia
	Northwest Florida Beaches International Airport	ECP	Bay
	Pensacola International Airport	PNS	Escambia
4	Belle Glade State Municipal Airport	X10	Palm Beach
	Boca Raton Airport	BCT	Palm Beach
	Indiantown Airport	X58	Martin
	North Palm Beach County General Aviation Airport	F45	Palm Beach
	Palm Beach County Glades Airport	PHK	Palm Beach
	Palm Beach International Airport	PBI	Balm Beach
	Palm Beach County Park Airport	LNA	Palm Beach
	Witham Field	SUA	Martin
5	Bob White Field	X61	Orange
	Executive Airport	ORL	Orange

FDOT District	Airport	FAA ID	County
	Orlando Apopka Airport	X04	Orange
	Orlando International Airport	MCO	Orange
	Albert Whitted Airport	SPG	Pinellas
7	Clearwater Airpark	CLW	Pinellas
	Peter O Knight Airport	TPF	Hillsborough
	Plant City Airport	PCM	Hillsborough
	St. Pete-Clearwater International Airport	PIE	Pinellas
	Tampa Executive Airport	VDF	Hillsborough
	Tampa International Airport	TPA	Hillsborough

Source: Kimley-Horn, 2017

7.6 Summary

A number of different types of analyses were conducted during the FASP 2035 to gauge the success of the system in meeting the needs of users and stakeholders. A review of system performance in meeting system goals, objectives, PMs, and PIs identifies areas of focus for future system enhancement. Mapping the availability of services and facilities throughout the state within a 30-minute drive time (or 30 nautical mile distance) identifies potential gaps in existing and projected population coverage within these boundaries. Recognizing and identifying the drivers of aviation activity across the state, especially as it relates to attraction and retention of industries is important for continued aviation activity diversity across the state. Finally, a review of existing airport connections to other modes of transportation highlights areas that would benefit from enhanced intermodal connectivity. The findings of these four analyses help inform the recommendations included in **Chapter 10 – Recommendations**.

8 Alternative Scenarios

8.1 Introduction

This Chapter provides a planning-level analysis of issues that may present themselves in the future and how those issues might affect Florida's airport system. Planning for alternative scenarios provides an opportunity for preemptive strategies to be in place should significant changes occur to the state's aviation system. This exercise is conducted for all modes of transportation in the Florida Transportation Plan (FTP) by exploring potential futures impacting transportation as a whole. The FTP Vision Element presents several "what if" scenarios, paired with "could we" solutions. This same concept is carried forward in this alternative scenario analysis.

Several potential impacts to the system were reviewed with the stakeholder groups (see **Chapter 2 – Florida's Aviation History and Identification of Current Issues** and **Appendix A – Stakeholder Outreach**) to identify those expected to have the greatest potential impact on Florida's aviation system. These topics included:

- Aging population
- Autonomous vehicles (on the ground and in the air)
- Competition for space operations
- Customs and immigration
- Electric/alternative fuels
- Stability of oil prices
- Opening of the Cuba market
- Terror threats
- Regulatory stability (federal and state)
- Reliance on tourism
- Resiliency
- Availability of a trained technical workforce
- Sustainability

While it is possible that each of these issues may impact the system in some way, stakeholders identified three major concepts as those for analysis: stability of oil prices, resiliency, and reliance on tourism. It is interesting to note that the effects of these can overlap.

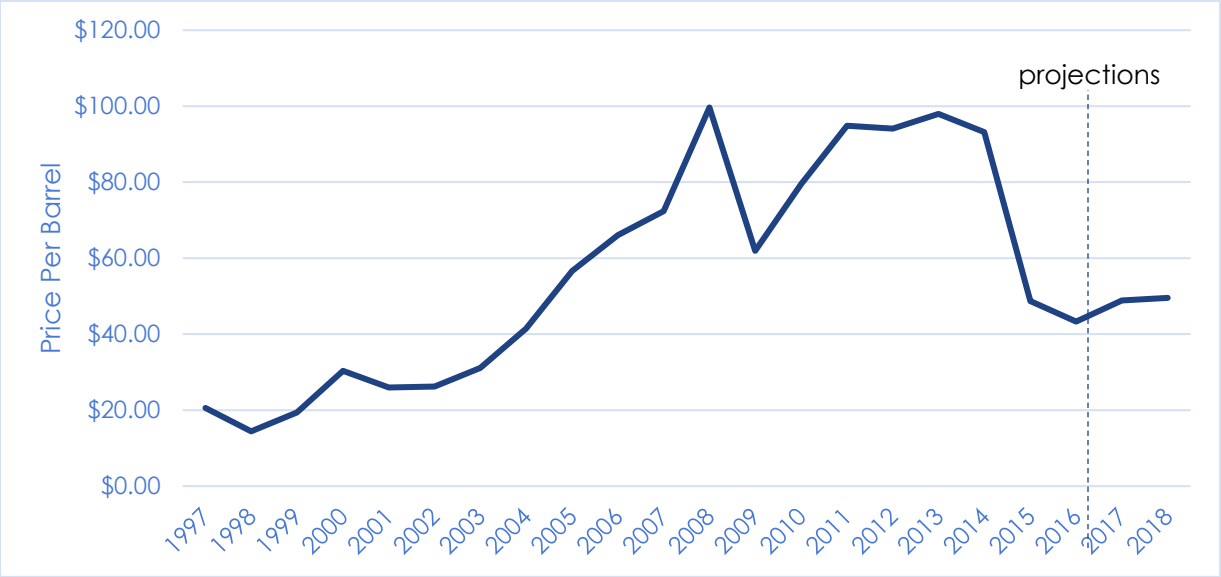
The following evaluates each of these alternative scenarios and their potential impacts on the Florida aviation system.

8.2 Stability of Oil Prices

The price of oil affects all components of the aviation industry, as it is the largest operating expense for aircraft operators. Fluctuations in the oil and gas industry impact commercial service, cargo, and general aviation (GA) operations. Over the past 20 years, the price of oil per

barrel has swung significantly from a low in 1997 of $20.59/barrel to a high of $99.67/barrel in 2008, right before the economic downturn. Since 2008, oil prices have fluctuated but remained high until 2014 when prices dropped below the $50/barrel mark, shown in **Table 8-1**. The *Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037* projects the price of oil to rise from around $39/barrel in 2016 to $47 in 2017, and projects a continued rise thereafter to exceed $100 by 2026 and approach $132 by the end of the 20-year forecast period.

Figure 8-1: West Texas Intermediate Crude Oil Price



Source: Short-Term Energy Outlook – U.S. Energy Information Administration

Changes in oil prices can have several impacts on Florida's aviation system, as outlined below by type of operation.

8.2.1 Commercial Service Impacts

As a major cost for airlines, changes in oil prices result in changes in operating costs. To protect themselves against unknown or unexpected spikes in oil prices, many airlines hedge oil prices on at least a portion of their fuel volume. This concept works well for airlines when spikes in oil prices occur as they are paying a consistent price for oil, saving the airlines significant amounts of money compared to other airlines that do not hedge and are forced to pay the higher oil prices. However, when fuel prices drop significantly as they did between 2014 and 2016, airlines that utilized hedging suffered significant losses as the market price of oil dropped far below their hedging price, resulting in a missed opportunity to save on operating costs.

Airlines are employing other cost-saving measures to protect against spikes in fuel price. For example, Delta Air Lines purchased an oil refinery near Philadelphia in 2012 to help offset the risk of higher jet fuel prices. Purchased for $150 million, with an additional $100 million in refurbishments, the cost of acquisition is roughly the cost of a new wide-body plane. Delta estimated they would reduce their annual fuel expense by $300 million once the refinery was in

operation.[1] After significant losses in the first years of operation, the refinery had profitable years in 2014 and 2015, offsetting some of the initial losses.[2] However, industry factors continue to play a large role in the profitability of the refinery, such as the volatile price of crude oil. While the refinery offers Delta control over refining margins, it does not control the price of crude oil which is the largest factor in jet fuel price.

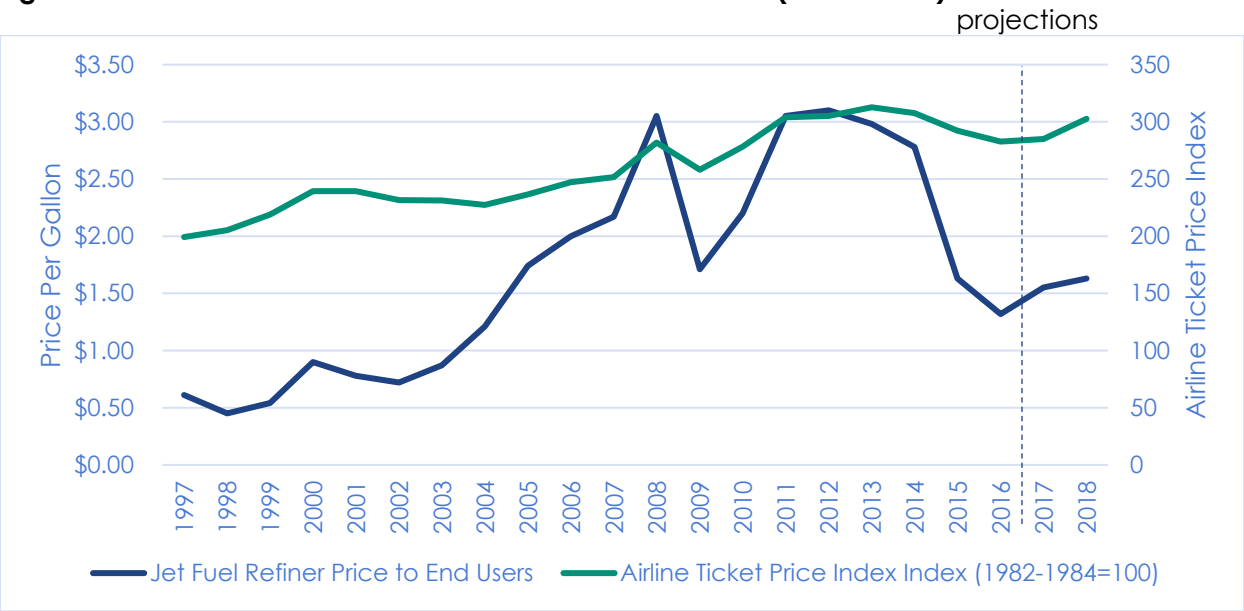
Fluctuations in operating costs can be realized in several connected ways as outlined below.

8.2.1.1 Ticket Prices

The price pattern of jet fuel shown in **Figure 8-2** closely mimics the price trends of oil shown in **Figure 8-1**. When jet fuel prices increase, airlines try to offset some of the increased operational costs by raising airfare prices or implementing amenity fees (seat selection, checked baggage, early check-in, etc.) for the consumer. While not as volatile as the changes in oil and jet fuel prices, there are noticeable fluctuations in airline ticket prices shown in Figure 8-2 that follow the changing fuel price pattern. Alternatively, when fuel prices drop, consumers may or may not reap the benefits. Recent history has shown some airlines pocket their savings and re-invest into their companies, while others have decreased their ticket prices, spurring additional business and expansion of low-cost carriers (LCCs) and ultra-low-cost carriers (ULCCs), such as Southwest Airlines, Frontier Airlines, and Spirit Airlines.[3] A combination of LCCs and ULCCs serve 16 of Florida's commercial service airports, providing an opportunity for continued lower airfares to and from Florida, especially when oil prices are low.[4] However, although LCCs and ULCCs typically provide cheaper airfare, they are not immune to fluctuations in oil prices and changing operating costs can threaten their long term viability. These carriers comprise a large percentage of the total air service provided in the state and as such, their continued success directly impacts the success of Florida's commercial service airports. While the price of oil is a factor in the cost of airfare, it is important to note that ultimately the price is driven more by demand.

[1] http://www.nytimes.com/2012/05/01/business/delta-air-lines-to-buy-refinery.html?mcubz=1
[2] https://www.fool.com/investing/general/2015/08/27/deltas-refinery-bet-is-finally-paying-off.aspx
[3] http://www.businessinsider.com/cheap-oil-is-having-an-impact-on-air-travel-2015-8
[4] https://www.southwest.com/flight/routemap_dyn.html
https://www.spirit.com/RouteMaps.aspx
https://www.flyfrontier.com/plan-and-book/route-map/

Figure 8-2: Jet Fuel Refiner Price vs. Airline Ticket Price Index (1997 – 2018)



Source: Short-Term Energy Outlook – U.S. Energy Information Administration

8.2.1.2 Airline Capacity

Generally, when oil prices drop, airlines' profits increase (unless they have hedged oil at a higher price) and they may reduce airfares. When airfare rates are reduced, it can spur an increase in air travel demand and put pressure on airlines to increase capacity by increasing the size of their fleet or the number of operations. While an expansion serves airlines well during times when oil prices are low, they risk an expansion backfiring on them when oil prices recover to their higher prices and their profits are lower.[5] The demand for travel to Florida is high, as the state attracts nearly 115 million visitors a year.[6] If airlines increase capacity in areas with high demand, it is possible that the state may benefit from increased tourism and associated economic impacts. Alternatively, if airlines decrease capacity to counter high oil prices, it is possible that routes and frequencies will be reduced, resulting in increased ground-based travel as opposed to air travel.

What if airlines want to decrease capacity and routes to Florida communities due to increases in oil prices?

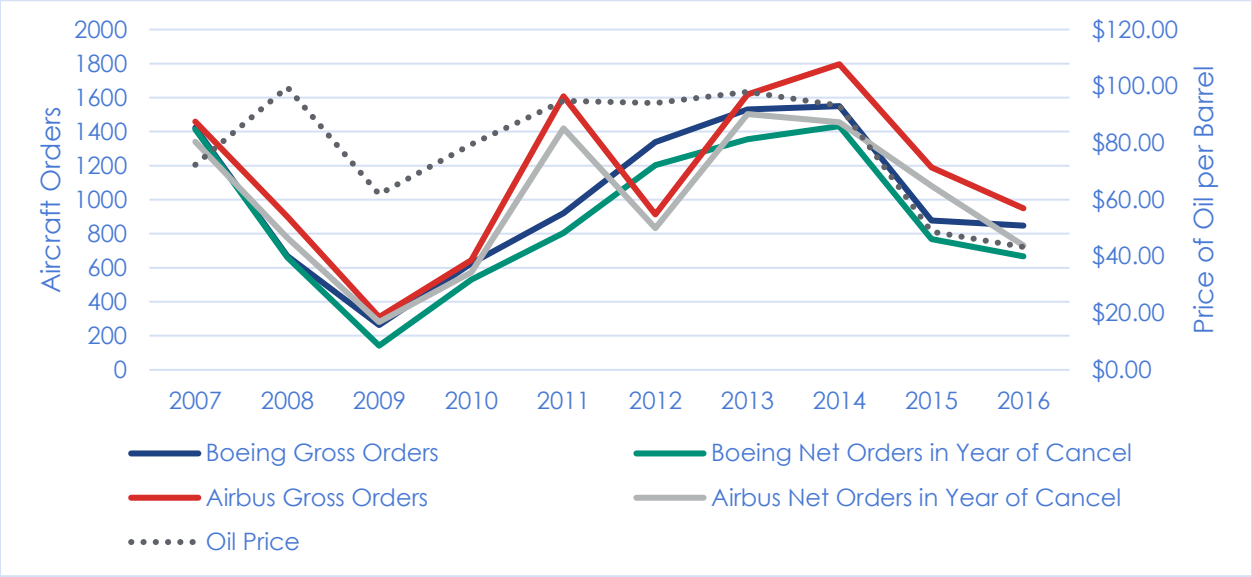
Could we support services at airports that reach the majority of Florida's population?

[5] https://www.macquarie.com/id/corporate/expertise/related/china-drives-raw-materials/jet-fuel-price-risk/
[6] https://www.visitflorida.org/resources/research/

8.2.1.3 Changing Airline Fleet

Airlines have placed an emphasis on the replacement of older, less fuel-efficient aircraft with new fuel-efficient aircraft to reduce operating costs over time. This objective is strengthened when oil prices are high and are expected to continue rising. However, when the price of oil plummeted in 2014, some airlines placed holds or cancelled some of their orders with aircraft manufacturers, as it was cheaper for them to continue to operate their older model aircraft (see **Figure 8-3**). Even still, oil prices are bound to rise again and airlines are preparing for that scenario by strategizing the replacement of their older aircraft and growing their fleet in general, despite fluctuations in oil prices.[7] Total 2017 orders for airline manufacturers Airbus and Boeing are not available as of the time of this writing, but will likely show an uptick in total orders. Across the United States (U.S.) travelers will likely see newer aircraft slowly continue to enter the rotation.

Figure 8-3: Airbus and Boeing Orders 2007 – 2016 vs. Oil Price



Source: Short-Term Energy Outlook – U.S. Energy Information Administration; http://www.aircraft.airbus.com/market/orders-deliveries; http://www.boeing.com/commercial/#/orders-deliveries

8.2.2 GA Impacts

While the commercial service market has certainly seen its fair share of changes in response to varying oil prices, the aviation market sector hit the hardest when oil prices rise is the GA community. Much of the GA sector is composed of business users who fly for business purposes and recreational users who fly for enjoyment. When oil prices rise, aircraft fuel prices rise and using business aircraft may no longer be economical. For recreational flyers, the hobby becomes drastically more expensive. The plummet in oil prices beginning in 2014 benefited GA

[7] http://aviationweek.com/commercial-aviation/drop-oil-prices-means-airline-profitability-boost-now

users as their cost of operation was reduced, which spurred additional activity; however, with prices on the uptick, forecasted growth in GA activity is conservative.

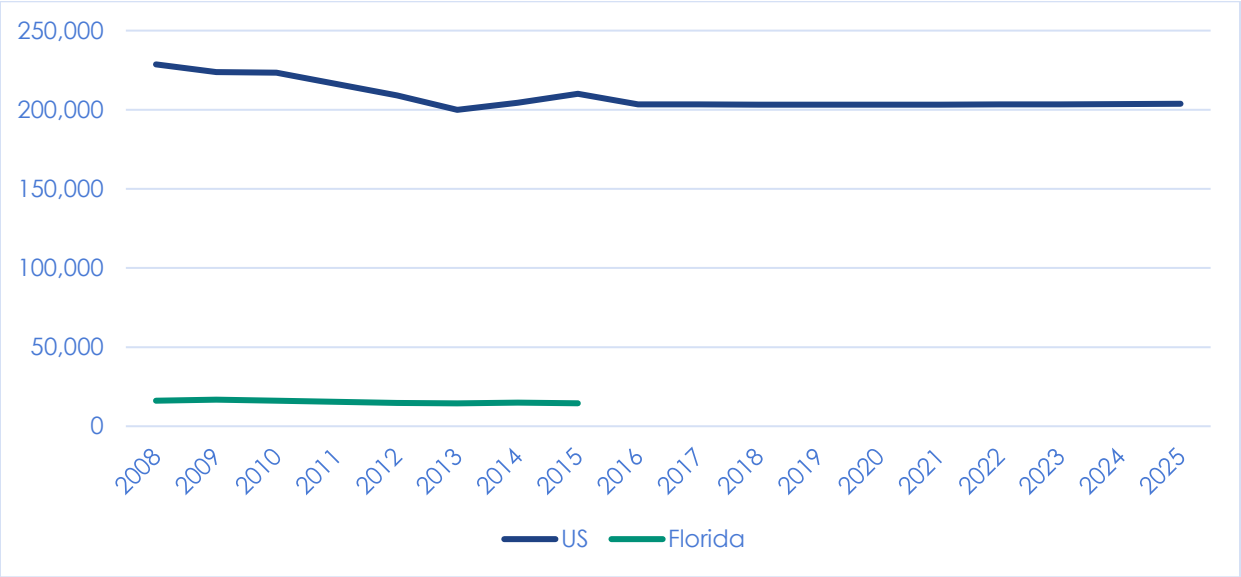
The General Aviation Manufacturers Association's (GAMA's) *2016 Generation Aviation Statistical Databook & 2017 Industry Outlook* provides historical and forecasted GA activity in terms of active aircraft and hours flown. Table 8-1 includes the historical number of active aircraft and hours flown in the U.S. overall and in Florida, specifically. A decrease can be seen in both metrics in the 2008 – 2013 timeframe, with an uptick in both in 2014, likely a result of the drop in oil price. Long-term forecasts are showing a decrease in active aircraft and hours flown beginning in 2016 with a slow rebound through the report's forecast period. **Figure 8-4** and **Figure 8-5** illustrate the changes over time.

Table 8-1: Historical and Forecasted GA Activity from GAMA

Year	Active Aircraft		Hours Flown	
	U.S.	***Florida***	***U.S.***	***Florida***
2008	228,663	16,143	26,009,000	2,382,000
2009	223,877	16,804	23,763,000	2,047,000
2010	223,370	16,126	24,802,000	1,839,000
2012	209,034	14,754	24,403,000	1,958,000
2013	199,927	14,450	22,876,000	1,868,000
2014	204,408	15,028	23,271,000	2,052,000
2015	210,030	14,543	24,142,000	2,034,000
2016	203,425	*	23,300,000	*
2017	203,300	*	23,490,000	*
2018	203,200	*	23,714,000	*
2019	203,185	*	23,956,000	*
2020	203,195	*	24,201,000	*
2021	203,225	*	24,461,000	*
2022	203,340	*	24,708,000	*
2023	203,365	*	24,960,000	*
2024	203,555	*	25,223,000	*
2025	203,745	*	25,513,000	*

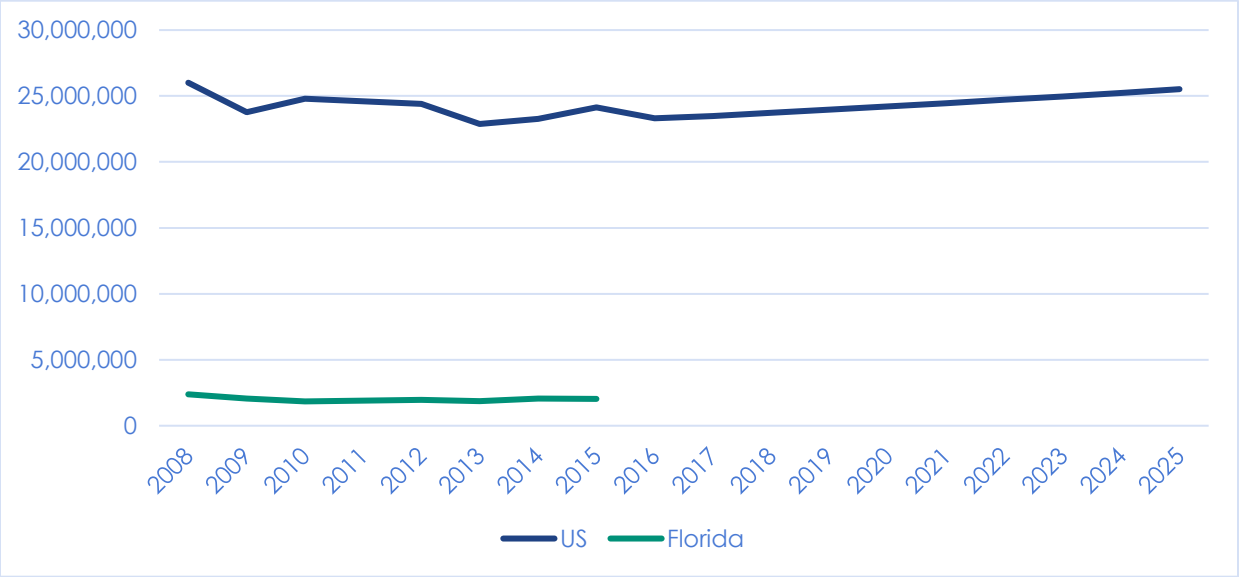
Source: GAMA 2016 General Aviation Statistical Databook & 2017 Industry Outlook
**forecast data not available*

Figure 8-4: Active Aircraft in the U.S. and Florida 2008 – 2025*



Source: GAMA 2016 General Aviation Statistical Databook & 2017 Industry Outlook
**forecast data for Florida not available*

Figure 8-5: Hours Flown in the U.S. and Florida 2008 – 2025*

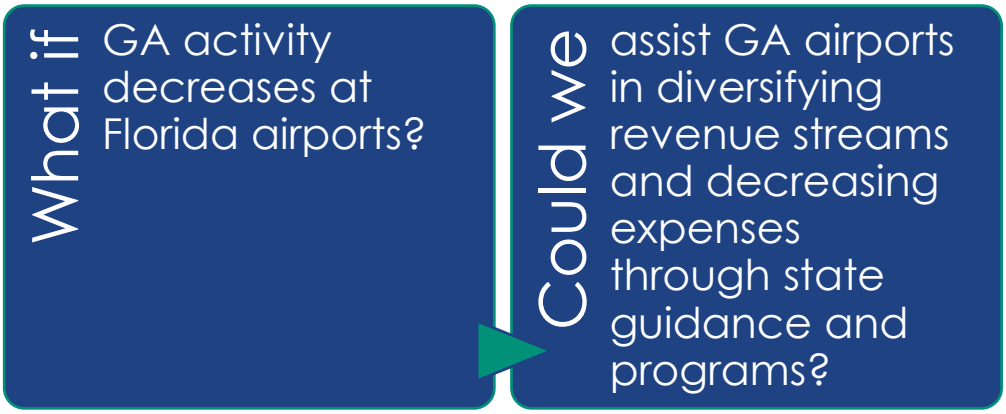


Source: GAMA 2016 General Aviation Statistical Databook & 2017 Industry Outlook
**forecast data for Florida not available*

The *FAA Aerospace Forecast 2017 – 2037* also projects an overall increase in GA hours flown through 2037 (by 0.9% per year) despite the projected oil price increase to $137/barrel at the end of the forecast period. It is important to note that should oil prices rise to a point of discouraging GA activity, it not only will stall activity by current pilots, but also may become a barrier to entry for new pilots and aviation enthusiasts which may further exacerbate the

shortage in pilots, mechanics, and other aviation professionals that are needed to sustain the aviation industry.

In addition to the potential impacts on GA operations, changes in GA aircraft in response to oil price fluctuation can pose a challenge to airport owners and fixed base operators (FBOs) that may see a reduction in fuel sales resulting from newer, more fuel-efficient engines. Since fuel sales often compose a large portion of an airport's revenue stream, a reduction in fuel consumption has the potential to negatively affect airport business. Airports in Florida should consider other potential changes in aircraft technology (such as electric engines) and alternative fuels (such as unleaded aviation gasoline [avgas]) that will require new or retrofitted fueling/charging facilities and policies to keep airports sustainable. The state must also prepare for these advancements, especially as they pertain to its Aviation Grant Program and the State Transportation Trust Fund, which are both funded through fuel taxes.



8.3 Resiliency

The capacity and ability to bounce back or recover during challenging times is a quality that is necessary for long term sustainability. While Florida's airports have played a role in the resiliency of communities, they also face challenges in the form of industry changes that impact their long-term sustainability. Each of these concepts is discussed in greater detail in the following sections.

8.3.1 Community Resiliency

Airports serve many functions, some of which may not be readily recognized by local communities. While highways and road networks are said to be the backbone of our nation's infrastructure network, airports provide access that may not be possible by ground transit. For example, airports are essential for air ambulance and medical transport, emergency response, aerial firefighting, disaster relief, search and rescue, and more. When conditions arise that require quick access, Florida's aviation system provides it. Florida's airports have been critical in the emergency response before and after disasters strike, most recently with Hurricane Irma in 2017 (**Figure 8-6**) and Hurricane Matthew in 2016. Even when air transport is not needed, airports can serve as staging grounds for large fleets of vehicles, including emergency response and utility trucks that are necessary for restoration of power to affected areas. Recently, the Marion County Airport served this role after a large storm came through their local community, housing

1,200 line trucks and 600 other vehicles. Witham Field in Stuart also served this role during Hurricane Matthew, as seen in **Figure 8-7.**

Figure 8-6: Air Transport of Doctors, Nurses, and other Emergency Response Personnel to Florida before Hurricane Irma Made Landfall

Source: http://www.wftv.com/weather/eye-on-the-tropics/doctors-nurses-travel-to-orlando-before-hurricane-irma-hits/606768480

Figure 8-7: Witham Field in Stuart, Florida Serves as Staging Area for In- and Out-of-State Utility Trucks after Hurricane Matthew

Source: TC Palm – part of the USA Today Network (http://www.tcpalm.com/story/news/local/shaping-our-future/2016/10/14/fpl-hurricane-matthew-outages-lessened-decade-changes-system/91998694/)

What if a disaster strikes?

Could we maintain Florida's aviation facilities now and in the future to support response and recovery efforts?

8.3.2 Industry Resiliency

In addition to serving critical functions, such as helping Florida's communities remain resilient in challenging times, the aviation system must also be resilient to changes in the industry that threaten the long-term viability of aviation in the state. Some notable industry issues that are impacting Florida aviation include changes in commercial service strategies, GA industry changes, and a diminishing aviation workforce.

8.3.2.1 Commercial Service

Changes in the commercial service aviation industry are being experienced at some of Florida's commercial service airports. Modifications to airline fleets (changing infrastructure requirements), routes and frequencies (capacity), and fare structures (demand levels) are a few of the major changes taking place across airlines. For example, recent trends in fleet changes include the phasing out of turboprop and smaller regional jet aircraft for larger regional jets (**Figure 8-8**). As smaller commercial aircraft are phased out, some airports are having to adapt their infrastructure to accommodate larger aircraft—including jet bridges, support equipment (tugs, baggage handling), airfield pavement expansion, and "hold rooms," whose size must be increased for a larger number of passengers to clear security.

Figure 8-8: Regional Jet Aircraft

Changes to routes and frequencies can generate capacity issues at commercial service airports that may be undersized (**Figure 8-9**) to handle larger groups of the traveling public (such as those generated with the establishment of new service in a community or additional flight frequencies), or oversized to handle smaller groups of passengers resulting from the loss of a preferred airline's service or establishment of more desirable service at a nearby airport. Other factors impacting capacity include the popularity of LCCs and ULCCs that make air travel possible for a larger population that otherwise would travel by car, bus, or train. The commercial airline industry is fluid and adjustments to service are made frequently. Florida airports' ability to adapt quickly to operational changes is critical for their continued viability.

Figure 8-9: Terminal Over Capacity

What if airlines change their fleets or service levels?

Could we adapt Florida's commercial service airports to support changes in aircraft and capacity?

8.3.2.2 General Aviation

Several advancements are impacting Florida's GA airports in the near term. Specifically, the increase in activity by new aircraft categories, including experimental and light sport aircraft (LSA) (**Figure 8-10**), very light jets (VLJs) in the corporate market, rotorcraft designs (such as gyrocopters), and aircraft with vertical take-off and landing (VTOL) capabilities. Each of these aircraft types has the potential to significantly impact current infrastructure and future infrastructure needs. Anticipated modifications include minor adjustments, such as additional apron space to major changes in airfield design criteria. Operations by Unmanned Aerial Systems (UAS) have by far exceeded the use of any other new aircraft type. UAS are operating across the state, on and off airport facilities (**Figure 8-11**) for recreational, commercial, educational, and safety purposes. While not as much of an infrastructure concern, these aircraft do pose a threat to the safety of airport operations if not conducted according to federal, state, and local requirements.

Figure 8-10: LSA Example

Figure 8-11: UAS Operating Off-Airport

Additional changes affecting the GA industry include the development and transition of alternative fuels to replace the leaded avgas that is commonly used. It is anticipated that infrastructure modifications will be necessary to accommodate alternative fuel types, such as diesel and automobile gas (MoGas), and a possible increase of Jet-A fuel usage. Modifications may include additional fuel tanks and/or larger tanks at airport fueling facilities. In coordination with the push to eliminate the use of leaded aircraft fuel is the advancement in electric powered aircraft technologies. When electric powered aircraft enter the market, airports will need to consider charging capabilities for aircraft parked on aprons and in hangars.

What if the development and use of new aircraft types accelerates?

Could we prepare Florida's GA airports to meet new infrastructure needs?

8.3.3 Workforce adaptation

The aviation industry has a rapidly growing demand for new workforce additions in the form of pilots, mechanics, air traffic controllers, and more. The overall labor pool has been on the decline for the past 60 years since the baby boom ended.[8] Baby boomers have composed the largest portion of the labor market since the 1960s and many (21.6%) are reaching retirement ages, transitioning out of the labor pool as shown in **Table 8-2.**

Table 8-2: Labor Market Composition

Workforce	Age (years)	2015 (thousands)	Total %	2024 (thousands)	CAGR
Total	16+	156,867	100.0%	163,770	0.54%
Young	16-24	20,611	13.1%	18,498	-1.34%
Emerging	20-24	15,271	9.7%	13,705	-1.34%
Receding	55+	33,860	21.6%	40,575	2.29%

Source: http://onlinepubs.trb.org/Onlinepubs/trnews/trnews304feature.pdf
Note: Assumes 2024 emerging workforce remains constant at 74 percent of young workforce; CAGR = compound annual growth rate

In addition to a shrinking labor pool, other challenges can deter or prevent a potential student or professional from pursuing a career in aviation.

8.3.3.1 Pilots

Although one of the most recognized aviation careers, the high cost of flight training, combined with tuition and living expenses can be a roadblock to students considering a pilot career path. Students enrolled in a collegiate aviation program can spend $150,000 to $200,000 to get their degree and the required flight ratings. The timeframe for completion of their education and licensing can take four to five years. With a relatively low average entry-level salary range of $29,000 to $38,000, repaying student loans can be challenging for graduates.[9] In 2013, the FAA implemented a rule that all first officers of commercial airline flights hold an Air Transport Pilot (ATP) license. This license requires a minimum of 1,500 flight hours. Prior to the 2013 rule, entry-level first officers could be employed with a commercial pilot license requiring 250 hours. This significant increase in flight hours comes at a high cost for prospective commercial pilots (**Figure 8-12**).

Figure 8-12: Commercial Airline Pilots in Flight

[8] http://onlinepubs.trb.org/Onlinepubs/trnews/trnews304feature.pdf
[9] http://onlinepubs.trb.org/Onlinepubs/trnews/trnews304feature.pdf

Further exacerbating the pilot shortage is the mandatory retirement of commercial pilots at age 65 (increased recently from 60). The baby boom produced a significant portion of the current airline pilot pool and those pilots are now quickly approaching retirement. Also impacting pilot availability is the reduction in the number of military aviators that would transition over to the airlines after their service.

Regional airlines are taking the brunt of the pilot shortage as their experienced pilots are transitioning to the mainliners to replace retiring pilots. A lack in entry-level pilots (due in part to the ATP rule) is leaving regional airlines understaffed. Those airlines are being forced to reduce and even eliminate service to airports and major airlines previously served, impacting the availability of air service.

8.3.3.2 Maintenance Technicians

Critical for the safe continued operation of aircraft, aircraft maintenance technicians (**Figure 8-13**) must complete 18 months of practical work experience applicable to either an airframe or power plant rating. If a technician wants to earn both ratings, they must complete a certified aviation maintenance program or demonstrate 30 months of applicable experience. Each rating requires 400 hours of general course work and 750 hours related to airframe or power plant technology. This education can be obtained at several collegiate programs across the country that offer two-year technical degrees in aircraft maintenance. Not only are airlines hiring technician graduates, other industries (such as the automobile industry) are also hiring graduates, creating competition for a limited technician workforce.[10]

Figure 8-13: Aircraft Maintenance Technician Installing Propeller

8.3.3.3 Air Traffic Controllers

Strict medical and psychological screening, age, educational, and work experience requirements limit the potential pool of future air traffic controllers (**Figure 8-14**). A required retirement from active duty at age 56 also contributes to the need for a new generation of controllers. It is expected that nearly 12,000 of the 14,000 current controller workforce will be lost in the next ten years.[11]

Figure 8-14: Air Traffic Controller Monitoring Activity

[10] http://onlinepubs.trb.org/Onlinepubs/trnews/trnews304feature.pdf
[11] http://onlinepubs.trb.org/Onlinepubs/trnews/trnews304feature.pdf

8.3.3.4 Airport Operators

The operational requirements of each airport facility vary based on the type of operations supported. For example, airports that serve air carrier operations must meet a variety of strict operational requirements to maintain certification. An airport operator must undergo training in a variety of focus areas, including airfield inspections, pavement maintenance, wildlife control, security, snow removal, and more.

8.3.3.5 Aviation Workforce History

The number of pilot certificates issued by the FAA has generally been on the decline over the last decade or so, especially the number of student pilot certificates, dropping nearly 18,000 since 2007 as shown in **Table 8-3**.[12] A rise in the number of ATP certificates is likely a result of the 2013 rule.

FAA non-pilot certificates issued to the aviation workforce have also declined in many categories, including mechanics, repairmen, ground instructors, and more. In comparison, the number of flight attendant certifications have consistently been on the rise for more than a decade, as shown in **Table 8-4**.

Although pilot and non-pilot certificate numbers are generally decreasing across the country, the number of active FAA certified pilots in Florida (**Table 8-5**) has increased for almost all certificate types, with the exception of recreational, private, and commercial, which aligns with the decrease shown in Table 8-3.

[12] *2016 General Aviation Statistical Databook & 2017 Industry Outlook*

Table 8-3: FAA Pilot Certificates Issued by Category

Year	Student		Private		Commercial		Airline Transport (ATP)		Helicopter (only)		Glider (only)	
	Original	Add'l	Original	Add'l	Original	Add'l	Original	Add'l	Original	Add'l	Original	Add'l
2007	66,953	1,450	20,299	13,970	9,318	9,574	5,918	15,973	4,073	1,041	263	14
2008	61,194	1,507	19,052	14,409	10,595	10,212	5,204	15,658	3,639	930	204	11
2009	54,876	2,006	19,893	14,570	11,350	9,399	3,113	11,605	3,648	1,011	249	10
2010	54,064	1,057	14,988	10,260	8,056	7,778	3,072	10,890	2,686	670	222	8
2011	55,298	857	16,802	10,703	8,559	10,027	4,677	13,694	3,123	894	219	10
2012	54,370	694	16,571	10,720	8,651	9,341	6,396	12,768	2,892	900	180	0
2013	49,566	676	15,776	10,098	8,140	7,922	8,346	13,288	2,888	899	163	1
2014	49,261	698	17,795	11,396	9,803	8,840	7,749	19,481	3,754	1,072	195	5
2015	49,062	590	16,473	11,067	9,211	8,348	6,544	19,823	2,999	957	188	3
Diff. (2007 – 2015)	**- 17,891**	**-860**	**-3,826**	**-2,903**	**-107**	**-1,226**	**+626**	**+3,850**	**-1,074**	**-84**	**-75**	**-11**

Source: GAMA 2016 General Aviation Statistical Databook & 2017 Industry Outlook
Note: additional rating is added to an existing pilot certificate (for example, an instrument rating added to a private certificate).

Table 8-4: FAA Non-Pilot Certificates Issued by Category

Year	Mechanic	Repairman	Parachute Rigger	Ground Instructor	Dispatcher	Flight Navigator	Flight Engineer	Flight Attendant
2007	322,852	40,277	8,186	74,544	19,043	250	54,394	147,013
2008	326,276	41,056	8,248	74,983	19,590	222	53,135	154,671
2009	329,027	41,389	8,362	75,461	20,132	181	51,022	156,741
2010	308,367	41,196	8,009	70,560	16,576	171	48,569	156,368
2011	335,431	40,802	8,491	74,586	21,363	146	47,659	167,037
2012	337,775	40,444	8,474	73,599	21,862	141	46,639	172,357
2013	338,844	39,952	8,491	72,493	22,401	126	45,319	179,531
2014	341,409	39,566	8,702	71,755	23,113	115	43,803	188,936
2015	342,528	39,363	8,846	70,957	23,754	102	42,460	200,319
2016	279,435	34,411	5,851	65,053	19,758	67	35,761	212,607
Diff. (2007 – 2016)	**-40,858**	**-5,619**	**-2,299**	**-9,325**	**+1,679**	**-231**	**-21,995**	**+87,575**

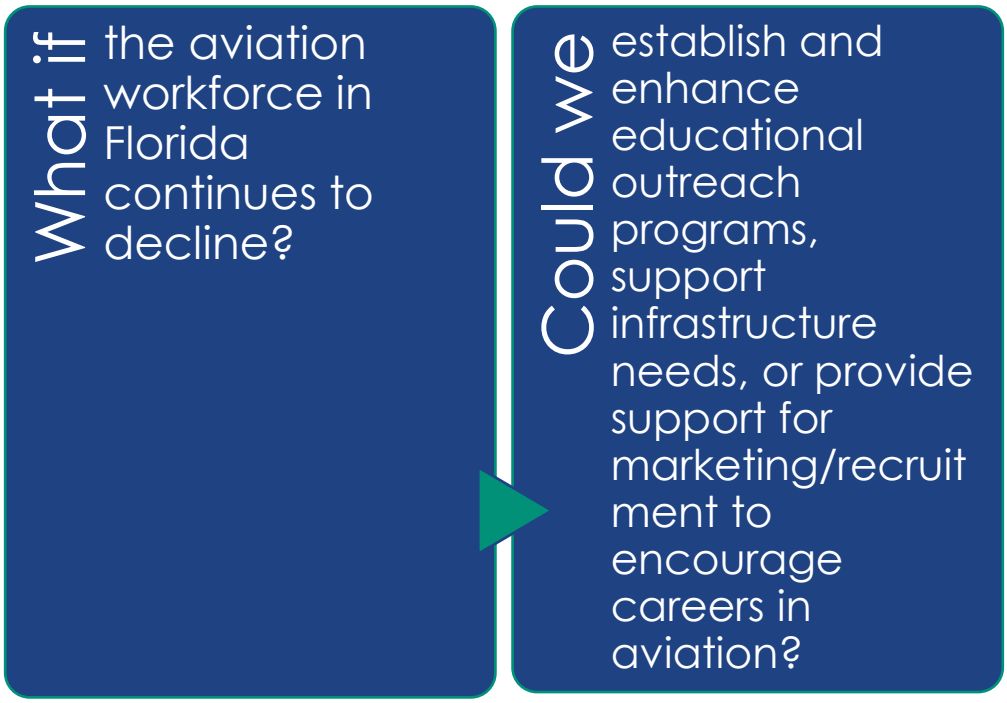
Source: GAMA 2016 General Aviation Statistical Databook & 2017 Industry Outlook

Table 8-5: Active FAA Certified Pilots and Flight Instructors in Florida

Year	Total Pilots	Students	Recreational	Sport	Private	Commercial	Airline Transport	Rotor, Glider, & Balloon	Remote Pilot	Flight Instructor
2007	48,244	7,510	13	137	15,614	10,331	14,639	*	*	8,147
2008	49,991	7,467	13	198	16,307	11,102	14,904	*	*	8,359
2009	48,163	6,543	12	262	15,462	11,000	14,884	*	*	8,638
2010	51,671	10,917	13	316	14,857	10,727	14,841	*	*	8,805
2011	52,037	11,572	11	357	14,490	10,515	15,092	*	*	8,965
2012	52,566	11,946	8	397	14,302	10,336	15,577	*	*	9,138
2013	52,437	12,185	6	434	13,694	9,953	16,165	7,031	*	9,283
2014	52,967	12,501	7	466	13,437	9,786	16,770	6,999	*	9,592
2015	54,254	13,177	7	499	13,552	9,797	17,222	6,984	*	9,904
2016	55,692	13,844	6	544	13,090	9,959	18,249	7,167	1,783	10,183
Diff. (2007 – 2016)	**+7,448**	**+6,334**	**-7**	**+407**	**-2,524**	**-372**	**+3,610**	**+7,167**	**+1,783**	**+2,036**

Source: GAMA General Aviation Statistical Databook & Industry Outlook (2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016)
**info not available*

The shortage in the aviation workforce is not a new issue, but it has been receiving considerable attention recently across industry resources. Organizations such as the American Association of Airport Executives (AAAE) and Airports Council International – North America (ACI-NA) encourage students to pursue careers in aviation and offer student chapters that support networking between current and prospective aviation students and potential employers. Airlines have teamed with aviation programs at universities in the U.S. to offer guaranteed interviews or other placement assistance to encourage students to pursue aviation career paths.[13] State and local organizations, airports, museums, and more host aviation programs for students of varying ages to introduce them to careers in aviation. The military also plays a role in the recruitment of future pilots and mechanics by offering training through military academies and aviation cadet programs.



8.4 Reliance on Tourism

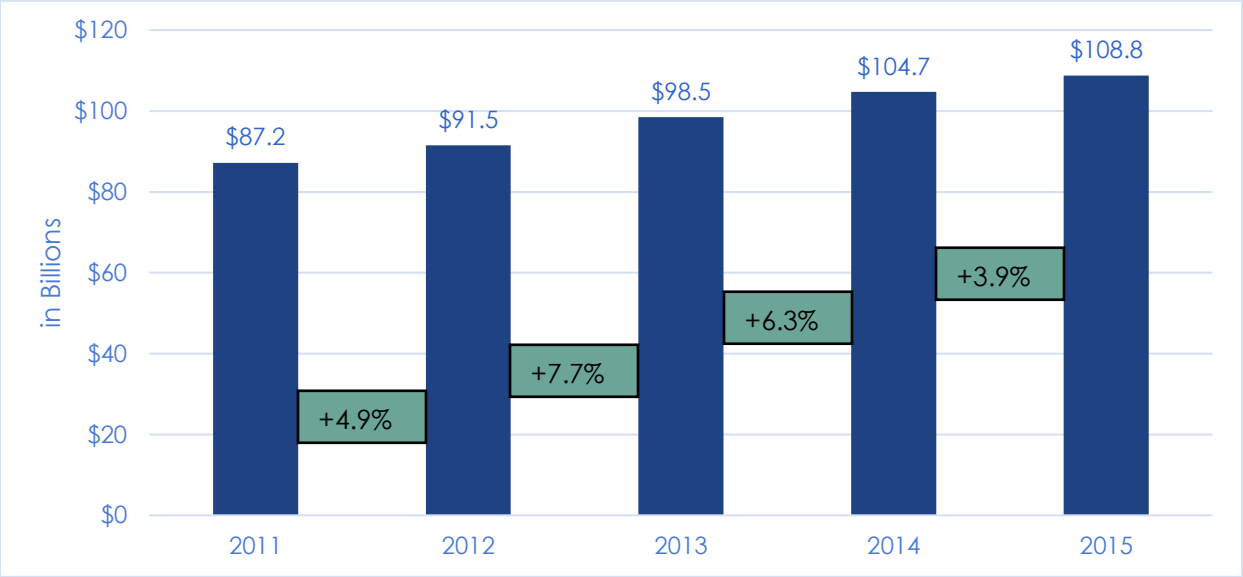
Nearly 150 million visitors traveled to Florida in 2016, generating over $100 billion in tourism spending alone (shown in **Figure 8-15** and **Table 8-6**), and estimates for 2017 are even higher.[14] Nearly 50 percent of all of Florida's visitors arrive by air (**Figure 8-16**). Miami is the second most popular point of entry (all transportation modes) for non-U.S. resident arrivals to the country, behind New York City, with over six million international arrivals in 2016 alone.[15] As a top industry

[13] http://onlinepubs.trb.org/Onlinepubs/trnews/trnews304feature.pdf
[14] http://www.visitfloridamediablog.com/home/florida-facts/research/
[15] U.S. Department of Commerce, ITA, National Travel and Tourism Office from the Summary of International Travel to the U.S. (I-94) Report.

in the state, tourism drives much of Florida's economy and reductions in tourism rates can have a significant impact on revenue for the state's airport system with a decrease in tourists arriving by air (both commercially and privately on GA aircraft). Reductions in tourism activity have the potential to impact commercial service and GA airports with undiversified operations—those catering to large volumes of tourist travelers. Should a drop in tourism rates occur, commercial airports with high concentrations of operations by LCCs and ULCCs will likely be impacted first, as those carriers typically cater to a large concentration of leisure travelers, versus some of the major airlines that typically serve more of a mix in business and leisure travelers.

Conversely, a reduction in service by LCCs or ULCCs will likely result in a reduction in tourism in the state, as they serve a significant portion of the visitors arriving to Florida by air. LCCs provide opportunities for travel to Florida by a larger population pool, driving increasing tourism rates. Continued success of LCCs and ULCCs is necessary for sustained tourism levels.

Figure 8-15: Direct Tourism Spending in Florida (in billions)



Source: The Economic Impact of Out-of-State Visitor Spending in Florida, Tourism Economics

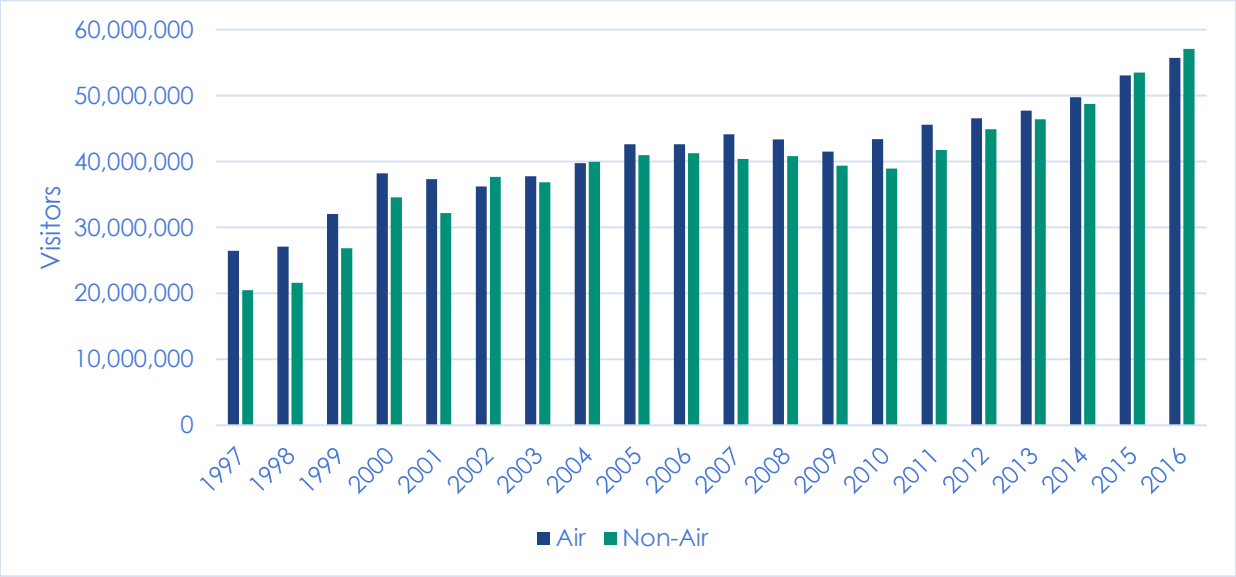
Table 8-6: Historic Visitor Estimates (in millions)

Year	Domestic	Overseas	Canadian	Total
2007	77.3	4.7	2.5	84.5
2008	76.1	5.2	2.9	84.2
2009[1]	71.2	7.0	2.6	80.9
2010	71.2	8.0	3.1	82.3
2011	74.7	9.3	3.3	87.3
2012	77.6	10.4	3.6	91.5

Year	Domestic	Overseas	Canadian	Total
2013[2]	78.8	11.2	4.2	94.1
2014	83.2	11.3	4.0	98.5
2015	91.3	11.4	3.8	106.6
2016	97.9	*11.1*	3.3	*112.4*

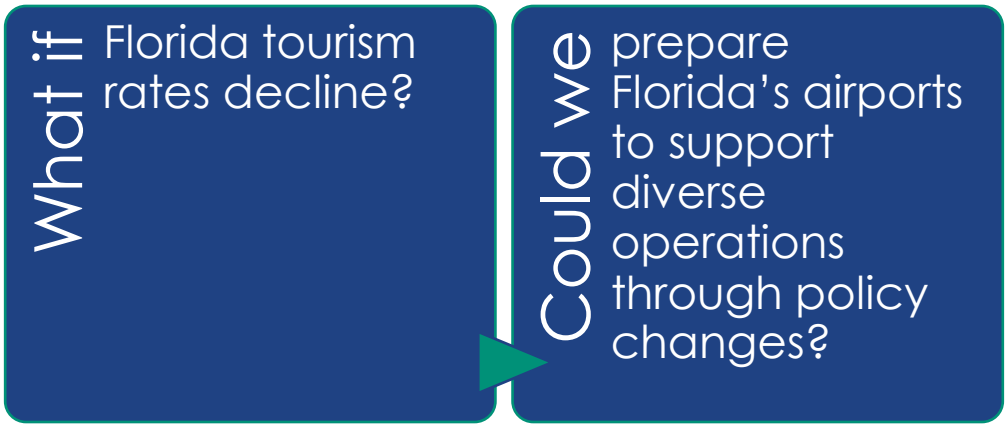
Source: TNS TravelsAmerica; D.K. Shifflet & Associates, Inc; Individual Florida Airports; Statistics Canada; U.S. Department of Commerce, ITA, Tourism Industries; Visa Vue Travel; Diio, LLC aviation data
Note: Figures in italics are preliminary; some figures may not add up due to rounding
[1] VISIT FLORIDA changed its visitor estimation methodology; therefore, estimates made prior to that year are not directly compariable.
[2] In 2013, Statistics Canada implemented a major modernization initiative for the International Travel Survey (ITS) to improve the quality of its data and processes. According to Statistics Canada, any historical data comparisons should be made with caution. Therefore, it is highly likely that most of the year to year change shown for Canada in the table is results from the new methodology.

Figure 8-16: Visitors Arriving to Florida by Air (1997 – 2016)



Source: Florida Department of Transportation Office of Policy Planning (http://www.floridatransportationindicators.org/index.php?chart=11b&view=detail)

Although changes in tourism activity in Florida are not anticipated at this time, it is important that airports plan ahead for shifts in activity so they are best equipped to handle changes. Airports with diversified operations including business/corporate, flight training, emergency operations, etc. will be much better positioned to react to a change in the operational composition at their facilities and operational revenue generated.



8.5 Summary

Planning for alternative scenarios positions Florida's aviation system to adapt quickly and successfully to changing conditions. Aligned efforts at the state, regional, and local levels to identify needs and solutions is a critical component of this preparedness. **Table 8-7** outlines some ways the state may begin the planning process.

Table 8-7: Summary of Example Scenarios

What if…	Could we…	How?
Airlines want to decrease capacity and routes to Florida communities due to increases in oil prices?	Support service at airports that reach the majority of Florida's population?	Work with airports and airlines to identify airports with the largest demand and available capacity, and complete an analysis using GIS to identify those airports that are located in areas accessible to the majority of the state's population. If a reduction in service occurs, maintaining service to at least a portion of Florida's commercial service airports in strategic locations will help provide continued commercial service access to residents and visitors.
GA activity decreases at Florida airports?	Assist GA airports in diversifying revenue streams and decreasing expenses through state guidance and programs?	Continue to update and promote the use of the FDOT *GA Airport Business Plan Guidebook*. Work with external organizations such as Enterprise Florida, Visit Florida, the Department of Economic Opportunity, the Florida Economic Development Councils, and other local, regional, and state entities to diversify Florida's airports' revenue streams. Update the FDOT *Airport Sustainability Guidebook* and continue to develop the FDOT Aviation and Spaceports Office's (ASO's) sustainability program. Form an airport sustainability task force that allows airports and relevant stakeholders the

What if…	Could we…	How?
		opportunity to learn from each other, share best practices and lessons learned, and aid each other in achieving sustainability and financial self-sufficiency. Continue to develop FDOT's overarching sustainability framework, leveraging the ASO's success in formalizing the department's program.
A disaster strikes?	Maintain Florida's aviation facilities now and in the future to support response and recovery efforts?	Conduct a statewide disaster response assessment, identifying those services and facilities needed to make an airport effective during a disaster. A statewide gap analysis should be conducted by airport and minimum disaster response-related infrastructure, equipment, facilities, and services should be identified by airport type (Commercial Service by hub size, GA by ASSET category). Assessments should be reported by individual airport, FDOT District, Continuing Florida Aviation Systems Planning Process (CFASPP) region, and Florida Division of Emergency Management region (http://www.floridadisaster.org/regions/).
Airlines change their fleets or service levels?	Adapt Florida's commercial service airports to support changes in aircraft and capacity?	Proactively coordinate with airline fleet directors and route planners to identify planned fleet changes and associated facility needs. Then, conduct an inventory of the service equipment and infrastructure capabilities of Florida's commercial service airports to identify gaps. Airport sponsors should be notified of any gaps identified at their facility so they may plan for necessary modifications during their capital improvement planning exercises.
The development and use of new aircraft types accelerates?	Prepare Florida's GA airports to meet new infrastructure needs?	Stay abreast of aircraft advancements and proactively identify anticipated infrastructure needs by aircraft type. Encourage airports to consider these needs in capital improvement planning exercises so that when significant volumes of new aircraft types enter the market, they are prepared to accommodate them.
The aviation workforce in Florida continues to decline?	Establish and enhance educational outreach programs, support infrastructure needs, or provide support for marketing/recruitment	Establish a task force with schools, universities, museums, social groups, airports, and other industry partners to inspire and educate students on careers in aviation. Develop programs such as summer camps, workshops, a scholarship fund, and university partnerships that link students with educational and career opportunities in aviation. Existing outreach efforts at Florida's annual Sun 'n Fun and U.S. Sport aviation expos should be continued. Also consider FDOT policy changes that would support infrastructure needs and/or

What if…	Could we…	How?
	to encourage careers in aviation?	marketing/recruitment that would encourage and promote aviation careers throughout Florida.
Florida tourism rates decline?	Prepare Florida's airports to support diverse operations through policy changes?	Identify current users of airports in the system and document their typical operations. Then, consider their use when planning for capital improvements or operational enhancements. A reduction in tourism activity provides airports in the system an opportunity to focus on the needs of other users, supporting their continued operation. When other types of users are supported, airports are able to cater to a more diverse user group which enhances their viability and the viability of Florida's aviation system long-term.

9 Funding

9.1 Introduction

This Chapter explores some of the funding mechanisms and processes that are used to continually improve Florida's system of airports. With a large system and historical funding totals close to $500 million per year (federal, state, local, and other sources), these programs help the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) and FDOT Districts prioritize project needs and identify funding resources.

A comparison is provided of total project funds identified in FDOT's Five Year Work Program and development estimates included in the *2017 – 2021 National Plan of Integrated Airport Systems (NPIAS)* report. Additionally, the State Strategic Goal Assessment Tool (SSGAT) that identifies projects' ability to meet Florida Aviation System Plan (FASP) goals and Federal Aviation Administration (FAA) project categories is reviewed and the historical use of the Strategic Intermodal System (SIS) funding program is analyzed. Each of these analyses are detailed in the following sections.

9.2 Financial Comparison of Federal Needs and State Programming

The FDOT ASO operates the most diverse and dynamic state aviation system in the United States (U.S.). Though there are hundreds of operational airports within the state, only those that are publicly-owned and open for use by the public are eligible to receive funding from FDOT through the Florida Aviation Grant Program. Although there are other funding sources that airports may utilize, the Florida Aviation Grant Program is by far the largest and is the focus of the analysis in this task. This task summarizes the identified needs for the aviation system utilizing available information from both FDOT and the FAA.

9.2.1 Overview of Florida Aviation Grant Program

The FDOT ASO maintains a grant program to assist in providing a safe, cost-effective, and efficient statewide aviation system. FDOT grant funds help airports build and maintain runways and taxiways, eliminate airport hazards, protect airspace, develop plans, acquire land, and build terminals and other facilities.

Since 1983, the Florida Aviation Grant Program has been funded through Florida's use of aviation fuel taxes. Currently, a 6.9¢ per gallon tax is imposed on qualifying aviation fuel sales. Per the *Florida Aviation Project Handbook*, after administrative costs and commercial carrier refunds are taken out of the collected taxes, 92 percent of the remaining aviation fuel tax is deposited into the State Transportation Trust Fund (STTF). The outstanding eight percent of the remainder is deposited into the general revenue fund. The Florida Aviation Grant Program is funded through the STTF. Per Florida Statute (F.S.), at least 15 percent of the STTF must be allocated to the Office of Freight, Logistics and Passenger Operations (FLP). From there, funds

are allocated to the four modal offices. Specific funding amounts change each year, though the FDOT ASO has received over $150 million in each of the last five years. Since 1990, over $3 billion has been appropriated by the state legislature to the Florida Aviation Grant Program.

In general, Florida law allows FDOT to fund any capital project on airport property as well as any services that lead to capital projects, such as planning and design services. The only off-airport projects allowed are the purchase of mitigation lands and avigation easements, noise mitigation, and access projects for intercontinental airports.

Airport capital equipment is eligible for funding if it is not too closely related to day-to-day operations. In general, operational costs such as maintenance services, equipment, and supplies are not eligible for aviation grants. The Florida Aviation Grant Program[1] typically includes:

- Airport Planning – The purpose of airport planning is to study options for airport development and operations. The planning process lays the groundwork for future development on and around an airport. FDOT funds airport master planning, airport layout plans (ALPs), noise and environmental studies, economic impact analysis, services development, and airport promotion. Eligible projects include:
    - Airport master plans and layout plans
    - Environmental assessments
    - Wildlife hazard studies
- Airport Capital Improvement – The purpose of capital improvement projects is to provide for capital facilities and equipment at airports. These capital improvements are generally specified in planning projects. Eligible projects include:
    - Runways/taxiways
    - Terminals
    - Security projects
    - Safety projects
- Land Acquisition – Land acquisition projects protect Florida's citizens from airport noise and protect airport clear zones and runway approach areas. Land acquisition minimizes potential hazards around the airport, provides the opportunity to have compatible land uses surrounding airport property, and protects the investments made in the airport. Eligible projects include:
    - Avigation easements
    - Land for runway protection zones (RPZs)
    - Mitigation land
- Airport Economic Development – Airport economic development is meant to encourage Florida's general aviation (GA) and commercial service airports to become self-supporting by promoting growth and development at the airport. Eligible projects include:
    - Buildings for lease
    - Industrial park marketing programs

Projects that receive funding through the Florida Aviation Grant Program must be part of an FDOT-accepted airport master plan and/or an FDOT-approved ALP; be at an airport that is

[1] Descriptions come from the *Florida Aviation Project Handbook* (www.fdot.gov/aviation/flpub.shtm)

publicly owned, open for use by the public, and included in the FASP; and be entered into the Joint Automated Capital Improvement Program (JACIP). Based on the projects that are in JACIP, FDOT District Aviation representatives develop a priority list for projects to be included in the FDOT Five-Year Work Program, which ultimately is used to fund projects.

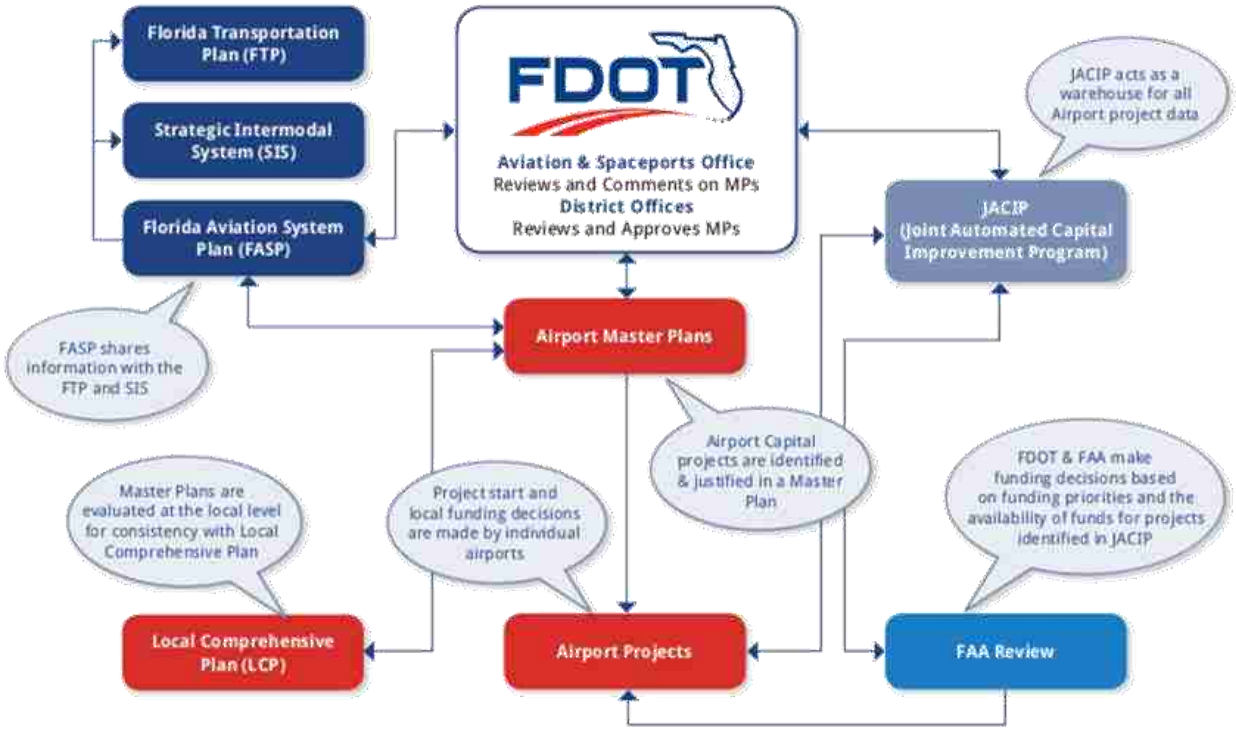
9.2.2 Examination of FDOT ASO Grant Funding

FDOT operates the most robust state aviation funding program in the U.S., contributing upwards of $350 million towards airport projects in some years. As such, the Aviation Grant Program also utilizes a very sophisticated funding process that allows funding to be equitably distributed between FDOT Districts and airports. The following sections provide some insight on this process.

9.2.2.1 Current Funding Process

Paramount to understanding the FDOT ASO funding process is understanding the composition of FDOT. FDOT Central Office is responsible for developing policies and guidance for the transportation system. Florida is divided into seven FDOT Districts, each with its own aviation department. It is the Districts' responsibilities to work and coordinate with their airports to fund and complete projects. In general, projects must be identified in a master plan or airport layout plan and identified and programmed in the tentative work program. A more detailed overview of this process is provided in **Figure 9-1**. As shown in the figure, the FDOT ASO and District offices work directly with airports, the FAA, and local governments to ensure that funded projects support the FASP, FTP, and when relevant, the SIS.

Figure 9-1: FDOT Airport Planning Process



Source: Florida Aviation Project Handbook

9.2.2.2 Florida Aviation Grant Program Process

The FDOT ASO grant funding process has been in place for many years and has been instrumental in the development and preservation of Florida's aviation system. As it is designed, the grant funding process allows funding decisions to be made at a more local level to better address the needs of the airports. The funding process also works well with the FDOT Work Program, which is the financial engine that powers the transportation system. Based on the current operation of the system, the Florida Aviation Grant Program is effective given the substantial improvements and orderly development of the airports. As such, no changes to the FDOT ASO grant funding process are recommended.

9.2.2.3 Ability of Funding Processes to Address FASP Goals

The FASP was developed around a set of seven goals that form the basis of the Florida aviation system. As such, it is important for the FDOT funding process to support the FASP goals. Below is an overview of the FDOT grant program's ability to address each of the seven FASP goals.

1. **Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors.** The FDOT grant program is well suited to support this goal. Specific funding categories that support this goal include:
    - Aviation Safety Projects
    - Aviation Security Projects

    - Aviation Capacity Projects
2. **Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment.** The FDOT grant program is well suited to support this goal. Specific funding categories that support this goal include:
    - Aviation Revenue/Operational Projects
    - Aviation Environmental Projects
3. **Support and enhance the national position of leadership and prominence held by Florida's aviation industry.** The FDOT grant program is well suited to support this goal. The very purpose of the grant program is to provide the funding to develop Florida's aviation system into one of the best in the country. All funding categories support this goal.
4. **Protect airspace and promote compatible land uses around airports.** The FDOT grant program is well suited to support this goal. Specific funding categories that support this goal include:
    - Aviation Preservation Projects
    - Aviation Safety Projects
    - Aviation Environmental Projects
5. **Foster technological innovation and support the implementation of new technologies.** The FDOT grant program is well suited to support this goal. Specific funding categories that support this goal include:
    - Aviation Preservation Projects
    - Aviation Revenue/Operational Projects
    - Aviation Capacity Projects
6. **Promote support for aviation from business, government, and the public.** The FDOT grant program is well suited to support this goal. Specific funding categories that support this goal include:
    - Aviation Preservation Projects
    - Aviation Revenue/Operational Projects
    - Aviation Security Projects
    - Aviation Capacity Projects
7. **Foster Florida's reputation as a military- and aerospace-friendly state.** The FDOT grant program is well suited to support this goal. Specific funding categories that support this goal include:
    - Aviation Preservation Projects
    - Aviation Safety Projects
    - Aviation Security Projects
    - Aviation Capacity Projects

As identified, the FDOT grant program is very supportive of the FASP goals related to development projects at airports. Specific ties to supporting other more general goals is not evident, but by providing funding to support development, these other goals are supported by the grant program.

9.2.3 Analysis of FDOT Funding Needs and Programs

Understanding the projects for which funding is requested versus the projects that need to be funded is useful in evaluating the funding distribution and determining if the established priorities are actually being funded. Ultimately, project funding is based on consideration of airport priorities and the following state priorities[2]:

- Encourage the maximum allocation of federal funds
- State licensing standards per Florida Administrative Code (FAC) Chapter 14-60
- State and federal standards for safety
- State and federal standards for security
- Preserve existing airport infrastructure
- Increase the capacity of Florida's airports

F.S. 332.006(8) states that FDOT must encourage the maximum allocation of federal funds to airport projects. Though it is provided in Statute, this priority is not directly accounted for in the FDOT Work Program. It can be assumed that this state priority has applications to all project types that are funded through the Work Program. As such, funding distributed by the FDOT Work Program for aviation projects is categorized in one of six categories. **Table 9-1** provides a breakdown of the changes in funding, by project category, between the current and previous Five Year Work Programs.

Table 9-1: FDOT Work Program Comparison

Type of Project (Related State Priorities)	FDOT FY 13-17	FDOT FY 18-22	Change from 13-17 to 18-22
Aviation Preservation Project (2 and 5)	$517,897,801	$550,093,998	$32,196,197
Aviation Safety Project (2 and 3)	$216,381,805	$94,337,720	($122,044,085)
Aviation Revenue/Operational (5 and 6)	$215,848,644	$232,693,921	$16,845,277
Aviation Security Project (4)	$42,591,022	$85,235,194	$42,644,172
Aviation Capacity Project (6)	$798,605,275	$1,224,324,412	$425,719,137
Aviation Environmental Project (All)	$4,229,490	$9,726,480	$5,496,990
Total	**$1,795,554,037**	**$2,196,411,725***	**$400,857,688**

Source: Office of Work program and Budget (www2.dot.state.fl.us/fmsupportapps/workprogram/workprogram.aspx), accessed July 2017
Note: Values presented in Florida Department of Transportation (FDOT) Fiscal Year (FY) (July – June)
**Includes non-NPIAS airports, therefore funding is greater than shown for NPIAS airports*

As shown, funding across almost all categories has increased over the past five years, with the notable exception of Aviation Safety Projects. It should be noted that projects in the Work Program are not always categorized correctly and projects can encompass other project categories. For example, there are significant funds allocated for Aviation Capacity Projects; it is

[2] Provided in F.S. 332

likely that the projects also serve to enhance the operational safety of an airport, not just increase capacity.

9.2.4 FAA Airport Funding

In addition to funds from the Florida Aviation Grant Program, many airports in Florida are eligible to apply for and receive grants from the FAA. Through the Airport Improvement Program (AIP), the FAA provides funding to airports included in the NPIAS. The AIP is funded through the Airport and Airway Trust Fund, which consists of taxes and user fees collected from different sources, such as taxes on airline tickets, international passenger departure fees, and fuel taxes. AIP funding is authorized through legislation, with the latest reauthorization titled *FAA Modernization and Reform Act of 2012* which authorized appropriations through fiscal year (FY) 2015. Since that time, continuing resolutions have been passed to appropriate funding which has impacted the stability of FAA funding and the timing of its release to airports.

In the latest NPIAS, 100 of Florida's airports were included and therefore eligible to apply for AIP funding. The NPIAS serves as the national system plan and is provided to Congress every two years to identify the amount of funding needed for airport development that is eligible for federal funding under the AIP over the next five years. As part of the NPIAS, a development estimate is provided for each airport that helps to "provide an adequate national airport system." The figures presented are the most realistic estimate of the funding that is needed to keep the national airport system running smoothly and efficiently. As previously stated, the FAA provides funding through the AIP and through the use of entitlements. Generally, primary airports[3] receive a base of $1 million in entitlements, with additional funding based on the number of enplanements, while nonprimary airports[4] can receive up to $150,000 per year. Though airports are eligible for this funding, it is not necessarily dedicated to them and may not be available for their use, based on the overall funding needs of the all NPIAS airports. Additionally, airports may also use 'discretionary funds' to assist in funding airport projects.

Over the past five years, the FAA has averaged a contribution of approximately $157 million in funding to Florida's airports. In comparison to FDOT, the FAA cannot commit to a fixed amount of funding for individual airport projects into the future due to the limitations of the reauthorization and appropriations processes. While the FAA maintains a capital improvement planning process where projects are identified up to five years out, there is typically only a single year commitment of FAA funding to airports based on grant awards.

[3] Primary airports have scheduled commercial service with more than 10,000 passenger boardings each year
[4] Nonprimary airports include GA airports as well as commercial service airports with more than 2,500 but fewer than 10,000 passenger boardings each year

9.2.5 FAA-Identified Airport Funding Needs

As noted, the FAA does not have a set amount of funding that will be allocated in future years to each airport.[5] **Table 9-2** provides a summary of the development estimates for 2017 – 2021 for Florida's NPIAS airports as provided in the latest *NPIAS Report*.

Table 9-2: Summary of NPIAS Report Development Estimates

Airport Categories	FAA 2017 – 2021 Dev. Estimate	Percentage
Large Hub	$1,147,678,721	38%
Medium Hub	$268,662,845	9%
Small Hub	$334,314,772	11%
Non-Hub	$270,061,415	9%
National ASSET	$199,401,103	7%
Regional ASSET	$478,302,295	16%
Local ASSET	$254,630,548	9%
Basic ASSET	$37,572,203	1%
Unclassified ASSET	$0	0%
Total	**$2,990,623,902**	

Source: 2017 – 2021 National Plan of Integrated Airport Systems (NPIAS) Report

As shown, Florida's airports have over $2.9 billion in identified funding needs over the next five years, with over $1.1 billion (38 percent of the total) needed for the four large hub airports in Florida. Of note, the regional ASSET airports require close to $500 million (16 percent of the total), indicating that there are substantial needs at those facilities. This is important, as some of these airports relieve commercial service airports and having less-than-ideal conditions could limit their ability to relieve congestion.

9.2.6 Comparison of FAA and FDOT-Identified Funding Needs

Table 9-3 provides a summary of the funding allocated through the FDOT Work Program for FDOT Fiscal Years 2018 – 2022 by FAA airport category. As shown, Florida's NPIAS airports have approximately $2.2 billion[6] identified for funding over the next five years in the FDOT Work Program. As shown, more than half (55 percent of the total) is identified for large hub airports. Similar to the data presented in Table 9-2, regional ASSET airports make up the next highest

[5] The FAA provides millions of dollars each year to support the planning and development of Florida's airports; however, there are not specific funding amounts specified.

[6] This funding figure includes all FAA, FDOT, and local funds that have been identified in the Five Year Work Program. Of this total, FDOT will contribute approximately $785,000,000.

category at 12 percent, highlighting the commitment to funding the needs identified by the latest *NPIAS Report*.

Table 9-3: Summary of FDOT Work Program Funding

Airport Categories	FDOT FY 18-22 WP	Percentage
Large Hub	$1,204,936,504	55%
Medium Hub	$151,645,956	7%
Small Hub	$185,368,753	8%
Non-Hub	$167,040,874	8%
National ASSET	$79,877,924	4%
Regional ASSET	$260,690,317	12%
Local ASSET	$118,082,286	5%
Basic ASSET	$15,932,886	1%
Unclassified ASSET	$150,000	0%
Total	**$2,183,725,500**	

Source: Office of Work Program and Budget (www2.dot.state.fl.us/fmsupportapps/workprogram/workprogram.aspx), accessed July 2017; 2017 – 2021 National Plan of Integrated Airport Systems (NPIAS) Report
Note: Funding identified in the Five Year Work Program includes federal funding for projects

Table 9-4 provides a summary of the funding needs of Florida's airports by airport from both the FAA and the FDOT Work Program. As demonstrated in this analysis, Florida's airports greatly benefit from the support received from both the FAA and FDOT. Though not all airports are identified to have all of their funding needs met, a significant amount of funding is identified for airports across the state, with only a small number not having any funding identified in the Work Program. Though it is recommended that FDOT and the FAA continue to partner and fund aviation projects, additional funding could be utilized to help support the unfunded needs of Florida's aviation system.

Table 9-4: Detailed Overview of FDOT and FAA Funding for Florida's NPIAS Airports

Associated City	Airport	FAA ID	2017 – 2021 Dev. Estimate (FAA)	FY 18-22 WP (FDOT)
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	$8,004,311	$4,425,054
Arcadia	Arcadia Municipal Airport	X06	$6,662,334	$996,099
Avon Park	Avon Park Executive Airport	AVO	$3,861,590	$1,010,428
Bartow	Bartow Municipal Airport	BOW	$15,379,661	$6,617,720
Belle Glade	Belle Glade State Municipal Airport	X10	$11,108,667	$1,250,000

Associated City	Airport	FAA ID	2017 – 2021 Dev. Estimate (FAA)	FY 18-22 WP (FDOT)
Blountstown	Calhoun County Airport	F95	$9,325,084	$3,337,000
Boca Raton	Boca Raton Airport	BCT	$13,341,666	$6,760,000
Bonifay	Tri-County Airport	1J0	$8,109,297	$4,353,483
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	$3,550,000	$3,090,000
Cedar Key	George T. Lewis Airport	CDK	$0	$1,500,000
Clearwater	Clearwater Air Park	CLW	$1,600,000	$2,075,000
Clewiston	Airglades Airport	2IS	$1,478,889	$0
Crestview	Bob Sikes Airport	CEW	$14,752,458	$23,403,859
Cross City	Cross City Airport	CTY	$5,516,096	$5,239,787
Crystal River	Crystal River-Captain Tom Davis Field	CGC	$15,221,142	$6,102,465
Daytona Beach	Daytona Beach International Airport	DAB	$79,472,404	$44,025,107
DeFuniak Springs	DeFuniak Springs Airport	54J	$19,026,120	$6,532,810
DeLand	DeLand Municipal-Sidney H Taylor Field	DED	$13,369,444	$7,195,617
Destin	Destin Executive Airport	DTS	$9,100,000	$5,000,000
Dunnellon	Marion County Airport	X35	$3,907,366	$6,886,953
Everglades	Everglades Airpark	X01	$0	$150,000
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	$16,261,417	$2,301,668
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	$58,452,270	$16,255,500
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	$380,566,343	$155,000,640
Fort Myers	Page Field	FMY	$28,891,430	$21,049,366
Fort Myers	Southwest Florida International Airport	RSW	$51,537,830	$41,698,490
Fort Pierce	Treasure Coast International Airport	FPR	$16,469,000	$7,149,726
Gainesville	Gainesville Regional Airport	GNV	$36,450,836	$24,470,625
Hilliard	Hilliard Airpark	01J	$1,242,369	$1,186,000
Hollywood	North Perry Airport	HWO	$21,711,490	$4,809,000
Homestead	Miami Homestead General Aviation Airport	X51	$7,131,844	$1,691,600

Associated City	Airport	FAA ID	2017 – 2021 Dev. Estimate (FAA)	FY 18-22 WP (FDOT)
Immokalee	Immokalee Regional Airport	IMM	$15,983,684	$10,350,000
Inverness	Inverness Airport	INF	$10,730,857	$4,537,576
Jacksonville	Cecil Airport	VQQ	$22,090,044	$8,500,000
Jacksonville	Herlong Recreational Airport	HEG	$9,790,445	$562,500
Jacksonville	Jacksonville Executive at Craig Airport	CRG	$16,762,409	$250,000
Jacksonville	Jacksonville International Airport	JAX	$110,195,097	$63,237,708
Key West	Key West International Airport	EYW	$50,133,982	$26,618,574
Keystone Heights	Keystone Airpark	42J	$6,485,976	$2,150,000
La Belle	La Belle Municipal Airport	X14	$13,718,889	$2,233,333
Lake City	Lake City Gateway Airport	LCQ	$19,082,198	$10,361,666
Lake Wales	Lake Wales Municipal Airport	X07	$5,637,840	$4,431,792
Lakeland	Lakeland Linder Regional Airport	LAL	$32,323,834	$12,739,100
Leesburg	Leesburg International Airport	LEE	$20,139,363	$11,916,738
Live Oak	Suwannee County Airport	24J	$5,950,800	$3,692,400
Marathon	The Florida Keys Marathon International Airport	MTH	$9,803,333	$7,241,360
Marco Island	Marco Island Airport	MKY	$11,659,000	$7,825,000
Marianna	Marianna Municipal Airport	MAI	$9,801,513	$4,078,747
Melbourne	Melbourne International Airport	MLB	$49,476,278	$30,650,000
Merritt Island	Merritt Island Airport	COI	$2,668,421	$11,794,000
Miami	Dade-Collier Training and Transition Airport	TNT	$2,165,578	$0
Miami	Miami Seaplane Base	X44	$0	$0
Miami	Miami Executive Airport	TMB	$4,261,400	$4,581,800
Miami	Miami International Airport	MIA	$171,471,580	$197,283,798
Miami	Miami-Opa Locka Executive Airport	OPF	$5,169,764	$4,452,000
Milton	Peter Prince Field	2R4	$2,768,455	$4,887,155
Naples	Naples Municipal Airport	APF	$23,479,167	$6,425,000
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	$5,853,833	$6,168,453

Associated City	Airport	FAA ID	2017 – 2021 Dev. Estimate (FAA)	FY 18-22 WP (FDOT)
Ocala	Ocala International-Jim Taylor Field	OCF	$28,185,398	$15,128,738
Okeechobee	Okeechobee County Airport	OBE	$15,292,000	$0
Orlando	Executive Airport	ORL	$20,111,697	$14,739,243
Orlando	Kissimmee Gateway Airport	ISM	$11,240,477	$14,360,500
Orlando	Orlando International Airport	MCO	$118,642,432	$153,507,026
Orlando	Orlando Sanford International Airport	SFB	$56,936,878	$24,549,236
Ormond Beach	Ormond Beach Municipal Airport	OMN	$18,165,699	$10,293,820
Pahokee	Palm Beach County Glades Airport	PHK	$7,000,000	$5,000,000
Palatka	Palatka Municipal-Lt Kay Larkin Field	28J	$21,970,359	$3,737,500
Palm Coast	Flagler Executive Airport	FIN	$18,887,643	$11,536,250
Panama City	Northwest Florida Beaches International Airport	ECP	$71,740,651	$27,843,101
Pensacola	Pensacola International Airport	PNS	$65,990,807	$57,871,774
Perry	Perry-Foley Airport	40J	$10,723,683	$3,388,892
Plant City	Plant City Airport	PCM	$8,455,700	$9,367,300
Pompano Beach	Pompano Beach Airpark	PMP	$7,042,000	$4,023,400
Punta Gorda	Punta Gorda Airport	PGD	$8,834,800	$5,440,000
Quincy	Quincy Municipal Airport	2J9	$9,109,279	$3,150,000
Sarasota/ Bradenton	Sarasota Bradenton International Airport	SRQ	$42,959,143	$20,814,568
Sebastian	Sebastian Municipal Airport	X26	$5,513,889	$3,600,000
Sebring	Sebring Regional Airport	SEF	$23,444,770	$1,827,150
St Augustine	Northeast Florida Regional Airport	SGJ	$14,409,269	$21,029,350
St Petersburg	Albert Whitted Airport	SPG	$1,040,000	$9,120,000
St Petersburg-Clearwater	St Pete-Clearwater International Airport	PIE	$46,553,311	$27,671,500
Stuart	Witham Field	SUA	$9,029,896	$6,525,555
Tallahassee	Tallahassee International Airport	TLH	$57,608,475	$30,385,792
Tampa	Peter O. Knight Airport	TPF	$11,189,459	$3,362,900

Associated City	Airport	FAA ID	2017 – 2021 Dev. Estimate (FAA)	FY 18-22 WP (FDOT)
Tampa	Tampa Executive Airport	VDF	$15,920,667	$10,494,238
Tampa	Tampa International Airport	TPA	$476,998,366	$699,145,040
Titusville	Arthur Dunn Air Park	X21	$4,583,333	$4,485,000
Titusville	Space Coast Regional Airport	TIX	$29,672,448	$7,327,322
Umatilla	Umatilla Municipal Airport	X23	$2,794,444	$3,610,000
Valkaria	Valkaria Airport	X59	$8,481,055	$6,260,429
Valparaiso/ Destin- Ft Walton Beach	Eglin AFB/ Destin-Ft Walton Beach Airport	VPS	$23,809,353	$11,040,000
Venice	Venice Municipal Airport	VNC	$16,140,444	$2,075,000
Vero Beach	Vero Beach Regional Airport	VRB	$16,982,378	$10,000,000
Wauchula	Wauchula Municipal Airport	CHN	$12,014,685	$500,000
West Palm Beach	North Palm Beach County General Aviation Airport	F45	$20,454,376	$18,575,000
West Palm Beach	Palm Beach County Park Airport	LNA	$29,062,500	$0
West Palm Beach	Palm Beach International Airport	PBI	$106,929,918	$46,709,758
Williston	Williston Municipal Airport	X60	$5,188,455	$2,736,754
Winter Haven	Winter Haven's Gilbert Field	GIF	$5,775,000	$0
Zephyrhills	Zephyrhills Municipal Airport	ZPH	$6,633,667	$9,960,667
Total			**$2,990,623,902**	**$2,183,725,500**

Source: Office of Work Program and Budget (www2.dot.state.fl.us/fmsupportapps/workprogram/workprogram.aspx), accessed July 2017; 2017 – 2021 National Plan of Integrated Airport Systems (NPIAS) Report

9.2.7 Findings

The evaluation of identified needs and funding from the FAA and FDOT shows that there is a gap in the identified funding between what FDOT has programmed for airport projects and what the FAA's latest NPIAS shows as development needs. This gap is approximately $800 million; however, it is not known at this time how much FAA funding will be provided for airports during this timeframe.

9.3 Application of State Strategic Goal Assessment Tool (SSGAT)

The SSGAT was developed as part of the FASP 2025 Update as a means to evaluate projects that are entered in the JACIP. The SSGAT uses a weighted matrix to assess how well each airport

project entered in the JACIP addresses the goals established by the FASP. The SSGAT formula was updated in Phase I of the FASP 2035 Update to reflect the updated system goals.

To examine the relationship between the state's planned investment in aviation projects (Work Program) and attainment of the aviation system goals provided in this FASP 2035 Update, a comparison of projects in the JACIP to the current Work Program and the funding associated with each project type was conducted. The results of this analysis demonstrate how much funding has been allocated to achieve the goals of the FASP 2035 Update, assuming the SSGAT's methodology is considered appropriate.

For this task, the most recent SSGAT scores for projects were downloaded from JACIP. Funding requests and project types were also downloaded from JACIP and joined to the SSGAT scores. These results were compared to the projects that have been adopted in the current Work Program. This section includes the results of these analyses.

9.3.1 Overview of the SSGAT

The SSGAT was designed to help evaluate different project types based on their FAA Project Categories and ability to support the goals of the FASP. Within the SSGAT, each FAA Project Category and FASP goal was assigned a "weight" that prioritizes projects that best support these goals. FAA Project Categories, FASP goals, and the weight assigned to each are shown in **Table 9-5** and **Table 9-6**.

Table 9-5: FAA Project Categories and Weights

FAA Project Categories	Weight
Capacity	15
Environmental	10
Instrument Approach Aid	5
Other	5
Planning	5
Reconstruction	10
Safety	15
Security	10
Statutory Emphasis Programs	10
Standards	15

Source: State Strategic Goal Assessment Tool (SSGAT) Spreadsheet, October 2015

Table 9-6: FASP 2035 Goal Categories and Weights

	FASP 2035 Goal	Weight
1.	Provide efficient, safe, and convenient service to Florida's citizens, businesses, and visitors.	25
2.	Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment and exhibiting social responsibility.	10
3.	Support and enhance the position of leadership and prominence held by Florida's aviation industry.	10
4.	Protect airspace and promote compatible land uses around public airports.	20
5.	Foster technological innovation and support implementation of new technologies.	10
6.	Promote support for aviation from business, government, and the public.	20
7.	Foster Florida's reputation as a military- and aerospace-friendly state.	5

Source: State Strategic Goal Assessment Tool (SSGAT) Spreadsheet
Note: These goals include updates made after the last SSGAT Update and are not shown in the actual SSGAT.

FAA Project Category weights are static while FASP goal values are adjusted based on the ability of a specific project to accomplish the goals of the FASP. Projects are evaluated for their relationship to the FASP goal categories with options of selecting high, medium, or low relationships that have associated weights of 1.2, 1.0, and 0.8, respectively. If a project has no correlation, it receives a weight of zero for that FASP goal category. These weights are then multiplied by the value for the FASP goal to derive the total score relative to the relationship of the project to the FASP goal categories. That FASP goal score is then combined with the FAA Project Category score. An example of how projects are scored in SSGAT is shown in **Figure 9-2**.

Figure 9-2: SSGAT Spreadsheet

		FASP Goals							
	FAA Category	Foster technological innovation and support implementation of new technologies.	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment.	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors.	Support and enhance the position of leadership and prominence held by Florida's aviation industry.	Protect airspace and promote compatible land uses around public airports.	Promote support for aviation from business, government, and the public.	Foster Florida's reputation as a military-friendly state.	State Strategic Goal Assessment
		10	10	25	10	20	20	5	
	Weights	✖	✖	✖	✖	✖	✖	✖	
Project/Goal Relationship			1	1.2	0.8		0.8		
Project Description	10 +	0 +	10 +	30 +	8 +	0 +	16 +	0 =	74

Source: Florida Aviation System Plan (FASP) Phase I Analysis, CDM Smith, May 2016

As shown in Figure 9-2, this sample project received an FAA Project Category value of 10 and was identified as having the following relationships to FASP goals:

- Low relationship to the FASP goals of "Support and enhance the position of leadership and prominence held by Florida's aviation industry" and "Promote support for aviation from business, government, and the public"
- Medium relationship to the FASP goal "Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment"
- High relationship to the FASP goal "Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors"

Based on these values, the above project received an SSGAT score of 74. To provide context, the minimum score possible is five and the maximum score possible is 135, indicating that the example project in Figure 9-2 is helping to meet some of the FASP goals and could be used in comparing the results to other projects and other needs identified by the FDOT District personnel.

9.3.2 FDOT Five Year Work Program

Analysis was conducted to identify if the projects that are programmed for funding in FDOT's current Work Program are those that are supporting the goals of the FASP (such as the example project in Figure 9-2), as identified by the SSGAT. For this analysis, Work Program data was downloaded from FDOT for FY 17-22. It is important to note that six years of data are actually analyzed in this section, as a special report was issued for the Work Plan that uses this six-year timeframe instead of the traditional five-year outlook. Work Program data was downloaded on March 16, 2017 for all projects coded as aviation. Within the Work Program, individual projects are coded by Airport Project ID (UPIN) and Item numbers. Both of these reference numbers are linked to individual projects in the JACIP. When analyzing the Work Program data, it was

determined that the Item number was better suited to link individual projects and their respective funds to the JACIP because many of the UPINs were improperly coded (or not coded at all), and thus some JACIP projects could not be identified or linked to the same projects that exist in the Work Program. Using the UPIN, 619 unique projects were identified in the Work Program, while using the Item number 845 unique projects were identified. Dollar amounts for projects in the Work Program were summed across all five years and then compared to the funding request in the JACIP, as explained below.

9.3.3 JACIP

Airports can input projects into the JACIP at any time and there is currently no requirement to remove old or already completed projects. As such, projects in the JACIP range in years from 2008 to 2035. JACIP data was downloaded on March 31, 2017 and was provided by Panther International. Within the JACIP, projects are coded by UPIN, FDOT Project ID, and FDOT segment numbers. The Project ID and segment number combine to provide a link to the item number of projects that are funded in the Five Year Work Program. In total, 4,512 projects were logged in the JACIP as of March 31; of those, 1,952 had Project ID and segment numbers that allowed them to be compared to projects included in the latest Five Year Work Program.

9.3.4 Methodology

Because there is no uniform report that displays both the information in the JACIP and that in the FDOT Five Year Work Program, significant coordination of the data was required to compile the two sources for analysis. As previously described, a single data table was developed that combined the JACIP and Work Program spreadsheets, joining them by UPIN and Item number (Work Program) and DOT Project ID and segment numbers (JACIP).

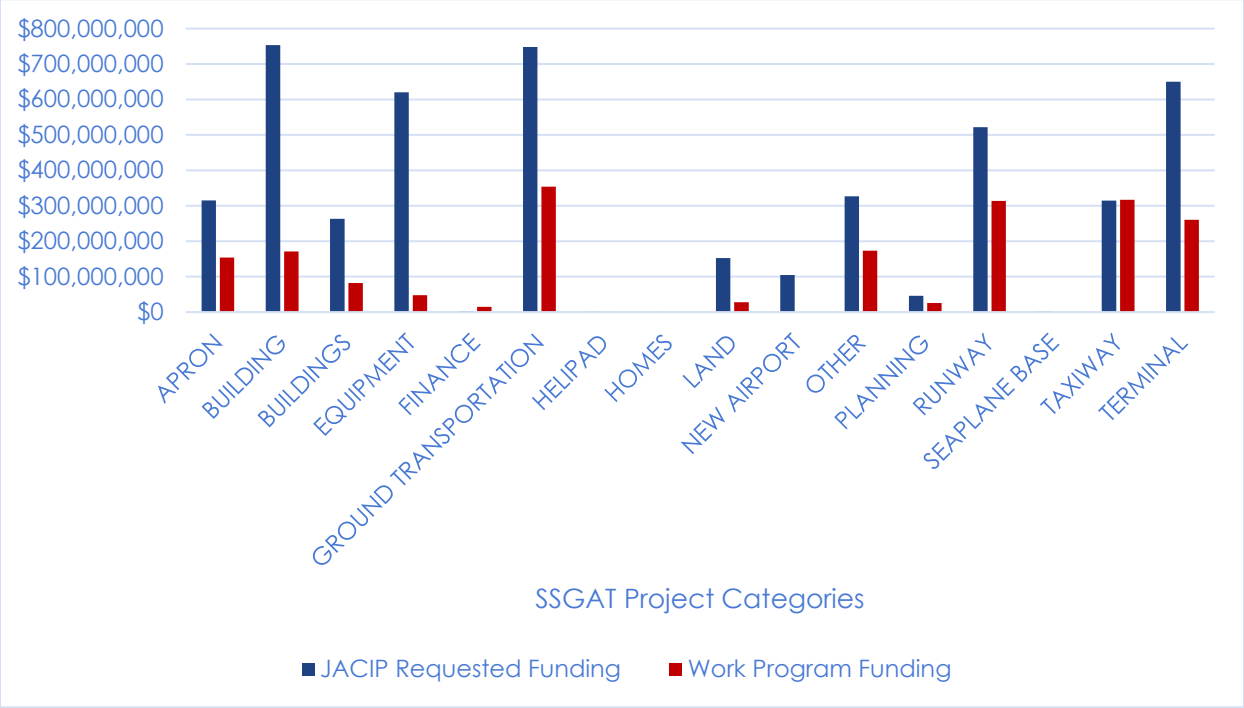
9.3.5 Results

Within the JACIP, projects are coded by one of 16 project types, including:

- Apron
- Building
- Buildings
- Equipment
- Finance
- Ground Transportation
- Helipad
- Homes
- Land
- New Airport
- Other
- Planning
- Runway
- Seaplane Base
- Taxiway
- Terminal

For the identified categories, analysis was completed to understand the amount of funding a specific project type requested, received, and the SSGAT score of those projects. Of the 16 identified project types, only the eight that are highlighted are discussed in following sections. **Figure 9-3** provides an overall comparison of JACIP and Work Program funding for each of the above project types.

Figure 9-3: Comparison of JACIP and Work Program Funding (FY 17-22)

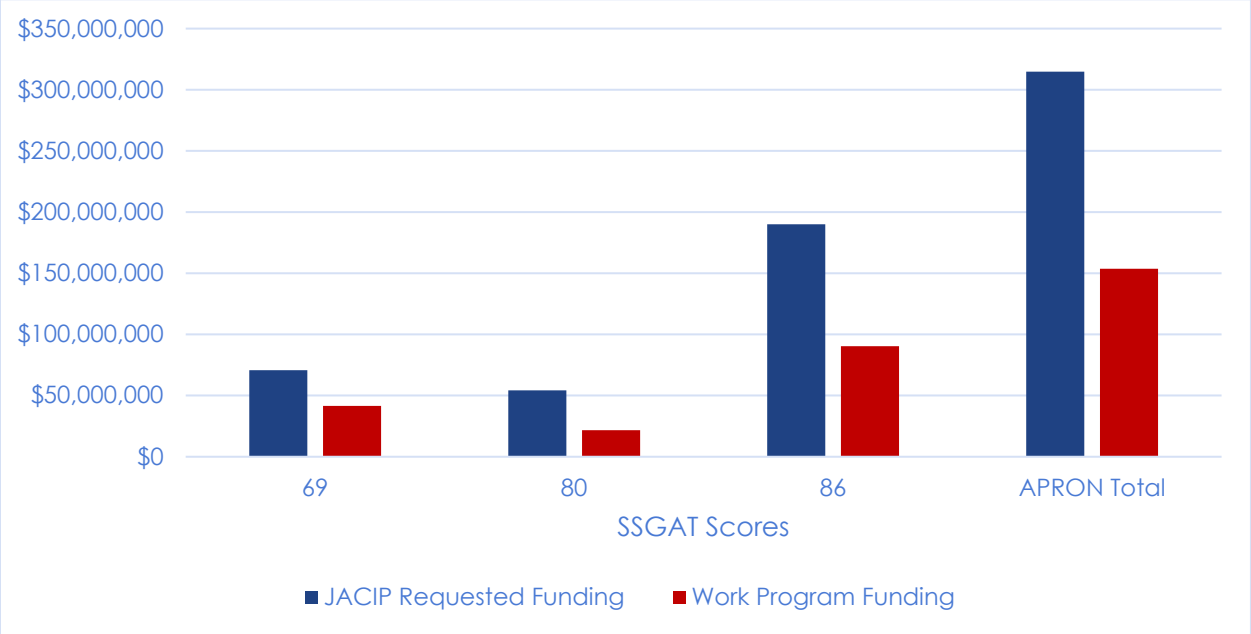


Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.5.1 Apron

Apron areas at airports are the locations where aircraft are fueled, parked, and boarded. Having adequate apron space allows airports to have safe and efficient movement of aircraft, increasing the overall operational capability of an airport. In total, $314,831,942 was requested from the state (in JACIP) for apron projects, with $153,590,670 programmed for funding in the current Work Program. As shown in **Figure 9-4** and **Table 9-7,** different types of apron projects received SSGAT scores between 69 and 86. Of all the projects requested in JACIP, the ones that were least included in the Work Program were those identified as related to standards. Given the fact that there is not a large discrepancy between the lowest and highest SSGAT score, and the fact that a large majority of the highest SSGAT score projects were funded, it appears there is a positive correlation between the SSGAT scores contained in the JACIP and the projects that are programmed in the current Work Program.

Figure 9-4: Apron Projects in the JACIP and FDOT Work Program (FY 17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

Table 9-7: Apron Projects in the JACIP and FDOT Work Program (FY 17-22)

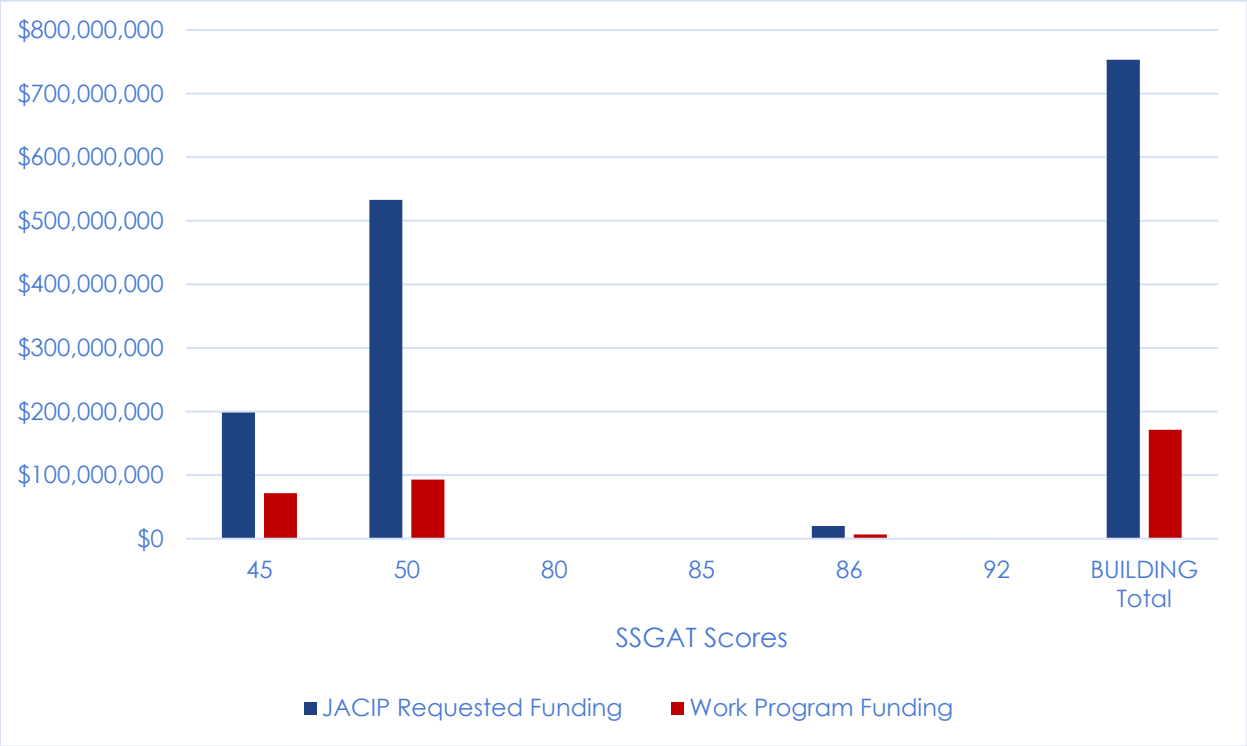
SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
69	Rehabilitate Apron	70,652,323	41,577,689	
	60 Total	**70,652,323**	**41,577,689**	**58.8%**
80	Construct Apron (Standards)	49,728,198	21,675,000	
	Expand Apron (Standards)	4,219,985	0	
	Strengthen Apron (Standards)	241,611	0	
	80 Total	**54,189,794**	**21,675,000**	**40.0%**
86	Construct Apron (Capacity)	150,111,667	29,711,731	
	Expand Apron (Capacity)	39,507,408	60,626,250	
	Install Apron Lighting (Standards)	370,750	0	
	86 Total	**189,989,825**	**90,337,981**	**47.5%**
	APRON Total	**314,831,942**	**153,590,670**	**48.8%**

Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.5.2 Building – ARFF and Snow Removal

There are numerous types of buildings at airports; however, for this category, only two types of buildings are included: Aircraft Rescue and Fire Fighting (ARFF) and snow removal equipment buildings. In total, $753,283,481 was requested from the state for building projects, with $171,174,144 programmed in the current Work Program. As shown in **Figure 9-5** and **Table 9-8**, different types of building projects received SSGAT scores between 45 and 92. The most common project request was for ARFF buildings. As shown, the projects that are funded in the Work Program received relatively low SSGAT scores, and overall, only a small percentage of projects are funded in this category.

Figure 9-5: Building Projects in the JACIP and FDOT Work Program (FY 17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

Table 9-8: Building Projects in the JACIP and FDOT Work Program (FY 17-22)

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
45	Expand Building	101,886,463	35,406,700	
	Improve Building	31,324,019	18,030,800	

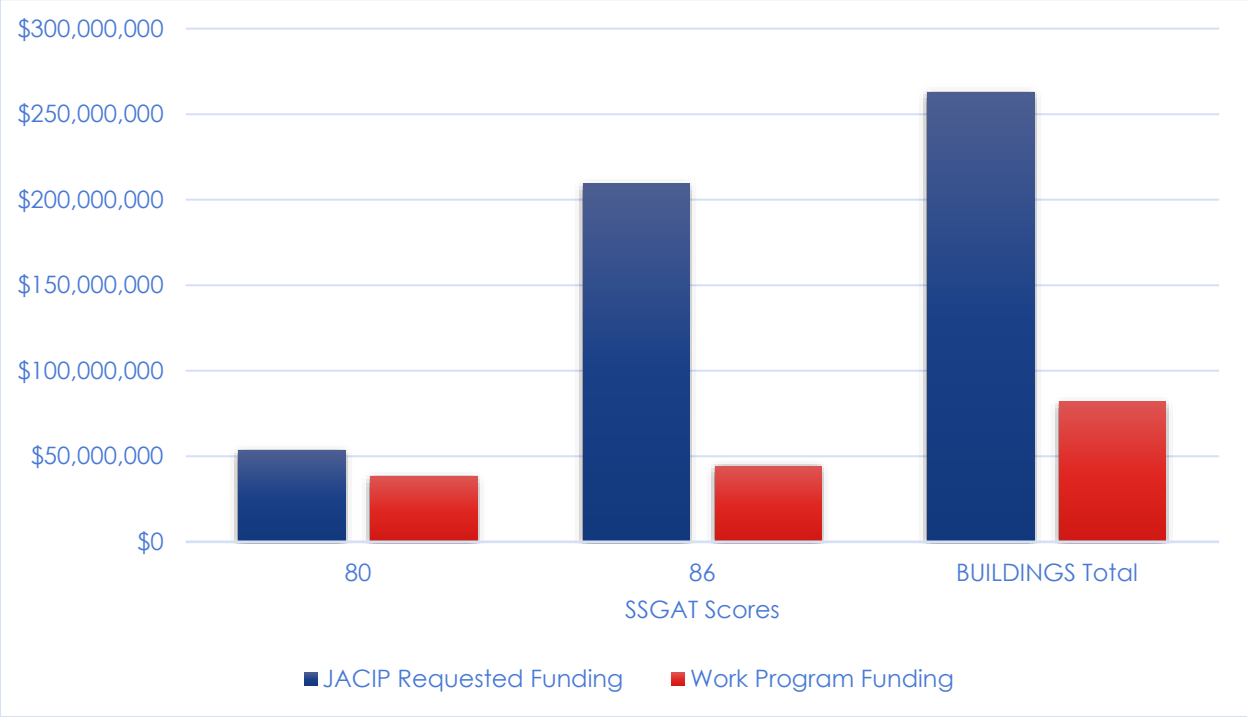
SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
	Modify Building	9,277,650	4,015,806	
	Rehabilitate Building	56,009,883	14,077,868	
	45 Total	**198,498,015**	**71,531,174**	**36.0%**
50	Construct Building	532,932,013	92,986,579	
	50 Total	**532,932,013**	**92,986,579**	**17.4%**
80	Rehabilitate Aircraft Rescue & Fire Fighting Building [Pt. 139 only]	110,000	0	
	80 Total	**110,000**	**0**	**0.0%**
85	Construct Snow Removal Equipment Building	771,000	0	
	85 Total	**771,000**	**0**	**0.0%**
86	Construct Aircraft Rescue & Fire Fighting Building [Pt. 139 only]	19,947,453	6,656,391	
	86 Total	**19,947,453**	**6,656,391**	**33.4%**
92	Improve Aircraft Rescue & Fire Fighting Building [Pt. 139 only]	1,025,000	0	
	92 Total	**1,025,000**	**0**	**0.0%**
	BUILDING Total	**753,283,481**	**171,174,144**	**22.7%**

Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.5.3 Buildings – Air Traffic Control and Hangars

In addition to ARFF and snow removal equipment buildings, other buildings that are classified within the SSGAT, JACIP, and the Work Program include air traffic control facilities and hangars. In total, $262,874,464 was requested from the state for these types of building projects, with $82,204,794 being funded in the current Work Program. As shown in **Figure 9-6** and **Table 9-9**, different types of air traffic control and hangar building projects received SSGAT scores of either 80 or 86.

Figure 9-6: Buildings Projects in the JACIP and FDOT Work Program (FY 17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

Table 9-9: Buildings Projects in the JACIP and FDOT Work Program (FY 17-22)

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
80	Construct/Expand/Improve/Modify/ Relocate Air Traffic Control Facilities	49,909,567	37,918,322	
	Construct/Expand/Improve/Modify/ Relocate T-Hangars	3,600,000	0	
	80 Total	**53,509,567**	**37,918,322**	**70.9%**
86	Construct/Expand/Improve/Modify/ Relocate T-Hangars	209,364,897	44,286,472	
	86 Total	**209,364,897**	**44,286,472**	**21.2%**
	BUILDINGS Total	**262,874,464**	**82,204,794**	**31.3%**

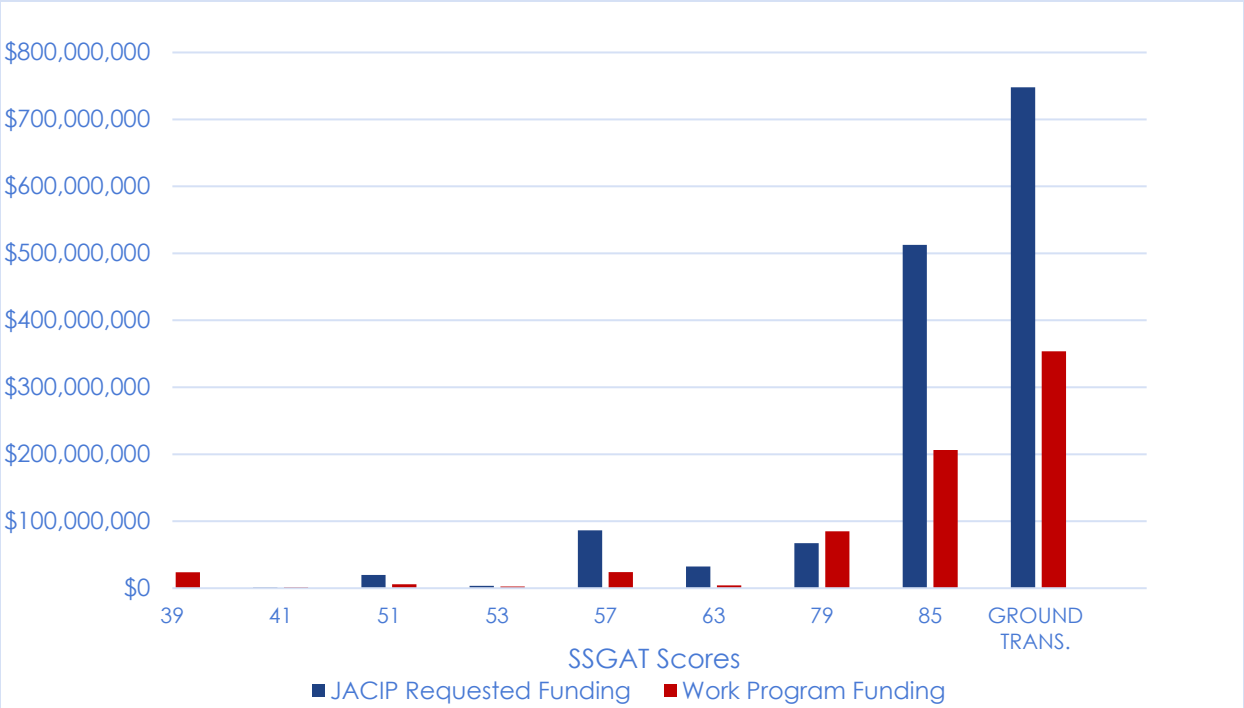
Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.5.4 Ground Transportation

Ground transportation projects include airport access roads, passenger rail connections, automated people movers, as well as internal airport roads. These projects are important to

airports because they allow for safe and efficient movement of people to and from the airport as well as on airport property. In total, $747,873,771 was requested from the state for ground transportation projects, with $353,667,971 programmed in the current Work Program. This project category also had project types where the funding that was received was greater than the funding that was requested. This could be due to project scope changes from the time it was put into JACIP to when it was programmed in the Work Program. As shown in **Figure 9-7** and **Table 9-10**, different types of ground transportation projects received SSGAT scores between 39 and 85. Based on the analysis, ground transportation projects are well supported by the funding in the Work Program.

Figure 9-7: Ground Transportation Projects in the JACIP and FDOT Work Program (FY 17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

Table 9-10: Ground Transportation Projects in the JACIP and FDOT Work Program (FY 17-22)

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percent Programmed vs. Requested
39	Improve Access Rail (Other)	500,000	1,000,000	
	Modify Access Rail (Other)	1,200,000	0	

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percent Programmed vs. Requested
	Modify Access Road (Other)	18,444,300	22,672,000	
	Rehabilitate Access Rail (Other)	1,232,000	100,000	
	Rehabilitate Access Road (Other)	3,273,437	0	
	39 Total	**24,649,737**	**23,772,000**	**96.4%**
41	Expand Terminal People Mover (Other)	575,000	0	
	Rehabilitate Terminal People Mover (Other)	588,024	1,598,450	
	41 Total	**1,163,024**	**1,598,450**	**137.4%**
51	Construct Access Rail (Other)	300,000	600,000	
	Construct Service Road (Other)	14,146,076	5,280,195	
	Rehabilitate Terminal People Mover (Capacity)	5,400,000	0	
	51 Total	**19,846,076**	**5,880,195**	**29.6%**
53	Expand Service Road (Other)	310,000	0	
	Improve Service Road (Other)	1,250,000	2,400,000	
	Rehabilitate Service Road (Other)	1,860,640	212,800	
	53 Total	**3,420,640**	**2,612,800**	**76.4%**
57	Construct Access Road (Other)	85,733,326	24,137,654	
	Construct Terminal People Mover (Other)	726,900	0	
	57 Total	**86,460,226**	**24,137,654**	**27.9%**
63	Expand Access Road (Other)	20,307,028	308,873	
	Improve Access Road (Other)	12,169,766	4,010,000	
	63 Total	**32,476,794**	**4,318,873**	**13.3%**
79	Modify Access Road (Capacity)	67,185,658	85,000,000	
	79 Total	**67,185,658**	**85,000,000**	**126.5%**
85	Construct Access Road (Capacity)	164,136,340	6,730,138	
	Construct Terminal People Mover (Capacity)	319,824,635	190,000,000	
	Expand Access Road (Capacity)	16,578,141	5,747,861	
	Improve Access Road (Capacity)	12,132,500	3,870,000	

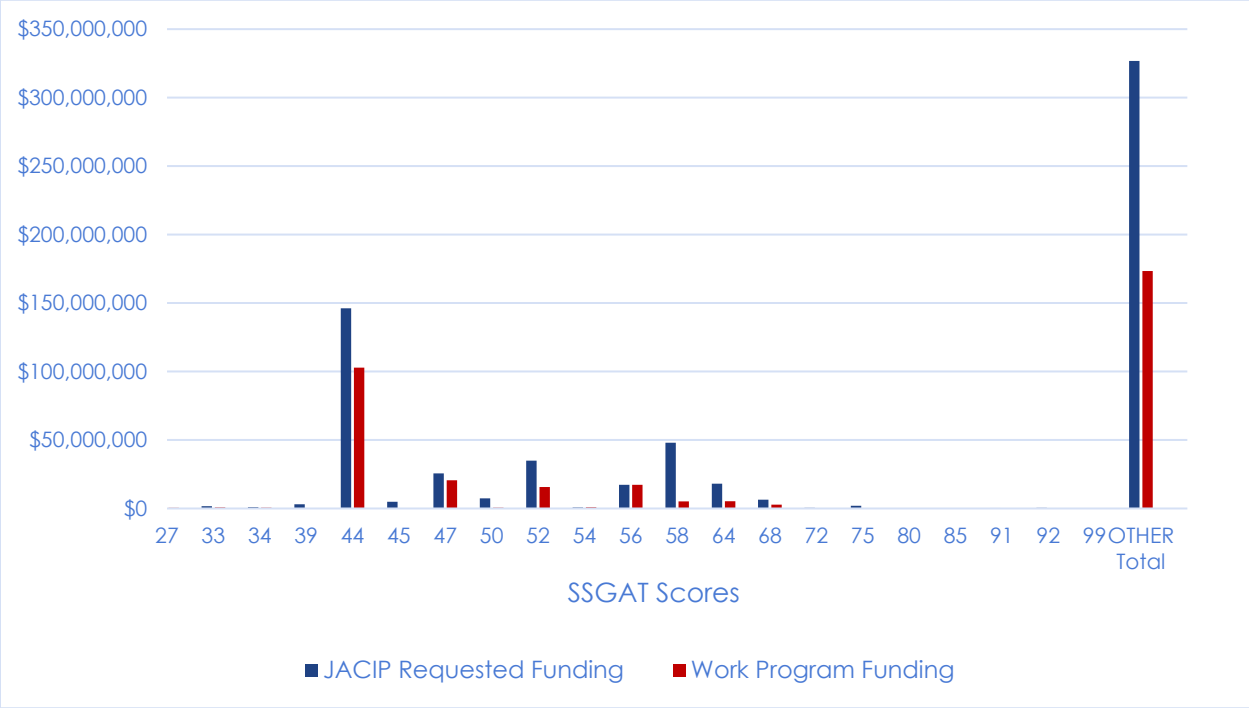
SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percent Programmed vs. Requested
	Rehabilitate Access Road (Capacity)	0	0	
	85 Total	**512,671,616**	**206,347,999**	**40.2%**
	GROUND TRANSPORTATION Total	**747,873,771**	**353,667,971**	**47.3%**

Source: Florida Aviation Database (FAD; Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.5.5 Other Projects

Projects in this category range from environmental mitigation projects to fuel farms and drainage projects. In total, $326,835,907 was requested from the state for "other" projects, with $173,355,267 programmed in the current Work Program. As shown in **Figure 9-8** and **Table 9-11**, different types of "other" projects received SSGAT scores between 27 and 99. Based on the analysis, the project with the highest SSGAT scores were not programmed in the Work Program and most project categories received little to no funding, indicating that projects in this category are not well supported by FDOT.

Figure 9-8: Other Projects in the JACIP and FDOT Work Program (FY 17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

Table 9-11: Other Projects in the JACIP and FDOT Work Program (FY 17-22)

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
27	Environmental Mitigation	7,549,225	560,920	
	27 Total	**7,549,225**	**560,920**	**7.4%**
33	Noise Mitigation Measures	1,644,250	800,000	
	33 Total	**1,644,250**	**800,000**	**48.7%**
34	Construct/Expand/Improve/Modify/ Relocate Aircraft Wash Rack	952,800	625,000	
	34 Total	**952,800**	**625,000**	**65.6%**
39	Construct Fuel Farm [MAP]	1,034,637	0	
	Improve Utilities [MAP]	2,000,000	0	
	39 Total	**3,034,637**	**0**	**0.0%**
44	Improve Airport Miscellaneous Improvements	146,143,598	102,861,760	
	Light Obstructions [not hazards]	15,175	0	
	44 Total	**146,158,773**	**102,861,760**	**70.4%**
45	Install Guidance Signs [Non-Part 139 Com Svc]	4,318,600	0	
	Install Runways Incursion Caution Bars [Non-Part 139 Com Svc]	550,943	0	
	Remove Obstructions to permit WAAS approach	0	0	
	Runway Incursion Markings	71,346	0	
	45 Total	**4,940,889**	**0**	**0.0%**
47	Construct Parking Lot [Non-revenue/Non-hub and MAP only]	16,932,574	8,895,000	
	Rehabilitate Parking Lot [Non-revenue/Non-hub and MAP only]	8,688,031	11,686,306	
	47 Total	**25,620,605**	**20,581,306**	**80.3%**
50	Install Guidance Signs [Required by Part 139 only]	1,704,253	0	
	Install Miscellaneous NAVAIDS (Segmented Circle, beacon, etc. - Not ALS)	3,634,700	658,000	

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
	Rehabilitate Airport Beacons - [Required by Part 139 only]	15,000	0	
	Remove Obstructions [hazard only, i.e. approaches] (all airports)	400,000	0	
	Remove Obstructions [not hazards]	1,677,400	0	
	50 Total	**7,431,353**	**658,000**	**8.9%**
52	Improve Airport Drainage	34,928,873	15,745,074	
	52 Total	**34,928,873**	**15,745,074**	**45.1%**
54	Improve Airport Erosion Control	696,600	870,800	
	54 Total	**696,600**	**870,800**	**125.0%**
56	Acquire Mobile Aircraft Rescue & Fire Fighting Training Facility	700,000	0	
	Construct Aircraft Rescue & Fire Fighting Training Facility	2,700,000	0	
	Remove Obstructions [hazard only, i.e. approaches] (all airports)	11,986,446	17,351,517	
	Runway Incursion Markings (Safety)	1,955,150	0	
	56 Total	**17,341,596**	**17,351,517**	**100.1%**
58	Construct Utilities	38,853,335	800,000	
	Improve Utilities	7,975,254	250,000	
	Repair Utilities	1,238,996	4,108,996	
	58 Total	**48,067,585**	**5,158,996**	**10.7%**
64	Construct Fuel Farm	9,737,459	3,088,770	
	Improve Fuel Farm	8,456,327	2,226,386	
	64 Total	**18,193,786**	**5,315,156**	**29.2%**
68	Install Airfield Guidance Signs [Not required by Pt. 139]	6,495,907	2,826,738	
	68 Total	**6,495,907**	**2,826,738**	**43.5%**
72	Repair Fuel Farm	521,380	0	
	72 Total	**521,380**	**0**	**0.0%**

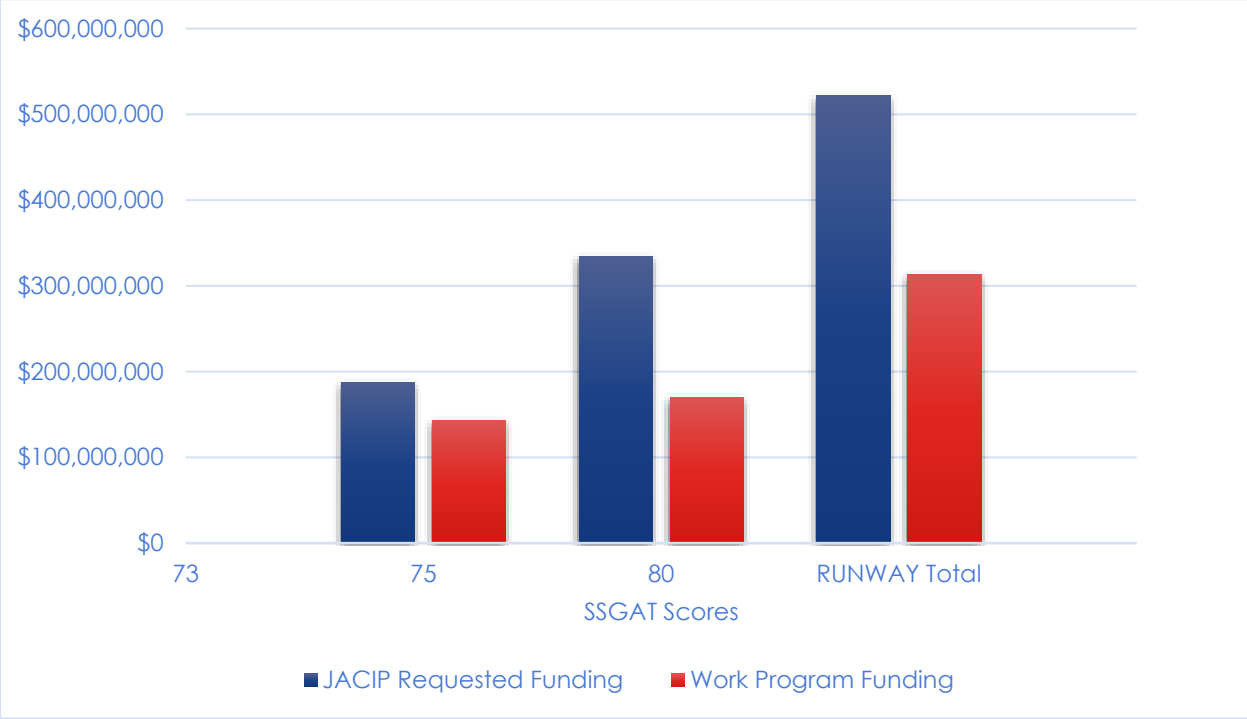
SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
75	Install Miscellaneous NAVAIDS (Segmented Circle, beacon, etc. – Not ALS) [com service]	2,047,000	0	
	75 Total	**2,047,000**	**0**	**0.0%**
80	Install Airport Beacons – [Required by Part 139 only]	120,000	0	
	80 Total	**120,000**	**0**	**0.0%**
85	Construct Deicing Containment Facility (Environmental)	50,000	0	
	85 Total	**50,000**	**0**	**0.0%**
91	Install Noise Monitoring System	355,000	0	
	91 Total	**355,000**	**0**	**0.0%**
92	Improve Airport Miscellaneous Improvements	500,000	0	
	92 Total	**500,000**	**0**	**0.0%**
99	Light Obstructions [hazard only, i.e. approaches] (all airports)	185,648	0	
	99 Total	**185,648**	**0**	**0.0%**
	OTHER Total	**326,835,907**	**173,355,267**	**53.0%**

Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.5.6 Runway

Runway projects include any projects that may improve the operational ability of a runway, including lighting, updated approaches, and extensions. In total, $521,825,024 was requested from the state for runway projects, with $313,534,132 programmed in the current Work Program. This project category also had project types where the funding that was received was greater than the funding that was requested. This could be due to project scope changes from the time it was put into JACIP to when it was programmed in the Work Program. As shown in **Figure 9-9** and **Table 9-12**, different types of runway projects received SSGAT scores between 73 and 80. As shown, funding requests in JACIP were well matched in the Work Program, indicating that projects in this category are well supported by FDOT.

Figure 9-9: Runway Projects in the JACIP and FDOT Work Program (FY 17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

Table 9-12: Runway Projects in the JACIP and FDOT Work Program (FY 17-22)

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
73	Construct Runway (environmental mitigation)	6,250	125,000	
	73 Total	**6,250**	**125,000**	**2000.0%**
75	Install Runway Lighting (HIRL, MIRL) [Non-Part 139 Commercial Service]	763,833	566,666	
	Install Runway Vertical/Visual Guidance System (PAPI/VASI/REIL/ALS/etc.) (Com. Svc)	77,460	0	
	Rehabilitate Runway	175,410,943	132,703,085	
	Rehabilitate Runway Lighting	11,217,015	10,041,315	
	75 Total	**187,469,251**	**143,311,066**	**76.4%**
80	Construct Runway (Capacity)	104,278,985	20,353,754	

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
	Construct Runway (Standards)	30,670,652	13,105,610	
	Construct Runway Safety Area [Nonprimary Airports]	2,080,284	550,000	
	Construct Runway Safety Area [Primary Airports]	660,750	0	
	Extend Runway (Capacity)	146,469,247	73,751,444	
	Extend Runway (Standards)	18,408,698	33,534,209	
	Extend Runway Safety Area [Nonprimary Airports]	201,423	0	
	Improve Runway Safety Area [Nonprimary Airports]	4,968,834	1,911,099	
	Improve Runway Safety Area [Primary Airports]	9,493,075	21,370,000	
	Install Instrument Approach Aid	6,771,864	0	
	Install Runway Lighting (HIRL, MIRL) [Reqd by Part 139 only]	213,125	176,500	
	Install Runway Lighting [not reqd by Part 139]	3,116,533	200,000	
	Install Runway Vertical/Visual Guidance System (PAPI/VASI/REIL/ALS/etc.)	2,915,000	1,139,450	
	Rehabilitate Runway	261,019	326,274	
	Strengthen Runway (Standards)	1,687,534	3,679,726	
	Widen Runway (Standards)	2,152,500	0	
	80 Total	**334,349,523**	**170,098,066**	**50.9%**
	RUNWAY Total	**521,825,024**	**313,534,132**	**60.1%**

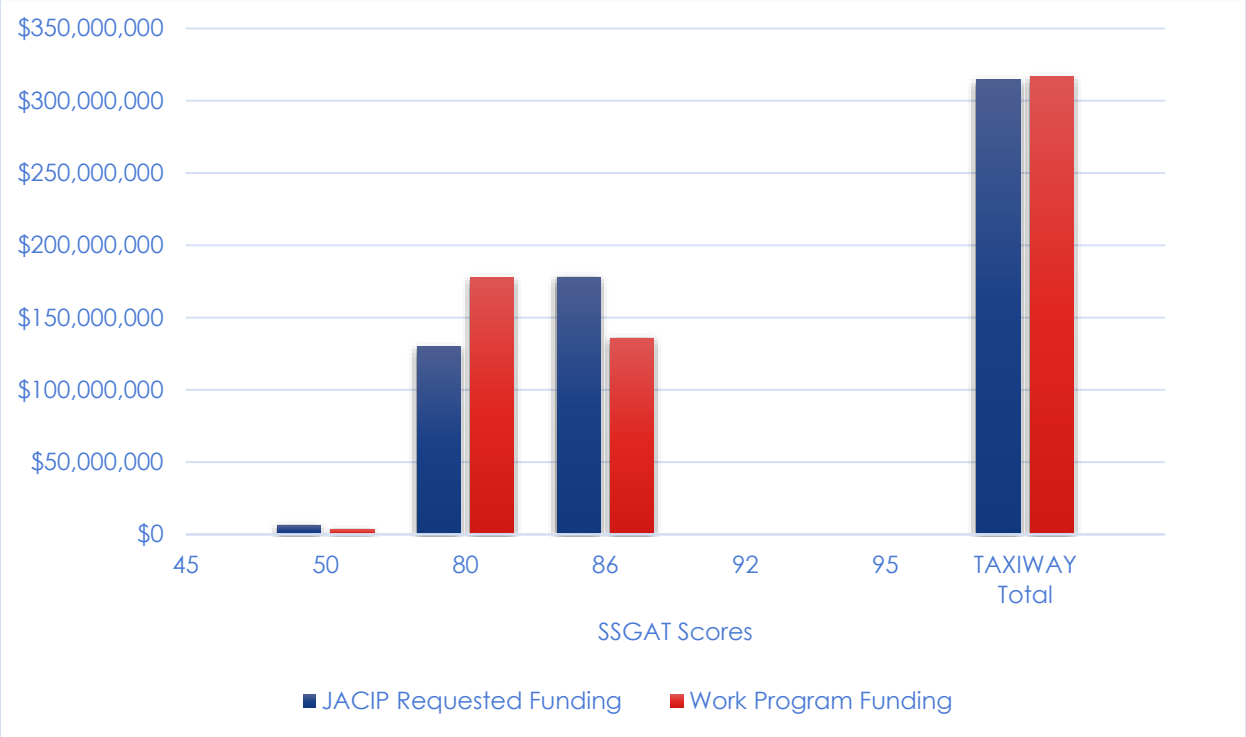
Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.5.7 Taxiways

Similar to runway projects, taxiway projects include projects that support the operational capacity of the taxiway system as part of the overall airfield. Projects include lighting, widening, and taxiway extensions. In total, $314,660,990 was requested from the state for taxiway projects, with $316,761,543 programmed in the current Work Program. As shown in **Figure 9-10** and **Table 9-13**, different types of taxiway projects received SSGAT scores between 45 and 95. Based on

the analysis, even though the highest SSGAT score projects were not funded, it appears that taxiway projects are well funded in the Work Program.

Figure 9-10: Taxiway Projects in the JACIP and FDOT Work Program (FY 17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

Table 9-13: Taxiway Projects in the JACIP and FDOT Five Year Work Program (FY 17-22)

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
45	Install Taxiway Lighting (MITL) (Non-Part 139 Com Svc)	92,270	0	
	45 Total	**92,270**	**0**	**0.0%**
50	Install Taxiway Lighting	1,681,289	1,947,633	
	Strengthen Taxiway (Standards)	312,120	718,000	
	Widen Taxiway (Standards)	4,118,105	750,000	
	50 Total	**6,111,514**	**3,415,633**	**55.9%**
80	Rehabilitate Taxiway	129,828,977	175,688,554	
	Rehabilitate Taxiway Lighting	363,000	1,860,000	

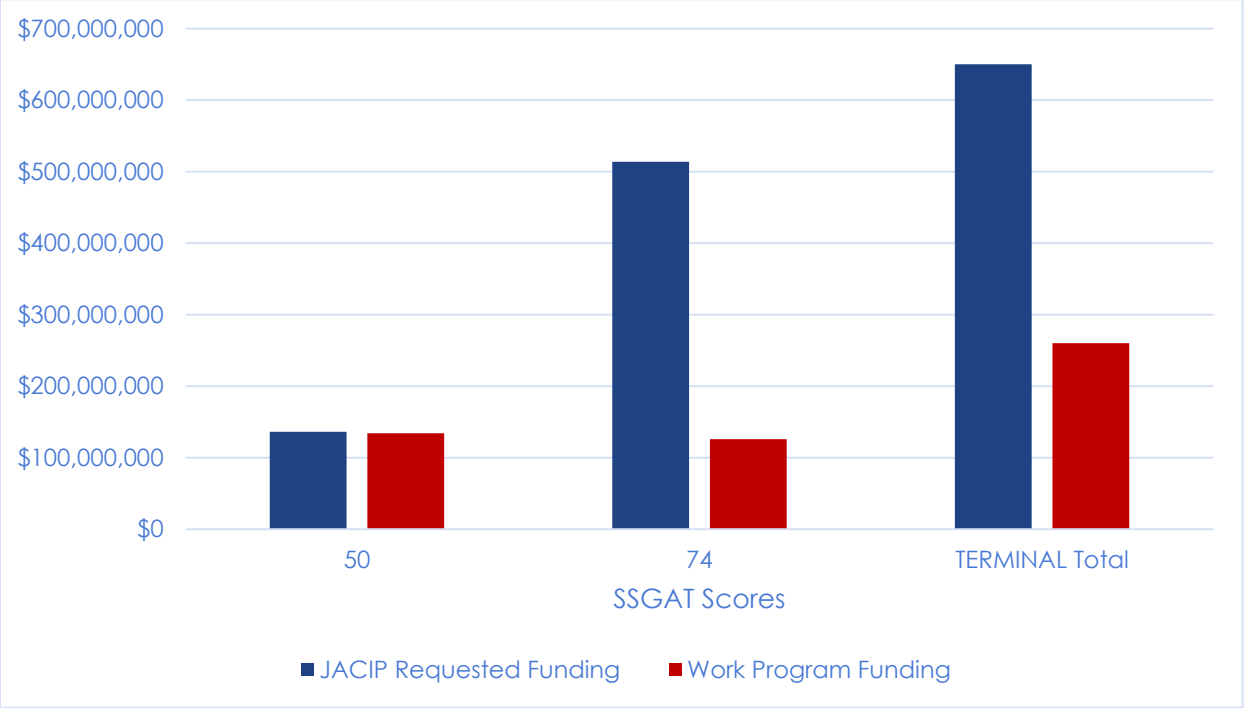
SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
	80 Total	**130,191,977**	**177,548,554**	**136.4%**
86	Construct Taxiway (Capacity)	69,690,136	51,219,805	
	Construct Taxiway (Standards)	41,167,823	66,055,171	
	Extend Taxiway (Capacity)	60,024,960	4,787,985	
	Extend Taxiway (Standards)	6,997,451	13,734,395	
	Install Taxiway Lighting	132,778	0	
	86 Total	**178,013,148**	**135,797,356**	**76.3%**
92	Install Taxiway Lighting [Required by PART 139 only]	157,778	0	
	92 Total	**157,778**	**0**	
95	Construct Taxiway (environmental mitigation)	94,303	0	
	95 Total	**94,303**	**0**	**0.0%**
	TAXIWAY Total	**314,660,990**	**316,761,543**	**100.7%**

Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.5.8 Terminals

Terminals represent the gateways to airports and provide users access to and from the airside facilities. At GA airports, terminals may house a rest area, office space, and a flight planning room while the terminals at commercial service airports house check-in area, baggage claim, security facilities, concessions, and the gates by which users get to their flight. In total, $650,024,757 was requested from the state for terminal projects, with $260,199,355 programmed in the current Work Program. As shown in **Figure 9-11** and **Table 9-14**, different types of terminal projects received SSGAT scores of either 50 or 74. As shown, projects that were designated as "Standards" projects received an SSGAT score of 50 while the projects designated as "Capacity" received SSGAT scores of 74. Overall, terminal projects are very well funded in the Work Program, indicating support from the District offices in funding terminal projects.

Figure 9-11: Terminal Projects in the JACIP and FDOT Work Program (FY 17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

Table 9-14: Terminal Projects in the JACIP and FDOT Work Program (FY 17-22)

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
50	Construct Terminal Building (Standards)	28,496,211	11,577,686	
	Expand Terminal Building (Standards)	8,628,500	4,820,000	
	Improve Terminal Building (Standards)	50,797,816	71,884,949	
	Modify Terminal Building (Standards)	17,033,885	17,598,186	
	Rehabilitate Terminal Building (Standards)	31,251,375	28,425,906	
	50 Total	**136,207,787**	**134,306,727**	**98.6%**
74	Construct Terminal Building (Capacity)	379,918,587	83,850,000	

SSGAT Score	Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percentage Programmed vs. Requested
	Expand Terminal Building (Capacity)	24,781,152	4,010,000	
	Improve Terminal Building (Capacity)	77,206,900	10,000,000	
	Modify Terminal Building (Capacity)	16,822,494	28,032,628	
	Rehabilitate Terminal Building (Capacity)	15,087,837	0	
	74 Total	**513,816,970**	**125,892,628**	**24.5%**
	TERMINAL Total	**650,024,757**	**260,199,355**	**40.0%**

Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, accessed March 2017

9.3.6 Findings

Based on the SSGAT analysis, many project categories from the SSGAT are successful in supporting the goals of the FASP; however, there are some that do not appear to have a high correlation. There also appears to be a large discrepancy in how SSGAT scores are assigned. For example, in the "Other" category, one fuel farm project received an SSGAT score of 39 while another received a score of 72. Discrepancies in how SSGAT scores are calculated could potentially have an impact on the projects that are being programmed and supporting the goals of the FASP.

9.4 SIS-Funded Projects Analysis

As previously mentioned throughout this FASP 2035 Update, the SIS represents the largest, most significant, and highest priority transportation facilities in the state. As such, there are limitations to the facilities that can be designated as SIS facilities and further restrictions on the types of projects that are eligible for additional state funding through the SIS program. Data on the SIS program from the FDOT Office of Implementation Planning and FDOT Systems Implementation Office, and aviation-specific SIS data from the FDOT *Florida Aviation Project Handbook*, were analyzed to better understand the project eligibility and use of SIS funding in the last five years. This section also includes a brief summary of the aviation projects that are programmed to receive SIS funds in the next five fiscal years as well as a summary of roadway projects near SIS airports that are receiving SIS funds.

9.4.1 SIS Classifications

As described in **Chapter 3 – Airport System and Classifications**, there are currently three classifications of SIS airports: SIS commercial service airports, Emerging SIS commercial service

airports, and GA reliever airports. Twenty FASP airports fall into one of these categories. **Table 9-15** provides a breakdown of SIS facilities in Florida.

Table 9-15: SIS Airports in Florida

Associated City	Airport Name	FAA ID
SIS Airports		
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL
Fort Myers	Southwest Florida International Airport	RSW
Jacksonville	Jacksonville International Airport	JAX
Miami	Miami International Airport	MIA
Orlando	Orlando International Airport	MCO
Tampa	Tampa International Airport	TPA
West Palm Beach	Palm Beach International Airport	PBI
Emerging SIS Airports		
Daytona Beach	Daytona Beach International Airport	DAB
Gainesville	Gainesville Regional Airport	GNV
Melbourne	Melbourne International Airport	MLB
Orlando	Orlando-Sanford International Airport	SFB
Panama City	Northwest Florida Beaches International Airport	ECP
Pensacola	Pensacola International Airport	PNS
Punta Gorda	Punta Gorda Airport	PGD
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ
St. Petersburg-Clearwater	St. Pete-Clearwater International Airport	PIE
Tallahassee	Tallahassee International Airport	TLH
Valparaiso	Destin-Ft. Walton Beach Airport	VPS
General Aviation Reliever SIS Airports		
Miami	Miami Executive Airport	TMB
Orlando	Kissimmee Gateway Airport	ISM

Source: Florida's Strategic Intermodal System (SIS) Strategic Plan

It should be noted that of the 20 commercial service airports in Florida, two are currently not designated as SIS or Emerging SIS facilities. These airports are Northeast Florida Regional Airport

and Key West International Airport. FASP recommendations related to the SIS are included in **Chapter 10 – Recommendations**.

9.4.2 Projects Eligible for Funding

Airports included in the SIS have access to additional state funding for projects that meet strict eligibility criteria. Specifically, SIS funds are reserved for projects that increase capacity. Though SIS funding is intended for capacity projects, there are numerous types of airport capacity projects that can be funded, including terminal expansion, automated people movers, and runway and taxiway expansion. **Table 9-16** provides an overview of the types and examples of projects that can use SIS funds.

Table 9-16: Airport Capacity Projects Eligible for SIS Funding

SIS Project Categories	Projects Eligible for Funding	Projects Not Eligible for Funding
Ground Transportation	On-airport transportation facilities that support the primary flow of passengers and cargo and that link to SIS facilities (*e.g., passenger terminal and cargo facility direct access roadways; busways; rail lines)*	Facilities that focus on airport operations rather than primary flows (*e.g., other on-airport roadways; parking facilities; on-airport rental car facilities; airport shuttle bus roads; non-FDOT land purchase)*
Landside Connections	On-airport multimodal facilities that link passenger and cargo terminals with an SIS connector or hub. (*e.g., on-airport rail/people mover stations or intermodal/bus terminals)*	Airport terminals; airside terminals; terminal shuttles; projects serving GA operations exclusively; non-FDOT land purchase
Airside Connections	Facilities that link passenger and cargo terminals with aviation corridors (*e.g., apron expansion; taxiway (new or extension); runways (new or extension); and approach lighting related to new or extended runways)*	Non-FDOT land purchase; equipment used in airside operations; projects serving GA operations exclusively
Terminal Connections	People mover (capacity); baggage system (capacity/non-security enhancements) Terminal buildings and gates needing capacity improvements to facilitate the movement of people and goods	Maintenance facilities and operations; non-FDOT land purchase, security, customs, and the expansion of retail/concession space

**Landside connections not eligible for funding except when integrated with other off-site modes.*
Source: Florida Department of Transportation (FDOT) Project Handbook, 2016

9.4.3 Historical SIS Funding

To understand what type of projects, and more specifically what airports, are receiving SIS funding, an analysis was conducted that evaluated the use of SIS funds over the last five years using data from the FDOT Work Program. For the purposes of this analysis, FY 2013 to 2017 were used and funding was analyzed by project type, airport, and FDOT District.

9.4.3.1 Funding by Project Type

For all SIS aviation funds programmed between FY 13 and FY 17, close to 50 percent were used for automated people mover projects. Automated people movers generally consist of a grade-separated rail system that allows for faster movement of people between terminals and gates or other areas outside of the terminal. In total, automated people movers accounted for over $156 million in funding. The second most common project type was terminal expansion. Statewide, 28 percent (over $90 million) went to terminal projects.

Together, automated people movers and terminal facilities account for approximately 75 percent of all SIS aviation funds in the state between FY 13 and FY 17. Following terminal expansion, runway projects and manufacturing facilities[7] were the next two most common types of projects that received SIS airport funding. These projects received eight percent ($27 million) and seven percent ($22 million), respectively, of SIS aviation funding. Across all other project types, none received more than three percent of the total SIS aviation funding. A summary of funding by project type is provided in **Table 9-17**.

Table 9-17: Funding by Project Type, FY 13-17

Project Type	Amount	Percentage
Automated People Mover	$156,500,000	47%
Terminal	$90,812,200	28%
Runway	$27,774,889	8%
Aviation Manufacturing	$22,000,000	7%
Taxiway	$8,799,300	3%
Access Road	$7,553,768	2%
Air Commerce Park	$7,000,000	2%
Terminal Shuttle Cars	$5,400,000	2%
Cargo Facility	$3,031,546	1%
Apron	$1,000,000	0.3%
Total	**$329,871,703**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

[7] These projects included the design and construction of aviation manufacturing buildings and supporting infrastructure.

9.4.3.2 Funding by Airport

Over the last five years, only seven airports have received SIS aviation funding. Of these, Tampa International Airport and Orlando International Airport accounted for over 80 percent of all SIS aviation funding. Ft. Lauderdale-Hollywood International Airport, Melbourne International Airport, and Pensacola International Airport accounted for an additional 18 percent. Finally, Palm Beach International Airport and Destin-Ft. Walton Beach Airport accounted for under a half a percent of all SIS aviation funds. A summary of the airports that received SIS aviation funding is provided in **Table 9-18**.

Table 9-18: SIS Aviation Funding by Airport, FY 13-17

Airport	Amount	Percentage
Tampa International Airport	$178,811,500	54%
Orlando International Airport	$90,214,577	27%
Ft. Lauderdale-Hollywood International Airport	$27,774,889	8%
Melbourne International Airport	$23,500,000	7%
Pensacola International Airport	$8,531,546	3%
Palm Beach International Airport	$1,000,000	0.3%
Destin-Ft. Walton Beach Airport	$39,191	0.01%
Total	**$329,871,703**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

9.4.3.3 Funding by FDOT District

Only four FDOT Districts received SIS aviation funding between FY 13 and FY 17. **Table 9-19** reveals that District 7 accounted for approximately 54 percent of all SIS aviation funding. All SIS aviation funding in District 7 went to Tampa International Airport. Following District 7, District 5 received 34 percent of all funding while District 4 received nine percent and District 3 received three percent. A summary of funding by FDOT District is provided in Table 9-19.

Table 9-19: Funding by FDOT District, FY 13-17

FDOT District	Amount	Percentage
7	$178,811,500	54%
5	$113,714,577	34%
4	$28,774,889	9%
3	$8,570,737	3%
Total	**$329,871,703**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

9.4.4 Looking Ahead – SIS Aviation Funding

In the next five years of the FDOT Work Program (FY 18 to FY 22), $115,688,320 in SIS aviation funds is expected to be spent on airports and aviation projects in Florida. As shown in **Table 9-20**, a majority (48 percent) of SIS aviation funds will be spent on terminal expansions with the next highest category being automated people movers. Combined, these two project categories combine for over 80 percent of all SIS aviation funds over the next five years. Similar to the data from the previous five years of the Work Program shown in Table 9-18, Tampa International Airport and Orlando International Airport will receive a majority of the overall funding in the next five years (**Table 9-21**). Similarly, as depicted in **Table 9-22**, FDOT District 7 and 5 will receive the largest portion (84 percent) of all SIS aviation funding over the next five years.

Table 9-20: Funding by Project Type, FY 18-22

Project Type	Amount	Percentage
Terminal	$56,000,000	48%
Automated People Mover	$40,000,000	35%
Hangar	$7,500,000	6%
Access Road	$6,712,820	6%
Taxiway	$3,425,500	3%
Runway	$1,750,000	2%
Cargo Facility	$300,000	0.3%
Total	**$115,688,320**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

Table 9-21: Funding by Airport, FY 18-22

Airport	Amount	Percentage
Tampa International Airport	$78,000,000	67%
Orlando International Airport	$18,000,000	16%
Pensacola International Airport	$10,675,500	9%
Ft. Lauderdale-Hollywood International Airport	$7,712,820	7%
Melbourne International Airport	$1,300,000	1%
Total	**$115,688,320**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

Table 9-22: Funding by FDOT District, FY 18-22

FDOT District	Amount	Percentage
7	$78,000,000	67%
5	$19,300,000	17%
3	$10,675,500	9%
4	$7,712,820	7%
Total	**$115,688,320**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

Based on this analysis, it is evident that SIS aviation funds are being used for a very specific set of projects and are most often used at the largest airports in the state. As reported, of all SIS aviation funds analyzed from the previous Five Year Work program, 90 percent went to large hub airports. This supports the purpose of the SIS, which is to "represent the state's primary means for moving people and freight between Florida's diverse regions, as well as between Florida and other states and nations." FDOT is currently examining the possibility of updating the SIS categories and the SIS designation criteria to reflect the strategic nature of aviation facilities throughout the state. To date, nothing has been finalized, but it is recommended that a comparison of SIS funding be updated once the new criteria are established to determine how the new criteria affect the projects that receive funding. As previously mentioned, SIS recommendations are included in **Chapter 10 – Recommendations**.

9.4.5 Looking Ahead – Non-Aviation SIS Funding

In addition to the numerous projects that have been funded at airports, access to SIS airport facilities on SIS roads is a critically important factor in the overall state transportation system. SIS road facilities make up 25 percent of all state highway centerline miles that account for 55 percent of all vehicle miles traveled on Florida's state highway system and 70 percent of all truck miles traveled on the state highway system. As described, these facilities are critical to efficiently moving both people and freight throughout the state. Though these facilities do not explicitly enhance capacity at airports, they do improve overall mobility and access to them.

To understand the level of impact SIS roadway facilities are having on airports, an analysis was completed to determine what SIS roadway projects are being funded within one mile of an airport and within five miles of an airport (note: the analysis for projects within five miles of the airport includes the projects that are within one mile of the airport). For this analysis, funding was evaluated by both project type as well as FDOT District. The funding amounts shown reflect the number of dollars committed to a project, adjusted to the year of planned expenditure for inflation.

9.4.5.1 Non-Aviation Project Within One Mile of a SIS Airport

Overall, approximately $519 million worth of roadway projects are scheduled for funding between FY 17 and FY 21[8] for SIS roadways within one mile of a SIS airport. As shown in **Table 9-23**, 53 percent of the funding is going to FDOT District 3, with FDOT Districts 7 and 4 also receiving funding. Four FDOT Districts are not scheduled to receive SIS roadway funds for projects within one mile of an SIS airport between FY 17 and FY 21. **Table 9-24** depicts that five different project types are programmed to receive SIS funding between FY 17 and FY 21. Of these, a project that involves adding four travel lanes is receiving 53 percent of the funding. Other projects receiving a significant amount of funding include constructing managed lanes and building new roads. Together, these two project types account for 36 percent (18 percent each) of the SIS funding. The other two project types that are programed to receive funding include preliminary engineering and project development and environmental (PD&E) work.

Table 9-23: SIS Roadway Funding Within One Mile by FDOT District

FDOT District	Amount	Percentage
3	$274,914,000	53%
7	$185,360,000	36%
4	$58,808,000	11%
Total	**$519,082,000**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

Table 9-24: SIS Roadway Funding Within One Mile by Project Type

Project Type	Amount	Percentage
Add 4 to Build 6 Lanes	$274,914,000	53%
Managed Lanes	$93,212,000	18%
New Road	$92,148,000	18%
Preliminary Engineering	$56,750,000	11%
Project Development and Environmental	$2,058,000	0.4%
Total	**$519,082,000**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

9.4.5.2 Non-Aviation Project Within Five Miles of an SIS Airport

Overall, there are $12 billion worth of SIS road projects within five miles of an SIS airport scheduled for funding between FY 17 and FY 21. As shown in **Table 9-25**, FDOT Districts 4 and 7 are programmed to receive 47 and 45 percent, respectively, of SIS funding for projects that are

[8] FY 18-22 data was not available at the time of this writing so FY 17-21 was used.

within five miles of an SIS airport. Together, all the other FDOT Districts, including the Turnpike, received approximately nine percent of funding.[9] Similarly, projects to construct managed lane facilities are programmed to receive 90 percent of all SIS funds for roadway projects (**Table 9-26**). In total, managed lanes are programmed to receive close to $10 billion more in funding than all other project types combined.

Table 9-25: SIS Roadway Funding Within Five Miles by FDOT District

FDOT District	Amount	Percentage
4	$5,757,995,000	47%
7	$5,501,429,000	45%
3	$502,597,000	4%
6	$293,818,000	2%
Turnpike (8)	$127,057,000	1%
1	$124,292,000	1%
2	$16,437,000	0.1%
5	$13,275,000	0.1%
Total	**$12,336,900,000**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

Table 9-26: SIS Roadway Funding Within Five Miles by Project Type

Project Type	Amount	Percentage
Managed Lanes	$11,162,526,000	90%
Add 4 to Build 6 Lanes	$558,236,000	5%
Add 2 to Build 4 Lanes	$193,382,000	2%
New Road	$110,124,000	1%
Preliminary Engineering	$102,150,000	1%
Project Development and Environmental	$95,482,000	1%
Add 2 to Build 6 Lanes	$67,330,000	1%
Add Turn Lane	$23,810,000	0.2%
Right Of Way	$13,594,000	0.1%
Add 2 to Build 8 Lanes	$10,266,000	0.1%

[9] The Turnpike is an enterprise independent of any FDOT District but still under FDOT.

Total	**$12,336,900,000**	**100%**

Source: Florida Department of Transportation (FDOT) Work Program; Kimley-Horn Analysis, 2017

9.4.6 SIS Findings

This SIS analysis reveals that SIS funding plays an integral role in the support for and development of transportation projects in Florida. Without this funding, many aviation-related projects may lack the resources to adequately fund and develop the facilities needed to keep up with the ever-expanding capacity needs at Florida's airports.

9.5 Summary

To help plan improvements and allocate limited resources across the state's system of airports, FDOT ASO and FDOT District staff rely on prioritization processes and alternate sources of funding available to eligible airports. While programs like the SIS help in this effort, a gap remains between the projects identified in the FDOT's FY 18-22 Work Plan and the development estimates included in the *2017 – 2021 NPIAS*. The findings in this Chapter emphasize the importance of continued coordination between the FAA, the FDOT ASO, FDOT Districts, and airport sponsors to make the most effective use of available resources.

10 Recommendations

10.1 Introduction

Florida has an incredible transportation and economic asset in the form of 128 system airports across the state. These facilities support safety, security, business, tourism, resiliency, aerospace development and education, and many other functions. The analysis of Florida's aviation system throughout the Florida Aviation System Plan (FASP) 2035 process revealed a number of strengths. Opportunities for enhancement and change were also revealed during the study's evaluation. This chapter represents a culmination of recommendations for Florida's aviation system, along with recommendations for existing programs and processes that are used to support continuous system planning efforts, such as the Continuing Florida Aviation System Planning Process (CFASPP), the State Strategic Goal Analysis Tool (SSGAT), the Florida Transportation Plan (FTP), and the Infrastructure Analysis Tool (IAT).

10.2 Florida Airport System and FASP Inclusion Criteria Recommendations

Based on analyses of the current Florida Airport System, the following sections provide recommendations related to the definition of the Florida Airport System and FASP study airports.

10.2.1 Evaluation of Florida Airport System Facilities

As stated previously, Florida Statute (F.S.) Chapter 332 states, "the Florida airport system means all existing public-use airports that are owned and operated within the state and those public-use airports which will be developed and made operational in the future."

Currently, all public-use airports, regardless of ownership, are included in the Florida Airport System. F.S. Chapter 332 also says that only publicly-owned, public-use airports are eligible for state funding. As currently legislated, there is no benefit for privately-owned airports to be included in the Florida Airport System since there is no Florida A iation rant Progra funding available for these airports to use to maintain or improve the airport and thus generall no way for the Florida Department of Transportation (FDOT) to influence or assist their ability to help meet the current and future demands placed on Florida's aviation system. These privately-owned airports are required to maintain a license issued by FDOT, but do not receive the financial benefits that other publicly-owned, public-use licensed airports receive for eligible projects.

There are currently 23 privately-owned, public-use airports in the Florida System:

- Privately-owned airports total 662 based aircraft, 603 of which are single-engine piston aircraft
    - *Three privately-owned airports have zero based aircraft while Orlando Apopka Airport totals 117 based aircraft*

- Privately-owned airports estimated annual operations total 283,917
    - *One privately-owned airport has zero estimated annual operations while Ferguson Airport totals 67,500 estimated annual operations*
- Seventeen of the 23 privately-owned airports are located within an approximate 115-mile radius of Orlando, FL
    - *There are no privately-owned airports south of Lake Okeechobee*
- Many of the privately-owned airports are located in rural areas
- Of the 23 privately-owned airports, 12 have turf runways, eight have asphalt runways, one has both asphalt and turf runways, and two are seaplane bases (water)

While these 23 airports serve a role in Florida's aviation system, their participation as a Florida System Airport does not make them eligible to receive state or federal funding. There are disadvantages for private-use airports to become public-use. One relates to zoning regulations associated with F.S. Chapter 333. Private-use airports do not have to comply with F.S. Chapter 333; therefore, if an airport moved from private-use to public-use to subsequently become part of the Florida Airport System, the airport would have to comply with zoning regulations.

It is recommended that the Florida Airport System be defined in F.S. Chapter 332 as publicly-owned, public-use airports, which would reduce the current Florida Airport System to 105 airports. As previously stated, the 23 privately-owned, public-use airports receive no state or federal funding; therefore, it is unlikely that there would be any economic or social impact from their removal from the Florida Airport System.

Additionally, as part of other tasks associated with the FASP, an evaluation was done to determine if any new airports were needed to serve existing or future demand in the state. Based on these analyses, no need for a new airport in any FDOT district or CFASPP region was identified.

10.2.2 Evaluation of FASP Study Airports

As noted in **Chapter 3 – Airport System and Classifications**, Florida Airport System and FASP airports are currently the same. Through the CFASPP, Florida's aviation environment is constantly monitored to maintain a viable, balanced, and integrated airport system. This necessitates consideration of airports as candidates for both inclusion and removal from the FASP.

In the FASP 2035 Update, significant analysis of the system was undertaken to evaluate the existing conditions, future needs, and the performance of the FASP airports. It was determined that no new airports are needed to serve the aviation demand in Florida. While there are capacity concerns in certain areas of the state, new airports were not identified to specifically address the capacity needs. A follow-on capacity study is recommended to further evaluate the options available to meet the demand in certain FDOT Districts.

As part of the FASP, the analysis also considered how airports were contributing to Florida's system and whether there were airports whose contributions were limited and the purpose for their inclusion in the FASP and/or the Florida System could not be determined. Through this

process, additional criteria for inclusion in the FASP were identified beyond the current definition of just being public-use, including:

- The airport must be verified to be open for use by the public
- The airport must be owned and operated by a public agency
- The airport must have a current license per Florida Administrative Code (FAC) Chapter 14-60
- The airport must meet current licensing standards for safety, compatible land-use, and/or airspace obstructions per FAC and requirements under F.S.
- The airport must be in compliance with Florida Aviation Program Assurances (Grant Assurances)
- The airport has an eligible sponsor that is able and willing to assume responsibility for managing, maintaining, and developing the facility

These criteria would require changes to F.S. Chapter 332 as well as to the FASP.

If any FASP airport does not meet the above criteria, it should be considered for removal. It is recommended that these conditions be used as minimum inclusion criteria for the FASP in future updates. It is also recommended that an FDOT procedure for removing an airport from the FASP be developed in order to provide future guidance in the event an airport's removal from the FASP is deemed advisable.

10.3 NPIAS/ASSET Recommendations

As discussed in **Chapter 3 – Airport System and Classifications,** the National Plan of Integrated Airport Systems (NPIAS) is the national aviation system for which the Federal Aviation Administration (FAA) prepares a report every two years to submit to Congress. The purpose of the report is to identify the aviation facilities that are significant to the national air transportation system. Airports included in the NPIAS are eligible for federal funding under the Airport Improvement Program (AIP). The most recent NPIAS report (the *2017 – 2021 NPIAS Report*) includes 100 of Florida's airports.[1]

This section includes a review and evaluation of potential changes to the NPIAS and the associated general aviation (GA) ASSET classifications of airports in Florida. The analysis is tailored towards evaluating non-NPIAS airports' inclusion in the NPIAS and assessing the need to upgrade the ASSET classifications of existing NPIAS airports. Based on the results of the analyses, potential changes to the NPIAS and ASSET categories are identified for consideration by the FDOT Aviation and Spaceports Office (ASO).

[1] The *2017 – 2021 NPIAS* serves as the basis of reference in all subsequent sections.

10.3.1 NPIAS

10.3.1.1 NPIAS Inclusion Criteria

The FAA defines specific criteria for airports to be considered eligible for inclusion in the NPIAS. The NPIAS criteria for commercial service and GA airports are outlined in FAA Order 5090.3C, *Field Formulation of the NPIAS*, which was reviewed in 2015 by the *Report to Congress—Evaluating the Formulation of the NPIAS*.

The following criteria are used to qualify **commercial service airports** for entry into the NPIAS:

- An existing public airport that received scheduled passenger service of aircraft and annually enplanes 2,500 or more revenue passengers as determined by the FAA
- An existing public airport which is forecast by the FAA to receive scheduled passenger service of aircraft and annually enplane 2,500 or more passengers within the plan period will be included in the NPIAS as a commercial service airport for the time periods in which it is expected to qualify
- A proposed public airport which is forecast by the FAA to be a commercial service airport within the plan period will be included in the NPIAS as a commercial service airport for the time period(s) in which it is expected to qualify

The following criteria are used to qualify **GA airports** for entry in the NPIAS:

- Is included in the State Aviation System Plan (SASP) (such as the FASP 2035 Update) or Metropolitan Airport System Plan
- Has at least 10 based aircraft (currently or within five years)
- Serves a community located 30 minutes or more average ground-travel-time (approximately 20 miles) from the nearest existing or proposed NPIAS airport
- Has an eligible sponsor willing to undertake the ownership and development of the airport

The FAA has identified that special consideration may be given to airports in the following cases:

- Previously included in the NPIAS and meets current criteria
- Demonstrate benefits that exceed development costs
- Serve the needs of Native American communities
- Support isolated communities, recreation areas, or important national resources
- Serve as an official airstop for United States (U.S.) mail service
- Have a permanently assigned unit of Air National Guard or reserve component of the Armed Forces

A public-use heliport that does not meet the criteria may be included if it is deemed to provide a significant contribution to public transportation and has at least four based rotorcraft, 800 annual itinerant operations, or 400 annual operations by air taxi rotorcraft.

10.3.1.2 Changes to Existing NPIAS Airports

NPIAS airports are grouped into two major categories: primary and nonprimary. Of the 3,332 current NPIAS airports in the U.S., only 382 are primary.

Primary airports are public airports with scheduled air carrier service that generate 10,000 passenger enplanements or more per year. These airports are further sub-categorized as large hub, medium hub, small hub, and non-hub.

In the *2017 – 2021 NPIAS Report*, the 20 primary airports in Florida include four large hub, three medium hub, six small hub, and seven non-hub airports. **Table 10-1** defines each hub type and categorizes the total number of primary NPIAS airports in the state based on the *2017 – 2021 NPIAS Report*.

Table 10-1: Florida's Primary NPIAS Airports

Categories	Percentage of total U.S. passenger enplanements	Number of Florida Airports
Large Hub	1% or more	4
Medium Hub	At least 0.25%, but less than 1%	3
Small Hub	At least 0.05%, but less than 0.25 %	6
Non-Hub Primary	More than 10,000, but less than 0.05%	7
Total		**20**

Source: National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021

For primary airports, the *2017 – 2021 NPIAS Report* utilizes calendar year 2014 data. Since the release of the *2017 – 2021 NPIAS Report* and publication of updated data, two non-hub airports were recategorized as small hubs (Destin-Ft Walton Beach Airport and Punta Gorda Airport), and one small hub airport was recategorized as a non-hub airport (Key West International Airport). These changes will be reflected in the next NPIAS report, expected to be 2019 – 2023.

Nonprimary airports are mainly used by GA aircraft. As identified in the *2017 – 2021 NPIAS Report*, there are 127 nonprimary commercial service, 259 relievers, and 2,564 GA airports in the U.S. Categories within the nonprimary classification include:

- **Commercial service:** Public airports receiving scheduled passenger service and having between 2,500 and 9,999 enplaned passengers per year
- **Reliever:** Public or private airports designated by the FAA to relieve GA traffic congestion at nearby commercial service airports and provide improved GA access to the overall community

GA: Public-use airports that do not have scheduled air carrier service or have fewer than 2,500 enplanements **Table 10-2** sums Florida's nonprimary NPIAS airports by category from the *2017 – 2021 NPIAS Report*. Eighty of Florida's 100 NPIAS airports are designated as nonprimary airports in

the report. None of Florida's airports are classified in the latest NPIAS as nonprimary commercial service airports. The report includes 21 classified as reliever airports and 59 classified as GA airports.

Table 10-2: Florida's Nonprimary NPIAS Airports

Nonprimary Categories	Number of Florida Airports
Commercial service	0
Reliever	21
GA	59
Total	**80**

Source: National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021

For nonprimary airports, the *2017 – 2021 NPIAS Report* included a review of airport roles or categories conducted in 2015. Since the release of the *2017 – 2021 NPIAS Report*, one GA airport was recategorized as a nonprimary commercial service airport (Vero Beach Regional Airport). This change will be reflected in the next NPIAS report, expected to be 2019 – 2023.

Additionally, four more airports are serving in a reliever role, including:

Flagler Executive Airport: Relieves GA traffic congestion at Daytona Beach International Airport

Merritt Island Airport: Relieves GA traffic congestion at Melbourne International Airport

Peter Prince Field: Relieves GA traffic congestion at Pensacola International Airport

Valkaria Airport: Relieves GA traffic congestion at Merritt Island Airport

In its November 2015 update to the *Report to Congress, Evaluating the Formulation of the National Plan of Integrated Airport Systems (NPIAS),* the FAA recommended eliminating the reliever airport designation. The future of the reliever designation is not known at this time. However, should the designation remain, Florida's reliever airport count would rise to 25.

10.3.1.3 Recommended Additions to the NPIAS

Airports considered for inclusion in the NPIAS are solely based on meeting the NPIAS criteria; however, it is recognized that through the ASSET establishment, the FAA appears to be winnowing the number of airports included in the NPIAS and eligibility for federal funding. Coordination with the FAA regarding any proposed NPIAS expansions is recommended.

Of the 128 airports included in the FASP 2035 Update, 100 are included in the NPIAS, and the remaining 28 are non-NPIAS. Twenty-two of the 28 non-NPIAS airports are privately-owned, and as such are generally not typically adopted into the NPIAS. The remaining six publicly-owned, non-NPIAS airports are evaluated in **Table 10-3,** using check marks to signify whether the airports meet the associated criteria.

Table 10-3: Non-NPIAS Publicly-owned Airports

Airport	FAA ID	Included in the FASP	10+ Based Aircraft	30+ Minutes (or 20-mile radius) from NPIAS Airport
Buchan Airport	X36	✓		
Carrabelle-Thompson Airport	X13	✓	✓	
Downtown Fort Lauderdale Helistop	DT1	✓		
Pierson Municipal Airport	2J8	✓	✓	
Tavares Seaplane Base	FA1	✓		
Wakulla County Airport	2JO	✓	✓	✓

Source: National Plan of Integrated Airport Systems (NPIAS) 2017-2021; Kimley-Horn
Notes: 1-U.S. agencies include: U.S. Forest Service, U.S. Marshals, U.S. Customs and Border Protection, and U.S. Postal Service
2-Essentail Air Service (EAS) is a government program enacted guarantee that small communities in the U.S. maintain commercial service
3-Activated after January 1, 2001

Based on the NPIAS eligibility criteria and current airport conditions, Wakulla County Airport is the only airport that appears to meet all three criteria for potential inclusion in the NPIAS. Wakulla County Airport has at least 10 based aircraft (15 based aircraft), is located 30+ miles from the nearest NPIAS airport (Tallahassee International Airport is 33 miles north), and is included in this FASP 2035 Update. While Wakulla County Airport meets the NPIAS entry criteria, the FAA also has criteria for ASSET classifications (discussed in the next section) which are different from NPIAS entry criteria. Based on the ASSET criteria, Wakulla County Airport would be a basic airport.

10.3.2 ASSET

10.3.2.1 ASSET Inclusion Criteria

As previously discussed in **Chapter 3 – Airport System and Classifications**, the FAA conducted two reviews of the network of GA facilities in the NPIAS to capture the diverse functions and economic contributions of GA airports. In 2012, the results were compiled into *General Aviation Airports: A National Asset (ASSET Study)*. This report acknowledges the following five key aeronautical functions provided by the GA airport system:

- Emergency preparedness and response
- Critical community access for remote areas
- Commercial, industrial, and economic activity functions
- Access to tourism and special events
- Other aviation-specific functions, including corporate flights and flight instruction

Four new ASSET categories were introduced to provide policymakers with a better understanding of the vast and diverse nature of the GA system. The categories are primarily

based on existing activity levels, number and type of based aircraft, and volume and types of flights. The ASSET categories also recognize NPIAS airports that are unclassified, as they do not meet other criteria and have limited activity and number of based aircraft. If a GA airport is eligible for inclusion in the NPIAS, it is also classified within the appropriate ASSET category. The following defines the ASSET categories and list the inclusion criteria for GA airports:

- **National:** Located in metropolitan areas near major business centers and support flying throughout the nation and world. These airports provide pilots with attractive alternatives to the busy primary airports. National airports have high levels of activity, averaging approximately 250 total based aircraft, including 30 jets. Eligibility criteria for this category are:
    1. 5,000+ instrument operations, 11+ based jets, 20+ international flights, or 500+ interstate departures; or
    2. 10,000+ enplanements and at least one charter enplanement by a large certified air carrier; or
    3. 500+ million pounds of landed cargo weight
- **Regional:** Located in metropolitan airports and serve relatively large populations. These airports support regional economies with interstate and some long-distance flying and have high levels of activity including limited air carrier service. Regional airports average about 100 total based aircraft, including three jets. Eligibility criteria for this category are:
    1. Metropolitan Statistical Area (metro or micro) and 10+ domestic flights over 500 miles, 1,000+ instrument operations, 1+ based jet, or 100+ based aircraft; or
    2. The airport is located in a metropolitan or micropolitan statistical area, and the airport meets the definition of commercial service
- **Local:** Provide communities with access to local and regional markets. Local airports are located near larger population centers but not necessarily in metropolitan areas. They accommodate flight training and emergency services and can be associated with moderate levels of activity. Local airports average about 34 based propeller aircraft and no jets. Eligibility criteria for this category are:
    1. 10+ instrument operations and 15+ based aircraft; or
    2. 2,500+ passenger enplanements
- **Basic:** Fulfill the principle role of a community airport providing a means for private GA flying, linking the community with the national airport system (NAS), and making other unique contributions. In some instances, the airport is the only way to access the community and provides emergency response access, such as emergency medical, firefighting, and/or mail delivery. These airports have moderate levels of activity with an average of 10 propeller aircraft and no jets. Eligibility criteria for this category are:
    1. 10+ based aircraft; or
    2. 4+ based helicopters; or
    3. The airport is located 30+ miles from the nearest NPIAS airport; or
    4. The airport is identified and used by the U.S. Forest Service, or U.S. Marshals, or U.S. Customs and Border Protection (designated, international, or landing rights), or U.S. Postal Service (air stops), or has Essential Air Service; or
    5. The airport is a new or replacement facility activated after January 1, 2001; and

6. Publicly-owned or privately-owned and designated as a reliever with a minimum of 90 based aircraft

In addition to the four classifications, there were nearly 500 airports that the FAA could not classify. These airports were referred to as unclassified based on the limited activity identified at the airports. The FAA then undertook additional analysis and in March 2014 published *ASSET 2: In-Depth Review of the 497 Unclassified Airports*. That publication resulted in four airports being removed from the NPIAS, 212 airports moving into one of the four categories, and 281 remaining unclassified. In the original *ASSET Study*, three Florida airports were identified as unclassified. During *ASSET 2*, one was moved to local (Palm Beach County Glades Airport), and both Miami Seaplane Base and Everglades Airpark remained unclassified. As part of the *2017 – 2021 NPIAS Report,* Miami Seaplane Base was reclassified as basic, leaving only one airport (Everglades Airpark) unclassified as of 2017.

10.3.2.2 Changes to Existing ASSET Airports

When the *ASSET Study* was released in 2012, Florida was determined to have 81 GA NPIAS airports, distributed as shown in **Table 10-4**. As part of updates to the NPIAS every two years, the ASSET criteria are revisited and changes to airport classifications are made. The *2017 – 2021 NPIAS Report* identified 80 GA NPIAS airports, also shown in Table 10-4. Airport-specific ASSET criteria changes are provided in **Table 10-5**.

Table 10-4: Florida Airports ASSET Categories

ASSET Category	Number of Florida Airports (2015)	Number of Florida Airports (2017)	2017 Florida Airport Examples
National	9	10	Miami Executive Airport; St. Lucie County International
Regional	32	31	North Perry Airport; Pompano Beach Airpark
Local	29	30	Clearwater Airpark; Okeechobee County Airport
Basic	9	8	Cross City Airport; Dade-Collier Training and Transition Airport
Unclassified	2	1	Everglades Airpark
Total	81	80	

Source: General Aviation Airports: A National ASSET (2012); National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021

The *2017 – 2021 NPIAS Report* includes reclassification of 16 of Florida's NPIAS GA airports, including Northeast Florida Regional which gained commercial service, thus removing its GA classification. Table 10-5 summarizes the GA airports in Florida that changed ASSET categories in 2017.

Table 10-5: Changes to ASSET Categories

Airport	FAA ID	ASSET Category	
		2015	2017
Arcadia Municipal Airport	X06	Local	Basic
Bartow Municipal Airport	BOW	Regional	Local
Clearwater Air Park	CLW	Regional	Local
Crystal River-Captain Tom Davis Field	CGC	Local	Regional
Immokalee Regional Airport	IMM	Local	Regional
Lake City Gateway Airport	LCQ	Local	Regional
Lakeland Linder Regional Airport	LAL	Regional	National
Marco Island Airport	MKY	Regional	Local
Miami Seaplane Base	X44	Unclassified	Basic
Naples Municipal Airport	APF	Regional	National
Northeast Florida Regional Airport	SGJ	National	Now Primary
Ocala International-Jim Taylor Field	OCF	National	Regional
Pompano Beach Airpark	PMP	Local	Regional
Sebring Regional Airport	SEF	Local	Regional
The Florida Keys Marathon International Airport	MTH	Regional	Local
Tri-County Airport	1J0	Basic	Local

Source: General Aviation Airports: A National ASSET (2012); National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021

Based on the latest *NPIAS Report*, regional and local ASSET categories comprise 75 percent of the state's NPIAS GA airports. On a national level, there are twice as many local airports as regional airports (530 to 1,261, respectively). However, in Florida, there are more regional than local airports, a trend indicative of the level of GA activity in the state. Additionally, no state has more national airports than Florida's ten.

10.3.2.3 Recommended Changes to Florida Airports' ASSET Classifications

Everglades Airpark, which is currently unclassified, meets the criteria to be upgraded to the basic category. The airport does not have over 10 based aircraft or four based helicopters, but it is located over 30 miles from the nearest NPIAS airport, Marco Island Airport. It is recommended that coordination with FAA regarding a potential upgrade of the ASSET classification be conducted to further evaluate Everglades Airpark's classification.

Additionally, should Wakulla County Airport enter the NPIAS (as recommended in the previous section), the airport would be classified as basic according to the current ASSET criteria.

10.4 Strategic Intermodal System (SIS) Recommendations

This section includes recommendations specific to the SIS based on previous FASP 2035 analyses, and feedback received from FDOT and Comprehensive Review Team (CRT) members.

As previously mentioned in **Chapter 3 – Airport System and Classifications**, Florida's Governor and Legislature established the SIS in 2003 to enhance Florida's economic competitiveness by focusing state resources on the transportation facilities most critical for statewide and interregional travel. The objectives of the SIS are to:

- Ensure the efficiency and reliability of multimodal transportation connectivity between Florida's economic regions and between Florida and other states and nations.
- Expand transportation choices and integrate modes for interregional trips.
- Provide transportation systems to support Florida as a global hub for trade, tourism, talent, innovation, business, and investment.

There are 18 commercial service airports and two GA airports that are currently designated as SIS or Emerging SIS facilities. The following sections present SIS designation criteria as it pertains to Florida airports, historical changes to these criteria, and recommended changes based on findings presented in FASP 2035.

10.4.1 Existing SIS Designation Criteria

There are two SIS designations for commercial service airports and two for GA reliever airports. The existing inclusion and designation criteria for the SIS are shown in **Table 10-6**. Of the 18 commercial service airports identified in the SIS, seven are designated as SIS airports and the remaining 11 are designated as Emerging SIS airports. The two commercial service airports in the state that are not included in the SIS include Key West International Airport and Northeast Florida Regional Airport.

Table 10-6: Existing SIS Designation Criteria

SIS Designation Criteria	
Designation	**Criteria**
Airports (Commercial Service)	
SIS	Provides scheduled commercial passenger and/or air cargo services (AND) 0.25% of U.S. total annual passenger enplanements or annual freight and mail tonnage (enplaned and deplaned)
Emerging SIS	Provides scheduled commercial passenger and/or air cargo services (AND More than 50 miles along SIS corridors and/or connectors from an SIS commercial service airport (AND) 0.05% of U.S. total annual passenger enplanements or annual freight and mail tonnage (enplaned and deplaned) (OR) 0.01% of U.S. total passenger or freight activity (AND) 0.05% of employment of industries dependent on aviation transportation (within 50 miles) or located in a county or city within a designated Rural Area of Critical Economic Concerns and 0.01% of U.S. total employment at industries dependent on aviation transportation (within 50 miles)
Airports (GA Reliever)	
SIS	Identified by FAA as a GA reliever airport to an SIS airport (AND) Handles at least 75,000 itinerant flight operations per year (AND) Has a runway with length exceeding 5,500 linear feet (AND) Has a runway capable of handling 60,000-pound dual wheel aircraft and serviced by precision instrument approach (AND) 0.05% of employment of industries dependent on air transportation located within a 50-mile radius
Emerging SIS	Identified as a reliever facility to an existing Emerging SIS commercial service airport and meets all of the same criteria as a GA Reliever SIS airport

Source: Florida Department of Transportation (FDOT) Summary of Adopted Strategic Intermodal System (SIS) Facility Types, January 2014

10.4.2 Previous Changes to SIS Designation Criteria

The criteria and thresholds for commercial service airports were originally documented in the *2005 SIS Strategic Plan* and updated in 2007. The following describe these 2007 criteria and thresholds that were updated for commercial service and GA reliever airports, which are related to economic connectivity of airports.

2007 SIS Criteria:

- **Commercial Service Airports:** Economic Connectivity Criteria: Service to industries within 50 miles dependent on aviation transportation located in or adjacent to county with top 25 percent population growth rate in Florida over the next 20 years. This is measured by proximity to one or more of the following:
    - Four-year colleges and universities
    - Clusters of high-technology businesses with more than 100 employees
    - Cluster of tourist establishments with more than 100 employees
- **GA Reliever Airports:** No change in designation criteria from what was originally adopted.

Additional revisions adopted as part of the implementation of the *2010 SIS Strategic Plan* included changes to the economic connectivity criteria and thresholds. There were no changes to the size criteria and thresholds for SIS or emerging SIS commercial service airports recommended in the *2010 SIS Strategic Plan*. The revised approach for economic connectivity criteria and thresholds eliminated the requirement for the commercial service airport to be in a fast-growing county, added a minimum activity floor, and incorporated an objective approach to evaluating industry activity by measuring key industry employment, including a lower threshold for commercial service airports located in Rural Areas of Critical Economic Concern.

2010 SIS Criteria:

- **Commercial Service Airports:** Economic Connectivity Criteria: (must meet both minimum activity floor and key industry employment criteria)
    - Minimum activity floor (must meet one of the following)
        - ≥0.01% of U.S. total annual passenger enplanements
        - ≥0.01% of U.S. total annual freight and mail tonnage
    - Key industry employment (must meet one of the following)
        - ≥0.05% of U.S. total employment of industries dependent on aviation transportation (within 50 miles)

        - Located in a county or city within a designated Rural Area of Critical Economic Concern and ≥0.01% of U.S. total employment of industries dependent on aviation transportation (within 50 miles)

- **GA Reliever Airports:** Implementation Guidance: (must meet one of the following)
    - ≥0.05% of U.S. total employment of industries dependent on aviation transportation (within 50 miles)
    - Located in a county or city within a designated Rural Area of Critical Economic Concern and ≥0.01% of U.S. total employment of industries dependent on aviation transportation (within 50 miles)

10.4.3 Recommended Changes to the SIS

Based on the findings presented in FASP 2035 as well as feedback received from the CRT, it is recommended that modifications to existing SIS airport criteria be made to better leverage the economic competitiveness and strategic nature of Florida's airports.

Specifically, it is recommended that all commercial service airports in the state be included in the SIS to promote intermodal connectivity and development opportunities at commercial airports that are not currently eligible for SIS inclusion. There are currently two commercial airports that would be included in the SIS as a result of this change (Northeast Florida Regional Airport and Key West International Airport). These facilities represent approximately 600,000 annual enplanements a year. However, Key West International Airport, while a commercial service airport, would not be eligible, as the existing road connector (US-1) to the airport is prohibited from capacity enhancements and cannot be designated as an SIS facility. The primary impact of this recommendation would be that all commercial service airports previously categorized as Emerging SIS would be full SIS facilities.

A second recommendation is that all GA airports included in the NPIAS that are categorized as a national airport by the FAA (ASSET role) should also be included in the SIS. National airports are those with very high levels of activity as averaging approximately 200 based aircraft, including 30 jets. National airports support the national and state system by providing communities with access to national and international markets in multiple states and throughout the U.S. This recommendation would prompt the inclusion of an additional nine GA airports to the SIS:

- Boca Raton Airport (BCT)
- Fort Lauderdale Executive Airport (FXE)
- Treasure Coast International Airport (FPR)
- Jacksonville Executive At Craig Airport (CRG)
- Miami-Opa Locka Executive Airport (OPF)
- Orlando Executive Airport (ORL)
- Witham Field (SUA)
- Lakeland Linder Regional Airport (LAL)

- Naples Municipal Airport (APF)

It is also recommended that GA airports categorized in the NPIAS as a regional airport be designated as strategic growth airports. Regional airports have high levels of activity with some jets and multi-engine propeller aircraft averaging about 90 based aircraft and three jets. Regional airports support regional economies by connecting communities to statewide and interstate markets. The strategic growth categorization would replace the previous Emerging SIS designation and would include airports determined by FDOT to be of compelling state interest that either serve a unique market niche, serve a cluster of transportation-dependent industries, or are located in a region without designated SIS facilities. Recommended strategic growth airports would include:

- Brooksville-Tampa Bay Regional Airport (BKV)
- Bob Sikes Airport (CEW)
- Crystal River-Captain Tom Davis Field (CGC)
- Deland Municipal-Sidney H Taylor Field (DED)
- Destin Executive Airport (DTS)
- Fernandina Beach Municipal Airport (FHB)
- Page Field (FMY)
- North Perry Airport (HWO)
- Immokalee Regional Airport (IMM)
- Cecil Airport (VQQ)
- Herlong Recreational Airport (HEG)
- Lake City Gateway Airport (LCQ)
- Leesburg International Airport (LEE)
- Merritt Island Airport (COI)
- Smyrna Beach Municipal Airport (EVB)
- Ocala International-Jim Taylor Field (OCF)
- Kissimmee Gateway Airport (ISM) (currently in SIS)
- Ormond Beach Municipal (OMN)
- Flagler Executive Airport (FIN)
- Pompano Beach Airpark (PMP)
- Sebring Regional Airport (SEF)
- Albert Whitted Airport (SPG)
- Peter O Knight Airport (TPF)
- Tampa Executive Airport (VDF)
- Space Coast Regional Airport (TIX)
- Venice Municipal Airport (VNC)
- Vero Beach Regional Airport (VRB)
- North Palm Beach County General Aviation Airport (F45)
- Palm Beach County Park Airport (LNA)
- Winter Haven's Gilbert Field (GIF)
- Zephyrhills Municipal Airport (ZPH)

Existing SIS airports, recommended SIS airports, and recommended strategic growth airports are shown in **Figure 10-1**. It should be noted that the existing SIS category in Figure 10-1 includes all airports that are currently designated SIS or Emerging SIS.

Figure 10-1: Existing and Recommended SIS Airports

Source: Florida Department of Transportation (FDOT) Strategic Intermodal System (SIS); Kimley-Horn Analysis

10.5 FASP 2035 Recommendations

The following recommendations are a result of the system goal performance assessment presented in **Chapter 7 – System Analysis**. The recommendations are organized by system goal.

10.5.1 Goal 1: Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors

Access to safe, efficient, secure, and convenient air transportation for all users is the cornerstones of a well-functioning aviation system. Based on a preliminary demand/capacity (D/C) analysis of Florida's airports, more detailed analyses may be warranted in some Districts to ensure all citizens, businesses, and visitors have access to air travel. Service availability is secondary to a safe and secure system compliant with state and federal statutes and regulations. The FASP 2035 Update recommends prioritizing funds to address state licensing standards and federal requirements, as well as other indicators of safety, protection, and resiliency.

10.5.1.1 Goal 1 Recommendations

- Preserve existing infrastructure or replace when necessary.
- Conduct a more detailed capacity study, looking specifically in FDOT Districts 4, 5, and 6.
- Monitor FAA FACT studies as they are developed.
- Prioritize funding for projects that address state licensing standards per FAC Rule 14-60.
- 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.

10.5.2 Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment

FDOT has the opportunity to implement policies designed to actively support activities that significantly benefit the state's economy and encourage economic growth and the marketability of aviation in Florida. This support requires active coordination with local, regional, and statewide partners; the cultivation of appropriate business development on airport property; and support for key aviation activities including aviation education, flight training, and workforce development.

Enhancing the state's multimodal infrastructure may be the most important singular step towards advancing this overall goal. FDOT should support the development of multi modal options at and around airports, and existing SIS criteria should be modified to better leverage the economic competitiveness and strategic nature of Florida's airports. Airport planning processes, including airport master plans and ALPs, also have a role in creating business-friendly environments.

10.5.2.1 Goal 2 Recommendations

- 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 (MPOs) and other modal partners to support and improve intermodal connectivity.
- Continue to maintain a database of current master plans and 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*.

10.5.3 Goal 3: Support and enhance the national position of leadership and prominence held by Florida's aviation industry

Ensuring the state's continued leadership and prominence in the aviation industry requires an ongoing commitment to identifying and communicating the value of investing in Florida's airport system through various forums including publications and industry organizations.

10.5.3.1 Goal 3 Recommendations:

- 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.

10.5.4 Goal 4: Protect airspace and promote compatible land uses around public airports

FDOT and policymakers have an obligation to protect airspace and ensure compatible land use around public airports to support the safety of aircraft, their passengers, and individuals on the ground. FDOT offers continuous training for airport sponsors to comply with the latest state and federal requirements, as well as provides the necessary resources for developing and implementing airport compatible land use zoning and policies for airport protection.

10.5.4.1 Goal 4 Recommendations:

- Provide continuous training on the latest requirements of F.S. Chapter 333, *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 (UAS) information.
- Develop a statewide database of electronic airport layout plan (eALP) files provided by airports during the master planning process.

10.5.5 Goal 5: Foster technological innovation and support implementation of new technologies

Technological innovations are driving major changes within the aviation industry that will affect nearly every aspect of flying—from how we board, to the aircraft we fly, to the way aircraft move through our skies. In the coming years and decades, airports and FDOT must be prepared to evolve with the changes that are likely to be brought by NextGen, remote and virtual towers (RVTs), UAS, and larger and lighter aircraft capable of flying longer distances with less fuel—among many others potential technological advancements. FDOT should take a proactive approach to meet the needs of these changes to keep Florida on the leading edge of modern aviation.

10.5.5.1 Goal 5 Recommendations:

- 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.

10.5.6 Goal 6: Promote support for aviation from business, government, and the public

Enhancing businesses', policymakers', and the public's understanding of the importance of airports promotes aviation and encourages economic growth. To strengthen the ties between airports and their communities, the FASP 2035 Update recommends leveraging the resources provided by the Airport Cooperative Research Program (ACRP) to develop Florida-specific tools for aviation support. Furthermore, FDOT should continue to support and improve existing systems to act as good stewards of public resources while maintaining the highest quality of aviation services across the state.

10.5.6.1 Goal 6 Recommendations:

- Leverage 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 inspections and training.
- Improve Capital Improvement Plan (CIP) management and coordination to better manage financial resources for the Joint Automated Capital Investment Program (JACIP).

10.5.7 Goal 7: Foster Florida's reputation as a military- and aerospace-friendly state

Florida is home to numerous military installations that provide safety, security, resiliency, meaningful employment, and a significant economic contribution to the state—among numerous other benefits. The U.S. military brings a unique perspective on the aviation industry with specific needs associated with the airport system. Furthermore, the military serves as an important driver of the state's aerospace and defense industries. Today, Florida is home to many of the world's largest aerospace and defense firms, many of which are clustered at or near airports across the state. Most notably, a dense concentration of aerospace and defense contractors has arisen along the Space Coast near Cape Canaveral and the Kennedy Space Center and within the Florida panhandle in the vicinity of Eglin Air Force Base.

10.5.7.1 Goal 7 Recommendations:

- Ensure that military and aerospace-industry 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.

10.5.8 FASP Recommendations Alignment with FTP & SIS

A summary of all FASP 2035 recommendations, categorized by how they fit with FTP goals and SIS objectives, as well as the recommended timeframe for implementation and prioritization, is shown in **Table 10-7**. The recommendations presented in Table 10-7 represent the culmination of all specific policy endorsements identified in previous portions of this document. These recommendations were presented at a CRT meeting in December 2016 to get feedback regarding how FDOT should prioritize the recommendations (high, medium, low) as well as a recommended implementation timeframe (continuous, 0-5 years, 5-10 years, 10-20 years). The FTP goals and SIS objectives that each policy recommendation applies to are identified in the key below the table.

Table 10-7: FASP 2035 Recommendations by FTP Goal and SIS Objective

FASP Goal	FASP Recommendation	Timeframe	Prioritization	FTP Goal	SIS Objective
Goal 1	Preserve existing infrastructure or replace when necessary.	Continuous	High	1	1
	Conduct a more detailed capacity study, looking specifically in FDOT Districts 4, 5, and 6.	10-20 year	Medium	1	1
	Monitor FAA Future Airport Capacity Task (FACT) studies as they are developed.	Continuous	Medium	1	1
	Prioritize funding for projects that address state licensing standards per FAC Rule 14-60.	Continuous	High	1	1
	Compile RPZ ownership data.	0-5 year	Medium	1	1
	Promote state funding for projects that address state and federal standards for protection and compatibility, including compatible land uses within RPZs.	5-10 year	Medium	1	1
	Coordinate with the state and local EOCs on airport emergency power needs.	Continuous	Medium	1	1
	Develop a roadmap for addressing airport wildlife hazards at a statewide level for non-Part 139 airports.	5-10 year	Medium	1	1
	Track the implementation of projects to correct the identified taxiway deficiencies.	Continuous	Low	1	1
	Develop facility, infrastructure, and service guidelines for lower activity general aviation airports.	10-20 year	Low	1	1
	Update the FDOT General Aviation Security Assessments	5-10 year	Medium	1	1
Goal 2	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.	Continuous	High	2	3
	Develop a study to identify business suitability and opportunities at airports, including commercial air service enhancements.	5-10 year	Medium	2	3
	Coordinate with MPOs and other modal partners to support and improve intermodal connectivity.	Continuous	Medium	2	2
	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	Continuous	Medium	2	1
	Support efforts related to Florida's aviation education, flight training, and workforce development.	Continuous	Medium	2	3
	Recommend modifications to existing SIS airport criteria to better leverage the economic competitiveness and strategic nature of Florida's airports.	0-5 Year	Medium	2	3
	Continue to update and communicate the FDOT *Airport Sustainability Guidebook*	0-5 year	Medium	2	1
Goal 3	Monitor and promote the ROI of state funds invested in Florida's airports.	Continuous	High	3	3
	Continue to update the *Statewide Aviation Economic Impact Study* in conjunction with the FASP.	Continuous	High	3	3
Goal 4	Provide continuous training on the latest requirements of F.S. Chapter 333, *Airport Zoning*.	Continuous	High	4	1
	Provide resource materials for developing and implementing zoning ordinances, land use compatibility, and airport protection.	0-5 year	High	4	1
	Develop a web-based statewide land use compatibility tool that includes UAS information.	0-5 year	Medium	4	1
	Develop a statewide database of eALP files provided by airports during the master planning process.	5-10 year	Medium	4	1
Goal 5	Develop an implementation plan for maximizing NextGen approach procedures at Florida airports.	0-10 year	Medium	5	1
	Continue to work with and support partners in the space industry to advance NextGen technologies.	Continuous	Medium	5	3
	Monitor technological advances that could impact airport development needs.	Continuous	High	5	1

FASP Goal	FASP Recommendation	Timeframe	Prioritization	FTP Goal	SIS Objective
Goal 6	Leverage ACRP information to develop Florida-specific resources and tools to gain support from businesses, public and government representatives.	0-5 year	Low	6	3
	Continue to fund and provide statewide Pavement Condition Index (PCI) inspections and training.	Continuous	Medium	6	1
	Improve CIP management and coordination to better manage financial resources for the JACIP.	0-5 year	High	6	3
Goal 7	Ensure that military and aerospace industry 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.	Continuous	High	7	1
	Coordinate and support the efforts of the U.S. military in Florida through FDOT/EOC coordination.	Continuous	High	7	1

FTP Goals:

1) Provide efficient, safe, 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 position of leadership and prominence held by Florida's aviation industry.
4) Protect airspace and promote compatible land uses around public airports.
5) Foster technological innovation and support 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.

SIS Objectives:

1) Interregional Connectivity: Ensure the efficiency and reliability of multimodal transportation connectivity between Florida's economic regions and between Florida and other states and nations.
2) Intermodal Connectivity: Expand transportation choices and integrate modes for interregional trips.
3) Economic Development: Provide transportation systems to support Florida as a global hub for trade, tourism, talent, innovation, business, and investment.

Source: Florida Aviation System Plan (FASP); Kimley-Horn Analysis, prepared April 2017

10.6 System Gaps and Opportunities

One of the primary types of system evaluation includes the use of drive-time analyses to determine system accessibility. **Chapter 7 – System Analysis** presented the evaluation of Florida's airports in providing residents and visitors access to airports with key facilities or services within a reasonable drive time. This section includes recommendations based upon the results of the mapping analyses in **Chapter 7 – System Analysis.**

10.6.1 Additional Airport Analysis: Accessibility

The mapping analysis identified accessibility in terms of drive times for both commercial service and GA airports within Florida. "Reasonable" drive time thresholds for commercial airports were established for resident access as follows:

- Large hub airports: 90 minutes
- Medium hub airports: 60 minutes
- Small and non-hub airports: 45 minutes

While each of the airport hub sizes was analyzed independently, they were also combined to look at accessibility of all commercial service airports in aggregate, removing duplicative populations. Based on these thresholds, it was identified that over 93 percent of current Florida residents live, and more than 94 percent of projected residents in 2035 will live, within a reasonable drive time from a commercial service airport (see **Table 10-8**).

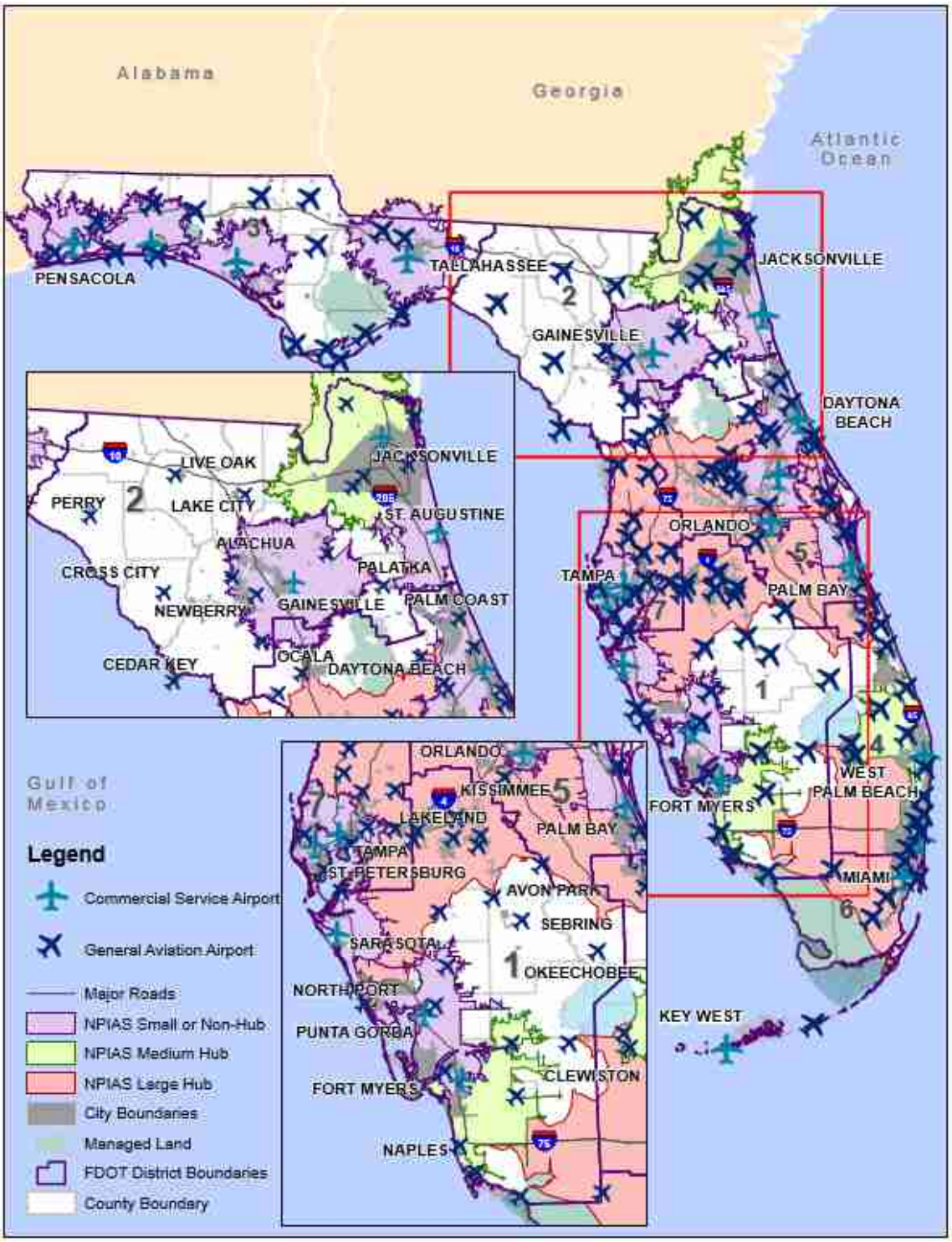
Table 10-8: Drive Time Coverage of Airports by Commercial Service Hub Size

Commercial Service					
Hub Size	**Drive Time Area**	**2016: Percentage of Population Within Drive Time**	**2016: Percentage of Cumulative Population Within Drive Time**	**2035: Percentage of Population Within Drive Time**	**2035: Percentage of Cumulative Population Within Drive Time**
Large	90 Minutes	70.5%	N/A	70.9%	N/A
Medium	60 Minutes	27.9%	84.4% (Large + Medium)	28.6%	85.5% (Large + Medium)
Small and Non-Hub	45 Minutes	45.5%	93.4% (Large + Medium + Small + Non)	46.1%	94.2% (Large + Medium + Small + Non)

Source: National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021; Kimley-Horn Analysis

The analysis concluded that less than seven percent of current residents and less than six percent of residents in 2035 are not or will not be within a reasonable drive time to a commercial service airport. These residents are primarily located in remote areas of Districts 1, 2, and 3 (see **Figure 10-2**). As shown, geographic areas in District 1 that are not within the cumulative drive times are generally southeast of Tampa and northwest of Fort Lauderdale. Cities within District 1 that are outside the cumulative drive time coverage areas include Avon Park, Sebring, and Okeechobee. It should be noted that drive times between these cities and commercial airports, including Sarasota Bradenton International Airport, Tampa International Airport, and Palm Beach International Airport are less than 2 hours.

Figure 10-2: Large Hub Airport 90-Minute Drive Times, Medium Hub 60-Minute Drive Times, and the Small/Non-Hub 45-Minute Drive Times



Source: National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021; Kimley-Horn Analysis

Areas in District 2 and the eastern portion of District 3 that are not within the cumulative drive times are located between Tallahassee, Gainesville, and Jacksonville. As shown in Figure 10-2, cities within District 2 that are not within the cumulative drive time coverages include Lake City and Live Oak. It should be noted that both of these cities are within 90-minute drives of the commercial air service provided by Gainesville Regional Airport, Tallahassee International Airport, and Jacksonville International Airport.

Areas within District 3 outside of the cumulative drive times are located between Tallahassee and Pensacola and include communities such as Marianna and Chipley. These areas are within 90-minute drive times of Tallahassee International Airport and Northwest Florida Beaches International Airport.

It's important to understand that airlines make decisions about providing commercial airline service, not the FAA, the FDOT ASO, or the airports. Airlines typically make decisions about where to provide the service, the amount of service, aircraft types, etc., based on their ability to generate a profit, which is typically driven by the amount of traffic they expect to realize in a given market. The amount of traffic is highly dependent on the number of people, both residents and visitors, that want to travel from and to that area. Based on the relatively low current and projected population of the areas that are beyond the existing drive times of Florida's current commercial service airports, additional commercial service airports are not needed. The existing network of commercial service airports in Florida serves the majority of the population and the areas that have a longer drive time do not appear to have the level of population that would support viable commercial airline service.

For GA airports, the mapping analysis in **Chapter 7 – System Analysis** identified the percentage of residents who currently live, or are projected to live, within a 30-minute drive time of airports in the NPIAS with ASSET classifications of national, regional, local, or basic (see **Table 10-9**). The analysis concluded that approximately 86 percent of current Florida residents live within a 30-minute drive of one of these classifications of airports (85 percent by 2035). This analysis was expanded to include commercial airports, unclassified NPIAS GA airports, and non-NPIAS airports that are public-use facilities, to identify the percent of the state's current and projected population within reasonable proximity to drive to any airport that provides GA service. When these airports are added to the analysis, the current population with access to GA service is nearly 94 percent, and the 2035 population is projected to be slightly above 93 percent (see **Figure 10-3**).

While non-NPIAS airports are not eligible to receive FAA grants, they can still be eligible for state funding if they are publicly-owned and open for use by the public. Based on the results of this expanded analysis, additional GA airports are not anticipated to be needed in the FASP 2035 20-year planning horizon.

Table 10-9: NPIAS Airports by ASSET Classification

General Aviation					
ASSET Category	**Percentage of GA Airports**	**2016: Percentage of Population Within a 30-Minute Drive**	**2016: Percentage of Cumulative Population within a 30-Minute Drive**	**2035: Percentage of Population Within a 30-Minute Drive**	**2035: Percentage of Cumulative Population within a 30-Minute Drive**
National	13% (10 of 80)	41.5%	N/A	41.3%	N/A
Regional	39% (31 of 80)	54.4%	80.1% (National + Regional)	54.1%	80.1% (National + Regional)
Local	38% (30 of 80)	23.4%	85.2% (National + Regional + Local)	22.8%	84.7% (National + Regional + Local)
Basic	10% (8 of 80)	11.1%	85.5% (National + Regional + Local + Basic)	10.4%	85.0% (National + Regional + Local + Basic)

Source: National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021; Kimley-Horn Analysis

Figure 10-3: Commercial, NPIAS, and Public Non-NPIAS Airports 30-Minute Drive Times

Source: Florida Aviation System Plan (FASP); Kimley-Horn Analysis

10.6.2 Additional Airport Analysis: Capacity

Another analysis of gaps/opportunities within the Florida aviation system evaluated existing and future D/C ratios, which was presented in **Chapter 6 – Aviation Activity Forecasts**. The analysis identified each airport's annual service volume (ASV) and compared it with base year 2014 aircraft operations and forecasted aircraft operations through 2035. The purpose of the analysis was to identify individual airports that may need to enhance airfield capacity currently or in the future, as well as to highlight any specific geographical areas or FDOT Districts in the state that currently experience issues with airport capacity, or that are anticipated to in the future.

The results of this analysis identified that in base year 2014, there were five airports that exceeded the FAA's recommended 60 percent D/C ratio threshold that indicates a need to plan for capacity enhancements, and three additional airports that exceeded the 80 percent threshold which suggests a need to start implementation for capacity enhancements. The analysis also projected that by 2035, 11 airports would exceed the 60 percent threshold, six additional airports would exceed the 80 percent threshold, and three more would exceed their ASV altogether.

The analysis revealed that the majority of airports that currently or are projected to have D/C ratios exceeding the previously mentioned 60 percent and 80 percent thresholds were located in FDOT Districts 4, 5, and 6. These areas are primarily located in the coastal corridor between Jacksonville and Miami, where airport activity is impacted by tourism, corporate activity, flight schools, and other factors (see **Figure 10-4**).

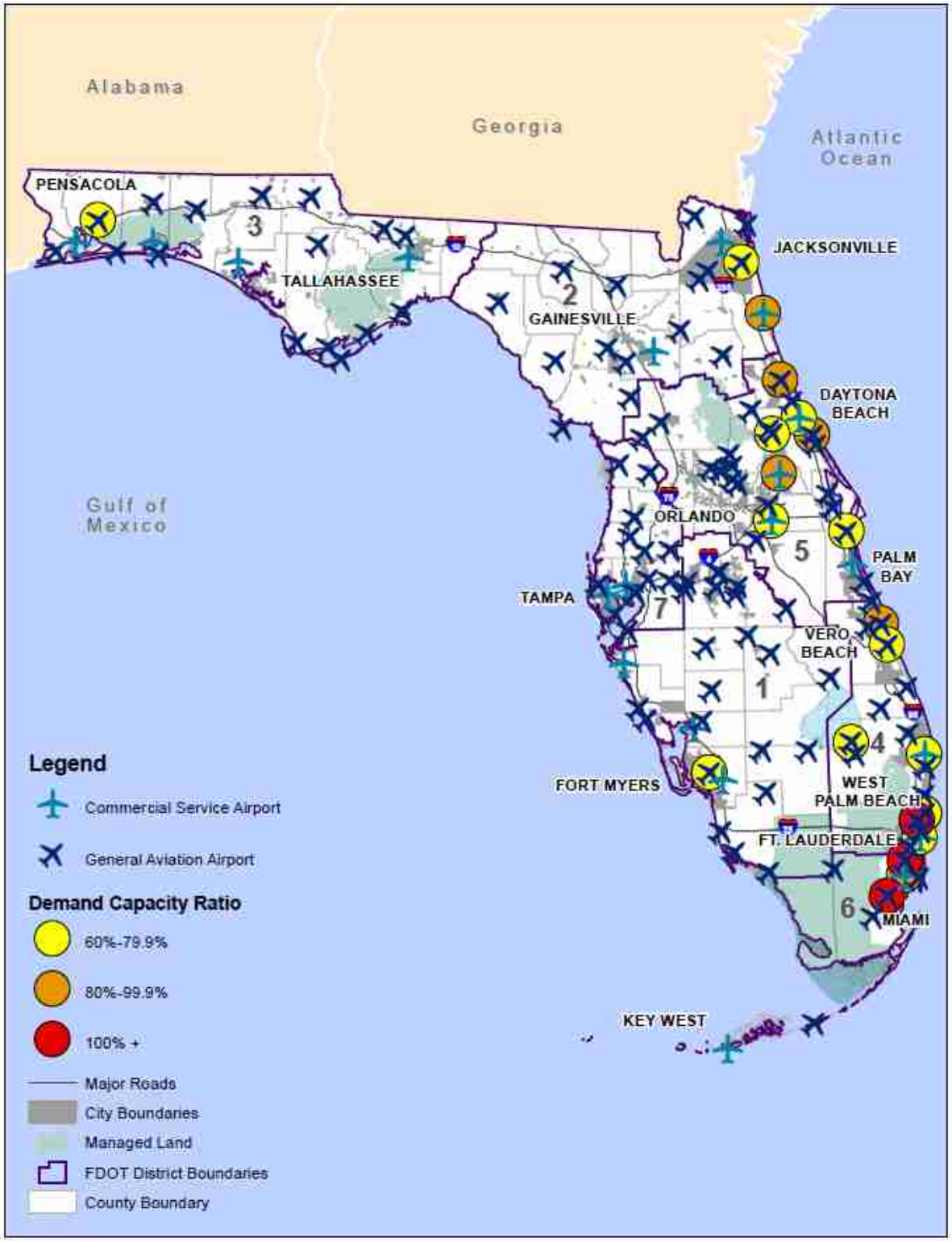
Airports are often able to mitigate capacity constraints by adding exit taxiways, implementation of an air traffic control tower (ATCT), construction of additional runways, reducing flight training operations (often relocated to other nearby facilities), and other measures. For example, Palm Beach International Airport and Fort Lauderdale Executive Airport are located approximately 35 miles from each other and both are anticipated to experience levels of activity that would require planning for or implementation of capacity enhancement by 2035. Within relatively close proximity, there are several airports that appear to have ample capacity now and in the future based on projected demand levels, including Boca Raton Airport, North Perry Airport, and Witham Field.

From an FDOT perspective, mitigating capacity issues is beneficial not only to enhance the safety and efficiency of individual airports, but also to alleviate congestion in specific high-activity regions of the state. As such, it is encouraged that future airport master plan updates or similar planning studies at airports identified in FASP 2035 as exceeding the 60 percent D/C planning ratio within 20 years include demand, capacity, and operations analyses. For airports with low and medium levels of activity, these analyses should be based on planning parameters identified in FAA AC 150/5060-5 *Airport Capacity and Delay*. Analyses for higher-level activity and commercial airports may need to utilize more specialized capacity tools, such as AirTOp, the Total Airspace and Airport Modeler (TAAM), the FAA's Airport and Airspace Simulation Model (SIMMOD), and the Runway Exit Design Interactive Model (REDIM).

It should be noted that although D/C ratios based on ASV are generally acceptable measurements to identify airfield capacity issues, they are not always the most telling indicators, particularly at commercial service airports. *ACRP Report 104: Defining and Measuring Aircraft Delay and Airport Capacity Thresholds* offers guidance to help airports, particularly larger commercial airports, understand, select, calculate, and report measures of delay and capacity that may be more effective than the calculations outlined in FASP 2035.

Due to the complex nature of individual airport capacity, regional connectivity between airports, type of demand that individual airports accommodate (corporate, flight training, etc.), and potential capacity enhancement measures that can be pursued, a specific recommendation of FASP 2035 is for FDOT to conduct additional capacity studies for the three Districts where elevated levels of activity have been projected, namely Districts 4, 5, and 6.

Figure 10-4: D/C Ratios, 2035



Source: Florida Aviation System Plan (FASP); Kimley-Horn Analysis

10.6.3 Aviation System Facility and Service Gaps/Opportunities

While the drive-time mapping and D/C ratio analyses constituted the primary mechanisms to identify gaps or opportunities in the state's aviation system in terms of airport accessibility and capacity, additional analyses were also provided in **Chapter 7 – System Analysis** to measure existing and future population coverage with access to airports with specific facilities or services, including:

- ATCTs
- SIS facilities
- Runways of at least 3,200 feet in length
- Precision approaches
- Business use airports
- Flight training

The results of these additional analyses confirmed that the state's airports are equipped to accommodate existing and projected levels of demand, and that additional commercial service or GA airports do not appear to be needed in the future. However, the results of this analysis identified gaps and opportunities from a facility/service perspective. These are summarized in the following pages.

- **ATCT:** Nearly 90 percent of the state's current population and 90 percent of its population projected for 2035 resides or will reside within a 30-minute drive of an airport equipped with an ATCT. However, from a geographical perspective, there are substantial gaps in coverage in the south-central portions of the state, spanning large areas of FDOT Districts 1, 4, 5, 6 and 7 (see **Figure 10-5**). FDOT Districts 2 and 3 also have large areas that do not provide access to ATCTs.

  The FAA has the authority to establish control towers or discontinue tower services throughout the National Airspace System when activity levels and safety considerations merit such action. The general qualifications necessary to become a candidate site for establishment or discontinuance of a control tower are published in the Federal Aviation Regulations (FAR) Part 170, "Establishment and Discontinuance Criteria for Air Traffic Control Services and Navigational Facilities." According to FAR Part 170.13, the following criteria, along with general facility establishment standards must be met before an airport can qualify for an ATCT:

    1. The airport, whether publicly or privately-owned, must be open to and available for use by the public as defined in the Airport and Airway Improvement Act of 1982;
    2. The airport must be part of the NPIAS;
    3. The airport owners/authorities must have entered into appropriate assurances and covenants to guarantee that the airport will continue in operation for a long enough period to permit the amortization of the control tower investment;

4. The FAA must be furnished appropriate land without cost for construction of the control tower; and
5. The airport must meet the benefit-cost ratio criteria specified herein utilizing three consecutive FAA annual counts and projections of future traffic during the expected life of the tower facility.

While it is not unprecedented for airports currently without an ATCT to get a new ATCT when airports meet the criteria mentioned above, including a new ATCT scheduled to open at Dentin Executive Airport in November 2017, the FAA has shown little interest in the past few years in greatly expanding the number of facilities operated either by the FAA or a contract operator. As a result, there has been increased interest for RVTs. An RVT is a facility that provides the same services as a traditional ATCT either at an airport or remotely by using video sensor-based surveillance. While RVT development is still in experimental stages, there is one RVT in operation in Europe (whose system was also tested at Leesburg Executive Airport in Virginia in summer of 2015), and in 2015, the FAA announced that Fort Collins-Loveland Municipal Airport in Colorado was the first official FAA approved Virtual ATCT test site in the U.S.

While the analysis presented in **Chapter 7 – System Analysis** did not identify any immediate needs for expansion of ATCT facilities, it is recommended that FDOT monitor operational activity at airports located in geographical areas that are not equipped with an ATCT and assess if any significant increases in aircraft operations merit traditional ATCT studies or pursuance of an alternative such as an RVT if the technology becomes more common. This monitoring process should be a continual effort throughout the 20-year planning horizon.

Figure 10-5: Airports with ATCTs by FDOT District

Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

- **SIS Facilities:** Over 72 percent of Florida's existing and projected population by 2035 is or will be located within a 30-minute drive of an airport designated as an SIS facility. While this coverage is substantial, it was noted in **Chapter 7 – System Analysis** that adding airports to the SIS must be evaluated on an airport-by-airport basis. SIS evaluation criteria are currently being evaluated by FDOT and specific SIS recommendations are provided later in this Chapter.
- **Runways 3,200+ feet long:** Nearly 94 percent of the state's current population resides within a 30-minute drive of an airport with a runway of at least 3,200 feet in length. The 3,200-foot length is the calculated take-off distance required to accommodate 100 percent of small GA aircraft (12,500 lbs. or less) at mean sea level and standard day temperature of 59° Fahrenheit as described in FAA AC 150/5325-4B*, Runway Length Requirements for Airport Design*. The 94 percent coverage is anticipated to decrease to just over 93 percent by 2035 due to changes in population and where they choose to live. The only service gap for population access to a runway at least 3,200 feet in length was identified in District 6 (see **Figure 10-6**); however, the population of this District is very dense in certain areas and equally as sparse in others. District 6 is also home to very large areas of conservation space, such as Everglades National Park. While siting a new airport in this remote location is unlikely and not needed to serve any population base, FDOT should monitor the conditions to assess if there is a safety need for aircraft to utilize an existing runway for emergency landings in this area.

Figure 10-6: Runways Over 3,200 Feet, 30 Minute Drive Times

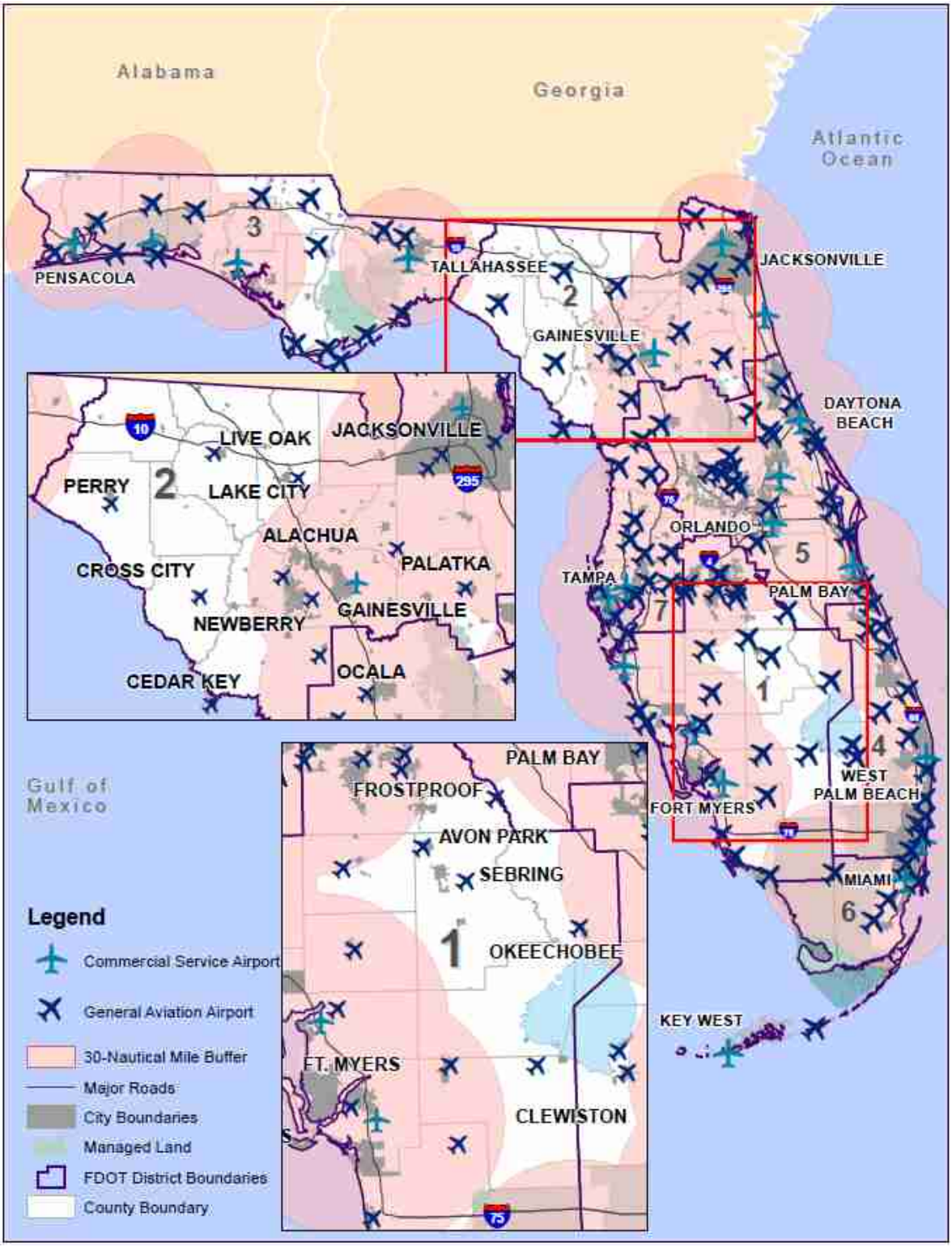
Source: Florida Aviation Database (FAD); Kimley-Horn Analysis

- **Precision Approaches:** Over 75 percent of all the land in Florida is within 30 miles of an airport equipped with a precision approach. Based on the analysis presented in **Chapter 7 – System Analysis,** it was identified that airports with precision approaches are clustered near developed and metropolitan areas, and that geographical service gap areas are present within FDOT Districts 1 and 2 (see **Figure 10-7**).

  Based on runway length and forecasted operations, airports in District 1 that could be potential candidates for a precision approach include Sebring Regional Airport and/or Avon Park Executive Airport. Airports in District 2 that may benefit from a precision approach include Lake City Gateway Airport and/or Suwanee County Airport.

  Because precision approaches are particularly important to corporate and commercial service aircraft, especially during inclement weather, it should be a priority to reduce the number and size of geographical areas whose airports are not equipped with precision approaches. An increase in the number of airports equipped with precision approaches throughout the state, especially in areas that are not proximate to airports with these capabilities, would provide additional facilities for aircraft to conduct emergency landings or diversions due to severe weather. It is recommended that FDOT monitor aircraft operations at the previously identified airports within Districts 1 and 2 to identify if additional precision approaches are warranted.

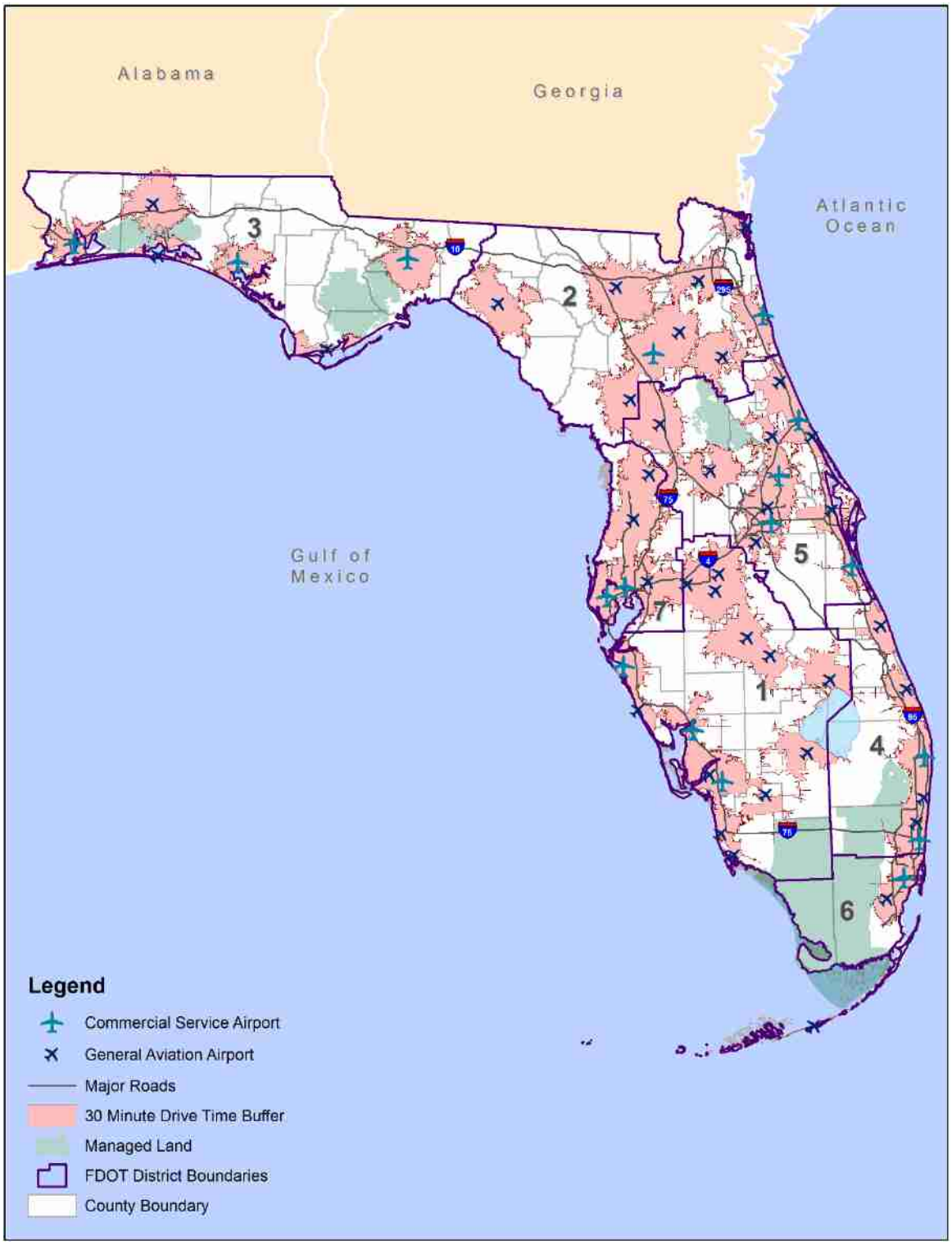
Figure 10-7: Airports with Precision Approaches by FDOT District, 30 Nautical Miles



Source: Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

- **Business Use Airports:** Nearly 85 percent of current and 2035 projected Florida residents live or will live within a 30-minute drive of a business-use airport, identified as an airport with a 5,000-foot long runway, Jet A fuel, instrument approach, and a weather reporting station. Based on the analysis provided in **Chapter 7 – System Analysis**, there is a lack of airports meeting this criteria in Districts 2, 3, 4, and 6 (see **Figure 10-8**). While these gaps represent lower population areas, FDOT should routinely examine master plans and other planning documents developed for these airports to identify if these facilities satisfy the criteria established for inclusion as a business-use airport.

Figure 10-8: Business-Use Airports by FDOT District



Source: National Flight Data Center (NFDC); Florida Aviation Database (FAD); Individual Airport Layout Plans (ALPs); AirNav.com; Kimley-Horn Analysis

- **Flight Training:** Based on the analysis presented in **Chapter 7 – System Analysis**, it was identified that 92 percent of Florida's current population, and a little less than 92 percent of its future population, lives or will live within a 30-minute drive of an airport with flight training activity. The analysis further described that Districts 1, 4, and 6 have significant coverage gaps although the population within these gap areas is relatively low (see **Figure 10-9**).

  Flight training is an extremely important facet of the aviation industry in Florida. Flight schools in Florida train more pilots than any other state in the U.S. Providing close, convenient access to airports with flight training is critical to the overall success of the industry, as well as an essential component of the future of aviation both in Florida and around the world. According to data from the Florida Aviation Database (FAD), 83 airports in Florida were identified as providing flight training services. While FDOT cannot dictate which airports provide flight training, it can support the activity through various channels and publications. It is recommended that throughout the 20-year planning horizon for FASP 2035, FDOT continue to support flight training and aviation-related careers and work with Districts to identify and communicate existing flight training opportunities to enhance interest in underserved areas and the state as a whole.

Figure 10-9: Airports with Flight Training Activity by FDOT District

Source: National Flight Data Center (NFDC); Kimley-Horn Analysis

10.7 IAT and SSGAT Recommendations

As part of the FASP 2035 Update, the current use of the IAT and SSGAT were evaluated for their role in assessing the services of airports as well as the ability of projects that are funded to fulfill the goals of the state. This section provides recommended future actions and polices related to the IAT and SSGAT as it relates to their use by both the FDOT ASO and FDOT District offices.

10.7.1 IAT Overview and Recommendations

FDOT created the IAT to categorize Florida's airports and assess airports' abilities to meet specific mission areas based on the measurements of various airport characteristics. Florida's 19 commercial service airports are assessed by the IAT in three categories[2]:

- Tourism (commercial service/business)[3]
- Air cargo
- Intercontinental service

The 109 GA airports in the state are assessed by the IAT in five categories:

- Flight training
- Corporate
- Tourism
- Recreational/Sport
- Business/Recreational

An example IAT analysis of a commercial service airport is provided in **Table 10-10**. As shown, the airport is scored by comparing the "airport service quotient" to the "optimal service quotient" which determines the "airport performance by role," given as a percentage of the "optimal service quotient." **Appendix D – Infrastructure Assessment Tool (IAT)** includes the results of the IAT analysis for FASP airports.

Table 10-10: IAT Output for a Commercial Service Airport

Airport Service Category	Optimal Service Quotient	Airport Service Quotient	Airport Performance by Role
Tourism (commercial service)	8.00	2.11	26%
Business	8.00	2.11	26%
Air Cargo	7.33	2.22	30%
Intercontinental Service	8.63	1.88	22%

Source: Florida Aviation Database (FAD)

[2] Florida currently has 20 commercial service airports. Northeast Florida Regional Airport is considered a GA airport in the existing IAT.
[3] For the purposes of this study, the tourism and business categories were evaluated jointly, as the optimal service quotients and infrastructure requirements are identical.

The IAT was originally developed by FDOT to be a tool that could monitor and quantify the ability of Florida's airports to serve users, and, as such, was incorporated into the FAD. Based on data collection efforts and review of the IAT, it was found that the purpose, value, and methodology behind the IAT is not clear. It was also identified that not only is there a lack of understanding on what the results of the IAT mean, but there is also a lack of understanding on the data inputs that went into it, when they were input, how they were input, and even how to update it. Based on discussions with the FDOT ASO, it is recommended that the IAT no longer be utilized or displayed in the FAD. The data that is presented portrays incorrect and inconsistent information that does not benefit FDOT or the airports. In addition to not being useful, the information provided by the IAT is often misleading and can result in an incorrect perception of the service level of an airport.

10.7.2 SSGAT Overview and Recommendations

As noted in **Chapter 9 – Funding**, the SSGAT was developed as part of the FASP 2025 Update to evaluate projects that are entered in the JACIP. The SSGAT uses a weighted matrix to assess how well each airport project entered in the JACIP addresses the goals established by the FASP.

The SSGAT was designed to help evaluate different project types based on their FAA project categories and ability to support the goals of the FASP. Within the SSGAT, each FAA project category and FASP goal was assigned a "weight" that prioritizes projects that best support these goals. FAA project category weights are static while FASP goal values are adjusted based on the ability of a specific project to accomplish the goals of the FASP. Projects are evaluated for their relationship to the FASP goal categories with options of selecting high, medium, or low relationships that have associated weights of 1.2, 1.0, and 0.8, respectively. If a project has no correlation, it receives a weight of zero for that FASP goal category. These weights are then multiplied by the value for the FASP goal to derive the total score relative to the relationship of the project to the FASP goal categories.

Figure 10-10 provides a screenshot of the SSGAT and a sample project evaluation. A detailed overview of the SSGAT is provided in **Chapter 9 – Funding**.

Figure 10-10: SSGAT Tool Screenshot

		FASP Goals							
	FAA Category	Foster technological innovation and support implementation of new technologies.	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment.	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors.	Support and enhance the position of leadership and prominence held by Florida's aviation industry.	Protect airspace and promote compatible land uses around public airports.	Promote support for aviation from business, government, and the public.	Foster Florida's reputation as a military-friendly state.	State Strategic Goal Assessment
		10	10	25	10	20	20	5	
	Weights	✖	✖	✖	✖	✖	✖	✖	
Project/Goal Relationship			1	1.2	0.8		0.8		
Project Description	10 +	0 +	10 +	30 +	8 +	0 +	16 +	0 =	74

Source: Florida Aviation System Plan (FASP) Phase I Analysis, May 2016

The SSGAT was not developed to be a critical determinant in project funding; rather, it was developed to be an additional data element to consider the viability of a proposed project. Currently, use of the SSGAT differs greatly between FDOT District offices, though more of an emphasis was placed on its consideration based on the findings from an internal audit at FDOT. Therefore, it is recommended that FDOT continue to use the SSGAT to aid in assessing the potential of applying state funds to a specific project and to promote the development of projects that support the goals of the FASP. Promotion of the SSGAT could be achieved through presentations at FDOT District aviation staff meetings, including discussions of how the tool is best implemented. It is also important that all SSGAT users understand the tool and are using it consistently. During the review of the SSGAT and comparison of JACIP requests to the 2017 – 2021 Work Program allocations, it was found that users may be making different selections for the same projects resulting in different SSGAT scores. It is further recommended that the FASP goals included in the tool be updated to reflect the goals established in this FASP 2035 Update.

10.8 CFASPP Recommendations/Enhancements

As discussed in **Chapter 3 – Airport System and Classifications,** Florida has the most established continuous system planning process in the nation. Instituted in the 1980s, the CFASPP provides the FDOT ASO, FAA, airports, and aviation stakeholders the opportunity to offer input, obtain information, and coordinate activities that are relevant to implementing the FASP and maintaining the statewide airport system. The goal of establishing CFASPP was to continue the statewide planning effort conducted by the FDOT ASO, providing a process to help preserve a viable statewide aviation environment. CFASPP utilizes an extensive outreach program, including a comprehensive website and a structured series of meetings that are conducted at the regional and statewide levels to discuss FDOT's planning efforts, processes, and results, as well as airports' needs and issues. The program allows for the continuous monitoring of the aviation environment, including determining the development requirements needed to meet projected aviation demands.

Through a committee structure comprised of airport representatives, the state has identified nine centers of aviation activity. Each center is referred to as a CFASPP "region" or "metropolitan area" (MA). A CFASPP region is an area containing several communities with common aviation ties to each other due to geographic and economic characteristics. A CFASPP MA is an area of the state with interrelationships between airports that have a common economic base due to contiguous urban development. The CFASPP contains five regions and four MAs. The current CFASPP boundaries and names are presented in **Figure 10-11**. The determination of which airports are within each region or MA is made by each airport sponsor who can petition to change from one region or MA to another based on their ties to other areas, whether due to economic activity or geographic characteristics.

Figure 10-11: CFASPP Boundaries

Source: Florida Department of Transportation (FDOT); Kimley-Horn Analysis

Each of the nine CFASPP regions and MAs have a Regional CFASPP Steering Committee; these nine committees each have an elected chairperson that also serves as the region's representative on the Executive Statewide Committee. Each committee establishes its own meeting agendas and is responsible for coordinating with the CFASPP Administrator on meetings. Each year three rounds of regional meetings are held along with three statewide meetings. CFASPP utilizes a website to publicize information relative to the Florida aviation system, the CFASPP meetings, and other relevant information.

The CFASPP activities were evaluated as part of another activity prior to the FASP 2035 Update to determine if changes were needed to support the ongoing efforts to maintain the aviation system. The evaluation focused on the following, each of which are discussed in the next sections:

- Number of meetings
- Outreach efforts
- CFASPP website updates
- CFASPP boundaries

10.8.1 Number of Meetings

The results of the prior evaluation of the CFASPP activities, which were discussed with CFASPP participants during regional meeting rounds and at a statewide meeting several years ago, identified that the current process of holding three rounds of meetings with each CFASPP region or MA and three statewide meetings held at the conclusion of the regional meetings continues to be most appropriate. Fewer meetings would not provide sufficient opportunities to be effective and more meetings would not be productive. It was also determined that the meetings should continue to be held in person, although opportunities for participants to teleconference are suggested for listening purposes.

10.8.2 Outreach Efforts

Several of the outreach methods, primarily focused on the CFASPP website, were updated as part of the FASP 2035 Update. Improvements to the CFASPP calendar, meeting invitations, online surveys to gauge meeting participation, and opportunities to submit airport-related activities and relevant news to a statewide calendar were included in the FASP 2035 Update to allow for continued engagement to promote the study's findings and obtain input. These changes were vetted through coordination with the FASP 2035 Update's CRT, whose members included representatives of all CFASPP regions and MAs as well as FDOT District offices and the FAA. The CRT noted that the current CFASPP process served the state's airport system well and that, other than changes to the website and outreach efforts, should continue to be maintained as is. The CFASPP was noted to provide significant value by meeting participants, and most indicated that they were happy with the current format and organization.

10.8.3 CFASPP Website Updates

In addition to the CFASPP website updates noted in the previous section, other updates are needed to continue to provide meaningful information on the continuous planning process, including the implementation progress of FASP recommendations. Specifically, the FASP component of the CFASPP website and the FDOT ASO website should be updated to reflect the final FASP 2035 Update outcomes and deliverables. To the extent possible, the FASP pages and information should be the same between CFASPP and FDOT ASO websites to provide a consistent message of the importance of aviation to stakeholders statewide.

The CFASPP website serves as an implementation and communication mechanism for the FASP and should continue to be updated to reflect FASP results as well as other study findings conducted by the FDOT ASO under the continuous planning umbrella. Similarly, the FDOT ASO's website should reflect the ongoing and completed activities conducted to support the aviation stakeholders in the state and beyond.

10.8.4 CFASPP Boundaries

While the general CFASPP process was deemed to be working to meet the needs of airports in the planning process, the FDOT ASO noted that a review of CFASPP boundaries was needed to determine if the boundaries should be tied to other existing geographical categorizations such as FDOT Districts or Florida Economic Development Council (FEDC) regional boundaries. These boundaries are compared to CFASPP boundaries in the following sections.

10.8.4.1 FDOT District Boundaries

FDOT uses Districts for funding purposes and coordination of activities. FDOT is decentralized in accordance with legislative mandates, with a Central Office and seven Districts that are responsible for maintaining a balanced state transportation system to serve all areas of the state. Each District is managed by a District Secretary, with similar organizational structures that include divisions such as administration, planning, production, and operations. Each District has a District Aviation Coordinator to assist airports with aviation grant program implementation, including developing and funding capital projects, implementing the FASP, and providing technical assistance and help with local governmental coordination and stakeholder outreach. **Figure 10-12** depicts the locations of airports within the seven FDOT Districts.

Due to the allocation and distribution of funding to Districts, this FASP 2035 Update utilized Districts in the evaluation of the system's performance and needs (reviewed in **Chapter 7 – System Analysis**). While crosswalks are provided within the plan to CFASPP regions and MAs, the Districts were the primary regional divisions analyzed in this FASP 2035 Update.

There are seven Districts compared to nine CFASPP regions. While there are many overlaps between the boundaries of each, the primary differences between the boundaries include:

- All Central CFASPP airports are in District 1
- All Southwest CFASPP airports are included in District 1
- Treasure Coast CFASPP airports are included in Districts 1 and 4

- All Northeast CFASPP airports are in District 2
- North Central CFASPP airports are included in Districts 2, 5, and 7
- All Northwest CFASPP airports are in District 3
- Southeast CFASPP airports are included in Districts 4 and 6
- All East Central CFASPP airports are in District 5
- All West Central CFASPP airports are included in District 7

Overall, the North Central and Southeast CFASPP boundaries would be most affected if FDOT District boundaries were used to define CFASPP boundaries.

Figure 10-12: FDOT District Boundaries

Source: *Florida Department of Transportation (FDOT); Kimley-Horn Analysis*

10.8.4.2 Florida Economic Development Regions

Another set of boundaries—FEDC regions—was examined for potential relevance to organizing Florida's airports based on economic conditions. The eight FEDC boundaries are shown in **Figure 10-13**. These regions were established to reflect commonalities between economic development opportunities. While similar to both CFASPP and FDOT District boundaries, there are also a number of differences, specifically:

- Central CFASPP airports are in the South Central and Tampa Bay FEDC regions
- All but one East Central CFASPP airports are in the East Central FEDC region (Flagler Executive Airport is in Northeast FEDC)
- All but two North Central CFASPP airports are included in the North Central FEDC region (Crystal River-Captain Tom Davis Field and Inverness Airport are in the Tampa Bay FEDC region)
- All Northeast CFASPP airports are in the Northeast FEDC region
- All Northwest CFASPP airports are in the Northwest FEDC region
- All Southeast CFASPP airports are included in the Southeast FEDC region
- Southwest CFASPP airports are included in the South Central, Southwest, and Tampa Bay FEDC regions
- Treasure Coast CFASPP airports are included in the South Central and Southeast FEDC regions
- All West Central CFASPP airports are included in the Tampa Bay FEDC region

Overall, the Southwest and Treasure Coast CFASPP boundaries would be most impacted if FEDC boundaries were utilized for the CFASPP.

Figure 10-13: Florida Economic Development Regional Boundaries

Source: Florida Department of Transportation (FDOT); Kimley-Horn Analysis

10.8.5 CFASPP Summary

The evaluation of the CFASPP identified that the general process, outreach efforts, and outcomes of the CFASPP are perceived to be adequate by the participants. Additional evaluation of the CFASPP boundaries identified the potential impacts of changing the boundaries, but further analysis and coordination with CFASPP committees is needed prior to determining the effectiveness of such a change.

10.9 Follow-On Study Needs

Throughout the development of the FASP 2035 Update, a significant amount of data was collected on the aviation system. During this process, additional data opportunities became apparent in which information was unavailable or data was collected and compiled in an inconsistent manner. Further, development of the FASP 2035 also led to the identification of additional projects and/or studies that would support the continued implementation of the FASP and support FDOT's overall transportation system. Seven project concepts were developed for future integration, including (listed in order of priority of completion):

1. **Statewide airport resiliency and disaster response assessment** to identify infrastructure, environmental, and planning considerations relevant to increasing an airport's resiliency related to natural and man-made situations, climate trends, and Florida-specific considerations. This assessment will also identify those services and facilities needed to make an airport effective and responsive during and immediately after a natural disaster. A statewide gap analysis should be conducted by airport and minimum disaster response-related infrastructure, equipment, facilities, and services should be identified by airport type.
2. **Business suitability study** to identify gaps and opportunities at airports, including commercial air service enhancements, and develop facility, infrastructure, and service guidelines for various types of business needs by airport size and role.
3. **Replace the FAD** with new, modernized tools and technology solutions. This process will start by developing an asset management framework that evaluates the value and use of data currently maintained, as well as data maintenance needs for various management support activities. Additional components have also been identified for future integration into the FAD.
4. **Detailed capacity study** looking specifically in FDOT Districts 4, 5, and 6.
5. **Facility, infrastructure, and service guidelines** for lower-activity GA airports to assist airports make project and funding decisions by establishing criteria to be used during evaluation processes.
6. **Develop a statewide roadmap to address airport wildlife hazards for non-Part 139 airports** to identify statewide actions and recommendations for airports to conduct wildlife site visits or wildlife hazards assessments and to provide guidance for effective wildlife management to improve the safety of Florida's 102 non-Part 139 airports.
7. **RPZ ownership data compilation** to help identify incompatible land uses within and the land ownership of these safety areas.

8. **CFASPP boundary evaluation** to determine if the existing delineations continue to be the most appropriate divisions for statewide planning efforts.

To support the initiation of these follow-on studies, white papers have been developed for each one that details the need for the project, anticipated benefits, a cursory literature review, and more. These white papers are included in **Appendix E – Follow-On Study White Papers.**

10.10 Summary

This collection of recommendations is a result of a collaborative effort between the FDOT ASO and stakeholders to identify opportunities for system enhancement. Areas for improvement within the Florida aviation system, along with other programs and processes that complement the continuous system planning effort, were revealed during the study. The recommendations included in this Chapter will help guide and inform the FDOT ASO, airport sponsors, FAA, and aviation stakeholders in planning facility, service, and program enhancements moving forward.

A. Stakeholder Outreach

A.1 Comprehensive Review Team (CRT)

Throughout the Florida Aviation System Plan (FASP) 2035, a Comprehensive Review Team (CRT) provided input and feedback on the study's process, analyses, and draft deliverables. A total of seven meetings were held with CRT membership throughout both phases of the project. The purpose of these meetings was to report progress, present findings, solicit input from the CRT, and inform the team of upcoming steps of the FASP process. The meetings also included opportunities for interactive engagement through the use of polling software and other means to effectively solicit specific information and increase dialogue among the meeting attendees. Copies of the agendas, presentations, and meeting summaries from the CRT meetings are included in this appendix.

A.1.1 Meeting # 1 – August 20, 2015

A.1.1.1 Agenda

Meeting Purpose: Gather input regarding airport goals and performance measures.

Study Purpose: Update the Florida Aviation System Plan (FASP) since the last interim update in 2012.

Agenda:

- Welcome and Opening Remarks
- Introductions
- Overview of the System Plan
  - Schedule
  - Major tasks
  - Major milestones
  - Outreach/Survey effort
- FASP Airports
  - Categorization
  - Impact on the system
- Airport Issues
  - Review issues identified in scope of work
  - Solicit input on list of issues for deletions and additions

- System Goals
    - Review existing FASP goals
    - Explain process for updating goals
    - SMART goals (Specific, Measurable, Achievable, Realistic, Time-sensitive)
    - Review by stakeholder groups

- Next Steps

- Adjourn

A.1.2 Meeting #2 – March 22, 2016

A.1.2.1 Agenda

Meeting Purpose: Brief the CRT on the progress of the Florida Aviation System Plan (FASP) 2035 project.

Study Purpose: Analyze Florida's system of airports collectively in order to understand the relationships of these facilities and surrounding demographics in comparison to the needs of the users of the system. This understanding aids FDOT in implementing strategic plans, policies, and priorities that enhance the Florida aviation system.

For your Consideration:

- Is there additional material you would like to see incorporated into future versions of the Overviews?
- Are there aviation stories in your region that future versions of the Overviews should capture?
- Was there material in the Overviews that you felt was unnecessary?

Agenda:

- Welcome and Introductions

- Review of First CRT Meeting
    - Airport issues discussion
    - System goals, objectives, and performance measures discussion

- Final Goals, Objectives, and Performance Measures (see Handout 1)
    - Seven original goals unchanged
    - Objectives and performance measures revised significantly
    - Tailored to measure the performance of FDOT ASO, not Florida airports

- Regional and State Overviews
    - Analysis of history, demographics, transportation, and aviation within each of the nine CFASPP regions

- Aviation Forecasts
    - Assessing reliability of based aircraft and operations data at non-towered airports
    - Methodology for each forecast scenario and implications

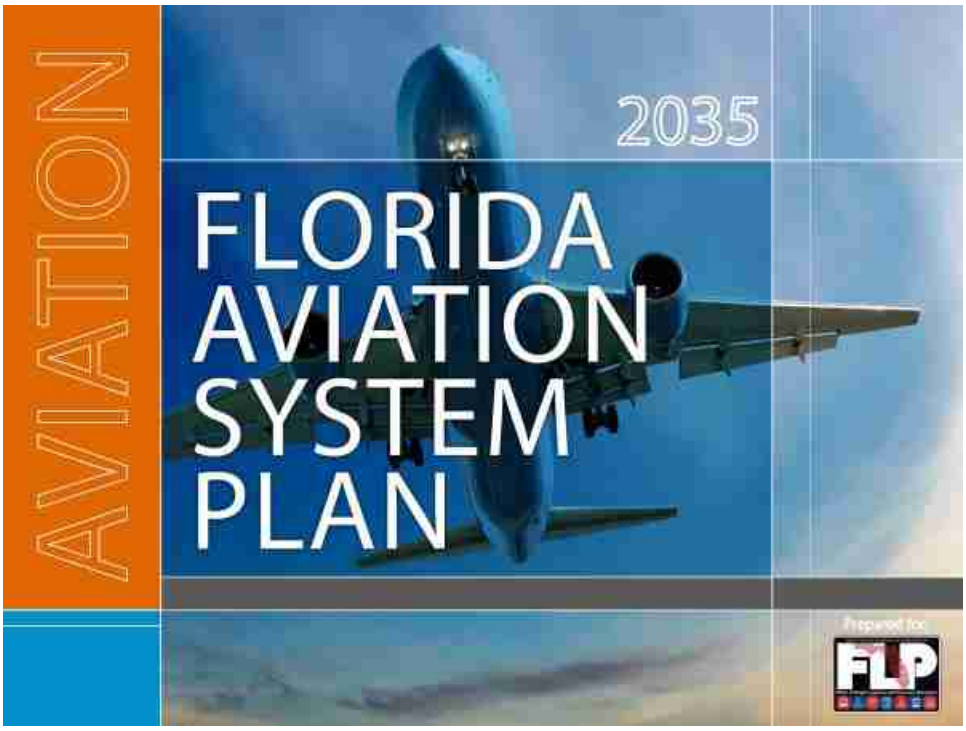
- Demand/Capacity Analysis
    - Based on FDOT model developed in 2004 for consistency purposes
    - Makes comparisons with results of 2012 demand/capacity study

- Other Study Elements
    - Distributed airport inventory survey
    - Airport criteria for inclusion in the FASP
    - SIS overview
    - Update of State Strategic Goal Analysis Tool
    - Background research and data gathering
        - Airport issues
        - CRT outreach survey
        - Air service study review
        - Aviation industry trends
        - Airport stratification review

- Next Steps

- Adjourn

A.1.2.2 Presentation



MEETING OVERVIEW

Meeting Purpose: Brief the CRT on the progress of the Florida Aviation System Plan (FASP) 2035.

Study Purpose: Analyze Florida's system of airports collectively in order to understand the relationships of these facilities and surrounding demographics in comparison to the needs of the users of the system. This understanding aids FDOT in implementing strategic plans, policies, and priorities that enhance the Florida aviation system.

REVIEW OF FIRST CRT MEETING

General Aviation Airport Issues

Duration	Impact: Low	Impact: Medium	Impact: High
Short	Competition for space operations Legalization of gambling	Pandemic fears	
Unknown	Customs & immigration	Contract towers TSA staffing	
Long	Aging population Autonomous vehicles Reliance on tourism Remote control towers Sustainability	Airline pilot shortage Electric aircraft NextGen requirements (navigation and communication) Opening of Cuba market Reaction to terrorist activity Unmanned aircraft systems	Florida economy Future of avgas Medical certificate reform for Part 91 operations Price of oil Reduction in numbers of GA pilots Shortfall of aviation maintenance personnel

Timeline

Red = Now

Purple = Within 5 years

Green = Beyond 5 years

REVIEW OF FIRST CRT MEETING

Commercial Service Airport Issues

Duration	Impact: Low	Impact: Medium	Impact: High
Short	Competition for space operations Legalization of gambling		Pandemic fears TSA staffing
Unknown	Contract towers Future of avgas		Customs & Immigration
Long	Electric aircraft Reliance on tourism Remote control towers Sustainability	Aging population Opening of Cuba market Autonomous vehicles	Airline pilot shortage Florida economy Medical certificate reform for Part 91 Operations NextGen requirements (navigation and communication) Price of oil Reduction in numbers of GA pilots Shortfall of aviation maintenance personnel Reaction to terrorist activity Unmanned aircraft systems

Timeline
Red = Now
Purple = Within 5 years
Green = Beyond 5 years

REVIEW OF FIRST CRT MEETING

Goals – These are broad targets or aims that the FDOT, stakeholders, and aviation public would like the system plan to achieve.

Objectives – Objectives provide form and function to their respective goals. They define specific areas where progress is desired in order to achieve the goal and often include timeframes for accomplishment. Because goals tend to be broad in nature, multiple objectives are often needed to provide definition to the far-reaching scope of a goal.

Performance Measures –Each objective needs one or more performance measures to determine the quantitative progress being made toward fulfillment of the objective. These performance measures can evaluate specific aspects of each airport, or the collective performance of the airport system as a whole, depending upon the objective.

SMART Objectives
Specific, Measurable, Achievable, Realistic, Time-sensitive

REVIEW OF FIRST CRT MEETING

System Goals, Objectives, and Performance Measures Discussion

Goal 1:	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors.		
1.1	Objective	1.1.1	Performance Measure
1.2	Objective	1.2.1	Performance Measure
		1.2.2	Performance Measure
1.3	Objective	1.1.3	Performance Measure

FINAL GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

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

FINAL GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

- Objectives and Performance Measures Underwent Significant Revision (see Handout 1)
  - Removed objectives that FDOT ASO had no ability to influence
  - Removed objectives that were not system planning related
  - Added objectives and performance measures that focused on evaluating FDOT ASO

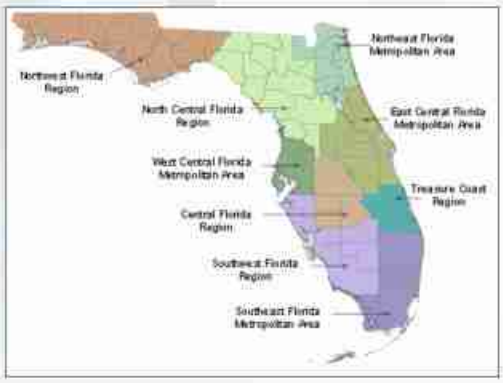
SMART Objectives
Specific, Measurable, Achievable, Realistic, Time-sensitive

FINAL GOALS, OBJECTIVES, AND PERFORMANCE MEASURES

- Do you think these objectives and performance measures effectively evaluate FDOT ASO performance?
- Are there other aspects of FDOT ASO's performance that should be measured?

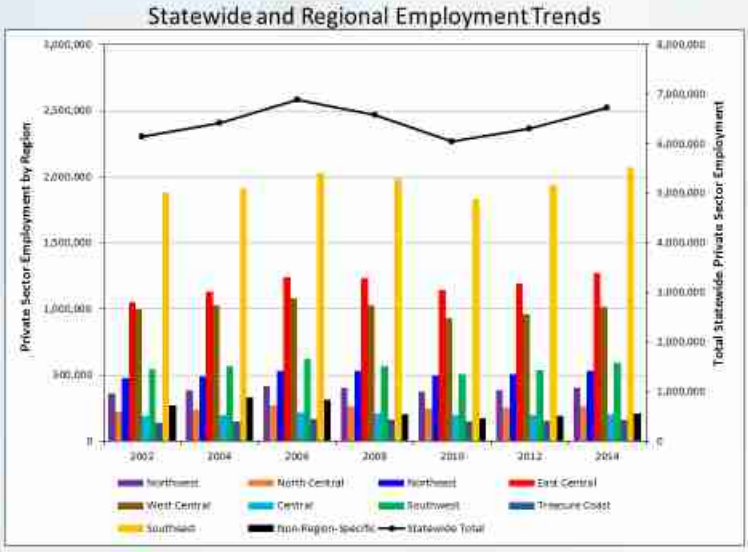
REGIONAL AND STATE OVERVIEWS

- Overviews of the nine Continuing Florida Aviation System Planning Process Regions
  - Revamped the organization of the document
  - Regional history
  - Regional demographic and socioeconomic summaries
  - Regional Economy
  - Regional Transportation
  - Role of Aviation in the Region
- Posted on CFASPP website

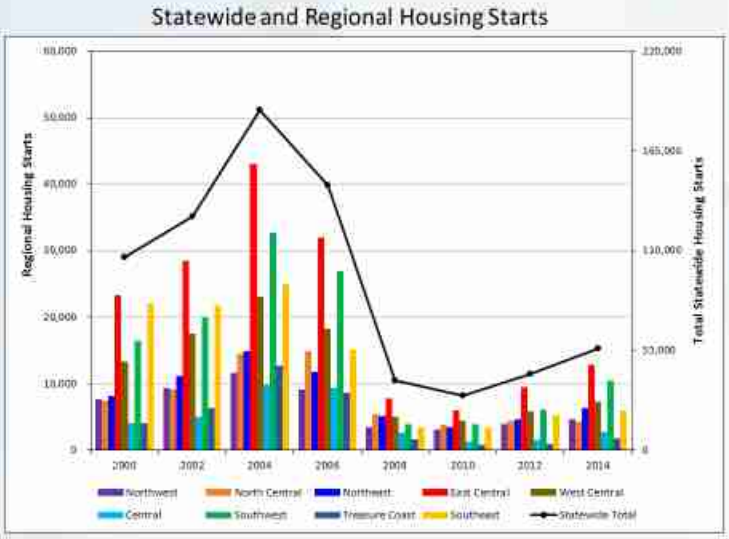


REGIONAL AND STATE OVERVIEWS

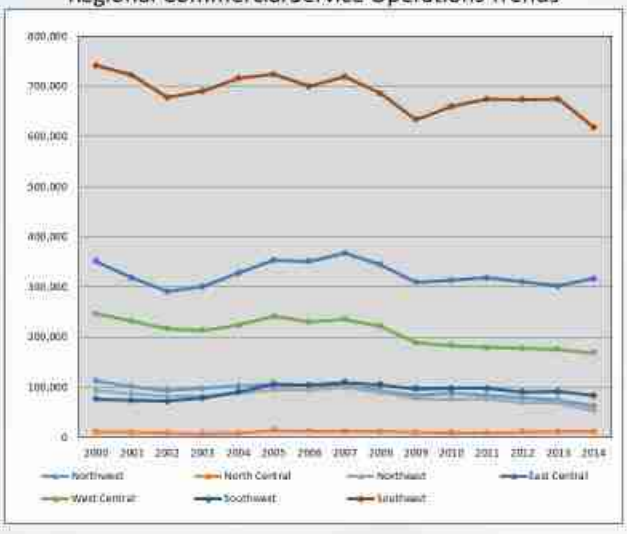
Statewide and Regional Employment Trends



REGIONAL AND STATE OVERVIEWS

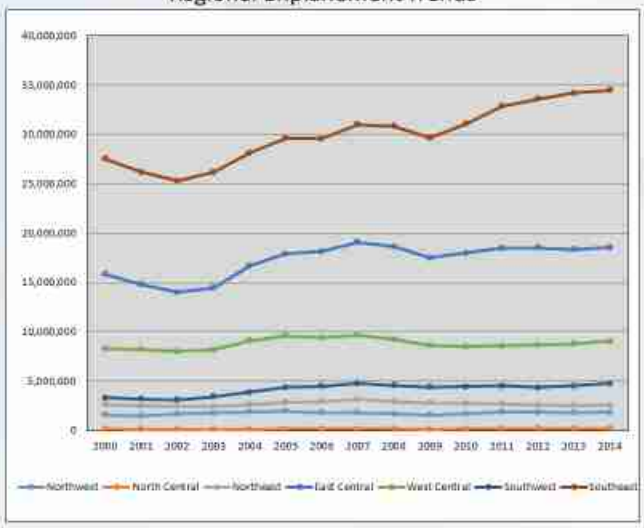


REGIONAL AND STATE OVERVIEWS



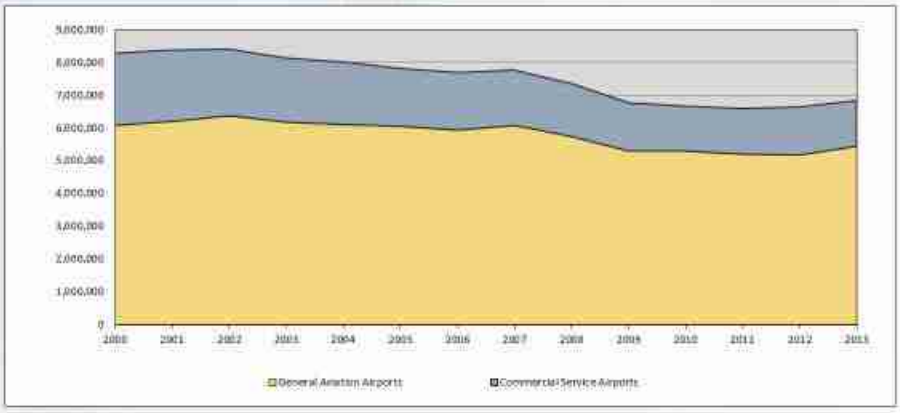
REGIONAL AND STATE OVERVIEWS

Regional Enplanement Trends



REGIONAL AND STATE OVERVIEWS

Statewide General Aviation Operations Trends



Region 1 – Northwest Florida Region

- Naval Air Station Pensacola is home to the Blue Angels demonstration team.
- 850 traditional and advanced technology manufacturing companies that employ more than 25,000 workers.

Region 2 – North Central Florida Region

- The U.S. Forest Service maintains a fire support base located at Lake City Gateway Airport
- Ocala – Florida's horse capital – has a number of cargo flights at Ocala International-Jim Taylor Field dedicated to horse-transport using aircraft referred to as "air stables."

Region 3 – Northeast Florida Metropolitan Area

- Cecil Airport is home to MRO providers Boeing and Flightstar Aircraft Services, and the only licensed horizontal launch commercial spaceport on the East Coast.
- Embraer assembles A-29 Super Tucano aircraft for U.S. Air Force.

Region 4 – East Central Florida Metropolitan Area

- Melbourne International Airport and its environs are home to a strong lineup of aerospace-related firms
  - Northrop Grumman
  - Rockwell Collins
  - DRS Technologies
  - L-3 Communications
  - Embraer, which has its Business Jet Assembly Facility at the airport.
- East Central Region is home to one of the state's two publicly-owned seaplane bases – Tavares

Region 5 – West Central Florida Metropolitan Area

- Birthplace of commercial air service – Anthony Jannus flew passengers between St. Petersburg and Tampa in a flying Benoist boat in 1914 for $5 one-way.
- The nation's largest U.S. Coast Guard air station, are at the St. Pete-Clearwater International Airport.

Region 6 – Central Florida Region

- The Sun 'n Fun International Fly-In and Expo is held annually at Lakeland Linder Regional Airport, attracting over 150,000 visitors each year.
- During World War II, military airfields were constructed outside of three Central Region cities: Avon Park, Bartow, and Sebring, bringing pilots to the region for training purposes

Region 7 – Southwest Florida Region

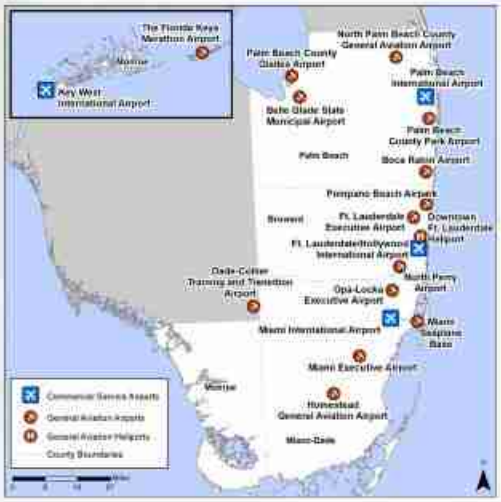
- Southwest Florida International Airport is the second busiest single runway commercial service airport in the country after San Diego International Airport.
- Scheduled airline service returned to Naples Municipal Airport in February of 2016 for the first time since 2007
- From 2000 through 2013, commercial service airports in the region have accounted for between 30 and 35 percent of all region-wide GA operations. Only the East Central and Northwest Regions experience similar percentages of GA operations occurring at commercial service airports.

Region 8 – Treasure Coast Florida Region

- The region has several notable employers in the aviation industry, including Piper Aircraft, FlightSafety Academy.
- Vought Aircraft Division of Triumph Aircraft Industries makes aerostructures for Boeing 737, 767, and 777 aircraft

Region 9 – Southeast Florida Metropolitan Area

- Pratt & Whitney's new state-of-the-art facility will support production of engines for the Airbus A320neo passenger jet and the F-35 Lightning II fighter jet.
- Broward College offers pilot training in partnership with Delta Connection Academy, and it has an outstanding aviation maintenance program that features an advanced avionics certificate.



REGIONAL AND STATE OVERVIEWS

- Have you been able to review your region's overview?
- Is there additional information that should be included in your Regional Overview?
- Rank who will get the most use out of the Regional Overviews
  - FDOT Districts
  - Airport sponsors
  - Airport businesses
  - Airport stakeholders
  - Chambers of Commerce
  - Other

AVIATION ACTIVITY FORECASTS

- Forecasts for general aviation activity
  - Based aircraft
  - Operations

AVIATION ACTIVITY FORECASTS

- Review of Previous Forecasts Methods
  - FAD
  - FAA Aerospace Forecast
  - FAA TAF
  - FASP 2025 Forecast
  - ACRP 129: Evaluating Methods for Counting Aircraft Operations at Non-Towered Airports

AVIATION ACTIVITY FORECASTS

- Challenges – one growth rate does not fit all airports, yet insufficient resources to conduct master plan level of forecasts at each airport
  - Develop realistic forecasts
  - Reliability of existing data
    - OPBA analysis
    - Numerous non-towered airports with unchanging activity levels over 5 years or more
  - Identifying airports with declining operations
    - Analysis of towered airports for correlation between based aircraft and ops
    - Analysis of county population trends

AVIATION ACTIVITY FORECASTS

- Process
  - Developed 4 scenarios and selected a preferred scenario
    - Top Down – All airport operations increase at the same annual rate as determined by the FAA Aerospace Forecast (adjusted based on Florida's population growth relative to US).
    - Bottom Up – Refined growth rates from Top Down forecast based on airport's FAA GA Asset Study classification and the FAA's TAF.
    - Historic – Airport operations considered history of operations grouped by GA Asset Study classification.
    - Airport Specific – Under development.
  - Preferred forecast to be selected from one of these methods
    - Selected from one of the four scenarios
    - Must account for future declining activity where appropriate

AVIATION ACTIVITY FORECASTS

- What factors do you think will influence activity at the airport?
  - Historic changes in based aircraft
  - Demographic trends
  - Pilot population
  - Fuel costs
  - Other
- How important is it to have accurate operations data at non-towered airports?
  - 1 to 5 with 5 being the most important
- How should FDOT ASO use these aviation forecasts?
  - Use as a comparison when reviewing master plan updates
  - Provide justification for appropriation requests
  - Use as input for funding formula
  - Make available to FDOT districts to assist with project prioritization
  - Other
  - Not used

DEMAND/CAPACITY ANALYSIS

- Based on model developed in 2004 and updated in 2012
- Uses Annual Service Volume (ASV) as a reasonable measure of capacity
- Estimates ratio of operational demand to capacity in ASV
- Critical Demand/Capacity (D/C) ratios:
  - 60% - Planning for capacity enhancement measures or projects should be undertaken
  - 80% - Actions to address capacity shortfalls should be implemented

DEMAND/CAPACITY ANALYSIS

Airport Name	Associated City	2015 ASV Study		
		60-80%	80-100%	>100%
Jacksonville Executive at Craig Airport	Jacksonville		✈	
Daytona Beach International Airport	Daytona Beach	✈		
Flagler County Airport	Palm Coast	✈		
Ft. Lauderdale Executive Airport	Fort Lauderdale	✈		
Ft. Lauderdale/Hollywood International Airport	Fort Lauderdale	✈		
Miami Executive Airport	Miami	✈		
Kissimmee Gateway Airport	Orlando	✈		
Miami International Airport	Miami	✈		
Northwest Florida Regional Airport (Eglin AFB)	Valparaiso			
Opa-Locka Executive Airport	Miami	✈		
Pompano Beach Airpark	Pompano Beach	✈		
Sebring Regional Airport	Sebring	✈		
Northeast Florida Regional Airport	St. Augustine		✈	

✈=no change in D/C ratio, ✈= improvement in D/C ratio, ✈=increase in D/C ratio

DEMAND/CAPACITY ANALYSIS

- Do you find the 60%/80% guideline useful for planning capacity and executing improvements at your airport?

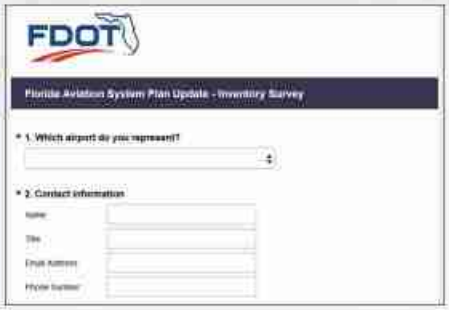
- Rank these aspects of airport capacity in terms of what is the most important for FDOT ASO to evaluate.
  - Airfield
  - Access road
  - Terminal
  - Ramp space
  - Hangar
  - Auto parking
  - Other

DEMAND/CAPACITY ANALYSIS – 2034 (DRAFT)

- 25 airports forecast to exceed 60% D/C ratio by 2034
- Numerous airports have D/C ratios that are better than what was forecast in the 2012 study
- In 2034, there are:
  - 16 airports > 60% - 80%
  - 8 airport > 80% - 100%
  - 1 airport > 100%
- Findings
  - Capacity enhancements are effective at system airports
  - GA operations have declined
  - Note: forecast has not been finalized, so these are preliminary results

OTHER STUDY ELEMENTS: Airport Inventory Survey

- Distributed Airport Inventory Survey via SurveyMonkey
  - Initial distribution occurred December 23rd 2015
    - Sent to 175+ email contacts representing 128 airports (excluding Coastal Airport)
  - Numerous follow-up emails and reminders during CFASPP meetings
  - 52 completed inventory surveys as of March 8th 2016



OTHER STUDY ELEMENTS

- State Strategic Goal Analysis Tool Update
  - Analyzes airport capital projects
  - Assesses how each project aligns with each FASP goal
  - Prioritizes projects based on weights assigned to each goal
  - Can be used to evaluate how much is spent for each of the 7 FASP goals

OTHER STUDY ELEMENTS

- Criteria for Inclusion in the Florida Airport System
  - Study Airports
    - Airports open to the public – 128 airports
  - Florida Airport System Airports
    - Currently, criteria needs to be formalized. Everyone "knows" which airports are in the FASP – 127 airports.
  - Process for Constructing an Airport and Getting into Florida Airport System
    - Obtain recommendation from CFASPP steering committee and FDOT district
    - Obtain approval from FDOT ASO
  - Study Recommended Criteria for Inclusion in Florida Airport System
    - Airports open to the public
    - Licensed by FDOT (if publicly used)
  - Airport Benefits When in the Florida Airport System
    - Makes (publicly owned) airports eligible for state funding
    - Airports in the Florida Airport System have access to the JACIP
    - Only airports in the Florida Airport System are considered for the NPIAS (airports eligible for AIP funding)

BACKGROUND RESEARCH AND DATA GATHERING

- Air Service Study Review
- Aviation Industry Trends
  - NextGen
  - Autonomous vehicles
  - Aviation activities in Florida
  - Commercial and GA Pilot Growth
  - Review of Boeing & Airbus Industry Outlook

BACKGROUND RESEARCH AND DATA GATHERING

- Airport Stratification Review
  - Infrastructure Assessment Tool
  - NPIAS
  - FAA GA Asset Study
  - Economics
  - Operations
- CRT Outreach Survey

NEXT STEPS

- Finalize Phase 1 tasks
- FDOT will initiate Phase 2 tasks
- Develop system recommendations
- Produce documents
- Hold final CRT meeting

THANK YOU!

Further questions regarding this meeting or the FASP 2035 project can be directed to:

Jim Halley
FDOT Aviation and Spaceports Office
jim.halley@dot.state.fl.us
Office: 850-414-4505

A.1.2.3 Meeting Summary

Meeting Purpose: Brief the CRT on the progress of the Florida Aviation System Plan (FASP) 2035 project.

Study Purpose: Analyze Florida's system of airports collectively in order to understand the relationships of these facilities and surrounding demographics in comparison to the needs of the users of the system. This understanding aids FDOT in implementing strategic plans, policies, and priorities that enhance the state's system.

Attendees: Dan Afghani, Terry Beacham (Bartow Airport), Pedro Blanco (FAA), Harry Downing (CDM Smith), Matthew Elia (Tavares), Jeannine Fier (CDM Smith), Jim Halley (FDOT), John Helms (Marion County Airport), Rebecca Henry (FAA), Andy Keith (FDOT), Andrew LaGala (TPA), Eric Laing (CDM Smith), Steven Lichliter (OMN), Mike Maynard (CDM Smith), Ian McKay (LCPA), Mike McClure (FDOT), Allison McCuddy (FDOT), Eric Menger (KVRB), Susan Sandigi (FDOT), Roy Sieger (KFIN), George Stokus (SUA), Erik Treudt (TLH), John Wiatrak (St. Lucie/Treasure Coast), Jim Wikstrom (FDOT)

Meeting Minutes: [Meeting Began at 9:05AM]

Introduction and Review of First CRT Meeting Highlights

Harry Downing opened the meeting with a general welcome to the group. He requested that all those in attendance introduce themselves and went over the rules of the meeting. Harry also went over lunch and menus for attendees.

Jim Halley went over the meeting purpose and study purpose for the FASP. He also provided a general overview of the technical items that will be discussed during the meeting, indicating that presenters will not go into too much detail regarding these items unless questions from attendees indicate the need to do so. Then, Jim had the attendees participate in a Turning Point practice exercise to get attendees acquainted with their voting remotes. He also had attendees answer through Turning Point regarding what airport or agency they were representing.

Eric Laing presented the highlights from the first CRT Meeting which included a review of General Aviation (GA) and Commercial Service airport issues. During review of the FASP Goals, Eric indicated that no need was identified for the original seven FASP Goals to change – so the goals remain unchanged. However, in response to comments received during the first CRT Meeting as well as from FDOT staff, the FASP Objectives have been revised for several reasons including: 1) removing objectives in which FDOT had no control over, 2) removing non-system planning related objectives, and 3) addition of performance measures focused on evaluating the FDOT Aviation and Spaceports Office (ASO).

Jim Halley conducted Turning Point exercises related to the FASP Goals and Objectives. For the first exercise, the group indicated that they strongly agreed that the current FASP Goals and Objectives are appropriate except for one neutral vote with no comment. Jim

then discussed the Florida Transportation Plan (FTP) Goals and conducted the next Turning Point exercise regarding the relationship of FASP Goals with the Goal Areas of the FTP. Responses were mixed with 50 percent strongly agreeing, 44 percent agree, and 6 percent finding the relationship not very important.

After Jim completed the last exercise, **Harry Downing** went over the Evaluation of FASP and FTP Goals Matrix handout with the group. Attendees were instructed to review each FASP Goal and identify how it relates to each FTP Goals. **Jim Halley** provided attendees some time to review and begin working on the handouts. Handouts were collected at the end of the meeting.

Regional and State Overviews

Eric Laing spoke about the development and current drafts of the regional and statewide overviews. The organization of the content of the overviews was revised and generally cover five subjects for each region. Once the final drafts of each overview are completed, they will be posted to the CFASPP website. Eric then went over various regional and statewide trends in employment, housing starts, aviation operations, and enplanements. He made note of several factors impacting these trends which included, but not limited to, 9/11, the Housing Bubble, and the 2007/09 economic recession. In particular, GA operations were the first to be impacted by these factors and have had a harder time recovering.

After speaking on trends, Eric moved the conversation to briefly discuss highlights for Regions 1 through 6. For Region 1 (Northwest Florida Region), **Erik Treudt** indicated that Tallahassee Commercial Airport should be removed from the regional map because the airport is closed. **Jim Halley** responded that, later during the meeting, there will be a discussion regarding which airports are included or removed from the FASP.

Eric Menger asked why military installations do not appear on the maps for regions which contain military installations, as FASP Goal No. 7 pertains to supporting military installations. Jim responded that the maps are only to illustrate airports designated under the FASP but will consider including them on the regional maps and overviews.

Mike Maynard took over the presentation and discussed highlights regarding Regions 7 through 9. During discussion of Region 7 (Southwest Florida Region), **Rebecca Henry** asked why there was a drop in GA operations in the region during 2008. Mike responded that an answer can be provided later.

Eric Menger indicated that Naples Municipal Airport has begun offering commercial service at the airport and asked why the Region 7 map doesn't reflect this. **Andy Keith** responded that the maps reflect the current FAA designations for each airport. **George Stokus** asked what the difference is between an airport which recently began commercial service and an established Commercial Service airport. **Andy Keith** explained that the difference whether an airport is designated under the FAA as GA or Commercial Service can impact funding. **Jim Halley** added that it takes a while for FAA

to update an airport's designation to reflect changes in service. He also added that a GA airport which is now providing commercial service must also meet certain criteria. For example, primary Commercial Airport designation requires that an airport have more than 10,000 passenger boardings each calendar year.

George Stokus, in regards to airports such as Vero Beach and Tampa, asked about what are the funding levels for newly established Commercial Service airports as compared to established hub airports. He felt that this discussion should be included in the FASP. **Andy Keith** identified that Commercial Service airports have different funding sources compared to GA airports including Passenger Facility Charges (PFCs). Following this discussion, George and **John Wiatrak** both indicated that St. Lucie County International Airport will be now known as Treasure Coast International Airport. However, John also indicated that the name change process through the FAA is not completed yet.

Overall, George asked why the regional overview slides do not cover everything within the overview documents. He also asked if the consultants used for this project attended the CFASPP meeting as the overviews seem outdated and not equally representative of their regions. **Jim Halley** responded that the consultants were not sent to the CFASPP meetings. George suggested that 20 minutes be set aside at each CFASPP meeting for airport managers to provide brief overviews of their airports for use in the Overviews. Jim and **Andy Keith** then responded that the purpose of this meeting was for the attendees to provide their input and ask questions regarding the regional overviews. The regional overview documents provided prior to the meeting were just drafts and are awaiting comments to be finalized.

George then asked about, for regions without Commercial Service airports, where is the traffic going and who are seeking commercial service for their area. Further discussion on the topic brought up that traffic for those regions with only GA service is due to the presence of intermodal connections (i.e. trucking). As for those regions who are seeking Commercial Service airports, it would be areas which are seeing changes in their economy due to agriculture.

John Helms indicated that for Region 2 (North Central Florida Region), that retired communities are under evaluated in the overview and that not enough attention is paid to fly-in communities which require air transportation and hanger space.

After no other comments were made, **Jim Halley** ended the discussion on regional overviews with a Turning Point exercise. The exercise asked attendees how useful the regional overviews were to their work. 67 percent responded that they are very valuable while the rest was mixed. In regards to the other 33 percent, **George Stokus** indicated that the value of the regional overviews are incumbent on each airport reporting their information to public officials.

Forecasting

Mike Maynard led the discussion on forecasting and the methods assessed for use within the FASP update. He explained to the group that the forecasting work conducted for the FASP did not look at air cargo or passenger enplanements – these will be looked at in two other separate task work orders. In addition, Mike noted that system wide forecasting can be helpful for smaller airports who do not update their ALPs and Master Plans regularly due to lack of resources. He then proceeded to discuss previous forecasting methods.

He began with the FAD Model developed by Panther. **Harry Downing** provided additional detail about the FAD, indicating that the model is a simple regression analysis of historical data uploaded into the FAD. However, if an airport produces a Master Plan with more accurate data, then the more accurate information will be updated in the FAD. **Rebecca Henry** asked if economic factors are considered in the FAD Model. Harry responded that both demographic and economic factors are not currently considered in the FAD Model. **Jim Halley** indicated that the model uses a general average growth rate and that FDOT staff is working on improving this methodology to provide more accuracy and aid with funding mechanisms. Mike asked if airports have access to these forecasts and Jim responded that they did as well as FDOT staff.

George Stokus asked how airport operations are organized within the FAD. **Jim Halley** responded that operations are grouped together and FDOT is looking into breaking down operations and airports by type in the FAD. **Erik Treudt** asked about when data within the FAD will be updated with concern regarding skewing of current data due to the economic downturns. Jim responded that FDOT is currently updating the Guidebook for Airport Master Planning and will look into getting updates on historical data and other current information to deal with any data accuracy issues.

Mike Maynard continued discussion on previous forecasting methods regarding the FAA Aerospace Forecast and the Terminal Area Forecast (TAF). These methods can be great tools for planners. The TAF, for example, contains forecast information regarding based aircraft, enplanements, and operations which can be used by airports for master plan forecasts. Mike identified that the FAA uses this information for understanding staffing needs for the system of which **Rebecca Henry** agreed – but indicated that since more than one division uses these forecasts that her area doesn't have much control over them. Other previous forecasting methods discussed were the FASP 2025 Forecast and the ACRP 129, which focused on evaluating operations at non-towered airports.

Discussion switched to the challenges faced when conducting forecasts which include lack of recent master plans from some airports and developing accurate base year data when available data is not reliable, particularly with small airports. Mike then began going over the forecasting process itself and the different approaches beginning with the Top Down Approach. This approach was defined as an approach which looks at annual operations and uses a general growth rate. Implementation of this approach include various methods such as using separate growth rates for urban and rural areas as

well as rates based on tiers of airports. **Erik Treudt** asked, as part of the forecasting process for the FASP, if project staff will recommend a selected scenario or scenarios as an end result of the process. Mike responded that this is true and that project staff are developing those scenarios currently.

Rebecca Henry asked if a hybrid approach would be used if one single forecasting approach is not found to be wholly representative of the system. Mike responded that that project staff may combine forecasting methods depending on the analysis. Rebecca continued this discussion by bringing up the importance of forecasts in the FASP as they carry significant weight and can be used for coordination with the FAA as well as potentially updating the FAA TAF. **George Stokus** indicated that tax burdens are an issue with more corporations taking advantage of airports located in states with cheaper taxes in regards to based aircraft (i.e. Florida versus New York). His concern is with based aircraft data. In response, **Eric Menger** inserted that this shows a need for a hybrid approach for forecasting to ensure everything is as accurate as possible.

George Stokus asked FDOT staff if the focus on non-towered airports and small airports was because there were either progressive changes or significant growth projected in forecasts associated with these facilities within the state. **Andy Keith** responded that it is hard to get accurate aircraft counts from these facilities – when either the towers "turn off" or there are no towers at all. George said the focus should be on demand and capacity to identify needed infrastructure improvements. Andy explained that several factors go into a forecast including population growth in the area. However, not having accurate counts makes it hard to develop a forecast. In addition, he mentioned that Mike indicated that research showed that using based aircraft numbers was not the way to go. **Rebecca Henry** mentioned that smaller airports have a tendency not to keep up with counts as they may not consistently update their master plans like Belle Glade. As an airport grows in size, the master plan becomes more important.

Overall, Andy stated that FDOT is still looking into methods for acquiring counts from non-towered airports such as the use of cameras. **Eric Menger** explained that, for Vero Beach, they use radios for overnight operations. **Erik Treudt** indicated that Tallahassee International has issues keeping up with counts after their tower shuts down during the night and have been looking into methods for counting including the use of cameras. **Ian McKay** suggested that, for smaller airports sharing coverage area with larger airports, if there could be a way to develop a model or method to figure out data from larger airports for smaller airports facing counting issues. **Jim Halley** expressed that there is a difference in needs and activities amongst the airports within this state and that anything that comes up during the forecasting process will be continuously refined.

Jim conducted a Turning Point exercise, asking the group about which factors listed on the slide will influence airport activity into the future. Results showed that "Demographic Trends" and "Fuel Costs" were the most important. There were some attendees who chose "Other" from the list of factors. **George Stokus** explained that factors not listed within the exercise that will influence airport activity include national and local economic

factors. **Roy Sieger** agreed with the importance of economic factors as data generated for the current FASP update has shown the impact of economic downturns on GA operations. **Rebecca Henry** also pointed out that foreign relations can impact the population of student pilots within the state since a significant number of foreign flight students come to Florida for flight training. **John Wiatrak** pointed out global terror trends and changes in weather patterns.

Before the lunch break, Jim conducted another Turning Point exercise which asked attendees how FDOT ASO should use forecasts. George asked if there is a differentiation in terms of funding for airports that is based on whether airports are actively trying to accurately record operations versus those that do not. **Allison McCuddy** responded that, for District 5 Office, they try to be fair but their process does not differentiate on the basis of whether an airport actively tracks operations or not. George asked if they use JACIP to keep track and both Allison and **Rebecca Henry** answered affirmatively. **Erik Treudt** asked if FDOT and FAA are looking for more planning from airports of which both Allison and Rebecca answered that they were. Rebecca added that the level of activity at the airport also plays into decision-making for funding.

Erik asked, in regards to the development of models and forecasting methods, if FDOT staff will wait five years and then provide feedback on outputs or will they alert agency and regional representatives sooner. **Jim Halley** explained that forecasting will be continuously maintained and will keep everyone up to date. Erik also asked what happens if forecasts show inaccurate operation trends for smaller airports. Jim responded that FDOT staff will coordinate to continue to refine the forecasts to deal with these types of issues.

In terms of funding, **George Stokus** suggested that since forecasts are just estimates, airports need an appeal procedure or feedback system to coordinate with FDOT regarding inaccurate estimates. For example, a forecast will not provide the background on why based aircraft numbers are down for an airport. **Rebecca Henry** indicated that, from the FAA's perspective, any aviation project is based on a specific point and time. Forecasts are not the only factor as coordination from the airport and data supporting the project are going to be more important. **Jim Halley** also explained that FDOT will be looking for any action items or projects that would bring an airport from negative to positive growth.

[Lunch Break from 11:47AM to 1:01PM]

Demand/Capacity Analysis

Mike Maynard presented to the group on the demand/capacity (D/C) analysis conducted for the FASP update. The analysis used a model developed in 2004 and updated in 2012 that uses annual service volumes. The model is based on FAA Advisory Circular 150/5060-5, Change 2. It estimates critical D/C ratios based on operational demand to airport capacity. D/C ratio of 60 percent indicates that an airport must start planning for implementing improvements while 80 percent or greater indicates that

improvements should be underway. Significant factors which influence D/C ratios include runway/taxiway configurations. Examples of ways to lower D/C ratios pertaining to runways and taxiways is to review existing runways and taxiways and look at ALPs and Master Plans to identify all alternatives that can be implemented. Overall, system capacity is good within Florida. However, some airports are experiencing capacity issues.

Mike continued the presentation going over D/C ratio charts and highlighting changes at specific airports. He pointed out that, in order to conduct the analysis, the model used had to be updated from 2012 to 2015 which means there is a 3 year gap between last D/C ratios reported compared to the baseline 2015 ratios. **Roy Sieger** asked why there were changes to ratios at Flagler County Airport. Mike and **Harry Downing** responded about the new runway at the airport with Mike further elaborating that the model takes into account all planned improvements.

The final portion of the D/C analysis presentation provided a summary of D/C ratios by region, highlighting that the Southeast Florida Region was the highest because of Miami International. **George Stokus** asked about updating the model. Harry responded that the model is based on the FAA Advisory Circular, which has not changed significantly since 2004 when the model was first assembled. However, inputs into the model will be updated such as deductions regarding airport infrastructure, aircraft fleet mix and other factors as indicated earlier by Mike. George then asked about the accuracy of the model. **Mike Maynard** responded that he did conduct some validation work on the model of which he found an issue with overestimation of aircrafts at smaller airports. He corrected for this to improve capacity in the model as well as included master plan data which supersedes data within the model. George voiced a concern that the FAA Advisory Circular may not be realistic.

Jim Halley conducted the final two Turning Point exercises for the meeting. The first of the two asked the group if using the 60/80 percent guideline with the D/C analysis as useful tool for them. The results were mixed. **Jim Wikstrom** indicated that the FASP is a system wide plan, not a master plan. He also added that the focus should be on the system and then the FDOT Districts and regions, not for individual airports. **Andy Keith** explained that FDOT can use D/C ratios to see how well funds are being distributed to Districts and subsequent projects. **Jim Wikstrom** added that this narrative should be focused on how funds improve the overall system.

Jim Halley conducted the final Turning Point exercise which asked attendees to rank the most important infrastructure listed that can affect capacity. Some attendees chose "Other". **George Stokus** responded that other factors would include improvements to air traffic control facilities including improvements to radio frequencies, weather data, and more.

Other Study Elements and Background Research

Eric Laing went over the surveys which were conducted as part of the FASP update as well as studies that were reviewed. In regards to the Airport Inventory Survey, 52 of 175+

surveys have been submitted. Staff is still sending out notifications to remind airports to complete the survey. Data from the survey will be used for work on performance measures. A CRT Outreach Survey was also sent out for those representatives who could not make the first CRT Meeting. The results of this survey has been documented.

In regards to airports designated under the FASP, criteria for the inclusion and exclusion of airports from the FASP need to be formalized. Thanks to Tavares, all public use airports, whether FASP or not, were assessed. For newly established airports, an ROI greater than 1 would be part of the criteria to being included in the FASP. For existing airports, other factors will be considered to form additional criteria. Eric stated that recommendations for inclusion and exclusion criteria will be provided to FDOT which is important for funding (federal and state).

During discussion of studies reviewed, **George Stokus** indicated that staff should look at issues concerning fuel tax paid by airlines and air traffic control privatization. **Eric Laing** responded that staff did review issues surrounding contract towers and the federal sequester. **Roy Sieger** asked if FDOT gets involved in the fuel tax. He points out that, in 2015, there was a $70 million shortfall in project funding which is an issue for airports with capacity constraints. Therefore, Roy indicated that the fuel tax should not be reduced. **Andy Keith** gave a brief discussion on how state funding sources work, indicating that FDOT doesn't get the aviation tax directly but it goes straight into the State Transportation Trust Fund. That means there's no direct link with the amount of aviation fuel tax collected and how much money is distributed to the FDOT ASO for the Districts. In addition, there is the current issue of the gas tax and the rise of energy-efficient cars and multimodal travel as well as the potential for driver-less vehicles.

Roy indicated a concern regarding Commercial Service airports getting a larger share of funding. George added that the FASP should include a discussion of funding shares amongst airports, a review of aviation tax outlooks, and other related issues.

[Meeting Concluded at 1:42PM]

A.1.3 Meeting #3 – June 1, 2016

A.1.3.1 Presentation

Future Direction
Changing Gears
FASP
3
FDOT

FASP Project Team
JIM HALLEY
FDOT Project Manager
PAM KEIDEL-ADAMS
Kimley-Horn
FASP Manager
JON SEWELL
Kimley-Horn
Project/Contract
Manager
FASP
FDOT

FASP 2035 Purpose

Analyze Florida's system of airports collectively (statewide and by CFASPP region) in order to understand the relationships of these facilities and surrounding demographics in comparison to the current and future needs of the users of the system. This understanding aids FDOT in implementing strategic plans, policies, and priorities that enhance the Florida aviation system.

FASP 2035 will:

- **Development Needs**
  - Determine these requirements by CFASPP region with crosswalks to the FDOT Districts including costs to meet future demand
- **Aviation (Issues, Non-Infrastructure) Needs**
  - Clearly define the aviation needs beyond infrastructure
- **Decision-Making Guidance**
  - Provide guidance to ASO & District leadership
  - Provide input to the NPIAS
  - Provide guidance to individual airports in the master planning process
- **FASP Recommendations**
  - Seek consensus on the FASP's recommendations and products
- **FASP Utility**
  - Provide products that are functional for airports and provide data to help with their ongoing planning efforts, as well as others such as SIS and FDOT Policy Planning
- **Future FASP Needs**
  - Identify future follow-on studies, policies or guidance

FASP 2035 examines:

- **Regional Capacity Constraints:**
  - Where are they now and where will they be in the future?
  - What are the costs to develop the system to effectively and efficiently meet demand?
- **Investment Policies and Priorities:**
  - Are these effective and relevant?
  - Are we spending our money in the right places and on the right projects?
- **System Utilization:**
  - Is Florida getting the most out of our airports?
- **Best Opportunities:**
  - What airports are best positioned to meet demand, to be further developed, and to add to the efficiency of the statewide system?
- **Perhaps MOST important:**
  - What facilities will be included in the FASP and what airports will be eligible for State funding?

FASP 2035 Phasing

- **Phase 1**
  - Establish processes
  - Data gathering
  - Identify trends, concerns, and issues that will shape aviation over the short-, medium-, and long-term horizon
  - Preliminary system demand (forecasts) and evaluation
- **Phase 2 (two parts: A & B)**
  - Future needs
  - Recommendations
  - Implementation tools

Phase 1 Tasks

Sufficient

- Introduction
- State, Regional, and Local Airport Issues
- Inventory of System Condition
- Evaluation of Previously-developed Stratification Methodologies
- Update of State Strategic Goal Analysis Tool
- Aviation Industry Trends Analysis
- Review and Analyses of Previous Air Service Studies

Continuing in Phase 2

- Goals and Performance Analyses
- Review and Update of Aviation Forecasts
- Airport Identification of Intermodal Requirements
- Capacity Analysis / System Requirements

FASP 9 FDOT

Phase 2A Overview

- FASP 2035 branding and identity
- Revisit outreach and input methodologies and techniques
- Phase 1 evaluation - comprehensive FASP document and process
- Performance measure analysis
- Phase 2B scope development including integration of other related FDOT efforts (aviation and non-aviation)

FASP 10 FDOT

Other FDOT Efforts and Relationships to FASP

- Florida Transportation Plan (FTP)
- Strategic Intermodal System (SIS)
- Continuing Florida Aviation System Planning Process (CFASPP)
- Florida Aviation Directory (FAD) and Joint Automated Capital Improvement Plan (JACIP)

FTP

- Overarching statewide plan that guides Florida's transportation future
- 3 elements in current version:
  - Vision
  - Policy
  - Implementation (still underway)
- Aviation elements draw from previous FASP

FASP Link to FTP

- Align FASP with new FTP
  - Goals and objectives
  - Performance-based analysis
  - Priority areas
- FASP 2035 will be baseline used for next FTP Update

SIS

- SIS – FL's high priority network of transportation facilities
  - Serve high levels of people and goods movement, support major flows of interregional, interstate and international travel and commerce
  - Emerging SIS demonstrate strong potential for future growth and development
- SIS Policy Plan update adopted March 2016 (part of FTP process)
- Currently updating SIS Implementation Plan
  - Designation criteria
  - Project prioritization

Current SIS Criteria

FDOT SIS Classifications			
Airport Classification	Eligible Facilities	SIS Component	Emerging SIS Component
Commercial Service Airports	Airports with scheduled commercial and/or cargo services	0.25% of U.S. total passenger or freight activity	**1.** Located at least 50 miles from a SIS commercial service airport; AND **2.** 0.05% of U.S. total passenger or freight activity or 0.01% of U.S. total passenger or freight activity **and** 0.05% of employment of industries dependent on aviation transportation
General Aviation Reliever Airports	General aviation airports functioning as relievers to commercial service airports	**1. Identified as a reliever facility to an existing SIS commercial service airport; AND** **2.** Handles at least 75,000 itinerant (nonlocal) flight operations per year; AND **3.** Has a runway with length exceeding 5,500 linear feet; AND **4.** Has runway capable of handling 60,000 pound dual wheel aircraft and serviced by precision instrument approach; AND **5.** 0.05% of employment of industries dependent on air transportation located within a 50 mile radius	**1. Identified as a reliever facility to an existing Emerging SIS commercial service airport; AND** **2.** Handles at least 75,000 itinerant (nonlocal) flight operations per year; AND **3.** Has a runway with length exceeding 5,500 linear feet; AND **4.** Has runway capable of handling 60,000 pound dual wheel aircraft and serviced by precision instrument approach; AND **5.** 0.05% of employment of industries dependent on air transportation located within a 50 mile radius
Spaceports	Spaceport territory as defined in s. 331.304, Florida Statutes or by Space Florida	Regularly scheduled civil, commercial or military launches resulting in suborbital or orbital flights	Not Applicable

FAA NPIAS Classification Criteria

Airport Classifications		Hub Type: Percentage of Annual Passenger Boardings	Common Name
Commercial Service: Publicly owned airports that have at least 2,500 passenger boardings each calendar year and receive scheduled passenger service §47102(7)	Primary: Have more than 10,000 passenger boardings each year §47102(16)	Large: 1% or more	Large Hub FL: 4
		Medium: At least 0.25%, but less than 1%	Medium Hub FL: 3
		Small: At least 0.05%, but less than 0.25%	Small Hub FL: 6
		Nonhub: More than 10,000, but less than 0.05%	Nonhub Primary FL: 7
	Nonprimary	Nonhub: At least 2,500 and no more than than 10,000	Nonprimary Commercial Service FL: 0
Nonprimary (Except Commercial Service)		Not Applicable	FL: 21 Reliever §(47102(23)) FL: 59 General Aviation (47102(8))

FDOT's Commercial Service Airports

FDOT's General Aviation Airports

FAA ASSET Classification Criteria

GROUP (number of airports)	DESCRIPTION
National FL: 9	**Serves national – global markets** Very high levels of activity with many jets and multiengine propeller aircraft Averaging about 200 total based aircraft, including 30 jets
Regional FL: 32	**Serves regional – national markets** High levels of activity with some jets and multiengine propeller aircraft Averaging about 90 total based aircraft, including 3 jets
Local FL: 29	**Serves local – regional markets** Moderate levels of activity with some multiengine propeller aircraft Averaging about 33 based propeller-driven aircraft and no jets
Basic FL: 9	**Often serving critical aeronautical functions within local and regional markets** Moderate – low levels of activity Averaging about 10 propeller-driven aircraft and no jets

FUNCTIONS (varies among individual airports)

- Emergency Preparedness and Response
- Critical Community Access
- Other Aviation Specific Functions
- Commercial, Industrial, and Economic Activities
- Destination and Special Functions

CRT Thoughts on SIS Criteria?

- Need for additional category(s)
- Strategic aspects of airports not reflected in current designation criteria
- Ability to leverage SIS to better help airports (and further the intent of SIS)

19

FASP Link to SIS

- Provide a link between FASP and new SIS
- Potential for new SIS criteria (using FASP data collected through inventory)
- Look at SIS projects in FASP and what's needed, considering the following:
  - What has previously been funded?
  - What have the realized benefits been?
  - Are we utilizing SIS $$ effectively?
  - Is SIS effectively distributed between individual airports?

20

CFASPP

- Established as a component of the FAA's Continuous Airport Systems Planning Process
- It is the airports' process, not FDOT's
- Assists FDOT in maintaining a viable and relevant aviation environment
- Serves as a continuous update effort into the FASP
- Originally formed in the 80s, still going strong!
  - ≈85% of our 128 airports participate
  - ≈1,000 meetings since it began

21

FASP Link to CFASPP

- CFASPP process used to identify trends, challenges, and concerns within Florida's aviation system for input into FASP
- FASP results and recommendations are discussed and feedback received through CFASPP meetings
- CFASPP website supports FASP needs

22

FAD and JACIP

- FAD serves as a tool to hold data used by FDOT (ASO and many other offices), FAA, and airports
- FAD updated over time to add more functionality including different modules
- JACIP is grant management system (element of FAD)
  - Utilized by District Office to assess, prioritize, and select projects for funding
  - Utilized by FAA to identify eligible projects for System of Airport Reports (SOAR) entry

FASP 22 FDOT

FASP Link to FAD and JACIP

- Additional data being collected in FASP – integrate into FAD
- In addition to information "warehouse", how can the FAD be leveraged to provide more analytical tool capabilities
  - Who wants what? GIS, dashboards, profiles, tracking/reporting
- JACIP evaluated for relationship of projects to FASP goals and objectives

FASP 24 FDOT

CRT Feedback – What do you want from FASP?

- **CRT survey results have been helpful with prior FASP tasks:**
  - Issues
  - Goals, Objectives, Performance Measures
- **What FASP products would be most useful?**
  - Districts
  - Airports
- **Are there additional tools/resources that would help?**
  - GIS
  - FAD/JACIP changes
  - CFASPP – can it be improved? Agenda/discussion items, regions, etc.

FASP 25 FDOT

Phase 2B

- **Scope to be determined based on outcome of Phase 2A results**
  - Additional data needs or analyses
  - Integrate results from 2016 Air Service Update and 2016 Air Cargo Study
  - Alternatives to be evaluated
  - Develop recommendations by CFASPP region with crosswalks to the FDOT Districts
    - Investment policies and priorities
    - Airports included in the FASP
  - Tools needed to implement FASP recommendations such as CFASPP website update
- **CRT will have the opportunity to review and comment on the Phase 2B scope**
  - At the end of Phase 2B, we want to make sure everyone has everything they need

FASP 26 FDOT

Next Steps

- Continue review of Phase 1 results
- Complete FASP 2035 branding and identity
- Draft Phase 2B scope

27

Thank You

28

A.1.3.2 Meeting Summary

Attendees:

Airport Representatives:
Terry Beacham
Andrew La Gala
Eric Menger
James Parish
Roy Sieger
Leo Treggi

FAA Representative:
Rebecca Henry

FDOT Representatives:
Dan Afghani
Barbara Cloud
Matt Elia
Andy Keith
Mike McClure
Laurie McDermott
Paul Simmons

Kimley-Horn Team:
Pam Keidel-Adams
Jon Sewell
Zach DeVeau
Kurt Krier

Question: CRT Thoughts on SIS Criteria

- It was noted that there could be holes in the SIS criteria and that additional categories could be needed to support certain airports (ex: Punta Gorda, Vero Beach, Tallahassee) to expand and meet their needs

- FDOT explained that SIS was developed over time:
    - It began as an extra funding source for strategic funding, while its purpose now is expanding capacity
    - SIS funding can be used now for both landside and airside projects
    - It was also noted that just because you are SIS eligible does not mean you will get funding, it just makes your airport is eligible

- It was discussed that including a new SIS category, possibly Emerging SIS Region, may be a good way to include airports that would greatly benefit from capacity enhancements

- It was noted that some of the criteria for Emerging SIS airports keep certain airports from participating:
    - Would like to see criteria re-evaluated because the criteria doesn't work for the stated goals of the SIS
    - FDOT agreed that some of the criteria don't work
    - As SIS implementation moves forward, need to look at facilities through a different lens than just road access to an airport
    - Forecasts could be used in SIS criteria update
    - Need to identify "strategicness"

- It was noted by the FAA that it is hard to fit some airports (ex: Vero and Punta Gorda) into a plan; so they need to be given special considerations

- It was asked if adding more airports to the SIS would dilute the overall pool of money

- Noted that FASP 2B will look at history of SIS funding and projects; for all modes split is 95/5 SIS vs. Emerging SIS, while aviation is 75/25
- FDOT noted that it had reviewed SIS eligibility criteria, and Key West and Punta Gorda meet the criteria now as well as a few GA airports
  - Key West and Punta Gorda are applying for designation
  - Next step is project eligibility; going through process to submit FY 2022 projects

- FDOT noted that it doesn't think more airports are an issue – gives FDOT flexibility to prioritize projects better
  - Include as many as can; pot is NOT split by SIS vs. Emerging (priority between categories) or necessarily by mode
  - Access road v. runway extension – which gets more priority?

- It was stated that a unified voice for aviation is important

CRT Feedback – What is wanted from the FASP?

- Airports stated that the best product is brochure/executive summary to educate officials

- FDOT noted that an Executive Summary (30-50 pages) would be developed, as well as outreach brochures tailored to different audiences:
  - Airports (what does FASP mean to you)
  - Local Officials, non-airport
  - FDOT non-aviation

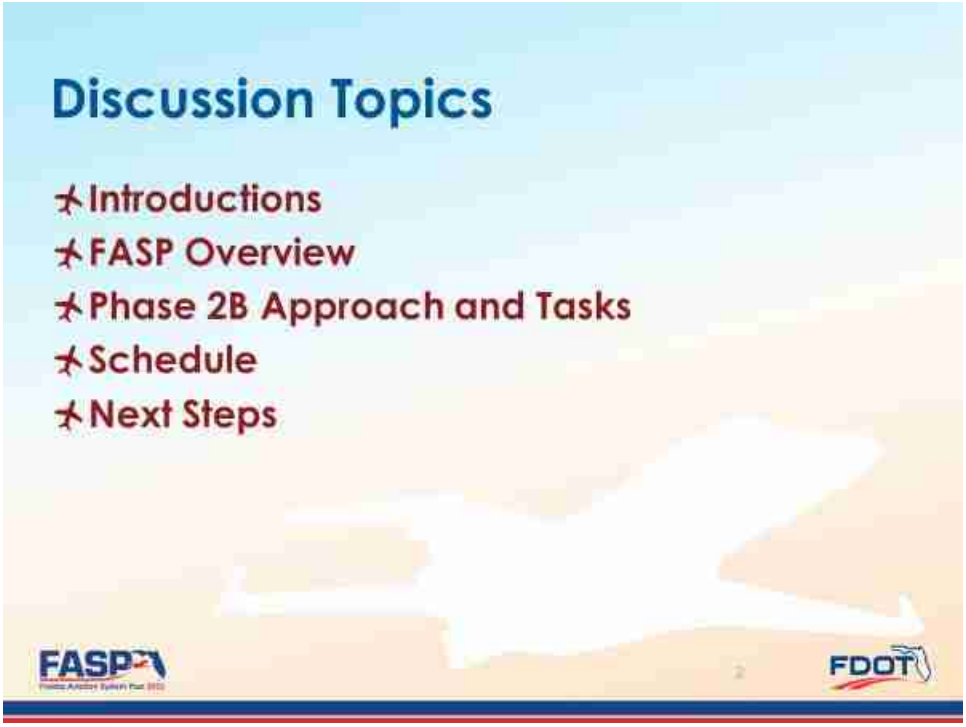
- The airports were asked who the audience of these summaries should be and what should the message be?
  - Local elected officials
  - State legislative officials
  - Message is needs, economic impact, how aviation impacts jobs and tourism

- It was suggested that flash drives with a video (possibly Prezi) on results could be distributed

- An airport suggested having JACIP be more efficient for project management, getting approvals, invoicing

A.1.4 Meeting #4 – August 10, 2016

A.1.4.1 Presentation



FASP 2035 Purpose

Analyze Florida's system of airports collectively (statewide and by FDOT District/CFASPP Region) in order to understand the relationships of these facilities and surrounding demographics in comparison to the current and future needs of the users of the system. This understanding aids FDOT in implementing strategic plans, policies, and priorities that enhance the Florida aviation system.

Complete FASP 2035 includes:

- **Development Needs**
  - Determine these requirements by CFASPP Region with crosswalks to the FDOT Districts including costs to meet future demand
- **Aviation (Issues, Non-Infrastructure) Needs**
  - Clearly define the aviation needs beyond infrastructure
- **Decision-Making Guidance**
  - Provide guidance to ASO & District leadership
  - Provide input to the NPIAS
  - Provide guidance to individual airports in the master planning process
- **FASP Recommendations**
  - Seek consensus on the FASP's recommendations and products
- **FASP Utility**
  - Provide products that are functional for airports and provide data to help with their ongoing planning efforts, as well as others such as SIS and FDOT Policy Planning
- **Future FASP Needs**
  - Identify future follow-on studies, policies or guidance

FASP 2035 examines:

- **Regional Capacity Constraints**
  - Where are they now and where will they be in the future?
  - What are the costs to develop the system to effectively and efficiently meet demand?
- **Investment Policies and Priorities**
  - Are these effective and relevant?
  - Are we spending our money in the right places and on the right projects?
- **System Utilization**
  - Is Florida getting the most out of our airports?
- **Best Opportunities**
  - What airports are best positioned to meet demand, to be further developed, and to add to the efficiency of the statewide system?
- **Perhaps MOST important**
  - What facilities will be included in the FASP and what airports will be eligible for State funding?

FASP 2035 Phasing

- **Phase 1**
  - Establish processes
  - Data gathering
  - Identify trends, concerns, and issues that will shape aviation over the short-, medium-, and long-term horizon
  - Preliminary system demand (forecasts) and evaluation
- **Phase 2 (two parts: A & B)**
  - Future needs
  - Recommendations
  - Implementation tools

FASP 2035 Branding

- **Developed Branding Identity Package**
  - Generated FASP 2035 Logo
  - Developed Report Template

FASP
Florida Aviation System Plan 2035

7

Phase 2

- **Phase 2A – Development of Revised Scope for Remainder of FASP (Phase 2B)**
  - Additional data needs or analyses
  - Integrate results from 2016 Air Service Update and 2016 Air Cargo Study
  - Alternatives to be evaluated
  - Develop recommendations by FDOT District with crosswalks to CFASPP regions
    - Investment policies and priorities
    - Airports included in the FASP
  - Tools needed to implement FASP recommendations such as CFASPP website update
- **CRT will have the opportunity to review and comment on the Phase 2B scope**
  - At the end of Phase 2B, we want to make sure everyone has everything they need

Phase 2B – Proposed Tasks

- Task 1 – Goals, Objectives, Performance Measures, and Existing System Evaluation
  - Task 1.1 – Stakeholder Engagement Mechanism Development
- Task 2 – Future System Needs
- Task 3 – Alternative Scenarios
- Task 4 – Recommendations
- Task 5 – Coordination and Meetings
- Task 6 – Final Deliverables

FASP FDOT

Phase 2B – Questions to Consider

Are we heading in the right direction?

- What is in the scope that is unnecessary?
- What is not in the scope that is needed?
- What is not in the scope but is wanted?
- What guidance or products do you want out of this?

FASP FDOT

Task 1

Goals, Objectives, Performance Measures, and Existing System Evaluation

- **Update on final performance measures and indicators, obtain remaining necessary data**
  - Note: Inventory data was only obtained for just over 50 airports in the system
- **Use IAT (or inventory data) regarding where activities are provided and examine where there are "groups of activities" using mapping**
- **Utilize existing airfield demand/capacity to compare where existing delay concerns are and compare to activities – what is driving capacity issues**
- **Prepare existing intermodal connectivity analysis**
  - Utilize long-range transportation plans, local comprehensive plans, FDOT Work Program, as well as other plans for analysis

FASP 11 FDOT

Task 1, *Continued*

Goals, Objectives, Performance Measures, and Existing System Evaluation

- **Analyze historical SIS funded projects and any changes to SIS**
  - Utilize the current funded fiscal year work program as well as the previous four funded years to perform analysis
- **Review air service and air cargo studies to determine if there are any analyses that can be derived from the studies relative to system performance or just indicators**
- **Examine airports with Low Cost Carriers (LCC) vs. other to use for later alternatives/sensitivity analysis**

FASP 12 FDOT

Task 1, *Continued*

Goals, Objectives, Performance Measures, and Existing System Evaluation

- **Prepare project comparison to FASP and Florida Transportation Plan (FTP) goals – analyze both historic and future projects in the JACIP**
- **Apply State Strategic Goals Assessment Tool (SSGAT) to updated JACIP projects**
- **Update FASP Goals versus FTP Goals Matrix**
- **Conduct GIS gap analysis for existing system**
  - Analyze Florida population within 30 minutes of airports with varying characteristics

Task 1.1

Stakeholder Engagement Mechanism Development

- **Work with the CRT, FDOT Districts, and CFASPP representatives to develop a mechanism for stakeholder engagement**
  - This effort should include Phase 1 of the CFASPP website update

Task 2

Future System Needs

- **Identify categories of airports based on annual operations and number of based aircraft**
  - Categorization will assist level of effort based on availability of data and allow for different methodologies to be applied to different categories
- **Update forecast**
  - Identify based aircraft, GA operations, and annual operations that exceed Airport Reference Codes (ARCs)
- **Coordinate with forecast model update project for consistency**
- **Develop forecasts for CFASPP Regions and FDOT Districts**
- **Update capacity analysis to focus on impacts to commercial vs. GA airports**
  - Within GA, examine capacity among the different ASSET classifications and within Districts
- **Compare results to existing gap analyses to determine where gaps/issues increase due to growth capacity issues**

Task 3

Alternative Systems

- **Work with CRT and/or DEO to identify various alternative scenarios (not driven by funding levels as other states do)**
- **Options that could be considered:**
  - Identified gaps grow bigger – airports lose commercial airline service, reductions in flight training, reductions in overall GA demand (growth in drones and fewer pilots)
  - Growth is greater than forecast – impacts to capacity, need for additional airports or more runways

Task 4

Recommendations

- Address gaps/deficiencies from previous tasks
- Identify capacity recommendations
- Identify SIS recommendations (from updated analysis)
- Identify Air Cargo recommendations (from updated study)
- Identify FASP Study Airports vs. Florida System Airports based on results of existing and future system evaluation including criteria for inclusion in the FASP and considering need for all airports
- Establish minimum thresholds to participate in FASP or Florida System such as meet licensing standards

Task 4, Continued

Recommendations

- Review and recommend changes to NPIAS and ASSET
- Policies – District use of IAT and SSGAT?
  - Investment to promote economic development
  - Intervention into local land-use decision making to remove barriers for important aviation projects
  - Investment to improve air travel for Florida's aging population
  - Support for technical innovation in aviation
  - Initiatives to improve scheduled air service in order to reduce highway congestion
- Document relationship of FASP 2035 recommendation to next FTP and SIS and identify timelines among the different studies
- Individual airport profiles generated from GIS

Task 4, Continued

Recommendations

- **Identify Follow-on study needs**
  - Development Guidelines
  - Process to keep inventory data up-to-date (FAD support)
  - Air Cargo/Air Service indicators and recommendations

19

Task 5

Coordination and Meetings

- **Bi-weekly ASO team meeting**
- **Monthly FDOT Task Team meetings**
- **Standalone FAA meeting (1 or 2)**
- **CRT meetings – two in person and number of webinars**
  - Anticipate in person CRT meetings to be in Fall, 2016 and Spring, 2017
  - Final number of meetings and webinars will be determined by the project schedule
- **MPO meetings/workshops**
- **CFASPP final presentation – 1st round of 2017**

20

Task 6

Final Deliverables

- **Final Technical Report**
- **Executive Summary**
  - Short Version
  - Long Version
- **Five Videos**
  - Each 30-60 seconds long
  - Each highlighting a different facet of Florida aviation (cargo, flight training, air service, etc.)
- **Brochures by District and CFASPP region**
- **Executive Summary Primers – What does the FASP mean to you and how should you use it?**
  - Legislative/elective officials
  - Airport management and consultants
  - General public audience
  - FDOT (ASO, District, other offices)

FASP 21 FDOT

Phase 2B – Discussion

Are we heading in the right direction?

- **What is in the scope that is unnecessary?**
- **What is not in the scope that is needed?**
- **What is not in the scope but is wanted?**
- **What guidance or products do you want out of this?**

FASP 22 FDOT

Next Steps

- Continue review of Phase 1 results
- Draft Phase 2B scope

22

Thank You

24

A.1.4.2 Meeting Summary

On August 10th, the Florida Department of Transportation (FDOT), Kimley-Horn and Associates (KHA), and the Florida Aviation System Plan (FASP) Comprehensive Review Team (CRT) met via webinar to review and discuss ongoing efforts of the FASP 2035. The purpose of this meeting was to present an overview of tasks that had been completed in preparation for updating the FASP 2035, efforts to date, describe outlines of specific tasks to be included in the updated FASP 2035 scope, and to receive feedback from CRT members regarding the proposed scope tasks and other tasks that might be included in the Study. A webinar PowerPoint presentation was led by Jim Halley, Aviation System Manager with FDOT, and Pam Keidel-Adams, FASP 2035 Project Manager with KHA. The following is a summary of the input received from the discussion.

- The question was posed whether the FASP 2035 would identify locale-specific drivers of aviation activity such as universities, businesses and corporate headquarters, etc.
    - FDOT stated that identification of significant regional (CFASPP and FDOT District) and local drivers of aviation activity would be included in the scope and identified in the FASP 2035.
    - It was noted that this may also be supported by the GIS gap analysis that is being completed.

- A member of the CRT asked if the updated FASP 2035 would identify if/where new airports would be needed and if the FASP would include criteria for newly constructed airports to be adopted into the Florida Airport System/FASP.
    - It was noted that this task is included in the scope and that criteria had already been developed in the previous effort of the FASP 2035; these criteria will be re-evaluated in the FASP effort to ensure they are acceptable.

- The presenters asked CRT members if the webinar format was adequate for meetings similar to that being presented.
    - Most agreed that the webinar format was adequate for disseminating information, such as progress updates; however, it was noted that in-person meetings typically produce more feedback from CRT members. As such, it was recommended by one CRT member that an additional in-person CRT meeting be included in the project scope, which would bring the total number of in-person meetings to three.

- It was suggested by a CRT member that airport classifications/triggers as they pertain to forecasts may need to be adjusted.
    - Triggers for activity need to be looked at from all levels (FDOT Districts, CFASPP regions, statewide).

- It was noted that the FASP 2035 should evaluate State funding policies and whether or not the State is properly funding airport projects. It was also noted that if this was not something that could be completed as part of the FASP 2035, perhaps a separate case-study of Florida's Strategic Intermodal System (SIS) could be conducted.

- CRT members were asked for feedback regarding what else they would want (vs. need) in the FASP 2035 scope.
    - CRT members identified that individual airport primers and profile videos that identified GA activity, corporate/business activity, and visitor information could be created for airports to use for various purposes.

- One CRT member asked if the FASP 2035 could identify where State and FAA funding priorities conflict and recommended two meetings with the FAA.

- In general, the CRT was in agreement with the approach to updating the FASP and all participants felt that the proposed products and documents in the update would provide beneficial guidance and outreach support for moving Florida's aviation system forward.

A.1.5 Meeting #5 – December 6, 2016

A.1.5.1 Agenda

- Introductions
- FASP Overview
- Existing System Evaluation
- Performance Measures and Indicators (Exercise #1)
- Public Engagement Mechanism (CFASPP website) Review
    - *Break*
- Aviation Demand Driver Discussion
- SIS Program Review
- FASP Deliverables
- Guidance, Products, Tools, and Resources Dialogue
- Next Steps
- Round-Table Wrap-Up

A.1.5.2 Presentation

Discussion Topics

- Aviation Demand Drivers
  - Examination of Drivers
  - Exercise #2
- SIS Program Review
  - Existing and Proposed SIS Criteria
  - SIS Project Review and Case Studies
- FASP Deliverables
- Guidance, Products, Tools, and Resources Dialogue
- Next Steps
- Round-Table Wrap-Up

FASP Florida Aviation System Plan 2035 | 3 | FDOT

FASP Overview - Phases

PHASE 1

- State, Regional, and Local Airport Issues
- Goals, Objectives & Performance Measures
- Inventory
- Stratification Methodology Evaluation
- Regional and State Overviews
- Aviation Industry Trends
- Forecasts
- Demand/Capacity
- SSGAT Update

PHASE 2

- Data Collection (Additional)
- Existing System Evaluation (Baseline Performance Measurement)
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- Public Engagement Mechanism (CFASPP Website Update)
- Final Deliverables

MEETINGS/COORDINATION

FAA » FASP Review Team (FASPRT) » Comprehensive Review Team (CRT)
Other FDOT Representatives » MPOs

FASP Florida Aviation System Plan 2035 | 4 | FDOT

Existing System Evaluation Subtasks

- Additional data collection
- Establish baseline on Performance Measures (PMs) and Performance Indicators (PIs)
- Identification of location and drivers of aviation activities
- Analysis of existing intermodal connectivity

Existing System Evaluation Subtasks

- Analysis of historical SIS-funded projects
- Review of Air Service & Air Cargo studies
- Application of SSGAT to updated JACIP projects
- Comparison of FASP and FTP goals
- Existing mapping analysis

Data Collection

- Requested information from airports to supplement previous effort
- Included questions in combined electronic survey to airports on operations counting
- Other data necessary to measure performance that will be obtained from other sources
  - Master Plans/ALPs
  - FAA
  - FAD

Goals and Objectives

- Goals are widely used in FASP
  - Relate to ASO's mission
  - Relate Aviation to Florida Transportation Plan (FTP)
- CRT previously contributed to development in Phase 1 through survey and prior meeting
- No substantive changes to Goals or Objectives
- Emphasis in Phase 2 on measuring PMs and PIs to allow for evaluation of ASO and Aviation Work Program

FASP Goals

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

FASP Florida Aviation System Plan 2035 | 9 | FDOT

FASP and FTP Goal Comparison

○ = Low relationship
◒ = Medium relationship
● = High relationship

	FASP						
FTP	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses,	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment	Support and enhance the position of leadership and prominence held by Florida's aviation	Protect airspace and promote compatible land uses around public airports	Foster techno-logical innovation and support	Promote support for aviation from business, government, and the public	Foster Florida's reputation as a military-friendly state
Safety and security for residents, visitors, and businesses	●	◒	○	●	◒	◒	◒
Agile, resilient, and quality infrastructure	●	◒	○	◒	◒	●	◒
Efficient and reliable mobility for people and freight	●	◒	◒	○	◒	◒	◒
More transportation choices for people and freight	◒	●	◒	○	◒	◒	○
Transportation solutions that support Florida's global economic competitiveness	◒	●	●	○	◒	◒	○
Transportation solutions that support quality places to live, learn, work, and play	◒	●	◒	◒	◒	◒	◒
Transportation solutions that enhance Florida's environment and conserve energy	◒	●	◒	◒	◒	○	○

FASP Florida Aviation System Plan 2035 | 10 | FDOT

State Strategic Goal Analysis Tool (SSGAT) – Relationship to Goals

- Relates FDOT project funding to FASP goals
- Developed to provide additional tool for Districts to use in project evaluation
- Spreadsheet model integrated into JACIP
- Ties FAA project categories to FASP goals

FASP Florida Aviation System Plan 2035 11 FDOT

	FASP Goals								
FAA Category	Foster technological innovation and support implementation of new technologies.	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment.	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors.	Support and enhance the position of leadership and prominence held by Florida's aviation industry.	Protect airspace and promote compatible land uses around public airports.	Promote support for aviation from business, government, and the public.	Foster Florida's reputation as a military-friendly state.	State Strategic Goal Assessment
Weights	10	10	25	10	20	20	5	
Project/Goal Relationship	x	x	x	x	x	x	x	
		1	1.2	0.8		0.8		
Project Description	10 +	0 +	10 +	30 +	8 +	0 +	16 +	0 =	74

FASP Florida Aviation System Plan 2035 12 FDOT

	Relationship of Project to Goals(Performance Measures)	High = 1.2 Medium = 1 Low = 0.8	FAA Category	Foster technological innovation and support implementation of new technologies.	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment.	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors.	Support and enhance the position of leadership and preeminence held by Florida's aviation industry.	Protect airspace and promote compatible land uses around public airports	Promote support for aviation from business, government, and the public.	Foster Florida's reputation as a military friendly state	State Strategic Goal Assessment
				10	10	25	10	20	20	5	
ProjCat	ProjDesc	FAA Prior	Weight								Assess
APRON	Construct Apron (environmental mitigation)	66	10		1	1.2	0.8		0.8		74
APRON	Rehabilitate Apron	62	10			0.8	1		1		60
APRON	Construct Apron (Capacity)	56	15			1.2	1		1		75
APRON	Expand Apron (Capacity)	47	15			1.2	1		1		75
APRON	Construct Apron (Standards)	46	15			1	1		1		70
APRON	Expand Apron (Standards)	42	15			1	1		1		70
APRON	Install Apron Lighting (Standards)	42	15			1.2	1		1		75
APRON	Strengthen Apron (Standards)	42	15			1	1		1		70
BUILDING	Construct Aircraft Rescue & Fire Fighting Building (Pt. 139 only)	73	15			1.2	1		1		75
BUILDING	Construct Snow Removal Equipment Building	41	15		1	1			1		70
BUILDING	Construct Building	34	15				1		1		45
BUILDINGS	Construct/Expand/Improve/Modify/Relocate T-Hangars	0	15			1.2	1		1		75
BUILDINGS	[illegible]	0	15			1.2	1		0.8		71

FASP Florida Aviation System Plan 2035 — FDOT

SSGAT Application in Phase 2

- **SSGAT updated in Phase 1**
  - Revised weights assigned to FAA categories
  - Revised based on updated FASP goals
- **Comparison of JACIP project requests and SSGAT results to Work Program**
  - Review current and past 5 years of Work Programs
  - How have funded projects helped achieve FASP and FTP goals?
- **One measurement of ASO's performance in meeting goals**
- **Helps to answer previous question: "Is the State funding the right airport projects?"**

FASP Florida Aviation System Plan 2035 — FDOT

FASP Florida Aviation System Plan 2035 | FDOT

Performance Measures and Indicators (PMs and PIs)

- Provide another mechanism to evaluate ASO's achievement of goals
- More detailed look at system, not just projects
- In Phase 2, re-evaluated PMs and created PIs
  - Performance Measure: Action could be taken by FDOT or airports to influence results
  - Performance Indicator: Can't really be influenced but still important to track
  - Removed PMs that could not be measured or even reported
  - Also incorporated FDOT Mobility Performance Measures relative to Aviation as required in MAP-21

FASP Florida Aviation System Plan 2035 15 FDOT

Examples of PMs and PIs

Goal 1:	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors.				
	Objective		Performance Measure (PM)		Performance Indicator (PI)
	1.1	Ensure that FASP airports operate at an efficient demand/capacity (D/C) ratio.	1.1.1	The number of FASP airports with an annual airfield D/C ratio of 60% or more (FDOT PM).	1.1.1 The number of FASP airports with terminal-related development projects (building, rental car, parking) and the amount of JACIP funding identified for these projects.
	1.8	Support FASP airports in meeting FAA airfield geometric design criteria to promote operational safety.	1.8.1	The number of FAA-obligated FASP airports that meet current FAA taxiway design standards.	
Goal 2:	Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment.				
	2.1	Encourage revenue generation at FASP airports to enhance airport self-sufficiency by assisting airports to develop business plans in accordance with FDOT's Florida General Aviation Airport Business Plan Guidebook.			2.1.1 The number of FASP airports that report having a business/marketing plan.
	2.2	Enhance the competitiveness of Florida SIS airports for intermodal enhancement funding. Provide seamless transportation for Florida's travelers from point of departure to destination.			2.2.1 The number of commercial service SIS airports reporting direct bus service.

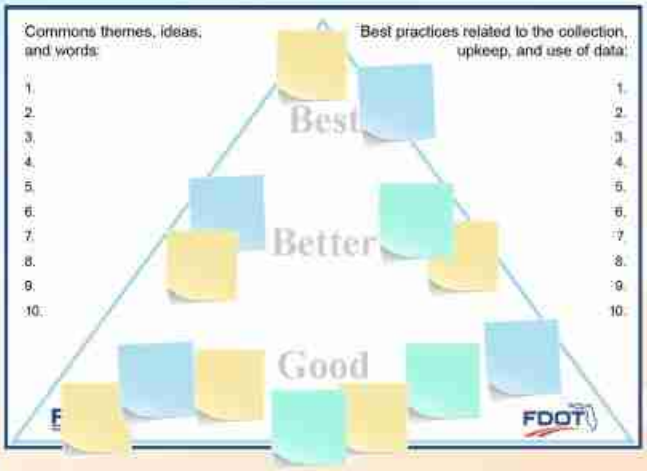
FASP Florida Aviation System Plan 2035 16 FDOT

Group Exercise #1
PMs and PIs

- Seeking input on collection and use of data for measuring system's performance
- Use results in considering best uses for PMs and PIs and timing for updating data

Good, Better, Best Exercise

What can you do related to the collection, upkeep, and use of the data in the Performance Measures and Performance Indicators to better support airports, your community and elected officials, and FDOT?



Public Engagement Mechanism (CFASPP Website)

Initial Proposed CFASPP Website Changes

- Several new tabs
- Redesigned FASP tab specifically for the FASP 2035 project information; repository of draft and final deliverables, past archived FASP files, and other general information; new brand
- Revisions to Administrative section to allow easier management of files
- Changes to the photos displayed on the site

Initial Proposed CFASPP Website Changes

- "New" Contacts Tab: Changes to administrative functions including functionality of contact updates and link to FAD Contact Management Module
- "New" News Tab: Provide information such as news, events, and/or job postings with option for users to request to add items
- "New" Calendar Tab: Display all meetings, events, and important dates in the system, with current calendar month and ability to move between current, future, and past months and active links to details

FASP 21 FDOT

Initial Proposed CFASPP Website Changes

- Projects Tab: Changes to internal data entry processes, add separate section for "FDOT Sponsored Training" to display time/date/registration information
- Committees Tab: Modify to add the current contact info for each CFASPP Chair and Vice-chair on their respective committee tabs
- CFASPP Schedule Tab: Allow more flexibility in displaying upcoming meetings, monthly calendar display options, links to more details about meetings, allow importing meetings to calendars, RSVPs

FASP 22 FDOT

CFASPP Survey Input

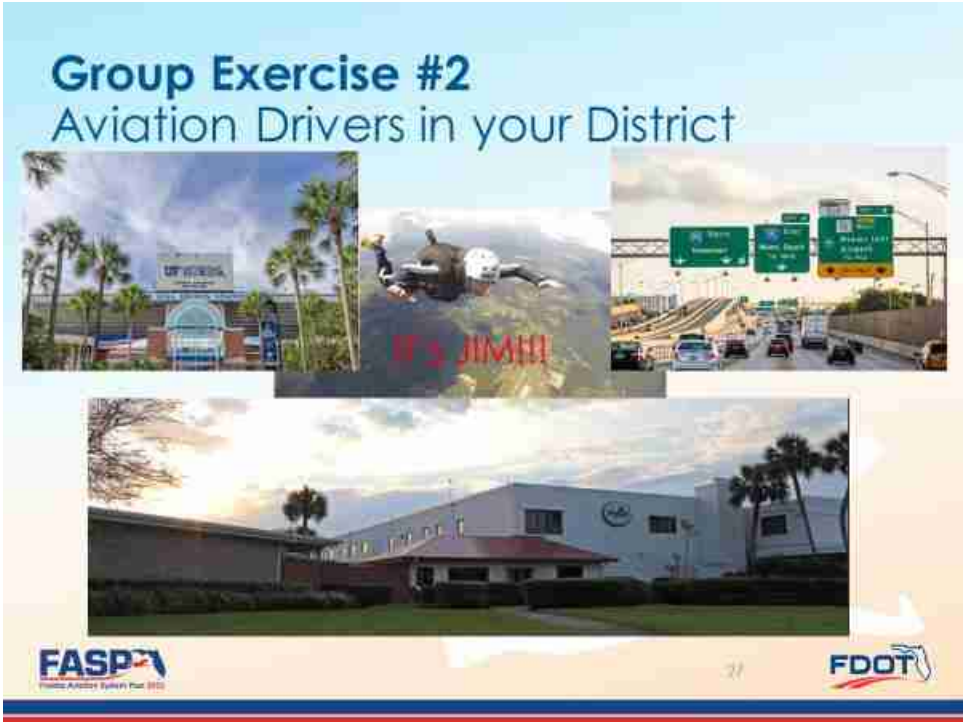
- **Survey goals:**
  - Determine how website is used
  - What existing features need to be maintained
  - What else is needed on website
- **Survey to be distributed to CFASPP contact list**
- **Initial thoughts on website needs?**
  - How do you use now
  - Suggestions beyond what is anticipated

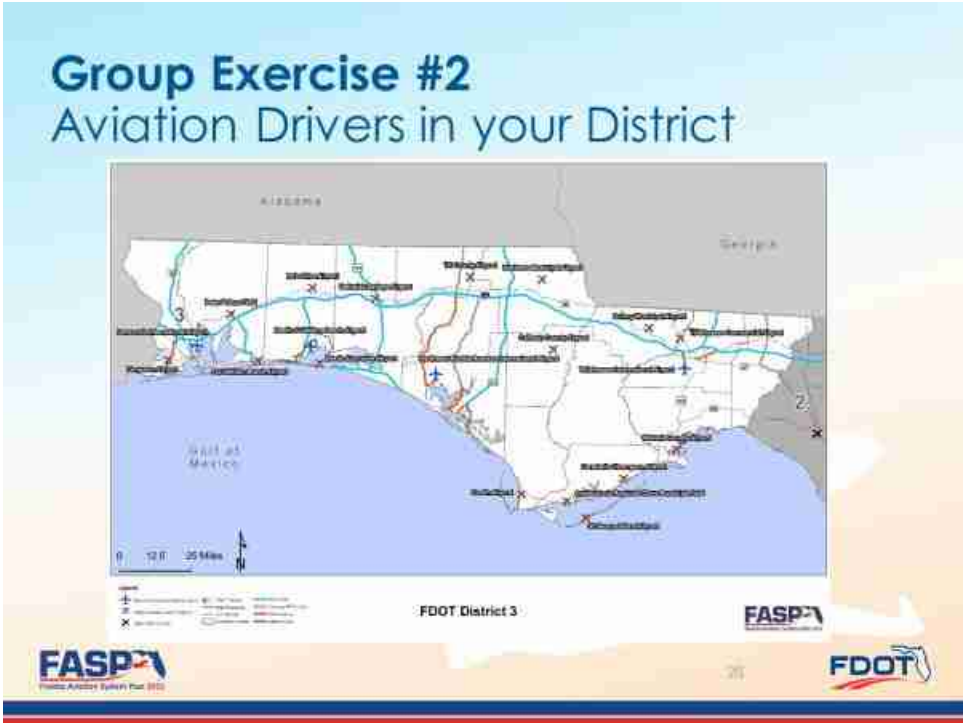
Aviation Demand Drivers

- System's needs are determined by types of activities at airports and in communities
- Some activities impact aviation and infrastructure needs more than others
  - Business aviation
  - High aviation training levels
  - Population levels and other demographic factors
  - Air cargo
  - Tourism

Aviation Demand Drivers

- System's needs are determined by types of activities at airports and in communities
- Some activities impact aviation and infrastructure needs more than others
  - Business aviation
  - High aviation training levels
  - Population levels and other demographic factors
  - Air cargo
  - Tourism


Group Exercise #2
Aviation Drivers in your District
It's JIM!!!
FASP
FDOT


Group Exercise #2
Aviation Drivers in your District
FDOT District 3
FASP
FDOT

SIS Program Review

- FDOT has identified certain airports for inclusion as "largest and most strategic facilities"
- Update of SIS criteria and classification is underway
  - Will be finalized in mid 2017
- Classifications may have different funding availability/percentages
- Classifications may be based on activity levels
  - SIS Airports
  - Strategic Growth Facilities

SIS Project Review and Case Studies

- Examining current and prior 4-years of SIS projects
  - How has the SIS funding been used to date
  - How have criteria influenced the selected projects
- Case studies for more detailed evaluation
  - 3 projects that have been implemented
  - Impact of project on airport and community
  - Review of project funding if no SIS $$

SIS Projects: Potential Case Studies

- Fort Lauderdale-Hollywood International Runway Expansion
- Miami Intermodal Center
- Northwest Florida Beaches International
- List some potential projects
  - One airside and one landside
  - Maybe one 'non-airport' multi-modal project

32

FASP Deliverables

- Final Technical Report
- Executive Summary
  - Short Version
  - Long Version
- Five Videos
  - Each 30-60 seconds long
  - Each highlighting a different facet of Florida aviation (cargo, flight training, air service, etc.)
- Brochures by District and CFASPP region
- Executive Summary Primers – What does the FASP mean to you and how should you use it?
  - Legislative/elected officials
  - Airport management and consultants
  - General public audience
  - FDOT (ASO, District, other offices)

33

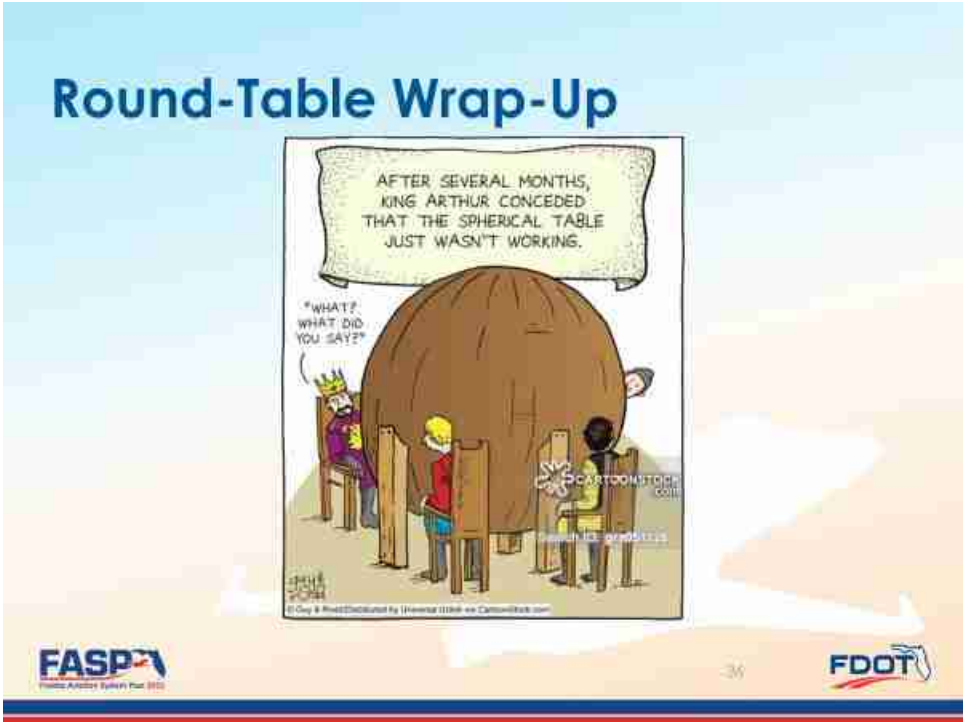
Guidance, Products, Tools, and Resources – What Else Is Needed?

34

Next Steps

- Distribute CFASPP website survey
- Analyze baseline performance
- Update forecasts
- Engage MPO Advisory Committee, FDOT modal groups, FDOT Policy Planning and Systems Planning
- Next meeting - Webinar in February

35


Round-Table Wrap-Up
AFTER SEVERAL MONTHS, KING ARTHUR CONCEDED THAT THE SPHERICAL TABLE JUST WASN'T WORKING.
"WHAT? WHAT DID YOU SAY?"
FASP
36
FDOT

Thank You
FASP
37
FDOT

A.1.5.3 Meeting Summary

On December 6th, staff from the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), FDOT District Representatives, the Federal Aviation Administration (FAA) Orlando Airports District Office (ADO), Florida's airports, and Kimley-Horn and Associates (KHA) met in person to review and discuss ongoing efforts of the FASP 2035. The purpose of this meeting was to present a status of tasks that had been completed, those underway, and to seek input and assistance on elements of the project. Meeting participants included:

- Rebecca Henry, FAA
- Jim Halley, FDOT - ASO
- Andy Keith, FDOT – ASO
- Todd Cox, FDOT – ASO
- Barbara Cloud, FDOT – District 2
- Donna Whitney, FDOT – District 2
- Laurie McDermott, FDOT – District 4
- Susan Sadighi, FDOT – District 5
- Allison McCuddy, FDOT – District 5
- Jim Wikstrom, FDOT – District 5
- Ray Clark, FDOT – District 7
- Mark Sprague, St. Pete-Clearwater International Airport
- Leo Treggi, Winter Haven's Gilbert Airport
- Steven Lichliter, Ormond Beach Municipal Airport
- Matthew Elia, Tavares Seaplane Base
- Allan Penksa, Gainesville Regional Airport
- Erin Johnson, St. Pete-Clearwater International Airport
- Gene Conrad, Lakeland Linder Regional Airport
- Roy Sieger, Flagler County Airport
- Andrew LaGala, Tampa International Airport
- Justin Fletcher, Cecil Airport
- James Parrish, Punta Gorda
- Pam Keidel-Adams, Kimley-Horn
- Jon Sewell, Kimley-Horn
- Colin Wheeler, Kimley-Horn
- Zach DeVeau, Kimley-Horn
- Dan Afghani, DA Consulting

The following is a summary of the input received from the discussion. (Note: as part of this CRT meeting, two interactive exercises were conducted. The summary of these exercised is provided as a separate document).

- To begin the meeting, attendees were asked to provide a word or phrase to end the sentence: "Florida's Airports are_____"
    - Amazing, dynamic, and our connection to the world
    - Fun
    - An economic engine

- The best
- Leaders
- Busy
- Mountain top
- Cutting edge
- Dynamic
- Cool
- Very interesting
- Diverse
- Exciting
- Excellent
- An important part of the national airspace system
- Bridge
- Always changing
- Benchmark
- Growing
- Advancing

- The meeting began with a broad overview of the FASP as well the overall schedule for the project

- As part of the presentation, a comparison matrix of the goals of the FASP and the Florida Transportation Plan (FTP) was presented. Comments on the comparison matrix included:
  - It was noted that "Preservation of System" is not in the current FTP, but is covered by other FTP goals
  - For goals related to resiliency, it was asked how many airports in Florida were old military bases. Almost all airport representatives at the meeting indicated they were once military airfields

- The next topic of discussion was on the State Strategic Goal Analysis Tool (SSGAT). Comments on the SSGAT included:
  - Numerous airports noted concern with the use of the SSGAT
    - Is there no weight given to economic impacts of project?
    - Is there another tool to measure economic impacts?
    - For the FAA, safety is the number one goal, so economic development may get overlooked
  - To maximize FAA matching funds, the SSGAT could prioritize projects that are not deemed as high of a priority by the FAA
  - Flexibility in the SSGAT should be viewed as a strength
  - Within FDOT, flexibility goes beyond project categorization
    - Airports have different priorities

- The final topic of discussion was on the CFASPP website. The following is a summary of the discussion:
  - The selection of photos on the website was noted to be a component that will be updated
  - It would be useful to include Florida aviation news, social media links, and direct links when possible
  - Having the ability to add information directly from the website to a calendar would be a very helpful addition

- Including a database of information that Enterprise Florida could use to look at what is going on at airports would be very helpful
  - This website is what entities (such as Enterprise Florida) should use, which is why it's important to keep current, user-friendly, and informative

A.1.5.4 Good, Better, Best Exercise – District Aviation Coordinators

As part of FASP Review Team meeting held on December 5, 2016, an interactive exercise was conducted to better understand how District Aviation Coordinators view their role in the State aviation system as well as what their role is in maintaining and tracking data related to the goals, objectives, performance measures, and performance indicators of the FASP. The exercise, titled "Good, Better, Best," was designed to collect as much information as possible, and then prioritize and rank the input. The following is a summary of the input received from the exercise. (Note: responses are listed as provided from participants.)

What is your role in Florida's aviation system?

- Good:
  - Determine which projects will be funded
  - Project/contract monitoring and oversight
  - Have a balanced work program
    - No roll forward
    - Meet production
  - Coordinate projects and funding
  - Oversee project milestones
  - Help establish statewide procedures
  - Help with issues districts encounter
  - Coordinate ongoing projects at each airport
  - Coordinate statewide studies
  - Help establish statewide policies
  - Coordinate statewide (Continuing Florida Aviation System Planning Process (CFASPP)) meetings with airports
  - Problem solver
  - Policy implementation guidance

- Better:
  - Advocate for airports
  - Ensure compliance with statutes
  - Plan projects
  - Make my airport(s) the best airport(s) people want to go to
  - Being aware of airport needs
  - Assist with funding with each airport
  - Look for alternate funding sources, e.g., Secure Airports for Florida's Economy (SAFE), Intermodal

- Best:
  - Assist the airports with meeting their goals
  - Distribute money to airports
  - Fund the right/best projects

    - Steward of public investment
    - Be a part of the partnership between Federal Aviation Administration (FAA), Florida Department of Transportation (FDOT), and airports
    - Provide technical assistance
    - Resource to help airports implement their programs

- Common themes, ideas, and words:
    - Funding
    - Partner
    - Technical Assistance
    - Needs
    - Coordination
    - Monitor
    - CPR – Consistent, Predictable, Reliable
    - Support

- Best practices related to supporting aviation in the State of Florida:
    - Needs with funding
    - Relationships (district→airport and district→Aviation and Spaceports Office (ASO))
    - Communication
    - Figure out right projects
    - Partnership

How do you think the Performance Measures (PMs) and Performance Indicators (PIs) should be used to support airports and aviation in Florida?

- Good:
    - Return on investment for airports and their projects
    - Amount of money each airport receives compared to what whole district receives
    - Leverage them to market Florida aviation outside of the state (businesses, maintenance, repair, and overhaul (MROs), manufacturers, etc.)
    - Help airports run/operate efficiently
    - Support funding requests from Legislature
    - Help each airport meet their security/safety goals
    - Measures should influence funding for airports
    - Use PMs/PIs to help airports before prepare for emergencies
    - Use PIs to demonstrate how districts/airports are meeting goals

- Better:
    - Support/validate FDOT Mission
    - One of many considerations

- Best:
    - Validate FDOT-funded technical programs
    - Assist airports in business planning and master planning
    - Show the economic benefit of the airports
    - Validate funding decisions

    - Economic development
    - Use PM/PIs to be more self sufficient
    - Use to recognize areas of deficiency and assist airports meet performance goals
    - Use PMs/PIs to better define needs
    - Funding priority tool

- Common themes, ideas, and words:
    - Programs
    - Economic benefits
    - Funding - proper distribution
    - Identify deficiencies
    - Used as a tool
    - Coordination – response (emergency)

- Best practices related to supporting aviation in the State of Florida:
    - Info to validate funding decisions
    - Promotion through CFASPP, Florida Airports Council (FAC), and Florida Aviation Business Association (FABA)
    - Proper notification
    - Identify best practices/lessons learned
    - CPR – Consistent, Predictable, Reliable

What can you do related to the collection, upkeep, and use of data for the Performance Measures (PMs) and Performance Indicators (PIs) to better support airports and aviation?

- Good:
    - Provide feedback
    - Get district support for providing data requested
    - Coordination of information to the airports
    - Regular communication and/or meetings
    - Establish a periodicity for each PM and PI report
    - Commitment, One FDOT
    - Unified data
    - Best practices, methodology
    - Data consistency
    - Call Jim
    - Coordinate with districts regarding future studies

- Better:
    - Don't fund projects (i.e., use data to justify why a project is not funded)
    - Use our performance measures and indicators to fund or not fund
    - Help to remove road blocks
    - Obtain info during gaming process
    - Make sure some master plans and ALPs are current and results uploaded in the Florida Aviation Database (FAD)
    - Establish with airports that PMs and PIs are not meant to "grade" airports
    - Give airports incentive to provide data (tie to funding)

- Best:

    - Identify who is responsible for tracking/collecting each PM and PI
    - Discuss methods used by other districts to determine best practices
    - Make the Joint Automated Capital Improvement Program (JACIP) simpler to use – other technology
    - Use of technology
    - Ensure future projects include data elements needed
    - Publish economic impacts of airports – promote airports
    - Celebrate the successes
    - Case study

- Common themes, ideas, and words:
    - Data needs
    - JACIP simplification
    - Data consistency
    - Communication (both ways)
    - Education
    - Trust (relationships)

- Best practices related to supporting aviation in the State of Florida:
    - Schedule
    - Format
    - Communication
    - Incentives (tie to funding)
    - Visit airports (relationships)
    - Use of technology
    - Success stories
    - Project funding supports data collection

A.1.5.5 Good, Better, Best Exercise – Aviation Stakeholders

As part of FASP Comprehensive Review Team meeting held on December 6, 2016, an interactive exercise was conducted to better understand how aviation stakeholders view their role in the State aviation system as well as what their role is in maintaining and tracking data related to the goals, objectives, performance measures, and performance indicators of the FASP. The exercise, titled "Good, Better, Best," was designed to collect as much information as possible, and then prioritize and rank the input. The following is a summary of the input received from the exercise. (Note: responses are listed as provided from participants.)

What is your role in aviation in the State of Florida?

- Good:
    - Customers: airports
    - Customer service
    - Provide general aviation services
    - Planning
    - Technical assistance
    - Facilitate attraction of top University of Florida (UF) faculty
    - Mode of transportation terminal

    - Support chambers of commerce
    - Support general aviation, mainly recreational, business, and seaplane activities
    - Recreational resource
    - Airport for seaplanes
    - Help develop statewide policies and procedures
    - Plan and develop infrastructure relevant to regional aviation demands
    - To plan and be a part of viable, balanced, and competitive system
    - Advocate for the airports at FDOT
    - Build a work program – project needs prioritization vs. available funds
    - Drive creativity and vision for our facility development
    - Maintain facility
    - Follow regulations
    - Airport preservation
    - Ensure safe, efficient operation of the airport
    - An educator, a proponent, an advocate

- Better:
    - Military home
    - Increase quality of life and attract top talent to Florida
    - Attract new air service to Florida
    - Provide funding to help airports meet their goals
    - Maximize funding for airports
    - Ensure the state plan supports the national plan for airports
    - Facilitate and support the efforts of our aviation tenants to prosper

- Best:
    - Run a safe and efficient airport
    - Compliance
    - Ambassador for public
    - Promote aviation
    - Job creation
    - Support business retention
    - Assist airports with funding projects
    - Funding projects
    - Program funding
    - Provide safe aviation facilities
    - Foster relationships between airports, FAA, and FDOT
    - To communicate the benefits and opportunities of airports
    - Translate to the general public what we do and why it is important

- Common themes, ideas, and words:
    - Safety
    - Funding
    - Promote aviation
    - Economic development
    - Communication
    - Relationships
    - Support
    - Infrastructure
    - Preservation

- Best practices related to supporting aviation in the State of Florida:
    - Technology
    - Communication
    - Training
    - Outreach
    - Planning
    - Education
    - Passion

How do you think the Performance Measures (PMs) and Performance Indicators (PIs) should be used to support airports and FDOT?

- Good:
    - Use them outside of Florida to attract economic activity (MROs, manufacturers, new air service, non-aviation companies who need aviation to support them)
    - Justify new funding sources, taxes, etc.
    - Use to work with local officials to suggest projects to support
    - Verify if capacity/demand are being met
    - Identify deficiencies
    - Support for funding/priorities
    - Verify if projects are being done
    - Evaluate individual airport needs
    - Actually be able to measure the performance
    - Disseminate regularly to foster updates
    - As leverage for additional funding
    - Validate funding decisions
    - Provides a tool for consideration and ranking
    - FDOT and airports prioritize funding based on needs and future demand

- Better:
    - Funding priorities
    - PMs and PIs should be used to support state laws designed to protect and preserve airports
    - To help tell our story to neighbors/residents, local officials, and state legislators
    - Community support
    - Local support for airport
    - Determine if airport is receiving enough financial support

- Best:
    - Positive Legislative support
    - Leverage them to support approaches and gain legislative support
    - Set state budget priorities
    - Justification to federal agencies
    - Used as justification for why FDOT and airports selected projects
    - Use as guide for selecting the right project to fund
    - As a basis to develop training programs
    - Education

    - Tell the story of our airports to the local and regional partners for support
    - Evaluate the return on previous investments of money from agencies
    - Need to balance the subjective and objective nature of the measurements
    - Validate data consistency

- Common themes, ideas, and words:
    - Legislative support
    - Justification
    - Training
    - Prioritization
    - Validation
    - Funding
    - Partnerships
    - Outreach/Education

- Best practices related to supporting aviation in the State of Florida:
    - Communication
    - Education
    - Tell the story
    - Consistency in Information
    - Telling a story
    - Legislative engagement

What can you do related to the collection, upkeep, and use of data for the Performance Measures (PMs) and Performance Indicators (PIs) to better support airports, your community and elected officials, and FDOT?

- Good:
    - Organize, verify, teach, report, and disseminate the information
    - A new FAD→Geographic Information System (GIS)→CFASPP website→local level→our residents and visitors
    - High quality deliverables
    - Ensure there is a consistent message
    - Regular "earned" reports
    - Help design performance metrics
    - Be proactive in data gathering and distribution
    - Provide performance data
    - Education
    - Outreach
    - Endeavor to stay informed about your own facility
    - Use JACIP to its fullest extent
    - Encourage airport participation
    - Have the PMs and PIs in a useable format for the public and elected officials
    - Make sure districts are aware of what airports are being asked for
    - Cooperate with data collection efforts
    - Have a data collection component of JACIP
    - Research to see what airports need/want
    - Simplified surveys more often than lengthy ones

- Better:
    - Regular communication thru phone calls, emails, and meetings
    - Respond to surveys

- Best:
    - Encourage airports to stay current in training and safety standards
    - Keeping the safest airports in Florida
    - Airport newsletters
    - Brochures of the aviation message
    - Better tell airport's story in community town hall meetings
    - Airport presentations to the community
    - Efficient and timely way to provide information back to FDOT
    - Use of technology
    - Assist in surveys
    - Facilitate the establishment of time intervals for reports on PMs and PIs
    - Ensure the data tells a true story to support airports
    - Identify what story we want to tell and tailor my efforts to support that story
    - Provide data

- Identify:
    - What data needs to be collected
    - By who
    - How often
    - Where it will be stored

- Common themes, ideas, and words:
    - Safety
    - Outreach
    - Efficient data collection
    - Communication
    - Participation
    - Information

- Best practices related to supporting aviation in the State of Florida:
    - Technology
    - Education
    - Reporting
    - Cooperation
    - Communication
    - Social media
    - CPR – Consistent, Predictable, Reliable
    - Active tracking
    - Community outreach
    - Efficiency

A.1.5.6 Demand Drivers Summary

During the FASP Review Team meeting held on December 5, 2016, and the FASP Comprehensive Review Team meeting held on December 6, 2016, an interactive exercise was conducted to better understand what activities were "driving" aviation demand in each Florida Department of Transportation (FDOT) District. During each day of the exercise, participants wrote on District maps to identify what was driving aviation demand in their area. In some instances, participants provided airport-specific information, while in others, participant provided general District information. Additionally, participants were also asked to note any limitations to aviation activity that may be impacting their activity.

The information for each District is summarized into three sections, dependent on the results provided by participants relevant to each district:

- General District Drivers (not associated with one specific airport)
- District Airport Drivers (drivers associated with one specific airport)
- General Limitations (limitations may be either airport-specific or apply to the entire District)

The following is a summary of the information that was provided during these exercises.

District 1

District 1 Drivers

- Punta Gorda Airport
  - Tourism
  - Flight training
  - Distribution
  - 2nd homes
  - Cheney Brothers, Inc.

- Southwest Florida International Airport
  - Tourism
  - Cargo

- Everglades Airpark
  - Seaplanes

- Naples Municipal Airport
  - 2nd homes
  - Tourism

- Arcadia Municipal Airport
  - Aviation tourism

- Venice Municipal Airport
  - Flight training

    - Private aviation
    - Airport Manatee
    - Tourism

- Okeechobee County Airport
    - Flight training

- Sebring Regional Airport
    - Industrial development
    - Light sport aircraft

- Avon Park Executive Airport
    - Military
    - Avon Park Range

- Lake Wales Municipal Airport
    - Skydiving

- Bartow Municipal Airport
    - Industrial/Aviation business

- South Lakeland Airport
    - Florida Polytechnic

- Lakeland Linder Regional Airport
    - Aviation education
    - Central Florida Aerospace Academy/Polk State College Aerospace
    - Emerging commercial service

- Draken International
    - Air Cargo/Amazon/Publix
    - Maintenance, repair, and overhaul development
    - Sun-N-Fun
    - RV Resort
    - Flight training

- Winter Haven's Gilbert Field
    - Seaplane training
    - Legoland
    - Flight training
    - Disney

District 2

District 2 General

- Golf tournament once a year
- Sawgrass affects St. Augustine

- Gator Bowl and University of Florida vs. Georgia

District 2 Drivers

- Lake City Gateway Airport
  - Timco Aviation Services
  - Jet maintenance

- Jacksonville International Airport
  - Maintenance, repair, and overhaul
  - Project Paragon

- Northeast Florida Regional Airport
  - New terminal (now commercial)
  - Tourism

- Naval Station Mayport
  - Military/Mayport (helicopters)

- Herlong Recreational Airport
  - Skydiving

- Jacksonville Executive at Craig Airport
  - Reliever for Jacksonville International Airport (increase in jet traffic)

- Cross City Airport
  - New conventional hanger for private individual

- Brannon Field Chaffee
  - Outer ring to Cecil Airport

- Keystone Heights Airpark
  - Flight school for missionaries
  - Increasing students (new building)

- George T. Lewis Airport
  - Seafood festival

District 2 Limitations

- Gainesville Regional Airport (lost Spirit Airlines)

District 3

District 3 General

- Dothan/Fort Rucker
  - Army

District 3 Drivers

- Tallahassee International Airport
  - Business
  - Cargo

- Northwest Florida Beaches International Airport
  - Tourism
  - Spring break
  - Snowbirds
  - Seasonal tourism

- Destin-Ft. Walton Beach Airport
  - Military
  - Spring break
  - Snowbirds
  - Seasonal tourism
  - Tourism

- Destin Executive Airport
  - Spring break
  - Snowbirds
  - Seasonal tourism

- Pensacola International Airport
  - Medical
  - Blue Angels
  - Cargo
  - Military
  - Maintenance, repair, and overhaul

District 4

District 4 Drivers

- Fort Lauderdale/Hollywood International Airport
  - Intermodal work-in PD&E
  - Light rail

    - Port connections

- Pompano Beach Airpark
    - New blimp and blimp hangar
    - Access
    - Internal circulation
    - North runway
    - Express lanes on I-95 ramp to I-595 Northbound to Westbound

- Boca Raton Airport
    - Customs
    - New interchange at I-95 and Spanish River Boulevard

- Sebastian Municipal Airport
    - Skydiving

- Palm Beach International Airport
    - Baggage upgrade
    - Development golf view

- Palm Beach County Glades Airport
    - Apron upgraded
    - Taxiway/Runway project

- Palm Beach County Park Airport
    - New fixed base operator
    - Fuel farm
    - Hangars

- Witham Field
    - Customs approved
    - Highly affluent users

- Treasure Coast International Airport
    - Maintenance, repair, and overhaul facility
    - Flight training
    - Roadways around airport-improvement
    - Customs upgrade

- Vero Beach Regional Airport
    - 3-year contract with Elite Airlines for commercial service
    - Flight training

- Fort Lauderdale Executive Airport

    - Reliever to Fort Lauderdale-Hollywood International Airport
    - New customs
    - Strategic Intermodal System eligible (number of operations)
    - Third busiest general aviation airport in the United States

- North Perry Airport
    - Runway extension – no
    - Banner planes – economic development

- Belle Glade State Municipal Airport
    - Runway shift and upgrade
    - Rural Economic Development Initiative
    - Crop dusters
    - Solar runway edge lights

- North Palm Beach County General Aviation Airport
    - Extending runway

District 4 Limitations

- Fort Lauderdale/Hollywood International Airport (roadway capacity onto airport)

- Palm Beach International Airport (military trail separates airport property and flight corridors)

- North Perry Airport (inability to extend runway)

District 5

District 5 Drivers

- Melbourne International Airport
    - Flight training
    - Florida Institute of Technology
    - Maintenance, repair, and overhaul
    - Major university
    - Space activity
    - High activity business

- Orlando International Airport
    - Medical Village

- Merritt Island Airport
    - Space activity

    - Manufacturing
    - Major university
    - High activity business
    - Maintenance, repair, and overhaul

- Daytona Beach International Airport
    - JetBlue
    - NASCAR
    - Tourism
    - Beaches
    - Airspace management
    - Flight training
    - Major university

- Ormond Beach Municipal Airport
    - Runway extension
    - Business/Tech
    - Tourism
    - Beaches
    - Airspace management
    - Flight training

- Flagler Executive Airport
    - Sea Ray
    - New runway
    - Business park
    - Tourism
    - Beaches
    - Airspace management
    - Flight training

- DeLand Municipal Sidney H. Taylor Field
    - Skydiving
    - Flight training

- Leesburg International Airport
    - Adding seaplane ramp
    - Tourism
    - Tavares Seaplane Base
    - Adding seaplane ramp

- New Smyrna Beach Municipal Airport
    - Flight training

- Orlando-Sanford International Airport
    - Flight training
    - Maintenance, repair, and overhaul

- Valkaria Airport
    - Flight training

- Kissimmee Gateway Airport
    - Tourism

- Space Coast Regional Airport
    - Space activity
    - High activity business
    - Emergency services

- Orlando Executive Airport
    - High activity business
    - Emergency services

District 6

District 6 Drivers

- Miami International Airport
    - There can be only one!
    - Flight training
    - Business aircraft
    - Cargo (fish, flowers, Pharma hub)
    - Gateway to Latin America

- Opa-Locka Executive Airport
    - Flight training
    - Business aircraft

District 7

District 7 General

- Military: Army, United States Coast Guard, United States Air Force
- Outback Bowl
- Major League Baseball
- Baseball training
- Tactical Support Center
- Visit Clearwater, St. Pete, and Tampa
- International traffic
- Chamber of Commerce
- #1 Beach Clearwater

- Amazon.com prime air
- Fortune 500
- Tampa Bay Express $8 billion driver ("The Driver" of the region)
- Hard Rock
- Cruise ships

District 7 Drivers

- Albert Witted Airport
    - High end charter to Florida Keys

- Peter O. Knight Airport
    - Seaplane
    - Davis Island
    - Land locked
    - Valuable land

- Tampa International Airport
    - FedEx
    - Crane ships
    - Currently $960 million in improvements

- St. Pete-Clearwater International Airport
    - United States Coast Guard Base
    - UPS
    - Gateway
    - One airline-all "eggs" in one basket

- Plant City Airport
    - Agriculture

- Brooksville-Tampa Bay Regional Airport
    - Emerging
    - Air National Guard
    - Inverness Airport
    - Business park

- Crystal River-Captain Tom Davis Field
    - International flight training

- Tampa North Aero Park
    - Privately-owned

- Pilot County Airport

    - Privately-owned

- Zephyrhills Municipal Airport
    - Improved management in place
    - Working with partners, FAA, and FDOT

- Brooksville-Tampa Bay Regional Airport
    - Proximity to Suncoast and Parkway is advantage
    - Good land availability

District 7 Limitations

- Tampa Executive Airport (entryway)

- Tampa International Airport (crane ships)

- St. Pete-Clearwater International Airport (gateway)

A.1.6 Meeting #6 – April 11, 2017

A.1.6.1 Agenda

- Introductions

- Brief Project Overview and Status Update

- CFASPP Website Survey Results and Updated Concept Discussion

- Interactive Exercise #1
    - Future transportation alternatives exercise
    - Interactive polling to determine sensitivity to various trends in the aviation industry

- Analysis of Performance Measures and Performance Indicators
    - Overview of the process
    - Sample Performance Measurement Results
    - Sample of Performance Indicator Results

- Analysis of Intermodal Connectivity at Florida's Airports
    - Overview of methodology
    - Sample deliverables from analysis

- Overview of the Strategic Intermodal System (SIS)
    - Overview of the airport data reviewed from the SIS
    - Sample deliverables from analysis

- Florida Airport Opportunity Analysis
    - Overview of methodology
    - Sample deliverables from analysis

- Interactive Exercise #2
    - Group discussion of the results of Interactive Exercise #1
    - Determine the alternatives that will be evaluated in the FASP

- Next steps and Schedule

A.1.6.2 Presentation

FASP Goals

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

FASP Overview - Phases

PHASE 1

- State, Regional, and Local Airport Issues
- Goals, Objectives & Performance Measures
- Inventory
- Stratification Methodology Evaluation
- Regional and State Overviews
- Aviation Industry Trends
- Forecasts
- Demand/Capacity
- SSGAT Update

PHASE 2

- Data Collection (Additional)
- Existing System Evaluation (Baseline Performance Measurement)
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- Public Engagement Mechanism (CFASPP Website Update)
- Final Deliverables

MEETINGS/COORDINATION

FAA » FASP Review Team (FASPRT) » Comprehensive Review Team (CRT)
Other FDOT Representatives » MPOs

Phase 2 Tasks

- **Complete**
  - Analysis of existing intermodal connectivity
  - Analysis of historical SIS-funded projects
  - Air Service and Air Cargo Studies review
- **On Short Final**
  - Florida Airport Opportunity Analysis
  - Additional data collection
  - Establish PM/PI baseline
  - ID demand drivers
- **Enroute**
  - Apply SSGAT to JACIP
  - Future system needs (including updated forecasts)
  - ID alternative scenarios

Phase 2 Tasks – Still to Come

- **Recommendations**
- **Update CFASPP website**
- **CFASPP Regional brochures**
- **FASP Executive summary**
- **Data presentation platform**
- **Final meetings with FAA, FDOT modal staff, MPOs**

FASP

Florida Aviation System Plan 2035

Interactive Exercise #1

Interactive Exercise #1

Rank how you believe each of the following trends and issues will impact the aviation industry. Each of the following issues/trends can be weighted on a scale of -4 to +4 based on the following breakdown:

-4: Strong negative effect
-3: Negative effect
-2: Moderate negative effect
-1: Mild negative effect
0: Neutral effect
1: Mild positive effect
2: Moderate positive effect
3: Positive effect
4: Strong positive effect

Additionally, for each trend/issue, please provide the timeframe in which you believe your airport will be affected. Timeframes are defined as follows: Immediate (0 – 1 year); short-term (1 – 5 years); mid-term (5 – 10 years); and long-term (10+ years).

FASP FDOT

Interactive Exercise #1

- **Aging Population**
  - As the population ages, they become less mobile and may require assistance when travelling. Accommodating these needs will be closely tied to their ability to use aviation service.
- **Autonomous vehicles (ground-based and UAS)**
  - Autonomous vehicles (both aerial and ground-based) consist of vehicles that do not require a person in them to control them. This technology will impact not only how each mode of transportation operates independently, but also how they interact with each other. There are specific potential impacts to airports in terms of parking needs and revenue and accessibility.
- **Competition for space operations**
  - Space operations not only represent the potential for commercial space flight; they are critical to supporting common applications such as GPS and telecommunications. Additionally, freight and cargo connections to spaceports may also be important to consider in the context of providing facilities that are able to accommodate such activity. As competition increases and new agencies enter the market, ensuring that we can accommodate their needs will help to retain and grow this industry in Florida.
- **Customs and immigration**
  - Customs and immigration agencies are responsible for the safe and efficient flow of people across our borders. Regulatory changes, staff shortages, and funding shortfalls all have the potential to have a significant impact on the aviation industry.
- **Electric/alternative fuels**
  - Alternatively fueled vehicles have the potential to have a positive impact in manufacturing sectors and on the environment, as well as varying impacts to aviation industry. Implications such as the loss of tax revenue have the potential to significantly alter the industry.
- **Stability of oil prices**
  - As oil prices fluctuate, individuals change their travel habits based on their needs. Additionally, if industries cannot predict oil prices, they are unable to set prices and predict revenues, causing instability in the services they provide.

FASP Florida Aviation System Plan 2035 | 9 | FDOT

Interactive Exercise #1

- **Opening of Cuba market**
  - The opening of the Cuba market represents a unique opportunity. Aside from the obvious potential for the airline industry, the Cuba market may also present opportunities for freight and cargo as well as private, specialized transportation services.
- **Terror threats**
  - Due to terrorism fears, airports and other transportation modes must ensure that they are protecting the safety of users. Having systems to prevent and respond to acts of terror is important to the overall transportation industry, including aviation.
- **Regulatory stability (federal and state)**
  - As regulations change, industries must react to accommodate them. Being able to do this quickly and with continued operational efficiency is important.
- **Reliance on tourism**
  - Since tourism plays such a large role in Florida's economy, even small changes can have drastic impacts. How aviation is able to serve this industry and accommodate any shifts in activity is critical.
- **Resiliency**
  - Resiliency is most commonly linked with responses to extreme weather events and acts of terror. The resiliency of the aviation industry is essential to evacuation and enabling access for responders.
- **Availability of a trained technical workforce**
  - The availability of a well-trained, technical workforce is very important for the aviation industry. This includes the vehicle operators and those that maintain the complex vehicles and systems as well as those individuals tasked with the management and development of facilities. Changes to the availability of these workers could have impacts on the ability to develop and maintain infrastructure or result in a change in the operation.
- **Sustainability**
  - Sustainability is not limited to environmental concerns; rather, sustainability should be considered across four categories: Economic Viability, Operational Efficiency, Natural Resource Conservation, and Social Responsibility. Across these categories, sustainability seeks to find cost savings in everyday functions as well as effectively record and report the information to help improve the financial bottom line of an agency.

FASP Florida Aviation System Plan 2035 | 10 | FDOT

FASP

Florida Aviation System Plan 2035

CFASPP Website Survey

11

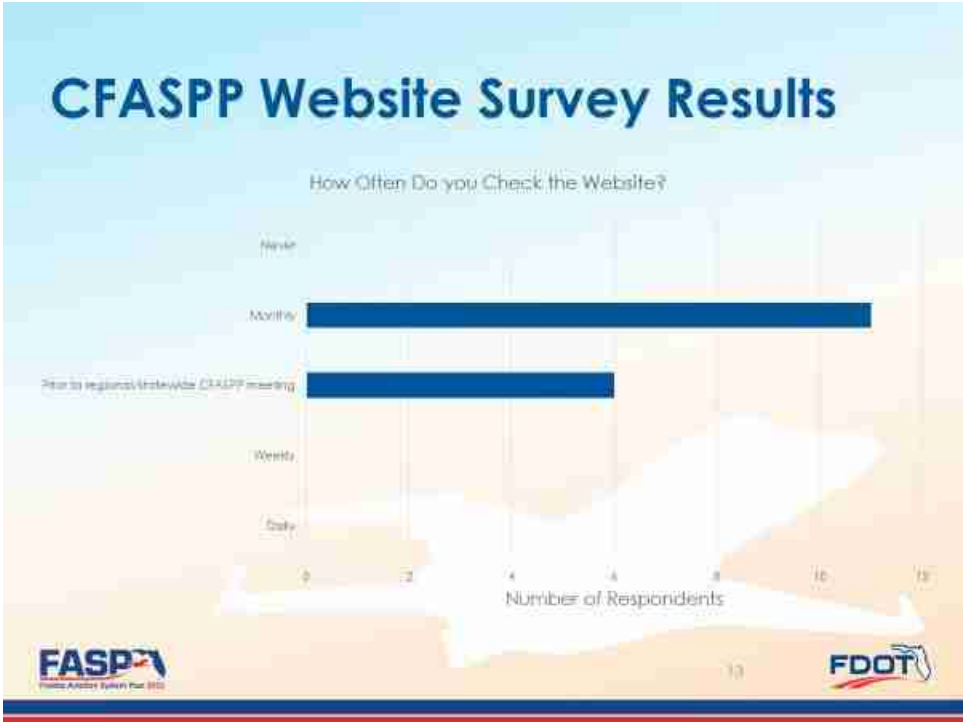
CFASPP Website Survey

- Distributed to understand how people use the website
  - What could improve the website?
  - What outreach methods are effective?
  - What additions may help?

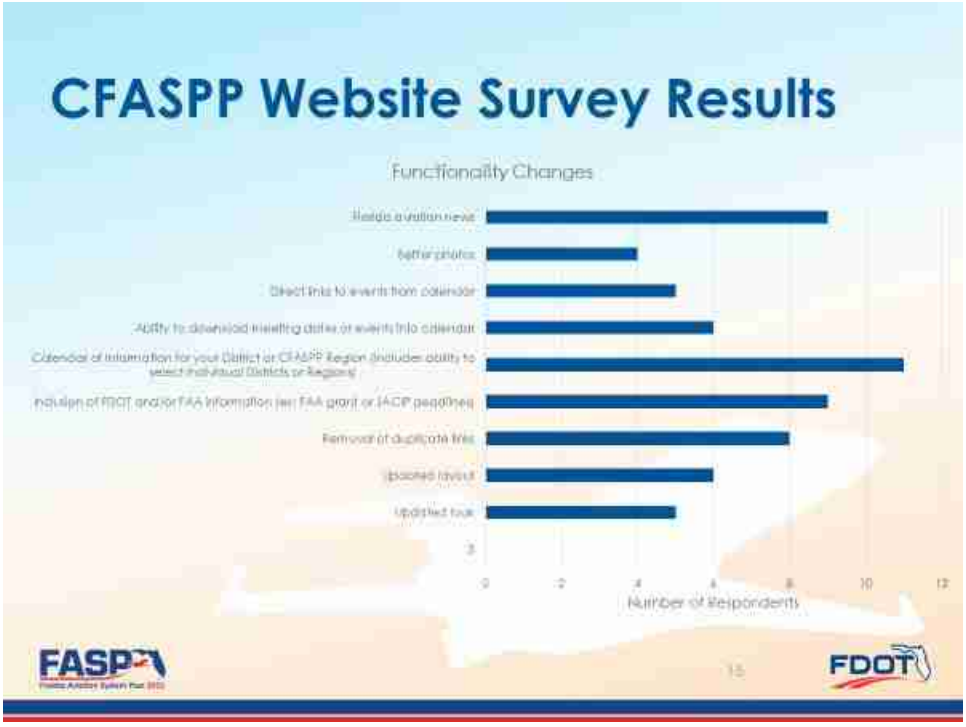
FASP

12

FDOT


CFASPP Website Survey Results
How Often Do you Check the Website?
Never
Monthly
Prior to regional/statewide CFASPP meeting
Weekly
Daily
0
2
4
6
8
10
12
Number of Respondents
FASP
FDOT

CFASPP Website Survey Results
Frequently Utilized Tabs
Committees
FASP
Schedule
Airports
Projects
0
2
4
6
8
10
12
14
16
Number of Respondents
FASP
FDOT


CFASPP Website Survey Results
Functionality Changes
Florida aviation news
Better photos
Direct links to events from calendar
Ability to download meeting dates or events into calendar
Calendar of information for your District or CFASPP Region (includes ability to select individual Districts or Regions)
Inclusion of FDOT and/or FAA information (ex: FAA grant or FACIP deadlines)
Removal of duplicate links
Updated layout
Updated look
0
2
4
6
8
10
12
Number of Respondents
FASP
FDOT

CFASPP Website Survey Results
Social Media
Nextdoor
Twitter
SnapChat
LinkedIn
Instagram
Facebook
0
1
2
3
4
5
6
7
8
Number of Respondents
FASP
FDOT

CFASPP Website Survey Results

- **Additional changes**
  - FDOT, FAA, MPO, RPC contacts
  - Make mobile friendly
  - Add master plans to airport pages
  - Include data
  - Links to JACIP
  - Training/quick reference tabs
  - Social media links
  - Aviation-related news feed
  - Links to other FDOT websites
  - Link to other studies (ACRP and FDOT)

CFASPP Website Survey Results

- **What would be beneficial to the general public?**
  - Contacts for each airport and website links
  - Public info from the FAD
  - Links to FAA and other aviation-oriented groups
  - Related marketing/info material
  - Better "about" information on each airport (e.g. economic impact information, upcoming events, a news section for each facility with the responsibility on the airport to provide info)

Updated CFASPP Website Concept

- Other comments
  - Discussion board
  - Balancing new content and duplication
  - Pavement reports
  - ALPs
  - Public information from FAD
  - Airport and regional brochure updates
  - Interactive map

19

Potential New CFASPP Screenshots

20

FASP

Florida Aviation System Plan 2035

Analysis of PMs and PIs

21

Establishing PM/PI Baseline

- Seven FASP goals
  - 13 performance measures
  - 31 performance indicators
- Data analyzed to understand the percent of airports that meet the criteria for the PMs and PIs
  - FDOT District
  - CFASPP Region
- Data uploaded into FAD

FASP

22

FDOT

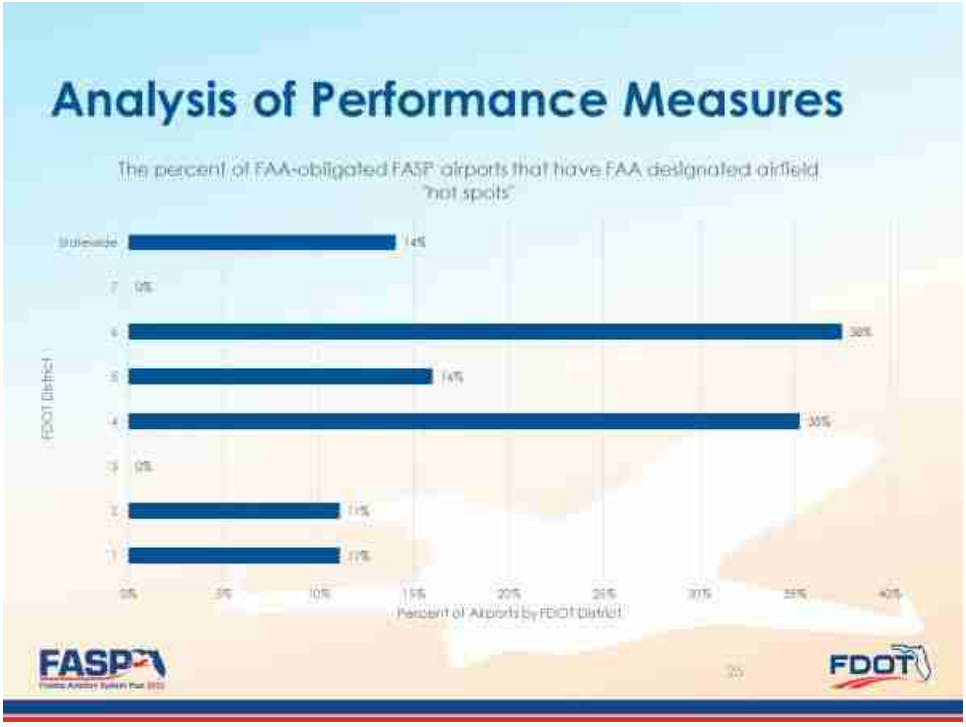
Analysis of Performance Measures

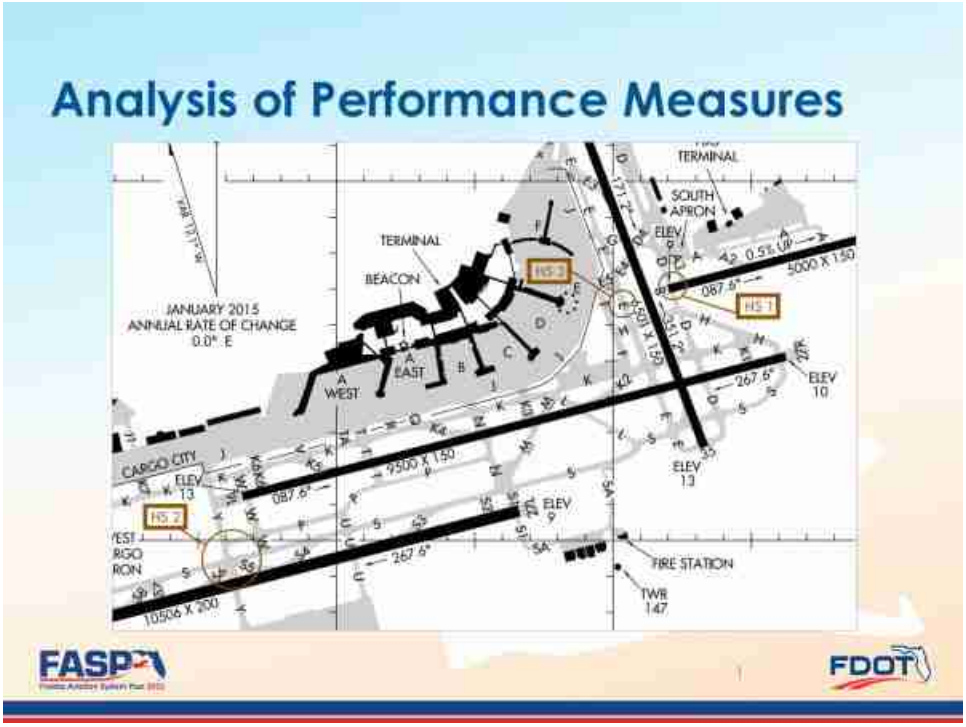
- Four airports currently meet FAA taxiway design standards

FASP FDOT

Analysis of Performance Measures

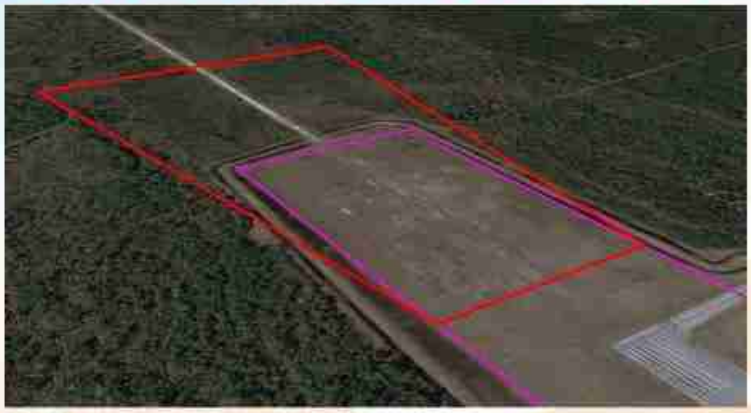
FASP FDOT


Analysis of Performance Measures
The percent of FAA-obligated FASP airports that have FAA designated airfield "hot spots"
Statewide
7
6
5
4
3
2
1
14%
0%
38%
14%
35%
0%
11%
11%
FDOT District
0%
5%
10%
15%
20%
25%
30%
35%
40%
Percent of Airports by FDOT District
FASP
FDOT


Analysis of Performance Measures
TERMINAL
SOUTH APRON
ELEV 9
5000 X 150
087.6°
HS 1
TERMINAL
BEACON
HS 3
JANUARY 2015
ANNUAL RATE OF CHANGE
0.0° E
A WEST
A EAST
267.6°
ELEV 10
CARGO CITY
ELEV 13
9500 X 150
087.6°
ELEV 13
ELEV 9
HS 2
267.6°
FIRE STATION
TWR 147
10506 X 200
FASP
FDOT

Analysis of Performance Indicators

- Four airports have no observed issues in their RPZ



Analysis of Performance Indicators

- 13 out of 20 SIS airports have direct bus service
  - 1 out of 2 GA SIS airports
  - 12 out of 18 SIS commercial service airports

FASP

Florida Aviation System Plan 2035

Analysis of Intermodal Connectivity

Intermodal Connectivity

- For all airports
  - Documented airports with rental and courtesy cars
  - Documented road connections (# of lanes/type of facility)
  - Funded roadway projects within 1 mile of an airport
- For commercial service airports
  - Documented bus/rail connections
  - Reviewed MPO plans for roadway LOS
  - Detailed analysis of road connections

FASP

FDOT

FDOT District	Number of Airports with Rental Car Service	Percent of Total Airports Within the District
1	18	64.3%
2	13	72.2%
3	14	70.0%
4	12	70.6%
5	17	68.0%
6	7	100.0%
7	12	92.3%
Total	93	72.7%

FDOT District	Number of Airports with Courtesy Car Services	Percent of Total Airports Within the District
1	9	32.1%
2	7	38.9%
3	3	15.0%
4	0	0.0%
5	5	20.0%
6	1	14.3%
7	5	38.5%
Total	30	23.4%

Connections to SIS Airports

Intermodal Service

Intermodal Service	Number of SIS Airports Where Service is Provided	Percent of Total
Rental Car Service	20	100%
Bus Transit	13	65%
Passenger Rail	2	10%

Highway Connections

Number of Lanes	Number of Roadways
2-3	3
4-5	12
6 +	14
Total	29

FASP

Florida Aviation System Plan 2035

Review of SIS-Funded Projects

Overview of Strategic Intermodal System (SIS) Funding

- Evaluated previous (FY 13-17) and next (FY 18-22) 5 years of SIS funding
  - Project type
  - Airport
  - FDOT District
- Evaluated non-aviation SIS projects (FY 17-21)
  - Within 1 mile of airports
  - Within 5 miles of airports
- Case studies at MIA and ECP

FASP

FDOT

SIS Funding

- Evaluation of funds based on project type, FDOT District, and Airport

SIS Funds by Project Type

Project Type	Amount	Percent
Automated People Mover	$ 156,500,000	47%
Terminal	$ 90,812,200	28%
Runway	$ 27,774,889	8%
Aviation Manufacturing	$ 22,000,000	7%
Taxiway	$ 8,799,300	3%
Access Road	$ 7,553,768	2%
Air Commerce Park	$ 7,000,000	2%
Terminal Shuttle Cars	$ 5,400,000	2%
Cargo Facility	$ 3,031,546	1%
Apron	$ 1,000,000	0.3%
Total:	$ 329,871,703	100%

SIS Funds by Airport

Airport	Amount	Percent
Tampa International	$ 178,811,500	54%
Orlando International	$ 90,214,577	27%
Ft. Lauderdale/Hollywood International	$ 27,774,889	8%
Melbourne International	$ 23,500,000	7%
Pensacola International	$ 8,531,546	3%
Palm Beach International	$ 1,000,000	0.3%
Destin-Ft. Walton Beach	$ 39,191	0.01%
Total:	$ 329,871,703	100%

SIS Funds by FDOT District

FDOT District	Amount	Percent
District 7	$ 178,811,500	54%
District 5	$ 113,714,577	34%
District 4	$ 28,774,889	9%
District 3	$ 8,570,737	3%
Total:	$ 329,871,703	100%

FASP Florida Aviation System Plan 2035 — 10 — FDOT

SIS Case Studies

- Northwest FL Beaches
  - SIS funds used to keep project ahead of schedule
  - Allowed for an additional 1,600 ft. of runway
    - Resulted in an expansion of service offerings
    - Resulted in increased passengers
    - Resulted in increased tourism and economic development opportunities
    - Improved community perception
- Miami Intermodal Center
  - SIS funds used for ROW and site development
  - Allowed for streamlined construction
    - Provides increased transportation options
    - Reduced congestion in and around airport
    - Encouraged tourism
    - Encouraged job creation and economic development

FASP Florida Aviation System Plan 2035 — 11 — FDOT

FASP

Florida Aviation System Plan 2035

Airport Opportunity Analysis

Airport Opportunity Analysis

- Airports with air traffic control towers (ATCTs)
- Airports with Jet A fuel
- Airports with 100LL fuel (AvGas)
- Airports by NPIAS and ASSET categorization
- SIS airports
- Airports with flight training activity
- Airports with weather reporting systems
- Airports with runways of various lengths
- Airports with at least one precision approach
- Airports with at least one instrument approach
- Airports that have features to accommodate business users

FASP

FDOT

Population Coverage of Airports with Various Runway Lengths

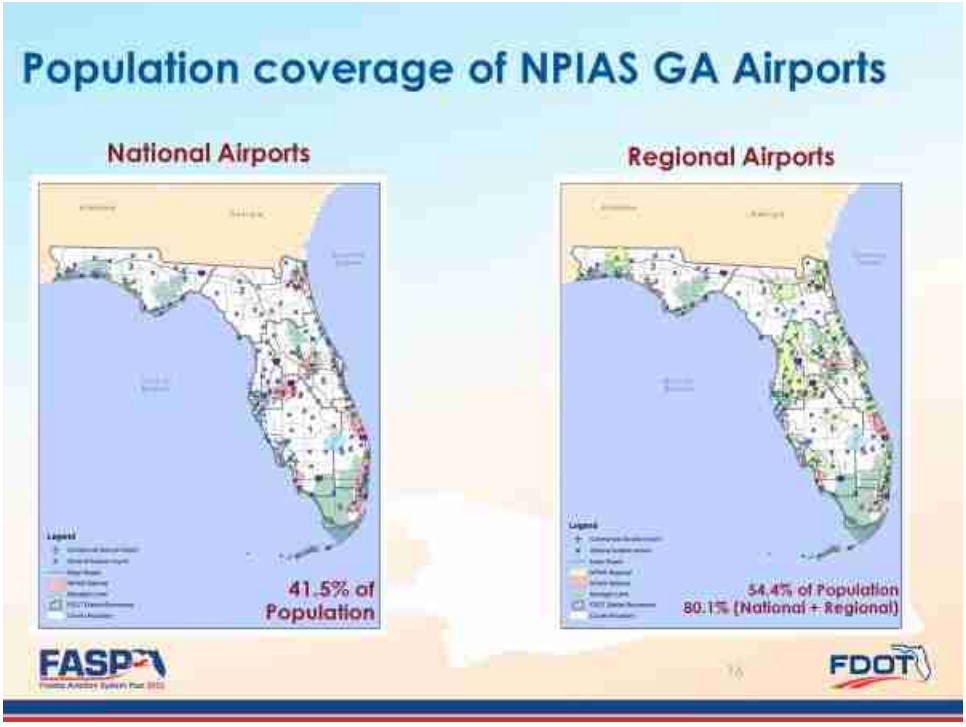
6,500-foot runways

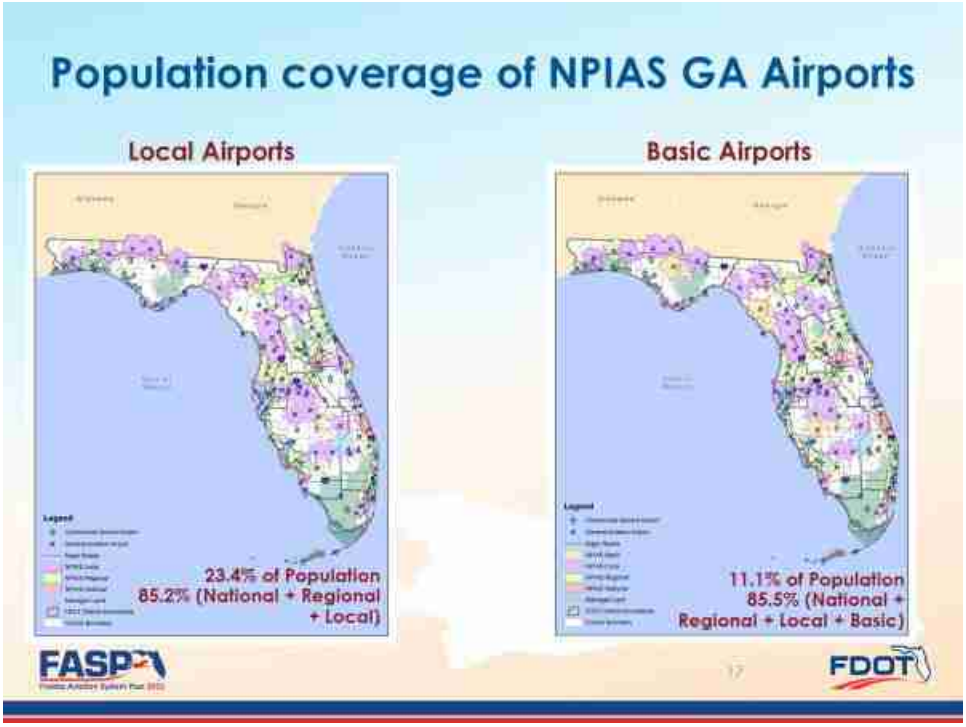
5,000-foot runways

Population Coverage of Airports with Various Runway Lengths

4,200-foot runways

3,200-foot runways


Population coverage of NPIAS GA Airports
National Airports
Regional Airports
41.5% of Population
54.4% of Population
80.1% (National + Regional)
FASP
FDOT


Population coverage of NPIAS GA Airports
Local Airports
Basic Airports
23.4% of Population
85.2% (National + Regional + Local)
11.1% of Population
85.5% (National + Regional + Local + Basic)
FASP
FDOT

FASP

Florida Aviation System Plan 2035

Review of Interactive Exercise

18

Interactive Exercise #2

- Discuss results based on Exercise #1

FASP

19

FDOT

Recommendations Activity

- Review your thoughts on the Activity Sheet
- Pick top 3 and write on post-it and put on board
- Discuss the results

20

FASP Deliverables

- Final Technical Report
- Executive Summary
  - Short Version
  - Long Version
- Five Videos
  - Each 30-60 seconds long
  - Each highlighting a different facet of Florida aviation (cargo, flight training, air service, etc.)
- Brochures by CFASPP region
- Executive Summary Primers – What does the FASP mean to you and how should you use it?
  - Legislative/elective officials
  - Airport management and consultants
  - General public audience
  - FDOT (ASO, District, other offices)

21

Next Steps

- Final data collection steps
- Florida Airport Opportunity Analysis
- Establish PM/PI baseline
- ID demand drivers
- Apply SSGAT to JACIP
- Future system needs (including updated forecasts)
- ID alternative scenarios

Final In-Person CRT Meeting Topics

Thank You
FASP
24
FDOT

A.1.6.3 Recommendations Exercise

In the space below and throughout the meeting, please note recommendations that you feel would be beneficial to support airports based on the findings of the Florida Aviation System Plan to date. Please see Page 2 for examples of recommendations from previous studies.

Based on your ideas noted above, what are your top three recommendations?

1. _____

2. _____

3. _____

Examples of recommendations from other plans, including FASP 2025, are presented below. Note that some are more general policy statements while others are specific tasks/actions or activities that were recommended.

- Coordinate with Workforce Florida to identify and promote aviation related careers available at Florida airports.

- Ensure that the aviation system is adequately considered in all Strategic Intermodal System (SIS) Plan deliberations.

- Conduct an in-depth study to analyze the interaction between Florida's general aviation airports and the state's natural and manmade attractions.

- Develop a business plan and a market approach for attracting national and international manufacturers and research organizations to Florida.

- Collect data and prepare an inventory of airports with available infrastructure to support aircraft manufacturing and production.

- Invest in airports and projects with the highest probability to provide economic return for the investment made. The propensity for airport investment to provide the greatest economic return is influenced by the type of project being requested, as well as by the characteristics of the market area the airport serves. This system plan provides information that helps FDOT determine how to prioritize investments when return on investment is an important consideration.

- Maintain a system of general aviation airports that protect commercial airport capacity. Reliever airports – airports that provide alternative landing sites for general aviation aircraft destined for busy commercial service airports – are vital. Florida should identify, maintain, and enhance general aviation airports that serve this important role.

- Promote sustainable best practices identified on the state and national level that lead to financially and environmentally sustainable development.

- Support investment in aviation technologies, including NextGen and biofuels development, to meet future aviation needs and reduce greenhouse gas emissions.

- Increase multimodal coordination, communication, and partnerships between airports and other modal representatives (state, regional, local transportation planning entities) that strengthens connectivity between modal planning and results in identification of policies that support multimodal needs.

- Identify signage, access roads, and ground transportation options that can be improved to support airport accessibility.

A.1.6.4 Meeting Summary

On April 11th, staff from the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), FDOT District Representatives, the Federal Aviation Administration (FAA) Orlando Airports District Office (ADO), Florida's Airports, and Kimley-Horn and Associates (KHA) met in person to review and discuss ongoing efforts of the FASP 2035. The purpose of this meeting was to present a status of tasks that had been completed, those underway, and to seek input and assistance on elements of the project. Additionally, two interactive exercise were conducted to better understand the trends and issues facing Florida's airports. Meeting participants included:

- George Boyle – FDOT District 7
- Annette Brennan – FDOT District 5
- Sunshine Cayubit – District 6 (on phone)
- Ray Clark – FDOT District 7
- Barbara Cloud – FDOT District 2
- Gene Conrad – Lakeland Linder Regional Airport
- Todd Cox – FDOT ASO
- John Helms – Marion County
- Rebecca Henry – FAA ADO
- James Hoffman – Vero Beach Regional Airport (on phone)
- Christie Jarrell – FDOT District 5
- Andy Keith – FDOT ASO
- Andrew LaGala- Tampa International Airport
- Allison McCuddy – FDOT District 5
- James Parish – Charlotte County Airport Authority
- Allan Penksa – Gainesville Regional Airport
- Aaron Smith – FDOT ASO
- David Smith – FDOT ASO (on phone)
- Erik Treudt – Tallahassee International Airport
- Scott Walters – FDOT District 3 (on phone)
- Donna Whitney – FDOT District 2
- Quinton Williams – FDOT District 3 (on phone)

The following is a summary of the input received during the meeting. The PowerPoint that was used for this meeting is included at the conclusion of this summary.

An interactive exercise was completed that measured the CRT's opinion on several key topics using real time polling. The purpose of this exercise was to better understand how various trends occurring in the aviation industry may impact Florida airports. This exercise was completed to help support the development of Alternative Scenarios component of the FASP 2035. In total, 13 topics were discussed, with a goal to select three for further discussion. The topics included:

- Aging population
- Autonomous vehicles (ground-based and UAS)
- Competition for space operations
- Customs and immigration

- Electric/alternative fuels
- Stability of oil prices
- Opening of Cuba market
- Terror threats
- Regulatory stability (federal and state)
- Reliance on tourism
- Resiliency
- Availability of a trained technical workforce
- Sustainability

As summary of these polling questions can be found as an attachment to this document. Based on these topics, the three that were selected for further discussion were:

Stability of Oil Prices

- Uncertainties in the oil/gas market would likely lead to a reduction in aviation activity

- Regional jet aircraft are already phasing out in response to higher oil/gas prices

- Increased fuel process lead to increased cost, which is ultimately a barrier to entry
    - Results in less financial stability
    - Effects are long lasting

- For general aviation airports, more efficient engines are leading to a decline in fuel sales

- If electric engines are developed, airports may need to charge users by the Kilowatt hour to generate revenue

- Continued phase out of 100LL gas also needs to be considered

Resiliency

- Resiliency provides a good source of public relations for smaller airports whose benefits may not be as well known

- Marion County Airport was a critical component for the county to get up and running after a large storm
    - There were not a lot of operations, but the airport housed 1,200 line trucks and 600 other vehicles

Reliance on Tourism

- Even small changes to tourism numbers have a profound impact on the system in the form of revenue loss

- Some airports (Tallahassee and Gainesville) are not as dependent on tourism, service more business uses

- State is currently diversifying ops to focus more on business
    - FAA does not feel that the impact will be as significant

Phase II Recommendations Exercise

At the beginning of the meeting, attendees were each given a handout that provided space for them to document any draft recommendations that they would like to see as part of the FASP 2035 Update. Based on the responses, each participant's top three choices were selected for discussion with the group as part of an interactive Post-It Notes discussion (Discussed below).

The following is a summary of all draft recommendations in response to the first request:

- In the space below and throughout the meeting, please note recommendations that you feel would be beneficial to support airports based on the findings of the Florida Aviation System Plan to date. Please see Page 2 for examples of recommendations from previous studies.
    - Hold airports accountable for projects programmed in the work program. Projects in the first three years should be locked down to move forward. Years 4 and 5 should be analyzed to assure they are still viable to move into the first three. Of course, there will be exceptions but in the past, we, FDOT, has made it easy for the airport to "change" projects that with better long term planning could be avoided, and the programmed money be used for projects that strengthen the Florida Aviation System Plan.
    - CFASPP – meeting format? Possibly more use of meetings? In person?
    - State pro
    - Intra-state connectivity is still an important problem that has not been solved.
    - Aviation education
        - FDOT – marketing focused; "Fly Florida"; universities, colleges, flight schools, A&P, etc.
        - Flexibility to use Bright Future Florida prepaid college on aviation education
        - Foster growth in aviation education in Florida – Task Force
    - Work to overcome regulatory constraints in effort to develop and maintain a viable aviation component to intrastate travel
    - Expand aviation intrastate travel through airport development connecting more communities (via local airports) to major travel hubs
    - Assist in programs to support workforce development in aviation
    - Regulatory control
    - Workforce development
    - Encourage new tourism-based business

- Put strategic focus and resources on the pilot, ATC, mechanic, and management shortage
- Aligning CFASPP districts with FDOT districts?
- Streamline the Part 141 process
- Protect CTA program
- Promote aviation careers in high school and colleges
- Military allowing use of the GI Bill for private pilot's license
- More workforce in aviation, pilots, a/c maintenance, avionics
- Workforce development
- Resiliency
- Sustainability

- Based on your ideas noted above, what are you top three recommendations?

- Evaluate and consider multimodal connectivity

- Implement a web-based training program for airport mangers

- Maintain funding levels

- Intrastate air travel

- Workforce development

- Support and promotion of aviation education institutions

- Identify 3 top critical infrastructure needs for funding at each airport to allow airport to reach strategic goals

- Identify 2-3 top external infrastructure or land use/regulatory, etc. needs to allow airport to reach its strategic goals

- Protect the CTA program

- Promote aviation careers

- Streamline regulations, less stringent

Post-It Note Exercise

Based on each participant's full list of potential recommendations, their top three were selected and provided to the group. Based on these, they were organized by a generalized category. To guide this discussion, each participant wrote their top draft recommendations on a Post-It note

and posted it in front of the room. The following are what was received from the Post-It note exercise.

Regulatory Environment

- ATC follow-on study to evaluate the scenario of privatization
- Land use compatibility
- Streamline the Part 141 process
- Control regulations
- Expand and grow business in Florida

Intrastate Air Service

- Intrastate airport connectivity is an important problem that has not been solved
- Strategic look at Intrastate Air Service
- Intrastate air travel support
- Identify air service leakage from each Metropolitan Structural Area (MSA) to other MSAs within Florida and why
- Support investments in developing Intrastate Air Service
- Study need for short flights in Florida (feasibility and demand)
- Identify key infrastructure shortcomings at each airport for increased aeronautical development (i.e. runway length, tower location/height, instrument approach, adequate weather reporting

Intermodal Connectivity

- Revise SIS criteria
- More tools that are helpful to airports related to GIS
- Look at and identify emerging air service and air cargo airports
- Identify signage access roads to be improved to support airport accessibility
- Evaluate capacity of major access roads to commercial or SIS Airports vs. needed capacity
- Intermodal connectivity project wish list
- Consider efforts of high speed rail on the FASP

Workforce Development

- Solid aviation training with lower student costs
- Pilot, ATC, mechanic, and management shortage
- Aviation training vs regulatory requirements
- Promote aviation related careers at Florida airports
- Encourage workforce development
- Workforce development
- Implement continuous training through web-based apps for airport managers
- Promote aviation careers
    - High school

- Tech school
- College

ADDITIONAL ITEMS

Throughout the course of the meeting, numerous other topics were discussed that could each have different impacts on the State's aviation system. Below is a summary of these topics:

- There is a noticeable drop in pilot certifications

- There is also a large reduction in the number of mechanics that are entering the workforce

- General workforce shortage
  - Regulatory issues affect general workforce shortage
  - Takes numerous years to get operational

- It was suggested that the State evaluate the development of a cross-jurisdictional task force to evaluate how to better engage youth in the aviation in industry and replace the workforce that has been lost
  - Consider something like using GI bill to pay for private license
  - Total lack of coordination between needs for jobs and education
  - Cross-jurisdictional task force
  - Include airport schools on FLP site

- Evaluate use of contract towers based on current administration
  - Evaluate future of contract towers

- Statewide study to look at aerial surveying

- Realignment of CFASPP regions to match FDOT Districts

A.1.7 Meeting #7 – June 27, 2017

A.1.7.1 Agenda

- Introductions
- Project Overview and Status Update
  - Florida Airport Opportunity Analysis
  - Identification of demand drivers
  - Apply SSGAT to JACIP
  - Future system needs (including updated forecasts)
- Review Study Recommendations
  - Recommendations from CFASPP brochure for input
  - Prioritization of recommendations – short, mid, long term exercise
- Brochure Content/Messaging of FASP

    - Draft CFASPP brochures
    - Draft Short Executive Summary outline
    - Primers – exercise on content and approach
- Data Presentation Platform Concept (GIS tool)
    - Overview of platform
    - GIS capabilities – examples of how can data be leveraged
- Follow-on Efforts
    - Review list from recommendations and from scope
- FASP Implementation
    - Review of all outreach methods (modal, MPO, CFASPP meetings, FAC, FAA)
    - Final comments on study recommendations
    - Discussion of how to implement recommendations

A.1.7.2 Presentation

Discussion Topics

- Introductions and Overview
- Future System Needs (forecasts)
- Future Airport Opportunity Analysis
- SSGAT to JACIP Comparison
- Study Recommendations – Exercise #1
- Brochures and Messaging
- Other Brochures and Primers – Exercise #2
- Data Presentation Platform Concept
- Follow-on and Implementation

FASP

FDOT

FASP

Florida Aviation System Plan 2035

Project Overview

FASP Overview - Phases

PHASE 1

- State, Regional, and Local Airport Issues
- Goals, Objectives & Performance Measures
- Inventory
- Stratification Methodology Evaluation
- Regional and State Overviews
- Aviation Industry Trends
- Forecasts
- Demand/Capacity
- SSGAT Update

PHASE 2

- Data Collection (Additional)
- Existing System Evaluation (Baseline Performance Measurement)
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- Public Engagement Mechanism (CFASPP Website Update)
- Final Deliverables

MEETINGS/COORDINATION

FAA » FASP Review Team (FASPRT) » Comprehensive Review Team (CRT)
Other FDOT Representatives » MPOs

FASP Goals

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

FASP
Florida Aviation System Plan 2035

Future System Needs (Forecasts)

Future System Needs (Forecasts)

- 2014 as base year
- Based Aircraft Methodologies
  - TAF/Straight-Line
  - County Population Growth
  - FAA Aerospace Forecast
- GA Operations (includes GA and Military) Methodologies
  - Airport Master Plan
  - TAF/Straight-Line
  - County Population Growth
  - FAA Aerospace Forecast

FASP FDOT

Future System Needs – Based Aircraft

- Commercial Service: FAA TAF/Straight-Line Methodology
- General Aviation: High Activity - FAA TAF/Straight-Line Methodology
- General Aviation: Medium Activity - County Population Growth Rate Methodology
- General Aviation: Low Activity - County Population Growth Rate Methodology

Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: Preferred Methodology					
Commercial Service	2,843	2,980	3,222	3,734	1.49%
GA-High Activity	4,101	4,265	4,592	5,305	1.40%
GA-Medium Activity	4,722	5,118	5,476	6,276	1.57%
GA-Low Activity	963	1,040	1,110	1,265	1.49%
STATE TOTAL	12,629	13,403	14,399	16,580	1.49%

Sources: FAA TAF issued January 2017, 5010 Airport Master Record, Woods & Poole, Inc. FAA Aerospace Forecast 2017-2037, Kimley-Horn. Prepared April 2017.

Future System Needs – GA Operations

- Commercial Service: FAA TAF/Straight-Line Methodology
- General Aviation: ATCT - County Population Growth Rate Methodology
- General Aviation: High Activity - County Population Growth Rate Methodology
- General Aviation: Medium Activity - County Population Growth Rate Methodology
- General Aviation: Low Activity - FAA Aerospace Forecast Methodology

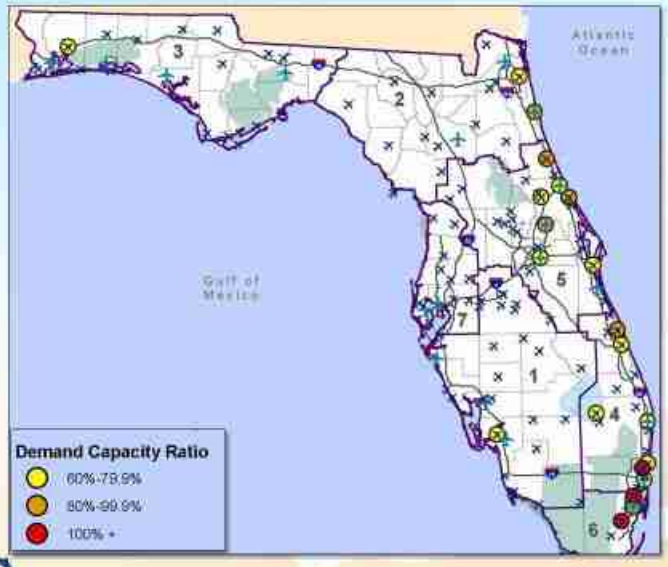
Airport Classification	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate
GA Operations Forecast: Preferred Methodology					
Commercial Service	1,416,983	1,346,668	1,364,094	1,400,416	-0.06%
GA-ATCT	2,751,866	2,984,955	3,195,836	3,668,477	1.59%
GA-High Activity	1,355,121	1,456,393	1,547,462	1,749,867	1.39%
GA-Medium Activity	792,784	861,555	923,831	1,063,549	1.63%
GA-Low Activity	312,210	315,090	317,400	322,194	0.15%
STATE TOTAL	6,628,964	6,964,602	7,348,623	8,204,503	1.13%

Sources: FAA TAF issued January 2017, 5010 Airport Master Record, Kimley-Horn, FAA Aerospace Forecast 2017-2037, Woods & Poole, Inc. Prepared April 2017.

Future System Needs (Capacity)

- Total operations utilized GA operations from forecasts combined with commercial operations (air taxi and air carrier) from FAA TAF issued January 2017
- Compared projected levels of demand by airport with Annual Service Volume (ASV) calculations described in 2012 FASP Airport Demand/Capacity Analysis
- FAA recommends capacity enhancement planning when demand/ASV reaches 60%, and capacity enhancement implementation at 80%

Future System Needs (Capacity)



Future System Needs (Operations Above ARC)

- Design aircraft ARC directs airfield geometry and design, and is a general indication of types of aircraft operating at an airport (A-I to E-VI)
- FAA defines design aircraft as most demanding aircraft with 500 annual operations
- ARC for all but 15 airports were obtained and compared with TFMSC data
- In 2016, 14 airports had 500 or more operations exceeding ARC, and were primarily:
- GA airports B-I to C-II with significant corporate activity
- Commercial airport with new larger scheduled aircraft (A380)

Future System Needs (Operations Above ARC)

- Design aircraft ARC directs airfield geometry and design, and is a general indication of types of aircraft operating at an airport (A-I to E-VI)
- FAA defines design aircraft as most demanding aircraft with 500 annual operations
- ARC for all but 15 airports were obtained and compared with TFMSC data
- In 2016, 14 airports had 500 or more operations exceeding ARC, and were primarily:
- GA airports B-I to C-II with significant corporate activity
- Commercial airport with new larger scheduled aircraft (A380)

Future System Needs (Operations Above ARC)

Future Airport Opportunity Analysis

Analyzed current and future population based on 24 different criteria, including:

- Airports with air traffic control towers (ATCTs)
- Airports with Jet A fuel
- Airports with 100LL fuel (AvGas)
- Airports by NPIAS and ASSET categorization
- SIS airports
- Airports with flight training activity
- Airports with weather reporting systems
- Airports with runways of various lengths
- Airports with at least one precision approach
- Airports with at least one instrument approach
- Airports that have features to accommodate business users

Population coverage of NPIAS GA Airports

2016 Percent of Population Within a 30-Minute Drive

2035 Percent of Population Within a 30-Minute Drive

FASP Florida Aviation System Plan 2035

FDOT

FASP

Florida Aviation System Plan 2035

SSGAT and JACIP Comparison

SSGAT and JACIP Comparison

- Analysis completed to compare SSGAT scores of projects requested in JACIP to those funded in the FDOT Work Program
- SSGAT scores identify a project's support of the goals of the FASP
- Results demonstrate how funding is being used to accomplish the goals of the FASP

SSGAT and JACIP Comparison

- SSGAT Spreadsheet

		FASP Goals							
	FAA Category	Foster technological innovation and support implementation of new technologies	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors	Support and enhance the position of leadership and prominence held by Florida's aviation industry	Protect airspace and promote compatible land uses around public airports	Promote support for aviation from business, government, and the public	Foster Florida's reputation as a military-friendly state	State Strategic Goal Assessment
		10	10	25	10	20	20	5	
	Weights	x	x	x	x	x	x	x	
Project/Goal Relationship			1	1.2	0.8		0.8		
Project Description	10	+ 0	+ 10	+ 30	+ 8	+ 0	+ 16	+ 0	= 74

SSGAT to JACIP Comparison

Comparison of SSGAT Scores to Work Program Funding – Apron Projects

SSGAT Score Project Type	JACIP Requested Funding in Dollars ($)	Work Program Funding in Dollars ($)	Percent Programmed vs. Requested
69			
Rehabilitate Apron	70,652,323	41,577,689	
69 Total	70,652,323	41,577,689	58.8%
80			
Construct Apron (Standards)	49,728,198	21,675,000	
Expand Apron (Standards)	4,219,985	0	
Strengthen Apron (Standards)	241,611	0	
80 Total	54,189,794	21,675,000	40.0%
86			
Construct Apron (Capacity)	150,111,667	29,711,731	
Expand Apron (Capacity)	39,507,408	60,626,250	
Install Apron Lighting (Standards)	370,750	0	
86 Total	189,989,825	90,337,981	47.5%
APRON Total	314,831,942	153,590,670	48.8%

19

FASP

Florida Aviation System Plan 2035

Study Recommendations Exercise

20

Review Study Recommendations

- **Goal: Provide efficient, safe, 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).
  - Develop a study to document and warehouse 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 the State Emergency Operations Center (EOC) on airport emergency power needs.
  - Develop an initial statewide wildlife hazard assessment methodology for non-Part 139 airports.
  - Track the implementation of projects to correct the identified taxiway deficiencies.
  - Develop facility, infrastructure, and service guidelines by airport classification and by user/customer type.

21

Interactive Exercise #1 - Prioritization

- **Short, Mid, and Long Term Exercise**

What timeframe would you prioritize each FASP recommendation?

Short | Medium | Long

Continuous

22

FASP

Florida Aviation System Plan 2035

Brochures and Messaging

22

FASP Brochures and Messaging

- Many deliverables including numerous brochures
- Input on how to maximize use of deliverables
- Consistency in communicating message, tailored to the audience and expectations of actions to implement FASP

FASP

24

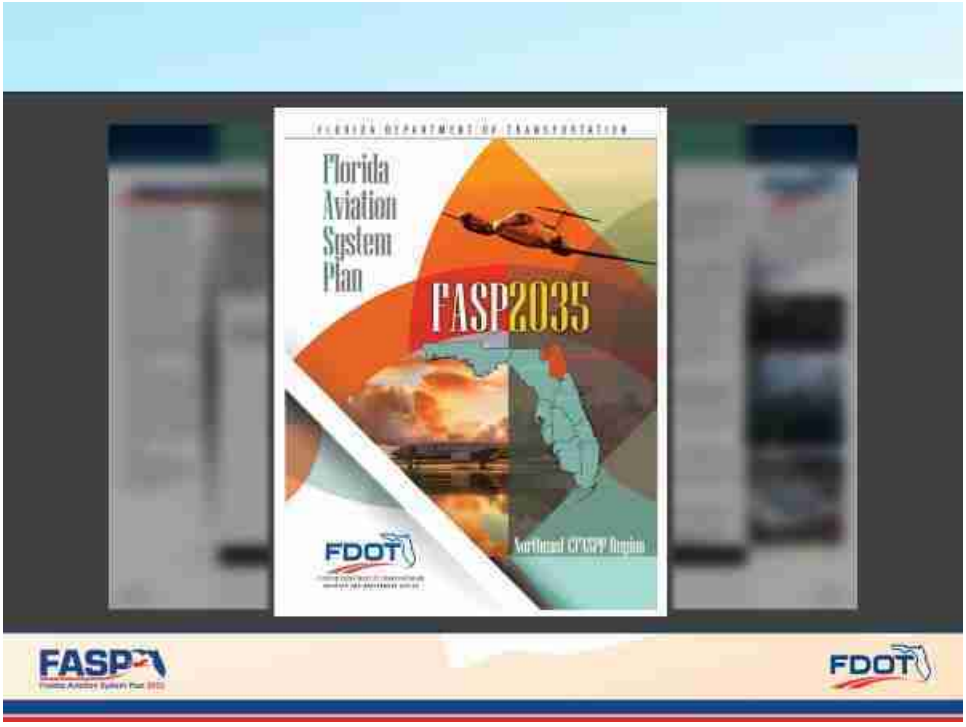
FDOT

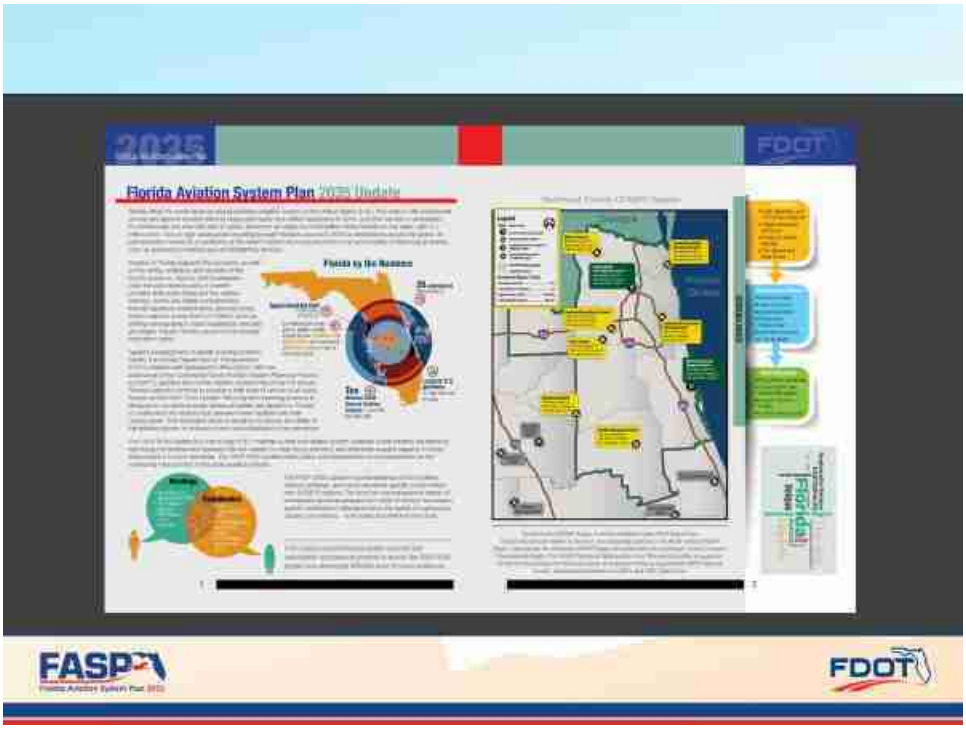
Final Brochure Deliverables

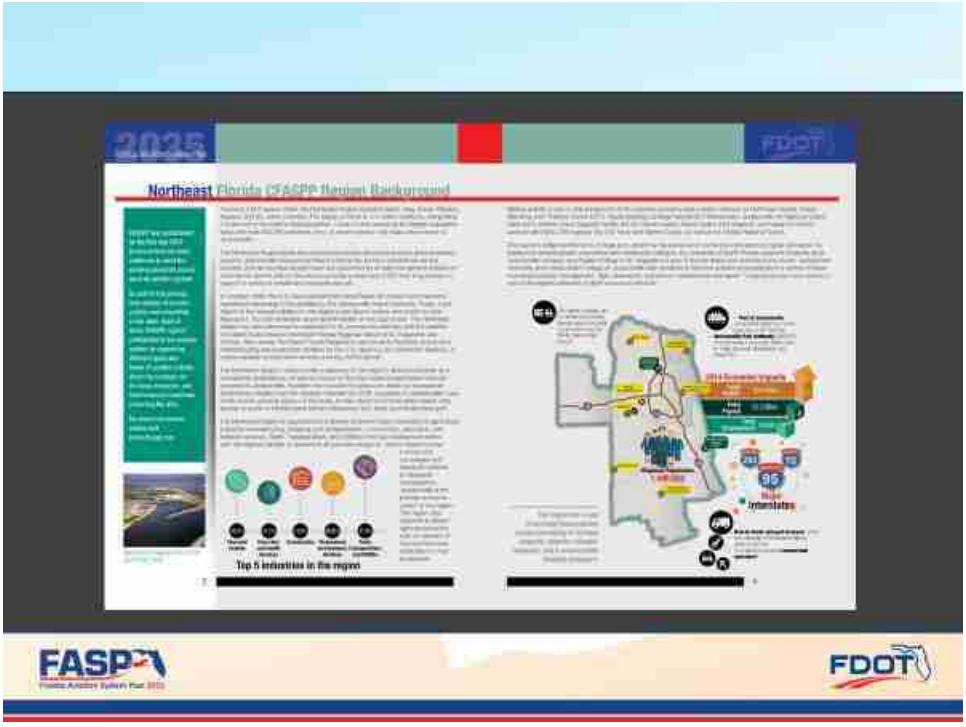
- CFASPP Regional Brochures (9)
- Executive Summaries
  - Long Version
  - Short Version
- Final Technical Report
- Summary Primers (4)

FASP Florida Aviation System Plan 2035

Brochure Example


FLORIDA DEPARTMENT OF TRANSPORTATION
Florida Aviation System Plan
FASP2035
Northeast CFASPP Region
FDOT
FASP
FDOT

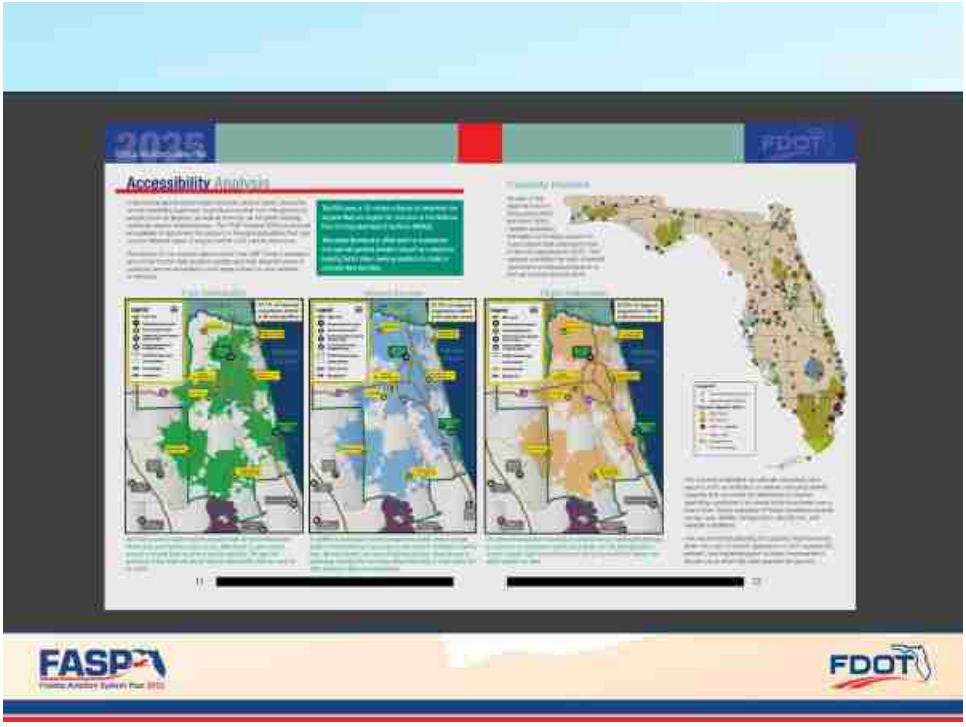

2035
FDOT
Florida Aviation System Plan 2035 Update
Legend
FASP
FDOT

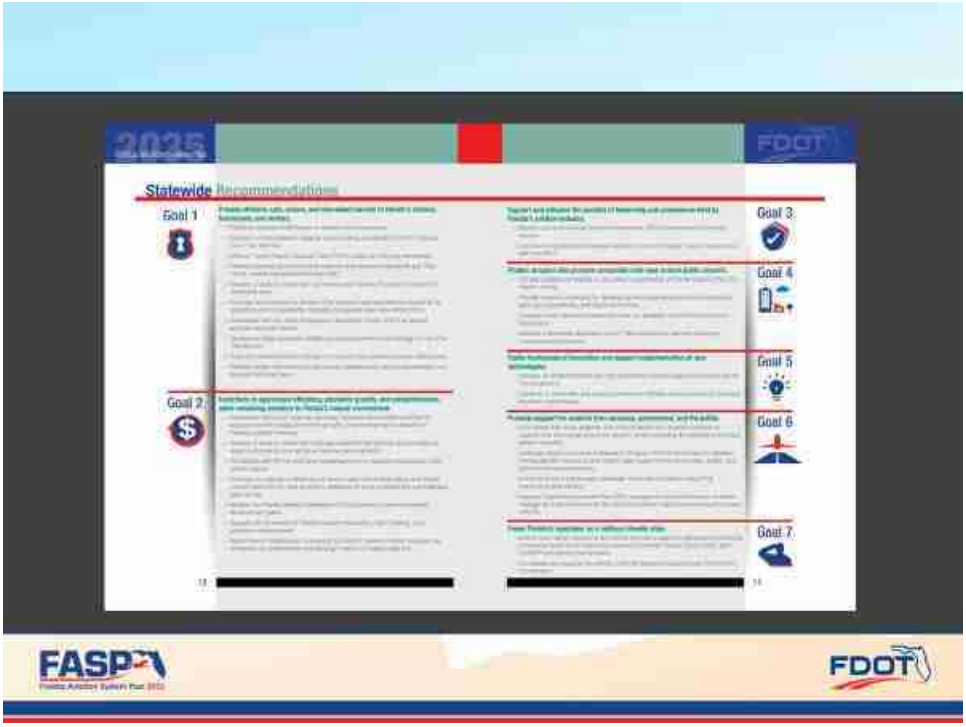

2035
FDOT
Northeast Florida (FASPP Region) Background
Top 5 industries in the region
FASP
FDOT

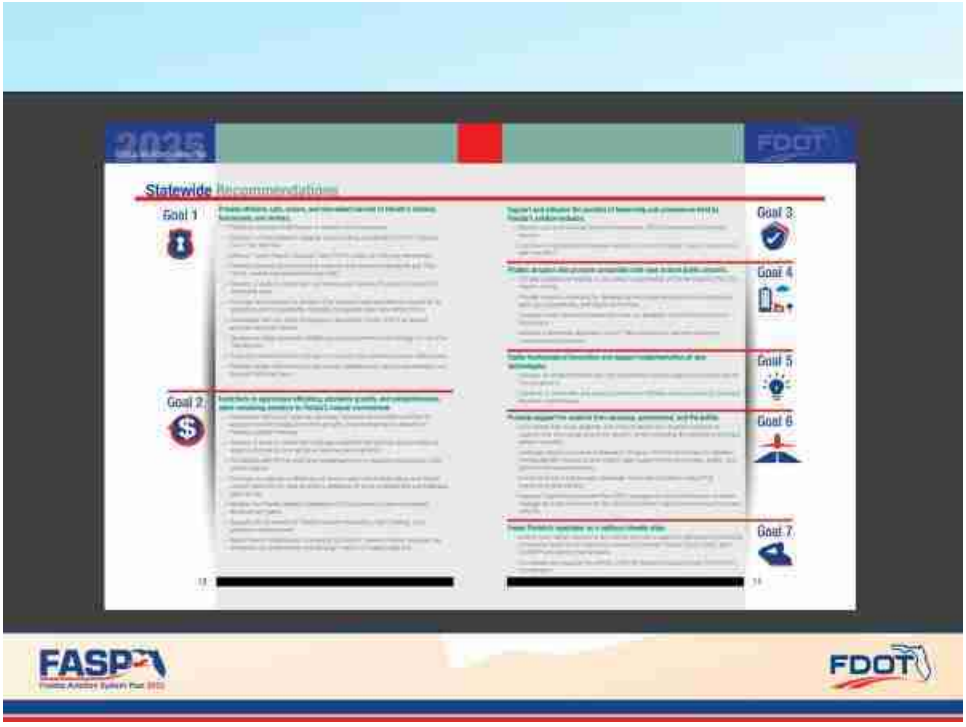
2035
FDOT
Intermodal Connectivity
FASP
FDOT

2035
FDOT
System Goals and Performance
Performance Indicators
Performance Measures
FASP
FDOT

2035
FDOT
Aviation Drivers
Regional Forecast
FASP
FDOT


2035
FDOT
Accessibility Analysis
FASP
FDOT


2035
FDOT
Statewide Recommendations
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5
Goal 6
Goal 7
FASP
FDOT


2035
FDOT
Statewide Recommendations
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5
Goal 6
Goal 7
FASP
FDOT

FLORIDA AVIATION SYSTEM PLAN 2035
FDOT
FASP
FDOT

FASP Brochures and Messaging

- **Short Executive Summary Outline**
  - FASP Overview
  - Florida by the Numbers
  - FASP Recommendations
  - FASP Vision and Goals
  - Intermodal Links
  - Performance Measures and Indicators
  - Updated Forecasts of Demand
  - Opportunities Analysis

36

Interactive Exercise #2 - Primers

- **Set of 4 primers developed to inform various stakeholders how to use the FASP**
  - Airport Managers and Consultants
  - Airport Boards/Authorities and Elected Officials
  - FDOT District and ASO Staff
  - General Public

37

Examples of Primers

Examples of Primers

FASP

Florida Aviation System Plan 2035

Data Presentation Platform Concept

Data Presentation Platform Concept

- Online database that houses information collected as part of the FASP and on an ongoing basis
- Will utilize GIS to allow for customizable reports that allow for an airport to report needed information

General
- Airport Usage
- Based Group
- Basic Airport Information
- Facilities
- International Access
- Main Economic Indicators
- Operations Group

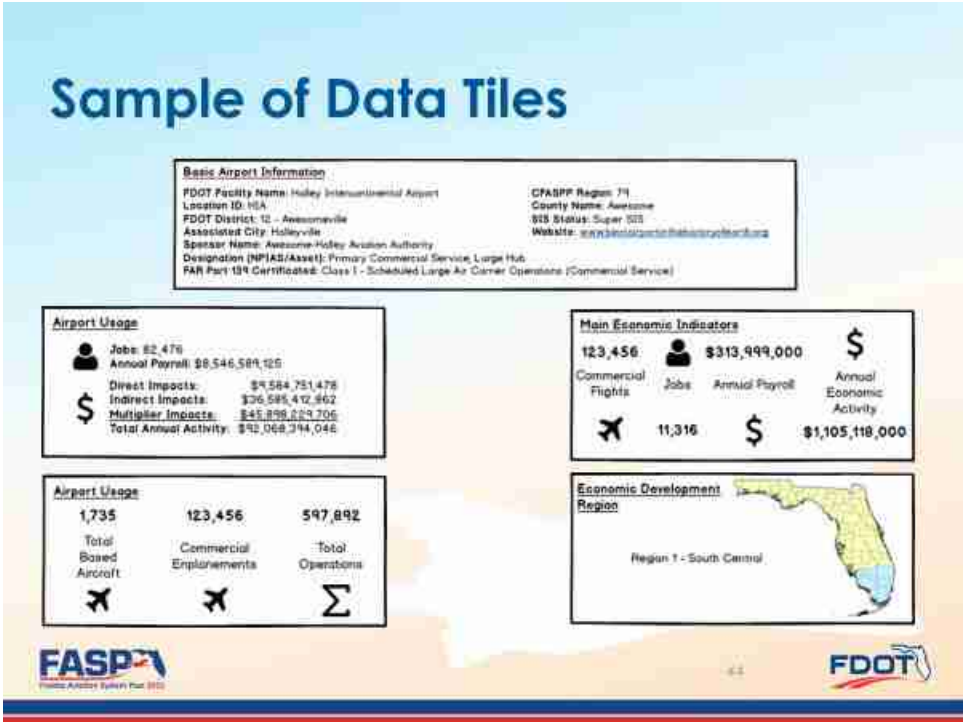
Economic
- Airport Usage
- Based Group
- Basic Airport Information
- Detailed Economic Indicators
- Economic Development Regions
- Main Economic Indicators
- Operations Group

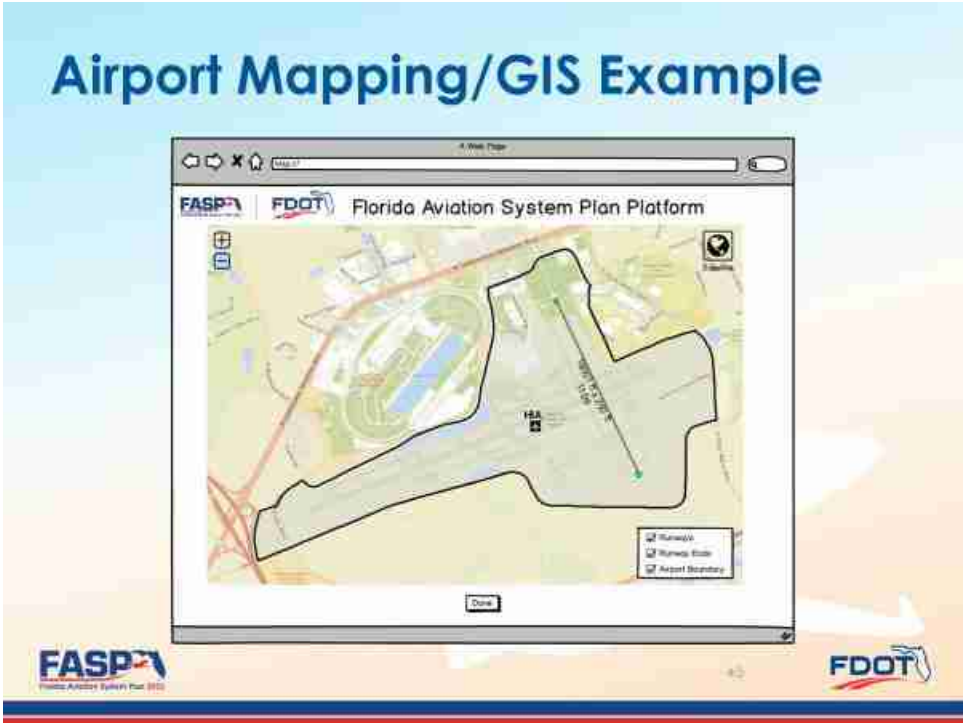
Activity
- Airport Usage
- Based Group
- Basic Airport Information
- Facilities
- International Access
- Operations Group

FASP FDOT

Welcome and Introduction Page

Sample Airport Profile


Sample of Data Tiles
Basic Airport Information
FDOT Facility Name: Holley International Airport
Location ID: HIA
FDOT District: 12 - Awesomeville
Associated City: Holleyville
Sponsor Name: Awesome-Holley Aviation Authority
Designation (NPIAS/Asset): Primary Commercial Service, Large Hub
FAR Part 139 Certificated: Class I - Scheduled Large Air Carrier Operations (Commercial Service)
CFASPP Region: 79
County Name: Awesome
SIS Status: Super SIS
Website: www.awesomeportholleyinternational.org
Airport Usage
Jobs: 82,476
Annual Payroll: $8,546,589,125
Direct Impacts: $9,584,751,478
Indirect Impacts: $36,585,412,862
Multiplier Impacts: $45,898,029,706
Total Annual Activity: $92,068,394,046
Main Economic Indicators
123,456
Commercial Flights
$313,999,000
Jobs
Annual Payroll
Annual Economic Activity
11,316
$1,105,118,000
Airport Usage
1,735
Total Based Aircraft
123,456
Commercial Enplanements
597,892
Total Operations
Economic Development Region
Region 1 - South Central
FASP
FDOT


Airport Mapping/GIS Example
Florida Aviation System Plan Platform
HIA
Done
FASP
FDOT

GIS for Statewide Asset Management
FASP
FDOT

FASP
Florida Aviation System Plan 2035
Follow-on and Implementation

Follow-on Efforts

- Airport Development Guidelines
- Automated inventory process
- Using GIS as asset/data management
- Linking APMS to FASP 2035
- Technology solutions to accommodate UAS
- Conduct a capacity analysis (Districts 4, 5, & 6)
- Study to document RPZ ownership
- Develop statewide wildlife hazard assessment methodology
- Develop facility, infrastructure, and service guidelines
- Develop a business suitability study
- Develop a statewide eALP database
- ANY OTHERS???

FASP Implementation

- Outreach
  - FDOT Modal Offices, Systems Planning Office, and Office of Policy Planning
  - Metropolitan Planning Organization Advisory Council
  - CFASPP
  - Federal Aviation Administration

FASP Implementation

- Study Recommendations
  - Final comments on recommendations
  - Ideas on implementation of recommendations
- Recommendations for presentation at CFASPP Statewide meeting

50

Thank You

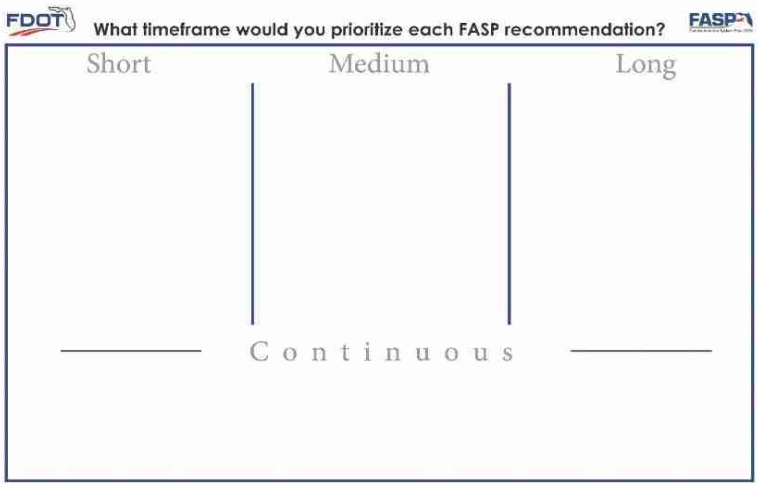
51

A.1.7.3 Meeting Summary

On June 27th, staff from the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), FDOT District Representatives, the Federal Aviation Administration (FAA) Orlando Airports District Office (ADO), Florida's Airports, and Kimley-Horn and Associates (KHA) met in person to review and discuss ongoing efforts of the FASP 2035. The purpose of this final in-person meeting was to present a status of tasks that had been completed, those underway, and to seek input on the recommendations of the project. Meeting participants included:

- Dan Afghani, DA Consulting
- Mike Brown, FDOT – District 7
- Ray Clark, FDOT – District 7
- Zach DeVeau, Kimley-Horn
- Jim Halley, FDOT – ASO
- Rebecca Henry, FAA
- Tom Jewsbury, St. Pete-Clearwater International Airport
- Pam Keidel-Adams, Kimley-Horn
- Andrew LaGala, Tampa International Airport
- Steven Lichliter, Ormond Beach Municipal Airport
- James Parrish, Punta Gorda Airport
- Roy Sieger, Flagler County Airport
- Jon Sewell, Kimley-Horn
- Aaron Smith, FDOT – ASO
- Leo Treggi, Winter Haven's Gilbert Airport
- Erik Treudt, Witham Field (Martin County)
- Colin Wheeler, Kimley-Horn
- Jim Wikstrom, FDOT – District 5

Meeting Overview



Following an overview of the current status of the project, two interactive exercises were completed. The first exercise focused on the FASP Recommendations to evaluate the timeframe in which different FASP recommendations should be implemented and their general priority level. Attendees were divided into three groups and were asked to classify recommendation in either the short, medium, long, or continuous timeframe. In addition, participants identified whether the recommendations were a high, medium, or low priority within the timeframe.

The second interactive exercise was completed to gather information on the series of four FASP primers that are being developed. For this exercise, attendees were again divided into three groups and asked to provide examples of information that they think would be helpful for the different Primer audiences. As reference, the Primer audiences identified in the scope included: Airport Manager and Consultants, FDOT, Elected Officals, and the General Public.

The following pages contain a summary of each group's findings for both exercises.

Group Exercise Summary – FASP Recommendations timing and priority

	Group 1 (Time Frame/Prioritization)	Group 2 (Time Frame/Prioritization)	Group 3 (Time Frame/Prioritization)
Goal 1 – Provide efficient, safe, and convenient service to Florida's citizens, businesses, and visitors			
Preserve existing infrastructure or replace when necessary.	Continuous	Short/High	Continuous
Conduct a more detailed capacity study, looking specifically in FDOT Districts Four, Five, and Six.	Medium/Medium	Medium/Low	Long/Medium
Monitor Future Airport Capacity Task (FACT) studies as they are developed.	Continuous	Continuous/Medium	Continuous
Prioritize funding for projects that address state licensing standards per Rule 14-60, Florida Administrative Code (FAC).	Continuous	Continuous/High	Continuous
Develop a study to document and warehouse Runway Protection Zone (RPZ) ownership data.	Medium/Low	Short/Medium	Short/High
Promote state funding for projects that address state and federal standards for protection and compatibility, including compatibile land uses within RPZs.	Short/Long	Medium/Medium	Continuous
Coordinate with the State Emergency Operations Center (EOC) on airport emergency power needs.	Short/Medium	Continuous	Continuous
Develop an initial statewide wildlife hazard assessment methodology for non-Part 139 airports.	Medium/Low	Medium/Low	Short/High
Track the implementation of projects to correct the identified taxiway deficiencies.	Continuous	Continuous	Long/Low
Develop facility, infrastructure, and service guidelines by airport classification and by user/customer type.	Recommended for removal	Medium/Medium	Long/Low
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, while marketing the benefits of Florida's aviation industry.	Continuous	Continuous	Continuous
Develop a study to determine business suitability and identify opportunities at airports, including commercial air service enhancements.	Short/High	Medium/Low	Medium/Medium
Coordinate with MPOs and other modal partners to support and improve multimodal options.	Continuous	Continuous	Continuous
Continue to maintain a database of current approved master plans and Airport Layout Plans (ALPs), and develop a database to track sustainability and business plans on file	Continuous	Continuous	Continuous
Monitor the Florida Aviation Database's (FAD) inclusion of approved airport development plans.	Continuous	Continuous	Continuous
Support efforts related to Florida's aviation education, flight training, and workforce development.	Continuous	Long/Medium	Short
Recommend modifications to existing SIS airport criteria to better leverage the economic competitiveness and strategic nature of Florida's airports.	Short/Medium	Long/Low	Short/Medium

	Group 1 (Time Frame/Prioritization)	Group 2 (Time Frame/Prioritization)	Group 3 (Time Frame/Prioritization)
Goal 3 - Support and enhance the position of leadership and prominence held by Florida's aviation industry.			
Monitor and promote the return on investment (ROI) of investment in Florida's airports.	Medium/Medium	Short/High	Continuous
Continue to update the Statewide Aviation Economic Impact Study in conjunction with the FASP.	Continuous	Medium/High	Continuous
Goal 4 - Protect airspace and promote compatible land uses around public airports.			
Provide continuous training on the latest requirements of Florida Statute (FS) 333, Airport Zoning.	Continuous	Continuous	Continuous
Provide resource materials for developing and implementing zoning ordinances, land use compatibility, and airport protection.	Recommended for Removal	Short/High	Short/High
Develop a web-based statewide land use compatibility tool that includes UAS information.	Short/Medium	Short/Low	Short/High
Develop a statewide database of eALP files provided by airports during the master planning process.	Long/Low	Continuous	Long/High
Goal 5 - Foster technological innovation and support implementation of new technologies.			
Develop an implementation plan for maximizing NextGen approach procedures at Florida airports.	Short/High	Long/Low	Short/Medium
Continue to work with and support partners in Florida's space industry to advance NextGen technologies.	Continuous	Continuous	Continuous
Goal 6 - Promote support for aviation from business, government, and the public.			
Coordinate with local, regional, and state business and tourism partners to support and encourage economic growth, while marketing the benefits of Florida's aviation industry.	Continuous	Continuous	Continuous
Leverage Airport Cooperative Research Program (ACRP) information to develop Florida-specific resources and tools to gain supoprt from businesses, public and government representatives.	Short/Low	Continuous	Short/Low
Continue to fund and provide statewide Pavement Condition Index (PCI) inspections and training.	Continuous	Short/Medium	Continuous
Improve Capital Improvement Plan (CIP) management and coordination to better manage financial resources for the Joint Automated Capital Improvement Program (JACIP).	Short/High	Short/Low	Short/High
Goal 7 - Foster Florida's reputation as a military-friendly state.			
Ensure that military personnel are invited and encouraged to participate in planning processes, such as the Statewide Aviation Economic Impact Study, FASP, and CFASPP and airport master plans.	Continuous	Continuous	Continuous
Coordinate and support the efforts of the Air National Guard through FDOT/EOC coordination.	Continuous	Continuous	Continuous

Final Goals and Recommendations

Based on the input received above, the following is a listing of the final FASP Goals and Recommendations.

Yellow highlights indicate a text change.

Green highlights indicate a new recommendation.

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 determine business suitability and identify opportunities at airports, including commercial air service enhancements.
- Coordinate with MPOs and other modal partners to support and improve intermodal connectivity.
- Continue to maintain a database of current approved master plans and Airport Layout Plans (ALPs), and develop a database to track sustainability and business plans on file.
- Monitor the Florida Aviation Database's (FAD) inclusion of approved airport development plans.
- 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 investment 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 Florida Statute (FS) 333, 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 UAS 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-friendly state.

- Ensure that military personnel are invited and encouraged to participate in planning processes, such as the Statewide Aviation Economic Impact Study, FASP, and CFASPP and airport master plans.

- Coordinate and support the efforts of the U.S. military in Florida through FDOT/EOC coordination.

Group Exercise Summary – FASP Primers

Consultant/Airport Manager Primer

- Provide a brief overview, no more than two paragraphs (short and sweet)

- Provide information on the Capital Improvement Program

- Provide overall information on airport financials
    - What funds are available?
    - Security
    - Infrastructure

- Provide specific data that is useful to airports
    - Forecasts
    - Needs/available anticipated

- What's Important?
    - Changes/recommendations
    - Comparison with other airports
    - Challenges/expectations
    - Highlights of business development/self-sustaining

FDOT Primer

- Provide the FASP Goals and Performance Measures
- Provide a map showing the CFASPP Regions
- Provide a graphic that highlights the overall FASP process
- Show historic funding levels by FDOT District for the last 5 to 10 years
- Provide information (or a map) that shows SIS facilities

Elected Officials Primer

- Develop two different primers for elected officials: one for the state/national level and one for the local level

- For state/national level
    - Short, focus on the numbers, charts, pictures
    - No more than one page, 20-second summary
    - Try to focus content on their priorities
    - Provide economic impact numbers

    - Provide information on the return on investment

- For local level officials
    - Two to four pages
    - Numbers, graphics, priorities
    - Job creation
    - Provide economic impact numbers

- Do a better job of communicating benefits of GAs to public
    - Emergency
    - Donor
    - Medical
    - Disaster response
    - Law enforcement
    - Firefighters

General Public

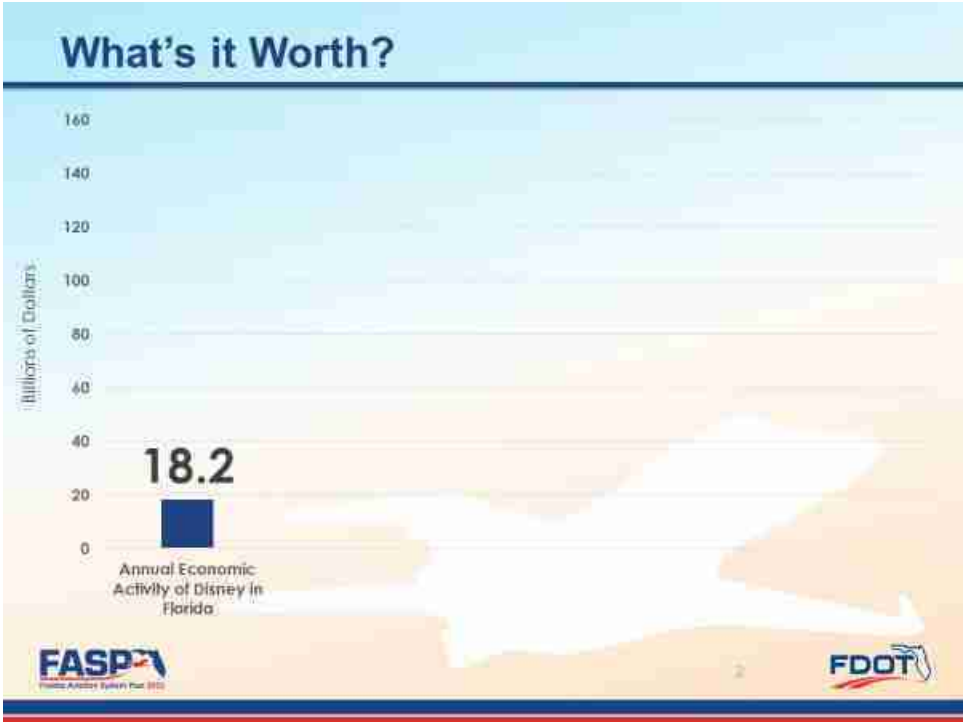
- Show where money for aviation projects comes from
- Include the Florida by the numbers graphic
- Include a map showing the robust aviation system in Florida
- Make the information easily viewable on a cell phone
- Provide a brief overview, no more than two paragraphs (short and sweet)
- Provide informative maps of the aviation system
- Highlight intermodal connections
- Provide economic impact numbers
- Provide information on return on investment
- Do a better job of communicating benefits of GAs to public
    - Emergency
    - Donor
    - Medical
    - Disaster response
    - Law enforcement
    - Firefighters

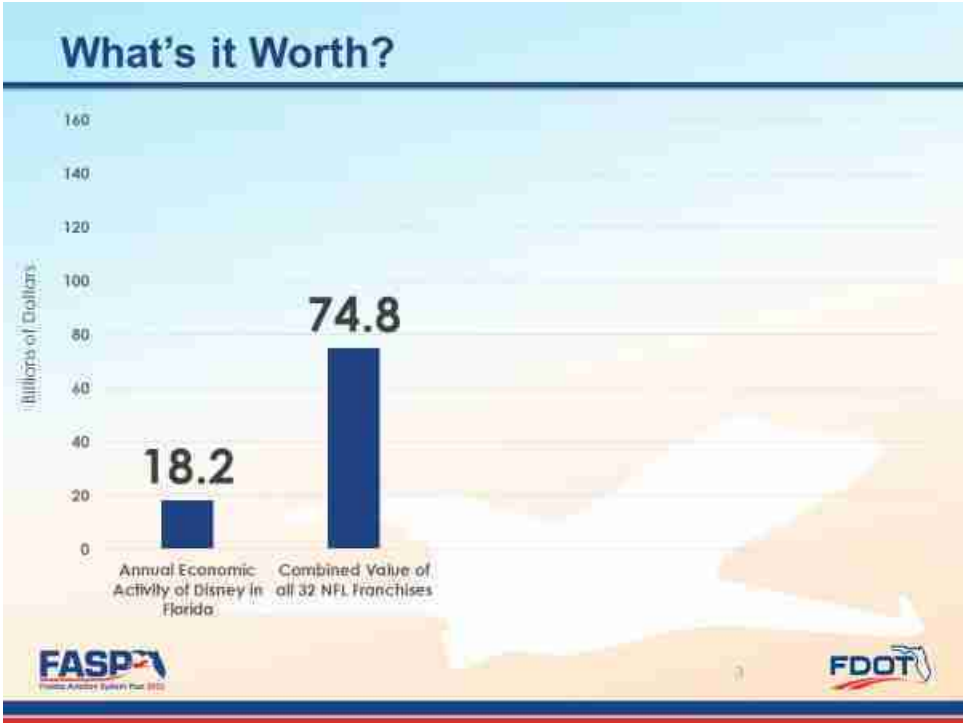
A.2 Florida Metropolitan Planning Organization Advisory Council (MPOAC) and the Florida Transportation Plan (FTP) Implementation Committee

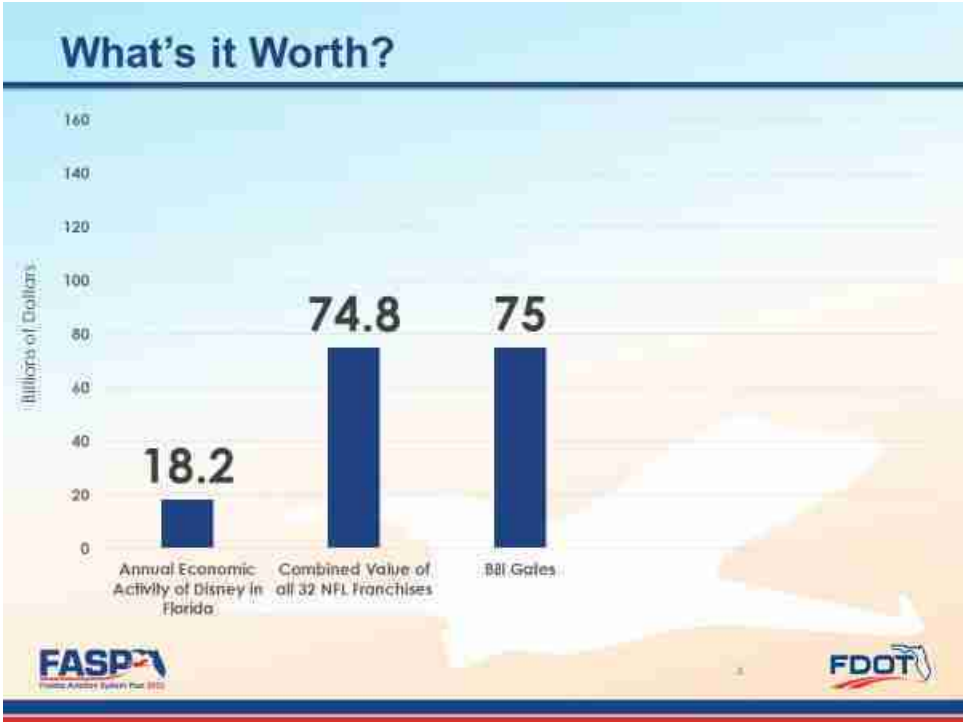
Two in-person meetings were held with non-aviation partners in Florida: the MPOAC and the FTP Implementation Committee. The meetings followed a workshop format with significant opportunities for interaction between the Florida Department of Transportation (FDOT) Aviation and Spaceports Office Project Manager and meeting participants. These meetings were intended to present and receive feedback on the progress and findings of the project, especially regarding study elements that have regional implications. Presentations from each of the meetings are provided on the following pages. Three presentations were given at the MPOAC meeting—one each to the Freight Committee, the Staff Directors' Committee, and the Governing Board. Members of each committee can be found at https://www.mpoac.org/committees/.

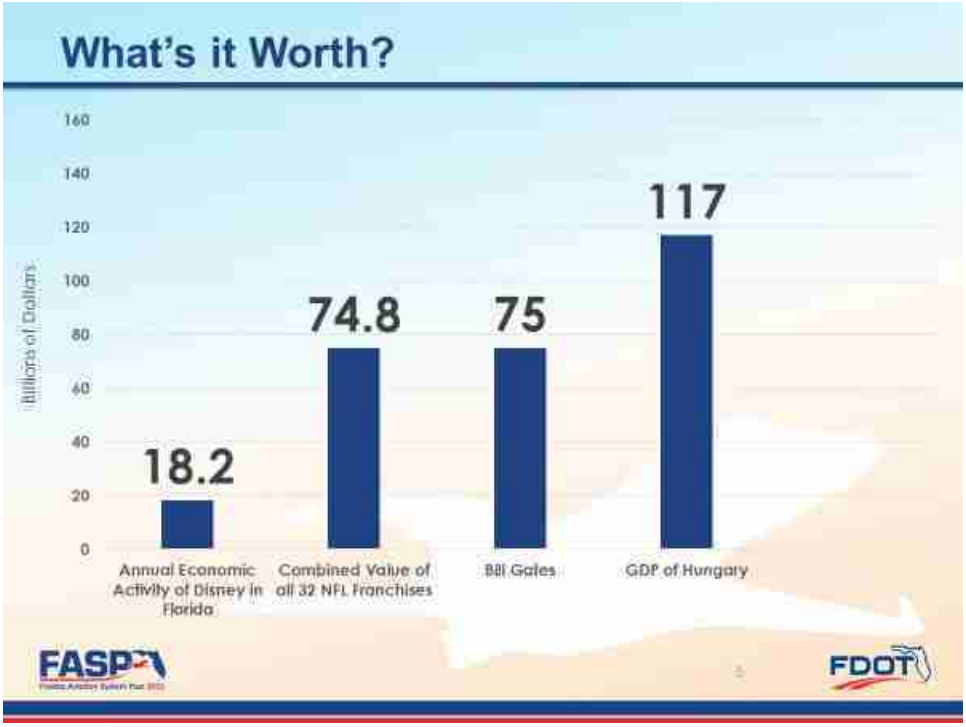
A.2.1 Meeting #1 w/MPOAC – January 26, 2017

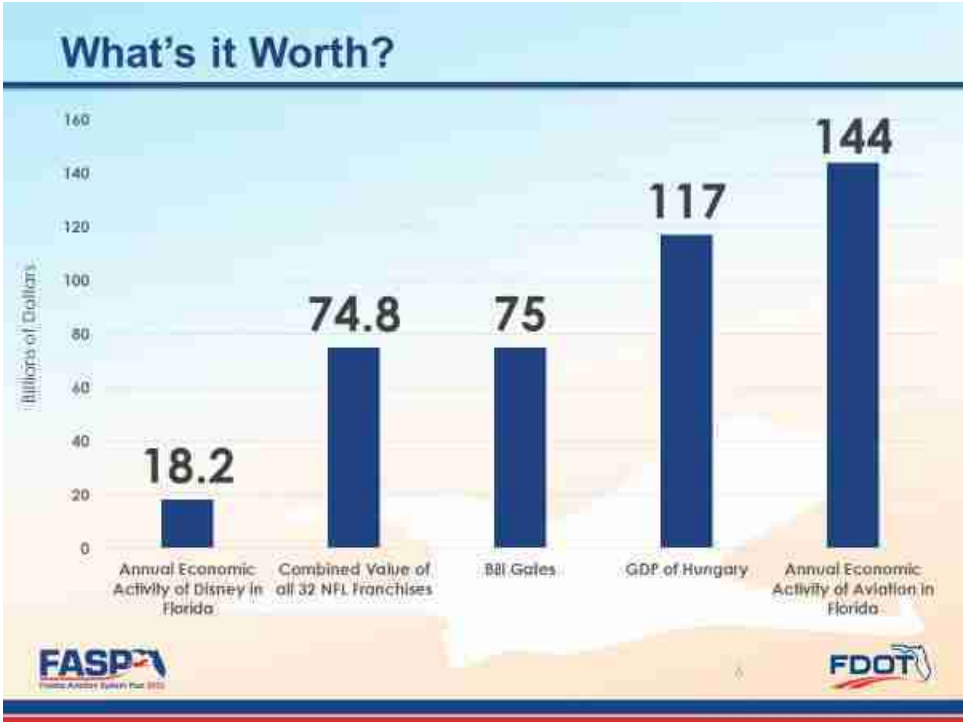
A.2.1.1 Presentation #1 – Staff Directors' Committee


What's it Worth?
160
140
120
100
80
60
40
20
0
Billions of Dollars
18.2
Annual Economic Activity of Disney in Florida
FASP
FDOT


What's it Worth?
160
140
120
100
80
60
40
20
0
Billions of Dollars
18.2
74.8
Annual Economic Activity of Disney in Florida
Combined Value of all 32 NFL Franchises
FASP
FDOT


What's it Worth?
Billions of Dollars
160
140
120
100
80
60
40
20
0
18.2
74.8
75
Annual Economic Activity of Disney in Florida
Combined Value of all 32 NFL Franchises
Bill Gates
FASP
FDOT


What's it Worth?
Billions of Dollars
160
140
120
100
80
60
40
20
0
18.2
74.8
75
117
Annual Economic Activity of Disney in Florida
Combined Value of all 32 NFL Franchises
Bill Gates
GDP of Hungary
FASP
FDOT


What's it Worth?
Billions of Dollars
160
140
120
100
80
60
40
20
0
18.2
74.8
75
117
144
Annual Economic Activity of Disney in Florida
Combined Value of all 32 NFL Franchises
Bill Gates
GDP of Hungary
Annual Economic Activity of Aviation in Florida
FASP
FDOT

FASP
Florida Aviation System Plan 2035
FASP Update Process
Jim Halley, A.A.E., ACE
Aviation System Manager
FDOT Aviation and Spaceports Office
January 26, 2017

Today's Flight Plan

- Overview of aviation in Florida
- Aviation system planning
- The Florida Aviation System Plan (FASP)
  - History
  - Ongoing update
- Continuing Florida Aviation System Planning Process (CFASPP)
- Your role in the FASP
- Next steps

Aviation in Florida

- More than 8.5% of Florida's GSP is from aviation-dependent businesses
- Both the first scheduled airline flight and the first international flight took off in Florida
- #1 state for aerospace manufacturing attractiveness
- 128 public use airports
- Over 650 private use facilities
- High return on investment
  - 2013/2014 to 2015/2016: 1.37
  - 2014/2017 to 2020/2021: 1.72

Florida's Public Use Airport System
Commercial Service Airport
NPIAS General Aviation Reliever Airport
NPIAS General Aviation Airport
Non NPIAS Airport
SIS Commercial Service Airport
Emerging SIS Commercial Service Airport
SIS General Aviation Reliever Airport
FDOT Districts
1
2
3
4
5
6
7
FASP
FDOT

What Does Aviation Do in Florida?
FASP
FDOT

Florida's Commercial Service Airports

- **4 large hubs – more than any other state**
  - 9.76% of national enplanements
- **Second busiest airport for international passengers**
- **Over 161 million annual passengers in 2015**
  - 3rd most of any state
- **Over 50% of Florida's visitors arrive by air**

What Else Does Aviation Do in Florida?

FDOT's Aviation and Spaceports Office

- Airport inspections, licensing, and registration
- Statewide aviation system planning
- Support Space Florida and aerospace development
- Fund projects at eligible airports

- **Central Office**
  - Aviation Development Section
  - Aviation Operations Section
  - Spaceports Section
  - Technical assistance to Districts and airports
- **7 FDOT Districts**
  - Work Program implementation
  - Aviation Grant Program management
  - Local government coordination

FASP Florida Aviation System Plan 2035

Airport System Planning

What is Airport/Aviation System Planning?

- **USC Federal Law 49 Section 47102(9):**

  "Integrated airport system planning" means developing for planning purposes information and guidance to decide the extent, kind, location, and timing of airport development needed in a specific area to establish a **viable, balanced, and integrated system** of public-use airports, including—

  (A) identifying system needs;

  (B) developing an estimate of systemwide development costs;

  (C) conducting studies, surveys, and other planning actions, including those related to airport access, needed to decide which aeronautical needs should be met by a system of airports; and

  (D) standards prescribed by a State, except standards for safety of approaches, for airport development at comprimary public-use airports.

- **FAA Advisory Circular 150/5070-7, *The Airport System Planning Process:***

  The primary purpose of airport system planning is **to study the performance and interaction of an entire aviation system to understand the interrelationship of the member airports**. The effort involves examining the interaction of the airports with the aviation user requirements, economy, population, and surface transportation of a specific geographic area. The system of airports may include all airports, heliports, spaceports (operations involving horizontally-launched reusable vehicles), and seaplane bases in the study area that contribute to the national transportation system, as well as those that serve state and local aviation needs.

- **Chapter 332.004, F.S.**

  The development of **comprehensive plans** designed to achieve and **facilitate** the establishment of a statewide, **integrated aviation system in order to meet the current and future aviation needs of this state**.

- **ACRP Synthesis 14, *Airport System Planning Practices***

  The general purpose of an airport system plan is to **review the interaction between all airports in a designated airport system. An effective airport system plan considers the interrelationship of all system airports**, ultimately, this leads to an assessment or an evaluation of the system's current performance. Objectives for airport system planning often vary by system and by sponsor. One underlying objective for the system planning process is maximizing the effectiveness of federal, state, and local investment in airport facilities. One of the primary outputs from an airport system plan is the identification of a **viable, balanced, and integrated airport system**. When complete, an effective airport system plan identifies how to preserve and enhance the system to meet current and future aviation demand.

FASP Florida Aviation System Plan 2035 — 16 — FDOT

So What is it Really?!

- **Lots of definitions, none of which are right or wrong**
- **Common themes exist:**
  - A viable, balanced system through integrated planning
  - Identifying system needs (infrastructure, services, and facilities)
    - Locally, regionally, statewide, and nationally
  - Performance measures and tracking
  - Examining interrelationships and interaction between airports
  - Development needs to meet current and future demand (a.k.a. HOW MUCH WILL IT COST?!)
- **An airport vs. airport systems vs. THE airport system**

FASP Florida Aviation System Plan 2035 — 17 — FDOT

Florida Aviation System Plan (FASP)

- **First FASP completed by the airports in 1992**
  - Major update in 2005 (first by FDOT)
  - Minor update in 2012
- **Identifies goals, approaches, measurements, and recommendations**
- **Strategic 20-year plan for developing the state's 128 public use airports**
  - Analyze Florida's system collectively
  - Understand the relationships of the facilities and the demographics
  - Compare current and future needs (demand) to current and future capacity
- **Currently being updated – FASP 2035**

FASP 18 FDOT

FASP 2035 Elements

- **Existing system evaluation**
- **Development needs**
- **Aviation issues**
- **Decision-making guidance**
- **Recommendations**
- **Will examine:**
  - Regional capacity constraints
  - Investment policies and priorities
  - System utilization
  - Best opportunities
  - Development costs by District and statewide

FASP 19 FDOT

Trends Affecting Aviation in Florida

- What are some general trends in aviation?
- What is influencing aviation in Florida?
- What is driving (or hampering) demand around the state?

How is the System Doing?

- 7 goals (different than but tied to the FTP's goals)
  - Supporting objectives
  - Performance measures
  - Performance indicators:
- Development and validation of goals, objectives, and performance measures and indicators

○ = Low relationship
◒ = Medium relationship
● = High relationship

	FASP						
	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses,	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment	Support and enhance the position of leadership and prominence held by Florida's aviation	Protect, conserve and promote compatible land uses around public airports	Foster technological innovation and support	Promote support for aviation from business, government, and the public	Foster Florida's reputation as a military-friendly state
FTP: Safety and security for residents, visitors, and businesses	●	◒	○	●	●	◒	◒
FTP: Agile, resilient, and quality infrastructure	●	◒	○	◒	◒	●	◒
FTP: Efficient and reliable mobility for people and freight	●	◒	◒	○	◒	◒	◒
FTP: More transportation choices for people and freight	◒	●	◒	○	◒	◒	○
FTP: Transportation solutions that support Florida's global economic competitiveness	◒	●	●	○	◒	◒	○
FTP: Transportation solutions that support quality places to live, learn, work, and play	◒	●	◒	◒	◒	◒	◒
FTP: Transportation solutions that enhance Florida's environment and conserve energy	◒	●	◒	◒	◒	○	○

How is FASP 2035 Being Developed

- **FASP Review Team (FASPRT)**
  - District Aviation Coordinators
  - Central Office Aviation and Spaceports Staff
- **Comprehensive Review Team (CRT)**
  - All FASPRT members
  - Airport members
  - Federal Aviation Administration
- **Internal coordination**
  - Modal offices
  - Office of Policy Planning
  - Systems Planning Office
- **External coordination**
  - MPOAC
  - Other states
- **Continuing Florida Aviation System Planning Process (CFASPP)**

CFASPP

- **The Continuing Florida Aviation System Planning Process**
- **Established as a component of the FAA's Continuous Airport Systems Planning Process**
- **Assists ASO in maintaining a viable and relevant aviation system**
- **Continuous input into the FASP**
- **9 regional and 1 statewide committee**
  - Meet 3 times per year for the last 30+ years

Who Participates in CFASPP?

- **FDOT**
  - Central office (lead)
  - District Aviation Coordinators
- **Airports**
- **Consultants**
- **Relevant Stakeholders**
  - Federal Aviation Administration
  - MPOs/TPOs/RPCs
  - Military officials
  - Florida Airports Council
- **For more information, visit www.cfaspp.com**

24

FASP Update: Where Are We Now?

25

FASP Deliverables and Tools

- **Standard products**
- **Functional tools**
  - 4 tailored primers
  - CFASPP regional overviews
  - GIS
  - Videos
- **Recommendations**
  - Policy
  - Project prioritization
  - Development by District and CFASPP region
  - Guidance to other modes pertaining to aviation
- **Follow on FDOT projects and initiatives**

FASP Florida Aviation System Plan 2035

Your Role In The FASP

So What Does This Mean to You?

- **Better understand the role aviation plays in your region**
  - As a transportation option
  - Bringing in visitors
  - What do airports need?
- **Better understand your role in Florida's aviation system**
- **Improve coordination between airport and regional planning**
- **What are the trends and issues for aviation? How do they impact your regional policies, plans, and decisions?**
- **What do airports and FDOT's Aviation & Spaceports Office need to consider from your perspective?**

FASP Florida Aviation System Plan 2035 26 FDOT

Aviation and Airport-Specific Planning

Type of planning	Lead authority	Relevance to airport and airport-growth area	References
National Plan of Integrated Airport Systems (NPIAS)	Federal Aviation Administration (FAA)	Established national priorities for the airport system and eligibility for Airport Improvement Program funding	FAA: National Plan of Integrated Airport Systems (NPIAS) Airport Cooperative Research Program (ACRP) Report 16, Guidebook for Managing Small Airports
State Aviation System Plan (FASP for Florida)	State DOT	Examines the relationship between airports and aviation demand; identifies and plans for airport development activities in the state.	FAA Advisory Circular 150/5070-7, The Airport System Planning Process ACRP Synthesis 14, Airport System Planning Practices Florida Aviation System Plan Chapter 332, Florida Statutes
Airport Master Plan and Airport Layout Plan	Airport sponsor	Provides short-, medium-, and long-range strategies and guidance for airport development; Serves as resource for other community planning efforts.	FAA Advisory Circular 150/5070-6B, Airport Master Plans Airport Cooperative Research Program (ACRP) Report 16, Guidebook for Managing Small Airports FDOT's Guidebook for Airport Master Planning

Developed from ACRP Project 03-31, Aligning Community Expectations with Airport Roles (to be ACRP Report 135 once finalized)

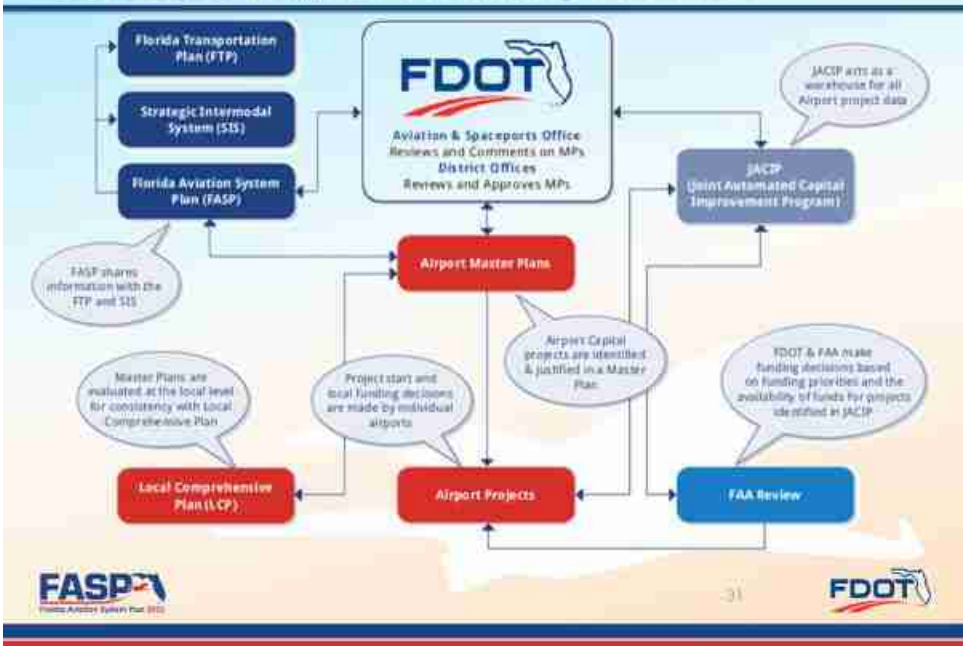
FASP Florida Aviation System Plan 2035 27 FDOT

Community/Regional Planning and Airports

Type of planning	Lead authority	Relevance to airport and airport-area growth	References
Community Master Plan (also called comprehensive, general, city, development, growth management, or policy plans)	Local jurisdiction (city, town, county)	Defines a community's long term development goals and policies, including setting the basis for zoning and other regulations that influence development trajectories.	The Aircraft Owner and Pilots Associations (AOPA) Guide for Airport Advocates: Participating in the Planning Process Chapter 163, Florida Statutes
Zoning Ordinance	Local jurisdiction (city, town, county)	Regulates uses and other characteristics of development (e.g. floor-area-ratios, setbacks, heights, etc.)	Airport Cooperative Research Program (ACRP) Report 16, Guidebook for Managing Small Airports Chapter 333, Florida Statutes
Special District	Local taxing authorities, sometimes in cooperation with local business/ property owners	Community or regional planning that can affect airports and their surrounding areas. Used to establish methods of value capture to help pay for development/infrastructure costs in a specific area. Examples include: Tax Increment Financing Districts (TIF), Business Improvement Districts (BID), and Special Assessment/ Betterment Districts.	ACRP Report 121, Innovative Revenue Strategies: An Airport Guide
Permitting	Local jurisdiction (city, town, county)	Formal process to ensure individual projects comply with zoning and other local requirements.	The Aircraft Owner and Pilots Associations (AOPA) Guide for Airport Advocates: Participating in the Planning Process
Environmental review	Project sponsor	Process for evaluating and seeking public comment regarding the environmental impact of a project.	Generally covered under the National Environmental Policy Act of 1969
Metropolitan transportation plans	Metropolitan Planning Organizations (MPOs)	Define transportation investment priorities and long-term growth trends within urban areas of at least 50,000. Particularly relevant for airport ground access issues.	FAA Bulletin 1: Best Practices - Surface Access to Airports
State transportation plans	State Departments of Transportation (DOTs)	Define transportation investment priorities within a state. For areas outside of MPOs, State DOTs and local planning entities are responsible for ground transportation planning and project development that may affect an airport's multimodal	FAA Bulletin 1: Best Practices - Surface Access to Airports Florida Transportation Plan

Developed from ACRP Project 03-31, Aligning Community Expectations with Airport Roles (to be ACRP Report 155 once finalized)

Florida's Airport Planning Process



So How Does All of This Happen?!

- Florida Aviation Project Handbook
- Guidebook for Airport Master Planning
- Airport Sustainability Guidebook
- Air Service Study
- Air Cargo System Plan
- Economic Impact Study
- Compatible Land Use Guidebook
- GA Airport Business Plan Guidebook
- Standard Spec's for Construction of GA Airports

What Next?

- Consider airports in your local and regional planning (it's actually a statutory requirement)
- Be an active stakeholder in Florida's statewide, regional, and local airport planning processes
- Help us understand what we need to consider from your perspective

WE WANT YOU!

Questions?

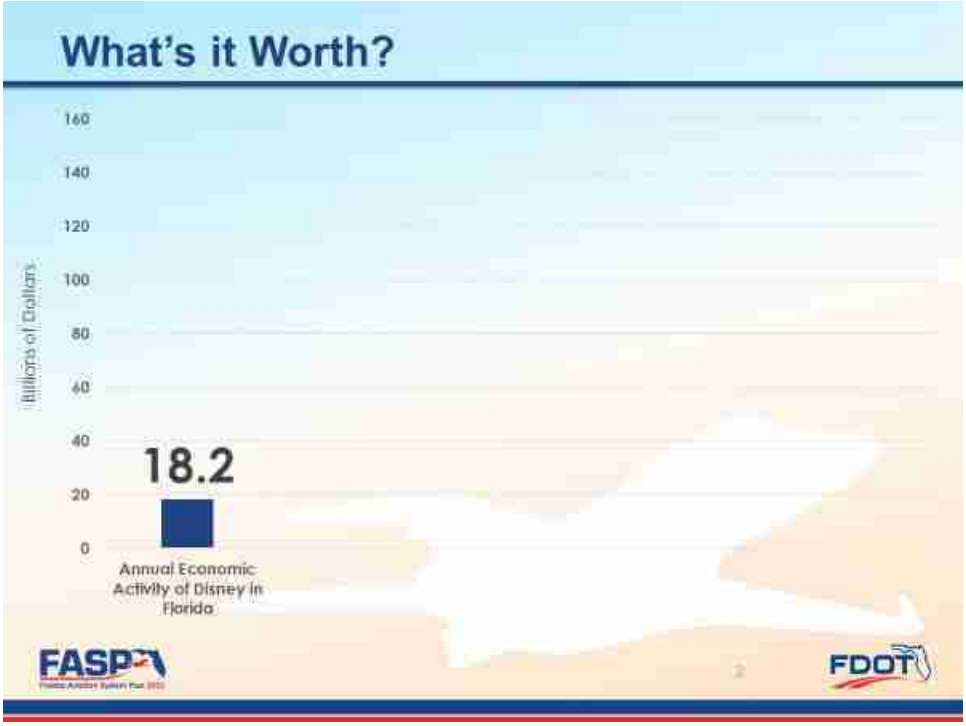
34

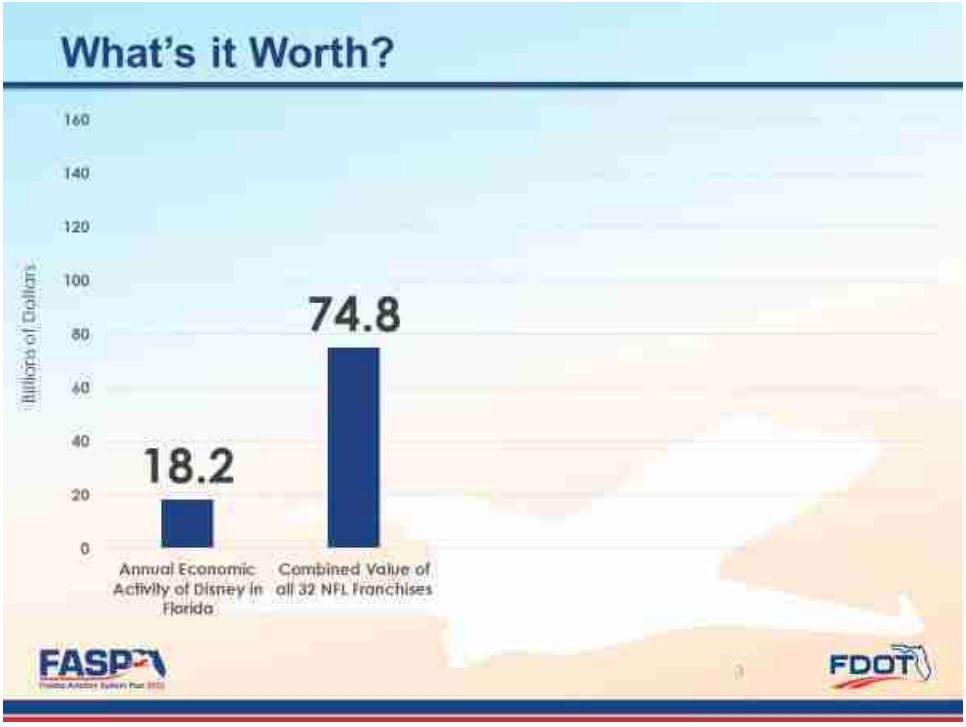
Thank You

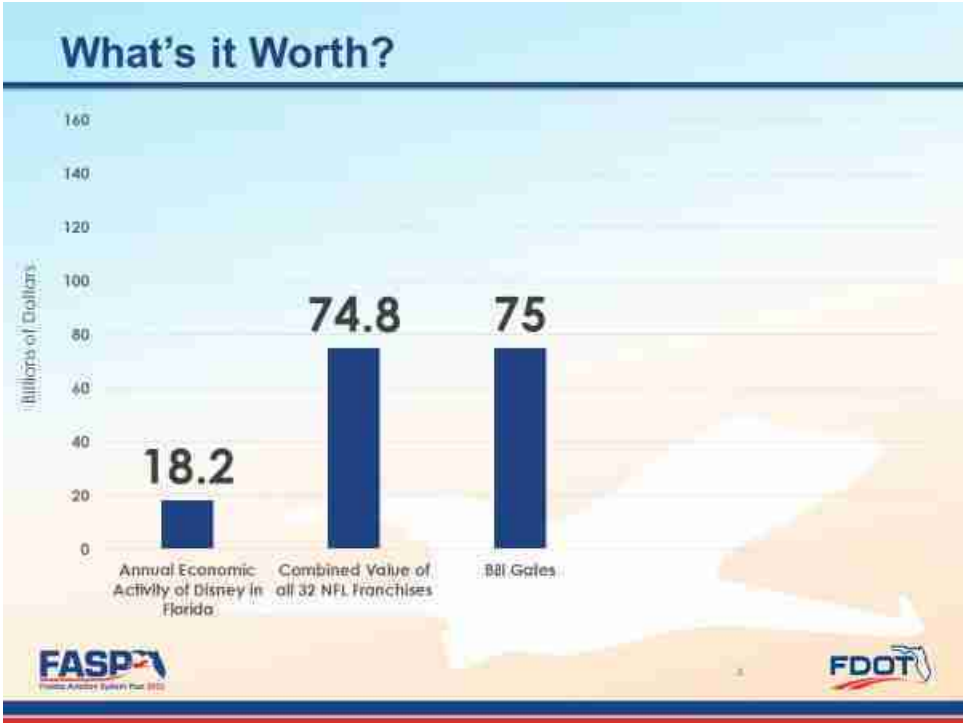
Jim Halley, A.A.E., ACE
Aviation System Manager
FDOT Aviation and Spaceports Office
(850) 414-4505
Jim.Halley@dot.state.fl.us
www.fdot.gov/aviation
www.cfaspp.com

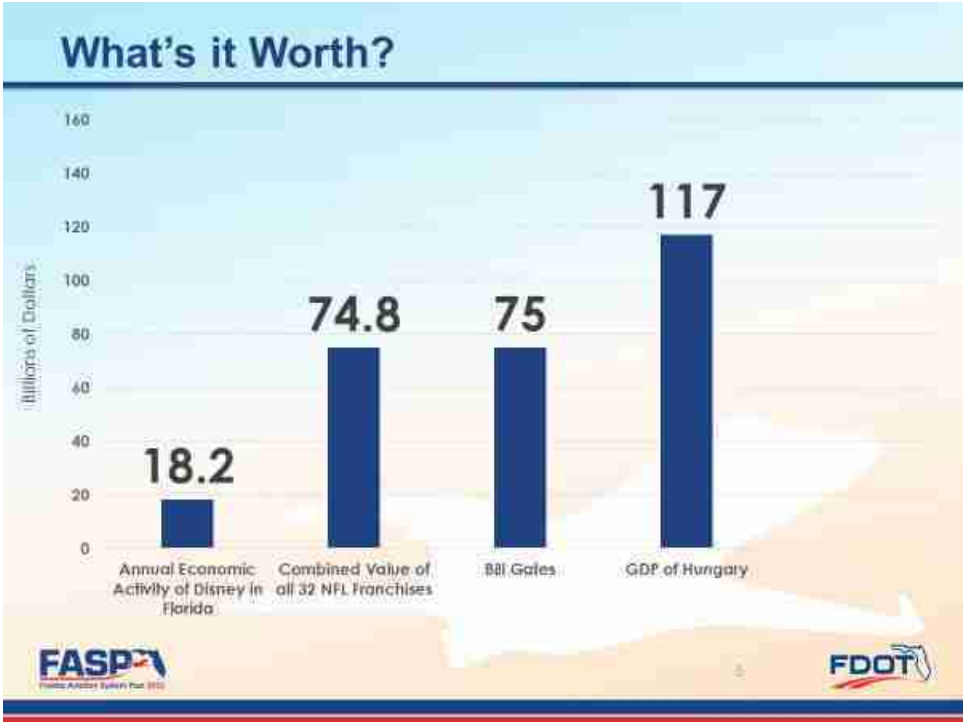
35

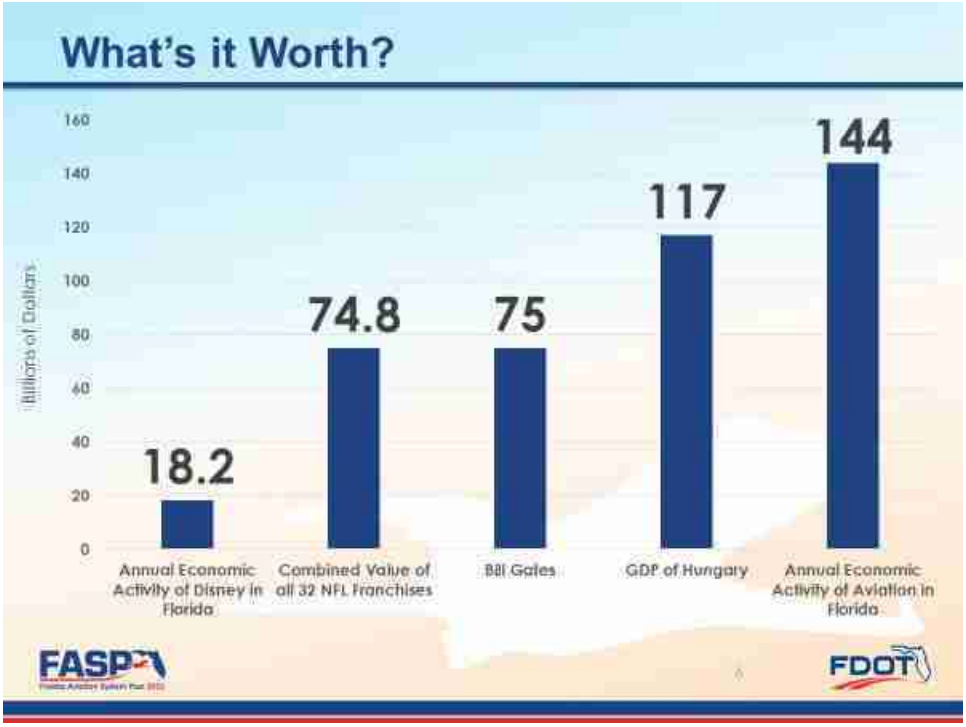
A.2.1.2 Presentation #2 – Governing Board




What's it Worth?
Billions of Dollars
160
140
120
100
80
60
40
20
0
18.2
74.8
Annual Economic Activity of Disney in Florida
Combined Value of all 32 NFL Franchises
FASP
FDOT


What's it Worth?
Billions of Dollars
160
140
120
100
80
60
40
20
0
18.2
74.8
75
Annual Economic Activity of Disney in Florida
Combined Value of all 32 NFL Franchises
Bill Gates
FASP
FDOT


What's it Worth?
Billions of Dollars
160
140
120
100
80
60
40
20
0
18.2
74.8
75
117
Annual Economic Activity of Disney in Florida
Combined Value of all 32 NFL Franchises
Bill Gates
GDP of Hungary
FASP
FDOT


What's it Worth?
Billions of Dollars
160
140
120
100
80
60
40
20
0
18.2
74.8
75
117
144
Annual Economic Activity of Disney in Florida
Combined Value of all 32 NFL Franchises
Bill Gates
GDP of Hungary
Annual Economic Activity of Aviation in Florida
FASP
FDOT

FASP

Florida Aviation System Plan 2035

FASP Update Process

Jim Halley, A.A.E., ACE
Aviation System Manager
FDOT Aviation and Spaceports Office

January 26, 2017

Today's Flight Plan

- Overview of aviation in Florida
- Aviation system planning
- The Florida Aviation System Plan (FASP)
  - History
  - Ongoing update
- Aviation system planning at the local level
- Your role in the FASP
- Next steps

FASP

FDOT

Aviation in Florida

- 8.5% of Florida's GSP is from aviation-dependent businesses
- Both the first scheduled airline flight and the first international flight took off in Florida
- #1 state for aerospace manufacturing attractiveness
- 128 public use airports
- Over 650 private use facilities
- High return on investment
  - 2013/2014 to 2015/2016: 1.37
  - 2014/2017 to 2020/2021: 1.72
- Over 50% of Florida's visitors arrive by air

Florida's Public Use Airport System

What Does Aviation Do in Florida?
FASP
FDOT

What Does Aviation Do in Florida?
FASP
FDOT

What is Airport System Planning?

- **Lots of definitions, none of which are right or wrong**
- **Common themes exist:**
  - A viable, balanced system through integrated planning
  - Identifying system needs (infrastructure, services, and facilities)
    - Locally, regionally, statewide, and nationally
  - Performance measures and tracking
  - Examining interrelationships and interaction between airports
  - Development needs to meet current and future demand (a.k.a. HOW MUCH WILL IT COST?!)
- **An airport vs. airport systems vs. THE airport system**

Florida Aviation System Plan (FASP)

- **First FASP completed by the airports in 1992**
  - Major update in 2005 (first by FDOT)
  - Minor update in 2012
- **Identifies goals, approaches, measurements, and recommendations**
- **Strategic 20-year plan for developing the state's 128 public use airports**
  - Analyze Florida's system collectively
  - Understand the relationships of the facilities and the demographics
  - Compare current and future needs (demand) to current and future capacity
- **Currently being updated – FASP 2035**

FASP 2035 Elements

- Existing system evaluation
- Development needs
- Aviation issues
- Decision-making guidance
- Recommendations
- Will examine:
  - Regional capacity constraints
  - Investment policies and priorities
  - System utilization
  - Best opportunities
  - Development costs by District and statewide

How is the System Doing?

- 7 goals (different than but tied to the FTP's goals)
  - Supporting objectives
  - Performance measures: how are we doing at what we can influence?
  - Performance indicators: FDOT can't influence but still help us evaluate
- Development and validation of goals, objectives, and performance measures and indicators

FASP Update: Where Are We Now?

FASP Deliverables and Tools

- **Standard products**
- **Functional tools**
  - 4 tailored primers
  - CFASPP regional overviews
  - GIS
  - Videos
- **Recommendations**
  - Policy
  - Project prioritization
  - Development by District and CFASPP region
  - Guidance to other modes pertaining to aviation
- **Follow on FDOT projects and initiatives**

FASP

Florida Aviation System Plan 2035

Your Role In The FASP

So What Does This Mean to You?

- Better understand the role aviation plays in your region
  - As a transportation option
  - Bringing in visitors
  - What do airports need?
- Better understand your role in Florida's aviation system
- Improve coordination between airport and regional planning
- What are the trends and issues for aviation? How do they impact your regional policies, plans, and decisions?
- What do airports and FDOT's Aviation & Spaceports Office need to consider from your perspective?

FASP

20

FDOT

Airport Funding Process Diagram

Developed from ACRP Project 03-31, Aligning Community Expectations with Airport Roles (to be ACRP Report 185 once finalized)

National Plan of Integrated Airport Systems: Defines system for FAA funding eligibility and airport development needs.

- **Airport Capital Improvement Plan (ACIP):** Outlines detailed project funding, serves as the basis for AIP fund distribution.
- **Coordination:** The FAA develops criteria for inclusion in the NPIAS and coordinates a process of "feeding" up recommendations for inclusion of airports and projects from the state/regional system plans.
- **Updates:** Updated biennially.

Florida Aviation System Plan (State): Define airport roles within the system, including non-NPIAS airports.

- **Coordination:** State (and regional) system plans provide policy guidance and technical direction to individual airports, along with forecast airport activity and a set of investment priorities. Individual airport master plans provide more detail for proposed improvements than what is contained in a system plan and may be used as a basis for altering priorities within the overall system plan.
- **Updates:** Interim updates every 3-5 years; formal review at least every 5 years.

Airport Master Plans (Local): Detailed long-term development plans for individual airports (often with 5-, 10-, and 20-year time horizons).

- **Airport Layout Plan:** A key product of the master planning process; provides a graphical depiction of the current and future runway, required for AIP funding eligibility.
- **Facilities Implementation and Capital Improvement Plans (CIP):** Translates the master plan into line-item project components, with sufficient detail for resources planning (e.g. budgeting, timing, etc.). CIPs have a typical 3-5 year time horizon.
- **Updates:** Updates for minor modifications. New plans when key underlying assumptions have changed. Must be kept up-to-date, including "as built" updates after project completion. May change from year-to-year in response to changing conditions; often more detailed in earlier years, to reflect the imprecision at longer-range improvement plans.

FASP Florida Aviation System Plan 2035 — 21 — FDOT

What Next?

- Consider airports in your local and regional planning (it's actually a statutory requirement)
- Be an active stakeholder in Florida's statewide, regional, and local airport planning processes
- Help us understand what we need to consider from your perspective

FASP Florida Aviation System Plan 2035 — 22 — FDOT

Questions?

23

Thank You

Jim Halley, A.A.E., ACE
Aviation System Manager
FDOT Aviation and Spaceports Office
(850) 414-4505
Jim.Halley@dot.state.fl.us
www.fdot.gov/aviation
www.cfaspp.com

24

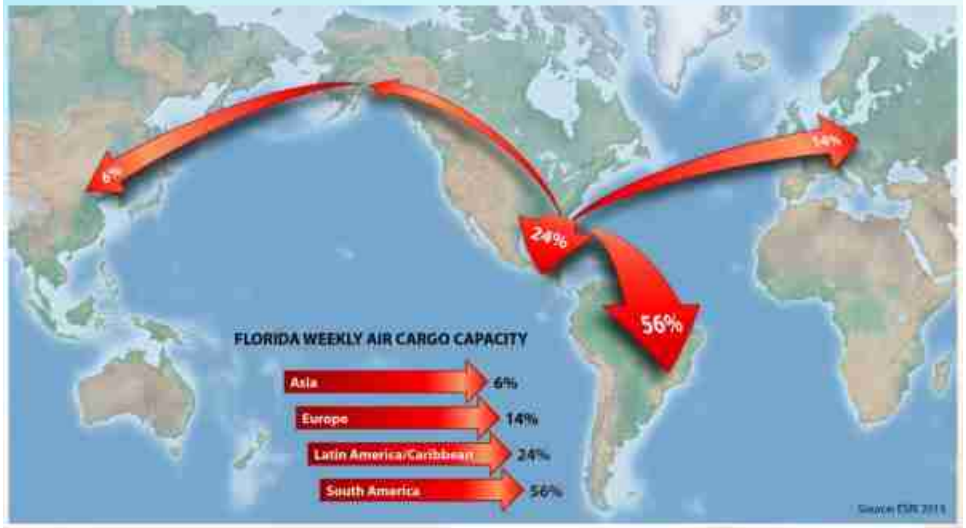
A.2.1.3 Presentation #3 – Freight Committee

Air Cargo in Florida

- #1 international cargo airport in the country
- 4th ranked state for tonnage
- 11% market share of top 10 air cargo states
- 36% of Florida's international trade dollars come from air cargo shipments
- 2/3 of all perishables and 90% of all flowers imported to the U.S. come first through FL
- Economic impact:
  - 129,587 jobs
  - $5.0 Billion annual payroll
  - $10.3 Billion annual economic impact

Florida's Cargo Airports

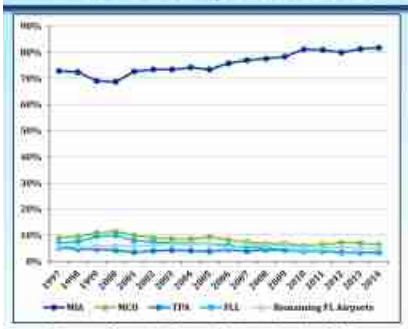
International Trade Lanes



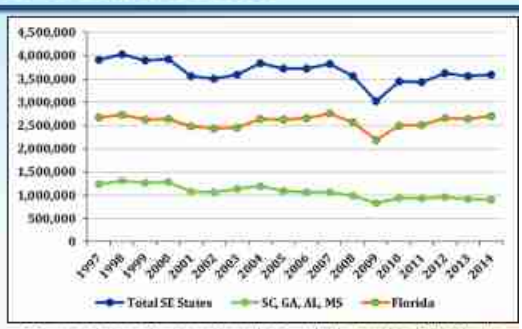
Air Cargo Overview

- **Air cargo in Florida:**
  - Supports trade
  - Promotes connectivity
  - Improves shipment security
  - Enhances industry competitiveness
  - Lightweight, time sensitive, high value
- **2014 worldwide statistics:**
  - 51.3 million metric tons transported
  - <1% of world trade by weight
  - >35% of world trade by value

Air Cargo in the U.S. and Florida



Source: Airports Council International – North America, CDM Smith



Source: Airports Council International – North America, CDM Smith

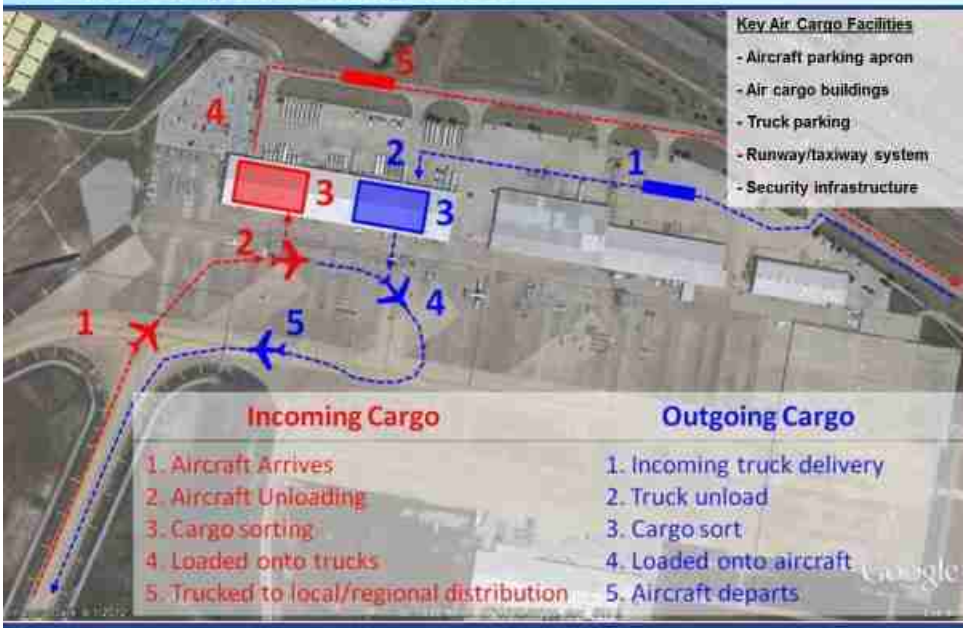
2014 Rank	Airport City/State/Code	Cargo Loaded and Unloaded (Metric Tonnes)
1	Memphis, TN (MEM)	4,258,531
2	Anchorage, AK (ANC)	2,492,754
3	Louisville, KY (SDF)	2,293,231
4	Miami, FL (MIA)	1,998,779
5	Los Angeles, CA (LAX)	1,816,269

Source: Airports Council International – North America

Key Participants in the Air Cargo Industry

- Integrated express carriers
- Passenger airlines
- Combination aircraft carriers
- Aircraft, Crew, Maintenance, and Insurance (ACMI) charters
- Heavy lift cargo freighters
- Specialized operators
- All-cargo carriers
- Air forwarders

Air Cargo Facility Flow



Air Cargo Planning Factors

- **Terminal**
  - Users
  - Warehouse space
  - Office space
  - Utility infrastructure
  - Security/Federal Inspection Services
  - Maintenance
- **Landside**
  - Truck access
  - Dock access
  - Access security
  - Truck access
  - Truck staging
  - Vehicle parking
  - Truck access
  - Connectivity between terminals
  - Highway access
  - Did I mention **TRUCK ACCESS**?!

FDOT Air Cargo System Plan

- **Examines a variety of air cargo items**
  - Industry trends (equipment, facilities, processing)
  - Air cargo influences (trade flows, what is being shipped, etc.)
  - FL-specific considerations
- **Analyzes demand, produces forecasts, develops recommendations and findings**
- **Currently being updated (now the Florida Air Cargo Study)**
  - Focus on Florida's role as a gateway to Latin America
  - Assessing potential routes to Europe and Asia
  - Complete by the end of March, 2017
- **Current plan can be found at http://www.fdot.gov/aviation/cargo.shtm**
- **For more information, contact Mike McClure, Aviation Environmental and Freight Manager, at Mike.McClure@dot.state.fl.us**

FASP FDOT

11

Questions?

FASP FDOT

12

FASP Florida Aviation System Plan 2035 | FDOT

Thank You

Jim Halley, A.A.E., ACE
Aviation System Manager
FDOT Aviation and Spaceports Office
(850) 414-4505
Jim.Halley@dot.state.fl.us
www.fdot.gov/aviation
www.cfaspp.com

13

A.2.2 Meeting #2 w/FTP Implementation Committee – November 6, 2017

The November 6, 2017, presentation to the FTP Implementation Committee focused on the outcomes of the FASP 2035 process, an overview of aviation in Florida, the identification of intermodal coordination opportunities related to Florida's airports, and guidance on how non-aviation partners could and should become involved in local, regional, and statewide aviation planning efforts such as airport master plans and the FASP. An overview of the FTP Implementation Committee and a list of its members can be found at http://floridatransportationplan.com/committee.htm. The following presentation is what was delivered at this meeting.

A.2.2.1 Presentation

Today's Flight Plan

- Brief overview of aviation in Florida
- The Florida Aviation System Plan (FASP)
- The Continuing Florida Aviation System Planning Process (CFASPP)
- Integrated aviation planning
- In practice: Northwest Florida Beaches International Airport

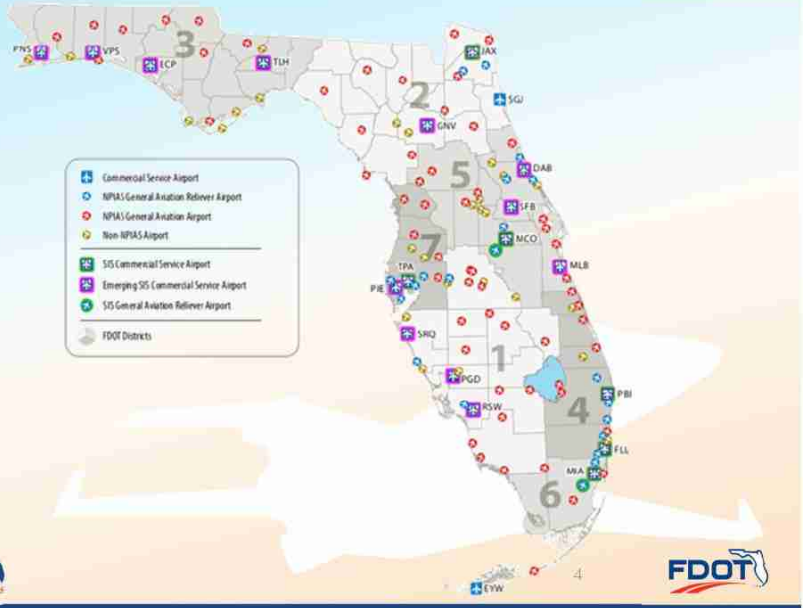
FASP Florida Aviation System Plan 2035 2 FDOT

Aviation in Florida

- 8.5% of Florida's GSP is from aviation-dependent businesses
- Both the first scheduled airline flight and the first international flight took off in Florida
- #1 state for aerospace manufacturing attractiveness
- 128 public use airports
- Over 650 private use facilities
- High return on investment
  - 2013/2014 to 2015/2016: 1.37
  - 2014/2017 to 2020/2021: 1.72
- ≈ 50% of Florida's visitors arrive by air

FASP Florida Aviation System Plan 2035 3 FDOT

Florida's Public Use Airport System



FASP Florida Aviation System Plan 2035 4 FDOT

What Does Aviation Do in Florida?

FASP Florida Aviation System Plan 2035 5 FDOT

FASP Florida Aviation System Plan 2035 | FDOT

What Does Aviation Do in Florida?

FASP Florida Aviation System Plan 2035

6

FDOT

The Florida Aviation System Plan

FASP Florida Aviation System Plan 2035

7

FDOT

Florida Aviation System Plan (FASP)

- **First FASP completed by the airports in 1992**
  - Major update in 2005 (first by FDOT)
  - Minor update in 2012
- **Identifies goals, approaches, measurements, and recommendations**
- **Strategic 20-year plan for developing the state's 128 public use airports**
  - Analyze Florida's system collectively
  - Understand the relationships of the facilities and the demographics
  - Compare current and future needs (demand) to current and future capacity
- **Currently being updated – FASP 2035**

FASP Florida Aviation System Plan 2035 8 FDOT

FASP 2035 Elements

- **Existing system evaluation**
- **Development needs**
- **Aviation issues**
- **Decision-making guidance**
- **Recommendations**
- **Examines:**
  - Regional capacity constraints
  - Investment policies and priorities
  - System utilization
  - Best opportunities
  - Development costs by District and statewide

FASP Florida Aviation System Plan 2035 9 FDOT

How is the System Doing?

- 7 goals (different than but tied to the FTP's goals)
  - Supporting objectives
  - Performance measures
  - Performance indicators:
- Development and validation of goals, objectives, and performance measures and indicators

FTP \ FASP	Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors	Contribute to economic growth and competitiveness while remaining sensitive to Florida's cultural environment	Support and enhance the national position of leadership and promotion led by Florida's aviation	Protect Airspace and promote compatible land uses around public airports	Foster technological innovation and support	Promote support for aviation from businesses, government, and the public	Foster Florida's reputation as a military- and aerospace industry- friendly state
Safety and security for residents, visitors, and businesses	★	½	☆	★	★	½	½
Agile, resilient, and quality infrastructure	★	½	☆	½	½	★	½
Efficient and reliable mobility for people and freight	★	½	½	☆	½	½	½
More transportation choices for people and freight	½	★	½	☆	½	½	☆
Transportation solutions that support Florida's global economic competitiveness	½	★	★	☆	½	½	☆
Transportation solutions that support quality places to live, learn, work, and play	½	★	½	½	½	½	½
Transportation solutions that enhance Florida's environment and conserve energy	½	★	½	½	½	☆	☆

★ High Relationship ½ Medium Relationship ☆ Low Relationship

FASP Florida Aviation System Plan 2035 10 FDOT

FASP Deliverables and Tools

- **Standard products**
  - Technical report
  - Long and short executive summaries
- **Functional tools**
  - 4 tailored primers
  - CFASPP regional overviews
  - GIS
  - Videos
- **Recommendations**
  - Policy
  - Project prioritization
  - Development by District and CFASPP region
  - Guidance to other modes pertaining to aviation
- **Follow on FDOT projects and initiatives**

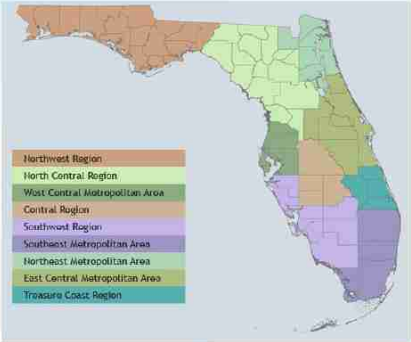
FASP Florida Aviation System Plan 2035 11 FDOT

So, Jim…
How do you do all of this?!

12

CFASPP

- The Continuing Florida Aviation System Planning Process
- Established as a component of the FAA's Continuous Airport Systems Planning Process
- Assists ASO in maintaining a viable and relevant aviation system
- Continuous input into the FASP
- 9 regional and 1 statewide committee
  - Meet 3 times per year for the last 30+ years



13

Who Participates in CFASPP?

- **FDOT**
  - Central office (lead)
  - District Aviation Coordinators
- **Airports**
- **Consultants**
- **Relevant Stakeholders**
  - Federal Aviation Administration
  - MPOs/TPOs/RPCs
  - Military officials
  - Florida Airports Council
- **For more information, visit www.cfaspp.com**

FASP Florida Aviation System Plan 2035 14 FDOT

How do you get everyone to participate?!

The process itself is what obtains buy-in:

- **Continuous input into the FASP**
- **Training courses**
- **Joint projects with the Florida Airports Council**
- **Feedback on FDOT programs, initiatives, and policies**
- **Input into the development of numerous guidance publications and special studies**
- **Identify trends, challenges, and concerns**

FASP Florida Aviation System Plan 2035 16 FDOT

Integrated Aviation Planning

FASP Florida Aviation System Plan 2035

17

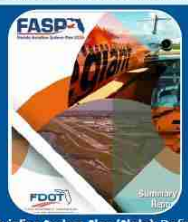
FDOT

Airport Funding Process Diagram

Developed from ACRP Project 03-31, Aligning Community Expectations with Airport Roles (to be ACRP Report 155 once finalized)

National Plan of Integrated Airport Systems: Defines system for FAA funding eligibility and airport development needs.

- **Airport Capital Improvement Plan (ACIP):** Outlines detailed project funding, serves as the basis for AIP fund distribution.
- **Coordination:** The FAA develops criteria for inclusion in the NPIAS and coordinates a process of "feeding" up recommendations for inclusion of airports and projects from the state/regional system plans.
- **Updates:** Updated biennially.



Florida Aviation System Plan (State): Define airport roles within the system, including non-NPIAS airports.

- **Coordination:** State (and regional) system plans provide policy guidance and technical direction to individual airports, along with forecast airport activity and a set of investment priorities. Individual airport master plans provide more detail for proposed improvements than what is contained in a system plan and may be used as a basis for altering priorities within the overall system plan.
- **Updates:** Interim updates every 2-5 years; formal review at least every 5 years.

Airport Master Plans (Local): Detailed long-term development plans for individual airports (often with 5-, 10-, and 20-year time horizons).

- **Airport Layout Plan** A key product of the master planning process, provides a graphical depiction of the current and future runway. Required for AIP funding eligibility.
- **Facilities Implementation and Capital Improvement Plans (CIP):** Translates the master plan into line-item project components, with sufficient detail for resources planning (e.g. budgeting, timing, etc.). CIPs have a typical 3-5 year time horizon.
- **Updates:** Updates for minor modifications. New plans when key underlying assumptions have changed. Must be kept up-to-date, including "as built" updates after project completion. May change from year-to-year in response to changing conditions; often more detailed in earlier years, to reflect the imprecision of longer-range improvement plans.

FASP Florida Aviation System Plan 2035

18

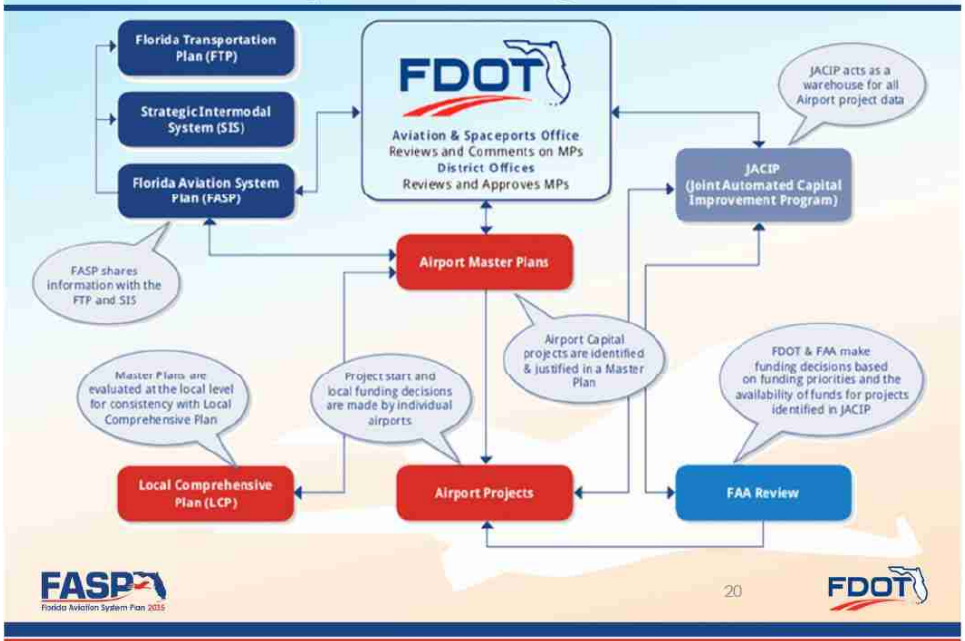
FDOT

Community/Regional Planning and Airports

Type of planning	Lead authority	Relevance to airport and airport-area growth	References
Community Master Plan (also called comprehensive, general, city, development, growth management, or policy plans)	Local jurisdiction (city, town, county)	Defines a community's long term development goals and policies, including setting the basis for zoning and other regulations that influence development trajectories.	The Aircraft Owner and Pilots Association's (AOPA) Guide for Airport Advocates: Participating in the Planning Process Chapter 163, Florida Statutes
Zoning Ordinance	Local jurisdiction (city, town, county)	Regulates uses and other characteristics of development (e.g. floor-area-ratios, setbacks, heights, etc.)	Airport Cooperative Research Program (ACRP) Report 16, Guidebook for Managing Small Airports Chapter 333, Florida Statutes
Special District	Local taxing authorities, sometimes in cooperation with local business/ property owners	Community or regional planning that can affect airports and their surrounding areas Used to establish methods of value capture to help pay for development/infrastructure costs in a specific area. Examples include: Tax Increment Financing Districts (TIF), Business Improvement Districts (BID), and Special Assessment/ Betterment Districts.	ACRP Report 121, Innovative Revenue Strategies: An Airport Guide
Permitting	Local jurisdiction (city, town, county)	Formal process to ensure individual projects comply with zoning and other local requirements.	The Aircraft Owner and Pilots Association's (AOPA) Guide for Airport Advocates: Participating in the Planning Process
Environmental review	Project sponsor	Process for evaluating and seeking public comment regarding the environmental impact of a project.	Generally covered under the National Environmental Policy Act of 1969
Metropolitan transportation plans	Metropolitan Planning Organizations (MPOs)	Define transportation investment priorities and long-term growth trends within urban areas of at least 50,000. Particularly relevant for airport ground access issues.	FAA Bulletin 1: Best Practices - Surface Access to Airports
State transportation plans	State Departments of Transportation (DOTs)	Define transportation investment priorities within a state. For areas outside of MPOs, State DOTs and local planning entities are responsible for ground transportation planning and project development that may affect an airport's multimodal	FAA Bulletin 1: Best Practices - Surface Access to Airports Florida Transportation Plan

Developed from ACRP Project 03-31, Aligning Community Expectations with Airport Roles (to be ACRP Report 155 once finalized)

Florida's Airport Planning Process



Intermodal Connectivity at Florida's Airports

- **FASP 2035 looked at connectivity at FL's 20 SIS airports**

Airport	2016 Domestic Passengers	2016 International Passengers	2016 Total Passengers	Airport Sponsor	Associated City	County	FDOT District	MPO	FEDC Region	Direct Bus Transit	Direct Passenger Rail	Onsite Rental Car	Direct Access Roadway(s)	Indirect Access Roadway(s)
Orlando Sanford International Airport	2,449,035	303,375	2,752,410	Sanford Airport Authority	Orlando	Seminole	5	Metroplan Orlando	East Central			✓	• One 6-lane state road (SR 417)	• One 6-lane interstate (I-4) • One 4-lane US highway (US 17) • One 4-lane state road (SR 415) • One 2-lane state road (SR 46)
Palm Beach International Airport	6,173,901	154,528	6,328,429	Palm Beach County	West Palm Beach	Palm Beach	4	Palm Beach Metropolitan Planning Organization	South east	✓ Palm Tran		✓	• One 10-lane Interstate (I-95)	• One 5-lane turnpike (SR 91) • One 8-lane US highway (US 98) • One 4-lane US highway (US 1) • One 8-lane state road (SR 704) • Three 6-lane state roads (SR 807, SR 882, SR 809) • One 2-lane state road (SR A1A)
Pensacola International Airport	1,609,060	0	1,609,060	City of Pensacola	Pensacola	Escambia	3	Florida-Alabama Transportation Planning Organization	North west	✓ Escambia County Area Transit		✓	• Three 4-lane state roads (SR 750, SR 289, SR 296)	• One 4-lane interstate (I-10) • One 4-lane interstate (I-10) • One 4-lane US highway (US 29) • One 2-lane US highway (US 90) • One 6-lane state road (SR 291) • Two 4-lane US highways (SR 295)

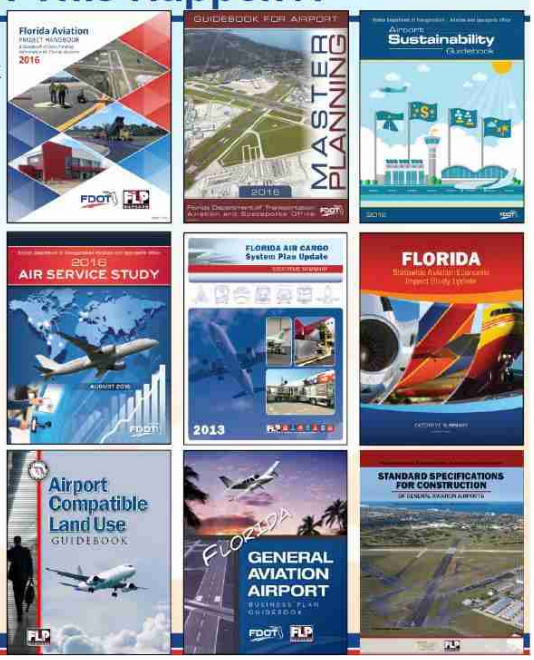
FASP Florida Aviation System Plan 2035

21

FDOT

So How Does All of This Happen?!

- Florida Aviation Project Handbook
- Guidebook for Airport Master Planning
- Airport Sustainability Guidebook
- Air Service Study
- Air Cargo Study
- Aviation Economic Impact Study
- Airport Compatible Land Use Guidebook
- GA Airport Business Plan Guidebook
- Standard Spec's for Construction of GA Airports
- And more!



FASP Florida Aviation System Plan 2035

FASP Florida Aviation System Plan 2035 | FDOT

In Practice: Northwest Florida Beaches International Airport

24

Northwest FL Beaches International Airport

- NW FL Beaches (ECP) opened in 2010 to replace Panama City-Bay County International (PFN)
- First new airport in US since 2001
- 434,302 passenger boardings in 2016

25

Northwest FL Beaches International Airport

Funding

- **$318 Million construction cost**
  - 1/3 equal share from FDOT, airport, and federal
- **SIS funds used to improve initial construction**
  - Allowed for an additional 1,600-feet of runway (now 10,000 feet)
  - Decreased total time and the reliance on bonds
  - Helped to foster a partnership between the airport, FDOT, and locals

FASP Florida Aviation System Plan 2035 26 FDOT

Northwest FL Beaches International Airport

Then vs. Now

Item	Then (PFN)	Now (ECP)
Runway Length	6,308 feet	10,000 feet
Airlines	Delta	Delta Southwest United
Land Area	745 acres	4,000 acres
Catchment Area	Panama City	Entire FL panhandle SW Georgia SE Alabama
Passenger Boardings	150,401 (2009)	434,302 (2016)
Economic Impact	$267,048,900 (2010)	$629,337,000 (2014)

FASP Florida Aviation System Plan 2035 27 FDOT

Questions?

28

Thank You

Jim Halley, A.A.E., ACE
Aviation System Manager
FDOT Aviation and Spaceports Office
(850) 414-4505
Jim.Halley@dot.state.fl.us
www.fdot.gov/aviation
www.cfaspp.com

29

A.2.2.2 Implementation Committee Meeting Summary

FTP/SIS Implementation Committee
November 6, 2017
Northwest Florida International Airport
Panama City, Florida

Committee Members or designees present (in alphabetical order by last name)			
Implementation Committee Member, Organization		*Designee (if applicable)*	
☒	Jim Wood, Florida Department of Transportation (Chair)	☒	Carmen Monroy
☐	The Honorable Susan Haynie, Metropolitan Planning Organization (MPO) Advisory Council (Vice Chair)	☒	Carl Mikyska, Metropolitan Planning Organization (MPO) Advisory Council
☒	Greg Britton, Florida Department of Economic Opportunity		
☐	Mark Bontrager, Space Florida	☐	Steven Szaso
☒	Janet Bowman, The Nature Conservancy- Florida Chapter		
☐	Ken Bryan, Rails to Trails Conservancy - Florida		
☒	Robert Burleson, Florida Transportation Builders Association		
☐	Laura Cantwell, AARP Florida		
☐	James Christian, Federal Highway Administration	☒ ☒	Karen Brunelle, Federal Highway Administration LeAnn Jacobs, Federal Highway Administration
☒	Karen Deigl, Florida Public Transportation Association	☐	Lisa Bacot
☐	Julie Dennis, Florida Department of Economic Opportunity	☒	James Stansbury
☒	Chris Doolin, Small County Coalition of Florida		
☒	Jim Ely, Transportation and Expressway Authority Membership (TEAM) Florida		
☐	Christopher Emmanuel, Florida Chamber of Commerce		
☐	Stewart Gibbons, Urban Land Institute – Florida Chapter		
☒	Bruce Grant, Florida Defense Alliance		
☐	Thomas Hawkins, 1000 Friends of Florida	☐	Ryan Smart
☐	Cori Henderson, Enterprise Florida		

☐	Steven Holmes, Florida Commission for the Transportation Disadvantaged		
☒	Toy Keller, Florida Ports Council	☐	Michael Rubin, Doug Wheeler
☒	Tisha Keller, Florida Trucking Association	☐	Ken Armstrong
☐	Ken Lawson, Visit Florida		
☐	Bob O'Malley, Florida Railroad Association		
☒	Sally Patrenos, Florida for Better Transportation		
☒	The Honorable Doug Smith, Florida Association of Counties		
☐	Christopher Stahl, Florida Department of Environmental Protection		
☒	Patricia Steed, Florida Regional Councils Association	☐	Denise Imbler
☒	Michael Stewart, Florida Airports Council	☐	Lisa Waters
☐	The Honorable Matthew Surrency, Florida League of Cities		
☐	Lt. Col. Troy Thompson, Florida Department of Highway Safety and Motor Vehicles	☒	Lt. James Hightower
☐	Bob Ward, Florida Council of 100	☐	Steven Birnholz
☐	Kenneth Wright, Florida Transportation Commission	☐	Teddi Pitts

FTP/SIS Staff

☒	Jennifer Carver, FDOT	☒	Vanessa Christiansen, Cambridge Systematics
☒	Rusty Ennemoser, FDOT	☒	John Kaliski, Cambridge Systematics
☒	Samantha Parks, FDOT	☒	Danny Shopf, Cambridge Systematics
☒	Mark Reichert, FDOT		
☒	Dana Reiding, FDOT		
☒	Brian Watts, FDOT		

Others in attendance included:

- Jim Halley, FDOT Aviation and Spaceports
- Jason Watts, FDOT Environmental Management Office

Meeting summary shortened to include only the FASP presentation portion

Florida's Aviation System Plan Jim Halley, FDOT

Jim Halley, FDOT, provided a presentation on the Florida Aviation System Plan (FASP 2035) for integrated aviation and continuous planning. The presentation slides are here.

Key points:

- Airports are a large component of Florida's economy for movement of goods and visitors.
- Airports are the first and last impression of Florida for visitors.
- The Continuing Florida Aviation System Planning Process (CFASPP) involves collaboration, frequent communication, and engagement Florida's airports and aviation stakeholders.

Implementation Committee members offered the following questions and comments (*responses to questions provided in italics*):

- Chris Doolin, Small Counties Coalition (SCC): Are Strategic Intermodal System (SIS) funds considered federal or state resources? Are they considered supplemental funds or matched by federal funds?
    - *For aviation projects, SIS funds are considered state funds that help supplement the Federal Aviation Administration and airport funding sources. In the Northwest Florida Beaches International Airport example, equal parts Federal, State, and local funds were used to complete the project. A substantial portion of the state funds contributed were SIS funds.*
- Doug Smith, Florida Association of Counties (FAC): Regarding the nine airport regions mentioned in the presentation, how long have these been used?
    - *These regions were defined when the CFSAPP process was first developed in the 1980s. During the recent FASP update, the Aviation and Spaceports Office has reviewed these nine regions to ensure they are still appropriate.*
- Doug Smith (FAC): Are these closely aligned with the state economic development regions?
    - *The Aviation Office reviewed regions as they relate to FDOT Districts as well as the state economic development regions. The airport regions generally align with both definitions with some minor differences.*
- Doug Smith, FAC: It would be useful for planning if all districts (i.e. water management, transportation, and others) were aligned. This would aid in streamlining processes.
    - *We've discussed reevaluating the nine airport regions and are presenting the topic for discussion to airports in early 2018.*
- Jim Ely, TEAM Florida: What is the number one challenge for airports?
    - *Surrounding land use and capacity are the top issues (e.g. Denver International Airport is experiencing noise encroachment because of developments). Another issue is communicating the benefit of airports. For example, Calhoun County's airport generates considerable economic activity but people are not aware it exists or how it benefits the local economy. This helps people understand how important these facilities are to their communities.*
- Michael Stewart, Florida Airports Council: Capacity is a big issue, as is the funding for new capacity. Travelers are charged a passenger facility charge when purchasing their ticket and revenues cover airport capacity investments. This fee has not been increased since

2001 and many airports are interested in raising this fee to create additional funding for capacity improvements. Airports the size of Jacksonville are fine but other major airports in Florida, including some of the biggest airports in the country, have challenges with funding for major projects.
    - *Miami International Airport is a good example of capacity being a challenge.*
- James Stansbury, Florida Department of Economic Opportunity (DEO): Comprehensive plans were covered in the presentation. When F.S. Chapter 163 changed in 2011, the state agencies roles shifted. Now DEO defers to FDOT for review of comprehensive plan amendments for adverse impacts to important state facilities or resources.
    - *We, FDOT, appreciate being involved in these conversations.*
- Doug Smith, FAC: What is the next big hurdle? What does your 20 year horizon look like and what do you foresee the biggest problem will be? What are the biggest challenges in terms of what is next (i.e. trends)?
    - *For as much as we plan, we also have to be reactive. For example, Martin County reacting to increase demands and changing trends. Remaining fluid and able to quickly adapt to changing environments and situations is key for airports.*
- Doug Smith, FAC: If 50 percent of our visitors arrive via air and we are looking at a major increase in visitors, should we be planning for a 5th major air hub by that time? Are we looking at other major hubs, where these may fit, and how aviation fits with other modes?
    - *We have looked at each airport and identified which of these facilities will need to address airfield capacity. For example, Miami International Airport cannot build out more runway but it can invest in technology to increase efficiency within the facility.*
- Doug Smith, FAC: There is a discussion happening on using U.S. 27 as a freight corridor. Is there a place for another large freight hub somewhere on the center part of the state that could align itself with U.S. 27?
    - *There will be a Future Corridors brief later which will discuss U.S. 27. The guiding principles that came from the prior Future Corridor planning processes will help guide FDOT and partners in how to make these decisions.*
- Greg Britton, DEO: As mentioned during the presentation, Florida is ranked as the top business location for aerospace companies. Is there any concern with larger scale drones and how to include separation?
    - *We want to be supportive of drones and other unmanned aerial systems (UAS) and need to find a balance between separation and integration. We know companies like Amazon are very interested in using UAS in their business models. Florida's regulations for drones only address privacy, providing an opportunity for our state to be a leader in the industry. Other states have very restrictive regulation. This will be a discussion in the upcoming Florida Automated Vehicles summit. The SpaceX rockets are one of the best unmanned aerial vehicle cases in the nation.*
- Janet Bowman, The Nature Conservancy (TNC): What about connecting visitors to other modes? How do you make decisions about where to make intermodal connection points?
    - *We identify the facilities where we might need intermodal facilities, to help us understand where the gaps are. The FDOT Transit and Seaport Offices are being included in these conversations.*
- Chris Doolin, SCC: Does FTP have sufficient policy to give direction re future development of air passenger and cargo routes, especially for small to mid-sized communities?
    - *The FTP and SIS Policy Plan both address this topic.*

A.3 Florida Department of Transportation (FDOT)

Two in-person meetings were scheduled during the Florida Aviation System Plan (FASP) 2035 update with representatives of various FDOT offices including the Systems Planning Office, the Office of Policy Planning, the Office of Freight, Logistics and Passenger Operations, and staff from each of the other modal offices (Seaport and Waterways, Transit, and Freight and Multimodal Operations. These meetings were used to coordinate efforts such as the FTP and SIS projects and studies and included discussions of timelines between the FASP and other statewide plan updates.

A.3.1 Meeting #1 – FDOT Modal Meeting – February 15, 2017

A.3.1.1 Presentation

Today's Flight Plan

- Introductions
- Role of ASO
- FASP Overview
  - Process
  - Goals
  - Deliverables
- Review of Other FDOT Plans
- Modal Plan Discussion
- Trends Discussion
- Round-Table Wrap-Up

FASP Florida Aviation System Plan 2035 | 2 | FDOT

ASO Role
Airports – Planning

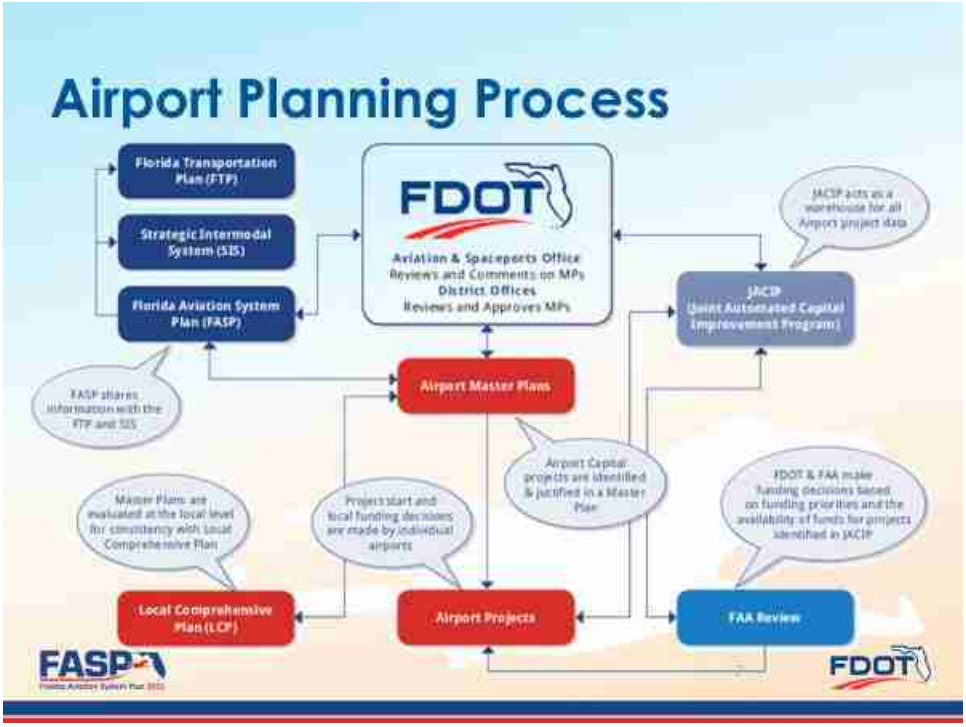
FASP Florida Aviation System Plan 2035 | 3 | FDOT

Florida's Public Use Airport System

ASO's Role in Aviation

- Provide support and resources to Florida's public-use airports
  - FASP, economic impact, aviation forecasts, land use, sustainability, and many more
- Airport inspections, licensing, and registration
- Provide information and outreach to state and federal agencies as well as local governments
- Liaison to the Districts on funding decisions
- ASO does not own any airports!

Florida Aviation
2014
MASTER PLANNING
Sustainability
AIR SERVICE STUDY
FLORIDA
2013
Airport Compatible Land Use
GENERAL AVIATION AIRPORT
STANDARD SPECIFICATIONS FOR CONSTRUCTION
FASP
FDOT


Airport Planning Process
Florida Transportation Plan (FTP)
Strategic Intermodal System (SIS)
Florida Aviation System Plan (FASP)
FDOT
Aviation & Spaceports Office
Reviews and Comments on MPs
District Offices
Reviews and Approves MPs
JACIP acts as a warehouse for all Airport project data
JACIP
(Joint Automated Capital Improvement Program)
FASP shares information with the FTP and SIS
Airport Master Plans
Airport Capital projects are identified & justified in a Master Plan
FDOT & FAA make funding decisions based on funding priorities and the availability of funds for projects identified in JACIP
Master Plans are evaluated at the local level for consistency with Local Comprehensive Plan
Project start and local funding decisions are made by individual airports
Local Comprehensive Plan (LCP)
Airport Projects
FAA Review
FASP
FDOT

Overview of The Florida Aviation System Plan

8

Why Develop the FASP?

- Develop a viable, balanced system through integrated planning
- Identify system needs (infrastructure, services, and facilities)
  - Locally, regionally, statewide, and nationally
- Develop performance measures and track them
- Examine interrelationships and interaction between airports
- Determine development needs to meet current and future demand

9

FASP Overview

PHASE 1

- State, Regional, and Local Airport Issues
- Goals, Objectives & Performance Measures
- Inventory
- Stratification Methodology Evaluation
- Regional and State Overviews
- Aviation Industry Trends
- Forecasts
- Demand/Capacity
- SSGAT Update

PHASE 2

- Data Collection (Additional)
- Existing System Evaluation (Baseline Performance Measurement)
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- Public Engagement Mechanism (CFASPP Website Update)
- Final Deliverables

MEETINGS/COORDINATION

FAA » FASP Review Team (FASPRT) » Comprehensive Review Team (CRT)
Other FDOT Representatives » MPOs

FASP | 10 | FDOT

Goals and Objectives

- Goals are widely used in FASP
  - Relate to ASO's mission
  - Relate Aviation to Florida Transportation Plan (FTP)
- Advisory committees previously contributed to development in Phase 1 through survey and prior meetings
- Emphasis on validating Performance Measures (PMs) and Performance Indicators (PIs) to allow for evaluation of ASO and Aviation Work Program

FASP | 11 | FDOT

Performance Measures and Indicators (PMs and PIs)

- **Provide another mechanism to evaluate ASO's achievement of goals**
- **More detailed look at system, not just projects**
- **In Phase 2, re-evaluated PMs and created PIs**
  - PM: Action could be taken by FDOT or airports to influence results
  - PI: Can't really be influenced but still important to track
  - Removed PMs that could not be measured or even reported
  - Also incorporated FDOT Mobility Performance Measures relative to Aviation as required in MAP-21

FASP Goals

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

FASP and FTP Goal Comparison

○ = Low relationship
◒ = Medium relationship
● = High relationship

		FASP						
		Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses,	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment	Support and enhance the position of leadership and prominence held by Florida's aviation	Protect airspace and promote compatible land uses around public airports	Foster techno-logical innovation and support	Promote support for aviation from business, government, and the public	Foster Florida's reputation as a military-friendly state
FTP	Safety and security for residents, visitors, and businesses	●	◒	○	●	●	◒	◒
FTP	Agile, resilient, and quality infrastructure	●	◒	○	◒	◒	●	◒
FTP	Efficient and reliable mobility for people and freight	●	◒	◒	○	◒	◒	◒
FTP	More transportation choices for people and freight	◒	●	◒	○	◒	◒	○
FTP	Transportation solutions that support Florida's global economic competitiveness	◒	●	●	○	◒	◒	○
FTP	Transportation solutions that support quality places to live, learn, work, and play	◒	●	◒	◒	◒	◒	◒
FTP	Transportation solutions that enhance Florida's environment and conserve energy	◒	●	◒	◒	◒	○	○

FASP Deliverables

- **Final Technical Report**
- **Executive Summary**
  - Short Version
  - Long Version
- **Five Videos**
  - Each 30-60 seconds long
  - Each highlighting a different facet of Florida aviation (cargo, flight training, air service, etc.)
- **Brochures by District and CFASPP region**
- **Executive Summary Primers – What does the FASP mean to you and how should you use it?**
  - Legislative/elective officials
  - Airport management and consultants
  - General public audience
  - FDOT (ASO, District, other offices)

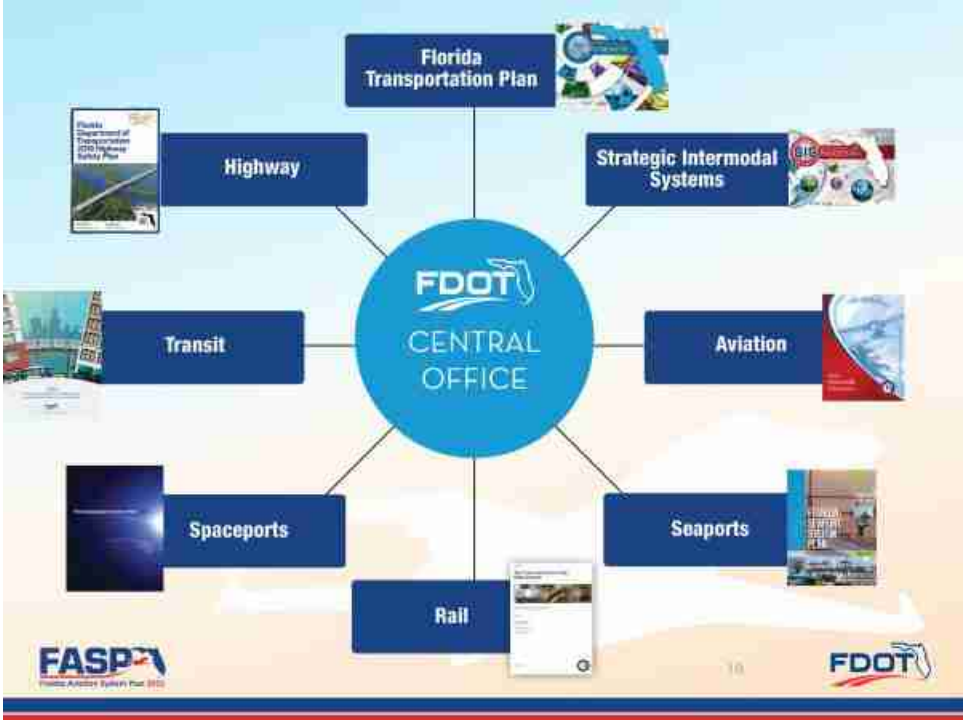
Review of Other FDOT Plans

16

FDOT Offices and Plans (individual slides for each mode to be developed by Cambridge)

- Florida Transportation Plan
- Strategic Intermodal System Policy Plan
- Highways
  - Strategic Highway Safety Plan
  - SIS Highway Component
- Aviation
  - Florida Aviation System Plan
- Seaports
  - Florida Seaport and Waterway System Plan
- Rail and Motor Carrier
  - Florida Rail System Plan
  - Motor Carrier System Plan (under development)
- Spaceports
  - Spaceport System Plan
- Transit
- Bicycle and Pedestrian Programs and Plans

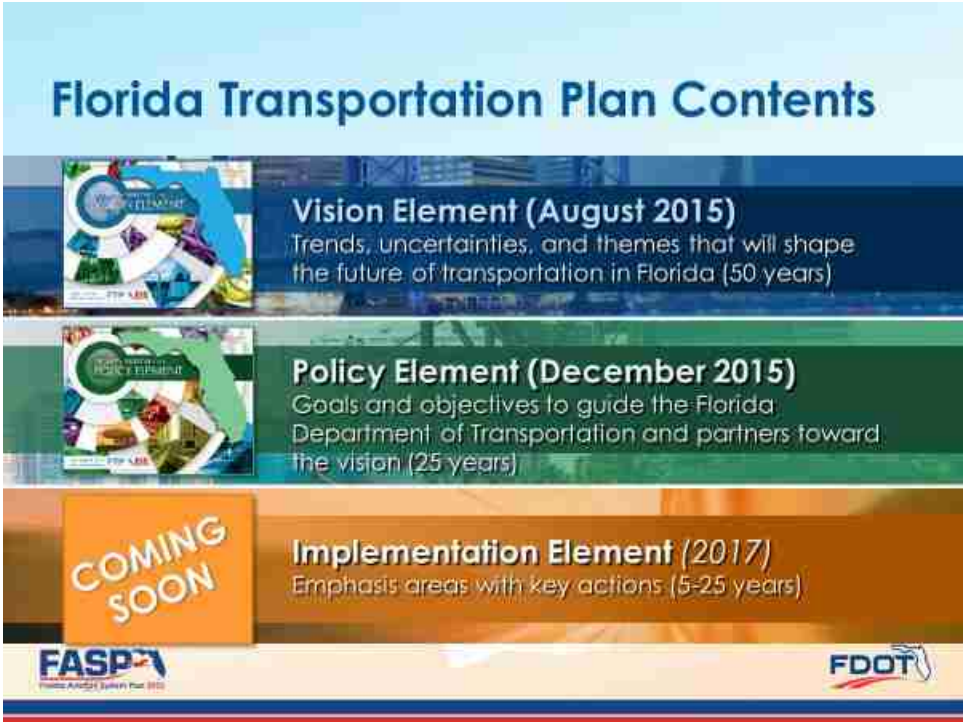
17



Modal Plan Discussion

How can the planning efforts of each modal office be better aligned/coordinated?

What does the FASP)or ASO) need to consider from your perspective?


Florida Transportation Plan Contents
Vision Element (August 2015)
Trends, uncertainties, and themes that will shape the future of transportation in Florida (50 years)
Policy Element (December 2015)
Goals and objectives to guide the Florida Department of Transportation and partners toward the vision (25 years)
COMING SOON
Implementation Element (2017)
Emphasis areas with key actions (5-25 years)
FASP
FDOT

FTP Goals
Safety and Security for residents, visitors, businesses
Transportation solutions that support Florida's global Economic Competitiveness
Agile, Resilient, and Quality transportation infrastructure
Transportation solutions that support Quality Places to live, learn, work, and play
Efficient and Reliable Mobility for people and freight
Transportation solutions that enhance Florida's Environment and Conserve Energy
More Transportation Choices for people and freight
FASP
FDOT

FDOT
SIS
STRATEGIC INTERMODAL SYSTEM
POLICY PLAN
FTP
SIS
MARCH 2016
FloridaTransportationPlan.com

New Emphasis Areas of the SIS Policy Plan
Statewide and Regional Economic Development Opportunities
Freight Mobility and Trade Development
Innovation and Technology
Modal and System Connectivity
Coordination with Regional and Local Transportation and Land Use Decisions
FASP
FDOT

Relationships to Aviation

Safety *and* **Security** *for residents, visitors, businesses*

- Balance security and mobility needs for people and cargo

Agile, Resilient, *and* **Quality** *infrastructure*

- Provide quality experience for visitors
- Adapt new technologies
- Ensure resiliency to extreme weather events and other risks

Relationships to Aviation

Efficient and Reliable Mobility
for people and freight

- Enhance intrastate air service and direct service to key markets

More Transportation Choices
for people and freight

- Improve connections between airports and other modes

Relationships to Aviation

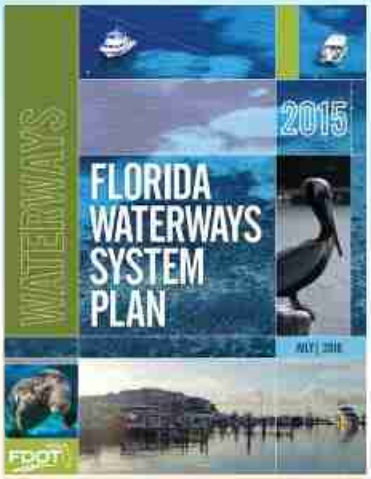
Transportation solutions that support Florida's global
Economic Competitiveness

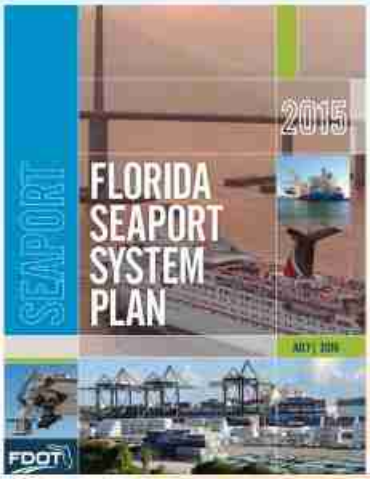
- Support aviation-dependent industry clusters
- Support continued growth in air cargo and visitor travel

Transportation solutions that support
Quality Places
to live, learn, work, and play

- Enhance compatibility of airports with surrounding land uses

Florida Seaport and Waterway System Plans



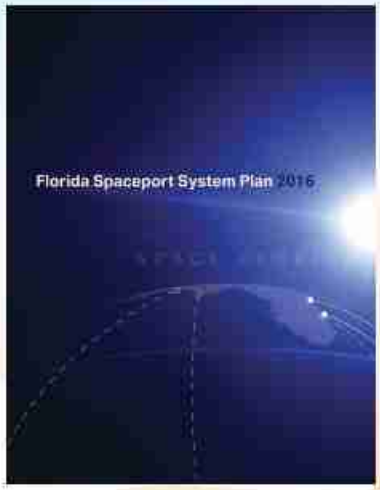


Florida Rail System Plan

- 15 freight railroads
  - 3 major carriers (CSX Transportation, Norfolk Southern Railway, and Florida East Coast Railway)
  - 12 short lines or local, switching and terminal railroads
- 3 Amtrak intercity services
- 2 commuter railroads (Tri-Rail & SunRail)
- 4 tourist railroads

Florida Spaceport System Plan

- Space is considered a mode of transportation in Florida
- Satellites are critical for:
  - GPS and mapping
  - Weather forecasting and observation
  - Communications and information, including traffic monitoring
  - Safety and security, including traffic control
  - Playing Pokémon Go!

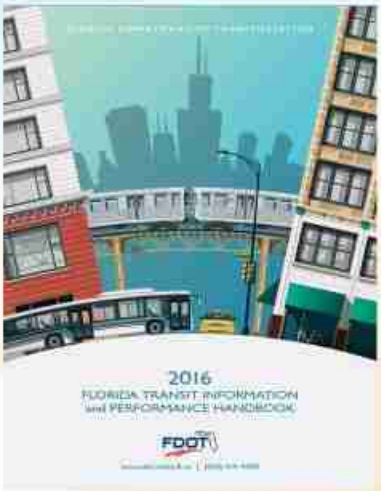


Florida Motor Carrier System Plan

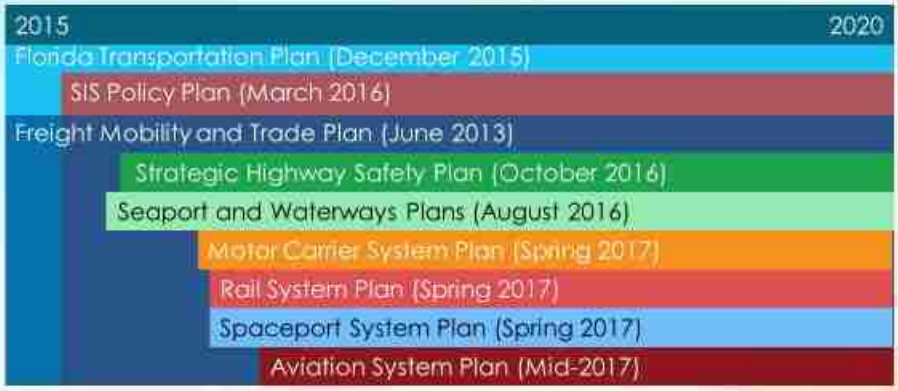
- New FDOT Modal System Plan
- FDOT's historical approach has been asset protection and safety
- Next Step: Identify and address key issues

Transit

- 31 fixed-route systems (that report to the National Transit Database)
- 5 rail systems
- Provide critical connections for those arriving via air
- 15 commercial service airports have direct transit connections



Alignment with Other Statewide Plans



Trends Discussion

33

Modal Trends

- Trends affecting your mode/office?
- Obstacles to development or growth?
- Best practices for consideration?

- Examples
  - Technology and automation
    - UAS/Drones or automated vehicles
  - Passenger and cargo flows – from and to where?
  - Capital investment funding and programming
  - Performance measurement
  - Data needs
  - Any others?

34

Round-Table Wrap-Up

35

Next Steps and Takeaways

- Continue FASP study analysis
- Follow-up group meeting in Spring
- Consideration of timelines between studies
- Integration of Aviation with other modal planning

FASP

36

FDOT

Thank You

FASP

37

FDOT

A.3.1.2 Meeting Summary

On February 15, 2017, a meeting was held for the Florida Aviation System Plan (FASP) with representatives of the modal offices within FDOT's Office of Freight, Logistics, and Passenger Operations, as well as the Office of Policy Planning and the Systems Planning Office. This meeting was held to get an understanding of how each of the offices can work together to develop cohesive system planning documents that are consistent with the Florida Transportation Plan (FTP) and the Strategic Intermodal System (SIS), provide input on a range of issues related to the FASP, and to identify potential partnerships, sources of solutions or best management practices, and opportunities for increased coordination as it relates to the FASP. Below is a summary of this meeting.

Attendees

- Ed Coven – FDOT Transit Office
- Todd Cox – FDOT Aviation and Spaceports Office
- Tom Duncan – FDOT Aviation and Spaceports Office
- Bob Emerson – FDOT Seaport and Waterways Office
- Annette Lapkowski – FDOT Strategic Development Finance
- Carmen Monroy – FDOT Office of Policy Planning
- Holly Munroe – FDOT Rail and Motor Carrier Operations Office
- Diane Quigley – FDOT Transit Office
- Dana Reiding – FDOT Office of Policy Planning
- Huiwei Shen – FDOT Systems Planning Office
- Alexandria Washington – FDOT Intern

Meeting Summary

Introductions

The presentation began with an introduction of the FDOT Aviation and Spaceports Office (ASO) that highlighted how the aviation industry is important to Florida. Before starting the formal presentation, attendees were asked to provide their thoughts on what the FASP should be looking at regarding multi-modal coordination at the statewide level. The following thoughts were provided:

- The FASP should include information on the direct economic benefits of different airline service, specifically, direct airline service. An example was given of the increase in home purchases when an airport provided direct connections to Germany.
- The FASP should be looking at safe and secure connections to airports on the roadway system. It was noted that there is a lot of travel that occurs between where someone begins their trip and when they get to the airport, so ensuring that those connections are safe is important.
- The FASP should be looking at how connections are provided. It is more than just physically connecting different modes, it is about streamlining the payment options, timing, and ease of connections.

Modal Coordination

Following a presentation by Kimley-Horn, a group discussion was facilitated to get a better understanding of how the various modes within FDOT coordinate with stakeholders that are important to their mode. The following summarizes this discussion.

- A member of the Seaports Office noted that when they were developing their system plan, they went to all the major seaports in the state and held in-person meetings with staff, tenants, and interested parties to ensure that they understood the issues that were important to them.
    - FDOT ASO noted that the FASP has a significant outreach process, but that coordinating directly with airlines was beyond the scope of what FDOT ASO can and should be doing.
- The Rail and Motor Carrier Operations Office indicated that because there are so many potential users, they depend on surveys to understand what is happening.
- One attendee noted that technology is changing so quickly and we need to make sure that we are planning appropriately and that what we develop is not out of date instantly.
- One attendee pointed out that having regular contact with the District ISD coordinators would be a great way to stay coordinated in different modal offices.
- It was noted that current inefficiencies are huge for economic development (ex: air travel unreliability causes hotel nights). If the system becomes too reliable, then we may lose something on the economic side.

Trends Discussion

Following the presentation, an interactive exercise was held where attendees had the opportunity to provide comments on three display boards that each had a question related to modal coordination. These questions were:

1. How does aviation influence or interact with your mode?
2. What are some aspects, considerations, or trends of your mode of which aviation should be aware?
3. What is a way to increase intermodal coordination at the local, regional, and statewide levels?

Summaries of the input received on these boards is provided at the end of this document.

Following this exercise, a discussion on the trends that may impact different modes of transportation was discussed. The following is a summary of the discussion:

Highway – The trend of getting everyone to accept the changes to the highway system was discussed. Technology changes are only useful once they have crossed a "tipping point," meaning enough users must be on board and using the technology for it to be effective. The rate of adoption for new technologies greatly influences the success of those technologies over time.

Transit – Some large hub airports are looking for a system like the Miami Intermodal Center (MIC) to support multi-modalism at airports. In many instances, single fare payment systems are also

being evaluated. There was also a discussion on how information and tools are provided to potential users. If an app exists that provides information on using a transit system, it's only useful if people know it is there and can download it easily.

Seaports – Both passenger and freight ships are increasing in size, placing increasing stress on the infrastructure at ports.

Spaceports – It was noted that the reduction of cost of entry into the space industry has caused a large influx of vendors to the market. Additionally, the payloads (satellites) are becoming much cheaper, more efficient, and more durable. Also, the impact of the private industry has been huge. Commercial spaceflight gets all the headlines, but it is the day-to-day activity that keeps the industry going.

Freight – The need for streamlined connections between freight modes was discussed. Also, the lack of space for on-airport development and needed infrastructure to accommodate certain aircraft.

Board 1 - How Does Aviation influence or interact with your mode?

Highways - Access for all vehicles, including passenger, transit, and freight

- Recreational Trails

Transit – Connections to/from airport

- People who don't otherwise use transit, tend to use it to the airport. No parking.
- Intermodal centers at airports such as MCO/TPA/MIA
- Airports are both a major attraction and a major generator for transit. Tourists and travelers from Europe expect to be able to travel by transit once they land.

Freight – Connections to truck, rail, and seaport facilities

- Intermodal Logistic Centers
- Foreign Trade Zones

Seaports – Direct cargo, freight, and passenger connections

- Cargo/Passengers moving directly to/from ships/planes
- Efficient use of airspace is evolving with more launch and landing vehicles

Spaceports – Shared facilities and airspace

- Both are regulated by FAA
- Efficient use of airspace is evolving with more agencies entering the market

Board 2 - What are some aspects, considerations, or trends of your mode of which aviation should be aware?

Highway

- Trends
  - Adoption rates and timing of implementation
  - Autonomous, connected vehicles
- Relationship to Aviation
  - Connection and holding facilities at airports, parking revenues, Uber-style ride sharing
  - Congested connectors
  - Driver/industry shortage
  - Aging/retiring pilots
  - Promote careers in industry
  - Self-driving cars that will not need to park at an airport

Transit

- Trends
  - Seamless pedestrian connections
  - Increase in bus rapid transport (BRT), pre-pay boarding, real time location tracking
- Relationship to Aviation
  - Increased access to airports, integration of transit into the airport environment
  - Transit focus on intermodal connections
    - Examples include the MIC with Metrorail, TriRail, and Greyhound. Orlando's new south terminal will have four rail connections and bus, as well. The Wave Streetcar in Ft. Lauderdale will be extended to Ft. Lauderdale/Hollywood International. Tampa International Airport's new people mover will be extended to Westshore to connect with future transit.

Rail

- Trends
  - Unit trains transloading alternative fuels and yard automation
  - Seamless pedestrian connections
- Relationship to Aviation
  - Providing direct access to the airport
  - Upgrading to 286K capable shortlines to connect to Class I and II RRs
  - Last mile/intermodal connections
  - Quiet zones-safety and similar noise concerns as airports
  - Increasing use of intermodal containers and double-stacked
  - Technology implementation challenges. PTC=rail and NextGen=air

Seaports

- Trends
  - Deep dredge, increasing numbers of cruise passengers and emissions control
- Relationship to the Airport
  - Infrastructure for the arrival of larger shipping containers. Providing direct connections between airports and seaports
  - Linked journeys by people and cargo
  - Direct automated connections – grade separated
  - Air→Sea for cruise

Spaceports

- Trends
  - Privatization and commercialization of space travel
  - Increasing dependency on satellites
- Relationship to Aviation
  - Sharing infrastructure and airspace
  - Commercial launch providers
  - Need for consistent federal regulations

Freight

- Trends
  - Increasing demand from online shopping and integration of freight modes
- Relationship to Aviation
  - Providing efficient connections and facilities for freight movement
  - Truck parking availability and air cargo supporting infrastructure (insurance, customs, finance, etc.)
  - Who funds?
  - Freight design considerations and connections to complete streets efforts
  - Compatible land uses

Board 3 - What is a way to increase intermodal coordination at the local, regional, and statewide levels?

- Transit Development Plans by local agencies should address airport connections. Airport plans should accommodate transit access, including fixed guideway facilities if appropriate. A conflict for airports is potential loss of parking and cab/bus access revenues.
- SWAT-Type – focused, cross-functional teams with modal offices included.
- Integrated staff that serves as a communication conduit.
- Recurring agenda item at the quarterly ISD Managers Meeting.

A.3.1.3 Multimodal Trends and Issues Survey Responses

Introduction

The Florida Aviation System Plan (FASP) team surveyed members of various offices within the Florida Department of Transportation who previously participated in a FASP workshop to understand key trends and issues affecting the different modes of transportation in the state. The survey was conducted online in late February and early March of 2017, after the February 15th workshop. This memo summarizes the results of that survey as of mid-March, 2017.

Respondents

Table 1 lists the survey respondents. Additionally, as part of the FASP, the project team has been collecting responses to the question "Florida aviation system is _____?" to better understand how stakeholders view the system. To apply this theme to the modal offices that participated in the project workshop and survey, this question was included in the survey. **Table 1** provides the responses received from each participant.

Table 1. FDOT Modal Issues and Trends Survey Respondents

Name	FDOT Office/Mode	Florida's transportation system is ___?
Rickey Fitzgerald	Rail and Freight	Connected
Robert Emerson	Seaports	Very robust
Andy Keith	Aviation and Spaceports Office	The best, bar none!
Dana Reiding	All	
Tom Duncan	Spaceports	Robust and complex
Jim Halley, ASO	Aviation	Connected

Trends and Issues

The survey assessed how 13 key issues and trends are expected to positively and negatively impact Florida's different modes of travel. Because these trends and issues may simultaneously have pros and cons, respondents were asked to independently rank the positive and negative effects. The results of this study are presented by trend or issue below.

Table 2 in the following section summarizes the results as the average score received, with 0 representing no impact and 5 representing high impact. Additionally, respondents were asked to provide the timeframe in which they anticipate the trend/issue will affect their mode. These timeframes are shown in **Figure 1**. Timeframe categories include immediate (0 – 1 year); short-term (1 – 5 years); mid-term (5 – 10 years); and long-term (10+ years). Please note that all respondents did not provide answers to all questions.

Aging Population

As the population ages, they become less mobile and may require assistance when travelling. Accommodating these needs will be closely tied to their ability to use a service.

Responses

Three respondents indicated that an aging population would have a positive impact on their mode, with an average impact of 2.7. Conversely, three respondents noted that an aging population would have a negative impact, with an average score of 1.7. Of these respondents, two noted that the timeframe within which the issue would affect their mode was immediate, while one anticipated that it would be in the mid-term. Additional comments received pertaining to this issue included:

- Spaceports facilitate launching satellites. Satellites are used for communication and data, which serves the older population in many ways.
- Cruise demand should increase with an aging, less-mobile population

Autonomous Vehicles (Ground-Based or Unmanned Aerial Systems [UAS])

Autonomous vehicles (both aerial and ground-based) consist of vehicles that do not require a person in them to control them. This technology will impact not only how each mode of transportation operates independently, but also how they interact with each other.

Responses

Two respondents indicated that autonomous vehicles would have a positive impact on their mode, with an average impact of 3.5. Conversely, three respondents noted that autonomous vehicles would have a negative impact, with an average score of 1.0. One respondent noted that the timeframe within which the issue would affect their mode was immediate, one reported the timeframe to be short-term, and one reported the timeframe. Additional comments received pertaining to this issue included:

- Satellites will help make these systems operational.
- Moderate impact on seaport operations (terminal and drayage equipment). Potential negative impact with regard to labor issues.

Competition for Space Operations

Space operations not only represent the potential for commercial spaceflight; they are critical to supporting common applications such as GPS and telecommunications. Additionally, freight and cargo connections to spaceports may also be important to consider in the context of providing facilities that are able to accommodate such activity. As competition increases and new agencies enter the market, ensuring that we can accommodate their needs will help to retain and grow this industry in Florida.

Responses

Three respondents indicated that competition for space operations would have a positive impact on their mode, with an average impact of 4.7. These three respondents noted that competition for space operations would not have a negative impact, with an average score of 0.0. Of these respondents, two noted that the timeframe within which the issue would affect their mode was immediate, while one anticipated that it would be in the mid-term. The additional comment received pertaining to this issue included:

- Proximity of Port Canaveral (and other Florida ports) to space facilities is a strong positive supporting for Florida's seaports' participation in space-related activities. It is already happening at Port Canaveral.

Customs and Immigration

Customs and immigration agencies are responsible for the safe and efficient flow of people across our borders. Regulatory changes, staff shortages, and funding shortfalls all have the potential to have a significant impact on the transportation industry.

Responses

Three respondents indicated that customs and immigration would have a positive impact on their mode, with an average impact of 2.7. Conversely, these three respondents noted that customs and immigration would have a negative impact, with an average score of 1.7. Of these respondents, two noted that the timeframe within which the issue would affect their mode was immediate, while one anticipated that it would be in the short-term. The additional comment received pertaining to this issue included:

- Potential impact is just one major incident away. As long as there are no major incidents, concerns about the flow of commerce will tend to balance safety concerns. Once there is a major incident this could be a significant issue.

Electric and/or Alternative Fuel Vehicles

Alternatively fueled vehicles have the potential to have a positive impact in manufacturing sectors and on the environment, as well as varying impacts to different modes of transportation. Implications such as the loss of tax revenue have the potential to significantly alter the transportation industry.

Responses

Two respondents indicated that electric and/or alternative fuel vehicles would have a positive impact on their mode, with an average impact of 3.5. Conversely, these two respondents noted that electric and/or alternative fuel vehicles would have a negative impact, with an average score of 4.0. These respondents both noted that the timeframe within which the issue would affect their mode was in the mid-term. The additional comment received pertaining to this issue included:

- Not sure if large cargo/cruise vessel fuels are taxed. If so, and if LNG would be taxed differently, then there might be an impact to revenues.

Stability of Oil Industry / Prices

As oil prices fluctuate, individuals change their travel habits based on their needs. Additionally, if industries cannot predict oil prices, they are unable to set prices and predict revenues, causing instability in the services they provide.

Responses

Two respondents indicated that the stability of oil industry and prices would have a positive impact on their mode, with an average impact of 2.5. Conversely, two respondents noted that the stability of the oil industry and prices would have a negative impact, with an average score of 3.0. Of these respondents, two noted that the timeframe within which the issue would affect their mode was in the short-term. The additional comment received pertaining to this issue included:

- Falling prices creates more consumption that creates more volumes of commodities transiting the seaports and cheaper cruise fares. The opposite is true for increasing prices.

Opening of Cuba Market

The opening of the Cuba market represents a unique opportunity for many modes of transportation. Aside from the obvious potential for the airline and cruise industry, the Cuba market may also present opportunities for freight and cargo, as well as private, specialized transportation services.

Responses

Three respondents indicated that the opening of the Cuba market would have a positive impact on their mode, with an average impact of 2.3. Conversely, two respondents noted that the opening of the Cuba market would have a negative impact, with an average score of 1.5. These two respondents noted that the timeframe within which the issue would affect their mode was in the short-term. The additional comment received pertaining to this issue included:

- Increasing passenger and cargo trade to and from the U.S. to Cuba could potentially increase the opportunities for several Florida ports large and small.

Domestic and International Terror Threats

Due to terrorism fears, all modes of transportation must ensure that they are protecting the safety of users. While the needs of each mode of transportation differ, having systems to prevent and respond to acts of terror is important to the overall transportation industry.

Responses

Two respondents indicated that domestic and international terror threats would have a positive impact on their mode, with an average impact of 3.0. Conversely, two respondents noted that

domestic and international terror threats would have a negative impact, with an average score of 3.5. Of these respondents, one noted that the timeframe within which the issue would affect their mode was immediate, while one anticipated that it would be in the short-term. The additional comment received pertaining to this issue included:

- See answer to question 7.

Regulatory Stability (State and Federal)

As regulations change, industries must react to accommodate them. For all modes of transportation, being able to do this quickly and with continued operational efficiency is important.

Responses

Two respondents indicated that regulatory stability would have a positive impact on their mode, with an average impact of 2.0. Conversely, two respondents noted that regulatory stability would have a negative impact, with an average score of 3.5. Of these respondents, one noted that the timeframe within which the issue would affect their mode was short-term, while one anticipated that it would be in the long-term. The additional comment received pertaining to this issue included:

- Regulatory requirements are just as important as stability. Improving regulations is better than leaving them alone, but constantly changing regulations is not good.

Reliance on Tourism

Since tourism plays such a large role in Florida's economy, even small changes can have drastic impacts. How different modes are able to serve this industry and accommodate any shifts in activity is critical for all modes of transportation in Florida.

Responses

Two respondents indicated that reliance on tourism would have a positive impact on their mode, with an average impact of 4.5. Conversely, two respondents noted that reliance on tourism would have a negative impact, with an average score of 1.0. These two respondents noted that the timeframe within which the issue would affect their mode was immediate. The additional comment received pertaining to this issue included:

- The cruise industry is tourism. Accommodating growth has involved and is likely to continue to involve cooperative efforts and investments by seaports and the private cruise industry.

Resiliency

Resiliency is most commonly linked with responses to extreme weather events and acts of terror. The resiliency of transportation modes is essential to evacuation and enabling access for

responders and each mode should plan and develop their system to be able to remain operational after such an event.

Responses

Two respondents indicated that resiliency would have a positive impact on their mode, with an average impact of 2.0. Conversely, two respondents noted that resiliency would have a negative impact, with an average score of 3.5. These two respondents noted that the timeframe within which the issue would affect their mode was immediate. The additional comments received pertaining to this issue included:

- The relatively high number of Florida seaports creates a good deal of resiliency in the case of any disruption or damage to one or more Florida seaports. We are very strong in this regard.

Availability of Trained Technical Workforce

The availability of a well-trained, technical workforce is important for all modes of transportation. This includes the vehicle operators and those that maintain the complex vehicles and systems as well as those individuals tasked with the management and development of each mode's facilities. Changes to the availability of these workers could have impacts on the ability to develop and maintain infrastructure or result in a change in the modal operation.

Responses

Two respondents indicated that the availability of a trained technical workforce would have a positive impact on their mode, with an average impact of 4.0. Conversely, two respondents noted that a trained technical workforce would have a negative impact, with an average score of 3.5. Both respondents noted that the timeframe within which the issue would affect their mode was in the short-term. The additional comment received pertaining to this issue included:

- Programs and institutions are beginning to create programs specifically aimed at the seaport, maritime, and logistics industries. These trends are positive.

Sustainability

Sustainability is not limited to environmental concerns; rather, sustainability should be considered across four categories: Economic Viability, Operational Efficiency, Natural Resource Conservation, and Social Responsibility. Across these categories, sustainability seeks to find cost savings in everyday functions as well as effectively record and report the information to help improve the financial bottom line of an agency.

Responses

Two respondents indicated that sustainability would have a positive impact on their mode, with an average impact of 4.5. Conversely, two respondents noted that sustainability would have a negative impact, with an average score of 1.0. Of these respondents, two noted that the timeframe within which the issue would affect their mode was immediate, while one anticipated

that it would be in the short-term. The additional comment received pertaining to this issue included:

- Florida's major seaports are very sustainable. Some of our more minor ports have economic sustainability issues.

Summary of Responses

The following section summarizes survey questions and respondents' answers.

Positive and Negative Trends and Issues

Table 2 provides a summary of how each trend and issue is expected to positively and negatively impact Florida's modes of travel.

Table 2. Positive Impacts by Trend

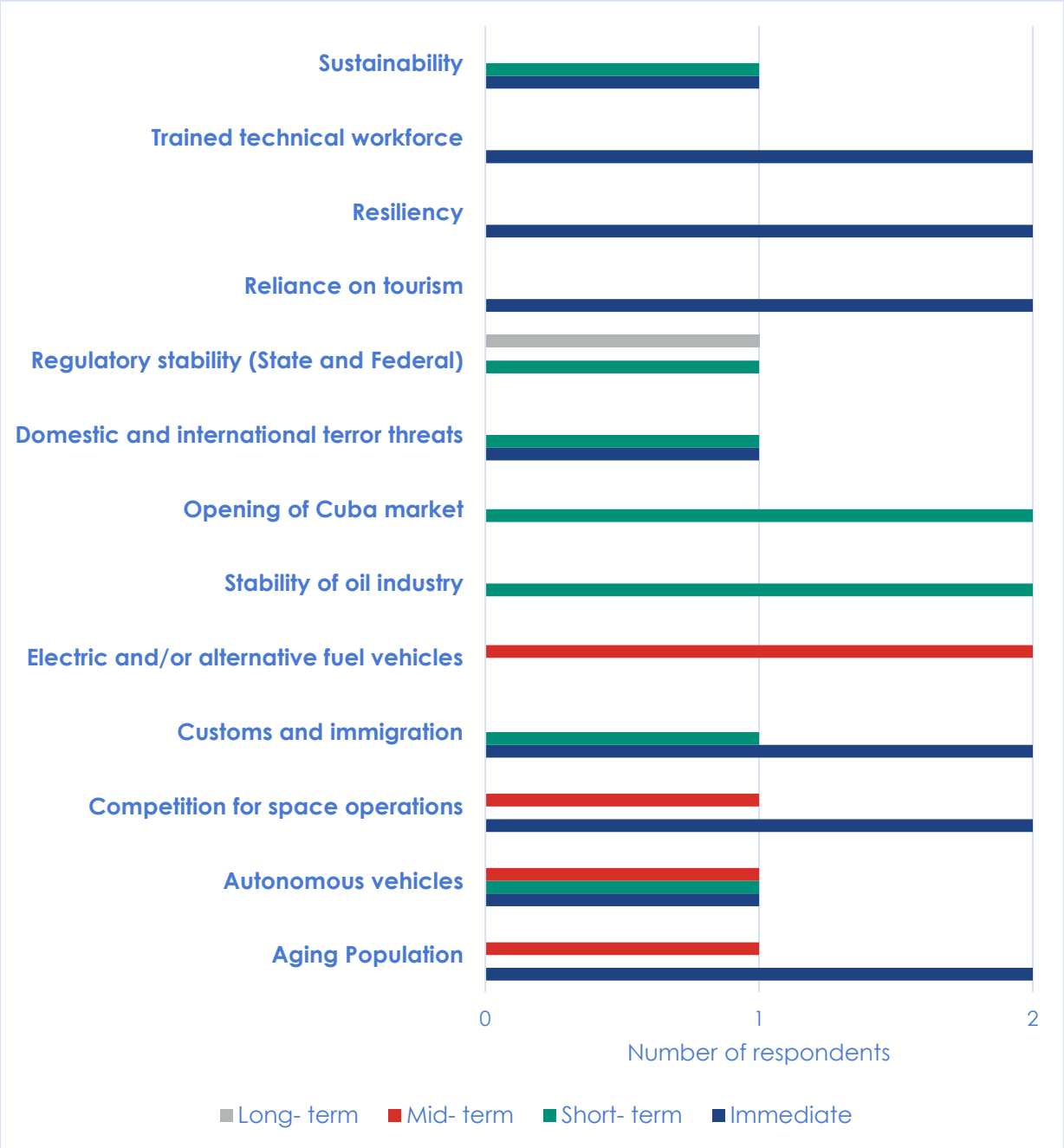
Issue or Trend	Positive		Negative	
	No. of Responses	Average Score	No. of Responses	Average Score
Aging Population	3	2.7	3	1.7
Autonomous vehicles	2	3.5	3	1.0
Competition for space operations	3	4.7	3	0.0
Customs and immigration	3	2.7	3	1.7
Electric and/or alternative fuel vehicles	2	3.5	2	4.0
Stability of oil industry	2	2.5	2	3.0
Opening of Cuba market	3	2.3	2	1.5
Domestic and international terror threats	2	3.0	2	3.5
Regulatory stability (State and Federal)	2	2.0	2	3.5
Reliance on tourism	2	4.5	2	1.0
Resiliency	2	2.0	2	3.5
Availability of trained technical workforce	2	4.0	2	3.5
Sustainability	2	4.5	2	1.0

Note: Zero represents no impact and five represents high impact.

Timeframe of Impacts

Figure 1. Term of Impact reports the timeframe in which the respondents indicated each trend and issue is anticipated to most acutely affect Florida's modes of travel.

Figure 1. Term of Impact

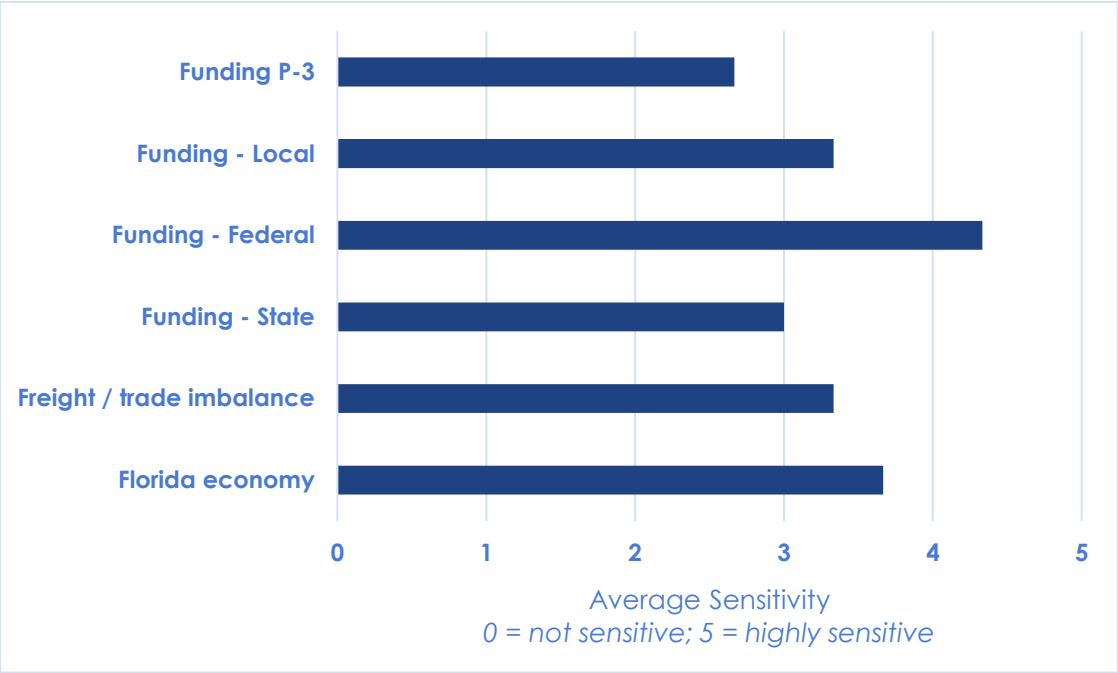


Note: Impact timeframes are defined as follows: Immediate (0 – 1 year); short-term (1 – 5 years); mid-term (5 – 10 years); and long-term (10+ years).

Sensitivity to Issues

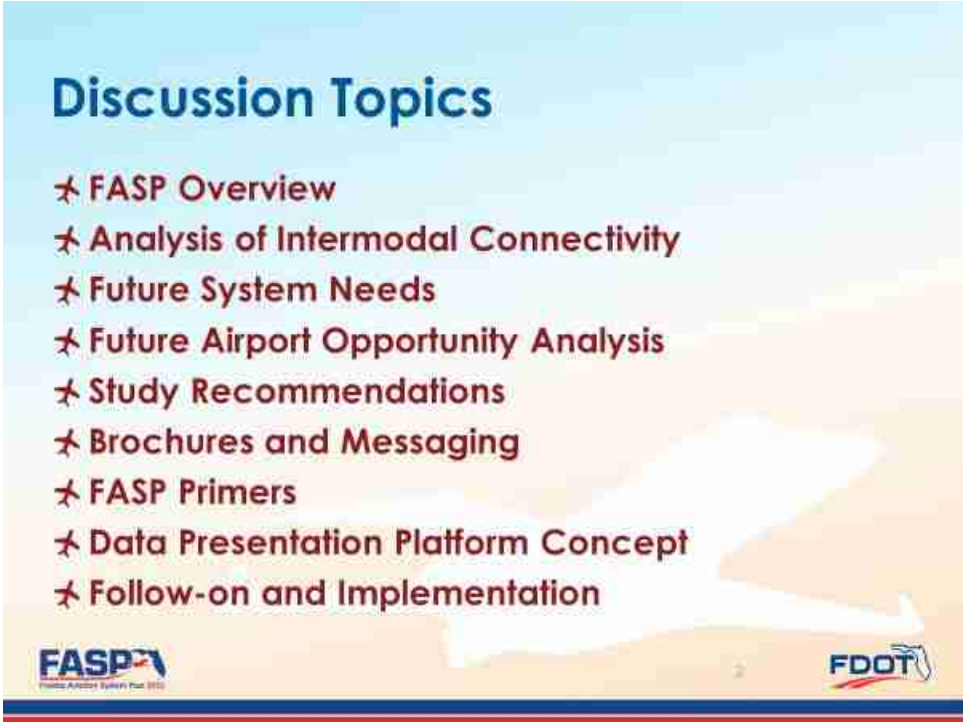
Figure 2. Sensitivity to Trends and Issues depicts the average sensitivity of Florida's modes of travel to key issues facing the state. A total of three responses were received for this question.

Figure 2. Sensitivity to Trends and Issues



A.3.2 Meeting #2 – Strategic Development Coordination Meeting – June 28, 2017

A.3.2.1 Presentation



Highway
Freight
Strategic Intermodal System
Florida Transportation Plan
FDOT
CENTRAL OFFICE
Transit
Aviation
Spaceports
Seaports
Rail and Motor Carrier
FASP
FDOT

Alignment with Other Statewide Plans
2015
2020
Florida Transportation Plan (December 2015)
SIS Policy Plan (March 2016)
Freight Mobility and Trade Plan (June 2013)
Strategic Highway Safety Plan (October 2016)
Seaport and Waterways Plans (August 2016)
Motor Carrier System Plan (Spring 2017)
Rail System Plan (Spring 2017)
Spaceport System Plan (Spring 2017)
Aviation System Plan (Mid-2017)
FASP
FDOT

FASP

Florida Aviation System Plan 2035

Project Overview

FASP Overview - Phases

PHASE 1

- State, Regional, and Local Airport Issues
- Goals, Objectives & Performance Measures
- Inventory
- Stratification Methodology Evaluation
- Regional and State Overviews
- Aviation Industry Trends
- Forecasts
- Demand/Capacity
- SSGAT Update

PHASE 2

- Data Collection (Additional)
- Existing System Evaluation (Baseline Performance Measurement)
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- Public Engagement Mechanism (CFASPP Website Update)
- Final Deliverables

MEETINGS/COORDINATION

FAA » FASP Review Team (FASPRT) » Comprehensive Review Team (CRT)
Other FDOT Representatives » MPOs

FASP FDOT

FASP Goals

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

FASP Florida Aviation System Plan 2035

Analysis of Intermodal Connectivity

Transit Access

- 13 out of 20 SIS airports have direct bus service
  - 1 out of 2 GA SIS airports
  - 12 out of 18 SIS commercial service airports

FDOT District	Number of Airports with Rental Car Service	Percent of Total Airports Within the District
1	18	64.3%
2	13	72.2%
3	14	70.0%
4	12	70.6%
5	17	68.0%
6	7	100.0%
7	12	92.3%
Total	93	72.7%

FDOT District	Number of Airports with Courtesy Car Services	Percent of Total Airports Within the District
1	9	32.1%
2	7	38.9%
3	3	15.0%
4	0	0.0%
5	5	20.0%
6	1	14.3%
7	5	38.5%
Total	30	23.4%

Connections to SIS Airports

Intermodal Service

Intermodal Service	Number of SIS Airports Where Service is Provided	Percent of Total
Rental Car Service	20	100%
Bus Transit	13	65%
Passenger Rail	2	10%

Highway Connections

Number of Lanes	Number of Roadways
2-3	3
4-5	12
6 +	14
Total	29

FASP Florida Aviation System Plan 2035

13

FDOT

FASP Florida Aviation System Plan 2035

Review of SIS-Funded Projects

14

Overview of Strategic Intermodal System (SIS) Funding

- Evaluated previous (FY 13-17) and next (FY 18-22) 5 years of SIS funding
  - Project type
  - Airport
  - FDOT District
- Evaluated non-aviation SIS projects (FY 17-21)
  - Within 1 mile of airports
  - Within 5 miles of airports
- Case studies at MIA and ECP

SIS Funding

- Evaluation of funds based on project type, FDOT District, and Airport

SIS Funds by Airport

Airport	Amount	Percent
Tampa International	$ 178,811,500	54%
Orlando International	$ 90,214,577	27%
Ft. Lauderdale/Hollywood International	$ 27,774,889	8%
Melbourne International	$ 23,500,000	7%
Pensacola International	$ 8,531,546	3%
Palm Beach International	$ 1,000,000	0.3%
Destin-Ft. Walton Beach	$ 39,191	0.01%
Total:	$ 329,871,703	100%

SIS Funds by Project Type

Project Type	Amount	Percent
Automated People Mover	$ 156,500,000	47%
Terminal	$ 90,612,200	28%
Runway	$ 27,774,889	8%
Aviation Manufacturing	$ 22,000,000	7%
Taxiway	$ 8,799,300	3%
Access Road	$ 7,553,768	2%
Air Commerce Park	$ 7,000,000	2%
Terminal Shuttle Cars	$ 5,400,000	2%
Cargo Facility	$ 3,031,546	1%
Apron	$ 1,000,000	0.3%
Total:	$ 329,871,703	100%

SIS Funds by FDOT District

FDOT District	Amount	Percent
District 7	$ 178,811,500	54%
District 5	$ 113,714,577	34%
District 4	$ 28,774,889	9%
District 3	$ 8,570,737	3%
Total:	$ 329,871,703	100%

SIS Case Studies

- **Northwest FL Beaches**
  - SIS funds used to keep project ahead of schedule
  - Allowed for a 1,600 ft. runway extension
    - Resulted in an expansion of service offerings
    - Resulted in increased passengers
    - Resulted in increased tourism and economic development opportunities
    - Improved community perception
- **Miami Intermodal Center**
  - SIS funds used for ROW and site development
  - Allowed for streamlined construction
    - Provides increased transportation options
    - Reduced congestion in and around airport
    - Encouraged tourism
    - Encouraged job creation and economic development

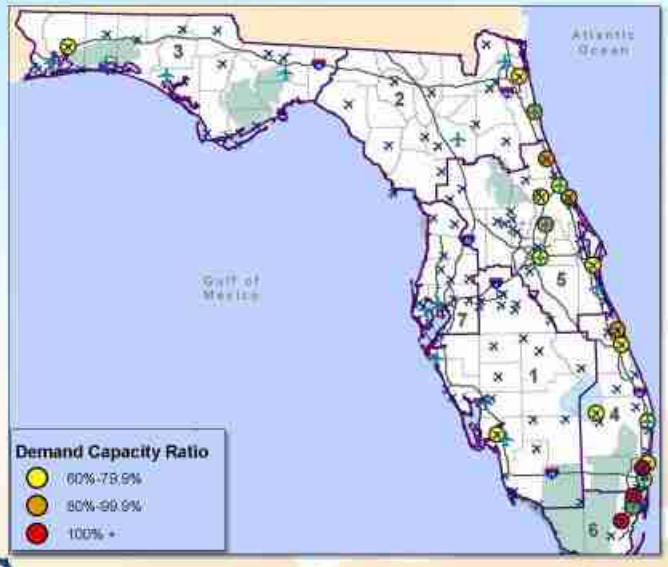
FASP Florida Aviation System Plan 2035

Future System Needs

Future System Needs-Forecasts

- FDOT has forecasting tool that is being updated
- Activity indicators forecasted include:
  - Based Aircraft
  - Operations
- Forecasts are important to determine any capacity needs

Future System Needs-Capacity



Future System Needs – Type of Activity

Future Airport Opportunity Analysis

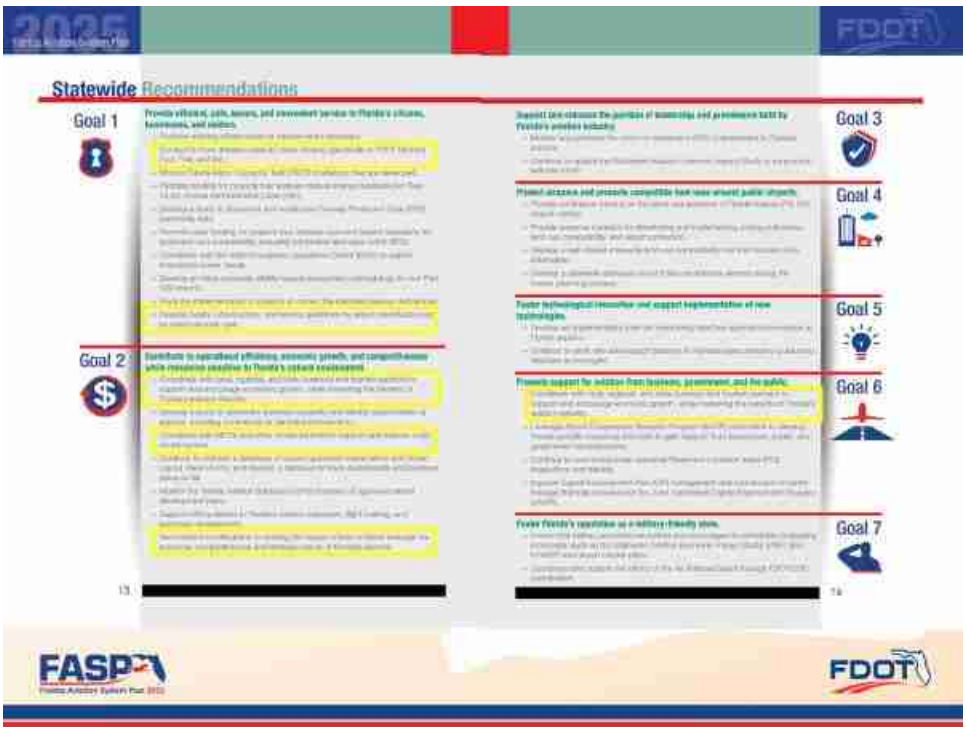
Analyzed current and future population based on 24 different criteria, including:

- Airports with air traffic control towers (ATCTs)
- Airports with fuel (100LL and Jet A)
- Airports by NPIAS and ASSET categorization
- Airports with flight training activity
- Airports with weather reporting systems
- Airports with runways of various lengths
- Airports with at least one precision approach

FASP

Florida Aviation System Plan 2035

Study Recommendations



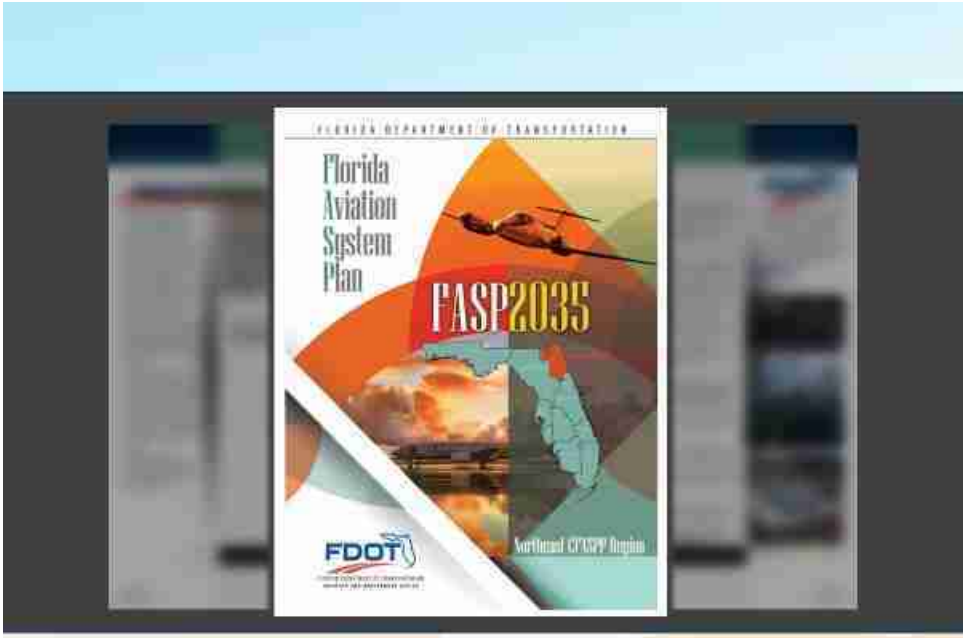
FASP

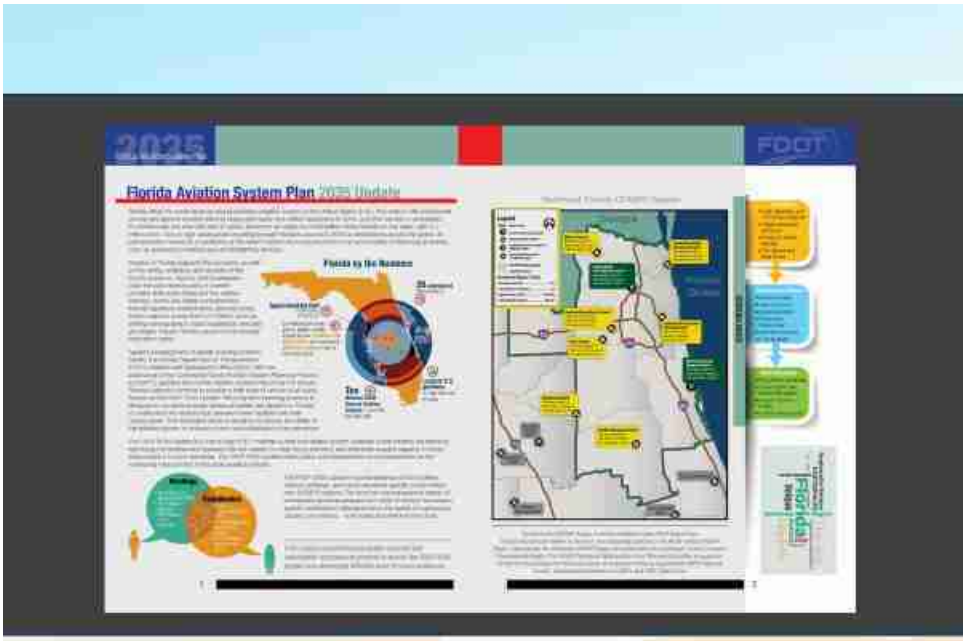
Florida Aviation System Plan 2035

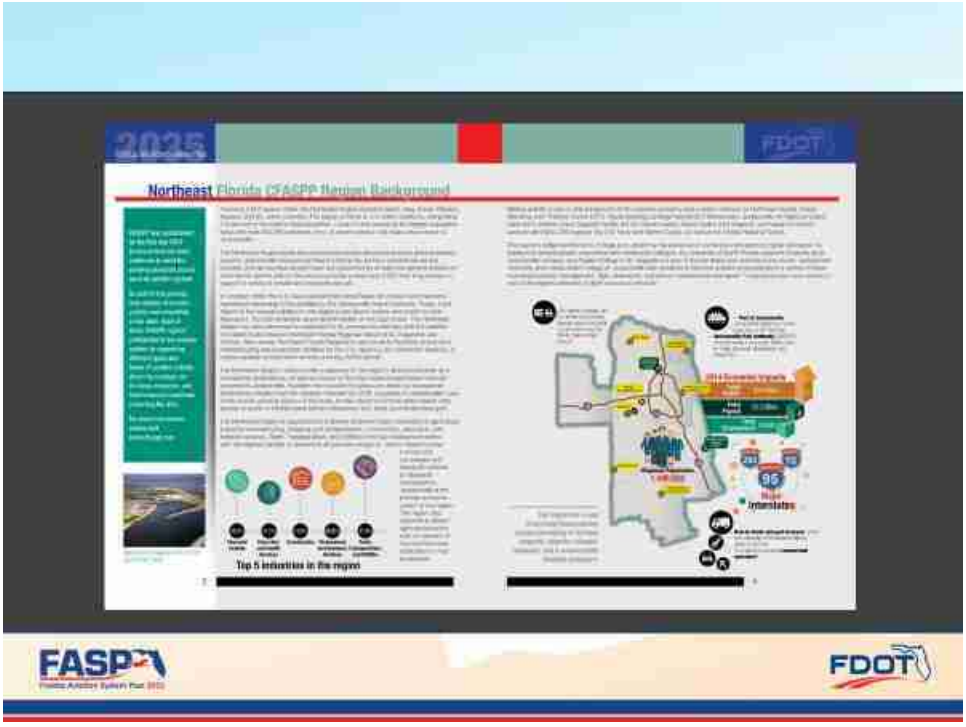
Brochures and Messaging

Final Brochure and Deliverables

- CFASPP Regional Brochures (9)
- Executive Summaries
  - Long Version
  - Short Version
- Final Technical Report
- Summary Primers (4)

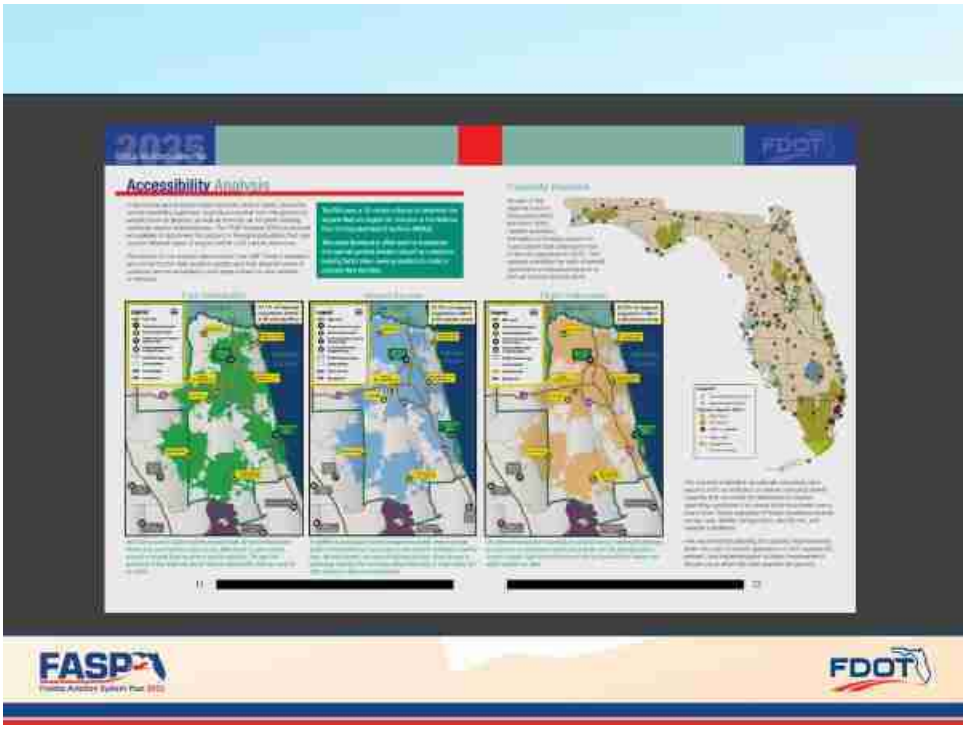

FLORIDA DEPARTMENT OF TRANSPORTATION
Florida Aviation System Plan
FASP2035
Northeast CFASPP Region
FDOT


2035
FDOT
Florida Aviation System Plan 2035 Update
Flights by the Numbers


2035
FDOT
Northeast Florida (FASPP Region) Background
Top 5 industries in the region
FASP
FDOT

2035
FDOT
Intermodal Connectivity
FASP
FDOT

2035
FDOT
Aviation Drivers
Regional Forecast
FASP
FDOT


2035
FDOT
Accessibility Analysis
FASP
FDOT

FASP Primers

- Set of 4 primers developed to inform various stakeholders how to use the FASP
  - Airport Managers and Consultants
  - Airport Boards/Authorities and Elected Officials
  - FDOT District and other Modal Staff
  - General Public
- Of all the messages being conveyed, what's most important to all modal offices?
  - (ex: intermodal connectivity)

FASP Florida Aviation System Plan 2035

Data Presentation Platform Concept

Data Presentation Platform Concept

- Database that houses information collected as part of the FASP and on an ongoing basis
- Will allow for customizable reports that allow for an airport to report needed information

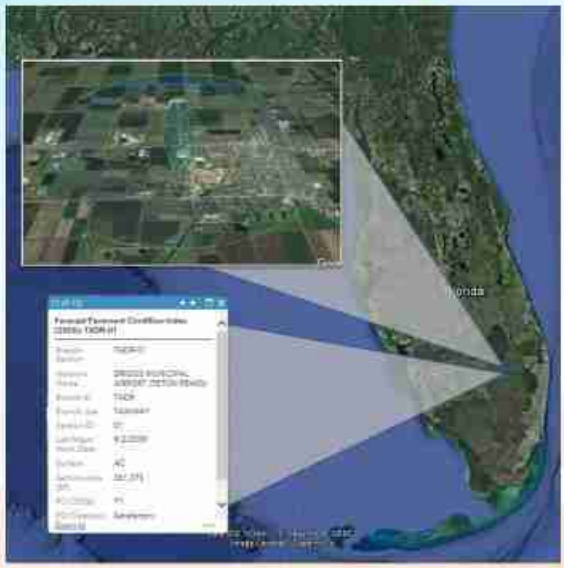
General
- Airport Usage
- Based Group
- Basic Airport Information
- Facilities
- International Access
- Main Economic Indicators
- Operations Group

Economic
- Airport Usage
- Based Group
- Basic Airport Information
- Detailed Economic Indicators
- Economic Development Regions
- Main Economic Indicators
- Operations Group

Activity
- Airport Usage
- Based Group
- Basic Airport Information
- Facilities
- International Access
- Operations Group

Sample Airport Profile

Statewide Asset Management



Data Platform Concept

Is there any data or information that could be collected as part of this to support your office?

Is there anything you want to provide for potential inclusion?

38

FASP

Florida Aviation System Plan 2035

Follow-on and Implementation

Follow-on Efforts

- Automated inventory process
- Comprehensive asset/data management
- Develop statewide wildlife hazard mitigation training
- Develop facility, infrastructure, and service guidelines
- Develop a business suitability study
- ANY OTHERS???

Follow-on Efforts

Are there any studies (or types of projects) that would assist in supporting multi-modal development?

How can these planning efforts be better aligned/coordinated across modes?

From your perspective, did we miss anything?

41

Thank You

42

A.3.2.2 Meeting Summary

On June 28, 2017, a second meeting was held for the Florida Aviation System Plan (FASP) with representatives of the modal offices of the Florida Department of Transportation (FDOT), as well as the Office of Policy Planning and the Systems Planning Office. This meeting was held to obtain input and general consensus on the goals and recommendations that have been developed as part of the FASP. Input on the outreach brochures that were developed was also sought during the meeting.

Meeting participants included:

- Regina Colson – FDOT Office of Policy Planning
- Ed Coven – FDOT Public Transit Office
- Todd Cox – FDOT Aviation and Spaceports Office
- Tom Duncan – FDOT Aviation and Spaceports Office
- Bob Emerson – FDOT Seaport Office
- Andy Keith – FDOT Aviation and Spaceports Office
- Gabe Matthews – FDOT Public Transit Office
- Gerard O'Rourke – FDOT Office of Freight, Logistics, and Passenger Operations
- Maria Overton – FDOT Systems Planning Office
- Dana Reiding – FDOT Office of Policy Planning
- Aaron Smith – FDOT Aviation and Spaceports Office
- Jim Wood – FDOT Chief Planner, Transportation Development

Meeting Summary

FASP 2035 Goals and Recommendations

Following a brief welcome, the project team gave an overview of the FASP 2035 Update that included a sample of selected deliverables that have been developed as part of the project. Following this overview, a set of FASP 2035 Update Recommendations was distributed to all attendees for their input. The changes that were suggested based on this meeting are provided in Appendices 1 and 2. Appendix 1 includes the original FASP 2035 Update Goals and Recommendations and Appendix 2 highlights the changes that were suggested.

Review of CFASPP Brochures

Following the discussion on the Goals and Recommendation, there was a discussion on the CFASPP brochures that are being developed as part of the project. To facilitate the discussion, each attendee was given a draft CFASPP brochure to review and provide comments on. Comments received included:

- Don't use too many acronyms
- Soften language, don't say things like "Only 11 percent…"
- Remove mention on an FDOT runway hot spot standard
- Reevaluate what data/information is put into callout boxes
- Mention FTP in the beginning of the brochures

Review of FDOT Primer

As part of the FASP 2035 Update, a series of four project primers are being developed, each with a specific target audience. One audience is FDOT employees. As such, attendees were asked what information would be helpful to them to include in the FDOT employee primer. Comments included:

- Develop a separate primer for the Modal offices of FDOT
- Provide information on types of non-aviation airport projects being funded (like SIS Policy Plan examples) and provide contact for their role in aviation
- Ex: SIS projects that connect to airports
- Provide a connection between regional/local transportation plans and airport master plans
- Provide a connection to the FTP

Additional Comments and Discussion

Following the discussion on the Goals and Recommendations, brochures, and primers, attendees were given the opportunity to provide any additional input on what they would like to see as part of the FASP 2035 Update. It was noted that having data on who's coming to airports, where they're coming from, and a differentiation employees and/or visitors, local travelers would be helpful. It was also recommended that a study be looked at that would look at freight connections between airports and seaports.

A.4 Federal Aviation Administration (FAA)

Throughout the duration of the development of the Florida Aviation System Plan (FASP) 2035, two meetings with the FAA's Orlando Airports District Office staff were held to discuss project status and results, guide upcoming efforts, and maintain the FAA's involvement throughout the project.

A.4.1 Meeting #1 – FAA Coordination Meeting – December 5, 2016

A.4.1.1 Agenda

- Study Tasks
  - Stakeholder Engagement Mechanism Development
  - Data Collection and Existing System Evaluation of Goals, Objectives, Performance Measures, and Indicators
  - Future System Needs
  - Alternative Scenarios
  - Recommendations
  - Internal Coordination and Meetings

- FAA Input/Assistance Requested
  - Master plan data/copies for use in analysis of Performance Measures and Indicators
  - Thoughts on aviation demand drivers
  - Latest on TAF and other forecast-related changes

FASP Phase 2B Project Schedule

Task		2016			2017							
		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug
1	Stakeholder Engagement and Mechanism Development											
2	Data Collection and Existing System Evaluation											
3	Future System Needs											
4	Alternative Scenarios											
5	Recommendations											
6	Internal Coordination and Meetings											
7	Final Deliverables											

A.4.1.2 Meeting Summary

On December 5th, staff from the Florida Department of Transportation (FDOT), the Federal Aviation Administration (FAA) Orlando Airports District Office (ADO), and Kimley-Horn and Associates (KHA) met in person to review and discuss ongoing efforts of the FASP 2035. The purpose of this meeting was to present a status of tasks that had been completed, those underway, and to seek FAA's input and assistance on elements of the project. Meeting participants included:

- Rebecca Henry, FAA ADO
- Stephen Wilson, FAA ADO
- Pedro Blanco, FAA ADO
- Jim Halley, FDOT ASO
- Pam Keidel-Adams, Kimley-Horn
- Jon Sewell, Kimley-Horn
- Colin Wheeler, Kimley-Horn
- Zach DeVeau, Kimley-Horn

The following is a summary of the input received from the discussion.

- Provided overview on FASP 2035 tasks including proposed updates to CFASPP website

- Discussed need for data collection including projects through JACIP
    - FAA provided a CD with the latest master plans and ALPs on file for use in the study
    - FAA is most concerned about updating JACIP and its presentation of an accurate depiction of project needs
    - FAA is getting project requests that do not match any projects that are currently in JACIP
    - Prior meeting between FAA, FDOT, and FDOT consultant Panther to discuss JACIP update needs, Rebecca stressed the need for JACIP to be accurate and properly maintained by airports

- Discussed analysis of needs
    - FAA asked if the analysis will be by CFASPP region/district or by airport
        - Discussed it will be a combination
    - Comparing FAD/JACIP to projects funded through existing and prior work programs
    - Noted that needs are different by district

- Discussed FDOT and FAA project funding including SSGAT and potential prioritization of projects that can't get FAA funding
    - This is almost "reverse prioritization" and does support FDOT's highest priority which is to maximize the allocation of federal funds since FAA's priorities and therefore FDOT matching funds first go to safety projects
    - FDOT and FAA stressed the importance of proper prioritization so projects "make sense". Example given was a desired but not necessary elaborate terminal vs. a necessary safety project.

- Discussed SIS funding and changes coming to SIS classifications including new "strategic opportunities facilities"

- FAA asked if there an assessment of Florida's competitiveness with other states – noted that this is included in Performance Indicators

- FAA noted that TAF will be published in early February; Kimley-Horn noted that FAA HQ has TAF (M) for modified that is supposed to be available

- Discussed improving coordination with Enterprise Florida and how some of GIS and other tools could help them to develop available land at airports; identifying these properties could be a potential follow-on GIS-related project

- Discussed internal FDOT disconnect related to airports vs. planning for other infrastructure such as road design and PD&E

Action Items

- Need summary of meeting that Todd Cox held with FAA and Panther regarding updates to JACIP

- Kimley-Horn (Pam) to provide information on TAF (M) to FAA

A.4.2 Meeting #2 – FAA Coordination Meeting – June 26, 2017

A.4.2.1 Agenda

- Project Overview and Update
- Future System Needs (Forecasts)
- Study Recommendations
- Data Presentation Platform Concept
- Follow-on Studies

A.4.2.2 Presentation

FASP

Florida Aviation System Plan 2035

Project Overview

FASP Overview - Phases

PHASE 1

- State, Regional, and Local Airport Issues
- Goals, Objectives & Performance Measures
- Inventory
- Stratification Methodology Evaluation
- Regional and State Overviews
- Aviation Industry Trends
- Forecasts
- Demand/Capacity
- SSGAT Update

PHASE 2

- Data Collection (Additional)
- Existing System Evaluation (Baseline Performance Measurement)
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- Public Engagement Mechanism (CFASPP Website Update)
- Final Deliverables

MEETINGS/COORDINATION

FAA » FASP Review Team (FASPRT) » Comprehensive Review Team (CRT)
Other FDOT Representatives » MPOs

FASP FDOT

FASP Goals

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

FASP Florida Aviation System Plan 2035

Future System Needs (Forecasts)

Future System Needs (Forecasts)

- 2014 as base year
- Based Aircraft Methodologies
  - TAF/Straight-Line
  - County Population Growth
  - FAA Aerospace Forecast
- GA Operations (includes GA and Military) Methodologies
  - Airport Master Plan
  - TAF/Straight-Line
  - County Population Growth
  - FAA Aerospace Forecast

Future System Needs – Based Aircraft

- Commercial Service: FAA TAF/Straight-Line Methodology
- General Aviation: High Activity - FAA TAF/Straight-Line Methodology
- General Aviation: Medium Activity - County Population Growth Rate Methodology
- General Aviation: Low Activity - County Population Growth Rate Methodology

Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: Preferred Methodology					
Commercial Service	2,843	2,980	3,222	3,734	1.49%
GA-High Activity	4,101	4,265	4,592	5,305	1.40%
GA-Medium Activity	4,722	5,118	5,476	6,276	1.57%
GA-Low Activity	963	1,040	1,110	1,265	1.49%
STATE TOTAL	12,629	13,403	14,399	16,580	1.49%

Sources: FAA TAF issued January 2017, 5010 Airport Master Record, Woods & Poole, Inc. FAA Aerospace Forecast 2017-2037, Kimley-Horn. Prepared April 2017.

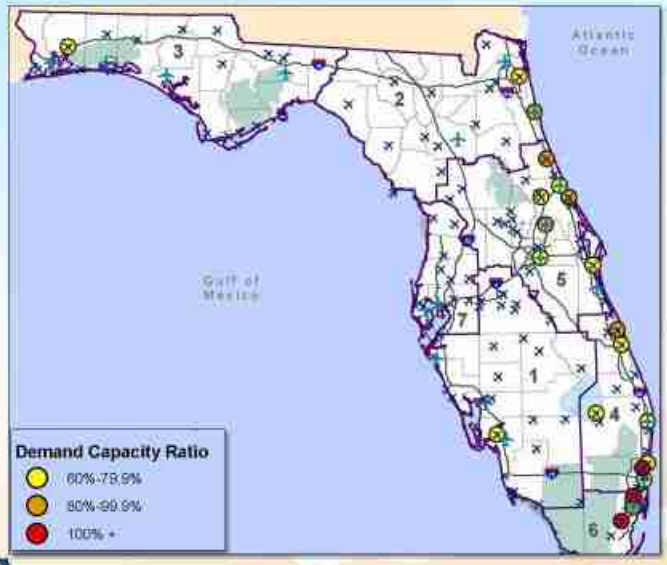
Future System Needs – GA Operations

- Commercial Service: FAA TAF/Straight-Line Methodology
- General Aviation: ATCT - County Population Growth Rate Methodology
- General Aviation: High Activity - County Population Growth Rate Methodology
- General Aviation: Medium Activity - County Population Growth Rate Methodology
- General Aviation: Low Activity - FAA Aerospace Forecast Methodology

Airport Classification	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate
GA Operations Forecast: Preferred Methodology					
Commercial Service	1,416,983	1,346,668	1,364,094	1,400,416	-0.06%
GA-ATCT	2,751,866	2,984,955	3,195,036	3,668,477	1.59%
GA-High Activity	1,355,121	1,456,393	1,547,462	1,749,867	1.39%
GA-Medium Activity	792,784	861,555	923,831	1,063,949	1.63%
GA-Low Activity	312,210	315,090	317,400	322,194	0.15%
STATE TOTAL	6,628,964	6,964,602	7,348,623	8,204,503	1.13%

Sources: FAA TAF issued January 2017, 5010 Airport Master Record, Kimley-Horn, FAA Aerospace Forecast 2017-2037, Woods & Poole, Inc. Prepared April 2017.

Future System Needs (Capacity)



Future System Needs (Operations Above ARC)

Future Airport Opportunity Analysis

Analyzed current and future population based on 24 different criteria, including:

- Airports with air traffic control towers (ATCTs)
- Airports with fuel (100LL and Jet A)
- Airports by NPIAS and ASSET categorization
- Airports with flight training activity
- Airports with weather reporting systems
- Airports with runways of various lengths
- Airports with at least one precision approach

FASP
Florida Aviation System Plan 2035
Study
Recommendations

Statewide Recommendations
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5
Goal 6
Goal 7
FASP
FDOT

FASP

Florida Aviation System Plan 2035

Data Presentation Platform Concept

Data Presentation Platform Concept

- Online database that houses information collected as part of the FASP and on an ongoing basis
- Will utilize GIS to allow for customizable reports that allow for an airport to report needed information

General
- Airport Usage
- Based Group
- Basic Airport Information
- Facilities
- International Access
- Main Economic Indicators
- Operations Group

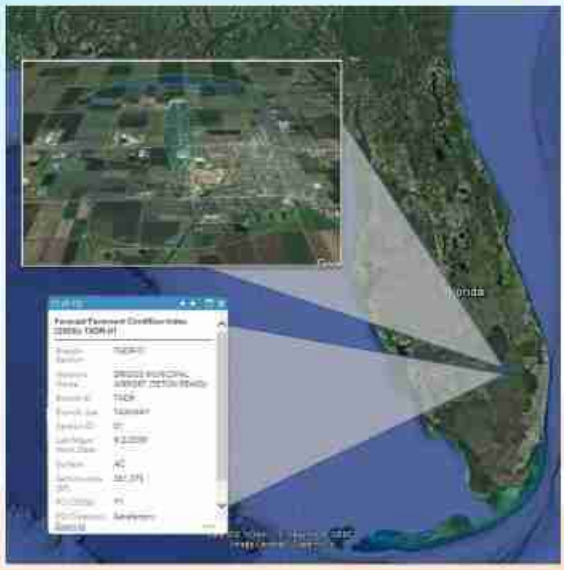
Economic
- Airport Usage
- Based Group
- Basic Airport Information
- Detailed Economic Indicators
- Economic Development Regions
- Main Economic Indicators
- Operations Group

Activity
- Airport Usage
- Based Group
- Basic Airport Information
- Facilities
- International Access
- Operations Group

FASP FDOT

Sample Airport Profile

GIS for Statewide Asset Management



FASP

Florida Aviation System Plan 2035

Follow-on Studies

Follow-on Efforts

- Airport Development Guidelines
- Automated inventory process
- Using GIS as asset/data management
- Linking APMS to FASP 2035
- Technology solutions to accommodate UAS
- Conduct a capacity analysis (Districts 4, 5, & 6)
- Study to document RPZ ownership
- Develop statewide wildlife hazard assessment methodology
- Develop facility, infrastructure, and service guidelines
- Develop a business suitability study
- Develop a statewide eALP database
- ANY OTHERS???

A.4.2.3 Meeting Summary

On June 26th, staff from the Florida Department of Transportation (FDOT), the Federal Aviation Administration (FAA) Orlando Airports District Office (ADO), and Kimley-Horn and Associates (KHA) met in person to review and discuss ongoing efforts of the FASP 2035. The purpose of this second meeting was to present a status of tasks that had been completed, those underway, and to seek FAA's input and assistance on elements of the project. Meeting participants included:

- Zach DeVeau, Kimley-Horn
- Marisol Elliot, FAA ADO
- Jim Halley, FDOT ASO
- Rebecca Henry, FAA ADO
- Jenny Iglesias-Hamann, FAA ADO
- Pam Keidel-Adams, Kimley-Horn
- Jon Sewell, Kimley-Horn
- Stephen Wilson, FAA ADO

The following is a summary of the input received from the discussion.

- As part of the project overview, it was noted that prior FASP updates had Goals, but that the FASP 2035 Update is using them more effectively by tying them into the recommendations
    - As part of this Update, we are going to be tracking the performance measures/indicators to monitor the performance of the plan

- The FAA indicated that they use the FASP forecasts for many of the smaller airports in the state and that many consultants do compare their forecasts to the FASP
    - Using this comparison removes conflict of interest from their forecasts

- The FAA indicated that they were interested in the implementation of projects to monitor and track runway protection zone ownership as well as the development of a wildlife hazard assessment methodology
    - A question was asked regarding if the FAA would make reporting wildlife strikes a mandatory requirement at GA airports instead of just Part 139 airports

- It was noted by the FAA that there are differences in how airports are submitting ALP sets, there should be one sheet with existing and future layouts (not separate sheets)

- It was noted by the FAA that tracking airports with eALPs that have been uploaded will difficult because so few have done these projects; they recommended removing this performance measure
    - It was noted that eALPs have lots of data but that they aren't be effectively used and people don't know how to use

- The FAA noted that focusing on PCI and the APMS data is helpful to them in decision making regarding pavement projects
    - FAA's Business Plan goal – 93% of pavements in good or better condition
    - It is easier to rehab than replace pavement

- The FAA also noted that airports need to focus on the timing of funding requests and that there is a big focus on CIPs by the FAA
    - Airports need to update and clean up JACIP more frequently

A.5 FASP Review Team (FASPRT)

During Phase 1, the FASPRT was established to get input and feedback on the study's process, analyses, and draft deliverables providing an opportunity for discussion with a subset of people from other groups.

A.5.1 Meeting #1 – FASPRT Meeting – February 19, 2016

A.5.1.1 Agenda

Meeting Purpose: Brief the FASPRT on the progress of the Florida Aviation System Plan (FASP) 2035 project and obtain their feedback on outstanding tasks.

Attendees:
Jim Halley – FDOT ASO
Todd Cox – FDOT ASO
Mike McClure – FDOT ASO
Daniel Afghani – DA Consulting
George Boyle – FDOT District 7
Raymond Clark – FDOT District 7
Barbara Cloud – FDOT District 2
Arlene Davis – FDOT District 4
Philip Deal – FDOT District 3
Amie Goddeau – FDOT District 4
Doreen Joyner-Howard – FDOT District 2
Luis Macias – FDOT District 6
Allison McCuddy – FDOT District 5
Laurie McDermott – FDOT District 4
Dionne G. Richardson – FDOT District 6
Susan Sadighi – FDOT District 5
Wendy Sands – FDOT District 1
Paul Simmons – FDOT District 1
Kristi Smith – FDOT District 1
Scott Walters – FDOT District 3
James Wikstrom – FDOT District 5
Harry Downing – CDM Smith
Scott Sanders – CDM Smith
Mike Maynard – CDM Smith
Eric Laing – CDM Smith
Zach Duvall – CDM Smith

Call-in number/access: 646-749-3122/994-273-293

Agenda:
- Welcome and Introductions

- FASP 2035 Accomplishments
  - Goals, objectives and performance measures
  - Airport issues

    - Review of airport stratification methods
    - Review of air service studies

- Update on Tasks
    - Inventory
    - FASP Criteria
    - Regional overviews
    - Aviation industry trends
    - Aviation forecasts
    - Airport identification of intermodal requirements
    - Demand/capacity analysis

- Next Steps
    - CRT meeting – March 22, 2016

- Adjourn

A.5.1.2 Briefing Materials

Deliverables Status

- Inventory – An online survey of airport facilities, conditions, and data
    - Used to:
        - Collect airport information not available from FDOT ASO or FAA
        - Confirm airport data obtained from FDOT ASO or FAA
    - Sent to all 128 study airports
    - Received 48 responses to date
    - Reminders sent three times

- FASP Criteria – Guidelines for whether an airport should or should not be included in the FASP
    - Draft of analysis of study airports
        - Process for new airports to enter the FASP
        - Reasons for wanting to be in the FASP
    - Proposed screening criteria for FASP airports

- Regional Overviews – Summaries of demographic, economic, transportation, and historical conditions in each of Florida's nine regions

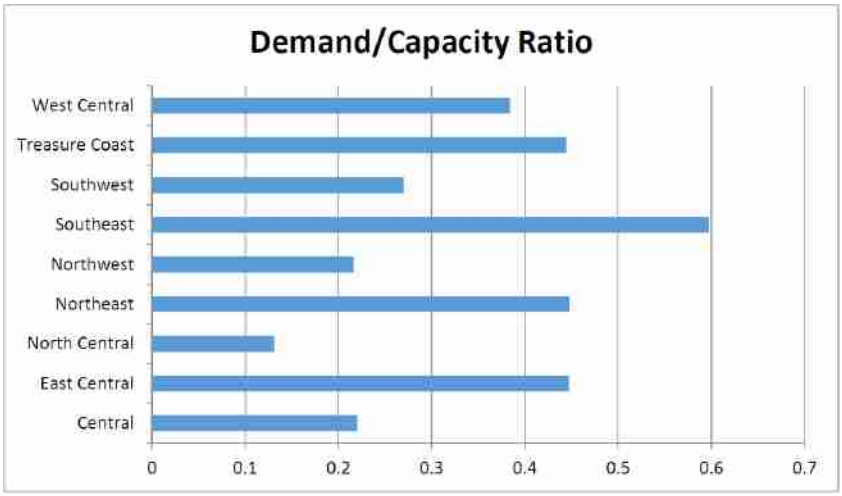
- Aviation Industry Trends
    - NextGen technology
        - Numerous components to NextGen
        - Benefits for general aviation and commercial aviation
    - Unmanned vehicles
        - Aerial
            - FAA working to integrate UAVs
            - Technology advancing rapidly

        - Ground
            - Implications for airlines
            - Accommodating self-driving vehicles at terminals
            - Impacts on parking revenues for commercial service airports
    - Growth in Florida's commercial air service since 2010
        - 2014 enplanements = 74.5 million, up 2.25% from 2010
        - 2014 international enplanements = 14.6 million, up 5.41% from 2010
        - 2014 air cargo = 2.7 million short tons, up 2.1% from 2010
    - Declining pilot population
    - Review of Boeing and Airbus industry outlooks

- Aviation Forecasts
    - Draft forecast completed
        - 20-year forecast of GA operations and based aircraft
    - Validating current operational data
    - Adding new forecast scenario with declining operations at select airports

- Airport Identification of Intermodal Requirements
    - Undergoing revisions to reflect changes in SIS

- Demand/Capacity Analysis – evaluates current and future airport capacity to handle current and future aircraft operations
    - Consistent methodology used since 2004
    - Planning efforts should begin when demand/capacity ratio hits 0.6
    - Vast majority of general aviation airports are below the 0.6 threshold throughout the planning period
    - Regional capacity expected to be adequate



- Next Steps
    - CRT meeting – March 22, 2016

- Adjourn

A.5.2 Meeting #2 – FASPRT Meeting – December 5, 2016

A.5.2.1 Agenda

- Introductions
- FASP Overview
- Existing System Evaluation
- Performance Measures and Indicators (Exercise #1)
- Public Engagement Mechanism (CFASPP website) Review
- Break
- Aviation Demand Driver Discussion
- SIS Program Review
- FASP Deliverables
- Guidance, Products, Tools, and Resources Dialogue
- Next Steps
- Round-Table Wrap-Up

A.5.2.2 Presentation

FASP Overview - Phases

PHASE 1

- State, Regional, and Local Airport Issues
- Goals, Objectives & Performance Measures
- Inventory
- Stratification Methodology Evaluation
- Regional and State Overviews
- Aviation Industry Trends
- Forecasts
- Demand/Capacity
- SSGAT Update

PHASE 2

- Data Collection (Additional)
- Existing System Evaluation (Baseline Performance Measurement)
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- Public Engagement Mechanism (CFASPP Website Update)
- Final Deliverables

MEETINGS/COORDINATION

FAA » FASP Review Team (FASPRT) » Comprehensive Review Team (CRT)
Other FDOT Representatives » MPOs

Phase 2 Tasks

- ***Existing System Evaluation***
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- ***Public Engagement Mechanism (CFASPP Website Update)***
- Final Deliverables

Existing System Evaluation Subtasks

- Additional data collection
- Establish baseline on Performance Measures (PMs) and Performance Indicators (PIs)
- Identification of location and drivers of aviation activities
- Analysis of existing intermodal connectivity

Existing System Evaluation Subtasks

- Additional data collection
- Establish baseline on Performance Measures (PMs) and Performance Indicators (PIs)
- Identification of location and drivers of aviation activities
- Analysis of existing intermodal connectivity

Data Collection

- Requested information from airports to supplement previous effort
- Included questions in combined electronic survey to airports on operations counting
- Other data necessary to measure performance that will be obtained from other sources
  - Master Plans/ALPs
  - FAA
  - FAD

Goals and Objectives

- Goals are widely used in FASP
  - Relate to ASO's mission
  - Relate Aviation to Florida Transportation Plan (FTP)
- CRT previously contributed to development in Phase 1 through survey and prior meeting
- No substantive changes to Goals or Objectives
- Emphasis in Phase 2 on measuring PMs and PIs to allow for evaluation of ASO and Aviation Work Program

FASP Goals

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

FASP Florida Aviation System Plan 2035 | 9 | FDOT

FASP and FTP Goal Comparison

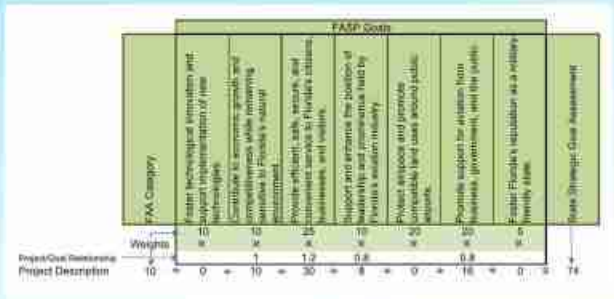
○ = Low relationship
◒ = Medium relationship
● = High relationship

	FASP						
FTP	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses,	Contribute to economic growth and competitiveness while remaining sensitive to Florida's natural environment	Support and enhance the position of leadership and prominence held by Florida's aviation	Protect airspace and promote compatible land uses around public airports	Foster techno-logical innovation and support	Promote support for aviation from business, government, and the public	Foster Florida's reputation as a military-friendly state
Safety and security for residents, visitors, and businesses	●	◒	○	●	◒	◒	◒
Agile, resilient, and quality infrastructure	●	◒	○	◒	◒	●	◒
Efficient and reliable mobility for people and freight	●	◒	◒	○	◒	◒	◒
More transportation choices for people and freight	◒	●	◒	○	◒	◒	○
Transportation solutions that support Florida's global economic competitiveness	◒	●	●	○	◒	◒	○
Transportation solutions that support quality places to live, learn, work, and play	◒	●	◒	◒	◒	◒	◒
Transportation solutions that enhance Florida's environment and conserve energy	◒	●	◒	◒	◒	○	○

FASP Florida Aviation System Plan 2035 | 10 | FDOT

State Strategic Goal Analysis Tool (SSGAT) – Relationship to Goals

- Relates FDOT project funding to FASP goals
- Developed to provide additional tool for Districts to use in project evaluation
- Spreadsheet model integrated into JACIP
- Ties FAA project categories to FASP goals



SSGAT Application in Phase 2

- SSGAT updated in Phase 1
  - Revised weights assigned to FAA categories
  - Revised based on updated FASP goals
- Comparison of JACIP project requests and SSGAT results to Work Program
  - Review current and past 5 years of Work Programs
  - How have funded projects helped achieve FASP and FTP goals?
- One measurement of ASO's performance in meeting goals
- Helps to answer previous question: "Is the State funding the right airport projects?"

Performance Measures and Indicators (PMs and PIs)

- Provide another mechanism to evaluate ASO's achievement of goals
- More detailed look at system, not just projects
- In Phase 2, re-evaluated PMs and created PIs
  - Performance Measure: Action could be taken by FDOT or airports to influence results
  - Performance Indicator: Can't really be influenced but still important to track
  - Removed PMs that could not be measured or even reported
  - Also incorporated FDOT Mobility Performance Measures relative to Aviation as required in MAP-21

Performance Measures and Indicators (PMs and PIs)

- Provide another mechanism to evaluate ASO's achievement of goals
- More detailed look at system, not just projects
- In Phase 2, re-evaluated PMs and created PIs
  - Performance Measure: Action could be taken by FDOT or airports to influence results
  - Performance Indicator: Can't really be influenced but still important to track
  - Removed PMs that could not be measured or even reported
  - Also incorporated FDOT Mobility Performance Measures relative to Aviation as required in MAP-21

FASP Florida Aviation System Plan 2035 | 14 | FDOT

Examples of PMs and PIs

Goal 1:	Provide efficient, safe, secure, and convenient service to Florida's citizens, businesses, and visitors.				
	Objective		Performance Measure (PM)		Performance Indicator (PI)
	1.1	Ensure that FASP airports operate at an efficient demand/capacity (D/C) ratio.	1.1.1	The number of FASP airports with an annual airfield D/C ratio of 60% or more (FDOT PM).	1.1.1 The number of FASP airports with terminal-related development projects (building, rental car, parking) and the amount of JACIP funding identified for these projects.
	1.8	Support FASP airports in meeting FAA airfield geometric design criteria to promote operational safety.	1.8.1	The number of FAA-obligated FASP airports that meet current FAA taxiway design standards.	
Goal 2:	Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment.				
	2.1	Encourage revenue generation at FASP airports to enhance airport self-sufficiency by assisting airports to develop business plans in accordance with FDOT's Florida General Aviation Airport Business Plan Guidebook.			2.1.1 The number of FASP airports that report having a business/marketing plan.
	2.2	Enhance the competitiveness of Florida SIS airports for intermodal enhancement funding. Provide seamless transportation for Florida's travelers from point of departure to destination.			2.2.1 The number of commercial service SIS airports reporting direct bus service.

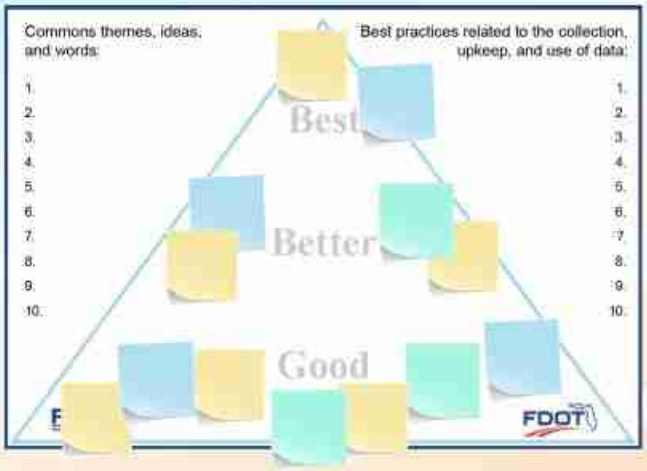
FASP Florida Aviation System Plan 2035 | 15 | FDOT

Group Exercise #1
PMs and PIs

- Seeking input on collection and use of data for measuring system's performance
- Use results in considering best uses for PMs and PIs and timing for updating data

Good, Better, Best Exercise

What can you do related to the collection, upkeep, and use of the data in the Performance Measures and Performance Indicators to better support airports, your community and elected officials, and FDOT?



Public Engagement Mechanism (CFASPP Website)

Initial Proposed CFASPP Website Changes

- Several new tabs
- Redesigned FASP tab specifically for the FASP 2035 project information; repository of draft and final deliverables, past archived FASP files, and other general information; new brand
- Revisions to Administrative section to allow easier management of files
- Changes to the photos displayed on the site

Initial Proposed CFASPP Website Changes

- "New" Contacts Tab: Changes to administrative functions including functionality of contact updates and link to FAD Contact Management Module
- "New" News Tab: Provide information such as news, events, and/or job postings with option for users to request to add items
- "New" Calendar Tab: Display all meetings, events, and important dates in the system, with current calendar month and ability to move between current, future, and past months and active links to details
- Projects Tab: Changes to internal data entry processes, add separate section for "FDOT Sponsored Training" to display time/date/registration information
- Committees Tab: Modify to add the current contact info for each CFASPP Chair and Vice-chair on their respective committee tabs
- CFASPP Schedule Tab: Allow more flexibility in displaying upcoming meetings, monthly calendar display options, links to more details about meetings, allow importing meetings to calendars, RSVPs

20

CFASPP Survey Input

- Survey goals:
  - Determine how website is used
  - What existing features need to be maintained
  - What else is needed on website
- Survey to be distributed to CFASPP contact list
- Initial thoughts on website needs?
  - How do you use now
  - Suggestions beyond what is anticipated

21

Aviation Demand Drivers

- System's needs are determined by types of activities at airports and in communities
- Some activities impact aviation and infrastructure needs more than others
  - Business aviation
  - High aviation training levels
  - Population levels and other demographic factors
  - Air cargo
  - Tourism

FASP 22 FDOT

Examination of Drivers

- Use drivers in updated forecasting
- Develop mapping to reflect the drivers/factors
- Identify "clusters" that have potential to impact future facility needs
- Analysis can be used to examine if/where new airports might be needed

FASP FDOT

Group Exercise #2

Aviation Drivers in your District

FASP FDOT

Group Exercise #2
Aviation Drivers in your District

SIS Program Review

- FDOT has identified certain airports for inclusion as "largest and most strategic facilities"
- Update of SIS criteria and classification is underway
  - Will be finalized in mid 2017
- Classifications will have different funding availability
- Classifications will be based on activity levels
  - SIS Airports
  - Strategic Growth Facilities

Existing and Proposed SIS Criteria

CURRENT CLASSIFICATIONS

- SIS Commercial Service Airport
- Emerging SIS Commercial Service Airport
- SIS General Aviation Reliever Airport

PROPOSED CLASSIFICATIONS

- SIS Airport
- Strategic Growth Facilities

SIS Project Review and Case Studies

- **Examining current and prior 4-years of SIS projects**
  - How has the SIS funding been used to date
  - How have criteria influenced the selected projects
- **Case studies for more detailed evaluation**
  - 3 projects that have been implemented
  - Impact of project on airport and community
  - Review of project funding if no SIS $$

SIS Projects: Potential Case Studies

- Fort Lauderdale-Hollywood Runway Expansion
- Miami Intermodal Center
- Northwest Florida Beaches
- List some potential projects
  - One airside and one landside
  - Maybe one 'non-airport' multi-modal project

30

FASP Deliverables

- Final Technical Report
- Executive Summary
  - Short Version
  - Long Version
- Five Videos
  - Each 30-60 seconds long
  - Each highlighting a different facet of Florida aviation (cargo, flight training, air service, etc.)
- Brochures by District and CFASPP region
- Executive Summary Primers – What does the FASP mean to you and how should you use it?
  - Legislative/elective officials
  - Airport management and consultants
  - General public audience
  - FDOT (ASO, District, other offices)

31

Guidance, Products, Tools, and Resources – What Else Is Needed?

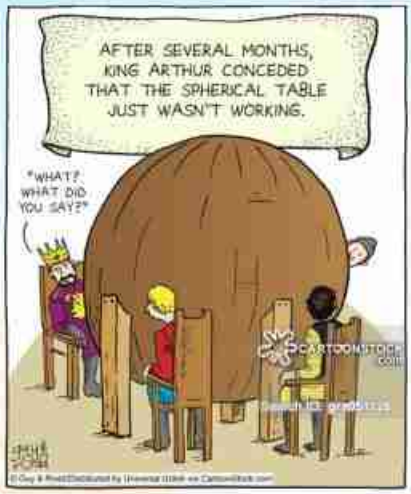
32

Next Steps

- Distribute CFASPP website survey
- Analyze baseline performance
- Update forecasts
- Engage MPO Advisory Committee, FDOT modal groups, FDOT Policy Planning and Systems Planning
- Next meeting - Webinar in February

33

Round-Table Wrap-Up



34

Thank You

35

A.5.2.3 Meeting Summary

On December 5th, staff from the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), FDOT District Representatives, and Kimley-Horn and Associates (KHA) met in person to review and discuss ongoing efforts of the FASP 2035. The purpose of this meeting was to present a status of tasks that had been completed, those underway, and to seek input and assistance on elements of the project. Meeting participants included:

- Jim Halley, FDOT – ASO
- Todd Cox, FDOT – ASO
- Andy Keith, FDOT – ASO
- Donna Whitney, FDOT – District 2
- Barbara Cloud, FDOT – District 2
- Laurie McDermott, FDOT – District 4
- Jim Wikstrom, FDOT – District 5
- Christie Darrell, FDOT – District 5
- Allison McCuddy, FDOT – District 5
- Ray Clark, FDOT – District 7
- Pam Keidel-Adams, Kimley-Horn
- Jon Sewell, Kimley-Horn
- Colin Wheeler, Kimley-Horn
- Zach DeVeau, Kimley-Horn
- Dan Afghani, DA Consulting

The following is a summary of the input received from the discussion. (Note: as part of this FASPRT meeting, two interactive exercises were conducted. The summary of these exercised is provided as a separate document).

- The meeting began with a broad overview of the FASP as well the overall schedule for the project

- As part of the presentation, a comparison matrix of the goals of the FASP and Florida Transportation Plan (FTP) was presented. Comments on the comparison matrix included:
    - "Preservation of the System" had been a goal that was previously in the FTP, but it is now covered by numerous other FTP goals
    - The FASP goal of "Foster Technological Innovation and Support" should have a high relationship with the FTP goal of "Safety and Security for residents, visitors, and businesses"
    - Other transportation modes merely follow FTP goals and aviation is the only mode to develop their own goals – the outcome of the FASP will be used to influence the next FTP
    - Previous studies were more focused on objectives, the current FTP provides for "Areas of Influence" that act as their objectives

- The next topic of discussion was on the State Strategic Goal Analysis Tool (SSGAT). Comments on the SSGAT included:
    - To begin the discussion, it was asked when and why the SSGAT was first developed

        - FDOT ASO staff indicated that it was develop as a tool for FDOT to assist in making decisions on how projects are funded. It also was developed to help identify which projects fulfill "more goals"
    - It was then discussed how it is important to identify goals
        - SSGAT supports and drives project funding and justification
        - It is important to see if or how the SSGAT is being used to support FASP goals
        - The SSGAT may need to be modified to better support the overall goals of the FASP

- The final topic of discussion was on the CFASPP website. The following is a summary of the discussion:
    - Districts typically use website quarterly for meetings (only look at it to prepare for regional CFASPP meetings)
    - Suggested that modeling the site after "Freight Moves Florida" or another similar site would help make it more user friendly – needs to be updated to expand website and leverage for public input
        - It was also suggested that information be provided for individual FDOT Districts and CFASPP Regions
    - The primary suggestion was for an enhanced calendar that includes events from around the state
        - Provide the ability to query by CFASPP Region or FDOT District to make as customizable as possible

- To end the meeting, attendees were asked if there were any deliverables or tools that could be included into the FASP. The following were noted by attendees:
    - Videos like the one developed by the Aircraft Owners and Pilots Association (AOPA) may be beneficial
    - Completing a comparison of the data collected for the FASP performance measures and indicators against other state systems around the country
        - Ex: comparison of the percentage of airports in Florida's system that have completed business plans vs. the percentage of airports in another state system that have completed business plans
    - Compiling information into a GIS database that can be easily updated

A.6 Continuous Florida Aviation System Planning Process (CFASPP)

The CFASPP was utilized as a venue to obtain input and present the findings and recommendations of the Florida Aviation System Plan (FASP) 2035. During regional CFASPP meetings in February 2017, the Consultant Team and the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) conducted sessions to obtain input and feedback on draft plan recommendations. During the meetings, all members of the aviation public were given the opportunity to express their opinions and provide feedback regarding the FASP 2035 recommendations and findings. These included members of the military, airport staff, consultants, and other aviation professionals that were not participants of the previously described review teams.

A.6.1 Meeting #1 – CFASPP Update Meeting – February 2017

A.6.1.1 Presentation

Aviation in Florida

- 8.5% of Florida's GSP is from aviation-dependent businesses
- Both the first scheduled airline flight and the first international flight took off in Florida
- #1 state for aerospace manufacturing attractiveness
- 128 public use and 650+ private use facilities
- High return on investment
  - 2013/2014 to 2015/2016: 1.37
  - 2014/2017 to 2020/2021: 1.72
- High economic impact
  - $144.0 billion in annual economic activity
  - Supports 1.3 million jobs with an annual payroll of $44.5 billion

What Does Aviation Do in Florida?

Today's Flight Plan

- Overview of outreach
- FASP itinerary
- FASP deliverables
- Guidance, products, tools, and resources
- Next steps

FASP Goals

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

Overview of Outreach So Far

6

Florida's airports are _____

Itinerary

8

FASP – Phase Overview

PHASE 1

- State, Regional, and Local Airport Issues
- Goals, Objectives & Performance Measures
- Inventory
- Stratification Methodology Evaluation
- Regional and State Overviews
- Aviation Industry Trends
- Forecasts
- Demand/Capacity
- SSGAT Update

PHASE 2

- Data Collection (Additional)
- Existing System Evaluation (Baseline Performance Measurement)
- Future System Needs (including Updated Forecasts)
- Alternative Scenarios
- Recommendations
- Public Engagement Mechanism (CFASPP Website Update)
- Final Deliverables

MEETINGS/COORDINATION

FAA » FASP Review Team (FASPRT) » Comprehensive Review Team (CRT)
Other FDOT Representatives » MPOs

9

Progress of the FASP

Still at the gate

- Recommendations
- Final deliverables

Cleared for departure

- Future system needs
- ID alternative scenarios

Enroute

- Data collection
- Establish PM/PI baseline
- ID demand drivers
- Apply SSGAT to JACIP

On short final

- Analysis of existing intermodal connectivity
- Analysis of historical SIS-funded projects
- Air Service and Air Cargo Studies review
- Mapping analysis

FASP Florida Aviation System Plan 2035 10 FDOT

Sample Deliverable

- **30 minute drive time buffers around airports with ATCTs**
  - ≈ 90% of FL population is within a 30 minute drive

FASP Florida Aviation System Plan 2035 11 FDOT

Sample Deliverable

- Analysis of SIS funds used at airports (FY13-17)

Project Type		Amount	Percent
Automated People Mover	$	156,500,000	47%
Terminal	$	90,812,200	28%
Runway	$	27,774,889	8%
Aviation Manufacturing	$	22,000,000	7%
Taxiway	$	8,799,300	3%
Access Road	$	7,553,766	2%
Air Commerce Park	$	7,000,000	2%
Terminal Shuttle Cars	$	5,400,000	2%
Cargo Facility	$	3,031,546	1%
Apron	$	1,000,000	0%
Total:	$	329,871,703	100%

- 90% of SIS highway funds are programmed for managed lane projects (FY17-21)

Project Type		Amount	Percent
Managed Lanes	$	11,182,526,000	90%
Add 4 to Build 6 Lanes	$	558,236,000	5%
Add 2 to Build 4 Lanes	$	193,382,000	2%
New Road	$	110,124,000	1%
Preliminary Engineering	$	102,150,000	1%
Project Dev. & Env.	$	95,482,000	1%
Add 2 to Build 6 Lanes	$	67,330,000	1%
Add Turn Lane	$	23,810,000	0.2%
Right Of Way	$	13,594,000	0.1%
Add 2 to Build 8 Lanes	$	10,266,000	0.1%
Total:	$	12,336,900,000	100%

FASP FDOT

Next Steps

- Analyze baseline performance
- Future system needs
- Identify alternative scenarios
- CRT webinar on March 1st
- We need…
  - Your data
  - Your input on the CFASPP website
  - Your review of draft deliverables

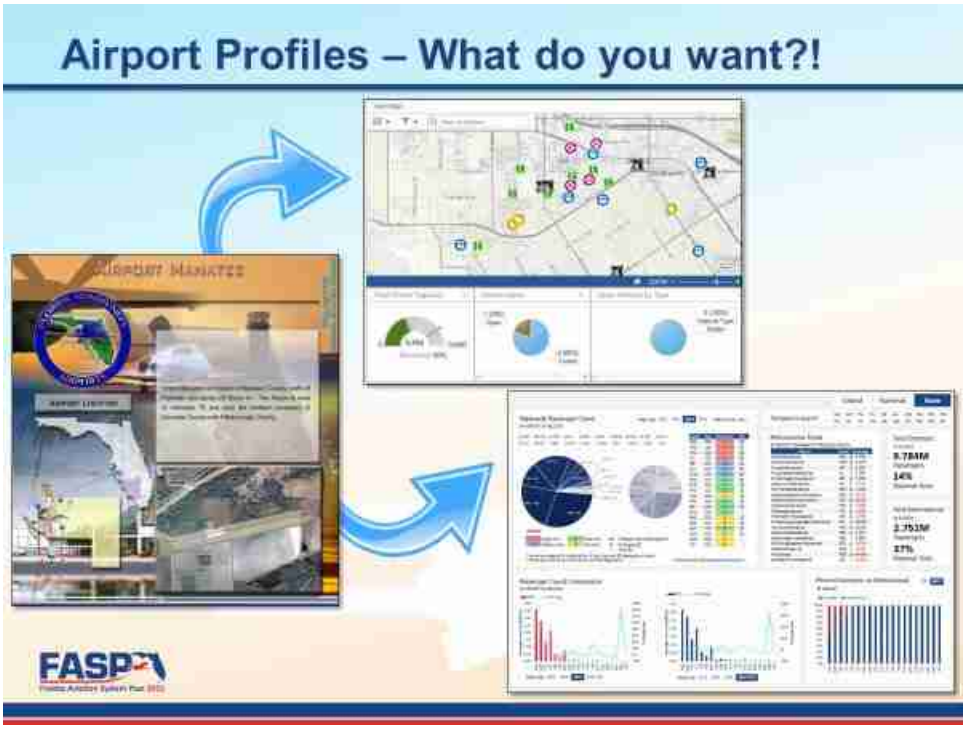
FASP FDOT

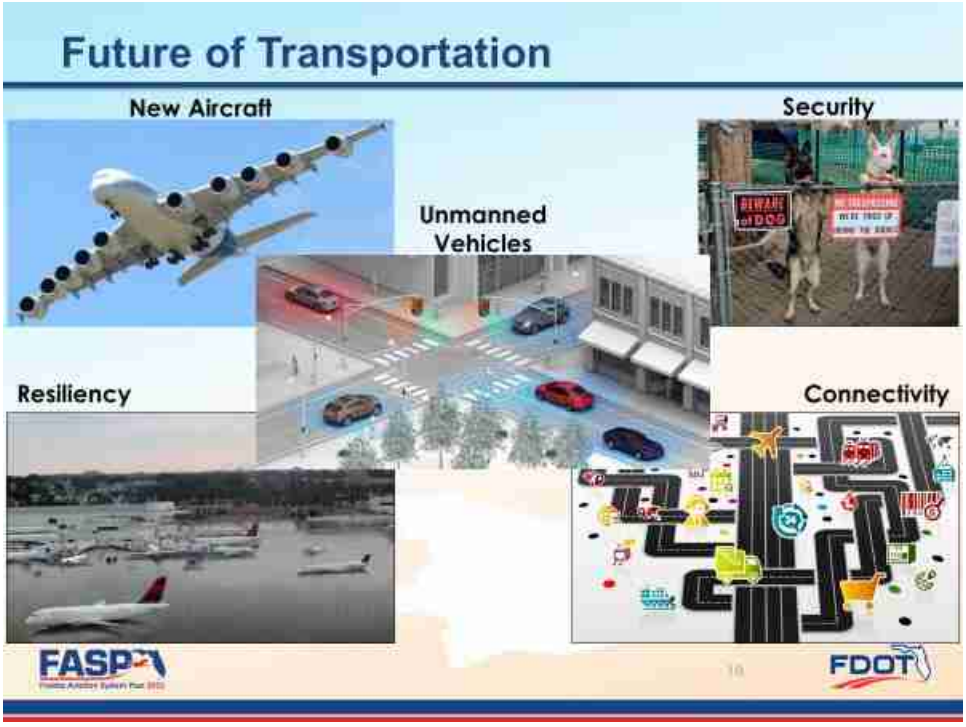
FASP Deliverables

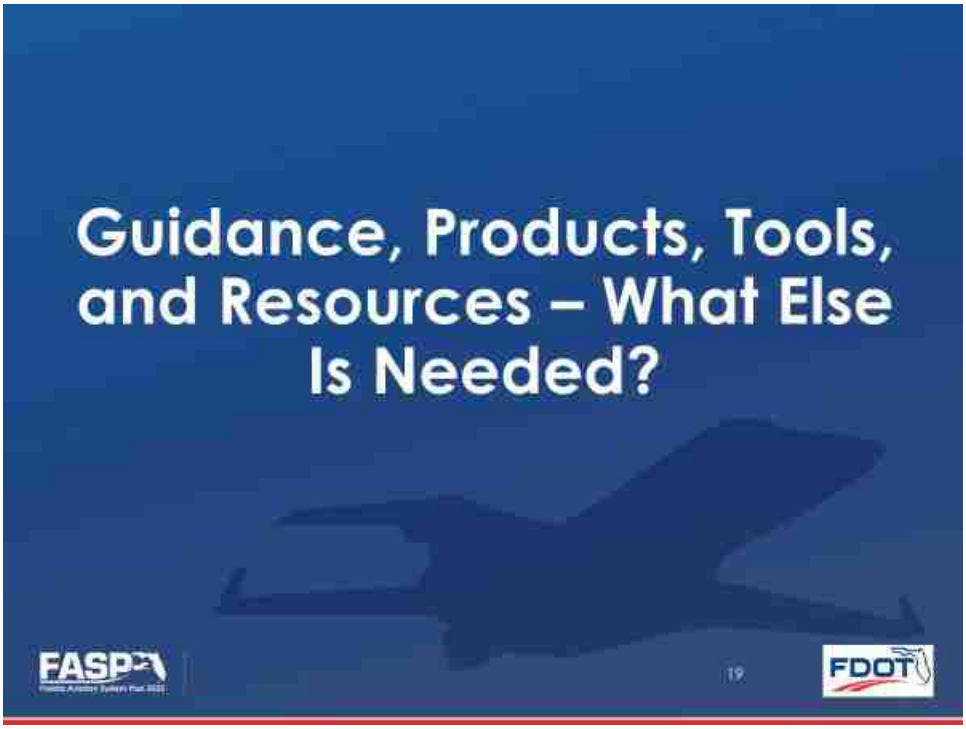
- Technical report
- Executive summaries
- Videos
- Brochures
- Executive summary primers

How can we make your flight more enjoyable?

Southwest Florida's airports are _____
Training
Booming
Expanding
Development
Taking Flight
Growth
Business
FASP
FDOT


Airport Profiles – What do you want?!
FASP


Future of Transportation
New Aircraft
Security
Unmanned Vehicles
Resiliency
Connectivity
FASP
FDOT

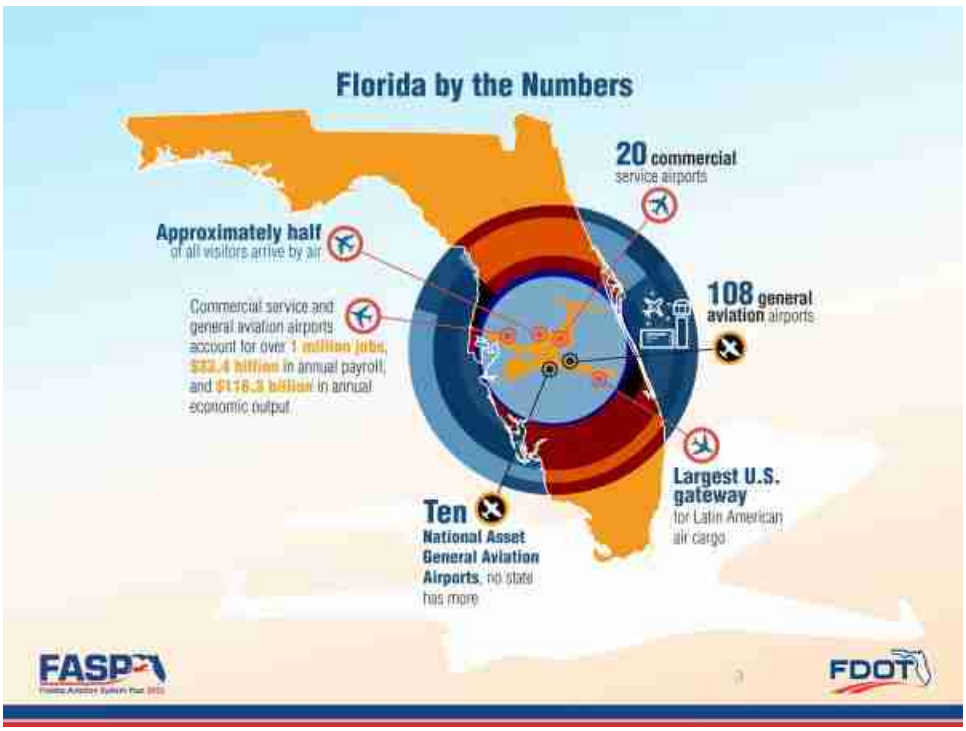

Guidance, Products, Tools, and Resources – What Else Is Needed?
FASP
19
FDOT

A.6.2 Meeting #2 – Statewide CFASPP Meeting – July 2017

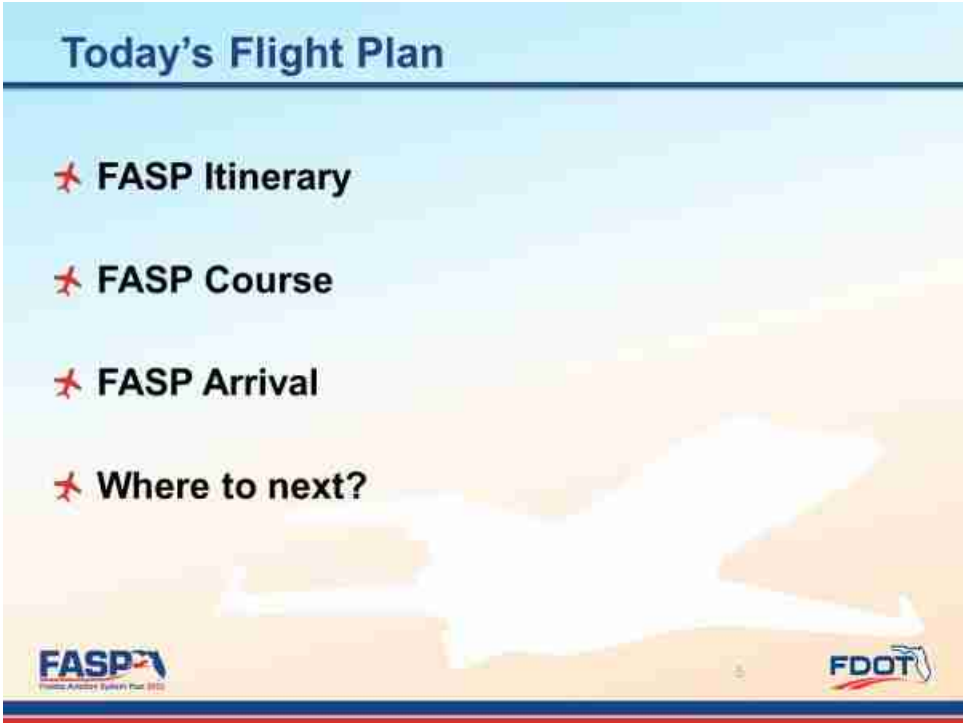
A.6.2.1 Presentation

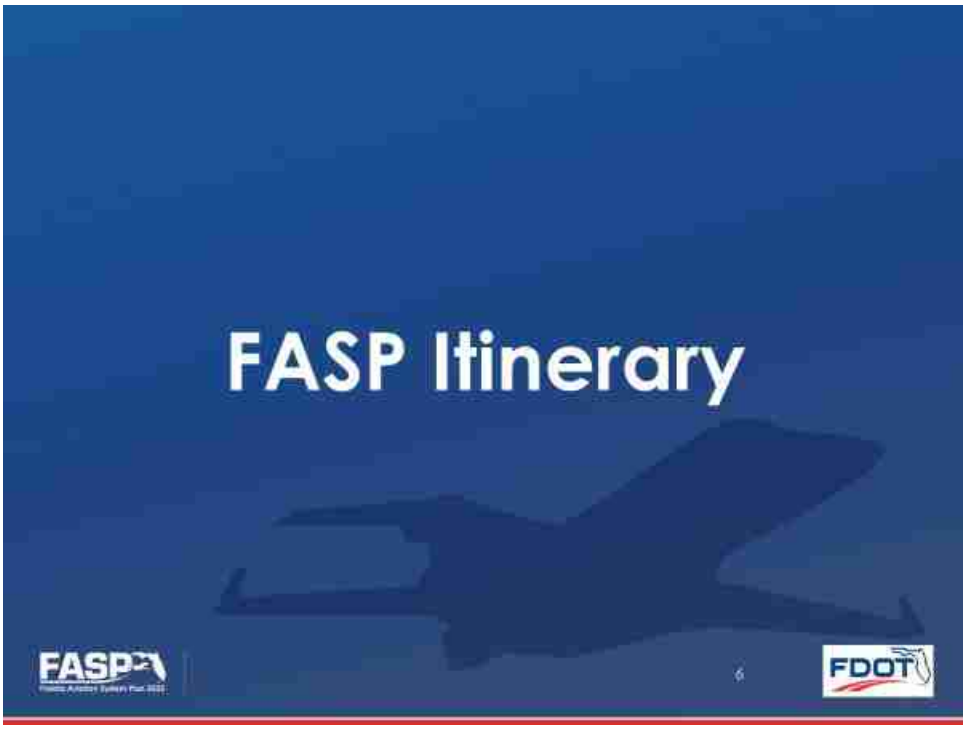
Thank you for your participation on the

FASP Comprehensive Review Team!!

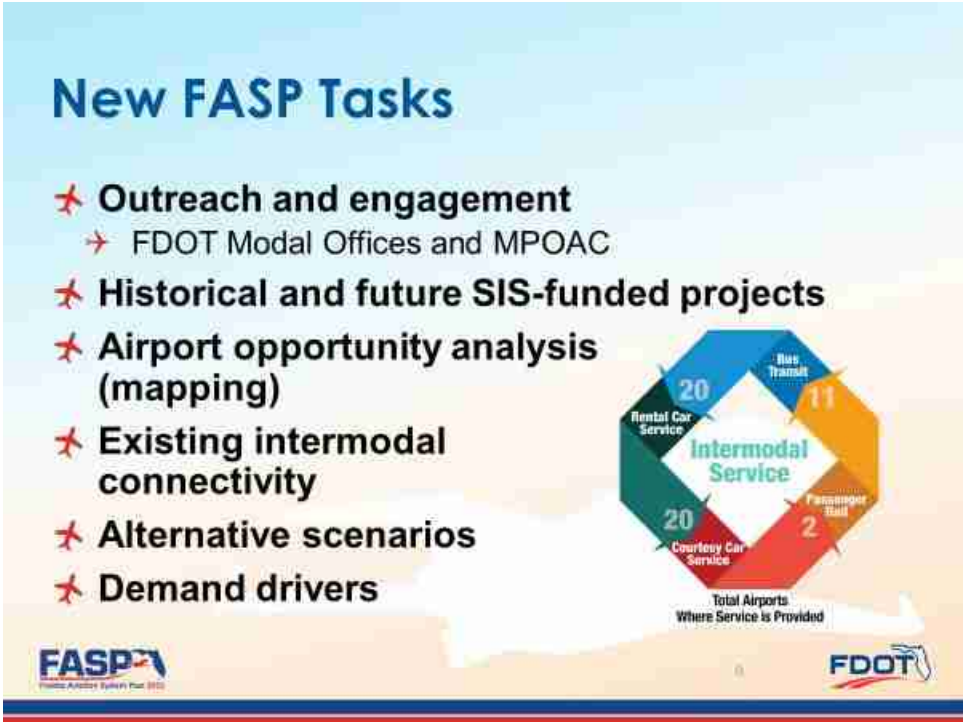


2012
2013
2014
2015
2016
2017/2018
Future Trends and Issues
FASP
FDOT


Today's Flight Plan
FASP Itinerary
FASP Course
FASP Arrival
Where to next?
FASP
FDOT


FASP Itinerary
FASP
6
FDOT

FASP Process
Meetings
Coordination
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
FASP
7
FDOT


New FASP Tasks
Outreach and engagement
FDOT Modal Offices and MPOAC
Historical and future SIS-funded projects
Airport opportunity analysis (mapping)
Existing intermodal connectivity
Alternative scenarios
Demand drivers
Intermodal Service
Bus Transit
11
Passenger Rail
2
Courtesy Car Service
20
Rental Car Service
20
Total Airports Where Service is Provided
FASP
FDOT

FASP Course
FASP
FDOT

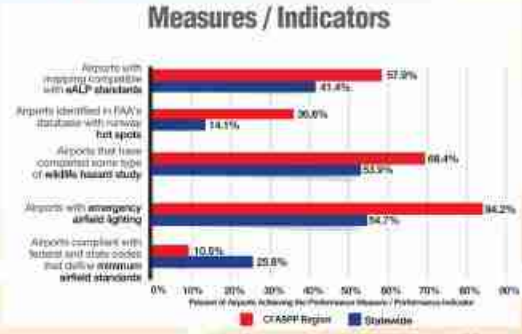
FASP Goals

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

FASP Florida Aviation System Plan 2035 | 10 | FDOT

Making Progress

- Series of Performance Measures and Performance Indicators
- Track our progress and inform our decision making



FASP Florida Aviation System Plan 2035 | 11 | FDOT

Future System Needs

Capacity

- Continued growth in flight training and commercial service
- No new airports; rather leverage the existing system

12

FASP Arrival

13

Statewide Recommendations

- Goals, objectives, performance measures, and performance indicators have been vetted:
  - Airports
  - FAA
  - FDOT Districts
  - Modal representatives
  - MPOs
- Recommended actions by goal category

FASP FDOT

Goal 1: Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors.

- Conduct a more detailed capacity study, looking specifically in FDOT Districts Four, Five, and Six.
- Prioritize funding for projects that address state licensing standards per Rule 14-60, Florida Administrative Code (FAC).
- Compile Runway Protection Zone (RPZ) ownership data.

Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment.

- Develop a study to determine business suitability and identify opportunities at airports, including commercial air service enhancements.
- Coordinate with MPOs and other modal partners to support and improve intermodal connectivity.
- Recommend modifications to existing SIS airport criteria to better leverage the economic competitiveness and strategic nature of Florida's airports.

Goal 3: Support and enhance the national position of leadership and prominence held by Florida's aviation industry.

- Develop a study to determine business suitability and identify opportunities at airports, including commercial air service enhancements.
- Monitor and promote the return on investment (ROI) of investment in Florida's airports.
- Continue to update the Statewide Aviation Economic Impact Study in conjunction with the FASP.

FASP FDOT

Goal 4: Protect airspace and promote compatible land uses around public airports.

- Provide continuous training on the latest requirements of Florida Statute (FS) 333, Airport Zoning.
- Develop a web-based statewide land use compatibility tool that includes UAS information.

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.

Goal 6: Promote support for aviation from business, government, and the public.

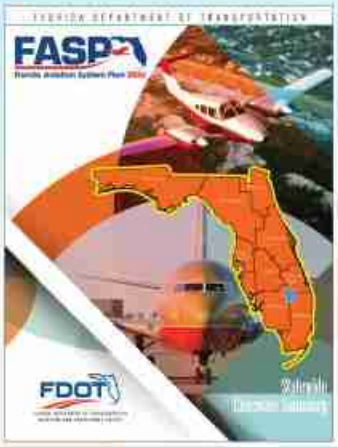
- Continue to fund and provide statewide Pavement Condition Index (PCI) inspections and training.
- Improve Capital Improvement Plan (CIP) management and coordination to better manage financial resources for the Joint Automated Capital Improvement Program (JACIP).

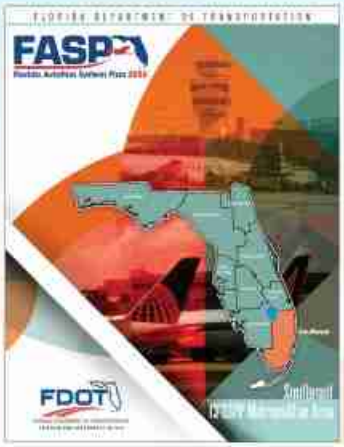
Goal 7: Foster Florida's reputation as a military-friendly state.

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

FASP FDOT

FASP Outreach Tools



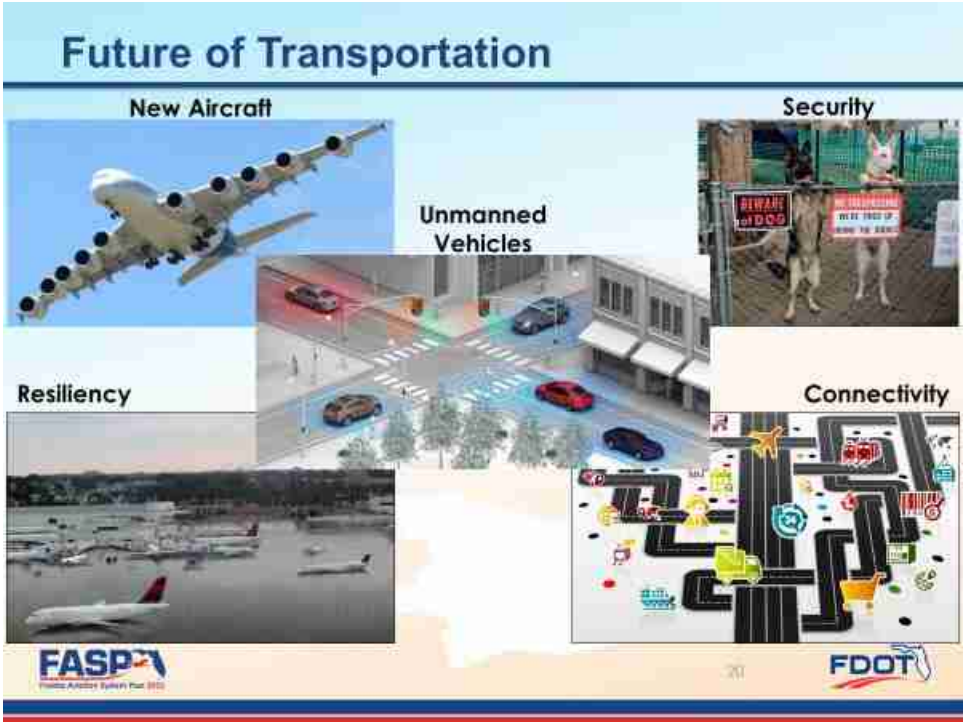


FASP FDOT

FASP Elements on Short Final

- **Long executive summary**
  - More detail on analyses and results
- **Technical report**
  - Full document of all analyses, tables, maps
- **Primers – 4 different audiences**
  - Tailored message
  - How to use FASP
  - What the FASP means to YOU

Where to Next?


Future of Transportation
New Aircraft
Security
Unmanned Vehicles
Resiliency
Connectivity
FASP
FDOT

Web-based Airport Profiles
Florida Aviation System Plan Platform
Florida Aviation System Plan Platform
FASP
FDOT

Potential Follow-on Efforts

- Automated inventory process
- FAD/JACIP assessment for modernization
- Using GIS as asset/data management
- Linking SAPMP to FASP 2035
- Technology solutions to accommodate UAS
- Conduct a capacity analysis (Districts 4, 5, & 6)
- Study to document RPZ ownership
- Develop statewide wildlife hazard assessment methodology
- Develop facility, infrastructure, and service guidelines
- Develop a business suitability study
- Develop a statewide eALP database

FASP 22 FDOT

Florida's airports

FASP 22 FDOT

Thank You
FASP
24
FDOT

B. Forecasting Tables

This appendix includes individual airport forecasts for each of the methodologies reviewed in **Chapter 6 – Aviation Activity Forecasts**. **Section B.1** includes based aircraft forecasts, **Section B.2** includes GA operation forecasts, and **Section B.3** includes the sensitivity analysis for both based aircraft and GA operation forecasts. Airports in these tables are listed in alphabetical order by associated city.

B.1 Based Aircraft Forecast Tables

Table B-1: Based Aircraft Forecast by Airport – County Population Growth Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Low	24	26	27	30	1.15%
Apalachicola	St. George Island Airport	F47	GA-Low	-	-	-	-	N/A
Apopka	Orlando Apopka Airport	X04	GA-Med	127	139	150	175	1.53%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	3	3	3	4	0.82%
Archer	Flying Ten Airport	0J8	GA-Low	11	12	12	14	1.07%
Avon Park	Avon Park Executive Airport	AVO	GA-Low	37	41	45	53	1.71%
Bartow	Bartow Municipal Airport	BOW	GA-Med	101	108	115	128	1.15%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	11	12	13	16	1.70%
Blountstown	Calhoun County Airport	F95	GA-Low	12	13	13	15	0.98%
Boca Raton	Boca Raton Airport	BCT	GA-Med	182	201	219	259	1.70%
Bonifay	Tri-County Airport	1J0	GA-Low	24	25	27	29	0.98%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-Med	148	163	177	209	1.66%
Brooksville	Pilot Country Airport	X05	GA-Low	27	30	32	38	1.66%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	10	11	11	13	1.15%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4	4	5	5	1.42%
Clearwater	Clearwater Air Park	CLW	GA-Med	85	88	90	94	0.49%
Clewiston	Airglades Airport	2IS	GA-Low	23	25	26	29	1.15%
Crestview	Bob Sikes Airport	CEW	GA-Low	43	45	46	49	0.67%
Cross City	Cross City Airport	CTY	GA-Low	12	13	14	15	1.09%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Low	40	44	47	54	1.48%
Daytona Beach	Daytona Beach International Airport	DAB	CS	269	282	294	318	0.80%
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	29	34	39	51	2.76%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	16	17	17	19	0.80%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-Med	197	207	215	233	0.80%
Destin	Destin Executive Airport	DTS	GA-Low	23	24	25	26	0.67%
Dunnellon	Marion County Airport	X35	GA-Med	104	114	122	142	1.50%
Englewood	Buchan Airport	X36	GA-Low	8	9	9	10	1.12%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	63	71	78	95	1.98%
Everglades	Everglades Airpark	X01	GA-Low	7	8	9	10	1.94%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	65	72	79	95	1.82%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-High	817	884	944	1,076	1.32%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	94	102	109	124	1.32%
Fort Myers	Page Field	FMY	GA-High	252	277	300	352	1.61%
Fort Myers	Southwest Florida International Airport	RSW	CS	4	4	5	6	1.61%
Fort Pierce	Treasure Coast International Airport	FPR	GA-High	216	243	269	328	2.00%
Gainesville	Gainesville Regional Airport	GNV	CS	146	156	164	182	1.07%
High Springs	Oak Tree Landing Airport	6J8	GA-Low	-	-	-	-	N/A
Hilliard	Hilliard Airpark	01J	GA-Low	30	33	37	44	1.82%
Hollywood	North Perry Airport	HWO	GA-High	258	279	298	340	1.32%
Homestead	Homestead General Aviation Airport	X51	GA-Med	68	72	76	84	1.04%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	60	67	74	90	1.94%
Indiantown	Indiantown Airport	X58	GA-Med	65	72	78	91	1.63%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
Inverness	Inverness Airport	INF	GA-Low	28	31	33	38	1.48%
Jacksonville	Cecil Airport	VQQ	GA-Med	93	99	105	117	1.10%
Jacksonville	Herlong Recreational Airport	HEG	GA-Med	187	200	211	235	1.10%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-High	226	241	255	284	1.10%
Jacksonville	Jacksonville International Airport	JAX	CS	60	64	68	75	1.10%
Key West	Key West International Airport	EYW	CS	66	69	71	77	0.72%
Keystone Heights	Keystone Airpark	42J	GA-Med	53	59	65	79	1.91%
La Belle	La Belle Municipal Airport	X14	GA-Low	49	52	56	62	1.15%
Lake City	Lake City Gateway Airport	LCQ	GA-Low	32	34	36	41	1.16%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	6	6	7	8	1.15%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Low	32	34	36	41	1.15%
Lakeland	Lakeland Linder Regional Airport	LAL	GA-Med	201	215	228	256	1.15%
Lakeland	South Lakeland Airport	X49	GA-Med	70	75	79	89	1.15%
Leesburg	Leesburg International Airport	LEE	GA-Med	149	168	185	225	1.98%
Live Oak	Suwannee County Airport	24J	GA-Low	37	41	44	51	1.52%
Marathon	The Florida Keys Marathon Airport	MTH	GA-Med	74	77	80	86	0.72%
Marco Island	Marco Island Airport	MKY	GA-Low	22	25	27	33	1.94%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
Marianna	Marianna Municipal Airport	MAI	GA-Low	27	28	29	31	0.71%
Melbourne	Melbourne International Airport	MLB	CS	235	248	259	284	0.90%
Merritt Island	Merritt Island Airport	COI	GA-Med	156	165	172	188	0.90%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	-	-	-	-	N/A
Miami	Miami Executive Airport	TMB	GA-High	445	473	498	553	1.04%
Miami	Miami International Airport	MIA	CS	28	30	31	35	1.04%
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-High	287	305	321	356	1.04%
Milton	Peter Prince Field	2R4	GA-Med	96	108	119	145	2.00%
Naples	Naples Municipal Airport	APF	GA-High	365	410	451	547	1.94%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8	9	10	12	2.00%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Med	98	103	107	116	0.80%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-Med	90	94	98	106	0.80%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-Med	116	127	137	158	1.50%
Okeechobee	Okeechobee County Airport	OBE	GA-Low	33	34	36	38	0.67%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
Orlando	Executive Airport	ORL	GA-Med	197	216	233	271	1.53%
Orlando	Kissimmee Gateway Airport	ISM	GA-Med	147	161	174	202	1.53%
Orlando	Orlando International Airport	MCO	CS	34	37	40	47	1.53%
Orlando	Orlando-Sanford International Airport	SFB	CS	344	377	407	473	1.53%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-Med	97	102	106	115	0.80%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Low	31	34	37	44	1.70%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	52	54	57	61	0.79%
Palm Coast	Flagler County Airport	FIN	GA-Med	75	86	96	120	2.28%
Palmetto	Airport Manatee	48X	GA-Med	55	61	66	78	1.71%
Panacea	Wakulla County Airport	2J0	GA-Low	19	21	23	27	1.69%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	110	118	124	139	1.12%
Pensacola	Ferguson Airport	82J	GA-Low	33	34	35	36	0.48%
Pensacola	Pensacola International Airport	PNS	CS	88	91	93	97	0.48%
Perry	Perry-Foley Airport	40J	GA-Low	16	17	17	18	0.58%
Pierson	Pierson Municipal Airport	2J8	GA-Low	21	22	23	25	0.80%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
Plant City	Plant City Airport	PCM	GA-Med	89	98	106	123	1.57%
Pompano Beach	Pompano Beach Airpark	PMP	GA-Med	74	80	85	97	1.32%
Port St. Joe	Costin Airport	A51	GA-Low	5	5	5	6	0.62%
Punta Gorda	Punta Gorda Airport	PGD	CS	316	342	365	416	1.32%
Punta Gorda	Shell Creek Airpark	F13	GA-Low	11	12	13	14	1.32%
Quincy	Quincy Municipal Airport	2J9	GA-Med	60	61	63	65	0.39%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	N/A
Sarasota/ Bradenton	Sarasota Bradenton International Airport	SRQ	CS	226	242	255	285	1.12%
Sebastian	Sebastian Municipal Airport	X26	GA-Low	40	44	48	57	1.70%
Sebring	Sebring Regional Airport	SEF	GA-Med	71	79	86	101	1.71%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	202	232	260	328	2.33%
St. Petersburg	Albert Whitted Airport	SPG	GA-High	141	145	149	156	0.49%
St. Petersburg/Clear water	St. Pete-Clearwater International Airport	PIE	CS	310	319	327	344	0.49%
Stuart	Witham Field	SUA	GA-Med	198	218	236	278	1.63%
Tallahassee/ Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
Tallahassee	Tallahassee International Airport	TLH	CS	98	105	111	125	1.15%
Tampa	Peter O. Knight Airport	TPF	GA-Med	106	116	126	147	1.57%
Tampa	Tampa Executive Airport	VDF	GA-Med	138	152	164	191	1.57%
Tampa	Tampa International Airport	TPA	CS	65	71	77	90	1.57%
Tampa	Tampa North Aero Park	X39	GA-Low	38	42	45	53	1.57%
Tavares	Tavares Seaplane Base	FA1	GA-Low	4	4	5	6	1.98%
Titusville	Arthur Dunn Air Park	X21	GA-Med	73	77	81	88	0.90%
Titusville	Space Coast Regional Airport	TIX	GA-Med	133	140	147	161	0.90%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	12	13	15	18	1.98%
Valkaria	Valkaria Airport	X59	GA-Med	62	65	68	75	0.90%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	-	-	-	-	N/A
Venice	Venice Municipal Airport	VNC	GA-High	255	273	288	322	1.12%
Vero Beach	New Hibiscus Airpark	X52	GA-Low	13	14	16	19	1.70%
Vero Beach	Vero Beach Regional Airport	VRB	GA-High	209	231	251	298	1.70%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	45	47	49	53	0.75%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	336	372	404	478	1.70%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	294	325	354	419	1.70%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast by Airport – County Population Growth Methodology								
West Palm Beach	Palm Beach International Airport	PBI	CS	148	164	178	211	1.70%
Williston	Williston Municipal Airport	X60	GA-Med	51	55	60	69	1.42%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	6	6	7	8	1.15%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-Med	145	155	164	184	1.15%
Zellwood	Bob White Field	X61	GA-Med	76	83	90	105	1.53%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	175	193	209	247	1.65%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Woods and Poole, Inc.; Kimley-Horn. Prepared April 2017.

*Airport closed indefinitely

Table B-2: Based Aircraft Forecast by Airport – FAA Aerospace Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Low	24	24	24	24	0.05%
Apalachicola	St. George Island Airport	F47	GA-Low	-	-	-	-	N/A
Apopka	Orlando Apopka Airport	X04	GA-Med	127	128	128	130	0.10%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	3	3	3	3	0.05%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
Archer	Flying Ten Airport	0J8	GA-Low	11	11	11	11	0.05%
Avon Park	Avon Park Executive Airport	AVO	GA-Low	37	37	37	37	0.05%
Bartow	Bartow Municipal Airport	BOW	GA-Med	101	102	102	103	0.10%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	11	11	11	11	0.05%
Blountstown	Calhoun County Airport	F95	GA-Low	12	12	12	12	0.05%
Boca Raton	Boca Raton Airport	BCT	GA-Med	182	183	184	186	0.10%
Bonifay	Tri-County Airport	1J0	GA-Low	24	24	24	24	0.05%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-Med	148	149	150	151	0.10%
Brooksville	Pilot Country Airport	X05	GA-Low	27	27	27	27	0.05%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	10	10	10	10	0.05%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4	4	4	4	0.05%
Clearwater	Clearwater Air Park	CLW	GA-Med	85	86	86	87	0.10%
Clewiston	Airglades Airport	2IS	GA-Low	23	23	23	23	0.05%
Crestview	Bob Sikes Airport	CEW	GA-Low	43	43	43	43	0.05%
Cross City	Cross City Airport	CTY	GA-Low	12	12	12	12	0.05%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Low	40	40	40	40	0.05%
Daytona Beach	Daytona Beach International Airport	DAB	CS	269	-	-	-	Commercial: N/A

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	29	29	29	29	0.05%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	16	16	16	16	0.05%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-Med	197	198	199	201	0.10%
Destin	Destin Executive Airport	DTS	GA-Low	23	23	23	23	0.05%
Dunnellon	Marion County Airport	X35	GA-Med	104	105	105	106	0.10%
Englewood	Buchan Airport	X36	GA-Low	8	8	8	8	0.05%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	63	63	64	64	0.10%
Everglades	Everglades Airpark	X01	GA-Low	7	7	7	7	0.05%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	65	65	66	66	0.10%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-High	817	827	835	852	0.20%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	94	-	-	-	Commercial: N/A
Fort Myers	Page Field	FMY	GA-High	252	255	258	263	0.20%
Fort Myers	Southwest Florida International Airport	RSW	CS	4	-	-	-	Commercial: N/A
Fort Pierce	Treasure Coast International Airport	FPR	GA-High	216	219	221	225	0.20%
Gainesville	Gainesville Regional Airport	GNV	CS	146	-	-	-	Commercial: N/A

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
High Springs	Oak Tree Landing Airport	6J8	GA-Low	-	-	-	-	N/A
Hilliard	Hilliard Airpark	01J	GA-Low	30	30	30	30	0.05%
Hollywood	North Perry Airport	HWO	GA-High	258	261	264	269	0.20%
Homestead	Homestead General Aviation Airport	X51	GA-Med	68	68	69	69	0.10%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	60	60	61	61	0.10%
Indiantown	Indiantown Airport	X58	GA-Med	65	65	66	66	0.10%
Inverness	Inverness Airport	INF	GA-Low	28	28	28	28	0.05%
Jacksonville	Cecil Airport	VQQ	GA-Med	93	94	94	95	0.10%
Jacksonville	Herlong Recreational Airport	HEG	GA-Med	187	188	189	191	0.10%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-High	226	229	231	236	0.20%
Jacksonville	Jacksonville International Airport	JAX	CS	60	-	-	-	Commercial: N/A
Key West	Key West International Airport	EYW	CS	66	-	-	-	Commercial: N/A
Keystone Heights	Keystone Airpark	42J	GA-Med	53	53	54	54	0.10%
La Belle	La Belle Municipal Airport	X14	GA-Low	49	49	49	50	0.05%
Lake City	Lake City Gateway Airport	LCQ	GA-Low	32	32	32	32	0.05%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	6	6	6	6	0.05%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Low	32	32	32	32	0.05%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
Lakeland	Lakeland Linder Regional Airport	LAL	GA-Med	201	202	203	205	0.10%
Lakeland	South Lakeland Airport	X49	GA-Med	70	70	71	71	0.10%
Leesburg	Leesburg International Airport	LEE	GA-Med	149	150	151	152	0.10%
Live Oak	Suwannee County Airport	24J	GA-Low	37	37	37	37	0.05%
Marathon	The Florida Keys Marathon Airport	MTH	GA-Med	74	74	75	76	0.10%
Marco Island	Marco Island Airport	MKY	GA-Low	22	22	22	22	0.05%
Marianna	Marianna Municipal Airport	MAI	GA-Low	27	27	27	27	0.05%
Melbourne	Melbourne International Airport	MLB	CS	235	-	-	-	Commercial: N/A
Merritt Island	Merritt Island Airport	COI	GA-Med	156	157	158	159	0.10%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	-	-	-	-	N/A
Miami	Miami Executive Airport	TMB	GA-High	445	450	455	464	0.20%
Miami	Miami International Airport	MIA	CS	28	-	-	-	Commercial: N/A
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-High	287	290	293	299	0.20%
Milton	Peter Prince Field	2R4	GA-Med	96	97	97	98	0.10%
Naples	Naples Municipal Airport	APF	GA-High	365	369	373	381	0.20%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8	8	8	8	0.05%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Med	98	99	99	100	0.10%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-Med	90	91	91	92	0.10%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-Med	116	117	117	118	0.10%
Okeechobee	Okeechobee County Airport	OBE	GA-Low	33	33	33	33	0.05%
Orlando	Executive Airport	ORL	GA-Med	197	198	199	201	0.10%
Orlando	Kissimmee Gateway Airport	ISM	GA-Med	147	148	149	150	0.10%
Orlando	Orlando International Airport	MCO	CS	34	-	-	-	Commercial: N/A
Orlando	Orlando-Sanford International Airport	SFB	CS	344	-	-	-	Commercial: N/A
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-Med	97	98	98	99	0.10%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Low	31	31	31	31	0.05%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	52	52	53	53	0.10%
Palm Coast	Flagler County Airport	FIN	GA-Med	75	75	76	77	0.10%
Palmetto	Airport Manatee	48X	GA-Med	55	55	56	56	0.10%
Panacea	Wakulla County Airport	2J0	GA-Low	19	19	19	19	0.05%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	110	-	-	-	Commercial: N/A
Pensacola	Ferguson Airport	82J	GA-Low	33	33	33	33	0.05%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
Pensacola	Pensacola International Airport	PNS	CS	88	-	-	-	Commercial: N/A
Perry	Perry-Foley Airport	40J	GA-Low	16	16	16	16	0.05%
Pierson	Pierson Municipal Airport	2J8	GA-Low	21	21	21	21	0.05%
Plant City	Plant City Airport	PCM	GA-Med	89	90	90	91	0.10%
Pompano Beach	Pompano Beach Airpark	PMP	GA-Med	74	74	75	76	0.10%
Port St. Joe	Costin Airport	A51	GA-Low	5	5	5	5	0.05%
Punta Gorda	Punta Gorda Airport	PGD	CS	316	-	-	-	Commercial: N/A
Punta Gorda	Shell Creek Airpark	F13	GA-Low	11	11	11	11	0.05%
Quincy	Quincy Municipal Airport	2J9	GA-Med	60	60	61	61	0.10%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	N/A
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	226	-	-	-	Commercial: N/A
Sebastian	Sebastian Municipal Airport	X26	GA-Low	40	40	40	40	0.05%
Sebring	Sebring Regional Airport	SEF	GA-Med	71	71	72	73	0.10%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	202	-	-	-	Commercial: N/A
St. Petersburg	Albert Whitted Airport	SPG	GA-High	141	143	144	147	0.20%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	310	-	-	-	Commercial: N/A
Stuart	Witham Field	SUA	GA-Med	198	199	200	202	0.10%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
Tallahassee/ Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	98	-	-	-	Commercial: N/A
Tampa	Peter O. Knight Airport	TPF	GA-Med	106	107	107	108	0.10%
Tampa	Tampa Executive Airport	VDF	GA-Med	138	139	140	141	0.10%
Tampa	Tampa International Airport	TPA	CS	65	-	-	-	Commercial: N/A
Tampa	Tampa North Aero Park	X39	GA-Low	38	38	38	38	0.05%
Tavares	Tavares Seaplane Base	FA1	GA-Low	4	4	4	4	0.05%
Titusville	Arthur Dunn Air Park	X21	GA-Med	73	73	74	75	0.10%
Titusville	Space Coast Regional Airport	TIX	GA-Med	133	134	134	136	0.10%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	12	12	12	12	0.05%
Valkaria	Valkaria Airport	X59	GA-Med	62	62	63	63	0.10%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	-	-	-	-	Commercial: N/A
Venice	Venice Municipal Airport	VNC	GA-High	255	258	261	266	0.20%
Vero Beach	New Hibiscus Airpark	X52	GA-Low	13	13	13	13	0.05%
Vero Beach	Vero Beach Regional Airport	VRB	GA-High	209	212	214	218	0.20%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	45	45	45	45	0.05%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	336	340	343	350	0.20%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA Aerospace Growth Rate (GA Airports)								
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	294	298	301	307	0.20%
West Palm Beach	Palm Beach International Airport	PBI	CS	148	-	-	-	Commercial: N/A
Williston	Williston Municipal Airport	X60	GA-Med	51	51	52	52	0.10%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	6	6	6	6	0.05%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-Med	145	146	147	148	0.10%
Zellwood	Bob White Field	X61	GA-Med	76	76	77	78	0.10%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	175	176	177	179	0.10%

Source: Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; FAA Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.
*Airport closed indefinitely

Table B-3: Based Aircraft Forecast by Airport – FAA TAF/Straight-Line Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Low	24	23	23	23	-0.20%
Apalachicola	St. George Island Airport	F47	GA-Low	-	-	-	-	N/A
Apopka	Orlando Apopka Airport	X04	GA-Med	127	117	117	117	-0.39%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	3	-	-	-	N/A

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
Archer	Flying Ten Airport	0J8	GA-Low	11	11	11	11	0.00%
Avon Park	Avon Park Executive Airport	AVO	GA-Low	37	37	37	37	0.00%
Bartow	Bartow Municipal Airport	BOW	GA-Med	101	91	97	107	0.28%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	11	11	11	11	0.00%
Blountstown	Calhoun County Airport	F95	GA-Low	12	11	11	11	-0.41%
Boca Raton	Boca Raton Airport	BCT	GA-Med	182	197	216	256	1.64%
Bonifay	Tri-County Airport	1J0	GA-Low	24	19	19	19	-1.11%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-Med	148	130	136	148	0.00%
Brooksville	Pilot Country Airport	X05	GA-Low	27	27	27	27	0.00%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	10	6	6	6	-2.40%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4	2	2	2	-3.25%
Clearwater	Clearwater Air Park	CLW	GA-Med	85	81	84	94	0.48%
Clewiston	Airglades Airport	2IS	GA-Low	23	18	18	18	-1.16%
Crestview	Bob Sikes Airport	CEW	GA-Low	43	50	58	68	2.21%
Cross City	Cross City Airport	CTY	GA-Low	12	10	10	10	-0.86%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Low	40	42	42	42	0.23%
Daytona Beach	Daytona Beach International Airport	DAB	CS	269	254	275	315	0.75%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	29	26	26	26	-0.52%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	16	16	16	16	0.00%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-Med	197	202	216	248	1.10%
Destin	Destin Executive Airport	DTS	GA-Low	23	22	22	22	-0.21%
Dunnellon	Marion County Airport	X35	GA-Med	104	104	104	104	0.00%
Englewood	Buchan Airport	X36	GA-Low	8	8	8	8	0.00%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	63	63	63	63	0.00%
Everglades	Everglades Airpark	X01	GA-Low	7	7	7	7	0.00%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	65	62	62	62	-0.22%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-High	817	1,002	1,072	1,212	1.90%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	94	88	88	88	-0.31%
Fort Myers	Page Field	FMY	GA-High	252	267	296	356	1.66%
Fort Myers	Southwest Florida International Airport	RSW	CS	4	7	8	8	3.36%
Fort Pierce	Treasure Coast International Airport	FPR	GA-High	216	237	267	327	1.99%
Gainesville	Gainesville Regional Airport	GNV	CS	146	161	179	210	1.75%
High Springs	Oak Tree Landing Airport	6J8	GA-Low	-	-	-	-	N/A

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
Hilliard	Hilliard Airpark	01J	GA-Low	30	29	29	29	-0.16%
Hollywood	North Perry Airport	HWO	GA-High	258	254	261	281	0.41%
Homestead	Homestead General Aviation Airport	X51	GA-Med	68	62	66	66	-0.14%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	60	58	58	58	-0.16%
Indiantown	Indiantown Airport	X58	GA-Med	65	65	65	65	0.00%
Inverness	Inverness Airport	INF	GA-Low	28	38	38	38	1.46%
Jacksonville	Cecil Airport	VQQ	GA-Med	93	23	23	23	-6.44%
Jacksonville	Herlong Recreational Airport	HEG	GA-Med	187	164	168	168	-0.51%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-High	226	225	252	329	1.80%
Jacksonville	Jacksonville International Airport	JAX	CS	60	39	40	41	-1.80%
Key West	Key West International Airport	EYW	CS	66	62	66	76	0.67%
Keystone Heights	Keystone Airpark	42J	GA-Med	53	50	50	50	-0.28%
La Belle	La Belle Municipal Airport	X14	GA-Low	49	43	43	43	-0.62%
Lake City	Lake City Gateway Airport	LCQ	GA-Low	32	31	32	32	0.00%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	6	6	6	6	0.00%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Low	32	15	15	15	-3.54%
Lakeland	Lakeland Linder Regional Airport	LAL	GA-Med	201	237	250	270	1.42%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
Lakeland	South Lakeland Airport	X49	GA-Med	70	70	70	70	0.00%
Leesburg	Leesburg International Airport	LEE	GA-Med	149	93	103	123	-0.91%
Live Oak	Suwannee County Airport	24J	GA-Low	37	36	36	36	-0.13%
Marathon	The Florida Keys Marathon Airport	MTH	GA-Med	74	89	101	121	2.37%
Marco Island	Marco Island Airport	MKY	GA-Low	22	27	27	27	0.98%
Marianna	Marianna Municipal Airport	MAI	GA-Low	27	26	26	26	-0.18%
Melbourne	Melbourne International Airport	MLB	CS	235	259	297	398	2.54%
Merritt Island	Merritt Island Airport	COI	GA-Med	156	146	146	146	-0.31%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	-	-	-	-	N/A
Miami	Miami Executive Airport	TMB	GA-High	445	455	477	517	0.72%
Miami	Miami International Airport	MIA	CS	28	28	28	28	0.00%
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-High	287	274	282	292	0.08%
Milton	Peter Prince Field	2R4	GA-Med	96	100	109	120	1.07%
Naples	Naples Municipal Airport	APF	GA-High	365	370	418	538	1.86%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8	8	8	8	0.00%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Med	98	98	98	98	0.00%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-Med	90	83	83	83	-0.38%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-Med	116	113	121	131	0.58%
Okeechobee	Okeechobee County Airport	OBE	GA-Low	33	37	42	52	2.19%
Orlando	Executive Airport	ORL	GA-Med	197	198	211	235	0.84%
Orlando	Kissimmee Gateway Airport	ISM	GA-Med	147	136	139	139	-0.27%
Orlando	Orlando International Airport	MCO	CS	34	36	36	36	0.27%
Orlando	Orlando-Sanford International Airport	SFB	CS	344	343	363	412	0.86%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-Med	97	180	210	262	4.85%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Low	31	15	15	15	-3.40%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	52	49	49	49	-0.28%
Palm Coast	Flagler County Airport	FIN	GA-Med	75	81	90	108	1.75%
Palmetto	Airport Manatee	48X	GA-Med	55	55	55	55	0.00%
Panacea	Wakulla County Airport	2J0	GA-Low	19	19	19	19	0.00%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	110	110	110	110	0.00%
Pensacola	Ferguson Airport	82J	GA-Low	33	33	33	33	0.00%
Pensacola	Pensacola International Airport	PNS	CS	88	118	134	174	3.30%
Perry	Perry-Foley Airport	40J	GA-Low	16	15	15	15	-0.31%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
Pierson	Pierson Municipal Airport	2J8	GA-Low	21	21	21	21	0.00%
Plant City	Plant City Airport	PCM	GA-Med	89	97	104	114	1.19%
Pompano Beach	Pompano Beach Airpark	PMP	GA-Med	74	149	153	153	3.52%
Port St. Joe	Costin Airport	A51	GA-Low	5	5	5	5	0.00%
Punta Gorda	Punta Gorda Airport	PGD	CS	316	320	347	397	1.09%
Punta Gorda	Shell Creek Airpark	F13	GA-Low	11	11	11	11	0.00%
Quincy	Quincy Municipal Airport	2J9	GA-Med	60	49	49	49	-0.96%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	N/A
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	226	261	281	325	1.75%
Sebastian	Sebastian Municipal Airport	X26	GA-Low	40	36	36	36	-0.50%
Sebring	Sebring Regional Airport	SEF	GA-Med	71	61	61	61	-0.72%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	202	235	267	328	2.34%
St. Petersburg	Albert Whitted Airport	SPG	GA-High	141	144	159	189	1.40%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	310	306	339	404	1.27%
Stuart	Witham Field	SUA	GA-Med	198	197	206	216	0.42%
Tallahassee/ Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	98	124	129	139	1.68%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
Tampa	Peter O. Knight Airport	TPF	GA-Med	106	105	109	119	0.55%
Tampa	Tampa Executive Airport	VDF	GA-Med	138	152	170	216	2.16%
Tampa	Tampa International Airport	TPA	CS	65	59	59	59	-0.46%
Tampa	Tampa North Aero Park	X39	GA-Low	38	38	38	38	0.00%
Tavares	Tavares Seaplane Base	FA1	GA-Low	4	4	4	4	0.00%
Titusville	Arthur Dunn Air Park	X21	GA-Med	73	52	52	52	-1.60%
Titusville	Space Coast Regional Airport	TIX	GA-Med	133	137	152	182	1.50%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	12	11	11	11	-0.41%
Valkaria	Valkaria Airport	X59	GA-Med	62	115	127	157	4.52%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	-	-	-	-	N/A
Venice	Venice Municipal Airport	VNC	GA-High	255	220	227	242	-0.25%
Vero Beach	New Hibiscus Airpark	X52	GA-Low	13	13	13	13	0.00%
Vero Beach	Vero Beach Regional Airport	VRB	GA-High	209	237	265	336	2.29%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	45	50	50	50	0.50%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	336	274	275	275	-0.95%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	294	306	341	411	1.61%
West Palm Beach	Palm Beach International Airport	PBI	CS	148	170	176	186	1.09%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate
Based Aircraft Forecast: FAA TAF or Straight-Line Growth Rate								
Williston	Williston Municipal Airport	X60	GA-Med	51	65	73	88	2.63%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	6	6	6	6	0.00%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-Med	145	161	191	262	2.86%
Zellwood	Bob White Field	X61	GA-Med	76	76	76	76	0.00%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	175	174	189	219	1.07%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF,) issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.
*Airport closed indefinitely

Table B-4: Based Aircraft Forecast by Airport – Preferred Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Low	24	26	27	30	1.15%
Apalachicola	St. George Island Airport	F47	GA-Low	-	-	-	-	N/A
Apopka	Orlando Apopka Airport	X04	GA-Med	127	139	150	175	1.53%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	3	3	3	4	0.82%
Archer	Flying Ten Airport	0J8	GA-Low	11	12	12	14	1.07%
Avon Park	Avon Park Executive Airport	AVO	GA-Low	37	41	45	53	1.71%
Bartow	Bartow Municipal Airport	BOW	GA-Med	101	108	115	128	1.15%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	11	12	13	16	1.70%
Blountstown	Calhoun County Airport	F95	GA-Low	12	13	13	15	0.98%
Boca Raton	Boca Raton Airport	BCT	GA-Med	182	201	219	259	1.70%
Bonifay	Tri-County Airport	1J0	GA-Low	24	25	27	29	0.98%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-Med	148	163	177	209	1.66%
Brooksville	Pilot Country Airport	X05	GA-Low	27	30	32	38	1.66%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	10	11	11	13	1.15%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4	4	5	5	1.42%
Clearwater	Clearwater Air Park	CLW	GA-Med	85	88	90	94	0.49%
Clewiston	Airglades Airport	2IS	GA-Low	23	25	26	29	1.15%
Crestview	Bob Sikes Airport	CEW	GA-Low	43	45	46	49	0.67%
Cross City	Cross City Airport	CTY	GA-Low	12	13	14	15	1.09%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Low	40	44	47	54	1.48%
Daytona Beach	Daytona Beach International Airport	DAB	CS	269	254	275	315	0.75%
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	29	34	39	51	2.76%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	16	17	17	19	0.80%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-Med	197	207	215	233	0.80%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Destin	Destin Executive Airport	DTS	GA-Low	23	24	25	26	0.67%
Dunnellon	Marion County Airport	X35	GA-Med	104	114	122	142	1.50%
Englewood	Buchan Airport	X36	GA-Low	8	9	9	10	1.12%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	63	71	78	95	1.98%
Everglades	Everglades Airpark	X01	GA-Low	7	8	9	10	1.94%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	65	72	79	95	1.82%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-High	817	1,002	1,072	1,212	1.90%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	94	88	88	88	-0.31%
Fort Myers	Page Field	FMY	GA-High	252	267	296	356	1.66%
Fort Myers	Southwest Florida International Airport	RSW	CS	4	7	8	8	3.36%
Fort Pierce	Treasure Coast International Airport	FPR	GA-High	216	237	267	327	1.99%
Gainesville	Gainesville Regional Airport	GNV	CS	146	161	179	210	1.75%
High Springs	Oak Tree Landing Airport	6J8	GA-Low	-	-	-	-	N/A
Hilliard	Hilliard Airpark	01J	GA-Low	30	33	37	44	1.82%
Hollywood	North Perry Airport	HWO	GA-High	258	254	261	281	0.41%
Homestead	Homestead General Aviation Airport	X51	GA-Med	68	72	76	84	1.04%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Immokalee	Immokalee Regional Airport	IMM	GA-Med	60	67	74	90	1.94%
Indiantown	Indiantown Airport	X58	GA-Med	65	72	78	91	1.63%
Inverness	Inverness Airport	INF	GA-Low	28	31	33	38	1.48%
Jacksonville	Cecil Airport	VQQ	GA-Med	93	99	105	117	1.10%
Jacksonville	Herlong Recreational Airport	HEG	GA-Med	187	200	211	235	1.10%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-High	226	225	252	329	1.80%
Jacksonville	Jacksonville International Airport	JAX	CS	60	39	40	41	-1.80%
Key West	Key West International Airport	EYW	CS	66	62	66	76	0.67%
Keystone Heights	Keystone Airpark	42J	GA-Med	53	59	65	79	1.91%
La Belle	La Belle Municipal Airport	X14	GA-Low	49	52	56	62	1.15%
Lake City	Lake City Gateway Airport	LCQ	GA-Low	32	34	36	41	1.16%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	6	6	7	8	1.15%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Low	32	34	36	41	1.15%
Lakeland	Lakeland Linder Regional Airport	LAL	GA-Med	201	215	228	256	1.15%
Lakeland	South Lakeland Airport	X49	GA-Med	70	75	79	89	1.15%
Leesburg	Leesburg International Airport	LEE	GA-Med	149	168	185	225	1.98%
Live Oak	Suwannee County Airport	24J	GA-Low	37	41	44	51	1.52%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Marathon	The Florida Keys Marathon Airport	MTH	GA-Med	74	77	80	86	0.72%
Marco Island	Marco Island Airport	MKY	GA-Low	22	25	27	33	1.94%
Marianna	Marianna Municipal Airport	MAI	GA-Low	27	28	29	31	0.71%
Melbourne	Melbourne International Airport	MLB	CS	235	259	297	398	2.54%
Merritt Island	Merritt Island Airport	COI	GA-Med	156	165	172	188	0.90%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	-	-	-	-	N/A
Miami	Miami Executive Airport	TMB	GA-High	445	455	477	517	0.72%
Miami	Miami International Airport	MIA	CS	28	28	28	28	0.00%
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-High	287	274	282	292	0.08%
Milton	Peter Prince Field	2R4	GA-Med	96	108	119	145	2.00%
Naples	Naples Municipal Airport	APF	GA-High	365	370	418	538	1.86%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8	9	10	12	2.00%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Med	98	103	107	116	0.80%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-Med	90	94	98	106	0.80%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-Med	116	127	137	158	1.50%
Okeechobee	Okeechobee County Airport	OBE	GA-Low	33	34	36	38	0.67%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Orlando	Executive Airport	ORL	GA-Med	197	216	233	271	1.53%
Orlando	Kissimmee Gateway Airport	ISM	GA-Med	147	161	174	202	1.53%
Orlando	Orlando International Airport	MCO	CS	34	36	36	36	0.27%
Orlando	Orlando-Sanford International Airport	SFB	CS	344	343	363	412	0.86%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-Med	97	102	106	115	0.80%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Low	31	34	37	44	1.70%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	52	54	57	61	0.79%
Palm Coast	Flagler County Airport	FIN	GA-Med	75	86	96	120	2.28%
Palmetto	Airport Manatee	48X	GA-Med	55	61	66	78	1.71%
Panacea	Wakulla County Airport	2J0	GA-Low	19	21	23	27	1.69%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	110	110	110	110	0.00%
Pensacola	Ferguson Airport	82J	GA-Low	33	34	35	36	0.48%
Pensacola	Pensacola International Airport	PNS	CS	88	118	134	174	3.30%
Perry	Perry-Foley Airport	40J	GA-Low	16	17	17	18	0.58%
Pierson	Pierson Municipal Airport	2J8	GA-Low	21	22	23	25	0.80%
Plant City	Plant City Airport	PCM	GA-Med	89	98	106	123	1.57%
Pompano Beach	Pompano Beach Airpark	PMP	GA-Med	74	80	85	97	1.32%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Port St. Joe	Costin Airport	A51	GA-Low	5	5	5	6	0.62%
Punta Gorda	Punta Gorda Airport	PGD	CS	316	320	347	397	1.09%
Punta Gorda	Shell Creek Airpark	F13	GA-Low	11	12	13	14	1.32%
Quincy	Quincy Municipal Airport	2J9	GA-Med	60	61	63	65	0.39%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	N/A
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	226	261	281	325	1.75%
Sebastian	Sebastian Municipal Airport	X26	GA-Low	40	44	48	57	1.70%
Sebring	Sebring Regional Airport	SEF	GA-Med	71	79	86	101	1.71%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	202	235	267	328	2.34%
St. Petersburg	Albert Whitted Airport	SPG	GA-High	141	144	159	189	1.40%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	310	306	339	404	1.27%
Stuart	Witham Field	SUA	GA-Med	198	218	236	278	1.63%
Tallahassee/ Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	98	124	129	139	1.68%
Tampa	Peter O. Knight Airport	TPF	GA-Med	106	116	126	147	1.57%
Tampa	Tampa Executive Airport	VDF	GA-Med	138	152	164	191	1.57%
Tampa	Tampa International Airport	TPA	CS	65	59	59	59	-0.46%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Tampa	Tampa North Aero Park	X39	GA-Low	38	42	45	53	1.57%
Tavares	Tavares Seaplane Base	FA1	GA-Low	4	4	5	6	1.98%
Titusville	Arthur Dunn Air Park	X21	GA-Med	73	77	81	88	0.90%
Titusville	Space Coast Regional Airport	TIX	GA-Med	133	140	147	161	0.90%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	12	13	15	18	1.98%
Valkaria	Valkaria Airport	X59	GA-Med	62	65	68	75	0.90%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	-	-	-	-	N/A
Venice	Venice Municipal Airport	VNC	GA-High	255	220	227	242	-0.25%
Vero Beach	New Hibiscus Airpark	X52	GA-Low	13	14	16	19	1.70%
Vero Beach	Vero Beach Regional Airport	VRB	GA-High	209	237	265	336	2.29%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	45	47	49	53	0.75%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	336	274	275	275	-0.95%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	294	306	341	411	1.61%
West Palm Beach	Palm Beach International Airport	PBI	CS	148	170	176	186	1.09%
Williston	Williston Municipal Airport	X60	GA-Med	51	55	60	69	1.42%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	6	6	7	8	1.15%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-Med	145	155	164	184	1.15%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035
Based Aircraft Forecast: Preferred Methodology								
Zellwood	Bob White Field	X61	GA-Med	76	83	90	105	1.53%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	175	193	209	247	1.65%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Woods & Poole, Inc.; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037. Kimley-Horn. Prepared April 2017.

*Airport closed indefinitely

Table B-5: Based Aircraft Forecast by Airport – FAA TAF Growth Rates 2014 – 2035 and 2016 – 2035 (FAA TAF/Straight-Line Preferred Methodology Only)

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035	2016 Based Aircraft	Avg. Annual Growth Rate 2016 – 2035
Based Aircraft Forecast: Preferred Methodology										
Daytona Beach	Daytona Beach International Airport	DAB	CS	269	254	275	315	0.75%	238	1.70%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	94	88	88	88	-0.31%	88	0.00%
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-High	817	1,002	1,072	1,212	1.90%	947	1.47%
Fort Myers	Southwest Florida International Airport	RSW	CS	4	7	8	8	3.36%	6	1.75%
Fort Myers	Page Field	FMY	GA-High	252	267	296	356	1.66%	244	2.42%
Fort Pierce	Treasure Coast International Airport	FPR	GA-High	216	237	267	327	1.99%	218	2.63%
Gainesville	Gainesville Regional Airport	GNV	CS	146	161	179	210	1.75%	149	2.15%
Hollywood	North Perry Airport	HWO	GA-High	258	254	261	281	0.41%	247	0.72%
Jacksonville	Jacksonville International Airport	JAX	CS	60	39	40	41	-1.80%	39	0.27%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-High	226	225	252	329	1.80%	206	3.14%
Key West	Key West International Airport	EYW	CS	66	62	66	76	0.67%	59	1.52%
Melbourne	Melbourne International Airport	MLB	CS	235	259	297	398	2.54%	235	3.65%
Miami	Miami International Airport	MIA	CS	28	28	28	28	0.00%	36	-1.17%
Miami	Miami Executive Airport	TMB	GA-High	445	455	477	517	0.72%	437	0.96%
Miami	Miami-Opa Locka Executive Airport	OPF	GA-High	287	274	282	292	0.08%	272	0.39%
Naples	Naples Municipal Airport	APF	GA-High	365	370	418	538	1.86%	332	3.27%
Orlando	Orlando International Airport	MCO	CS	34	36	36	36	0.27%	36	0.00%
Orlando	Orlando-Sanford International Airport	SFB	CS	344	343	363	412	0.86%	327	1.37%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	110	110	110	110	0.00%	110	0.00%
Pensacola	Pensacola International Airport	PNS	CS	88	118	134	174	3.30%	106	3.38%
Punta Gorda	Punta Gorda Airport	PGD	CS	316	320	347	397	1.09%	300	1.70%
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	226	261	281	325	1.75%	249	1.61%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	202	235	267	328	2.34%	216	2.73%
St. Petersburg	Albert Whitted Airport	SPG	GA-High	141	144	159	189	1.40%	133	2.22%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	310	306	339	404	1.27%	278	2.39%
Tallahassee	Tallahassee International Airport	TLH	CS	98	124	129	139	1.68%	120	0.83%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2025 Based Aircraft	2035 Based Aircraft	Avg. Annual Growth Rate 2014 – 2035	2016 Based Aircraft	Avg. Annual Growth Rate 2016 – 2035
Tampa	Tampa International Airport	TPA	CS	65	59	59	59	-0.46%	59	0.00%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	-	-	-	-	N/A		N/A
Venice	Venice Municipal Airport	VNC	GA-High	255	220	227	242	-0.25%	214	0.69%
Vero Beach	Vero Beach Regional Airport	VRB	GA-High	209	237	265	336	2.29%	215	2.96%
West Palm Beach	Palm Beach International Airport	PBI	CS	148	170	176	186	1.09%	166	0.63%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	336	274	275	275	-0.95%	273	0.04%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	294	306	341	411	1.61%	282	2.41%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Woods & Poole, Inc.; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; Kimley-Horn. Prepared April 2017.

B.2 GA Operation Forecast Tables

Table B-6: GA Operations Forecast by Airport – County Population Growth Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: County Population Growth (GA Airports)								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Med	23,147	24,787	26,242	29,414	1.15%
Apalachicola	St. George Island Airport	F47	GA-Low	500	535	567	635	1.15%
Apopka	Orlando Apopka Airport	X04	GA-Med	21,900	23,991	25,886	30,135	1.53%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	19,340	20,306	21,149	22,939	0.82%
Archer	Flying Ten Airport	0J8	GA-Med	30,000	31,971	33,712	37,484	1.07%
Avon Park	Avon Park Executive Airport	AVO	GA-Med	32,400	35,869	39,043	46,257	1.71%
Bartow	Bartow Municipal Airport	BOW	GA-ATCT	27,759	29,733	31,485	35,305	1.15%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	1,800	1,991	2,166	2,563	1.70%
Blountstown	Calhoun County Airport	F95	GA-Low	1,020	1,082	1,136	1,252	0.98%
Boca Raton	Boca Raton Airport	BCT	GA-ATCT	49,077	54,290	59,055	69,875	1.70%
Bonifay	Tri-County Airport	1J0	GA-Med	28,272	29,972	31,466	34,682	0.98%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-ATCT	45,573	50,309	54,629	64,415	1.66%
Brooksville	Pilot Country Airport	X05	GA-Low	10,176	11,233	12,198	14,383	1.66%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	4,261	4,563	4,831	5,415	1.15%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4,000	4,352	4,669	5,374	1.42%
Clearwater	Clearwater Air Park	CLW	GA-High	50,560	52,074	53,371	56,062	0.49%
Clewiston	Airglades Airport	2IS	GA-Low	11,527	12,344	13,069	14,649	1.15%
Crestview	Bob Sikes Airport	CEW	GA-Med	48,400	50,386	52,103	55,714	0.67%
Cross City	Cross City Airport	CTY	GA-Low	18,000	19,210	20,281	22,605	1.09%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Med	27,896	30,470	32,796	37,994	1.48%
Daytona Beach	Daytona Beach International Airport	DAB	CS	279,171	N/A	N/A	N/A	N/A
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	16,000	18,838	21,585	28,337	2.76%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	6,000	6,293	6,548	7,090	0.80%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-High	117,060	122,779	127,758	138,330	0.80%
Destin	Destin Executive Airport	DTS	GA-High	62,400	64,960	67,174	71,829	0.67%
Dunnellon	Marion County Airport	X35	GA-Med	38,603	42,201	45,455	52,733	1.50%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: County Population Growth (GA Airports)								
Englewood	Buchan Airport	X36	GA-Low	2,701	2,887	3,053	3,412	1.12%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	20,024	22,518	24,831	30,196	1.98%
Everglades	Everglades Airpark	X01	GA-Low	6,000	6,734	7,413	8,984	1.94%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	45,400	50,585	55,355	66,287	1.82%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-ATCT	153,104	165,643	176,872	201,667	1.32%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	35,886	N/A	N/A	N/A	N/A
Fort Myers	Page Field	FMY	GA-ATCT	87,743	96,539	104,539	122,583	1.61%
Fort Myers	Southwest Florida International Airport	RSW	CS	8,768	N/A	N/A	N/A	N/A
Fort Pierce	Treasure Coast International Airport	FPR	GA-ATCT	152,589	171,862	189,770	231,379	2.00%
Gainesville	Gainesville Regional Airport	GNV	CS	47,527	N/A	N/A	N/A	N/A
High Springs	Oak Tree Landing Airport	6J8	GA-Low	200	213	225	250	1.07%
Hilliard	Hilliard Airpark	01J	GA-Low	5,000	5,571	6,096	7,300	1.82%
Hollywood	North Perry Airport	HWO	GA-ATCT	154,552	167,209	178,545	203,575	1.32%
Homestead	Homestead General Aviation Airport	X51	GA-High	74,517	79,276	83,474	92,547	1.04%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	36,500	40,962	45,095	54,653	1.94%
Indiantown	Indiantown Airport	X58	GA-Low	5,000	5,508	5,970	7,014	1.63%
Inverness	Inverness Airport	INF	GA-Low	15,000	16,384	17,635	20,430	1.48%
Jacksonville	Cecil Airport	VQQ	GA-ATCT	91,167	97,341	102,803	114,666	1.10%
Jacksonville	Herlong Recreational Airport	HEG	GA-High	80,700	86,165	91,000	101,501	1.10%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-ATCT	100,073	106,850	112,846	125,868	1.10%
Jacksonville	Jacksonville International Airport	JAX	CS	18,218	N/A	N/A	N/A	N/A
Key West	Key West International Airport	EYW	CS	30,100	N/A	N/A	N/A	N/A
Keystone Heights	Keystone Airpark	42J	GA-Med	31,900	35,736	39,282	47,465	1.91%
La Belle	La Belle Municipal Airport	X14	GA-Med	21,880	23,431	24,807	27,806	1.15%
Lake City	Lake City Gateway Airport	LCQ	GA-ATCT	27,414	29,383	31,131	34,946	1.16%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	2,412	2,584	2,736	3,068	1.15%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Med	19,200	20,566	21,777	24,419	1.15%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: County Population Growth (GA Airports)								
Lakeland	Lakeland Linder Regional Airport	LAL	GA-ATCT	96,741	103,621	109,727	123,040	1.15%
Lakeland	South Lakeland Airport	X49	GA-Low	12,000	12,853	13,611	15,262	1.15%
Leesburg	Leesburg International Airport	LEE	GA-ATCT	51,561	57,982	63,939	77,753	1.98%
Live Oak	Suwannee County Airport	24J	GA-Low	16,300	17,842	19,238	22,367	1.52%
Marathon	The Florida Keys Marathon Airport	MTH	GA-High	63,593	66,380	68,796	73,894	0.72%
Marco Island	Marco Island Airport	MKY	GA-Med	17,000	19,078	21,003	25,455	1.94%
Marianna	Marianna Municipal Airport	MAI	GA-Med	28,016	29,228	30,279	32,494	0.71%
Melbourne	Melbourne International Airport	MLB	CS	125,470	N/A	N/A	N/A	N/A
Merritt Island	Merritt Island Airport	COI	GA-High	112,000	118,179	123,589	135,161	0.90%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	14,468	15,392	16,207	17,969	1.04%
Miami	Miami Executive Airport	TMB	GA-ATCT	252,274	268,387	282,597	313,315	1.04%
Miami	Miami International Airport	MIA	CS	19,213	N/A	N/A	N/A	N/A
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-ATCT	123,975	131,893	138,877	153,973	1.04%
Milton	Peter Prince Field	2R4	GA-High	93,950	105,799	116,808	142,379	2.00%
Naples	Naples Municipal Airport	APF	GA-ATCT	82,843	92,971	102,351	124,045	1.94%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8,030	9,043	9,984	12,169	2.00%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Low	9,750	10,226	10,641	11,522	0.80%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-ATCT	155,979	163,600	170,234	184,321	0.80%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-ATCT	48,193	52,685	56,747	65,834	1.50%
Okeechobee	Okeechobee County Airport	OBE	GA-High	50,000	52,049	53,821	57,548	0.67%
Orlando	Executive Airport	ORL	GA-ATCT	104,177	114,124	123,136	143,349	1.53%
Orlando	Kissimmee Gateway Airport	ISM	GA-ATCT	82,719	90,618	97,773	113,823	1.53%
Orlando	Orlando International Airport	MCO	CS	15,916	N/A	N/A	N/A	N/A
Orlando	Orlando-Sanford International Airport	SFB	CS	170,915	N/A	N/A	N/A	N/A
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-ATCT	109,444	114,791	119,446	129,330	0.80%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Med	36,500	40,377	43,921	51,968	1.70%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	36,906	38,680	40,222	43,495	0.79%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: County Population Growth (GA Airports)								
Palm Coast	Flagler County Airport	FIN	GA-ATCT	148,264	169,752	190,020	238,104	2.28%
Palmetto	Airport Manatee	48X	GA-Low	7,100	7,859	8,553	10,130	1.71%
Panacea	Wakulla County Airport	2J0	GA-Low	2,380	2,632	2,861	3,383	1.69%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	42,969	N/A	N/A	N/A	N/A
Pensacola	Ferguson Airport	82J	GA-High	67,500	69,455	71,126	74,592	0.48%
Pensacola	Pensacola International Airport	PNS	CS	79,696	N/A	N/A	N/A	N/A
Perry	Perry-Foley Airport	40J	GA-Low	18,200	18,848	19,405	20,570	0.58%
Pierson	Pierson Municipal Airport	2J8	GA-Low	14,040	14,726	15,323	16,591	0.80%
Plant City	Plant City Airport	PCM	GA-Med	47,775	52,454	56,701	66,254	1.57%
Pompano Beach	Pompano Beach Airpark	PMP	GA-ATCT	132,964	143,853	153,606	175,139	1.32%
Port St. Joe	Costin Airport	A51	GA-Low	12,500	12,970	13,376	14,225	0.62%
Punta Gorda	Punta Gorda Airport	PGD	CS	49,997	N/A	N/A	N/A	N/A
Punta Gorda	Shell Creek Airpark	F13	GA-Low	2,190	2,369	2,530	2,885	1.32%
Quincy	Quincy Municipal Airport	2J9	GA-Low	6,240	6,389	6,516	6,777	0.39%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	N/A
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	84,527	N/A	N/A	N/A	N/A
Sebastian	Sebastian Municipal Airport	X26	GA-Med	36,240	40,089	43,607	51,596	1.70%
Sebring	Sebring Regional Airport	SEF	GA-High	103,087	114,126	124,223	147,175	1.71%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	129,815	N/A	N/A	N/A	N/A
St. Petersburg	Albert Whitted Airport	SPG	GA-ATCT	93,935	96,749	99,158	104,157	0.49%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	117,212	N/A	N/A	N/A	N/A
Stuart	Witham Field	SUA	GA-ATCT	74,784	82,379	89,294	104,914	1.63%
Tallahassee/Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	40,304	N/A	N/A	N/A	N/A
Tampa	Peter O. Knight Airport	TPF	GA-High	50,000	54,897	59,341	69,340	1.57%
Tampa	Tampa Executive Airport	VDF	GA-High	94,070	103,282	111,645	130,456	1.57%
Tampa	Tampa International Airport	TPA	CS	21,872	N/A	N/A	N/A	N/A
Tampa	Tampa North Aero Park	X39	GA-Low	11,000	12,077	13,055	15,255	1.57%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: County Population Growth (GA Airports)								
Tavares	Tavares Seaplane Base	FA1	GA-Low	7,000	7,872	8,680	10,556	1.98%
Titusville	Arthur Dunn Air Park	X21	GA-Med	40,450	42,682	44,635	48,815	0.90%
Titusville	Space Coast Regional Airport	TIX	GA-ATCT	97,186	102,548	107,242	117,284	0.90%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	5,000	5,623	6,200	7,540	1.98%
Valkaria	Valkaria Airport	X59	GA-Med	33,100	34,926	36,525	39,945	0.90%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	39,285	N/A	N/A	N/A	N/A
Venice	Venice Municipal Airport	VNC	GA-High	60,834	65,032	68,752	76,840	1.12%
Vero Beach	New Hibiscus Airpark	X52	GA-Med	22,000	24,337	26,472	31,322	1.70%
Vero Beach	Vero Beach Regional Airport	VRB	GA-ATCT	207,776	229,843	250,013	295,817	1.70%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	8,200	8,575	8,900	9,588	0.75%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	90,100	99,670	108,418	128,283	1.70%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	124,750	138,001	150,113	177,618	1.70%
West Palm Beach	Palm Beach International Airport	PBI	CS	60,122	N/A	N/A	N/A	N/A
Williston	Williston Municipal Airport	X60	GA-Low	16,250	17,681	18,969	21,834	1.42%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	10,000	10,711	11,342	12,718	1.15%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-High	60,000	64,267	68,054	76,311	1.15%
Zellwood	Bob White Field	X61	GA-Med	20,000	21,910	23,640	27,520	1.53%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	49,275	54,351	58,977	69,446	1.65%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Woods & Poole, Inc.; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

Table B-7: GA Operations Forecast by Airport – FAA Aerospace Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA Aerospace Forecast (GA Airports)								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Med	23,147	23,567	23,922	24,650	0.30%
Apalachicola	St. George Island Airport	F47	GA-Low	500	505	508	516	0.15%
Apopka	Orlando Apopka Airport	X04	GA-Med	21,900	22,297	22,634	23,322	0.30%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	19,340	19,515	19,662	19,958	0.15%
Archer	Flying Ten Airport	0J8	GA-Med	30,000	30,544	31,005	31,948	0.30%
Avon Park	Avon Park Executive Airport	AVO	GA-Med	32,400	32,988	33,485	34,504	0.30%
Bartow	Bartow Municipal Airport	BOW	GA-ATCT	27,759	28,773	29,647	31,475	0.60%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	1,800	1,816	1,830	1,858	0.15%
Blountstown	Calhoun County Airport	F95	GA-Low	1,020	1,029	1,037	1,053	0.15%
Boca Raton	Boca Raton Airport	BCT	GA-ATCT	49,077	50,870	52,415	55,646	0.60%
Bonifay	Tri-County Airport	1J0	GA-Med	28,272	28,785	29,219	30,108	0.30%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-ATCT	45,573	47,238	48,673	51,673	0.60%
Brooksville	Pilot Country Airport	X05	GA-Low	10,176	10,268	10,345	10,501	0.15%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	4,261	4,299	4,332	4,397	0.15%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4,000	4,036	4,066	4,128	0.15%
Clearwater	Clearwater Air Park	CLW	GA-High	50,560	51,477	52,254	53,843	0.30%
Clewiston	Airglades Airport	2IS	GA-Low	11,527	11,631	11,719	11,896	0.15%
Crestview	Bob Sikes Airport	CEW	GA-Med	48,400	49,278	50,021	51,542	0.30%
Cross City	Cross City Airport	CTY	GA-Low	18,000	18,163	18,299	18,576	0.15%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Med	27,896	28,402	28,831	29,707	0.30%
Daytona Beach	Daytona Beach International Airport	DAB	CS	279,171	N/A	N/A	N/A	N/A
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	16,000	16,145	16,266	16,512	0.15%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	6,000	6,054	6,100	6,192	0.15%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-High	117,060	119,183	120,981	124,660	0.30%
Destin	Destin Executive Airport	DTS	GA-High	62,400	63,532	64,490	66,451	0.30%
Dunnellon	Marion County Airport	X35	GA-Med	38,603	39,303	39,896	41,109	0.30%
Englewood	Buchan Airport	X36	GA-Low	2,701	2,725	2,746	2,787	0.15%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA Aerospace Forecast (GA Airports)								
Eustis	Mid Florida Air Service Airport	X55	GA-Med	20,024	20,387	20,695	21,324	0.30%
Everglades	Everglades Airpark	X01	GA-Low	6,000	6,054	6,100	6,192	0.15%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	45,400	46,223	46,921	48,348	0.30%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-ATCT	153,104	158,699	163,518	173,598	0.60%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	35,886	N/A	N/A	N/A	N/A
Fort Myers	Page Field	FMY	GA-ATCT	87,743	90,950	93,711	99,488	0.60%
Fort Myers	Southwest Florida International Airport	RSW	CS	8,768	N/A	N/A	N/A	N/A
Fort Pierce	Treasure Coast International Airport	FPR	GA-ATCT	152,589	158,165	162,968	173,014	0.60%
Gainesville	Gainesville Regional Airport	GNV	CS	47,527	N/A	N/A	N/A	N/A
High Springs	Oak Tree Landing Airport	6J8	GA-Low	200	202	203	206	0.15%
Hilliard	Hilliard Airpark	01J	GA-Low	5,000	5,045	5,083	5,160	0.15%
Hollywood	North Perry Airport	HWO	GA-ATCT	154,552	160,200	165,064	175,240	0.60%
Homestead	Homestead General Aviation Airport	X51	GA-High	74,517	75,868	77,013	79,355	0.30%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	36,500	37,162	37,723	38,870	0.30%
Indiantown	Indiantown Airport	X58	GA-Low	5,000	5,045	5,083	5,160	0.15%
Inverness	Inverness Airport	INF	GA-Low	15,000	15,136	15,249	15,480	0.15%
Jacksonville	Cecil Airport	VQQ	GA-ATCT	91,167	94,499	97,368	103,370	0.60%
Jacksonville	Herlong Recreational Airport	HEG	GA-High	80,700	82,164	83,403	85,940	0.30%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-ATCT	100,073	103,730	106,880	113,468	0.60%
Jacksonville	Jacksonville International Airport	JAX	CS	18,218	N/A	N/A	N/A	N/A
Key West	Key West International Airport	EYW	CS	30,100	N/A	N/A	N/A	N/A
Keystone Heights	Keystone Airpark	42J	GA-Med	31,900	32,479	32,969	33,971	0.30%
La Belle	La Belle Municipal Airport	X14	GA-Med	21,880	22,277	22,613	23,301	0.30%
Lake City	Lake City Gateway Airport	LCQ	GA-ATCT	27,414	28,416	29,279	31,084	0.60%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	2,412	2,434	2,452	2,489	0.15%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Med	19,200	19,548	19,843	20,447	0.30%
Lakeland	Lakeland Linder Regional Airport	LAL	GA-ATCT	96,741	100,276	103,321	109,690	0.60%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA Aerospace Forecast (GA Airports)								
Lakeland	South Lakeland Airport	X49	GA-Low	12,000	12,108	12,199	12,384	0.15%
Leesburg	Leesburg International Airport	LEE	GA-ATCT	51,561	53,445	55,068	58,463	0.60%
Live Oak	Suwannee County Airport	24J	GA-Low	16,300	16,447	16,571	16,821	0.15%
Marathon	The Florida Keys Marathon Airport	MTH	GA-High	63,593	64,746	65,723	67,722	0.30%
Marco Island	Marco Island Airport	MKY	GA-Med	17,000	17,308	17,569	18,104	0.30%
Marianna	Marianna Municipal Airport	MAI	GA-Med	28,016	28,524	28,955	29,835	0.30%
Melbourne	Melbourne International Airport	MLB	CS	125,470	N/A	N/A	N/A	N/A
Merritt Island	Merritt Island Airport	COI	GA-High	112,000	114,031	115,752	119,272	0.30%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	14,468	14,599	14,709	14,931	0.15%
Miami	Miami Executive Airport	TMB	GA-ATCT	252,274	261,493	269,433	286,042	0.60%
Miami	Miami International Airport	MIA	CS	19,213	N/A	N/A	N/A	N/A
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-ATCT	123,975	128,506	132,407	140,570	0.60%
Milton	Peter Prince Field	2R4	GA-High	93,950	95,654	97,097	100,050	0.30%
Naples	Naples Municipal Airport	APF	GA-ATCT	82,843	85,870	88,478	93,932	0.60%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8,030	8,103	8,163	8,287	0.15%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Low	9,750	9,838	9,912	10,062	0.15%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-ATCT	155,979	161,679	166,588	176,858	0.60%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-ATCT	48,193	49,954	51,471	54,644	0.60%
Okeechobee	Okeechobee County Airport	OBE	GA-High	50,000	50,907	51,675	53,246	0.30%
Orlando	Executive Airport	ORL	GA-ATCT	104,177	107,984	111,263	118,122	0.60%
Orlando	Kissimmee Gateway Airport	ISM	GA-ATCT	82,719	85,742	88,345	93,791	0.60%
Orlando	Orlando International Airport	MCO	CS	15,916	N/A	N/A	N/A	N/A
Orlando	Orlando-Sanford International Airport	SFB	CS	170,915	N/A	N/A	N/A	N/A
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-ATCT	109,444	113,444	116,888	124,094	0.60%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Med	36,500	37,162	37,723	38,870	0.30%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	36,906	37,575	38,142	39,302	0.30%
Palm Coast	Flagler County Airport	FIN	GA-ATCT	148,264	153,682	158,348	168,110	0.60%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA Aerospace Forecast (GA Airports)								
Palmetto	Airport Manatee	48X	GA-Low	7,100	7,164	7,218	7,327	0.15%
Panacea	Wakulla County Airport	2J0	GA-Low	2,380	2,402	2,420	2,456	0.15%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	42,969	N/A	N/A	N/A	N/A
Pensacola	Ferguson Airport	82J	GA-High	67,500	68,724	69,761	71,883	0.30%
Pensacola	Pensacola International Airport	PNS	CS	79,696	N/A	N/A	N/A	N/A
Perry	Perry-Foley Airport	40J	GA-Low	18,200	18,364	18,503	18,782	0.15%
Pierson	Pierson Municipal Airport	2J8	GA-Low	14,040	14,167	14,273	14,489	0.15%
Plant City	Plant City Airport	PCM	GA-Med	47,775	48,641	49,375	50,877	0.30%
Pompano Beach	Pompano Beach Airpark	PMP	GA-ATCT	132,964	137,823	142,008	150,762	0.60%
Port St. Joe	Costin Airport	A51	GA-Low	12,500	12,613	12,708	12,900	0.15%
Punta Gorda	Punta Gorda Airport	PGD	CS	49,997	N/A	N/A	N/A	N/A
Punta Gorda	Shell Creek Airpark	F13	GA-Low	2,190	2,210	2,226	2,260	0.15%
Quincy	Quincy Municipal Airport	2J9	GA-Low	6,240	6,296	6,344	6,440	0.15%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	N/A
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	84,527	N/A	N/A	N/A	N/A
Sebastian	Sebastian Municipal Airport	X26	GA-Med	36,240	36,897	37,454	38,593	0.30%
Sebring	Sebring Regional Airport	SEF	GA-High	103,087	104,957	106,540	109,780	0.30%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	129,815	N/A	N/A	N/A	N/A
St. Petersburg	Albert Whitted Airport	SPG	GA-ATCT	93,935	97,368	100,324	106,509	0.60%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	117,212	N/A	N/A	N/A	N/A
Stuart	Witham Field	SUA	GA-ATCT	74,784	77,517	79,871	84,794	0.60%
Tallahassee/Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	40,304	N/A	N/A	N/A	N/A
Tampa	Peter O. Knight Airport	TPF	GA-High	50,000	50,907	51,675	53,246	0.30%
Tampa	Tampa Executive Airport	VDF	GA-High	94,070	95,776	97,221	100,178	0.30%
Tampa	Tampa International Airport	TPA	CS	21,872	N/A	N/A	N/A	N/A
Tampa	Tampa North Aero Park	X39	GA-Low	11,000	11,099	11,183	11,352	0.15%
Tavares	Tavares Seaplane Base	FA1	GA-Low	7,000	7,063	7,116	7,224	0.15%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA Aerospace Forecast (GA Airports)								
Titusville	Arthur Dunn Air Park	X21	GA-Med	40,450	41,184	41,805	43,076	0.30%
Titusville	Space Coast Regional Airport	TIX	GA-ATCT	97,186	100,738	103,796	110,195	0.60%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	5,000	5,045	5,083	5,160	0.15%
Valkaria	Valkaria Airport	X59	GA-Med	33,100	33,700	34,209	35,249	0.30%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	39,285	N/A	N/A	N/A	N/A
Venice	Venice Municipal Airport	VNC	GA-High	60,834	61,937	62,872	64,784	0.30%
Vero Beach	New Hibiscus Airpark	X52	GA-Med	22,000	22,399	22,737	23,428	0.30%
Vero Beach	Vero Beach Regional Airport	VRB	GA-ATCT	207,776	215,369	221,908	235,588	0.60%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	8,200	8,274	8,336	8,462	0.15%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	90,100	91,734	93,118	95,950	0.30%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	124,750	127,012	128,929	132,850	0.30%
West Palm Beach	Palm Beach International Airport	PBI	CS	60,122	N/A	N/A	N/A	N/A
Williston	Williston Municipal Airport	X60	GA-Low	16,250	16,397	16,520	16,770	0.15%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	10,000	10,090	10,166	10,320	0.15%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-High	60,000	61,088	62,010	63,896	0.30%
Zellwood	Bob White Field	X61	GA-Med	20,000	20,363	20,670	21,299	0.30%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	49,275	50,169	50,926	52,474	0.30%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Woods & Poole, Inc.; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

Table B-8: GA Operations Forecast by Airport – FAA TAF/Straight-Line Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA TAF or Straight-Line Methodology								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Med	23,147	23,147	23,147	23,147	0.00%
Apalachicola	St. George Island Airport	F47	GA-Low	500	500	500	500	0.00%
Apopka	Orlando Apopka Airport	X04	GA-Med	21,900	21,900	21,900	21,900	0.00%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	19,340	19,340	19,340	19,340	0.00%
Archer	Flying Ten Airport	0J8	GA-Med	30,000	30,000	30,000	30,000	0.00%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA TAF or Straight-Line Methodology								
Avon Park	Avon Park Executive Airport	AVO	GA-Med	32,400	32,400	32,400	32,400	0.00%
Bartow	Bartow Municipal Airport	BOW	GA-ATCT	27,759	30,310	33,099	39,465	1.69%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	1,800	1,800	1,800	1,800	0.00%
Blountstown	Calhoun County Airport	F95	GA-Low	1,020	2,000	2,000	2,000	3.26%
Boca Raton	Boca Raton Airport	BCT	GA-ATCT	49,077	53,598	53,848	54,358	0.49%
Bonifay	Tri-County Airport	1J0	GA-Med	28,272	28,272	28,272	28,272	0.00%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-ATCT	45,573	52,584	54,492	58,617	1.21%
Brooksville	Pilot Country Airport	X05	GA-Low	10,176	10,176	10,176	10,176	0.00%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	4,261	524	524	524	-9.50%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4,000	4,000	4,000	4,000	0.00%
Clearwater	Clearwater Air Park	CLW	GA-High	50,560	50,560	50,560	50,560	0.00%
Clewiston	Airglades Airport	2IS	GA-Low	11,527	11,527	11,527	11,527	0.00%
Crestview	Bob Sikes Airport	CEW	GA-Med	48,400	54,382	61,204	77,873	2.29%
Cross City	Cross City Airport	CTY	GA-Low	18,000	18,000	18,000	18,000	0.00%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Med	27,896	29,764	31,753	36,131	1.24%
Daytona Beach	Daytona Beach International Airport	DAB	CS	279,171	200,967	203,328	208,136	-1.39%
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	16,000	16,000	16,000	16,000	0.00%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	6,000	6,000	6,000	6,000	0.00%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-High	117,060	128,720	141,594	171,360	1.83%
Destin	Destin Executive Airport	DTS	GA-High	62,400	67,192	72,364	83,938	1.42%
Dunnellon	Marion County Airport	X35	GA-Med	38,603	38,603	38,603	38,603	0.00%
Englewood	Buchan Airport	X36	GA-Low	2,701	2,701	2,701	2,701	0.00%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	20,024	21,024	21,024	21,024	0.23%
Everglades	Everglades Airpark	X01	GA-Low	6,000	6,000	6,000	6,000	0.00%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	45,400	45,400	45,400	45,400	0.00%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	1,106	1,106	1,106	0.00%
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-ATCT	153,104	145,175	146,657	149,660	-0.11%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	35,886	36,598	36,598	36,598	0.09%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA TAF or Straight-Line Methodology								
Fort Myers	Page Field	FMY	GA-ATCT	87,743	105,260	106,847	110,100	1.09%
Fort Myers	Southwest Florida International Airport	RSW	CS	8,768	7,874	7,677	7,298	-0.87%
Fort Pierce	Treasure Coast International Airport	FPR	GA-ATCT	152,589	162,255	167,692	179,284	0.77%
Gainesville	Gainesville Regional Airport	GNV	CS	47,527	54,474	54,569	54,759	0.68%
High Springs	Oak Tree Landing Airport	6J8	GA-Low	200	200	200	200	0.00%
Hilliard	Hilliard Airpark	01J	GA-Low	5,000	5,000	5,000	5,000	0.00%
Hollywood	North Perry Airport	HWO	GA-ATCT	154,552	175,391	176,906	180,027	0.73%
Homestead	Homestead General Aviation Airport	X51	GA-High	74,517	74,517	74,517	74,517	0.00%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	36,500	36,500	36,500	36,500	0.00%
Indiantown	Indiantown Airport	X58	GA-Low	5,000	5,000	5,000	5,000	0.00%
Inverness	Inverness Airport	INF	GA-Low	15,000	16,350	17,819	21,191	1.66%
Jacksonville	Cecil Airport	VQQ	GA-ATCT	91,167	92,058	93,306	96,031	0.25%
Jacksonville	Herlong Recreational Airport	HEG	GA-High	80,700	84,974	89,484	99,208	0.99%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-ATCT	100,073	131,171	131,475	132,085	1.33%
Jacksonville	Jacksonville International Airport	JAX	CS	18,218	29,258	29,413	29,749	2.36%
Key West	Key West International Airport	EYW	CS	30,100	34,489	34,664	35,048	0.73%
Keystone Heights	Keystone Airpark	42J	GA-Med	31,900	34,426	37,150	43,283	1.46%
La Belle	La Belle Municipal Airport	X14	GA-Med	21,880	21,880	21,880	21,880	0.00%
Lake City	Lake City Gateway Airport	LCQ	GA-ATCT	27,414	28,731	30,119	33,115	0.90%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	2,412	2,472	2,472	2,472	0.12%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Med	19,200	19,200	19,200	19,200	0.00%
Lakeland	Lakeland Linder Regional Airport	LAL	GA-ATCT	96,741	116,222	117,167	119,079	0.99%
Lakeland	South Lakeland Airport	X49	GA-Low	12,000	12,000	12,000	12,000	0.00%
Leesburg	Leesburg International Airport	LEE	GA-ATCT	51,561	62,039	63,570	66,870	1.25%
Live Oak	Suwannee County Airport	24J	GA-Low	16,300	16,300	16,300	16,300	0.00%
Marathon	The Florida Keys Marathon Airport	MTH	GA-High	63,593	69,320	74,265	85,253	1.41%
Marco Island	Marco Island Airport	MKY	GA-Med	17,000	17,242	17,497	18,036	0.28%
Marianna	Marianna Municipal Airport	MAI	GA-Med	28,016	28,016	28,016	28,016	0.00%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA TAF or Straight-Line Methodology								
Melbourne	Melbourne International Airport	MLB	CS	125,470	90,161	92,479	97,335	-1.20%
Merritt Island	Merritt Island Airport	COI	GA-High	112,000	112,000	112,000	112,000	0.00%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	14,468	14,468	14,468	14,468	0.00%
Miami	Miami Executive Airport	TMB	GA-ATCT	252,274	303,602	311,047	326,752	1.24%
Miami	Miami International Airport	MIA	CS	19,213	19,385	19,385	19,385	0.04%
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-ATCT	123,975	122,670	124,371	127,849	0.15%
Milton	Peter Prince Field	2R4	GA-High	93,950	105,772	119,097	151,038	2.29%
Naples	Naples Municipal Airport	APF	GA-ATCT	82,843	80,316	81,277	83,245	0.02%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8,030	8,030	8,030	8,030	0.00%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Low	9,750	9,750	9,750	9,750	0.00%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-ATCT	155,979	133,331	137,539	146,418	-0.30%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-ATCT	48,193	66,520	69,334	75,355	2.15%
Okeechobee	Okeechobee County Airport	OBE	GA-High	50,000	54,465	59,335	70,481	1.65%
Orlando	Executive Airport	ORL	GA-ATCT	104,177	106,846	108,458	111,757	0.34%
Orlando	Kissimmee Gateway Airport	ISM	GA-ATCT	82,719	80,081	80,757	82,126	-0.03%
Orlando	Orlando International Airport	MCO	CS	15,916	15,195	15,195	15,195	-0.22%
Orlando	Orlando-Sanford International Airport	SFB	CS	170,915	180,074	184,000	192,152	0.56%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-ATCT	109,444	119,506	121,724	126,332	0.69%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Med	36,500	40,083	44,033	53,133	1.80%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	36,906	36,906	36,906	36,906	0.00%
Palm Coast	Flagler County Airport	FIN	GA-ATCT	148,264	141,597	142,601	144,639	-0.12%
Palmetto	Airport Manatee	48X	GA-Low	7,100	7,100	7,100	7,100	0.00%
Panacea	Wakulla County Airport	2J0	GA-Low	2,380	2,380	2,380	2,380	0.00%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	42,969	51,403	51,700	52,304	0.94%
Pensacola	Ferguson Airport	82J	GA-High	67,500	67,500	67,500	67,500	0.00%
Pensacola	Pensacola International Airport	PNS	CS	79,696	83,662	83,662	83,662	0.23%
Perry	Perry-Foley Airport	40J	GA-Low	18,200	18,200	18,200	18,200	0.00%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA TAF or Straight-Line Methodology								
Pierson	Pierson Municipal Airport	2J8	GA-Low	14,040	14,040	14,040	14,040	0.00%
Plant City	Plant City Airport	PCM	GA-Med	47,775	52,668	58,068	70,596	1.88%
Pompano Beach	Pompano Beach Airpark	PMP	GA-ATCT	132,964	152,399	154,565	158,993	0.85%
Port St. Joe	Costin Airport	A51	GA-Low	12,500	12,500	12,500	12,500	0.00%
Punta Gorda	Punta Gorda Airport	PGD	CS	49,997	63,420	65,016	68,334	1.50%
Punta Gorda	Shell Creek Airpark	F13	GA-Low	2,190	2,190	2,190	2,190	0.00%
Quincy	Quincy Municipal Airport	2J9	GA-Low	6,240	6,240	6,240	6,240	0.00%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	N/A
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	84,527	85,965	86,776	88,436	0.22%
Sebastian	Sebastian Municipal Airport	X26	GA-Med	36,240	36,240	36,240	36,240	0.00%
Sebring	Sebring Regional Airport	SEF	GA-High	103,087	103,087	103,087	103,087	0.00%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	129,815	139,069	143,434	152,726	0.78%
St. Petersburg	Albert Whitted Airport	SPG	GA-ATCT	93,935	82,432	83,286	85,021	-0.47%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	117,212	90,654	91,283	92,557	-1.12%
Stuart	Witham Field	SUA	GA-ATCT	74,784	84,470	84,310	83,990	0.55%
Tallahassee/Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	40,304	40,740	40,740	40,740	0.05%
Tampa	Peter O. Knight Airport	TPF	GA-High	50,000	52,356	54,824	60,120	0.88%
Tampa	Tampa Executive Airport	VDF	GA-High	94,070	103,355	113,551	137,073	1.81%
Tampa	Tampa International Airport	TPA	CS	21,872	21,940	21,925	21,895	0.01%
Tampa	Tampa North Aero Park	X39	GA-Low	11,000	11,000	11,000	11,000	0.00%
Tavares	Tavares Seaplane Base	FA1	GA-Low	7,000	7,000	7,000	7,000	0.00%
Titusville	Arthur Dunn Air Park	X21	GA-Med	40,450	47,385	55,519	76,261	3.07%
Titusville	Space Coast Regional Airport	TIX	GA-ATCT	97,186	81,507	82,731	85,240	-0.62%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	5,000	5,000	5,000	5,000	0.00%
Valkaria	Valkaria Airport	X59	GA-Med	33,100	53,160	53,160	53,160	2.28%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	39,285	39,285	39,285	39,285	0.00%
Venice	Venice Municipal Airport	VNC	GA-High	60,834	68,827	77,876	99,683	2.38%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: FAA TAF or Straight-Line Methodology								
Vero Beach	New Hibiscus Airpark	X52	GA-Med	22,000	22,000	22,000	22,000	0.00%
Vero Beach	Vero Beach Regional Airport	VRB	GA-ATCT	207,776	202,043	205,278	211,953	0.09%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	8,200	8,961	9,800	11,733	1.72%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	90,100	97,051	104,557	121,401	1.43%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	124,750	135,938	148,128	175,889	1.65%
West Palm Beach	Palm Beach International Airport	PBI	CS	60,122	62,055	62,965	64,822	0.36%
Williston	Williston Municipal Airport	X60	GA-Low	16,250	16,250	16,250	16,250	0.00%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	10,000	10,000	10,000	10,000	0.00%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-High	60,000	85,273	95,426	119,511	3.34%
Zellwood	Bob White Field	X61	GA-Med	20,000	20,000	20,000	20,000	0.00%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	49,275	52,682	56,330	64,450	1.29%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

Table B-9: GA Operations Forecast by Airport – Preferred Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: Preferred Methodology								
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Med	23,147	24,787	26,242	29,414	1.15%
Apalachicola	St. George Island Airport	F47	GA-Low	500	505	508	516	0.15%
Apopka	Orlando Apopka Airport	X04	GA-Med	21,900	23,991	25,886	30,135	1.53%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	19,340	19,515	19,662	19,958	0.15%
Archer	Flying Ten Airport	0J8	GA-Med	30,000	31,971	33,712	37,484	1.07%
Avon Park	Avon Park Executive Airport	AVO	GA-Med	32,400	35,869	39,043	46,257	1.71%
Bartow	Bartow Municipal Airport	BOW	GA-ATCT	27,759	29,733	31,485	35,305	1.15%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	1,800	1,816	1,830	1,858	0.15%
Blountstown	Calhoun County Airport	F95	GA-Low	1,020	1,029	1,037	1,053	0.15%
Boca Raton	Boca Raton Airport	BCT	GA-ATCT	49,077	54,290	59,055	69,875	1.70%
Bonifay	Tri-County Airport	1J0	GA-Med	28,272	29,972	31,466	34,682	0.98%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: Preferred Methodology								
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-ATCT	45,573	50,309	54,629	64,415	1.66%
Brooksville	Pilot Country Airport	X05	GA-Low	10,176	10,268	10,345	10,501	0.15%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	4,261	4,299	4,332	4,397	0.15%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4,000	4,036	4,066	4,128	0.15%
Clearwater	Clearwater Air Park	CLW	GA-High	50,560	52,074	53,371	56,062	0.49%
Clewiston	Airglades Airport	2IS	GA-Low	11,527	11,631	11,719	11,896	0.15%
Crestview	Bob Sikes Airport	CEW	GA-Med	48,400	50,386	52,103	55,714	0.67%
Cross City	Cross City Airport	CTY	GA-Low	18,000	18,163	18,299	18,576	0.15%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Med	27,896	30,470	32,796	37,994	1.48%
Daytona Beach	Daytona Beach International Airport	DAB	CS	279,171	200,967	203,328	208,136	-1.39%
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	16,000	16,145	16,266	16,512	0.15%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	6,000	6,054	6,100	6,192	0.15%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-High	117,060	122,779	127,758	138,330	0.80%
Destin	Destin Executive Airport	DTS	GA-High	62,400	64,960	67,174	71,829	0.67%
Dunnellon	Marion County Airport	X35	GA-Med	38,603	42,201	45,455	52,733	1.50%
Englewood	Buchan Airport	X36	GA-Low	2,701	2,725	2,746	2,787	0.15%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	20,024	22,518	24,831	30,196	1.98%
Everglades	Everglades Airpark	X01	GA-Low	6,000	6,054	6,100	6,192	0.15%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	45,400	50,585	55,355	66,287	1.82%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-ATCT	153,104	165,643	176,872	201,667	1.32%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	35,886	36,598	36,598	36,598	0.09%
Fort Myers	Page Field	FMY	GA-ATCT	87,743	96,539	104,539	122,583	1.61%
Fort Myers	Southwest Florida International Airport	RSW	CS	8,768	7,874	7,677	7,298	-0.87%
Fort Pierce	Treasure Coast International Airport	FPR	GA-ATCT	152,589	171,862	189,770	231,379	2.00%
Gainesville	Gainesville Regional Airport	GNV	CS	47,527	54,474	54,569	54,759	0.68%
High Springs	Oak Tree Landing Airport	6J8	GA-Low	200	202	203	206	0.15%
Hilliard	Hilliard Airpark	01J	GA-Low	5,000	5,045	5,083	5,160	0.15%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: Preferred Methodology								
Hollywood	North Perry Airport	HWO	GA-ATCT	154,552	167,209	178,545	203,575	1.32%
Homestead	Homestead General Aviation Airport	X51	GA-High	74,517	79,276	83,474	92,547	1.04%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	36,500	40,962	45,095	54,653	1.94%
Indiantown	Indiantown Airport	X58	GA-Low	5,000	5,045	5,083	5,160	0.15%
Inverness	Inverness Airport	INF	GA-Low	15,000	15,136	15,249	15,480	0.15%
Jacksonville	Cecil Airport	VQQ	GA-ATCT	91,167	97,341	102,803	114,666	1.10%
Jacksonville	Herlong Recreational Airport	HEG	GA-High	80,700	86,165	91,000	101,501	1.10%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-ATCT	100,073	106,850	112,846	125,868	1.10%
Jacksonville	Jacksonville International Airport	JAX	CS	18,218	29,258	29,413	29,749	2.36%
Key West	Key West International Airport	EYW	CS	30,100	34,489	34,664	35,048	0.73%
Keystone Heights	Keystone Airpark	42J	GA-Med	31,900	35,736	39,282	47,465	1.91%
La Belle	La Belle Municipal Airport	X14	GA-Med	21,880	23,431	24,807	27,806	1.15%
Lake City	Lake City Gateway Airport	LCQ	GA-ATCT	27,414	29,383	31,131	34,946	1.16%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	2,412	2,434	2,452	2,489	0.15%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Med	19,200	20,566	21,777	24,419	1.15%
Lakeland	Lakeland Linder Regional Airport	LAL	GA-ATCT	96,741	103,621	109,727	123,040	1.15%
Lakeland	South Lakeland Airport	X49	GA-Low	12,000	12,108	12,199	12,384	0.15%
Leesburg	Leesburg International Airport	LEE	GA-ATCT	51,561	57,982	63,939	77,753	1.98%
Live Oak	Suwannee County Airport	24J	GA-Low	16,300	16,447	16,571	16,821	0.15%
Marathon	The Florida Keys Marathon Airport	MTH	GA-High	63,593	66,380	68,796	73,894	0.72%
Marco Island	Marco Island Airport	MKY	GA-Med	17,000	19,078	21,003	25,455	1.94%
Marianna	Marianna Municipal Airport	MAI	GA-Med	28,016	29,228	30,279	32,494	0.71%
Melbourne	Melbourne International Airport	MLB	CS	125,470	90,161	92,479	97,335	-1.20%
Merritt Island	Merritt Island Airport	COI	GA-High	112,000	118,179	123,589	135,161	0.90%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	14,468	14,599	14,709	14,931	0.15%
Miami	Miami Executive Airport	TMB	GA-ATCT	252,274	268,387	282,597	313,315	1.04%
Miami	Miami International Airport	MIA	CS	19,213	19,385	19,385	19,385	0.04%
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	N/A

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: Preferred Methodology								
Miami	Miami-Opa Locka Executive Airport	OPF	GA-ATCT	123,975	131,893	138,877	153,973	1.04%
Milton	Peter Prince Field	2R4	GA-High	93,950	105,799	116,808	142,379	2.00%
Naples	Naples Municipal Airport	APF	GA-ATCT	82,843	92,971	102,351	124,045	1.94%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8,030	8,103	8,163	8,287	0.15%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Low	9,750	9,838	9,912	10,062	0.15%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-ATCT	155,979	163,600	170,234	184,321	0.80%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-ATCT	48,193	52,685	56,747	65,834	1.50%
Okeechobee	Okeechobee County Airport	OBE	GA-High	50,000	52,049	53,821	57,548	0.67%
Orlando	Executive Airport	ORL	GA-ATCT	104,177	114,124	123,136	143,349	1.53%
Orlando	Kissimmee Gateway Airport	ISM	GA-ATCT	82,719	90,618	97,773	113,823	1.53%
Orlando	Orlando International Airport	MCO	CS	15,916	15,195	15,195	15,195	-0.22%
Orlando	Orlando-Sanford International Airport	SFB	CS	170,915	180,074	184,000	192,152	0.56%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-ATCT	109,444	114,791	119,446	129,330	0.80%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Med	36,500	40,377	43,921	51,968	1.70%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	36,906	38,680	40,222	43,495	0.79%
Palm Coast	Flagler County Airport	FIN	GA-ATCT	148,264	169,752	190,020	238,104	2.28%
Palmetto	Airport Manatee	48X	GA-Low	7,100	7,164	7,218	7,327	0.15%
Panacea	Wakulla County Airport	2J0	GA-Low	2,380	2,402	2,420	2,456	0.15%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	42,969	51,403	51,700	52,304	0.94%
Pensacola	Ferguson Airport	82J	GA-High	67,500	69,455	71,126	74,592	0.48%
Pensacola	Pensacola International Airport	PNS	CS	79,696	83,662	83,662	83,662	0.23%
Perry	Perry-Foley Airport	40J	GA-Low	18,200	18,364	18,503	18,782	0.15%
Pierson	Pierson Municipal Airport	2J8	GA-Low	14,040	14,167	14,273	14,489	0.15%
Plant City	Plant City Airport	PCM	GA-Med	47,775	52,454	56,701	66,254	1.57%
Pompano Beach	Pompano Beach Airpark	PMP	GA-ATCT	132,964	143,853	153,606	175,139	1.32%
Port St. Joe	Costin Airport	A51	GA-Low	12,500	12,613	12,708	12,900	0.15%
Punta Gorda	Punta Gorda Airport	PGD	CS	49,997	63,420	65,016	68,334	1.50%
Punta Gorda	Shell Creek Airpark	F13	GA-Low	2,190	2,210	2,226	2,260	0.15%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: Preferred Methodology								
Quincy	Quincy Municipal Airport	2J9	GA-Low	6,240	6,296	6,344	6,440	0.15%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	N/A
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	84,527	85,965	86,776	88,436	0.22%
Sebastian	Sebastian Municipal Airport	X26	GA-Med	36,240	40,089	43,607	51,596	1.70%
Sebring	Sebring Regional Airport	SEF	GA-High	103,087	114,126	124,223	147,175	1.71%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	129,815	139,069	143,434	152,726	0.78%
St. Petersburg	Albert Whitted Airport	SPG	GA-ATCT	93,935	96,749	99,158	104,157	0.49%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	117,212	90,654	91,283	92,557	-1.12%
Stuart	Witham Field	SUA	GA-ATCT	74,784	82,379	89,294	104,914	1.63%
Tallahassee/Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0%
Tallahassee	Tallahassee International Airport	TLH	CS	40,304	40,740	40,740	40,740	0.05%
Tampa	Peter O. Knight Airport	TPF	GA-High	50,000	54,897	59,341	69,340	1.57%
Tampa	Tampa Executive Airport	VDF	GA-High	94,070	103,282	111,645	130,456	1.57%
Tampa	Tampa International Airport	TPA	CS	21,872	21,940	21,925	21,895	0.01%
Tampa	Tampa North Aero Park	X39	GA-Low	11,000	11,099	11,183	11,352	0.15%
Tavares	Tavares Seaplane Base	FA1	GA-Low	7,000	7,063	7,116	7,224	0.15%
Titusville	Arthur Dunn Air Park	X21	GA-Med	40,450	42,682	44,635	48,815	0.90%
Titusville	Space Coast Regional Airport	TIX	GA-ATCT	97,186	102,548	107,242	117,284	0.90%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	5,000	5,045	5,083	5,160	0.15%
Valkaria	Valkaria Airport	X59	GA-Med	33,100	34,926	36,525	39,945	0.90%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	39,285	39,285	39,285	39,285	0.00%
Venice	Venice Municipal Airport	VNC	GA-High	60,834	65,032	68,752	76,840	1.12%
Vero Beach	New Hibiscus Airpark	X52	GA-Med	22,000	24,337	26,472	31,322	1.70%
Vero Beach	Vero Beach Regional Airport	VRB	GA-ATCT	207,776	229,843	250,013	295,817	1.70%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	8,200	8,274	8,336	8,462	0.15%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	90,100	99,670	108,418	128,283	1.70%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	124,750	138,001	150,113	177,618	1.70%
West Palm Beach	Palm Beach International Airport	PBI	CS	60,122	62,055	62,965	64,822	0.36%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035
GA Operations Forecast: Preferred Methodology								
Williston	Williston Municipal Airport	X60	GA-Low	16,250	16,397	16,520	16,770	0.15%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	10,000	10,090	10,166	10,320	0.15%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-High	60,000	64,267	68,054	76,311	1.15%
Zellwood	Bob White Field	X61	GA-Med	20,000	21,910	23,640	27,520	1.53%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	49,275	54,351	58,977	69,446	1.65%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; Woods & Poole, Inc. Prepared April 2017.
**Airport closed indefinitely*

Table B-10: GA Operations Forecast by Airport – FAA TAF Growth Rates 2014 – 2035 and 2016 – 2035 (FAA TAF/Straight-Line Preferred Methodology Only)

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035	2016 GA Operations	Avg. Annual Growth Rate 2016 – 2035
GA Operations Forecast: Preferred Methodology										
Daytona Beach	Daytona Beach International Airport	DAB	CS	279,171	200,967	203,328	208,136	-1.39%	198,721	0.25%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	35,886	36,598	36,598	36,598	0.09%	36,976	-0.05%
Fort Myers	Southwest Florida International Airport	RSW	CS	8,768	7,874	7,677	7,298	-0.87%	8,632	-0.81%
Gainesville	Gainesville Regional Airport	GNV	CS	47,527	54,474	54,569	54,759	0.68%	52,596	0.22%
Jacksonville	Jacksonville International Airport	JAX	CS	18,218	29,258	29,413	29,749	2.36%	28,917	0.15%
Key West	Key West International Airport	EYW	CS	30,100	34,489	34,664	35,048	0.73%	33,007	0.33%
Melbourne	Melbourne International Airport	MLB	CS	125,470	90,161	92,479	97,335	-1.20%	85,087	0.76%
Miami	Miami International Airport	MIA	CS	19,213	19,385	19,385	19,385	0.04%	19,466	-0.02%
Orlando	Orlando International Airport	MCO	CS	15,916	15,195	15,195	15,195	-0.22%	15,243	-0.02%
Orlando	Orlando-Sanford International Airport	SFB	CS	170,915	180,074	184,000	192,152	0.56%	178,056	0.42%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	42,969	51,403	51,700	52,304	0.94%	50,394	0.20%
Pensacola	Pensacola International Airport	PNS	CS	79,696	83,662	83,662	83,662	0.23%	81,468	0.14%
Punta Gorda	Punta Gorda Airport	PGD	CS	49,997	63,420	65,016	68,334	1.50%	58,583	0.88%
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	84,527	85,965	86,776	88,436	0.22%	86,217	0.14%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	129,815	139,069	143,434	152,726	0.78%	131,384	0.85%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	117,212	90,654	91,283	92,557	-1.12%	91,573	0.06%
Tallahassee	Tallahassee International Airport	TLH	CS	40,304	40,740	40,740	40,740	0.05%	41,807	-0.13%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2025 GA Operations	2035 GA Operations	Avg. Annual Growth Rate 2014 – 2035	2016 GA Operations	Avg. Annual Growth Rate 2016 – 2035
Tampa	Tampa International Airport	TPA	CS	21,872	21,940	21,925	21,895	0.01%	22,618	-0.17%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	39,285	39,285	39,285	39,285	0.00%	39,285	0.00%
West Palm Beach	Palm Beach International Airport	PBI	CS	60,122	62,055	62,965	64,822	0.36%	61,029	0.33%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Kimley-Horn. Prepared April 2017.

B.3 Sensitivity Analyses

Table B-11: Based Aircraft Sensitivity Analysis – ± 10% of Preferred Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2020 Low Growth	2020 High Growth	2025 Based Aircraft	2025 Low Growth	2025 High Growth	2035 Based Aircraft	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Based Aircraft Forecast: Sensitivity Analysis																
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Low	24	26	23	28	27	24	30	30	27	34	1.15%	0.68%	1.77%
Apalachicola	St. George Island Airport	F47	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Apopka	Orlando Apopka Airport	X04	GA-Med	127	139	125	153	150	135	165	175	157	192	1.53%	1.14%	2.23%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	3	3	3	3	3	3	4	4	3	4	0.82%	0.32%	1.38%
Archer	Flying Ten Airport	0J8	GA-Low	11	12	11	13	12	11	14	14	12	15	1.07%	0.59%	1.67%
Avon Park	Avon Park Executive Airport	AVO	GA-Low	37	41	37	45	45	40	49	53	48	58	1.71%	1.36%	2.45%
Bartow	Bartow Municipal Airport	BOW	GA-Med	101	108	97	119	115	103	126	128	116	141	1.15%	0.69%	1.77%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	11	12	11	13	13	12	15	16	14	17	1.70%	1.34%	2.44%
Blountstown	Calhoun County Airport	F95	GA-Low	12	13	11	14	13	12	15	15	13	16	0.98%	0.50%	1.57%
Boca Raton	Boca Raton Airport	BCT	GA-Med	182	201	181	221	219	197	241	259	233	285	1.70%	1.34%	2.44%
Bonifay	Tri-County Airport	1J0	GA-Low	24	25	23	28	27	24	29	29	26	32	0.98%	0.50%	1.57%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-Med	148	163	147	180	177	160	195	209	188	230	1.66%	1.30%	2.39%
Brooksville	Pilot Country Airport	X05	GA-Low	27	30	27	33	32	29	36	38	34	42	1.66%	1.30%	2.39%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	10	11	10	12	11	10	12	13	11	14	1.15%	0.68%	1.77%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4	4	4	5	5	4	5	5	5	6	1.42%	1.00%	2.09%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2020 Low Growth	2020 High Growth	2025 Based Aircraft	2025 Low Growth	2025 High Growth	2035 Based Aircraft	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Clearwater	Clearwater Air Park	CLW	GA-Med	85	88	79	96	90	81	99	94	85	104	0.49%	-0.01%	1.02%
Clewiston	Airglades Airport	2IS	GA-Low	23	25	22	27	26	23	29	29	26	32	1.15%	0.68%	1.77%
Crestview	Bob Sikes Airport	CEW	GA-Low	43	45	40	49	46	42	51	49	45	54	0.67%	0.17%	1.22%
Cross City	Cross City Airport	CTY	GA-Low	12	13	12	14	14	12	15	15	14	17	1.09%	0.62%	1.70%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Low	40	44	39	48	47	42	52	54	49	60	1.48%	1.08%	2.17%
Daytona Beach	Daytona Beach International Airport	DAB	CS	269	254	229	279	275	248	303	315	284	347	0.75%	0.26%	1.45%
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	29	34	31	38	39	35	43	51	46	56	2.76%	2.83%	3.83%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	16	17	15	18	17	16	19	19	17	21	0.80%	0.30%	1.36%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-Med	197	207	186	227	215	194	237	233	210	256	0.80%	0.30%	1.36%
Destin	Destin Executive Airport	DTS	GA-Low	23	24	22	26	25	22	27	26	24	29	0.67%	0.17%	1.22%
Dunnellon	Marion County Airport	X35	GA-Med	104	114	102	125	122	110	135	142	128	156	1.50%	1.09%	2.19%
Englewood	Buchan Airport	X36	GA-Low	8	9	8	9	9	8	10	10	9	11	1.12%	0.65%	1.73%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	63	71	64	78	78	70	86	95	86	105	1.98%	1.70%	2.79%
Everglades	Everglades Airpark	X01	GA-Low	7	8	7	9	9	8	10	10	9	12	1.94%	1.66%	2.75%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	65	72	65	80	79	71	87	95	85	104	1.82%	1.50%	2.59%
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-High	817	1,002	902	1,102	1,072	965	1,179	1,212	1,091	1,333	1.90%	1.60%	2.45%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	94	88	79	97	88	79	97	88	79	97	-0.31%	-0.75%	0.15%
Fort Myers	Page Field	FMY	GA-High	252	267	240	294	296	266	326	356	320	392	1.66%	1.29%	2.49%
Fort Myers	Southwest Florida International Airport	RSW	CS	4	7	6	8	8	7	9	8	7	9	3.36%	3.81%	3.27%
Fort Pierce	Treasure Coast International Airport	FPR	GA-High	216	237	213	261	267	240	294	327	294	360	1.99%	1.73%	2.89%
Gainesville	Gainesville Regional Airport	GNV	CS	146	161	145	177	179	161	197	210	189	231	1.75%	1.40%	2.51%
High Springs	Oak Tree Landing Airport	6J8	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Hilliard	Hilliard Airpark	01J	GA-Low	30	33	30	37	37	33	40	44	39	48	1.82%	1.50%	2.59%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2020 Low Growth	2020 High Growth	2025 Based Aircraft	2025 Low Growth	2025 High Growth	2035 Based Aircraft	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Hollywood	North Perry Airport	HWO	GA-High	258	254	229	279	261	235	287	281	253	309	0.41%	-0.09%	0.96%
Homestead	Homestead General Aviation Airport	X51	GA-Med	68	72	65	80	76	69	84	84	76	93	1.04%	0.56%	1.64%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	60	67	61	74	74	67	82	90	81	99	1.94%	1.66%	2.75%
Indiantown	Indiantown Airport	X58	GA-Med	65	72	64	79	78	70	85	91	82	100	1.63%	1.25%	2.35%
Inverness	Inverness Airport	INF	GA-Low	28	31	28	34	33	30	36	38	34	42	1.48%	1.08%	2.17%
Jacksonville	Cecil Airport	VQQ	GA-Med	93	99	89	109	105	94	115	117	105	129	1.10%	0.63%	1.71%
Jacksonville	Herlong Recreational Airport	HEG	GA-Med	187	200	180	220	211	190	232	235	212	259	1.10%	0.63%	1.71%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-High	226	225	203	248	252	227	277	329	296	362	1.80%	1.48%	2.88%
Jacksonville	Jacksonville International Airport	JAX	CS	60	39	35	43	40	36	44	41	37	45	-1.80%	-1.83%	-1.82%
Key West	Key West International Airport	EYW	CS	66	62	56	68	66	59	73	76	68	84	0.67%	0.17%	1.35%
Keystone Heights	Keystone Airpark	42J	GA-Med	53	59	53	65	65	59	72	79	71	87	1.91%	1.61%	2.71%
La Belle	La Belle Municipal Airport	X14	GA-Low	49	52	47	58	56	50	61	62	56	68	1.15%	0.68%	1.77%
Lake City	Lake City Gateway Airport	LCQ	GA-Low	32	34	31	38	36	33	40	41	37	45	1.16%	0.70%	1.79%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	6	6	6	7	7	6	7	8	7	8	1.15%	0.69%	1.77%
Lake Wales	Lake Wales Municipal Airport	X07	GA-Low	32	34	31	38	36	33	40	41	37	45	1.15%	0.69%	1.77%
Lakeland	Lakeland Linder Regional Airport	LAL	GA-Med	201	215	194	237	228	205	251	256	230	281	1.15%	0.69%	1.77%
Lakeland	South Lakeland Airport	X49	GA-Med	70	75	67	82	79	71	87	89	80	98	1.15%	0.69%	1.77%
Leesburg	Leesburg International Airport	LEE	GA-Med	149	168	151	184	185	166	203	225	202	247	1.98%	1.70%	2.79%
Live Oak	Suwannee County Airport	24J	GA-Low	37	41	36	45	44	39	48	51	46	56	1.52%	1.12%	2.22%
Marathon	The Florida Keys Marathon Airport	MTH	GA-Med	74	77	70	85	80	72	88	86	77	95	0.72%	0.22%	1.27%
Marco Island	Marco Island Airport	MKY	GA-Low	22	25	22	27	27	24	30	33	30	36	1.94%	1.66%	2.75%
Marianna	Marianna Municipal Airport	MAI	GA-Low	27	28	25	31	29	26	32	31	28	34	0.71%	0.21%	1.26%
Melbourne	Melbourne International Airport	MLB	CS	235	259	233	285	297	267	327	398	358	438	2.54%	2.50%	3.73%
Merritt Island	Merritt Island Airport	COI	GA-Med	156	165	148	181	172	155	189	188	169	207	0.90%	0.41%	1.48%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Miami	Miami Executive Airport	TMB	GA-High	445	455	410	501	477	429	525	517	465	569	0.72%	0.22%	1.29%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2020 Low Growth	2020 High Growth	2025 Based Aircraft	2025 Low Growth	2025 High Growth	2035 Based Aircraft	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Miami	Miami International Airport	MIA	CS	28	28	25	31	28	25	31	28	25	31	0.00%	-0.48%	0.48%
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-High	287	274	247	301	282	254	310	292	263	321	0.08%	-0.40%	0.59%
Milton	Peter Prince Field	2R4	GA-Med	96	108	97	119	119	107	131	145	131	160	2.00%	1.73%	2.82%
Naples	Naples Municipal Airport	APF	GA-High	365	370	333	407	418	376	460	538	484	592	1.86%	1.56%	2.92%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8	9	8	10	10	9	11	12	11	13	2.00%	1.73%	2.82%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Med	98	103	93	113	107	96	118	116	104	127	0.80%	0.30%	1.36%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-Med	90	94	85	104	98	88	108	106	96	117	0.80%	0.30%	1.36%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-Med	116	127	114	139	137	123	150	158	143	174	1.50%	1.09%	2.19%
Okeechobee	Okeechobee County Airport	OBE	GA-Low	33	34	31	38	36	32	39	38	34	42	0.67%	0.17%	1.22%
Orlando	Executive Airport	ORL	GA-Med	197	216	194	237	233	210	256	271	244	298	1.53%	1.14%	2.23%
Orlando	Kissimmee Gateway Airport	ISM	GA-Med	147	161	145	177	174	156	191	202	182	223	1.53%	1.14%	2.23%
Orlando	Orlando International Airport	MCO	CS	34	36	32	40	36	32	40	36	32	40	0.27%	-0.22%	0.74%
Orlando	Orlando-Sanford International Airport	SFB	CS	344	343	309	377	363	327	399	412	371	453	0.86%	0.37%	1.52%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-Med	97	102	92	112	106	95	116	115	103	126	0.80%	0.30%	1.36%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Low	31	34	31	38	37	34	41	44	40	49	1.70%	1.34%	2.44%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	52	54	49	60	57	51	62	61	55	67	0.79%	0.29%	1.35%
Palm Coast	Flagler County Airport	FIN	GA-Med	75	86	77	94	96	87	106	120	108	132	2.28%	2.12%	3.19%
Palmetto	Airport Manatee	48X	GA-Med	55	61	55	67	66	60	73	78	71	86	1.71%	1.35%	2.45%
Panacea	Wakulla County Airport	2J0	GA-Low	19	21	19	23	23	21	25	27	24	30	1.69%	1.33%	2.43%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	110	110	99	121	110	99	121	110	99	121	0.00%	-0.48%	0.48%
Pensacola	Ferguson Airport	82J	GA-Low	33	34	31	37	35	31	38	36	33	40	0.48%	-0.03%	1.00%
Pensacola	Pensacola International Airport	PNS	CS	88	118	106	130	134	121	147	174	157	191	3.30%	3.71%	4.17%
Perry	Perry-Foley Airport	40J	GA-Low	16	17	15	18	17	15	19	18	16	20	0.58%	0.08%	1.12%
Pierson	Pierson Municipal Airport	2J8	GA-Low	21	22	20	24	23	21	25	25	22	27	0.80%	0.30%	1.36%

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2020 Low Growth	2020 High Growth	2025 Based Aircraft	2025 Low Growth	2025 High Growth	2035 Based Aircraft	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Plant City	Plant City Airport	PCM	GA-Med	89	98	88	107	106	95	116	123	111	136	1.57%	1.18%	2.28%
Pompano Beach	Pompano Beach Airpark	PMP	GA-Med	74	80	72	88	85	77	94	97	88	107	1.32%	0.88%	1.98%
Port St. Joe	Costin Airport	A51	GA-Low	5	5	5	6	5	5	6	6	5	6	0.62%	0.12%	1.16%
Punta Gorda	Punta Gorda Airport	PGD	CS	316	320	288	352	347	312	382	397	357	437	1.09%	0.62%	1.80%
Punta Gorda	Shell Creek Airpark	F13	GA-Low	11	12	11	13	13	11	14	14	13	16	1.32%	0.88%	1.98%
Quincy	Quincy Municipal Airport	2J9	GA-Med	60	61	55	68	63	56	69	65	59	72	0.39%	-0.11%	0.91%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Sarasota/Bradenton	Sarasota Bradenton International Airport	SRQ	CS	226	261	235	287	281	253	309	325	293	358	1.75%	1.40%	2.40%
Sebastian	Sebastian Municipal Airport	X26	GA-Low	40	44	40	49	48	43	53	57	51	63	1.70%	1.34%	2.44%
Sebring	Sebring Regional Airport	SEF	GA-Med	71	79	71	86	86	77	94	101	91	112	1.71%	1.36%	2.45%
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	202	235	212	259	267	240	294	328	295	361	2.34%	2.20%	3.22%
St. Petersburg	Albert Whitted Airport	SPG	GA-High	141	144	130	158	159	143	175	189	170	208	1.40%	0.98%	2.21%
St. Petersburg/Clearwater	St. Pete-Clearwater International Airport	PIE	CS	310	306	275	337	339	305	373	404	364	444	1.27%	0.82%	2.09%
Stuart	Witham Field	SUA	GA-Med	198	218	196	240	236	213	260	278	250	306	1.63%	1.25%	2.35%
Tallahassee/Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0	0	0	0	0	0	0%	0%	0%
Tallahassee	Tallahassee International Airport	TLH	CS	98	124	112	136	129	116	142	139	125	153	1.68%	1.32%	2.11%
Tampa	Peter O. Knight Airport	TPF	GA-Med	106	116	105	128	126	113	138	147	132	162	1.57%	1.18%	2.28%
Tampa	Tampa Executive Airport	VDF	GA-Med	138	152	136	167	164	147	180	191	172	211	1.57%	1.18%	2.28%
Tampa	Tampa International Airport	TPA	CS	65	59	53	65	59	53	65	59	53	65	-0.46%	-0.87%	-0.01%
Tampa	Tampa North Aero Park	X39	GA-Low	38	42	38	46	45	41	50	53	47	58	1.57%	1.18%	2.28%
Tavares	Tavares Seaplane Base	FA1	GA-Low	4	4	4	5	5	4	5	6	5	7	1.98%	1.70%	2.79%
Titusville	Arthur Dunn Air Park	X21	GA-Med	73	77	69	85	81	72	89	88	79	97	0.90%	0.41%	1.48%
Titusville	Space Coast Regional Airport	TIX	GA-Med	133	140	126	154	147	132	161	161	144	177	0.90%	0.41%	1.48%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	12	13	12	15	15	13	16	18	16	20	1.98%	1.70%	2.79%
Valkaria	Valkaria Airport	X59	GA-Med	62	65	59	72	68	62	75	75	67	82	0.90%	0.41%	1.48%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A

Associated City	Airport Name	FAA ID	Airport Category	2014 Based Aircraft	2020 Based Aircraft	2020 Low Growth	2020 High Growth	2025 Based Aircraft	2025 Low Growth	2025 High Growth	2035 Based Aircraft	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Venice	Venice Municipal Airport	VNC	GA-High	255	220	198	242	227	204	250	242	218	266	-0.25%	-0.69%	0.24%
Vero Beach	New Hibiscus Airpark	X52	GA-Low	13	14	13	16	16	14	17	19	17	20	1.70%	1.34%	2.44%
Vero Beach	Vero Beach Regional Airport	VRB	GA-High	209	237	213	261	265	239	292	336	302	370	2.29%	2.13%	3.23%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	45	47	42	52	49	44	54	53	47	58	0.75%	0.25%	1.30%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	336	274	247	301	275	248	303	275	248	303	-0.95%	-1.25%	-0.58%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	294	306	275	337	341	307	375	411	370	452	1.61%	1.23%	2.46%
West Palm Beach	Palm Beach International Airport	PBI	CS	148	170	153	187	176	158	194	186	167	205	1.09%	0.62%	1.59%
Williston	Williston Municipal Airport	X60	GA-Med	51	55	50	61	60	54	65	69	62	75	1.42%	1.00%	2.09%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	6	6	6	7	7	6	7	8	7	8	1.15%	0.69%	1.77%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-Med	145	155	140	171	164	148	181	184	166	203	1.15%	0.69%	1.77%
Zellwood	Bob White Field	X61	GA-Med	76	83	75	92	90	81	99	105	94	115	1.53%	1.14%	2.23%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	175	193	174	212	209	189	230	247	222	271	1.65%	1.28%	2.38%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Woods & Poole, Inc.; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

Table B-12: GA Operations Sensitivity Analysis – ± 10% of Preferred Methodology

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2020 Low Growth	2020 High Growth	2025 GA Operations	2025 Low Growth	2025 High Growth	2035 GA Operations	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
GA Operation Forecast: Sensitivity Analysis																
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	GA-Med	23,147	24,787	22,308	27,266	26,242	23,618	28,866	29,414	26,472	32,355	1.15%	0.68%	1.89%
Apalachicola	St. George Island Airport	F47	GA-Low	500	505	454	555	508	457	559	516	464	568	0.15%	-0.34%	0.64%
Apopka	Orlando Apopka Airport	X04	GA-Med	21,900	23,991	21,592	26,390	25,886	23,297	28,474	30,135	27,121	33,148	1.53%	1.14%	2.45%
Arcadia	Arcadia Municipal Airport	X06	GA-Low	19,340	19,515	17,563	21,466	19,662	17,695	21,628	19,958	17,963	21,954	0.15%	-0.34%	0.64%
Archer	Flying Ten Airport	0J8	GA-Med	30,000	31,971	28,774	35,168	33,712	30,341	37,083	37,484	33,735	41,232	1.07%	0.59%	1.78%
Avon Park	Avon Park Executive Airport	AVO	GA-Med	32,400	35,869	32,283	39,456	39,043	35,139	42,947	46,257	41,631	50,882	1.71%	1.36%	2.72%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2020 Low Growth	2020 High Growth	2025 GA Operations	2025 Low Growth	2025 High Growth	2035 GA Operations	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Bartow	Bartow Municipal Airport	BOW	GA-ATCT	27,759	29,733	26,760	32,707	31,485	28,337	34,634	35,305	31,775	38,836	1.15%	0.69%	1.90%
Belle Glade	Belle Glade State Municipal Airport	X10	GA-Low	1,800	1,816	1,635	1,998	1,830	1,647	2,013	1,858	1,672	2,043	0.15%	-0.34%	0.64%
Blountstown	Calhoun County Airport	F95	GA-Low	1,020	1,029	926	1,132	1,037	933	1,141	1,053	947	1,158	0.15%	-0.34%	0.64%
Boca Raton	Boca Raton Airport	BCT	GA-ATCT	49,077	54,290	48,861	59,719	59,055	53,149	64,960	69,875	62,888	76,863	1.70%	1.34%	2.70%
Bonifay	Tri-County Airport	1J0	GA-Med	28,272	29,972	26,975	32,969	31,466	28,319	34,613	34,682	31,214	38,150	0.98%	0.50%	1.66%
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	GA-ATCT	45,573	50,309	45,278	55,340	54,629	49,166	60,092	64,415	57,974	70,857	1.66%	1.30%	2.64%
Brooksville	Pilot Country Airport	X05	GA-Low	10,176	10,268	9,241	11,295	10,345	9,311	11,380	10,501	9,451	11,552	0.15%	-0.34%	0.64%
Carrabelle	Carrabelle-Thompson Airport	X13	GA-Low	4,261	4,299	3,870	4,729	4,332	3,899	4,765	4,397	3,958	4,837	0.15%	-0.34%	0.64%
Cedar Key	George T. Lewis Airport	CDK	GA-Low	4,000	4,036	3,633	4,440	4,066	3,660	4,473	4,128	3,715	4,541	0.15%	-0.34%	0.64%
Clearwater	Clearwater Air Park	CLW	GA-High	50,560	52,074	46,867	57,282	53,371	48,034	58,708	56,062	50,456	61,668	0.49%	-0.01%	1.05%
Clewiston	Airglades Airport	2IS	GA-Low	11,527	11,631	10,468	12,794	11,719	10,547	12,890	11,896	10,706	13,085	0.15%	-0.34%	0.64%
Crestview	Bob Sikes Airport	CEW	GA-Med	48,400	50,386	45,347	55,424	52,103	46,892	57,313	55,714	50,142	61,285	0.67%	0.17%	1.27%
Cross City	Cross City Airport	CTY	GA-Low	18,000	18,163	16,346	19,979	18,299	16,469	20,129	18,576	16,718	20,433	0.15%	-0.34%	0.64%
Crystal River	Crystal River Airport-Captain Tom Davis Field	CGC	GA-Med	27,896	30,470	27,423	33,517	32,796	29,517	36,076	37,994	34,195	41,794	1.48%	1.08%	2.37%
Daytona Beach	Daytona Beach International Airport	DAB	CS	279,171	200,967	180,870	221,064	203,328	182,995	223,661	208,136	187,322	228,950	-1.39%	-1.57%	-0.86%
DeFuniak Springs	DeFuniak Springs Airport	54J	GA-Low	16,000	16,145	14,530	17,759	16,266	14,639	17,893	16,512	14,860	18,163	0.15%	-0.34%	0.64%
DeLand	Bob Lee Flight Strip	1J6	GA-Low	6,000	6,054	5,449	6,660	6,100	5,490	6,710	6,192	5,573	6,811	0.15%	-0.34%	0.64%
DeLand	DeLand Municipal-Sidney H. Taylor Field	DED	GA-High	117,060	122,779	110,501	135,057	127,758	114,982	140,534	138,330	124,497	152,163	0.80%	0.30%	1.43%
Destin	Destin Executive Airport	DTS	GA-High	62,400	64,960	58,464	71,456	67,174	60,456	73,891	71,829	64,646	79,012	0.67%	0.17%	1.27%
Dunnellon	Marion County Airport	X35	GA-Med	38,603	42,201	37,981	46,421	45,455	40,909	50,000	52,733	47,460	58,007	1.50%	1.09%	2.39%
Englewood	Buchan Airport	X36	GA-Low	2,701	2,725	2,453	2,998	2,746	2,471	3,020	2,787	2,509	3,066	0.15%	-0.34%	0.64%
Eustis	Mid Florida Air Service Airport	X55	GA-Med	20,024	22,518	20,266	24,769	24,831	22,348	27,314	30,196	27,176	33,215	1.98%	1.70%	3.14%
Everglades	Everglades Airpark	X01	GA-Low	6,000	6,054	5,449	6,660	6,100	5,490	6,710	6,192	5,573	6,811	0.15%	-0.34%	0.64%
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	GA-Med	45,400	50,585	45,526	55,643	55,355	49,819	60,890	66,287	59,658	72,916	1.82%	1.50%	2.89%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2020 Low Growth	2020 High Growth	2025 GA Operations	2025 Low Growth	2025 High Growth	2035 GA Operations	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Fort Lauderdale	Downtown Fort Lauderdale Heliport	DT1	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	GA-ATCT	153,104	165,643	149,078	182,207	176,872	159,185	194,560	201,667	181,501	221,834	1.32%	0.88%	2.14%
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	FLL	CS	35,886	36,598	32,938	40,258	36,598	32,938	40,258	36,598	32,938	40,258	0.09%	-0.39%	0.58%
Fort Myers	Page Field	FMY	GA-ATCT	87,743	96,539	86,885	106,193	104,539	94,085	114,993	122,583	110,324	134,841	1.61%	1.23%	2.56%
Fort Myers	Southwest Florida International Airport	RSW	CS	8,768	7,874	7,087	8,661	7,677	6,909	8,445	7,298	6,568	8,028	-0.87%	-1.19%	-0.40%
Fort Pierce	Treasure Coast International Airport	FPR	GA-ATCT	152,589	171,862	154,676	189,049	189,770	170,793	208,747	231,379	208,241	254,517	2.00%	1.74%	3.18%
Gainesville	Gainesville Regional Airport	GNV	CS	47,527	54,474	49,027	59,921	54,569	49,112	60,026	54,759	49,283	60,235	0.68%	0.18%	1.27%
High Springs	Oak Tree Landing Airport	6J8	GA-Low	200	202	182	222	203	183	224	206	186	227	0.15%	-0.34%	0.64%
Hilliard	Hilliard Airpark	01J	GA-Low	5,000	5,045	4,541	5,550	5,083	4,575	5,591	5,160	4,644	5,676	0.15%	-0.34%	0.64%
Hollywood	North Perry Airport	HWO	GA-ATCT	154,552	167,209	150,488	183,930	178,545	160,691	196,400	203,575	183,217	223,932	1.32%	0.88%	2.14%
Homestead	Homestead General Aviation Airport	X51	GA-High	74,517	79,276	71,349	87,204	83,474	75,127	91,821	92,547	83,293	101,802	1.04%	0.56%	1.74%
Immokalee	Immokalee Regional Airport	IMM	GA-Med	36,500	40,962	36,866	45,059	45,095	40,586	49,605	54,653	49,188	60,119	1.94%	1.66%	3.08%
Indiantown	Indiantown Airport	X58	GA-Low	5,000	5,045	4,541	5,550	5,083	4,575	5,591	5,160	4,644	5,676	0.15%	-0.34%	0.64%
Inverness	Inverness Airport	INF	GA-Low	15,000	15,136	13,622	16,649	15,249	13,724	16,774	15,480	13,932	17,028	0.15%	-0.34%	0.64%
Jacksonville	Cecil Airport	VQQ	GA-ATCT	91,167	97,341	87,607	107,075	102,803	92,523	113,084	114,666	103,199	126,133	1.10%	0.63%	1.83%
Jacksonville	Herlong Recreational Airport	HEG	GA-High	80,700	86,165	77,548	94,781	91,000	81,900	100,101	101,501	91,351	111,651	1.10%	0.63%	1.83%
Jacksonville	Jacksonville Executive At Craig Airport	CRG	GA-ATCT	100,073	106,850	96,165	117,535	112,846	101,562	124,131	125,868	113,281	138,454	1.10%	0.63%	1.83%
Jacksonville	Jacksonville International Airport	JAX	CS	18,218	29,258	26,332	32,184	29,413	26,472	32,354	29,749	26,774	32,724	2.36%	2.24%	3.79%
Key West	Key West International Airport	EYW	CS	30,100	34,489	31,040	37,938	34,664	31,198	38,130	35,048	31,543	38,553	0.73%	0.23%	1.34%
Keystone Heights	Keystone Airpark	42J	GA-Med	31,900	35,736	32,162	39,309	39,282	35,354	43,210	47,465	42,719	52,212	1.91%	1.61%	3.03%
La Belle	La Belle Municipal Airport	X14	GA-Med	21,880	23,431	21,088	25,774	24,807	22,326	27,287	27,806	25,025	30,587	1.15%	0.68%	1.89%
Lake City	Lake City Gateway Airport	LCQ	GA-ATCT	27,414	29,383	26,445	32,321	31,131	28,018	34,244	34,946	31,452	38,441	1.16%	0.70%	1.92%
Lake Wales	Chalet Suzanne Air Strip	X25	GA-Low	2,412	2,434	2,190	2,677	2,452	2,207	2,697	2,489	2,240	2,738	0.15%	-0.34%	0.64%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2020 Low Growth	2020 High Growth	2025 GA Operations	2025 Low Growth	2025 High Growth	2035 GA Operations	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Lake Wales	Lake Wales Municipal Airport	X07	GA-Med	19,200	20,566	18,509	22,622	21,777	19,600	23,955	24,419	21,978	26,861	1.15%	0.69%	1.90%
Lakeland	Lakeland Linder Regional Airport	LAL	GA-ATCT	96,741	103,621	93,259	113,983	109,727	98,755	120,700	123,040	110,736	135,344	1.15%	0.69%	1.90%
Lakeland	South Lakeland Airport	X49	GA-Low	12,000	12,108	10,898	13,319	12,199	10,980	13,419	12,384	11,145	13,622	0.15%	-0.34%	0.64%
Leesburg	Leesburg International Airport	LEE	GA-ATCT	51,561	57,982	52,184	63,780	63,939	57,545	70,333	77,753	69,978	85,528	1.98%	1.70%	3.14%
Live Oak	Suwannee County Airport	24J	GA-Low	16,300	16,447	14,803	18,092	16,571	14,914	18,228	16,821	15,139	18,503	0.15%	-0.34%	0.64%
Marathon	The Florida Keys Marathon Airport	MTH	GA-High	63,593	66,380	59,742	73,018	68,796	61,916	75,675	73,894	66,504	81,283	0.72%	0.22%	1.32%
Marco Island	Marco Island Airport	MKY	GA-Med	17,000	19,078	17,171	20,986	21,003	18,903	23,103	25,455	22,909	28,000	1.94%	1.66%	3.08%
Marianna	Marianna Municipal Airport	MAI	GA-Med	28,016	29,228	26,306	32,151	30,279	27,251	33,307	32,494	29,245	35,743	0.71%	0.21%	1.31%
Melbourne	Melbourne International Airport	MLB	CS	125,470	90,161	81,145	99,177	92,479	83,231	101,727	97,335	87,602	107,069	-1.20%	-1.44%	-0.70%
Merritt Island	Merritt Island Airport	COI	GA-High	112,000	118,179	106,361	129,997	123,589	111,230	135,947	135,161	121,645	148,677	0.90%	0.41%	1.56%
Miami	Dade-Collier Training and Transition Airport	TNT	GA-Low	14,468	14,599	13,139	16,059	14,709	13,238	16,179	14,931	13,438	16,424	0.15%	-0.34%	0.64%
Miami	Miami Executive Airport	TMB	GA-ATCT	252,274	268,387	241,548	295,225	282,597	254,337	310,857	313,315	281,984	344,647	1.04%	0.56%	1.74%
Miami	Miami International Airport	MIA	CS	19,213	19,385	17,447	21,324	19,385	17,447	21,324	19,385	17,447	21,324	0.04%	-0.44%	0.52%
Miami	Miami Seaplane Base	X44	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Miami	Miami-Opa Locka Executive Airport	OPF	GA-ATCT	123,975	131,893	118,704	145,083	138,877	124,989	152,764	153,973	138,575	169,370	1.04%	0.56%	1.74%
Milton	Peter Prince Field	2R4	GA-High	93,950	105,799	95,219	116,379	116,808	105,127	128,488	142,379	128,142	156,617	2.00%	1.73%	3.18%
Naples	Naples Municipal Airport	APF	GA-ATCT	82,843	92,971	83,674	102,268	102,351	92,116	112,586	124,045	111,640	136,449	1.94%	1.66%	3.08%
Navarre	Ft. Walton Beach Airport	1J9	GA-Low	8,030	8,103	7,292	8,913	8,163	7,347	8,980	8,287	7,458	9,115	0.15%	-0.34%	0.64%
New Smyrna Beach	Massey Ranch Airpark	X50	GA-Low	9,750	9,838	8,854	10,822	9,912	8,921	10,903	10,062	9,056	11,068	0.15%	-0.34%	0.64%
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	GA-ATCT	155,979	163,600	147,240	179,960	170,234	153,211	187,258	184,321	165,889	202,753	0.80%	0.30%	1.43%
Ocala	Ocala International-Jim Taylor Field	OCF	GA-ATCT	48,193	52,685	47,417	57,954	56,747	51,072	62,421	65,834	59,250	72,417	1.50%	1.09%	2.39%
Okeechobee	Okeechobee County Airport	OBE	GA-High	50,000	52,049	46,844	57,254	53,821	48,439	59,203	57,548	51,793	63,303	0.67%	0.17%	1.27%
Orlando	Executive Airport	ORL	GA-ATCT	104,177	114,124	102,712	125,537	123,136	110,822	135,449	143,349	129,014	157,684	1.53%	1.14%	2.45%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2020 Low Growth	2020 High Growth	2025 GA Operations	2025 Low Growth	2025 High Growth	2035 GA Operations	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Orlando	Kissimmee Gateway Airport	ISM	GA-ATCT	82,719	90,618	81,556	99,679	97,773	87,995	107,550	113,823	102,441	125,205	1.53%	1.14%	2.45%
Orlando	Orlando International Airport	MCO	CS	15,916	15,195	13,676	16,715	15,195	13,676	16,715	15,195	13,676	16,715	-0.22%	-0.67%	0.24%
Orlando	Orlando-Sanford International Airport	SFB	CS	170,915	180,074	162,067	198,081	184,000	165,600	202,400	192,152	172,937	211,367	0.56%	0.06%	1.13%
Ormond Beach	Ormond Beach Municipal Airport	OMN	GA-ATCT	109,444	114,791	103,312	126,270	119,446	107,502	131,391	129,330	116,397	142,263	0.80%	0.30%	1.43%
Pahokee	Palm Beach County Glades Airport	PHK	GA-Med	36,500	40,377	36,339	44,415	43,921	39,529	48,313	51,968	46,771	57,165	1.70%	1.34%	2.70%
Palatka	Palatka Municipal-Lt. Kay Larkin Field	28J	GA-Med	36,906	38,680	34,812	42,547	40,222	36,200	44,245	43,495	39,146	47,845	0.79%	0.29%	1.41%
Palm Coast	Flagler County Airport	FIN	GA-ATCT	148,264	169,752	152,777	186,728	190,020	171,018	209,022	238,104	214,294	261,914	2.28%	2.12%	3.65%
Palmetto	Airport Manatee	48X	GA-Low	7,100	7,164	6,448	7,881	7,218	6,496	7,940	7,327	6,594	8,060	0.15%	-0.34%	0.64%
Panacea	Wakulla County Airport	2J0	GA-Low	2,380	2,402	2,161	2,642	2,420	2,178	2,662	2,456	2,210	2,702	0.15%	-0.34%	0.64%
Panama City	Northwest Florida-Beaches International Airport	ECP	CS	42,969	51,403	46,263	56,543	51,700	46,530	56,870	52,304	47,074	57,534	0.94%	0.45%	1.61%
Pensacola	Ferguson Airport	82J	GA-High	67,500	69,455	62,509	76,400	71,126	64,014	78,239	74,592	67,133	82,051	0.48%	-0.03%	1.03%
Pensacola	Pensacola International Airport	PNS	CS	79,696	83,662	75,296	92,028	83,662	75,296	92,028	83,662	75,296	92,028	0.23%	-0.26%	0.74%
Perry	Perry-Foley Airport	40J	GA-Low	18,200	18,364	16,528	20,201	18,503	16,652	20,353	18,782	16,904	20,660	0.15%	-0.34%	0.64%
Pierson	Pierson Municipal Airport	2J8	GA-Low	14,040	14,167	12,750	15,584	14,273	12,846	15,701	14,489	13,040	15,938	0.15%	-0.34%	0.64%
Plant City	Plant City Airport	PCM	GA-Med	47,775	52,454	47,208	57,699	56,701	51,031	62,371	66,254	59,629	72,879	1.57%	1.18%	2.50%
Pompano Beach	Pompano Beach Airpark	PMP	GA-ATCT	132,964	143,853	129,468	158,239	153,606	138,245	168,966	175,139	157,625	192,653	1.32%	0.88%	2.14%
Port St. Joe	Costin Airport	A51	GA-Low	12,500	12,613	11,352	13,874	12,708	11,437	13,979	12,900	11,610	14,190	0.15%	-0.34%	0.64%
Punta Gorda	Punta Gorda Airport	PGD	CS	49,997	63,420	57,078	69,762	65,016	58,514	71,518	68,334	61,501	75,167	1.50%	1.10%	2.40%
Punta Gorda	Shell Creek Airpark	F13	GA-Low	2,190	2,210	1,989	2,431	2,226	2,004	2,449	2,260	2,034	2,486	0.15%	-0.34%	0.64%
Quincy	Quincy Municipal Airport	2J9	GA-Low	6,240	6,296	5,667	6,926	6,344	5,709	6,978	6,440	5,796	7,083	0.15%	-0.34%	0.64%
River Ranch	River Ranch Resort Airport	2RR	GA-Low	-	-	-	-	-	-	-	-	-	-	N/A	N/A	N/A
Sarasota/ Bradenton	Sarasota Bradenton International Airport	SRQ	CS	84,527	85,965	77,369	94,562	86,776	78,098	95,454	88,436	79,592	97,280	0.22%	-0.28%	0.72%
Sebastian	Sebastian Municipal Airport	X26	GA-Med	36,240	40,089	36,080	44,098	43,607	39,246	47,968	51,596	46,436	56,756	1.70%	1.34%	2.70%
Sebring	Sebring Regional Airport	SEF	GA-High	103,087	114,126	102,713	125,538	124,223	111,800	136,645	147,175	132,457	161,892	1.71%	1.36%	2.72%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2020 Low Growth	2020 High Growth	2025 GA Operations	2025 Low Growth	2025 High Growth	2035 GA Operations	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
St. Augustine	Northeast Florida Regional Airport	SGJ	CS	129,815	139,069	125,162	152,976	143,434	129,091	157,777	152,726	137,453	167,999	0.78%	0.28%	1.40%
St. Petersburg	Albert Whitted Airport	SPG	GA-ATCT	93,935	96,749	87,074	106,424	99,158	89,242	109,073	104,157	93,741	114,573	0.49%	-0.01%	1.05%
St. Petersburg/ Clearwater	St. Pete-Clearwater International Airport	PIE	CS	117,212	90,654	81,589	99,719	91,283	82,155	100,411	92,557	83,301	101,813	-1.12%	-1.38%	-0.63%
Stuart	Witham Field	SUA	GA-ATCT	74,784	82,379	74,141	90,617	89,294	80,365	98,223	104,914	94,423	115,405	1.63%	1.25%	2.59%
Tallahassee/ Havana*	Tallahassee Commercial Airport	68J	GA	0	0	0	0	0	0	0	0	0	0	0%	0%	0%
Tallahassee	Tallahassee International Airport	TLH	CS	40,304	40,740	36,666	44,814	40,740	36,666	44,814	40,740	36,666	44,814	0.05%	-0.43%	0.53%
Tampa	Peter O. Knight Airport	TPF	GA-High	50,000	54,897	49,407	60,386	59,341	53,407	65,275	69,340	62,406	76,274	1.57%	1.18%	2.50%
Tampa	Tampa Executive Airport	VDF	GA-High	94,070	103,282	92,954	113,611	111,645	100,480	122,809	130,456	117,410	143,501	1.57%	1.18%	2.50%
Tampa	Tampa International Airport	TPA	CS	21,872	21,940	19,746	24,134	21,925	19,733	24,118	21,895	19,706	24,085	0.01%	-0.47%	0.48%
Tampa	Tampa North Aero Park	X39	GA-Low	11,000	11,099	9,989	12,209	11,183	10,065	12,301	11,352	10,217	12,487	0.15%	-0.34%	0.64%
Tavares	Tavares Seaplane Base	FA1	GA-Low	7,000	7,063	6,357	7,770	7,116	6,405	7,828	7,224	6,501	7,946	0.15%	-0.34%	0.64%
Titusville	Arthur Dunn Air Park	X21	GA-Med	40,450	42,682	38,414	46,950	44,635	40,172	49,099	48,815	43,933	53,696	0.90%	0.41%	1.56%
Titusville	Space Coast Regional Airport	TIX	GA-ATCT	97,186	102,548	92,293	112,803	107,242	96,518	117,966	117,284	105,555	129,012	0.90%	0.41%	1.56%
Umatilla	Umatilla Municipal Airport	X23	GA-Low	5,000	5,045	4,541	5,550	5,083	4,575	5,591	5,160	4,644	5,676	0.15%	-0.34%	0.64%
Valkaria	Valkaria Airport	X59	GA-Med	33,100	34,926	31,434	38,419	36,525	32,872	40,177	39,945	35,950	43,939	0.90%	0.41%	1.56%
Valparaiso	Destin-Fort Walton Beach Airport	VPS	CS	39,285	39,285	35,357	43,214	39,285	35,357	43,214	39,285	35,357	43,214	0.00%	-0.48%	0.48%
Venice	Venice Municipal Airport	VNC	GA-High	60,834	65,032	58,529	71,536	68,752	61,876	75,627	76,840	69,156	84,524	1.12%	0.65%	1.85%
Vero Beach	New Hibiscus Airpark	X52	GA-Med	22,000	24,337	21,903	26,770	26,472	23,825	29,119	31,322	28,190	34,454	1.70%	1.34%	2.70%
Vero Beach	Vero Beach Regional Airport	VRB	GA-ATCT	207,776	229,843	206,859	252,828	250,013	225,012	275,014	295,817	266,235	325,399	1.70%	1.34%	2.70%
Wauchula	Wauchula Municipal Airport	CHN	GA-Low	8,200	8,274	7,447	9,101	8,336	7,503	9,170	8,462	7,616	9,308	0.15%	-0.34%	0.64%
West Palm Beach	North Palm Beach County General Aviation Airport	F45	GA-High	90,100	99,670	89,703	109,638	108,418	97,576	119,260	128,283	115,455	141,112	1.70%	1.34%	2.70%
West Palm Beach	Palm Beach County Park Airport	LNA	GA-High	124,750	138,001	124,201	151,801	150,113	135,101	165,124	177,618	159,856	195,380	1.70%	1.34%	2.70%
West Palm Beach	Palm Beach International Airport	PBI	CS	60,122	62,055	55,850	68,261	62,965	56,669	69,262	64,822	58,340	71,304	0.36%	-0.14%	0.89%

Associated City	Airport Name	FAA ID	Airport Category	2014 GA Operations	2020 GA Operations	2020 Low Growth	2020 High Growth	2025 GA Operations	2025 Low Growth	2025 High Growth	2035 GA Operations	2035 Low Growth	2035 High Growth	Avg. Annual Growth Rate 2014 – 2035	Avg. Annual Low Growth 2014 – 2035	Avg. Annual High Growth 2014 – 2035
Williston	Williston Municipal Airport	X60	GA-Low	16,250	16,397	14,757	18,036	16,520	14,868	18,172	16,770	15,093	18,447	0.15%	-0.34%	0.64%
Winter Haven	Jack Brown's Seaplane Base	F57	GA-Low	10,000	10,090	9,081	11,099	10,166	9,150	11,183	10,320	9,288	11,352	0.15%	-0.34%	0.64%
Winter Haven	Winter Haven's Gilbert Airport	GIF	GA-High	60,000	64,267	57,841	70,694	68,054	61,249	74,860	76,311	68,680	83,942	1.15%	0.69%	1.90%
Zellwood	Bob White Field	X61	GA-Med	20,000	21,910	19,719	24,101	23,640	21,276	26,004	27,520	24,768	30,272	1.53%	1.14%	2.45%
Zephyrhills	Zephyrhills Municipal Airport	ZPH	GA-Med	49,275	54,351	48,916	59,786	58,977	53,080	64,875	69,446	62,502	76,391	1.65%	1.28%	2.62%

Source: Federal Aviation Administration (FAA) Terminal Area Forecast (TAF), issued January 2017; 5010 Airport Master Record; Woods & Poole, Inc.; Federal Aviation Administration (FAA) Aerospace Forecast 2017 – 2037; Kimley-Horn. Prepared April 2017.
**Airport closed indefinitely*

C. Intermodal Connectivity Data

The following pages include intermodal connectivity data for all 128 system airports. The first set of data is for the 108 non-Strategic Intermodal System (SIS) facilities. The second set of data is for the 20 SIS airports in the state. Airports are listed in alphabetical order by associated city.

Table C-1: Non-SIS Airports Intermodal Connectivity Data

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
Apalachicola	Apalachicola Regional-Cleve Randolph Field	AAF	3	FRANKLIN			US 98	2										
Apalachicola	St George Island Airport	F47	3	FRANKLIN					SR 300	2			US 98	2				
Apopka	Orlando Apopka Airport	X04	5	ORANGE			US 441	4			I 4	6			SR 429/414	6		
															SR 436	8		
Arcadia	Arcadia Municipal Airport	X06	1	DE SOTO					SR 31	2			US 441	2	SR 70	4		
															SR 72	2		
Archer	Flying Ten Airport	0J8	2	ALACHUA			US 41	2	SR 26	4	I 75	6			SR 24	2		
															SR 121	3		
Avon Park	Avon Park Executive Airport	AVO	1	HIGHLANDS					SR 64	2			US 98	6	SR 17	2	1	INTERSECTION IMPROVEMENT
Bartow	Bartow Municipal Airport	BOW	1	POLK			US 17	4					US 98	6	SR 60	4		
													US 27	4	SR 540	4		
Belle Glade	Belle Glade State Municipal Airport	X10	4	PALM BEACH					SR 15	4			US 27	4	SR 715	2		
													US 441/98	4	SR 80	4		
Blountstown	Calhoun County Airport	F95	3	CALHOUN					SR 71	2	I 10	4			SR 20	2		
															SR 69	2		
Boca Raton	Boca Raton Airport	BCT	4	PALM BEACH					SR 808	6	I 95	8	US 1	4	SR A1A	2	3	SPECIAL USE LANE
											SR 91 (TRNPK)	6			SR 794	8	1	INTERCHANGE (NEW)
																	1	INTERSECTION IMPROVEMENT
Bonifay	Tri-County Airport	1J0	3	HOLMES					SR 79	2	I 10	4	US 90	2	SR 77	2		
															SR 273	2		
															SR 277	2		
															SR 2	2		
Brooksville	Brooksville-Tampa Bay Regional Airport	BKV	7	HERNANDO			US 41	4	SR 589	4	I 75	6	US 98	4	SR 50	4		
													US 19	4				

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
Brooksville	Pilot Country Airport	X05	7	PASCO			US 41	2	SR 52	2	I 75	4	US 19	6	SR 589	4	2	ADD LANES & RECONSTRUCT
															SR 54	6		
Carrabelle	Carrabelle-Thompson Airport	X13	3	FRANKLIN			US 98	2							SR 65	2		
Cedar Key	George T Lewis Airport	CDK	2	LEVY					SR 24	2								
Clearwater	Clearwater Air Park	CLW	7	PINELLAS					SR 590	4	I 275	6	US 19	2	SR 60	4		
													USA 19	2	SR 686	6		
															SR 580	6		
Clewiston	Airglades Airport	2IS	1	HENDRY			US 27	4							SR 80	4		
															SR 78	2		
Crestview	Bob Sikes Airport	CEW	3	OKALOOSA			US 90	4			I 10	4			SR 85	4		
Cross City	Cross City Airport	CTY	2	DIXIE			US 98	2							SR 349	2		
Crystal River	Crystal River-Captain Tom Davis Field	CGC	7	CITRUS			US 98/19	4							SR 44	4	1	ADD LANES & RECONSTRUCT
DeLand	Bob Lee Flight Strip	1J6	5	VOLUSIA			US 17	4	SR 11	2	I 4	4			SR 15A	4		
															SR 44	2		
DeLand	Deland Municipal-Sidney H Taylor Field	DED	5	VOLUSIA			US 92	4			I 4	4	US 17	4	SR 11	2		
															SR 44	2		
															SR 15A	4		
DeFuniak Springs	DeFuniak Springs Airport	54J	3	WALTON			US 90	2			I 10	4			SR 83	2		
							US 331	2										
Dunnellon	Marion County Airport	X35	5	MARION			US 41	4	SR 200	6	I 75	6			SR 40	2		
Destin	Destin Executive Airport	DTS	3	OKALOOSA			US 98	4							SR 263	2		
Englewood	Buchan Airport	X36	1	SARASOTA					SR 776	4	I 75	4	US 41	4				
Eustis	Mid Florida Air Service Airport	X55	5	LAKE					SR 44	2			US 441	4	SR 46	2		
															SR 19	4		
Everglades	Everglades Airpark	X01	1	COLLIER									US 41	2	SR 29	2		

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
Fernandina Beach	Fernandina Beach Municipal Airport	FHB	2	NASSAU					SR A1A	4	I 95	6	US 17	2				
Fort Lauderdale	Downtown Fort Lauderdale Helistop	DT1	4	BROWARD			US 1	4	SR 842	6	I 95	9	US 441	6	SR A1A	4	1	SPECIAL USE LANE
																	2	ADD LANES
															SR 838	6		
															SR 736	4		
Fort Lauderdale	Fort Lauderdale Executive Airport	FXE	4	BROWARD					SR 870	6	I 95	8	US 441	6	SR 845	6		
											SR 91 (TRNPK)	9	US 1	6	SR 816	6		
Fort Myers	Page Field	FMY	1	LEE			US 41	6	SR 739	4	I 75	6			SR 876	2		
									SR 884	6								
Fort Pierce	St Lucie County International Airport	FPR	4	ST LUCIE					SR 615		I 95	8	US 1	4	SR 713	2		
											SR 91 (TRNPK)	4			SR A1A	2		
															SR 68	4		
High Springs	Oak Tree Landing Airport	6J8	2	ALACHUA							I 75	6	US 41	2	SR 47	2		
															SR 26	2		
Hilliard	Hilliard Airpark	01J	2	NASSAU			US 301	4										
Hollywood	North Perry Airport	HWO	4	BROWARD					SR 820	6	SR 91 (TRNPK)	6	US 441	2				
									SR 817	6	I 95	10						
									SR 824	6	I 75	8						
Homestead	Homestead General Aviation Airport	X51	6	DADE									US 1	2	SR 997	2		
															SR 821	4		
Immokalee	Immokalee Regional Airport	IMM	1	COLLIER					SR 29	2					SR 82	2		
Indiantown	Indiantown Airport	X58	4	MARTIN					SR 76	4					SR 710	2		
Inverness	Inverness Airport	INF	7	CITRUS			US 41	4			I 75	4			SR 44	4		

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
Jacksonville	Cecil Airport	VQQ	2	DUVAL					SR 228	4	I 295	6	US 90	2	SR 23	2		
									SR 134	4	I 10	6	US 17	6	SR 21	4		
											I 95	6	US 301	4				
Jacksonville	Herlong Recreational Airport	HEG	2	DUVAL					SR 228	4	I 295	6	US 90	2	SR 23	2		
											I 10	6	US 17	6	SR 134	4		
											I 95	6	US 301	4	SR 21	4		
Jacksonville	Jacksonville Executive At Craig Airport	CRG	2	DUVAL			USA 90	6			I 295	4	US 90	6	SR 116	4		
											I 95	5						
											I 10	8						
Keystone Heights	Keystone Airpark	42J	2	CLAY					SR 100	2			US 301	4	SR 21	2		
															SR 230	2		
Key West	Key West International Airport	EYW	6	MONROE					SR A1A	2			US 1	4				
Lakeland	Lakeland Linder Regional Airport	LAL	1	POLK					SR 571	2	I 4	4	US 92	2	SR 37	4		
															SR 39	4		
															SR 60	4		
															SR 570	6		
Lakeland	South Lakeland Airport	X49	1	POLK					SR 60	4	I 4	4	US 92	2	SR 39	4		
															SR 37	4		
La Belle	La Belle Municipal Airport	X14	1	HENDRY					SR 29	2					SR 80	4		
Lake City	Lake City Gateway Airport	LCQ	2	COLUMBIA			US 90	4	SR 100	2	I 75	6	US 441	2	SR 10A	4		
											I 10	4	US 41	4				
Lake Wales	Chalet Suzanne Air Strip	X25	1	POLK					SR 17	2			US 27	6	SR 540	4		
Lake Wales	Lake Wales Municipal Airport	X07	1	POLK					SR 60	4			US 27	4	SR 17	2		
Leesburg	Leesburg International Airport	LEE	5	LAKE			US 441	6					US 27	4	SR 44	4		

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
Live Oak	Suwannee County Airport	24J	2	SUWANNEE			US 90	2			I 10	4	US 129	4	SR 51	2		
											I 75	6						
Marathon	The Florida Keys Marathon International Airport	MTH	6	MONROE			US 1	4										
Marco Island	Marco Island Airport	MKY	1	COLLIER					SR 151	4	I 75	4	US 41	6				
Marianna	Marianna Municipal Airport	MAI	3	JACKSON			SR 71	2			I 10	4	US 90	4	SR 69	2		
															SR 166	2		
Merritt Island	Merritt Island Airport	COI	5	BREVARD					SR 520	6	I 95	6	US 1	6	SR A1A	4		
									SR 3	4			US 41	6	SR A1A	2		
Miami	Dade-Collier Training And Transition Airport	TNT	6	DADE			US 41	2										
Miami	Miami Seaplane Base	X44	6	DADE					SR 887	4	I 395	6	US 1	8	SR 907	4	5	NEW ROAD CONSTRUCTION
											I 95	7	US 441	4	SR 886	6		
Miami	Miami-Opa Locka Executive Airport	OPF	6	DADE					SR 916	4	I 75	7	US 441	5	SR 823	6		
									SR 826	2	I 95	8			SR 817	6		
															SR 924	6		
															SR 860	4		
															SR 932	4		
Milton	Peter Prince Field	2R4	3	SANTA ROSA			US 90	2			I 10	4			SR 87	4		
															SR 281	4		
															SR 87	2		
															SR 89	2		
Naples	Naples Municipal Airport	APF	1	COLLIER					SR 84	6	I 75	6	US 41	6				
Navarre	Fort Walton Beach Airport	1J9	3	SANTA ROSA			US 98	4			I 10	4			SR 87	4		
New Smyrna Beach	Massey Ranch Airpark	X50	5	VOLUSIA					SR 442	4	I 95	4	US 1	4	SR 44	4		
											I 4	4			SR 5A	4		

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
															SR A1A	4		
															SR 415	2		
New Smyrna Beach	New Smyrna Beach Municipal Airport	EVB	5	VOLUSIA			US 1	4			I 95	4			SR 44	4		
											I 4	4			SR 5A	4		
															SR A1A	4		
															SR 415	2		
Ocala	Ocala International-Jim Taylor Field	OCF	5	MARION					SR 40	4	I 75	5	US 27	4	SR 200	6		
													US 441	4				
													US 41	4				
Okeechobee	Okeechobee County Airport	OBE	1	OKEECHOBEE			US 98	2					US 441	4	SR 70	2		
Orlando	Executive Airport	ORL	5	ORANGE					SR 50	6	I 4	8	US 92/17	4	SR 15	4		
									SR 526	4					SR 408	10		
															SR 436	6		
Ormond Beach	Ormond Beach Municipal Airport	OMN	5	VOLUSIA			US 1	4			I 95	6			SR 5A	4		
															SR 40	4		
Pahokee	Palm Beach County Glades Airport	PHK	4	PALM BEACH					SR 715	2			US 441/98	2	SR 700	2		
													US 27	4	SR 812	2		
Palatka	Palatka Municipal - Lt Kay Larkin Field	28J	2	PUTNAM					SR 100	2			US 17	4	SR 20	4		
															SR 19	2		
Palm Coast	Flagler County Airport	FIN	5	FLAGLER					SR 100	4	I 95	6	US 1	4	SR A1A	4		
															SR 20	2		
Palmetto	Airport Manatee	48X	1	MANATEE			US 41	4			I 75	6			SR 674	6		
											I 275	4						
Panacea	Wakulla County Airport	2J0	3	WAKULLA			US 98	2					US 319	2				
Pensacola	Ferguson Airport	82J	3	ESCAMBIA			US 98	2	SR 173	2	I 110	4	US 90	4	SR 298	2		
													US 29	4	SR 292	2		

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
Perry	Perry-Foley Airport	40J	2	TAYLOR			US 98/27/19	4					US 98	2				
													US 27	4				
													US 221	2				
Pierson	Pierson Municipal Airport	2J8	5	VOLUSIA			US 17	2							SR 40	2		
															SR 11	2		
Plant City	Plant City Airport	PCM	7	HILLSBOROUGH					SR 574	2	I 4	7	US 92	2	SR 39	4		
											I 75	6			SR 60	4		
Pompano Beach	Pompano Beach Airpark	PMP	4	BROWARD			US 1	6			I 95	8			SR 834	6		
															SR 814	6		
															SR A1A	2		
Port St. Joe	Costin Airport	A51	3	GULF			US 98	2	SR 30A	2					SR 71	2		
Punta Gorda	Shell Creek Airpark	F13	1	CHARLOTTE			US 17	4			I 75	4	US 41	4				
Quincy	Quincy Municipal Airport	2J9	3	GADSDEN					SR 12	2	I 10	4	US 90	4	SR 267	2		
															SR 12	2		
															SR 269	2		
River Ranch	River Ranch Resort Airport	2RR	1	POLK					SR 60	2	SR 91 (TRNPK)	4	US 441	2				
Sebastian	Sebastian Municipal Airport	X26	4	INDIAN RIVER			US 1	4			I 95	4			SR 510	2		
															SR A1A	2		
Sebring	Sebring Regional Airport	SEF	1	HIGHLANDS			US 98	2					US 27	4	SR 66	2		
															SR 17	2		
St. Augustine	Northeast Florida Regional Airport	SGJ	2	ST JOHNS			US 1	4			I 95	6			SR 16	4		
															SR A1A	2		
St. Petersburg	Albert Whitted Airport	SPG	7	PINELLAS	I 175	4	US 92	4			I 275	4	USA 19	4				
													US 19	6				
Stuart	Witham Field	SUA	4	MARTIN					SR 714	4	SR 91 (TRNPK)	4	US 1	6	SR 76	4		
											I 95	6			SR A1A	2		

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
Tallahassee/ Havana	Tallahassee Commercial Airport	68J	3	LEON			US 27	4							SR 12	2		
															SR 263	2		
Tampa	Peter O Knight Airport	TPF	7	HILLSBOROUGH							I 275	9	USB 41	6	SR 618	6		
													US 41	6	SR 60	4		
Tampa	Tampa Executive Airport	VDF	7	HILLSBOROUGH			US 301	4			I 4	7	US 92	2	SR 574	6	1	INTERCHANGE IMPROVEMENT
											I 75	6						
Tampa	Tampa North Aero Park	X39	7	PASCO					SR 56	6	I 75	4	US 41	6				
									SR 54	6	I 275	6	US 301	2				
Tavares	Tavares Seaplane Base	FA1	5	LAKE			US 441	6	SR 19	4					SR 44	2		
Titusville	Arthur Dunn Air Park	X21	5	BREVARD					SR 406	4	I 95	6	US 1	4	SR 405	2	1	ADD LANES & REHABILITATE PAVEMENT
															SR 46	2		
Titusville	Space Coast Regional Airport	TIX	5	BREVARD			US 1	4			I 95	6			SR 405	4		
															SR 407	2		
															SR 50	4		
Umatilla	Umatilla Municipal Airport	X23	5	LAKE					SR 19	4			US 441	6	SR 44	2		
Valkaria	Valkaria Airport	X59	5	BREVARD			US 1	4			I 95	6	US 192	4	SR 514	2		
Venice	Venice Municipal Airport	VNC	1	SARASOTA			USB 41	4			I 75	4	US 41	4	SR 681	4		
															SR 776	6		
Vero Beach	Vero Beach Regional Airport	VRB	4	INDIAN RIVER			US 1	4			I 95	6			SR A1A	2		
															SR 60	4		
Vero Beach	New Hibiscus Airpark	X52	4	INDIAN RIVER					SR 60	4	I 95	6	US 1	4	SR A1A	2		
Wauchula	Wauchula Municipal Airport	CHN	1	HARDEE					SR 64	2			US 17	6	SR 62	2		
															SR 636	2		
West Palm Beach	Palm Beach County Park Airport	LNA	4	PALM BEACH	I 95	10							US 1	4	SR 802	4		
West Palm Beach	North Palm Beach County General Aviation Airport	F45	4	PALM BEACH					SR 710	4	I 95	10			SR 786	2		
											SR 91 (TRNPK)	4			SR 809	6		

Associated City	Airport Name	FAA ID	District	County	DIRECT ACCESS						INDIRECT ACCESS						FDOT Work Plan Projects within one mile	
					Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Interstate Name	Interstate Lanes	U.S. Highway	U.S. Lanes	State Road	SR Lanes	Number of Projects	Project Description
Williston	Williston Municipal Airport	X60	2	LEVY			US 41	2	SR 121	2			USA 27	4				
Winter Haven	Jack Browns Seaplane Base	F57	1	POLK			US 92	4			I 4	6	US 17	4	SR 544	6		
													US 27	6	SR 559	2		
Winter Haven	Winter Haven's Gilbert Field	GIF	1	POLK			US 92	4			I 4	6	US 17	4	SR 544	6		
													US 27	6	SR 559	2		
Zellwood	Bob White Field	X61	5	ORANGE			US 441	4							SR 46	2		
															SR 429/414	6		
Zephyrhills	Zephyrhills Municipal Airport	ZPH	7	PASCO			US 301	2			I 4	6	US 98	2	SR 54	2		
											I 75	4			SR 39	2		

Source: Florida Department of Transportation (FDOT) GIS data; Florida Department of Transportation (FDOT) Five Year Work Program GIS data

Table C-2: SIS Airports Intermodal Connectivity Data

Associated City	Airport	2016 Domestic Passengers	2016 International Passengers	2016 Total Passengers	Airport Sponsor	County	FDOT District	MPO	FEDC Region	Direct Bus Transit	Direct Passenger Rail	Onsite Rental Car	Direct Access Roadway(s)	Indirect Access Roadway(s)
Daytona Beach	Daytona Beach International Airport	707,657	0	707,657	Volusia County	Volusia	5	River to Sea Transportation Planning Organization	East Central			✓	• One 8-lane US highway (US 92)	• One 6-lane interstate (I-95) • One 4-lane interstate (I-4) • Two 4-lane state roads (SR 483, SR 400)
Fort Lauderdale	Fort Lauderdale-Hollywood International Airport	23,149,587	6,055,415	29,205,002	Broward County	Broward	4	Broward Metropolitan Planning Organization	Southeast	✓ Broward County Transit		✓	• One 6-lane US highway (US 1) • One 8-Lane interstate (I-595)	• One 10-lane interstate (I-75) • One 8-lane interstate (I-95) • One 6-lane turnpike (SR 91) • Two 4-lane state roads (SR 736, SR A1A) • Two 6 lane state roads (SR 818, SR 84)
Fort Myers	Southwest Florida International Airport	8,222,611	382,089	8,604,700	Lee County Port Authority	Lee	1	Lee County Metropolitan Planning Organization	Southwest	✓ LeeTran		✓	• One 8 lane interstate (I-75) • One 7-lane county road (CR 876)	• One 6-lane US highway (US 41) • One 4-lane state road (SR 82)
Gainesville	Gainesville Regional Airport	420,787	0	420,787	Gainesville-Alachua County Regional Airport Authority	Alachua	2	Gainesville Metropolitan Transportation Planning Organization	North Central	✓ Regional Transit System		✓	• Two 4-lane state roads (SR 24, SR 222)	• One 6-lane interstate (I-75) • Two 4-lane US highways (US 301, US 441) • Three 4-lane state roads (SR 12, SR 20, SR 26)
Jacksonville	Jacksonville International Airport	5,591,888	0	5,591,888	Jacksonville Aviation Authority	Duval	2	North Florida Transportation Planning Organization	Northeast	✓ Jacksonville Transportation Authority		✓	• One 4-lane state road (SR 102) • One 5 land state	• One 6-lane interstate (I-95) • One 4-lane interstate (I-295) • One 2-lane US highway (US 17)

Associated City	Airport	2016 Domestic Passengers	2016 International Passengers	2016 Total Passengers	Airport Sponsor	County	FDOT District	MPO	FEDC Region	Direct Bus Transit	Direct Passenger Rail	Onsite Rental Car	Direct Access Roadway(s)	Indirect Access Roadway(s)
													road (SR 243)	
Melbourne	Melbourne International Airport	463,940	1,743	465,683	Melbourne Airport Authority	Brevard	5	Space Coast Transportation Planning Organization	East Central	✓ Space Coast Area Transit		✓	• One 4-lane state road (SR 508)	• One 6-lane interstate (I-95) • One 6-lane US highway (US 1) • One 4-lane US highway (US 192) • Three 4-lane state roads (SR 507, SR 518, SR A1A) • One 2-lane state road (SR 5054)
Miami	Miami Executive Airport				Miami-Dade County	Dade	6	Miami-Dade Metropolitan Planning Organization	Southeast			In close proximity	• One 6-lane state road (SR 825)	• One 6-lane Turnpike (SR 821) • One 6-lane US highway (US 1) • Two 6-lane state roads (SR 94, SR 874) • One 4-lane state road (SR 992) • One 2-lane state road (SR 997)
Miami	Miami International Airport	23,286,843	21,395,954	44,682,797	Miami-Dade County	Dade	6	Miami-Dade Metropolitan Planning Organization	Southeast	✓ METROBUS	✓ METRORAIL / Tri-Rail / Amtrak	✓	• One 6-lane state road (SR 953) • One 4-lane state road (SR 112)	• One 8-lane interstate (I-95) • One 6-lane turnpike (SR 821) • One 6-lane US highway (US 27) • One 4-lane US highway (US 41) • One 8-lane state road (SR 826) • Four 6-lane state roads (SR 948, SR 836, SR 9, SR 969) • Three 4-lane state roads (SR 968, SR 933, SR 944)

Associated City	Airport	2016 Domestic Passengers	2016 International Passengers	2016 Total Passengers	Airport Sponsor	County	FDOT District	MPO	FEDC Region	Direct Bus Transit	Direct Passenger Rail	Onsite Rental Car	Direct Access Roadway(s)	Indirect Access Roadway(s)
Orlando	Kissimmee Gateway Airport				City of Kissimmee	Osceola	5	MetroPlan Orlando	East Central			✓	• One 6-lane US highway (US 192) • One 4-lane US highway (US 17/92)	• One 4-lane interstate (I-4) • One 4-lane turnpike (SR 91) • Two 4-lane state roads (SR 417, SR 535)
Orlando	Orlando International Airport	36,330,689	5,592,807	41,923,496	Greater Orlando Aviation Authority	Orange	5	MetroPlan Orlando	East Central	✓ LYNX	✓ Sun Rail	✓	• One 5-lane state road (SR 528) • One 4-lane state road (SR 436)	• One 8-lane interstate (I-4) • One 8-lane turnpike (SR 91) • One 6-lane US highway (US 441/92/17) • Three 6-lanes state roads (SR 528, SR 417, SR 408) • Two 4-lane state roads (SR 527, SR 552) • One 2 lane state road (SR 15)
Orlando	Orlando-Sanford International Airport	2,449,035	303,375	2,752,410	Sanford Airport Authority	Seminole	5	MetroPlan Orlando	East Central			✓	• One 6-lane state road (SR 417)	• One 6-lane interstate (I-4) • One 4-lane US highway (US 17) • One 4-lane state road (SR 415) • One 2 lane state road (SR 46)
Panama City	Northwest Florida Beaches International Airport	891,493	0	891,493	Panama City-Bay County Airport and Industrial District	Bay	3	Bay County Transportation Planning Organization	Northwest			✓	• One 2-lane state road (SR 388)	• One 7-lane state road (SR 79) • One 4-lane state road (SR 77)
Pensacola	Pensacola International Airport	1,609,060	0	1,609,060	City of Pensacola	Escambia	3	Florida-Alabama Transportation Planning Organization	Northwest	✓ Escambia County Area Transit		✓	• Three 4-lane state roads (SR 750, SR 289, SR 296)	• One 6-lane interstate (I-110) • One 4-lane interstate (I-10) • One 4-lane US highway (US 29) • One 2-lane US highway (US 90)

Associated City	Airport	2016 Domestic Passengers	2016 International Passengers	2016 Total Passengers	Airport Sponsor	County	FDOT District	MPO	FEDC Region	Direct Bus Transit	Direct Passenger Rail	Onsite Rental Car	Direct Access Roadway(s)	Indirect Access Roadway(s)
														• One 6-lane state road (SR 291) • Two 4-lane US highways (SR 295)
Punta Gorda	Punta Gorda Airport	1,118,303	0	1,118,303	Charlotte County Airport Authority	Charlotte	1	Charlotte County-Punta Gorda Metropolitan Planning Organization	Southwest			✓	• One 4-lane interstate (I-75)	• One 5-lane US highway (US 17) • One 4-lane US highway (US 41)
Sarasota/ Bradenton	Sarasota Bradenton International Airport	1,186,369	0	1,186,369	Sarasota-Manatee Airport Authority	Sarasota	1	Sarasota/Manatee Metropolitan Planning Organization	Tampa Bay	✓ Sarasota County Area Transit		✓	• Two 5-lane US highways (US 41, US 301) • One 4-lane University Parkway	• One 6-lane interstate (I-75) • One 6-lane state road (SR 780) • Two 4-lane state roads (SR 789, SR 70)
St Petersburg-Clearwater	St Pete-Clearwater International Airport	1,821,810	14,908	1,836,718	Pinellas County	Pinellas	7	Forward Pinellas	Tampa Bay			✓	• One 6-lane state road (SR 688) • One 4-lane state road (SR 686)	• One 6-lane interstate (I-275) • One 6-lane US highway (USA 19) • One 4-lane US highway (US 92) • One 2-lane US highway (US 19) • One 5-lane state road (SR 693) • Two 4-lane state roads (SR 60, SR 687) • One 2-lane state road (SR 590)
Tallahassee	Tallahassee International Airport	708,621	0	708,621	City of Tallahassee	Leon	3	Capital Region Transportation Planning Agency	Northwest			✓	• One 2-lane state road (SR 263)	• One 6-lane interstate (I-10) • One 6-lane US highway (US 319) • One 4-lane US highway (US 90) • One 4-lane state road (SR 20) • One 2-lane state road (SR 371)

Associated City	Airport	2016 Domestic Passengers	2016 International Passengers	2016 Total Passengers	Airport Sponsor	County	FDOT District	MPO	FEDC Region	Direct Bus Transit	Direct Passenger Rail	Onsite Rental Car	Direct Access Roadway(s)	Indirect Access Roadway(s)
Tampa	Tampa International Airport	18,080,432	851,346	18,931,778	Hillsborough County Aviation Authority	Hillsborough	7	Hillsborough Metropolitan Planning Organization	Tampa Bay	✓ Hillsborough Area Regional Transit		✓	• One 6-lane interstate (I-275) • One 7-6-lane state road (SR-60) • One 6-lane state road (SR 616) • One 5-lane state road (SR 589)	• One 8-lane interstate (I-4) • Two 6-lane US highways (US 92, USB 41) • One 6-lane state road (SR 580)
Valparaiso/ Destin-Ft Walton Beach	Destin-Ft Walton Beach Airport	915,650	0	915,650	Okaloosa County	Okaloosa	3	Okaloosa-Walton Transportation Planning Organization	Northwest			✓	• Two 4-lane state roads (SR 189, SR 85) • One 3-lane state road (SR 123)	• One 4-lane interstate (I-10) • One 4-lane US highway (US 98) • Four 4-lane state roads (SR 20, SR 85, SR 188, SR 393) • One 2-lane state road (SR 293, SR 285)
West Palm Beach	Palm Beach International Airport	6,173,901	154,528	6,328,429	Palm Beach County	Palm Beach	4	Palm Beach Metropolitan Planning Organization	Southeast	✓ Palm Tran		✓	• One 10-lane Interstate (I-95)	• One 5-lane Turnpike (SR 91) • One 8-lane US highway (US 98) • One 4-lane US highway (US 1) • One 8-lane state road (SR 704) • Three 6-lane state roads (SR 807, SR 882, SR 809) • One 2-lane state road (SR A1A)

Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Strategic Intermodal System (SIS) GIS data

D. Infrastructure Assessment Tool (IAT)

The Florida Department of Transportation (FDOT) created the Infrastructure Assessment Tool (IAT) to categorize Florida's airports and assess their abilities to meet specific mission areas. Data was originally obtained for commercial service and general aviation (GA) airports to determine their performance in supporting aviation services when the tool was created in 2012. Data used to evaluate the airports in the IAT has not been updated since it was originally created and many airports have experienced changes to their facilities, activities, carriers, etc. None of these changes are reflected in the IAT data maintained in the Florida Aviation Database (FAD).

IAT data is separated by airport classification, then further delineated by airport service categories. The IAT evaluates airport performance based on the data collected within each service category. The IAT was incorporated into the FDOT Aviation and Spaceports Office's (ASO) FAD, the central repository for all data for all of Florida's aviation facilities.

The following three categories were assessed by the IAT for 19 of Florida's commercial service airports:[1]

- Tourism (commercial service [CS])/business[2]
- Air cargo
- Intercontinental service

Each airport was scored by comparing the "airport service quotient" to the "optimal service quotient" which determines the "airport performance by role," given as a percentage of the "optimal service quotient." **Table D-1** presents an example from the IAT analysis for a commercial service airport. As shown in the table, performance percentages ranged from 72 to 78 percent, indicating that this sample airport supports tourism and business more than air cargo or intercontinental service.

Table D-1: IAT Performance Quotient Example (Commercial Service Airport)

Airport Service Category	Optimal Service Quotient	Airport Service Quotient	Airport Performance by Role (%)
Tourism (CS)/business	8.00	6.22	78%
Air cargo	7.33	5.56	76%
Intercontinental service	8.63	6.25	72%

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

[1] Florida currently has 20 commercial service airports. Northeast Florida Regional Airport is still considered a GA airport in the existing IAT though it is designated as commercial service by the FAA and FDOT.
[2] For the purposes of this study, the tourism and business categories were evaluated jointly, as the optimal service quotients and infrastructure requirements are identical.

Five airport service categories were used to assess the GA airports in the state as follows:

- Flight training
- Corporate
- Tourism
- Recreational/Sport
- Business/Recreational

Each airport was scored based on comparing the "airport service quotient" to the "optimal service quotient" which determined the "airport performance by role" given as a percentage of the "optimal service quotient." **Table D-2** presents an example from the IAT for a GA airport. As shown in Table D-2, performance percentages ranged from 72 to 94 percent, indicating that this sample airport supports recreational and sport activities more than any other activity type.

Table D-2: IAT Performance Quotient Example (GA Airport)

Airport Service Category	Optimal Service Quotient	Airport Service Quotient	Airport Performance by Role (%)
Flight training	7.00	5.67	81%
Corporate	8.33	6.00	72%
Tourism (GA)	7.29	5.71	78%
Recreational/Sport	6.60	6.20	94%
Business/Recreational	8.25	6.50	79%

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

To better understand and report each airport's performance for each role, the results of the GA IAT analysis are divided into FDOT districts. **Table D-3** presents the number of GA airports by FDOT District.

Table D-3: GA and Commercial Service Airports by FDOT District

FDOT District	GA	Total
1	24	27
2[3]	15	18
3	16	20
4	15	17
5	22	25
6	6	8

[3] District 2 includes Northeast Florida Regional, a designated commercial service airport that is still listed in the IAT as a GA airport.

7	11	13
Total	**109**	**128**

Source: Florida Department of Transportation (FDOT), 2017

Results from the IAT analysis are presented in the sections that follow. Commercial service airport results are presented first, followed by GA airports.

D.1 Commercial Service

Table D-4 summarizes the results of the IAT analysis by key aviation activity. In all cases, a performance quotient of 50 percent indicates service sufficiency. Eighteen airports (95 percent) achieve service sufficiency, with two airports (Orlando International Airport and Tampa International Airport) achieving 100 percent performance in all categories.

Table D-4: Summary of Commercial Service IAT Performance Quotient Results

Airport	FAA ID	Tourism and Business	Air Cargo	Inter-continental
		Performance quotient (%)		
Daytona Beach International	DAB	**85%**	80%	77%
Destin - Fort Walton Beach Airport/Eglin AFB*	VPS	**79%**	73%	68%
Fort Lauderdale-Hollywood International	FLL	**86%**	80%	80%
Gainesville Regional	GNV	26%	**30%**	22%
Jacksonville International	JAX	**89%**	85%	84%
Key West International	EYW	**60%**	56%	55%
Melbourne International	MLB	**85%**	**85%**	81%
Miami International	MIA	78%	80%	**81%**
Northwest Florida Beaches International	ECP	**88%**	82%	81%
Orlando International	MCO	**100%**	**100%**	**100%**
Orlando-Sanford International	SFB	**76%**	**76%**	72%
Palm Beach International	PBI	**93%**	83%	85%
Pensacola International	PNS	**69%**	64%	59%
Punta Gorda	PGD	58%	**62%**	59%
Sarasota Bradenton International	SRQ	**78%**	76%	72%
Southwest Florida International	RSW	**82%**	80%	77%
St. Pete-Clearwater International	PIE	**69%**	68%	64%

Tallahassee International	TLH	**81%**	79%	75%
Tampa International	TPA	**100%**	**100%**	**100%**

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017
**AFB = Air Force Base*
Note: Bold denotes the highest category for each airport

D.1.1 Tourism (CS) and Business Service

According to the *2014 Statewide Aviation Economic Impact Study Update*, 43.0 million visitors traveled to Florida through commercial service airports in 2013 (study year), with nearly six percent of those travelers (7.3 million) visiting from international locations. Each of these visitors contributes to the state's economy through expenditures for food, lodging, entertainment, and other goods and services during their visit. In total, visitors traveling via Florida's commercial service airports contributed $64.8 billion in statewide annual economic activity in 2013.

Given the magnitude of this economic input, it is imperative that the state maintain a fully functional commercial aviation system and complimentary GA aviation system with the infrastructure and services that facilitate the efficient and safe transport of passengers. Based on the results of the IAT application, 18 commercial service airports achieved the 50 percent performance threshold for service sufficiency, as shown in **Table D-5**.

Two airports (Tampa International Airport and Orlando International Airport) attained scores of 100 percent. Both serve major metropolitan areas (ranked second and third largest by population, respectively) with proximity to some of the state's most popular tourist attractions. It is interesting to note that Miami International Airport, the state's largest metropolitan area, ranks 12th with a performance quotient of 78 percent.[4] Gainesville Regional Airport does not currently provide an adequate level of services for tourism and business activities, with a score of 28 percent. Gainesville Regional Airport witnessed a 7.9 percent enplanement increase between 2010 and 2015, to exceed the statewide average. In light of its current growth trend, the airport may have significant improvement potential.

Table D-5: Tourism (CS) and Business Service – Commercial Service Airports

Airport	FAA ID	Performance quotient (%)
Orlando International	MCO	100%
Tampa International	TPA	100%
Palm Beach International	PBI	93%
Jacksonville International	JAX	89%
Northwest Florida Beaches International	ECP	88%
Fort Lauderdale-Hollywood International	FLL	86%

[4] Data has not been updated since the original IAT was developed, current activity may differ.

Airport	FAA ID	Performance quotient (%)
Daytona Beach International	DAB	85%
Melbourne International	MLB	85%
Southwest Florida International	RSW	82%
Tallahassee International	TLH	81%
Destin–Fort Walton Beach/Eglin AFB	VPS	79%
Miami International	MIA	78%
Sarasota Bradenton International	SRQ	78%
Orlando-Sanford International	SFB	76%
Pensacola International	PNS	69%
St. Pete-Clearwater International	PIE	69%
Key West International	EYW	60%
Punta Gorda	PGD	58%
Gainesville Regional	GNV	26%

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

D.1.2 Air Cargo

As one of the world's most important hubs for international trade, Florida serves in a vital role in the complex logistics chains between suppliers, manufacturers, and, ultimately, consumers. Florida is the major hub for international trade between the United States (U.S.), the Caribbean, and Latin America, as well as an important connection for domestic goods. The air cargo industry is typified by time-sensitive, high-value shipments. According to the *2016 Air Cargo Study*, "air cargo is a necessary part of Florida's industrial fabric and provides many benefits to local economies in the form of jobs, payroll, and airline sales."

The IAT analyzed each commercial service airport's ability to support air cargo and mail operations. As reported in **Table D-6**, the results ranged from 30 to 100 percent, with an average overall score of 76 percent. Like the tourism and business category, Orlando International Airport and Tampa International Airport obtained a 100 percent performance quotient.[5] Gainesville Regional Airport does not currently provide an adequate level of services for air cargo activities, with a performance quotient of 30 percent. It is important to note that Gainesville Regional Airport did not report any air cargo activity in the *2016 Air Cargo Study* (2014 data), with a compound annual growth rate (CAGR) of negative 69.6 percent between 2010 and 2014.

[5] Miami International Airport currently the busiest cargo airport in Florida.

Table D-6: Air Cargo – Commercial Service Airports

Airport	FAA ID	Performance quotient (%)
Orlando International	MCO	100%
Tampa International	TPA	100%
Melbourne International	MLB	85%
Jacksonville International	JAX	85%
Palm Beach International	PBI	83%
Northwest Florida Beaches International	ECP	82%
Miami International	MIA	80%
Southwest Florida International	RSW	80%
Daytona Beach International	DAB	80%
Fort Lauderdale-Hollywood International	FLL	80%
Tallahassee International	TLH	79%
Orlando Sanford International	SFB	76%
Sarasota Bradenton International	SRQ	76%
Destin-Fort Walton Beach/Eglin AFB	VPS	73%
St. Pete-Clearwater International	PIE	68%
Pensacola International	PNS	64%
Punta Gorda	PGD	62%
Key West International	EYW	56%
Gainesville Regional	GNV	30%

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

D.1.3 Intercontinental Service

Located at the extreme southeastern corner of the continental U.S., Florida is well situated to serve as a gateway for international leisure and business travelers. According to the *2016 Air Service Study*, the number of departures for international destinations has been steadily increasing since 2011, with 2015 witnessing the highest number of international flight departures of any year in the report (2000 – 2015). In the two-year span between 2013 and 2015, the state saw international service increase by approximately ten percent to reach 2,414 weekly departures to international destinations. In 2015, the highest percentage of flights were bound for Central America (43 percent), followed by the Caribbean and Atlantic (38 percent), Europe (ten percent), and Canada (eight percent). This growth may be attributed to the continued growth of the U.S. economy as businesses expand into new global markets. Additionally,

improving economic conditions provides more disposable income, and Florida's growing retiree population supports increased travel to destinations abroad.

The IAT analyzed each airport's ability to support intercontinental air service. As reported in **Table D-7** and shown in **Figure D-1**, the results ranged from 22 to 100 percent, with an average overall score of 73 percent. Like the tourism and business and air cargo categories, Orlando International Airport and Tampa International Airport obtained a 100 percent performance quotient. Gainesville Regional Airport does not currently provide an adequate level of services for intercontinental service activities, with performance quotient of 22 percent.

While this analysis included all commercial service airports in the IAT, it is important to note that scheduled intercontinental service is currently only offered at eight airports. Major providers of scheduled service include Miami International Airport, Fort Lauderdale-Hollywood International Airport, and Orlando International Airport. Intercontinental service is also offered on a minor scale at Jacksonville, Sarasota Bradenton, Orlando-Sanford, Palm Beach, and Southwest Florida international airports. In addition to scheduled service, Orlando-Sanford International Airport accommodates a notable number of international charter flights, as do some other commercial airports in the state.

Table D-7: Intercontinental Service – Commercial Service Airports

Airport	FAA ID	Performance quotient (%)
Orlando International	MCO	100%
Tampa International	TPA	100%
Palm Beach International	PBI	85%
Jacksonville International	JAX	84%
Melbourne International	MLB	81%
Miami International	MIA	81%
Northwest Florida Beaches International	ECP	81%
Fort Lauderdale-Hollywood International	FLL	80%
Daytona Beach International	DAB	77%
Southwest Florida International	RSW	77%
Tallahassee International	TLH	75%
Orlando-Sanford International	SFB	72%
Sarasota Bradenton International	SRQ	72%
Destin-Ft Walton Beach/Eglin AFB	VPS	68%
St. Pete-Clearwater International	PIE	64%
Pensacola International	PNS	59%
Punta Gorda	PGD	59%
Key West International	EYW	55%
Gainesville Regional	GNV	22%

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

Figure D-1: Commercial Service Airports with Adequate Intercontinental Service

F

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

D.2 General Aviation

The IAT was used to evaluate the GA airports' performance across all FDOT Districts. The results are shown and evaluated for each airport service category. Please note that Northeast Florida Regional Airport (District 2) is still considered a GA airport in the IAT though designated as commercial service airport by the Federal Aviation Administration (FAA) and FDOT.

D.2.1 Corporate Service

Performance quotients for corporate service ranged from 32 to 88 percent, with a systemwide average of 59 percent. A rating of 65 percent or above is considered adequate for corporate services.

Table D-8 provides the number of airports by District that meet the 65 percent threshold and summarizes the average performance of all airports by District.[6] In total, 39 airports in the state are considered adequate using the IAT results, with Districts 1, 2, 4, and 5 offering the highest number of facilities adequate for corporate aviators. District 6 offers the highest total quality of services and infrastructure and provides four airports achieving the minimum threshold of service.

Table D-8: Adequate Corporate Service at GA Airports by District

FDOT District	Airports Achieving the 65 Percent Threshold (No.)	Average Performance of All Airports in District (%)
1	7	56.1%
2	9	64.6%
3	2	51.3%
4	7	63.1%
5	7	57.8%
6	4	71.7%
7	3	58.2%
Total	**39**	**58.7%**

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

A map of GA facilities that achieve the 65 percent threshold is presented in **Figure D-2**. Clusters of airports are apparent in various locations across the state, many of which are characterized by notable connections with modal infrastructure such as seaports and major inter- and intrastate roadways. Given that global marketplaces often depend on complex intermodal

[6] All facilities were evaluated to determine the average performance of the District presented in as Tables C-8 – C-11 and C-13.

networks to transport goods between suppliers and customers, areas of high connectivity can be a key factor in the development of adequate air services that serve corporate uses.

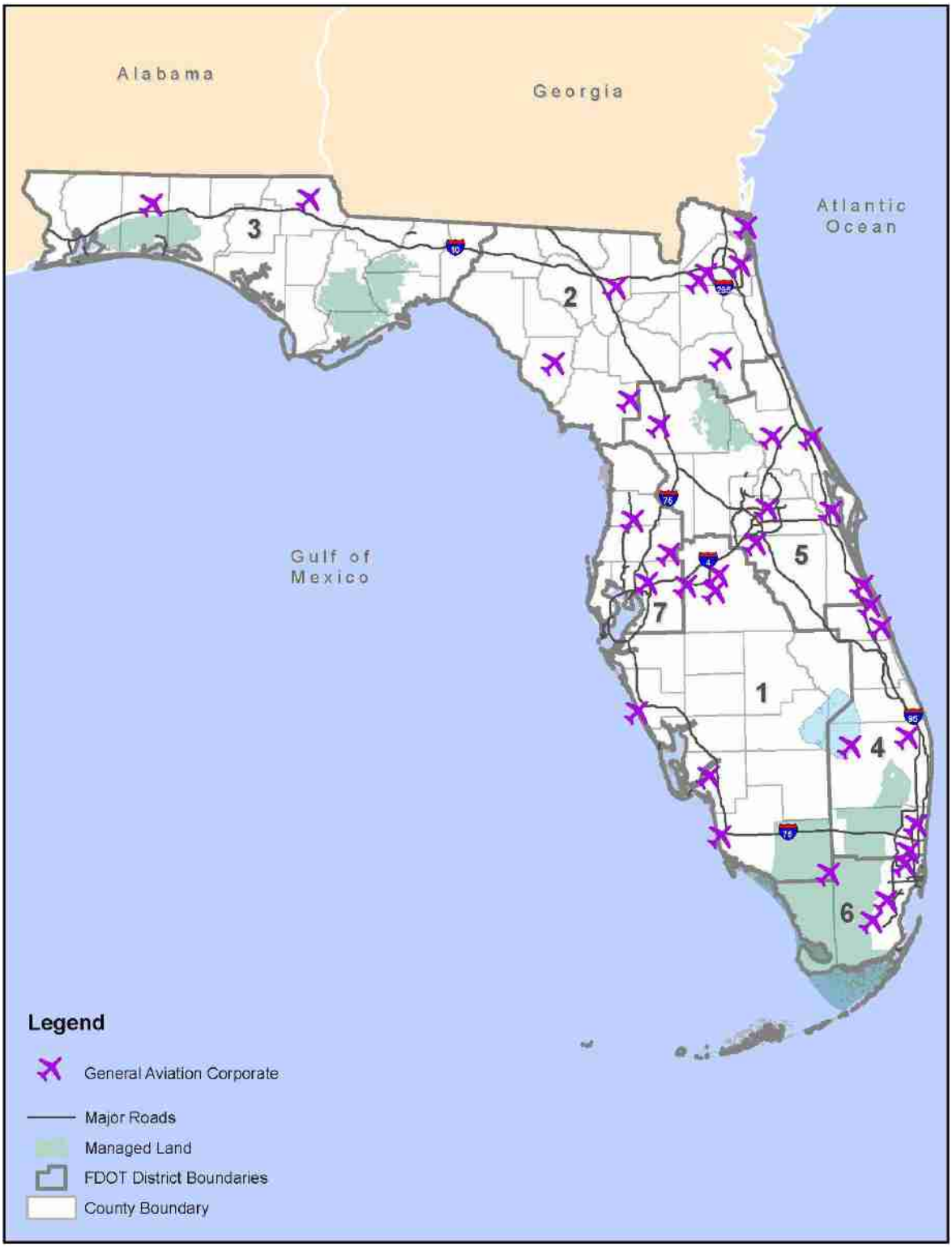
An area with a particularly high density of GA airports with adequate corporate/business services occurs in District 2 in the vicinity of Jacksonville. This area supports five GA facilities in immediate proximity to one another, as well as an additional two that are a short distance away. In addition to its location at the conjunction of I-295, I-95, and I-10, this transportation nexus also hosts the ports of Jacksonville and Fernandina, as well as the Naval Station Mayport. Freight rail facilities include the Jacksonville CSX Intermodal Terminal, Jacksonville Norfolk Southern Intermodal Terminal, and Jacksonville Intermodal Terminal. Additionally, the Cecil Spaceport is located just southwest of the city along I-10.

The I-4 corridor between Tampa and Orlando straddling Districts 7, 1, and 5 hosts another significant aviation cluster. I-4 is a continuous interstate highway traversing 132 miles between Tampa and its terminus with I-95 near Daytona Beach. This roadway offers a direct connection between Tampa and Orlando, two of the state's largest metropolitan areas, and from Tampa to I-95, which serves as a primary interstate highway along the eastern cost of the U.S.

A final cluster can be witnessed along the southeastern tip of the state generally following I-95 just south of Miami through West Palm Beach in Districts 6 and 4. This activity likely supports the major domestic and international trade channels centered in Miami.

Notable gaps occur in District 1 west and north of Lake Okeechobee, as well across the Panhandle in District 3 and the western portion of District 2.

Figure D-2: Adequate Corporate Services at GA Airports



Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

D.2.2 Tourism Service

According to the *2014 Statewide Aviation Economic Impact Study Update*, GA airports supported 30,000 jobs for state residents, $753 million in total payroll, and $2.4 billion in total output for the Florida economy. Like commercial service passengers, leisure travelers spend money on food, lodging, entertainment, and retail purchases (among other expenditures), resulting in both direct impacts and multiplier effects as this money is re-spent within local communities and beyond.

The IAT evaluated the service quotients for all GA airports in Florida's system. Overall, performance quotients ranged from 39 to 95 percent, with a systemwide average of 63.2 percent. A rating of 70 percent or above is considered adequate for tourism activities.

Table D-9 provides the number of facilities that meet the 70 percent threshold and summarizes the average performance of all airports by District. In total, 33 airports in the state are considered adequate, with Districts 2 and 5 offering the highest number of facilities to the tourism industry. District 6 offers the highest total quality of services and infrastructure with three airports achieving the threshold.

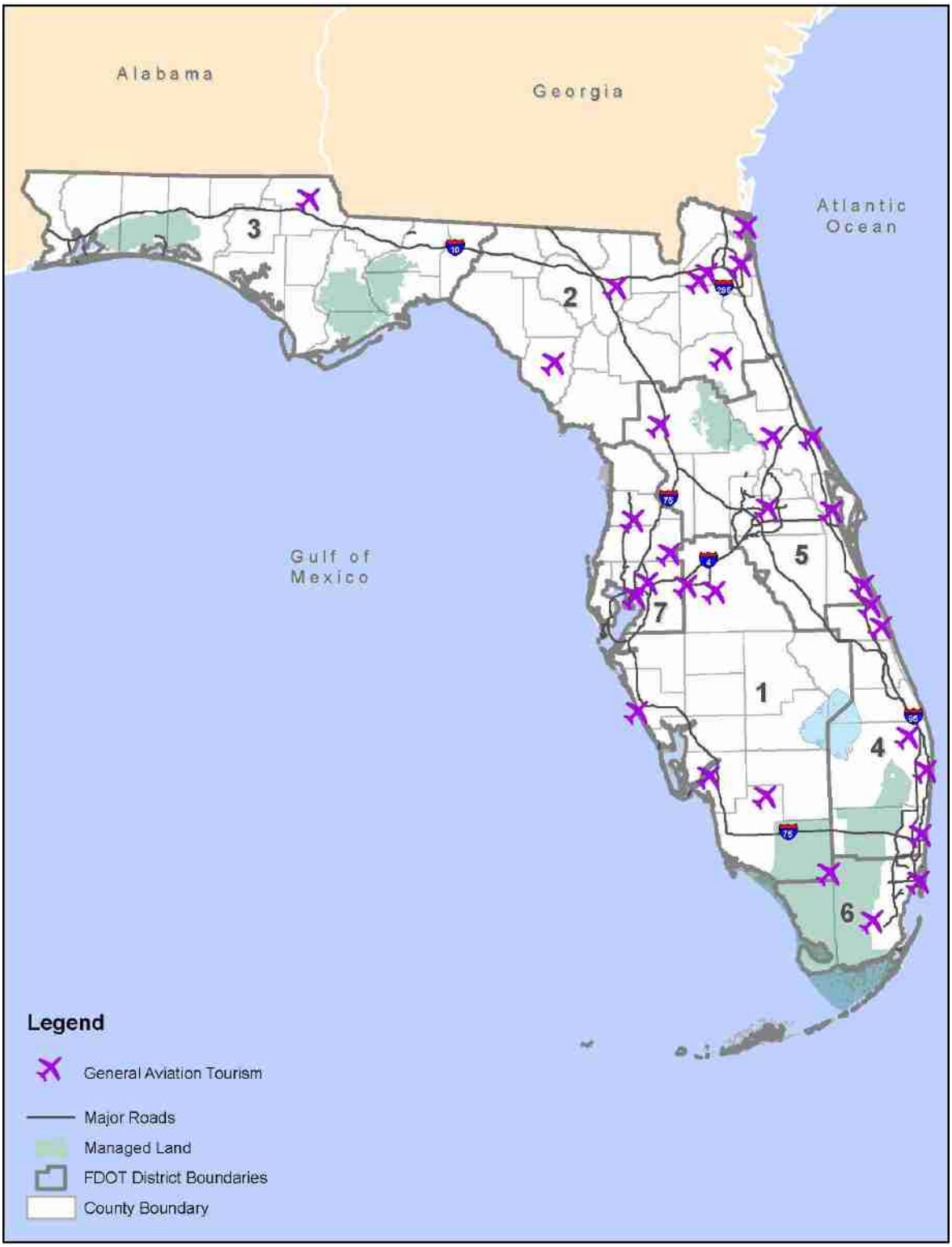
Table D-9: Adequate Tourism Service at GA Airports by District

FDOT District	Airports Achieving the 70 Percent Threshold (No.)	Average Performance of All Airports in District (%)
1	5	59.9%
2	8	68.5%
3	1	56.3%
4	5	64.5%
5	6	62.0%
6	3	75.5%
7	5	65.1%
Total	**33**	**63.2%**

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

Reflective of the previous categories of aviation drivers, the vicinity in and around Jacksonville in District 2 boasts the highest density of GA airports that adequately support tourism activities and services, as illustrated in **Figure D-3**. In addition to the model infrastructure discussed in the section above, the Jacksonville region is also home to the Jacksonville Greyhound Terminal, Multimodal Terminal Center, and the Amtrak Station, each of which connects leisure travelers with regional and statewide attractions. Intermodal connectivity benefits leisure travelers in many of the same ways as corporate activity—namely, by facilitating efficient and cost-effective movement.

Figure D-3: Adequate Tourism Services at GA Airports



Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

D.2.3 Sport Activity

Sport activities comprise a variety of aircraft that fall between ultralights and piston or turbine aircraft. In many cases, they provide one of the easiest, cost-effective, and accessible ways to fly. Sport pilots may carry a passenger and operate in certain types of airspace, but are limited to flying during daylight hours and certain types of low-power aircraft. Sport activities comprise a variety of categories, including certain types of fixed-winged aircraft (maximum gross weight of 1,320 pounds/1,430 pounds for seaplanes), powered parachutes, trikes, gliders, gyroplanes, airships, and balloons. Sport pilots can earn a license with as little as seven hours of instruction for balloons and up to 20 hours for fixed-wing aircraft.

While FAA-funded airports are required to permit these types of activities as dictated by grant assurances, sport aircraft activity is not always well suited to larger airports serving a broad operational mix. For example, powered parachutes operating in the same airspace as military jets can result in safety issues for both pilots. As a result, certain GA airports offer the infrastructure, services, and operations more appropriate for low-power sport aircraft than others.

Based on the results of the IAT analysis, service quotients for sport activity at GA airports ranged from 33 percent to 97 percent, with a systemwide average of 69.5 percent. Based on the performance of the airport and the airports' service quotient, a rating at or above 80 percent is adequate for sport services and activity. District 2 provides the greatest overall level of service. Districts 1 and 2 provide the highest total number of airports that achieve the threshold. **Table D-10** provides the total number of airports achieving the 80 percent threshold for sport activities and summarizes the average performance of all airports by District.

Table D-10: Adequate Sport Activities at GA Airports by District

FDOT District	Airports Achieving the 80 Percent Threshold (No.)	Average Performance of All Airports in District (%)
1	6	69.8%
2	5	74.5%
3	1	64.5%
4	4	67.2%
5	3	66.9%
6	3	66.0%
7	2	73.5%
Total	**24**	**69.5%**

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

Figure D-4 presents a map of the airports that meet the 80 percent service quotient for sport activity. On a statewide level, most GA airports that provide adequate service for sport activities are found away from metropolitan areas with less active airspace. Small clusters of airports are

located in Districts 1 and 2; however, these clusters represent a relatively minor percentage of total airports in these respective regions.

Figure D-4: Adequate Sport Activity Services at GA Airports

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

D.2.4 Business Activity

The FAA's *Report to Congress, National Plan of Integrated Airport Systems (NPIAS) 2017 – 2021* estimates that business aircraft usage annually comprises 7.5 percent of all aviation activity, and an additional 12.2 percent of the nation's GA activity is considered corporate.[7] Among its numerous advantages, business aviation offers companies significant time savings and scheduling capabilities when compared to scheduled commercial service. Itineraries can be changed as needed, and aircraft can fly to destinations not served by a commercial service airport. Additionally, business aviation saves employee time; fosters en-route productivity; minimizes time away from home; and enhances industrial security, personal safety, and employee satisfaction.

In addition to the qualitative and quantitative benefits associated with business aviation, this activity leads to additional indirect impacts that can significantly bolster local, regional, and state economies. In fact, the National Business Aircraft Association's (NBAA's) *Business Aviation Fact Book 2014* reports that nationwide business aviation contributes $150 billion to the U.S. economic output.

The IAT evaluated the service quotients for all GA airports included in the scope of the 2012 report. Overall, performance quotients ranged from 35 to 95 percent, with a systemwide average of 62.5 percent. A rating of 70 percent or above is considered adequate for business activities. **Table D-11** provides the total number of airports achieving this threshold for business services and summarizes the average performance of all airports by District. In total, 35 airports in the state are considered adequate, with Districts 2 and 5 offering the highest number of facilities adequate for business aviation. District 6 offers the highest total quality of services and infrastructure with three airports achieving the performance threshold for business services.

Table D-11: Adequate Business Services at GA Airports by District

FDOT District	Airports Achieving the 70 Percent Threshold (No.)	Average Performance of All Airports in District (%)
1	6	60.2%
2	9	68.4%
3	2	55.4%
4	5	64.2%
5	7	61.4%
6	3	75.8%
7	3	63.8%

[7] Business aviation is a broad category of GA entailing the use of aircraft to conduct any business activities piloted by individuals having, at the minimum, a valid commercial pilot license with an instrument rating. Corporate aviation is a sub-division of business aviation defined as the commercial operation or use of aircraft by companies for business purposes and the availability of that aircraft for whole aircraft charter flown by professional pilot(s) employed to fly the aircraft.

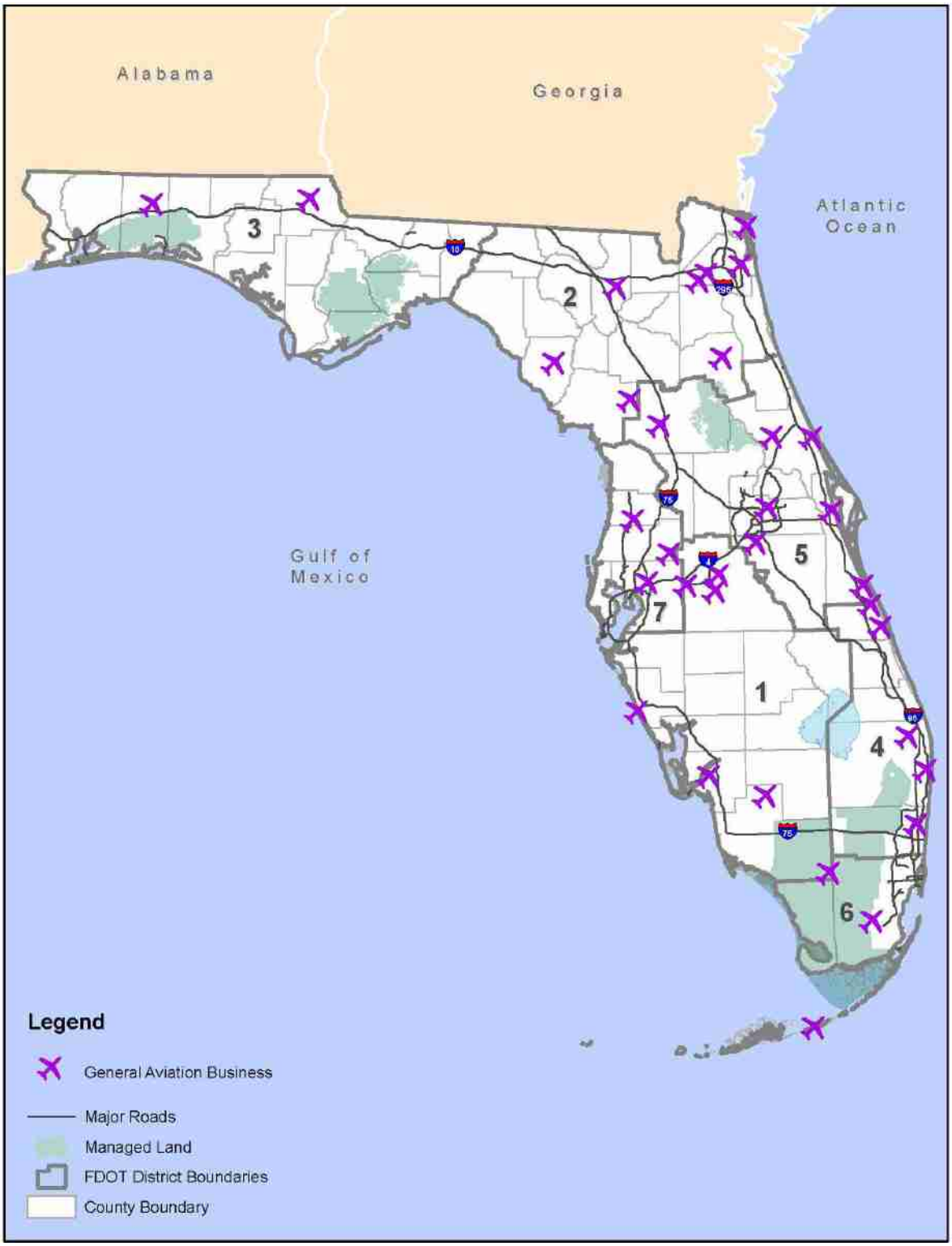
Total	**35**	**62.5%**

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

Mirroring the trends associated with airports serving corporate and industry needs, business-oriented airports are clustered around the Jacksonville region of northeastern Florida in District 2, as well as along the I-4 corridor between St. Petersburg past Orlando spanning Districts 1, 5, and 7. Like earlier discussions, these high-density areas are likely attributable to the key intermodal assets found in each region, each of which is associated with a major interstate system with connectivity along the Atlantic Coast of the U.S.

The areas of low airport volume are perhaps more notable, with significant gaps apparent through the western portion of District 2, most of Districts 1 and 6, and the western portion of District 4. In fact, majority of the state south of I-4 lacks access to business aviation facilities (particularly inland areas), despite being home to the Miami-Dade metropolitan area. It is possible that commercial service airports in these districts, particularly near Miami, serve the needs of GA business users. **Figure D-5** depicts the 35 airports in Florida that offer adequate service for GA business activities.

Figure D-5: Adequate Business Services at GA Airports



Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

D.2.5 Flight Training

Florida has an extensive private-sector aviation education and flight instruction industry. Flight instruction is offered at 82 airports in the state, including 14 commercial service and 68 GA sites. Florida educational institutions also offer undergraduate and graduate degrees in aeronautics, aerospace engineering, aviation business management, and other related programs. Most notably, the Florida Institute of Technology in Melbourne and Embry-Riddle Aeronautical University in Daytona Beach offer specialized degrees spanning the operations, engineering, research, manufacturing, and business of aircraft and the industries that support them. In addition to these four-year institutions, other highly respected flight schools in Florida include the Aerosim Flight Academy at Orlando-Sanford International Airport, Bristow Academy at Space Coast Regional Airport, Europe-American Aviation at Naples Municipal Airport, Broward College's Aviation Institute at North Perry Airport, and the FlightSafety Academy at Vero Beach Regional Airport.

The *2014 Florida Statewide Aviation Economic Impact Study Update* documented the significant economic impacts of aviation education in Florida, including those generated by pilot, mechanic, flight attendant, air traffic controller, aviation manager, and other aviation professionals training. As shown in **Table D-12**, the 2013 economic impacts of aviation education in Florida totaled 11,900 jobs, $488.0 million in annual payroll, and $983.0 million in total annual economic output.[8]

Table D-12: Total Economic Impacts of Aviation Education in Florida (2013)

Type	Annual Jobs (No.)	Annual Payroll ($)	Total Output ($)
On-Airport	10,700	$427,889,000	$851,357,000
Off-Airport	1,191	$59,971,000	$132,027,000
Total	**11,891**	**$487,860,000**	**$983,384,000**

Source: Florida Statewide Aviation Economic Impact Study Update, Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), August 2014.
Note: Table includes direct and multiplier impacts.

Because flight training is offered at both GA and commercial service facilities, this analysis presents a broad review of statewide activity, followed by a more detailed analysis of the performance of GA airports to support this valuable asset of the Florida aviation industry. **Figure D-6** presents all airports in the state with flight training. Airports with flight training are primarily clustered around large metropolitan areas, including Tampa and Orlando, as well as along the east coast. A contributing factor for the cluster of flight training in metropolitan areas is the FAA's 2013 1,500-hour rule to increase the flight time required to obtain a commercial pilot's license.[9] This change significantly increased the cost of obtaining a commercial pilot's license, which

[8] Total figures include direct and multiplier impacts.
[9] Pilot Certification and Qualification Requirements for Air Carrier Operations, 78 F.R. § 42323 (2013).

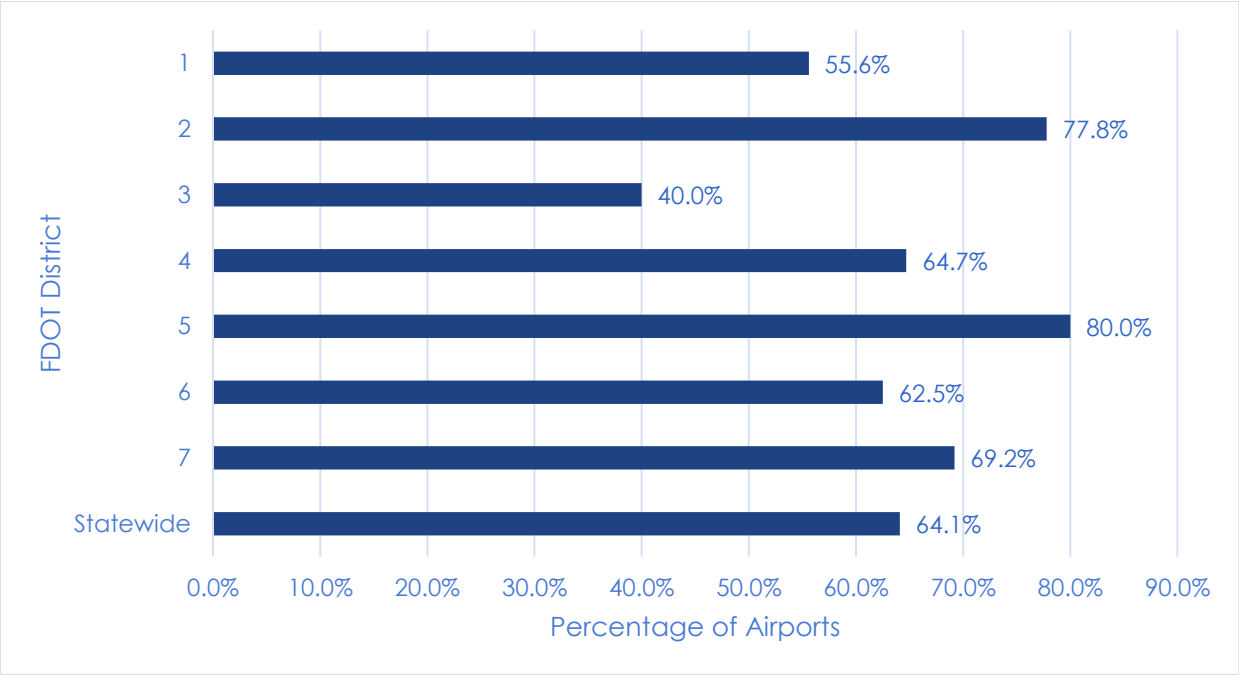
lowered the attractiveness of commercial flying for potential students and reduced the demand for flight training.

Figure D-6: Commercial Service and GA Airports with Flight Training

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

Figure D-7 presents the percentage of airports with flight training by FDOT District. District 5 supports the highest density of airports in the state with flight schools with 80 percent of airports providing flight training. District 3 experiences the lowest percentage with only 40 percent of airports offering flight training.

Figure D-7: Percentage of Commercial Service and GA Airports with Flight Training Activity by District



Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

D.2.5.1 GA Flight Training Performance Quotient

The IAT evaluated the service quotients for all GA airports defined by the statewide system. Overall, performance quotients ranged from 41 to 94 percent, with a systemwide average of 65.7 percent. A rating of greater than 70 percent is considered adequate for flight training services. **Table D-13** provides the total number of airports achieving the 70 percent threshold for GA flight training and summarizes the average performance of all airports by District. In total, 41 airports in the state are considered adequate, with Districts 1, 2, and 5 offering the highest number of GA facilities to potential students. District 6 offers the highest total quality of services and infrastructure.

Table D-13: Adequate Flight Training at GA Airports by District

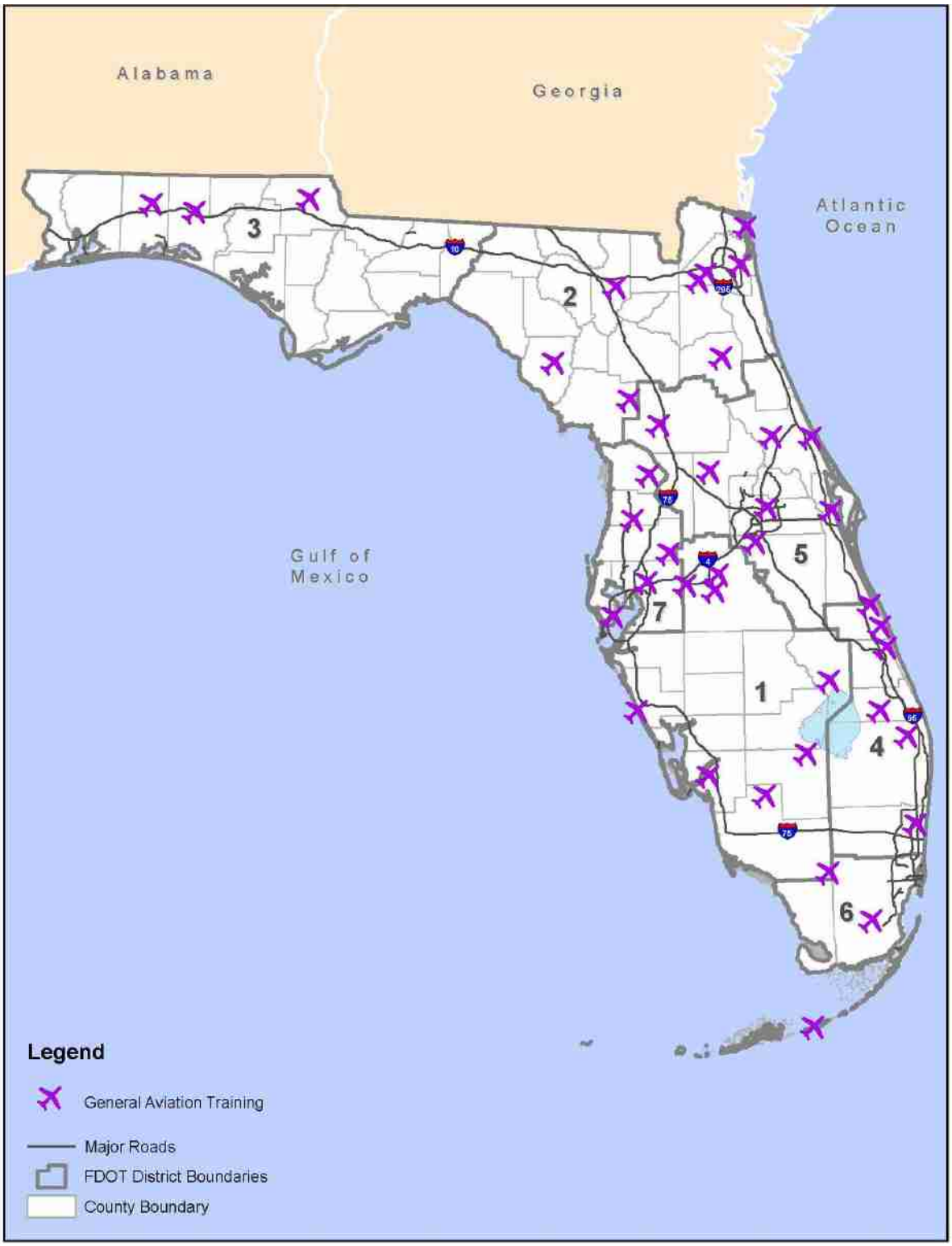
FDOT District	Airports Achieving the 70 Percent Threshold (No.)	Average Performance of All Airports in District (%)
1	8	64.9%
2	9	70.9%
3	3	59.9%
4	6	66.2%
5	7	63.9%
6	3	73.2%
7	5	67.5%
Total	**41**	**65.7%**

Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

As shown in **Figure D-8**, facilities adequate for flight training activities are available across the state. Numerous facilities are clustered along the I-4 corridor between Tampa and the Atlantic coast, as well as along the I-95 corridor between Miami and Jacksonville. Additionally, the area in and around Jacksonville offers several adequate flight training facilities near the convergence of I-295, I-10, and I-95. In general, adequate flight training facilities are clustered near major transportation infrastructure, offering convenient access for students traveling from surrounding regions and nearby states.

Districts 3 and 6 offer the fewest adequate flight training facilities at GA facilities, leaving a gap in the vicinity of Tallahassee and Miami (respectively). However, flight training is available at nearby commercial service airports, so demand is likely served by those facilities. In the northern part of the state, students may also have access to facilities in Georgia and Alabama; however, these states are beyond the scope of this analysis.

Figure D-8: Adequate Flight Training Facilities at GA Airports



Source: Kimley-Horn, Infrastructure Assessment Tool (IAT) Analysis, 2017

E. Follow-On Study White Papers

Throughout the development of the Florida Aviation System Plan (FASP) 2035 Update, a significant amount of data was collected on the aviation system. During this process, additional data opportunities became apparent in which information was unavailable or data was collected and compiled in an inconsistent manner. Further, development of the FASP 2035 also led to the identification of additional projects and/or studies that would support the continued implementation of the FASP and support the Florida Department of Transportation's (FDOT's) overall transportation system. Seven project concepts were developed for future integration, including (listed in order of priority of completion):

1. Statewide airport resiliency and disaster response assessment
2. Business suitability study
3. Replace the Florida Aviation Database (FAD)
4. Detailed capacity study
5. Facility, infrastructure, and service guidelines
6. Statewide roadmap to address airport wildlife hazards for non-Part 139 airports
7. Runway protection zone (RPZ) ownership data compilation
8. Continuing Florida Aviation System Planning Process (CFASPP) boundary evaluation

Each of these project concepts are detailed in the following pages.

E.1 Statewide Airport Resiliency and Disaster Response Assessment

E.1.1 Full Title

Conduct a statewide airport resiliency and disaster response assessment, identifying those infrastructure, environmental, and planning considerations relevant to increasing an airport's resiliency and emergency response capabilities related to natural and man-made situations, climate trends, and Florida-specific considerations.

E.1.2 Introduction

Airports are confronting increasingly high levels of uncertainty stemming from natural and human-caused disasters as well as chronic stresses caused by climate change and other external factors. In addition to loss of life and injury, such scenarios can result in massive economic losses and significant disruptions across the national airspace and overall transportation system. In the wake of Hurricane Irma, FlightAware reported more than 16,700 canceled flights across the United States (U.S.); more than 10,300 of those flights originated in Florida.[1]

[1] www.usatoday.com/story/travel/flights/todayinthesky/2017/09/12/hurricane-irma-flights-resuming-florida-cancellations-now-16-700/656648001/

Airports also serve a critical role in community response to and recovery from disaster situations. Following the devastating earthquakes that rocked Haiti in 2009, Florida's airports provided lifesaving support services, including the transport of personnel and supplies to and victims from the island nation. Additionally, general aviation aircraft are able to land at smaller airports and rural areas inaccessible to large aircraft with the flexibility to provide immediate aid to the areas where it can be most needed.

Two key ways to reduce the impacts of such scenarios is by enhancing the resiliency of airports to mitigate the risk of potential threats and developing a comprehensive strategy for rapid recovery and response following an adverse situation.

E.1.3 Need and Purpose

In order to enhance the resiliency of Florida's airports against the risks posed by natural and man-made situations, climate trends, and Florida-specific considerations, the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) is conducting a statewide airport resiliency assessment. The assessment will identify the infrastructure, environmental, and planning considerations necessary to help Florida's airports plan and prepare for, recover from, respond to, and more successfully adapt to adverse events. It will also address the facilities and services necessary for an airport to be effective and responsive during and immediately after a natural disaster.

This task will be designed to advance the goals of the Florida Transportation Plan (FTP) and Florida Aviation System Plan (FASP), both of which focus on the ability of the transportation system to resume normal operations following a disaster to support the needs of the state. The development of this study will also build upon the guidance and recommendations provided in the FDOT *Airport Sustainability Guidebook* (2017) and include pertinent information from FDOT's *Aviation Emergency Response Guidebook* (2011) and *Aircraft Guide for Emergency Responders* (2011).

This assessment is being undertaken because risk mitigation is less costly than recovery in terms of economic and social impacts, including the loss of property, injury, and death. Airports are also part of the state's critical infrastructure and must be operational to support emergency medical, law enforcement, disaster recovery, and other services during and after emergency situations.

E.1.4 General Approach and Tasks

There are four main phases of this project:

1. Literature review to identify threats and stressors to airport operational continuity and effectiveness and to identify related research pertaining to airport resiliency
2. Develop performance benchmarks for commercial service and general aviation airports – these benchmarks will include facility, service, and infrastructure
3. Data collection
4. Develop a statewide resiliency and disaster response assessment, including Florida-specific resiliency and disaster response guidance and prioritized implementation plan

As a key final outcome, this assessment will establish Florida-specific best practices for infrastructure, environmental, and planning considerations aimed at increasing the resiliency of Florida's airports. These best practices should address resistance to, recovery from, and response to emergency situations. Efforts will focus on those measures that can be advanced through FDOT administrative actions (e.g., policy change and funding), airport planning and procedural changes, and infrastructure modifications undertaken by the airport sponsor. The study will also include case studies highlighting commercial service and general aviation airports' experiences before, during, and after certain events such as Hurricane Irma; the Haiti earthquake of 2010; September 11, 2001; and others as appropriate.

1. **Literature Review.** The consultant will review other states' strategies for assessing, mitigating against, recovering from, and responding to natural and human-caused risks at airports, as well as relevant studies addressing aviation and community resiliency. The consultant may also research resiliency plans and guidance developed outside of the U.S. The literature review will include the following (not all inclusive):
   - Airport Cooperative Research Program (ACRP) Report 147. 2015. *Climate Change Adaptation and Planning: Risk Assessments for Airports.* Washington, DC: Transportation Research Board.
   - ACRP Synthesis 33. 2012. *Airport Climate Adaptation and Resilience.* Washington, DC: The National Academies Press.
   - Association of Bay Area Governments. 2015. *Airport Infrastructure and Resilience.* San Francisco, February 13. http://resilience.abag.ca.gov/projects/airport_infrastructure/.
   - Florida Division of Emergency Management (FDEM). 2014. *2014 - 2019 Strategic Plan.* Tallahassee: FDEM.
   - Institute of Medicine of the National Academies. 2015. *Healthy, Resilient, and Sustainable Communities After Disasters.* Washington, DC: The National Academies Press.
   - National Cooperative Highway Research Program. 2014. *A Guide to Regional Transportation Planning for Disasters, Emergencies, and Significant Events.* Washington, DC: Transportation Research Board.
   - National Research Council. 2011. *Building Community Disaster Resilience Through Public-Private Collaboration.* 2011: The National Academies Press.
   - The National Academies. 2012. *Disaster Resilience: A National Imperative.* Washington, DC: The National Academies Press.
   - The consultant will also consider the resiliency and adaptation resources compiled by the Florida chapter of the American Planning Association (APA) available at www.floridaplanning.org/sustainability-homepage/resiliency/resiliency-floridanational-studies-research-manuals.

2. **Development of Performance Benchmarks**. Based on a review of existing literature and resiliency strategies, the consultant will develop Florida-specific resiliency performance benchmarks to present to the FDOT ASO for review and input. These benchmarks will include specific measures and recommended performance thresholds by airport type (i.e., commercial service by hub size, general aviation by ASSET category). At a minimum,

benchmarks will address airport infrastructure (airside and landside), environmental and planning considerations, services, equipment, and facilities. Following FDOT approval, the resiliency benchmarks for Florida's airports will be presented to CFASPP participants and the FDEM for approval.

3. **Data Collection**. Based on the resiliency performance benchmarks, the data collection effort will gather information to determine the existing resiliency level of Florida's airports. Data collection will include surveying Florida's 26 Part 139 and 102 non-Part 139 airports via an online survey tool (i.e., SurveyMonkey) with follow-up phone calls as required to gather complete data.[2] The consultant will develop multiple versions of the survey tailored to commercial service and general aviation airports; additional versions may be required per airport classification.

   The inventory will also identify any steps airports have already taken to enhance their resiliency again natural and human-caused disasters, climate trends, and other Florida-specific considerations. These steps may include, but are not limited to, the following:

   - Assessments of the vulnerability of landside and airside facilities against chronic (e.g., climate-related stresses) and acute (e.g., weather-related extreme storm events) conditions, including but not limited to runways, taxiways, aprons, ramps, fueling stations, hangars, terminals, ground transportation access, parking, security, and emergency responses facilities
   - Design and/or implementation of:
     - Flood protection measures, including seawall, berm design, floodproofing, and elevation, to protect airport facilities including key operational support facilities such as power, water supply, sewage treatment, traffic control, and navigation systems
     - Stormwater removal and treatment facilities with increased capacity (e.g., enhanced drainage canals, stormwater pump stations, and subsurface drainage systems)
     - Natural systems to accommodate increased airport runoff (i.e., low-impact design)
     - Erosion control measures to prevent slope and pavement failure
     - Runway extensions to accommodate increased take-off distances
     - Pavement repairs and replacement using heat-resistant pavement materials
     - Enhanced uninterruptible power supply (UPS) systems
     - Addition of cooling stations for airfield workers and temperature controls for fuel facilities
     - Enhanced systems for temporary accommodation of passengers delayed or stranded by weather or man-made emergencies
   - Development of:

[2] In accordance with 14 CFR 139.25, Part 139-certified airports are required to develop and maintain an Airport Emergency Plan designed to minimize the possibility and extent of personal injury and property damage on the airport in an emergency. AC 150/5200-31C, *Airport Emergency Plan*, provides guidance and standards for the development of such a plan. The use of this guidance is mandatory for Part 139-certified airports and recommended for all other airports.

    - Airport websites and other systems for status notifications following disaster scenarios or adverse weather conditions
    - Processes and/or infrastructure to accommodate stranded passengers
    - Emergency procedures/emergency management plans
    - Procedures to diversify airport and aircraft supplies and resources such as fuel, electricity, water, and food
    - Communication and outreach material to educate airport personnel and the general public on emergency procedures
- Identification of funding opportunities to enhance resilience
- Completion of emergency management training for airport staff and management

Data may also be supplemented with information in the Florida Aviation Database (FAD), as necessary. The consultant should also review the Airport Climate Risk Operational Screening (ACROS) and Sea Level Scenario Sketch Planning tools for applicable information.[3] This inventory process will also collect information about past emergency situations that have occurred at Florida's airports and the scenarios that airports believe pose the most significant threats to their facilities.

The consultant will create a statewide repository of risk and resiliency data to help the FDOT ASO make informed decisions about where and how to prioritize resiliency investments. These data can be used to:

- Identify priority needs for management, operational, and infrastructure improvements
- Monitor resiliency improvements over time
- Conduct a cost/benefit analysis to compare the benefits of increasing resilience with the associated costs

4. **Development of Statewide Resiliency and Disaster Response Assessment**. Based on the information gathered during the data collection effort, performance benchmarks will be analyzed to establish a baseline of existing system performance. The assessment will be conducted at the statewide, FDOT District, CFASPP region, and FDEM region levels Based on the information gathered during data collection, the consultant will determine the resilience of Florida's airports at the statewide, FDOT District, and individual airport levels. The assessment will be used to develop resiliency best practices for FDOT and airport operators, including the identification of minimum infrastructure, equipment, facilities, and services required for an airport to effectively support disaster recovery efforts by airport type. Guidance will be specific to Florida and incorporate resiliency measures that enhance resistance to and recovery from chronic and acute emergency situations. This element will also include the development of a communications toolkit

[3] The Transportation Research Board developed the ACROS tool to assist airports plan for the long-term effects of climate change by estimating levels of risk for airport assets and operations. The tool and accompanying guidebook are available at www.trb.org/Main/Blurbs/173554.aspx. The Sea Level Scenario Sketch Planning Tool was created by the University of Florida GeoPlan Center with funding from FDOT. This tool is designed to helped identify transportation infrastructure vulnerable to current and future flood risks and is available at https://sls.geoplan.ufl.edu/.

which will comprise a PowerPoint presentation template, primer, executive summary, and language and graphics for inclusion on the ASO website.

The consultant will also identify the highest priority projects for implementation at airports to enhance resiliency, guidance for funding these projects under the Florida Aviation Grant Program or other eligible funding programs, and recommendations to the ASO regarding the implementation of initiatives. Projects do not need to be identified at the individual airport level; instead, recommendations will address specific project types for commercial service and general aviation facilities.

The consultant will also develop commercial service and general aviation airport case studies documenting specific airports' experiences before, during, and after events such as Hurricane Irma; the Haiti earthquake of 2010; September 11, 2001; and others as appropriate. The case studies will document efforts relating to preparation (as applicable), recovery, and response, as well as narrative about the airport's role in community response and recovery.

The development of the statewide resiliency assessment and guidance provided as the final outcome of the study will involve coordination with relevant entities include FDOT offices (e.g., Emergency Management, Environmental Management, ASO, and Policy Planning) and external partners such as the Federal Emergency Management Agency (FEMA), the Department of Homeland Security (DHS), FDEM, university research partners, and others, as appropriate. The project may also require coordination with host municipal governments and regional planning organizations, as necessary.

E.1.5 Benefits of Implementation

The FDOT ASO is responsible for ensuring Florida's airport system has the ability to accommodate aviation demand and provide safe, reliable, and accessible air transportation for people and goods. A statewide resiliency assessment will help the agency understand areas and airports most at-risk before, during, and after emergency situations both in terms of human life and property damage, as well as those airports well-suited for disaster preparedness, recovery, and response. This understanding will also provide important insight into airports' abilities to accommodate aviation demand following an emergency event and as climate and other long-term trends impact Florida's aviation environment.

Using the statewide repository of risk and resiliency data developed during the data collection phase, FDOT can effectively prioritize and monitor the efficacy of resiliency investments over time. In this way, resiliency is not an end goal, but instead a process of continual improvement founded in risk identification, assessment, and mitigation, followed by policy reevaluation in the wake of an adverse situation or the progression of chronic stresses.

The statewide resiliency assessment will also assist the FDOT ASO, airports, and other agencies to become better prepared to efficiently and effectively provide adequately-trained personnel and other key resources to facilitate operational up-time following an adverse event.

E.1.6 ASO Staff Responsibility

The ASO staff member responsible for managing this project could be the Aviation System Manager, Aviation Program Development Manager, Aviation Freight and Environmental Manager, or someone involved in ASO's disaster preparedness efforts.

E.1.7 Timeline and Priority for Initiation

This project should be undertaken as soon as possible and given the utmost high priority. In recent years, Florida experienced some of the deadliest and most costly emergency situations on-record. The unusual heatwaves, widespread wildfires, and record-setting hurricane season experienced in recent times are just some examples of the types of acute and chronic stresses that the aviation system should be prepared to deal with. Furthermore, recent human-caused events have highlighted the vulnerabilities of the nation's public spaces. In this light, the need for a statewide resiliency assessment is urgent to provide the FDOT ASO and airports with the tools and information to keep our skies safe, secure, and prepared to combat and overcome the uncertainties of the future.

E.2 Business Suitability Study

E.2.1 Full Title

Develop a study to determine business suitability and identify gaps and opportunities at airports, including commercial air service enhancements, and develop facility, infrastructure, and service guidelines for various types of business needs by airport size and role.

E.2.2 Introduction

Florida's airports represent critical infrastructure that are instrumental in serving the needs of residents, businesses, and visitors to Florida. These same facilities also represent a substantial opportunity for business development and economic diversification in communities throughout the state. In 2014, the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) published the *General Aviation (GA) Airport Business Plan Guidebook* to assist GA airports with developing and implementing business plans in an effort to generate more revenues and decrease dependency on Federal, State, and local grants and subsidies. This project seeks to build on the *Guidebook* by assisting airports in improving business suitability statewide.

E.2.3 Need and Purpose

In recent years, there have been numerous news stories about large companies – both aviation and non-aviation – soliciting proposals for new large-scale facilities. Airbus and Boeing, the world's two largest aircraft manufacturers, have opened and expanded facilities in the southeast United States (U.S.), Amazon is currently assessing locations for new facilities, and Gulfstream continues to expand in Georgia. Though guidance has been provided by FDOT for the development and implementation of GA business plans, during the development of the

Florida Aviation System Plan (FASP) it became apparent that there is a need for the development of a statewide business suitability assessment to provide a framework for airports to develop from, especially smaller airports with limited technical capabilities and resources to dedicate to business planning and marketing efforts. As such, it is proposed that this study be completed as a follow-on to the *GA Airport Business Plan Guidebook* to develop business plan implementation strategies for airports statewide. Further, through coordination with regional and statewide economic development agencies, this information can be used to market and promote Florida's airports to businesses that may not be aware of the opportunities that are available at these facilities as well as be used to develop facility, infrastructure, and service guidelines for various types of business needs.

By conducting this follow-on study, FDOT will be an active partner in supporting airports in being as financially self-sufficient as possible, and, through that, supporting the overall goals of the Florida Transportation Plan (FTP) and the FASP. Additionally, this project will help Florida's airports' marketability and increase the state's chances of recruiting future businesses to the state.

E.2.4 General Approach and Tasks

There are four main components of this project:

1. Agency Coordination
2. Review of Existing Master Plans, the Florida Aviation System Plan, and other relevant documents
3. Data Collection and Existing Conditions
4. Analysis and Recommendations

1. **Agency Coordination.** Through the development of the *GA Airport Business Plan Guidebook*, it was found that in many instances, entities such as local chambers of commerce or other similar business development agencies were unaware of the opportunities that were available at airports. By coordinating this project with economic development agencies, detailed documentation of business suitability and capability will be provided, serving as an outreach tool for all of Florida's airports. As part of this agency coordination, the project team will obtain an understanding of specific data that is beneficial for economic development agencies and the manner in which it should be provided in order to be most useful. At a minimum, it is recommended that coordination meetings be held with the following:
   - Florida Economic Development Council
   - Florida Chamber of Commerce
   - Florida Department of Economic Opportunity (DEO)
   - Enterprise Florida
   - Other FDOT offices (Policy Planning, Systems Implementation, Freight, Logistics and Passenger Operations offices, etc.)
   - Relevant municipal or county agencies
   - The Florida Metropolitan Planning Organization Advisory Council
   - Any others identified by the FDOT Project Manager

2. **Review of Existing Master Plans, the Florida Aviation System Plan, and other relevant documents.** FDOT currently has on file all of the airport master plans that have been developed in the state. These plans often have a wealth of information related to business opportunities at airports, including an inventory of developable or leasable land, availability of utilities, and intermodal access points. Additionally, as part of the development of the FASP, a significant amount of data was collected that could also be used.

   Though much of the needed data is available, it is often not presented in a way that promotes an airport for development. Additionally, interested businesses may not be aware of the kinds of services they may be able to provide on such properties.

   To assess the current data, the project team will conduct a review of all master plans on file with FDOT to understand the data availability of related to business suitability. It is proposed that the following data categories be evaluated in each master plan for inclusion in the data collection and existing conditions section, these are explained in further detail in the Data Collection and Existing Conditions section.

   - Facilities and services
   - Leases and tenants
   - Environmental considerations
   - Surface transportation access
   - Airport position
   - Demographics profile

   Once the master plans have been evaluated for the above data, a thorough compilation of existing conditions can be prepared. This process will also identify any additional data that is needed from airports.

   In addition to master plans and the FASP, the consultant will evaluate other planning documents to extract relevant information about local transportation infrastructure, workforce availability and educational facilities, and other related information. Plans to be reviewed include, but are not limited to:

   - Regional long-range transportation plans
   - Related Strategic Intermodal System (SIS) documents and studies
   - Economic Development Council documents and regional profiles
   - DEO information

3. **Data Collection and Existing Conditions.** This section will document existing conditions present at each airport (i.e., infrastructure, facilities, tenant information/needs) from the available information deemed appropriate from the master plan review. It will also denote the information still needed to complete the analysis component of the business suitability project. Below is a sample list of data elements that could be collected as part of this project. Additionally, each data element is noted as to whether it would be

available in a master plan or as part of the FASP or would need to be collected as part of a new analysis. It should be noted that this list is not exhaustive, a full list of data collection need can be found in the *GA Airport Business Plan Guidebook*.

- Facilities and services
    - Airfield (MP/FASP)
    - Runways and taxiways (MP/FASP)
    - Support facilities (MP)
    - Hangars (MP)
    - Capacity (MP/FASP)
    - Approaches (MP/FASP)
- Leases and tenants
    - Understanding of current lease holder agreements (MP)
    - Availability of leasable property and its amenities (MP)
    - Utilities available at properties on the airport (MP)
- Environmental considerations
    - Identification of sensitive or undevelopable land (MP)
- Surface transportation access (MP/FASP)
- Airport position
    - Comparison to other airports based on location (MP/FASP)
        - Facilities
        - Services
        - Operation
        - Activity
- Demographics profile (using 30/45/60-minute drive times from ESRI Community Analyst)
    - Population (FASP/new analysis)
    - Income (new analysis)
    - Age (new analysis)
    - Households/housing (new analysis)
    - Education (new analysis)
    - Business (new analysis)
    - Spending (new analysis)
    - Jobs (new analysis)
    - Poverty (new analysis)
    - Retail sales (new analysis)
    - Tapestry groups (new analysis)
    - Behavioral (new analysis)
        - Travel patterns
        - Lifestyle
        - Consumer preference

It is recommended that this data, to the extent feasible, be compiled in Excel and be coded so that data can easily be grouped and summarized for a variety of different recommendations.

4. **Analysis and Recommendations.** Based on the previously collected data, this section will identify potential opportunities for business development at airports. Because this project does not want to promote any one specific airport or location, data will be presented in the same manner for each airport. Additionally, it is suggested that results be aggregated by Florida Economic Development Region.

   As appropriate, recommendations for appropriate businesses will be provided based on standardized facility, infrastructure, and service guidelines of said businesses. To the extent feasible, this will be coordinated with the guidance provided in the 'Lower-Activity GA Airports Facility, Infrastructure, and Service Guidelines' project that is also proposed to be completed. Based on the results of the previously discussed data collection, each airport in Florida will receive a business suitability brochure that will provide an overview of options for how and what could be developed at their airport. Additionally, the consultant will develop a template PowerPoint presentation that can be used to educate and inform airports, local governments, and the other entities that are involved with airports about the study and the statewide and airport-specific results and recommendations, including supporting materials

   As noted, information for the demographics of the local area will also be summarized to provide prospective businesses with an idea of the workforce that will be available in the area. A listing of schools, training facilities, or other related educational establishments will also be identified as an additional resource for prospective businesses. As noted, information for the demographics of the local area will also be summarized to provide prospective businesses with an idea of the workforce that will be available in the area. A listing of schools, training facilities, or other related educational establishments will also be identified as an additional resource for prospective businesses.

E.2.5 Benefits of Implementation

The development of a business suitability framework will provide airports and FDOT with a useful and implementable tool that will help improve the financial bottom line of airports around the state. Additionally, it will help the state and individual airports when business development solicitations are advertised nationally. When the previously completed *GA Business Plan Guidebook* was being developed, numerous airports throughout the state asked if FDOT would be willing to assist them in developing the resources that were proposed in the *Guidebook*. This project will help to fill that gap and serve airports large and small in developing and implementing strategic business opportunities.

E.2.6 ASO Staff Responsibility

The ASO staff member responsible for managing this project is the Aviation System Manager or the Aviation Program Development Manager.

E.2.7 Timeline and Priority for Initiation

This project is recommended to be completed immediately and should be initiated in CY 2018.

E.3 Replace the FAD

E.3.1 Full Title

Replace the Florida Aviation Database (FAD) with new, modernized tools and technology solutions that starts with developing an asset management framework that evaluates the value and use of various data currently maintained and data that need to be maintained for various management support activities. FL Integrated Geodata Housing Tool (FLIGHT)

E.3.2 Introduction

The Florida Aviation Database (FAD) was developed over 25 years ago to be a single repository of data and grant information for Florida's airports. Since its original development, the FAD has received numerous updates that were each completed to improve operability and streamline its use. To date, all modifications to the FAD have been done to the original framework of the FAD, without any major departures related to its general appearance, functionality, or ability to serve its intended users (airports, FDOT, and the Federal Aviation Administration [FAA]). To make new reports or changes, the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) must work in the existing platform and with the current design that relies on the original coding environment. The current FAD was also not built or updated with an emphasis on Geographic Information Systems (GIS) mapping and other off-the-shelf analysis and reporting tools, which are now commonplace in the aviation industry. Because Florida has such a large and diverse aviation system, a more advanced and intuitive tool is needed to serve aviation entities statewide.

E.3.3 Need and Purpose

Based on its current status, the current FAD cannot be updated with simple modifications or leverage new capabilities in the enterprise software environment. It is recommended that the FDOT ASO replace the FAD with new, modernized tools and technology solutions. This new system, proposed to be called FLIGHT (**FL** **I**ntegrated **G**eodata **H**ousing **T**ool), starts with developing an asset management framework that evaluates the value and use of various data currently maintained, and new data that are needed for various management support and reporting activities. One of the benefits of the FLIGHT platform is its ability to be developed as a non-proprietary system which can be tailored to ASO's needs without creating a whole new coding system. This will help streamline implementation and operation as well as reduce future investments by the Department as compared to the current FAD system's maintenance and updates.

E.3.4 General Approach and Tasks

There are six tasks associated with this project:

1. Review of the FAD and assessment of data
2. Coordination with FAD users (Airports, FDOT, and the FAA)

3. Assessment of potential components for FLIGHT
4. Alternatives assessment
5. Design schematics
6. Implementation

1. **Review of the FAD and Assessment of Data.** Because the FAD has been utilized for so long, there is a great deal of information that needs to be evaluated for transfer and/or inclusion in FLIGHT. All data components currently stored in the FAD will need to be evaluated for continued use. This review will focus on the age of the data component, the source of the data (airport, FDOT, FAA), and how it is used today.

2. **Coordination with Users of the FAD.** Currently, the FAD is the only option for airports, FDOT, and the FAA to use for tracking and managing data and grants. In an effort to make the FLIGHT system more user friendly, the users need to be included in the evaluation of the current system's strengths and weaknesses, and the needs and opportunities of an improved system. It is recommended that a FAD advisory committee be established to work closely with the ASO and the consultant to ensure maximum value of the FLIGHT system.

3. **Assessment for Potential Components of FLIGHT.** Prior to evaluating the alternative delivery methods and enterprise solution for FLIGHT, the components that might be included will be reviewed and assessed. Some potential components of the system that will be discussed for inclusion include:
   - Florida Aviation System Plan (FASP) 2035 GIS layers that can be utilized to track, input, and analyze multiple data elements from the project such as drive-time analyses, Strategic Intermodal System (SIS) roadways, runway protection zones (RPZs), as well as other FDOT projects.
   - Store and warehouse electronic airport layout plans (eALPs) and airports GIS (AGIS) data developed as part of master plans and airport layout plans.
   - Updated Joint Automated Capital Improvement Program (JACIP) to be more user friendly and compatible with FAA processes such as System of Airports Reporting (SOAR).
   - Tool to maintain and manage data on airport pavements from the ASO statewide airfield pavement management program (SAPMP) and airfield pavement classification number project.
   - Existing information log tool.
   - Data obtained in the FASP 2035 for the Performance Measures and Performance Indicators to allow for monitoring of the performance, including what data items are needed, timing of updates, and the source of the information (airports, FAA, Bureau of Transportation Statistics, other).
   - Web-based statewide land use compatibility tool (or similar technology solution) that includes resources for unmanned aerial systems (UAS) coordination and deconfliction
   - Online Airport Profiles tool.

4. **Alternatives Assessment.** The assessment of components is needed in order to determine the appropriate tool or suite of tools available to meet the identified goals of FLIGHT. Options such as existing FDOT-licensed tools, new business information (BI) tools, and a custom website potentially utilizing a content management system (CMS) and third party tools will be analyzed to determine the various strengths and weaknesses of the various alternatives. Additionally, all alternatives will be assessed for their compatibility with other programs that might be used by relevant parties: City Works, Sales Force, the FDOT Work Program Integration Initiative (WPII), etc. A comparison matrix will be prepared to document the differences and similarities between alternatives to assist in the evaluation. These alternatives will be discussed with the ASO as well as with other FDOT information technology (IT) representatives to evaluate the best solution for ASO.

5. **Design Schematics.** Based on the findings of the previous elements, the consultant will develop a set of design schematics to visually present how FLIGHT will be designed. This will include the development of a draft System and Software Architecture Description document for the system. This document will formalize the functional design for the system, as well as the high level architectural features of the software and hardware components. The steps included in the creation of the System and Software Architecture Description include the following:
   - Identify and document system components
   - Meet with ASO and the FDOT Office of Transportation Technology to discuss the system and review the draft design
   - Develop and document the software architecture
   - Identify and document the deployment plan, including the hardware architecture
   - Meet to discuss the deployment plan
   - Identify and document the maintenance plan

6. **Implementation.** Based on a set of approved design schematics, the project team will develop a test site for FLIGHT that will include all functional elements identified in the previous tasks. Once the test site is operational, select FDOT ASO and District staff, FAA staff, and airports will test the system for usability and functionality. It is anticipated that this testing phase could take place over the course of an entire year to ensure that FLIGHT operates as intended. To ensure that there are no glitches, it is recommended that this test period run concurrently with the regular use of the FAD so that there are no issues with airports requesting and receiving funding. Once FLIGHT has been vetted and is deemed acceptable for operation, its system can be turned on for external use and the FAD will be closed.

E.3.5 Benefits of Implementation

Leveraging an existing technology solution that can be used by ASO, airports, and the FAA that utilizes the latest tools and enterprise software will have tremendous benefits to the entire state. From improved and consistent reporting of data to time savings from a single system that can be utilized by ASO, airports, and FAA, to visualization of information, and opportunities to expand the system using a new platform that ensures reliability of data and is not proprietary, the

benefits of implementation are substantial. FLIGHT will allow ASO to maximize its relationships with District staff, airports, and FAA by providing a fresh platform that is populated with relevant, accurate, and necessary data that can provide significant benefits to the entire Florida aviation system. Throughout the development of the FLIGHT system, there will be an emphasis carefully integrating strategies that result in the lowest possible maintenance effort. One strategy for accomplishing this will be to utilize readily available data sources (such as FAA and Bureau of Transportation Statistics) that are linked to the system thereby reducing the efforts of the ASO to maintain these data points.

E.3.6 ASO Staff Responsibility

The ASO staff member responsible for managing this project is a designee from the Aviation Development Section.

E.3.7 Timeline and Priority for Initiation

This project should begin immediately with the initial phases being kicked off in early CY 2018.

E.4 Detailed Capacity Study

E.4.1 Full Title

Conduct a more detailed capacity study, looking specifically in FDOT Districts Four, Five, and Six.

E.4.2 Introduction

The Florida Aviation System Plan (FASP) 2035 Update included an evaluation of airfield operational capacity at Florida's airports. The FASP utilized the annual service volume (ASV) method to compare baseline 2014 and projected 2035 operational demand levels to determine if each system airport was either currently experiencing or was projected to experience a capacity constraint. The FASP also reviewed data from the Federal Aviation Administration's (FAA's) *Future Airport Capacity Task FACT3: Airport Capacity Needs in the National Airspace System* report, which included analysis on six Florida airports, including two general aviation airports and Florida's four large hubs. Based on this, the FASP capacity analysis results indicate a need for a more detailed evaluation to support continued effective planning and development of Florida's airport system, especially in a few key Florida Department of Transportation (FDOT) Districts.

E.4.3 Need and Purpose

The FASP showed that in base year 2014, there were five airports that exceeded the FAA's recommended 60 percent demand to capacity (D/C) ratio threshold to plan for capacity enhancements, and three airports that exceeded the 80 percent D/C threshold to start implementation for capacity enhancements. By 2035, it is projected that 11 airports will exceed the 60 percent D/C threshold, six will exceed the 80 percent D/C threshold, and three will exceed their ASV altogether (100 percent of their D/C threshold). Of the previously noted 20

airports that are projected to exceed the 60 percent, 80 percent, and 100 percent capacity thresholds, seven are designated as commercial service. The majority of airports that are projected to see D/C ratios of 60 percent or above by 2035 are concentrated in FDOT Districts 4, 5, and 6.

Since airfield capacity is critical to the success of an aviation system in meeting demand and serving customers, including the economically valuable aviation and non-aviation activities that rely on commercial service and general aviation airports throughout the state, it is important that a more detailed capacity evaluation be conducted. This analysis would provide additional in-depth evaluations that can be used in future decision-making by the airports, the FDOT Aviation and Spaceports Office (ASO), FDOT District offices, and the FAA to address the capacity constraints.

E.4.4 General Approach and Tasks

There are five main phases of this project:

1. Review of airfield capacity methodologies
2. Update activity data and compare to FASP analysis
3. Determine appropriate methodologies for use in evaluation
4. Apply methodologies to determine capacity constraints
5. Identify options for addressing capacity constraints

It is recommended that this project be considered for phasing, conducting tasks 1, 2, and 3 first to provide a better understanding of the level of detail required in applying the methodologies and identifying options in conjunction with the affected airports and FDOT District staff.

1. **Review of airfield capacity methodologies.** The FAA's current Advisory Circular (AC), 150/5060-5, *Airport Capacity and Delay*, is dated September 1983 and was updated twice through 1995. While FAA has been considering a third update to the AC, the publication date remains unavailable. The latest guidance available to airports and airport consultants in the area of airfield capacity is the Airport Cooperative Research Program (ACRP) Report 79: *Evaluating Airfield Capacity*, published in 2012. Report 79 provides a guidebook and an Excel-based tool that can be used to evaluate airfield and airspace capacity at a wide range of airports. Completed concurrently was ACRP Report 104: *Defining and Measuring Aircraft Delay and Airport Capacity Thresholds* which provides guidance on measures of delay and capacity thresholds, focused on primarily larger commercial airports.

   This most recent guidance from ACRP identifies tools ranging from simplistic lookup tables and ASV calculations as utilized in the FASP to an Excel-based model to simulation modeling tools that can be employed at complex airports where capacity is a significant constraint. Each of the available methodologies will be reviewed and summarized to subsequently determine the most appropriate methodology that should be employed for the airports in Florida that are projected to have a capacity concern by 2035. In documenting the methodologies, a range of potential costs to conduct the different

capacity methodologies will be identified for use in deciding the most appropriate methodology to be utilized by FDOT in this task.

2. **Update activity data and compare to FASP analysis.** Data from the FASP regarding operations and D/C ratios from the ASV methodology will be updated with the latest available operational figures. As operational activity will undoubtedly continue to change over time, it will be important to conduct a cursory comparison of the updated activity and D/C ratios from the FASP to the FAA's latest data, as available from the Terminal Area Forecast (TAF) and operational statistics from the airports. These data will be documented to update the D/C ratios and determine which airports require more detailed capacity analysis.

   The comparison and results of the updated high-level capacity analysis will be the subject of a meeting with FDOT ASO and District staff from those Districts identified as having multiple airports with existing or projected capacity constraints. This meeting will be important to discuss the issues, including if airports are identifying capacity as a concern and developing projects or conducting airport-specific analyses of capacity constraints. It is anticipated that this will involve reviewing each airport's master plan and layout plan to determine if identified projects will be sufficient in mitigating against capacity constraints.

3. **Determine appropriate methodologies for use in evaluation.** Utilizing the results of the updated activity and comparison to FASP results, the airports identified as having a capacity constraint will be reviewed in relation to the available capacity methodologies from the prior task. Each airport will be examined to determine the appropriate capacity methodology based on factors such as:
   - Availability of actual operational activity from a reliable source (such as air traffic control tower or other reliable source)
   - Projected growth in activity
   - Opportunities for enhancing airfield capacity

   An initial recommendation of the appropriate methodology will be made with the reasons for that methodology identified for each airport, including a ballpark estimate of the cost to conduct the analysis and employ the methodology. These initial recommendations will be discussed with the ASO Project Manager to discuss the reasonableness of the decision and if other steps should be undertaken before proceeding with the implementation of the methodologies for each airport. At the conclusion of this discussion, a phase 2 scope will be prepared to implement the methodology applications that are agreed upon.

4. **Apply methodologies to determine capacity constraints.** The recommended methodologies will be applied to each airport as outlined in the phase 2 scope. These methodologies will be airport-specific as determined.

   In addition to examining airport-specific capacity, the capacity in Districts where there are multiple airports and the airports have an impact on the potential options will be

evaluated. This "regional" approach is important to understand the relationships between the airports and how the capacity conditions may be affecting multiple airports in a geographic area. This analysis will include examining both the capacity-constrained and those identified as having surplus capacity available.

5. **Identify options for addressing capacity constraints.** Based on the airport-specific and regional analysis of capacity from the prior task, options will be identified for each airport and region that could be considered to improve the capacity conditions. These options will be based on reviews of proposed plans for improvement, potential physical infrastructure improvements, and any airspace or other options that may be identified.

E.4.5 Benefits of Implementation

Given Florida's high reliance on aviation to support the movement of people and goods throughout the state, identifying where capacity constraints may exist and options for improvement are key to maintaining an effective statewide air transportation system. The analysis can assist airports, as well as FDOT ASO and District staff and the FAA with identifying high priority projects that may be needed to enhance the system.

E.4.6 ASO Staff Responsibility

The ASO staff member responsible for managing this project is the Aviation Program Development Manager.

E.4.7 Timeline and Priority for Initiation

With 20 airports identified as having a potential capacity constraint by 2035, this study should be considered for implementation in the near term. If there are infrastructure options that can be employed to improve capacity constraints, these options require additional evaluation by airports and their actual construction can take many years.

E.5 Facility, Infrastructure, and Service Guidelines

E.5.1 Full Title

Develop facility, infrastructure, and service guidelines for lower-activity general aviation airports.

E.5.2 Introduction

According to the Federal Aviation Administration (FAA), 75 percent of all aircraft operations in the United States (U.S.) are conducted by general aviation aircraft; the majority of these flights occur at general aviation airports.[4] The statistics are not quite as stark in Florida where the state's

[4] FAA, *General Aviation Airports: A National Asset* (Washington, DC: U.S. Department of Transportation, 2012), 1.

general aviation airports annually experience nearly twice as many operations as commercial service facilities.[5]

Because a general aviation airport is broadly defined as one that does not support (or provides very limited) scheduled commercial service, it can support a wide range of aeronautical functions. The FAA identified several primary functions of general aviation airports as follows:[6]

- Emergency preparedness and response
- Critical community access
- Commercial, industrial, and economic activities
- Destination and special event access
- Other aviation-specific functions, including corporate and charter activities; flight instruction; and aircraft maintenance, repair, and overhaul (MRO) services

These categories encompass activities ranging from aeromedical flights and aerial firefighting, to the transportation of people and cargo, and commercial endeavors such as agricultural spraying and aerial surveying. Florida's airports lead the nation in flight training services and the state hosts the highest number of pilot certifications in four categories in the U.S. Furthermore, general aviation airports are integral to the recovery efforts following natural and human-caused disasters. In recent months, airports across the state served as staging areas for recovery efforts for Florida and Puerto Rico following hurricanes Irma and Maria. Airports in south Florida supported disaster response efforts following the 2009 earthquake in Haiti. In each of these cases, Florida's general aviation airports facilitated the transport of emergency personnel to and victims from disaster-struck areas. Small general aviation aircraft were also able to access remote locations inaccessible to larger aircraft. In summary, general aviation airports compose a critical network that supports the safety, security, mobility, and economic well-being of communities and regions in Florida and across the world.

As a result of the breadth of aviation functions supported by general aviation airports, as well as the frequency of operations, airports need a wide array of facilities, infrastructure, and services to effectively support their specific customers. For example, larger general aviation airports that primarily serve business and corporate aviation typically require at least a 5,000-foot long runway, an instrument approach procedure, hangar space for based and transient aircraft, and additional services such as jet fuel. Smaller airports that primarily serve single-engine aircraft have shorter runway needs, smaller storage facility requirements, and more limited services to effectively serve their customers.

During the planning process, it is critical for airports, airport sponsors, and funding agencies to carefully consider the facilities, infrastructure, and services warranted by the type and volume of operations that occur at their facility. While federal ASSET classifications can be a good indicator of airport operations based on national trends, it is also helpful to assess how an airport operates within its state, regional, and local contexts. Because each airport plays a different role within a

[5] According to the FASP 2035 Update, general aviation airports experienced 5.6 million operations in 2016. Commercial service airports experienced 3.0 million operations that same year. Please note that Vero Beach Regional Airport was evaluated as a general aviation airport in the study; however, the airport began to provide scheduled commercial service in mid-2016.
[6] Ibid, p. 2

broader system, the availability of facilities, infrastructure, and services must align with the specific aviation functions required by its primary customer base.

E.5.3 Need and Purpose

To support general aviation airports in the planning process, the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) is developing facility, infrastructure, and service objectives that are appropriate for the state's smaller, low-activity general aviation airports. The objectives are intended to provide recommended minimum levels of development an airport should pursue to improve their abilities to serve customers and enhance the ability of the statewide system to accommodate all aviation demand. It is important to note that facility, infrastructure, and service objectives are not requirements, but instead serve as a baseline for consideration during the planning process.

This study will first identify the primary aviation activities supported by Florida's general aviation airports. Facility, infrastructure, and service objectives will then be developed for each type of activity.

E.5.4 General Approach and Tasks

There are three main phases of this project:

1. Literature review
2. Identification of primary aviation activities occurring at Florida's general aviation airports
3. Development of general aviation facility, infrastructure, and service objectives

1. **Literature review.** A review of relevant literature and guidance documents will be conducted. This will include the following (not all inclusive):

Literature Review	
FAA Advisory Circulars (ACs)	
AC 150/5070-6B	*Airport Master Plans*
AC 150/5230-4A	*Aircraft Fuel Storage, Handling, and Dispensing at Airports*
AC 150/5300-13A, change 1	*Airport Design*
AC 150/5360-9	*Planning and Design of Airport Terminal Facilities at Non-Hub Locations*
AC 150/5070-6B	*Airport Master Plans*
AC 150/5390-2C	*Heliport Design*
AC 150/5395-1A	*Seaplane Bases*
Airport Cooperative Research Program (ACRP)	
ACRP Synthesis 3	*General Aviation Safety and Security Practices*

Literature Review	
ACRP Report 1	*Airports and the Newest General of General Aviation Aircraft— Volume 2: Guidebook*
ACRP Report 16	*Guidebook for Managing Small Airports*
ACRP Report 47	*Guidebook for Developing and Leasing Airport Property*
ACRP Report 113	*Guidebook on General Aviation Facility Planning*
Other	
FAA	*General Aviation Airports: A National Asset*
FAA	*ASSET 2: In-Depth Review of 497 Unclassified Airports*
National Business Aviation Association (NBAA)	*Airports Handbook*
NBAA	*Business Aviation Fact Book*

The task will also include a review of other states' facility, infrastructure, and service objectives. Specific states will be determined in coordination with the FDOT ASO.

2. **Identification of Primary Aviation Activities.** In order to apply the facility, infrastructure, and service objectives developed during the final phase of this study, it is necessary to first identify those activities that are of primary value to Florida in terms of economic impact; public safety and security; mobility and access; and/or other criteria determined in coordination with the FDOT ASO. The criteria should also be designed to advance the goals of the Florida Aviation System Plan (FASP) 2035 and the Florida Transportation Plan (FTP). These activities may include (not all inclusive):
   - Aerial firefighting
   - Aerial photography
   - Agricultural spraying
   - Air cargo
   - Aircraft manufacturing
   - Aircraft MRO services
   - Blood, tissue, and organ transportation
   - Business and corporate travel
   - Emergency preparedness and disaster response
   - Flight training
   - Intermodal connectivity
   - Law enforcement, including customs and immigration and national security
   - Medical air transportation, including medical evacuation services
   - Military training
   - Personal transportation
   - Recreational flying
   - Search and rescue operations
   - Scientific research
   - Sport activities, including skydiving

- Tourism
- Utility surveying

This preliminary list will be refined in coordination with the FDOT ASO to those activities deemed significant to Florida's airports, residents, visitors, and businesses. Input will also be sought from representatives of aviation organizations that are likely to understand the activities and the needs of these operators including NBAA and Aircraft Owners and Pilots Association (AOPA). The CFASPP meetings will also be used to obtain additional input and feedback via in-person meetings and/or an online survey (i.e., SurveyMonkey). The final activities selected for inclusion in the next phase of the study will then be presented to the FDOT ASO for approval.

The number of activities identified for assessment will be determined during the course of the study. The list must ensure comprehensiveness and equitable representation of aviation functions occurring across the state. The activities must reflect those activities occurring at Florida's lower-activity general aviation airports.

3. **Development of general aviation facility, infrastructure, and service objectives.** The consultant will establish recommended facility, infrastructure, and service objectives for each aviation activity based on Florida-specific considerations, including climate; frequency and type of aircraft operations; and tourism, demographic, and regions-specific trends. Objectives may be established for the following categories (not all inclusive):

Facilities	Infrastructure	Services
Approach capability	Airport Reference Code (ARC)	Aircraft maintenance
Visual aids	Apron	Aircraft rental
Airfield lighting, signage, and navigational aids	Runway length/width	Aircraft rescue and firefighting (ARFF)
Operations/maintenance hangar	Taxiway	Air taxi/charter service
Auto parking	Lighting	Fueling services
Terminal/pilot's lounge	Runway surface	Flight instruction
Fencing	Box and T-hangars	Avionics sales and service
Security	Heliport	Fixed-base operator (FBO)
Automobile parking		Deicing
Aircraft wash facilities		Ground transportation
		On-/off-site rental car
		Oxygen
		Phone access

		U.S. Customs
		Weather reporting

The development of facility and service objectives will be guided by a technical advisory committee comprised of general aviation stakeholders. The committee may include airport sponsors and staff, CFASPP regions/metropolitan area representatives, the FAA, local and regional planning organizations, and aviation activity user groups (such as NBAA and/or AOPA). The consultant will organize a minimum of two meetings to first inform the committee about the project and its responsibilities, then gain feedback on draft facility, infrastructure, and service objectives. A third meeting may also be necessary at the end of the process to present the final outcomes of the study. These meetings may be conducted via teleconference, as deemed appropriate by committee members and the FDOT ASO.

In addition to the technical advisory committee, a broader outreach effort will be conducted to the general aviation community to ensure outcomes reflect the needs of users. This outreach process will include industry, trade, and/or enthusiast groups or businesses representing specific aviation activities. Examples of such groups include skydiving clubs, general aviation pilots associations (e.g., AOPA), Civil Air Patrol, utility companies, flight training schools, charter and aerial tourism operators, first responders, state and federal agencies, and agricultural sprayers—among many potential others. At a minimum, the consultant will meet with at least one group representing each aviation activity selected for inclusion in the study. Additionally, the consultant will meet with the FAA Airports District Office (ADO) for additional input into the facility, infrastructure, and services recommended to support Florida's general aviation activities.

Based on the feedback received from the technical advisory committee, additional outreach efforts, and the FDOT ASO, the consultant will prepare proposed objectives to present to during the CFASPP. Any additional input will be integrated as appropriate. The facility, infrastructure, and service objectives will then be provided to the FDOT ASO for final approval.

E.5.5 Benefits of Implementation

It is important to align facility, infrastructure, and service offering with the aircraft, frequency, and type of operations that occur at each airport. This alignment provides a number of key benefits to airports, including the ability to:

- Effectively support airport users and the broader community
- Maximize funding resources
- Minimize duplication of services within a regional context
- Balance regional demand and capacity to the greatest extent possible

- Provide guidance during the master planning process and Capital Improvement Plan development

These facility, infrastructure, and service objectives will provide guidance to airports as they identify projects for inclusion in their capital improvement plans. The study will also provide guidance to and maintain consistency across FDOT Districts during project evaluation and selection and other decision-making processes.

E.5.6 ASO Staff Responsibility

The ASO staff member responsible for managing this project is the Aviation System Manager or the Aviation Program Development Manager.

E.5.7 Timeline and Priority for Initiation

Because of this study's utility during the development of capital improvement plans and FDOT District decision-making processes, this project should be initiated in CY 2018. While the selection of the activities for inclusion in the study is anticipated to be a straightforward process, engagement with the technical advisory committee and the aviation public will likely be more time intensive. Additionally, the development of the objectives must coincide with the CFASPP meeting round and are thus dependent on its meeting schedule.

E.6 Statewide Roadmap to Address Airport Wildlife Hazards for Non-Part 139 Airports

E.6.1 Full Title

Developing a roadmap for addressing airport wildlife hazards for non-Part 139 airports at a statewide level

E.6.2 Introduction

Part 139-certificated airports are mandated by the Federal Aviation Administration (FAA) to conduct wildlife hazard studies and, in some cases, develop wildlife hazard mitigation plans. The FAA has increasingly been encouraging general aviation (GA) airports to conduct wildlife studies through either wildlife site visits (WSV) or wildlife hazard assessments (WHA). The FAA supports this by providing Airport Improvement Program (AIP) funds for GA wildlife hazard projects on a case-by-case basis.

E.6.3 Need and Purpose

There are 102 public-use, non-Part 139 airports in Florida. As of 2016, only 26 (25%) had conducted a WSV or WHA. These 102 airports are home to over 8,000 based aircraft and handle nearly 5 million annual aircraft operations. In 2015, there were 2.04 reported wildlife strikes per 100,000 GA aircraft operations. The prominence and importance of GA in Florida warrants that additional consideration be given to wildlife hazard mitigation at Florida's GA airports.

E.6.4 General Approach and Tasks

There are three main phases of this project:

1. Data collection
2. Literature review
3. Development of statewide guidance and a roadmap for statewide wildlife management

1. **Data collection.** Data collection will include the surveying of Florida's 102 non-Part 139 airports to determine what wildlife hazard management steps have been taken and the reasons further steps have not been. Data will also be collected regarding the frequency, species types, and locations of wildlife strikes at Florida's airports. This will be collected both from survey responses as well as from data contained in the FAA's National Wildlife Strike Database.
2. **Literature Review.** A review of relevant literature and guidance documents will be conducted. This will include the following (not all inclusive):

Literature Review
FAA Advisory Circulars

Literature Review	
70-1	Outdoor Laser Operations
150/5200-32	Reporting Wildlife Aircraft Strikes
150/5200-33	Hazardous Wildlife Attractants On or Near Airports
150/5200-34	Construction or Establishment of Landfills near Public Airports
150/5200-36	Qualifications for Wildlife Biologist Conducting Wildlife Hazard Assessments and Training Curriculums for Airport Personnel Involved in Controlling Wildlife Hazards on Airports
150/5200-38	Protocol for the Conduct and Review of Wildlife Hazard Site Visits, Wildlife Hazard Assessments, and Wildlife Hazard Management Plans (to be issued)
150/5220-25	Airport Avian Radar Systems
FAA CertAlerts	
16-03	Recommended Wildlife Exclusion Fencing (PDF)
14-01	Seasonal Mitigation of Hazardous Species at Airports: Attention to Snowy Owls (PDF)
13-01	Federal and State Depredation Permit Assistance (PDF)
06-07	Requests by State Wildlife Agencies to Facilitate and Encourage Habitat for State-Listed Threatened and Endangered Species and Species of Special Concern on Airports (PDF)
98-05	Grasses Attractive To Hazardous Wildlife (PDF)
Airport Cooperative Research Program (ACRP) Guidance	
Report 32	Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports
Report 122	Innovative Airport Responses to Threatened and Endangered Species
Report 125	Balancing Airport Stormwater and Bird Hazard Management
Report 145	Applying an SMS Approach to Wildlife Hazard Management
Synthesis 23	Bird Harassment, Repellent, and Deterrent Techniques for Use on Airports
Synthesis 39	Airport Wildlife Population Management
Synthesis 52	Habitat Management to Deter Wildlife at Airports
Legal Research Digest 20	Airport Responsibility for Wildlife Management

3. **Development of statewide guidance and a roadmap for statewide wildlife management.** Once the data collection and literature review have been completed, the consultant will develop statewide wildlife hazard management and mitigation guidance to GA

airport operators. This guidance will be specific to Florida and will include considerations specific to the state that may impact an airport's wildlife management and mitigation efforts. Guidance will be provide both for wildlife management as well as habitat management. Guidance will also include direction on reporting wildlife strikes to the National Wildlife Strike Database. This element will also include the development of a communications toolkit which will be comprised of a PowerPoint presentation template, a primer, an executive summary, and language and graphics for inclusion on the ASO website.

The consultant will also develop a roadmap for statewide wildlife hazard management that will include, at a minimum, a timeline for implementation, items specific to the FDOT airport licensing and inspection program, guidance for funding under the Florida Aviation Grant Program, and recommendations to ASO regarding prioritization and implementation of statewide initiatives. Specific consideration will be given to recommendations related to ASO's licensing inspection and safety program, to include a requirement for airports to report strikes, a standardized collection and reporting process, licensing inspection items, and others as identified during the project scoping and data collection elements.

Both elements of the development of statewide guidance and a roadmap for statewide wildlife management phase will involve coordination with relevant entities including FDOT offices (Environmental Management, Policy Planning, etc.) and external partners (FL Department of Environmental Protection, FL Fish and Wildlife Conservation Commission, EPA, FWS, FL water management districts, universities engaged in relevant research, and others as appropriate).

E.6.5 Benefits of Implementation

By developing statewide guidance and resources, ASO will provide GA airports with the tools, knowledge, and resources that they need to minimize wildlife hazards throughout the state. This directly ties into the mission of FDOT and ASO, the goals of the Florida Transportation Plan (FTP) and the Florida Aviation System Plan (FASP), and the intent of ASO's licensing inspection and safety program. Minimizing wildlife hazards at GA airports will increase the safety for our airport users and visitors. It will also support the efforts and performance measures of the FTP and the FASP, both from a safety and an environmental awareness perspective. Additionally, the FAA estimates that the economic loss attributable to aircraft wildlife strikes could be as high as $957 million per year nationally. As aviation is an economic engine in Florida, accounting for $144.0 billion in annual economic impact throughout the state, the financial benefits of reduced wildlife hazards mist also be taken into account, in addition to the safety and environmental ones.

E.6.6 ASO Staff Responsibility

The ASO staff member responsible for managing this project is the Aviation Environmental and Freight Manager. Alternatively, it could fall under the responsibility of the Airport Inspection and Safety Manager.

E.6.7 Timeline and Priority for Initiation

This project should be undertaken as soon as possible and given high priority. With quieter, smaller, and faster aircraft entering the market, there is an increasing trend in the rate of wildlife strikes throughout the nation. That increasing strike rate combined with Florida's forecasted growth in GA operations calls for rapid action at the state level to give airport operators the tools they need to reduce wildlife hazards statewide.

E.7 RPZ Ownership Data Compilation

E.7.1 Full Title

Inventory RPZ Land Uses and Ownership Data

E.7.2 Introduction

Florida is home to nearly 800 aviation facilities, 128 of which are currently identified as state system airports and are included in the Florida Aviation System Plan (FASP) 2035 Update. These 128 airports are open for public use and are identified as being essential to Florida's aviation network. More than 200 runways exist throughout the public-use system that cumulatively support nearly 24,000 daily aircraft operations.

To protect these aircraft operations and the people that live in the vicinity of airports in the event of runway overshoots or underruns, the Federal Aviation Administration (FAA) delineates safety areas off the end of each runway known as Runway Protection Zones (RPZs). Airport sponsors are responsible for the protection of RPZs from development or land uses incompatible with aircraft operations. This can be particularly challenging for airport sponsors who do not own or have control over the land within their RPZs. As part of the FASP 2035 Update, a desktop analysis was conducted to determine if incompatible land uses were present in RPZs. This evaluation was completed by overlaying RPZs over 2-D aerial images provided in Google Earth; however, based on the large data needs, the FASP 2035 Update was unable to evaluate the ownership and designated land use/zoning of parcels that are located in RPZs. As such, it is proposed that an additional analysis be completed to determine ownership of land and designated land uses that fall within RPZs. Once compiled, existing data related to airport zoning authority can be included so that all data and information is provided in one location.

E.7.3 Need and Purpose

The mission of the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO) is to "provide a safe and secure air transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities." As such, it is important to have more information regarding the ownership and control of land within RPZs at FASP airports to help support a safe and secure state aviation system through guidance, policy, and funding.

An inventory of existing "incompatible land uses," land ownership, and zoning will help airports and FDOT better understand the presence of incompatible uses throughout the system and the controlling entities over these critical airport safety areas, as well as help to support funding decisions or action plans for land acquisition. Some of the data for this analysis was developed for the FASP 2035 Update, so efficiencies may be possible during implementation.

E.7.4 General Approach and Tasks

There are four tasks associated with this RPZ inventory project:

1. Verify inventory data
2. Conduct inventory
3. Develop recommendations for funding and action plans for RPZ compatibility
4. Document process/plan for data maintenance

1. **Verify Inventory Data.** For the FASP 2035 Update, existing RPZ dimensions were taken from airport master plans and airport layout plans on file with the FAA and FDOT and easily identifiable incompatibilities were identified. Prior to beginning this analysis, the dimensions of the RPZs should be verified for each airport to ensure that this project accurately identifies ownership issues. The most recent statewide parcel ownership and zoning data will be accessed from the Florida Geographic Data Library (FGDL) utilizing data from the Florida Department of Revenue and County Property Appraisers. Example data points that could be used in the inventory of RPZ land ownership include the ownership type (fee simple, easement, etc.), date of ownership, and designated land use/zoning (industrial, commercial, etc.). Defining these parameters before conducting the inventory will result in a more organized inventory. It will also be important to review the age of the data, especially zoning information, to ensure it is current.
2. **Conduct Inventory.** Using the data points and parameters identified in the previous task, the consultant will develop a statewide database of RPZ parcel data. This will also include an expanded evaluation of the incompatible land uses determined during the FASP 2035 Update. For each airport, a summary report of incompatible land uses, land ownership, land use/zoning, and zoning authority for each of the RPZs will be developed. Once these have been developed, the project team will distribute the information to airport sponsors and hold meetings to discuss and verify the findings. As part of these discussions, any additional data available from 'Exhibit A' documents or other land ownership repositories will be discussed and included in the report findings, as needed. Following these meetings, the airport summaries will be finalized and a geodatabase will be provided to FDOT ASO.
3. **Develop Funding Guidance and an Action Plan for RPZ Compatibility.** Upon completion of the inventory, the Consultant will develop guidance related to funding land acquisition for RPZ mitigation as well as develop a roadmap for ASO's action plan for RPZ mitigation. The extent of this may include the development of cost estimates by airport for the land acquisition associated with the RPZs.
4. **Document Process/Plan for Data Maintenance.** Once the inventory has been completed and the data organized for all system airports, the consultant will document the inventory

process in a summary report for the FDOT ASO. This summary report will include the methodologies used so FDOT ASO staff can continually update the inventory database in a consistent manner. It will also include a recommended timeline for updates.

E.7.5 Benefits of Implementation

The development of a comprehensive RPZ land use and ownership database will allow the FDOT ASO to better understand patterns of use, ownership, and zoning control, and identify focused solutions based on inventory findings (guidance, policy, funding, etc.). This project will also help prioritize RPZ protection needs across the system.

E.7.6 ASO Staff Responsibility

The ASO staff member responsible for managing this project is the Airspace and Land Use Manager.

E.7.7 Timeline and Priority for Initiation

This project should be undertaken when feasible, pending the priority of other FASP 2035 recommended projects.

E.8 CFASPP Boundary Evaluation

E.8.1 Full Title

Evaluate the Boundaries of the CFASPP

E.8.2 Introduction

Florida has the most established continuous system planning process in the nation. Instituted in the 1980s, the Continuing Florida Aviation System Planning Process (CFASPP) provides the Florida Department of Transportation (FDOT) Aviation and Spaceports Office (ASO), Federal Aviation Administration (FAA), airports, and aviation and non-aviation stakeholders the opportunity to offer input, obtain information, and coordinate activities that are relevant to implementing the Florida Aviation System Plan (FASP) and maintaining the statewide airport system. The goal of establishing CFASPP was to continue the statewide planning effort conducted by ASO to preserve a viable statewide aviation environment. CFASPP utilizes an extensive outreach program, including a comprehensive website and an annual series of meetings held at the regional and statewide levels to discuss FDOT's planning efforts, processes, and results, as well as airports' needs and issues. The program allows for the continuous monitoring of the aviation environment, which helps determine the development requirements needed across the state to meet projected aviation demands.

Through a committee structure comprised of airport representatives, the state has identified nine centers of aviation activity. Each center is referred to as a CFASPP "region" or "metropolitan area" (MA). A CFASPP region is an area containing several communities with common aviation

ties to each other due to geographic and economic characteristics. A CFASPP metropolitan area (MA) is an area of the state with interrelationships between airports that have a common economic base due to contiguous urban development. The CFASPP contains five regions and four MAs. The determination of which airports are within each region or MA is currently made by each airport sponsor who can petition to change from one region or MA to another based on their ties to other areas, whether due to economic activity or geographic characteristics. There is also a statewide committee comprised of the chairs of each of the Regions/Mas. This statewide committee meets after the regional meetings have occurred to discuss items of statewide significance.

E.8.3 Need and Purpose

During the FASP 2035 Update, an evaluation of other regional boundaries was conducted. A comparison of FDOT District and Florida Economic Development Council (FEDC) Regions to CFASPP boundaries was made to evaluate how a change in the boundaries would affect the airports within each division. The evaluation of Districts to CFASPP regions started with recognizing there are seven Districts compared to nine CFASPP regions. While there are many overlaps between the boundaries of each, the primary differences between the boundaries include:

- All Central CFASPP airports are in District 1
- All Southwest CFASPP airports are included in District 1
- Treasure Coast CFASPP airports are included in Districts 1 and 4
- All Northeast CFASPP airports are in District 2
- North Central CFASPP airports are included in Districts 2, 5, and 7
- All Northwest CFASPP airports are in District 3
- Southeast CFASPP airports are included in Districts 4 and 6
- All East Central CFASPP airports are in District 5
- All West Central CFASPP airports are included in District 7

Overall, the North Central and Southeast CFASPP boundaries would be most affected if FDOT District boundaries were used to define CFASPP boundaries.

For the FEDC regions, which would organize Florida's airports based on commonalities between economic conditions and opportunities, it was noted there are eight FEDC regions compared to nine CFASPP areas. While similar to both CFASPP and FDOT District boundaries, there are also a number of differences with FEDC boundaries, specifically:

- Central CFASPP airports are in the South Central and Tampa Bay FEDC regions
- All but one East Central CFASPP airports are in the East Central FEDC region (Flagler Executive is in the Northeast FEDC)
- All but two North Central CFASPP airports are included in the North Central FEDC region (Crystal River-Captain Tom Davis Field and Inverness Airport are in the Tampa Bay FEDC region)
- All Northeast CFASPP airports are in the Northeast FEDC region
- All Northwest CFASPP airports are in the Northwest FEDC region

- All Southeast CFASPP airports are included in the Southeast FEDC region
- Southwest CFASPP airports are included in the South Central, Southwest, and Tampa Bay FEDC regions
- Treasure Coast CFASPP airports are included in the South Central and Southeast FEDC regions
- All West Central CFASPP airports are included in the Tampa Bay FEDC region

Overall, the Southwest and Treasure Coast CFASPP boundaries would be most impacted if FEDC boundaries were utilized for the CFASPP.

While this analysis is helpful, any reorganization or redefining of boundaries requires the agreement of the airports in all CFASPP regions as airports can currently choose the CFASPP region in which to participate. Therefore, the general approach and related tasks for this analysis are primarily outreach related, with an upfront documentation of the existing condition.

E.8.4 General Approach and Tasks

There are three main phases of this project:

1. Document the existing condition including current boundaries and the benefits and concerns with continuing with the existing CFASPP boundaries
2. Conduct outreach to airports to solicit feedback on changing the boundaries
3. Develop a recommended implementation plan for boundary changes if determined to be appropriate

1. **Document existing condition.** The consultant will document the existing condition related to the CFASPP boundaries and other boundaries that could be considered for use. The FASP 2035 Update contains a review of CFASPP, FDOT District, and FEDC boundaries and identifies the impacts to various airports. To further evaluate the existing condition, coordination is needed with the following to provide a comprehensive understanding:
   - FDOT ASO Central Office and District Office personnel
   - Current CFASPP Executive Statewide Committee members
   - Current CFASPP Administrator

   This coordination will focus on obtaining input on the benefits and concerns related to keeping or changing the CFASPP boundaries.

2. **Conduct outreach.** Utilizing the results of the existing condition evaluation, additional outreach will be conducted utilizing a presentation during the standing CFASPP regional meetings and/or a statewide meeting and through an online survey. The presentation will focus on the potential new boundaries, detailing the benefits and drawbacks identified through prior discussions with FDOT ASO staff, CFASPP Executive Statewide Committee members, and the CFASPP Administrator, and seek input on additional benefits and concerns of CFASPP meeting attendees. To ensure that all airports are afforded the opportunity to participate, an online survey will also be prepared to request information regarding benefits and concerns not previously identified.

3. **Develop a recommended implementation plan**. Assuming the prior two steps have determined that a shift in CFASPP boundaries is feasible and desired, a recommended implementation plan will be developed. Most importantly, the timing of implementing new boundaries needs to be determined relative to the meeting schedule to ensure communication to effectively transition boundaries and maintain the CFASPP process. The recommended implementation plan will also detail any changes that are made to the CFASPP process including:
   - Number of meetings
   - Election for positions in new regions
   - Regional change requests by airports

E.8.5 Benefits of Implementation

The most significant benefit to FDOT ASO would result if the District boundaries were selected to be the CFASPP boundaries. This would mean two fewer meetings (seven Districts instead of nine CFASPP regions) each round and would enable District staff to participate in only one CFASPP meeting per round. It would also better facilitate communication between the District aviation personnel and the airports in the region, providing another outlet to discuss issues and concerns specific to the District. Furthermore, it would allow future FASP updates to focus on one set of regional boundaries in the regional level analyses, including project and funding recommendations that are directly relevant to FDOT Districts who administer state funding to Florida's system airports.

A benefit of aligning the CFASPP committees with the FEDC regions is that the planning process for one of Florida's largest economic drivers—aviation—would mirror the composition of the state's economic development efforts. Regional partners and stakeholders, goals, priorities, opportunities, and initiatives would align between the FEDC and CFASPP regions, allowing for closer coordination and alignment of efforts.

E.8.6 ASO Staff Responsibility

The ASO staff member responsible for managing this project is the Aviation System Manager.

E.8.7 Timeline and Priority for Initiation

This project should be undertaken at FDOT ASO's earliest convenience and should be planned around the timing of a CFASPP round. While the documentation should be a relatively quick task, the coordination with various representatives as previously noted can be time intensive. Outreach efforts should also coincide with an upcoming CFASPP round and therefore are dependent on the CFASPP meeting schedule.

F. Final Deliverables

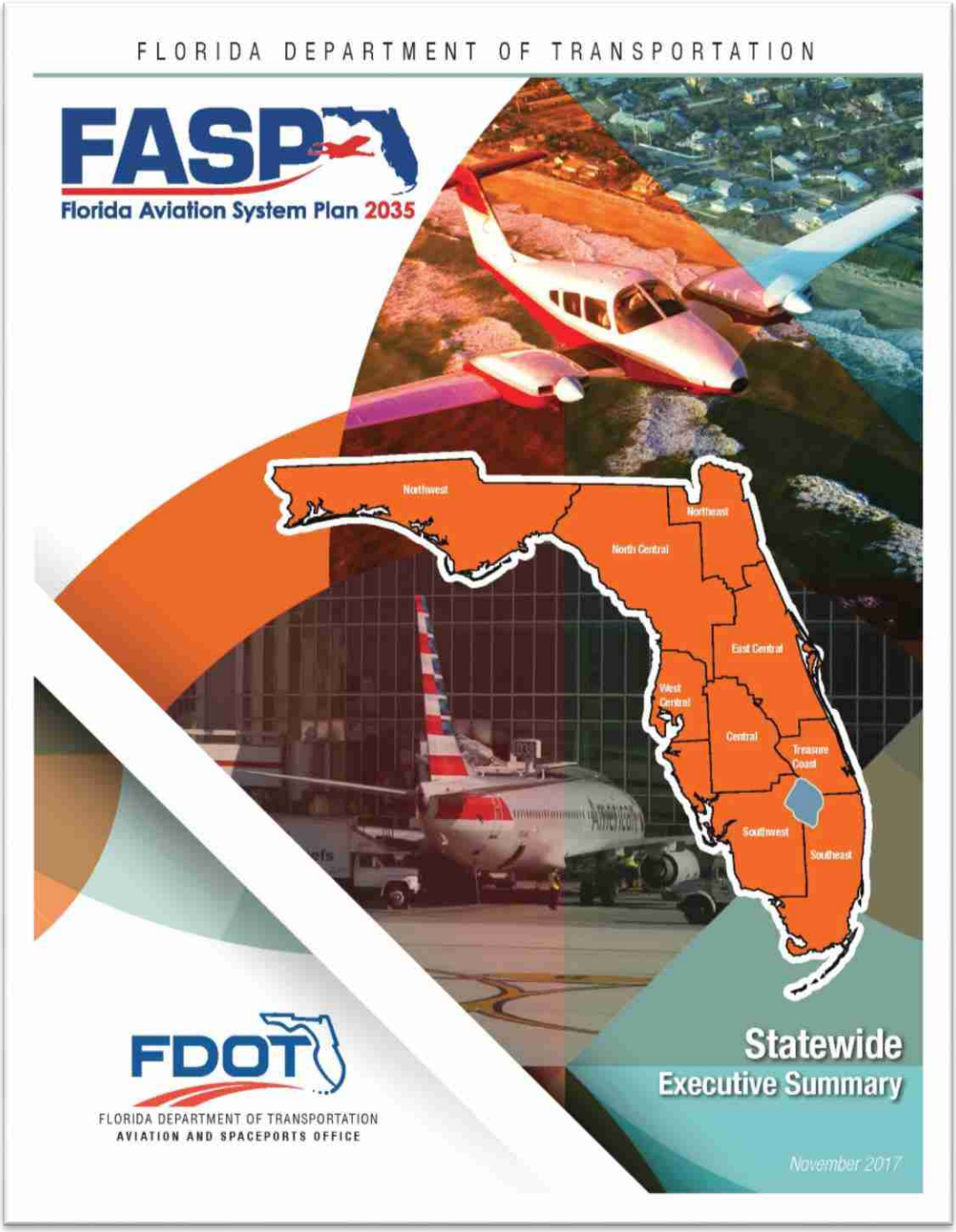
In addition to the Technical Report, various types of deliverables were developed to communicate the key findings of the FASP 2035 Update to specific audiences. Each deliverable was created to specifically highlight the aspects of the analyses most relevant or applicable to the audience's interests in the state aviation system. These deliverables include:

- Executive Summary
- Summary Report
- Continuing Florida Aviation Systems Planning Process (CFASPP) Regional Brochures
- Executive Summary Primers

A copy of each of these deliverables is provided in this appendix.

F.1 Executive Summary

The Executive Summary highlights the key outcomes of the FASP 2035 Update from statewide- and FDOT District-level perspectives. The document is tailored to technical and non-technical audiences by providing content that is understandable to readers unfamiliar with aviation system planning and detailed enough to be of interest to those with more engagement in the industry.



FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035

Statewide Executive Summary

FDOT

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

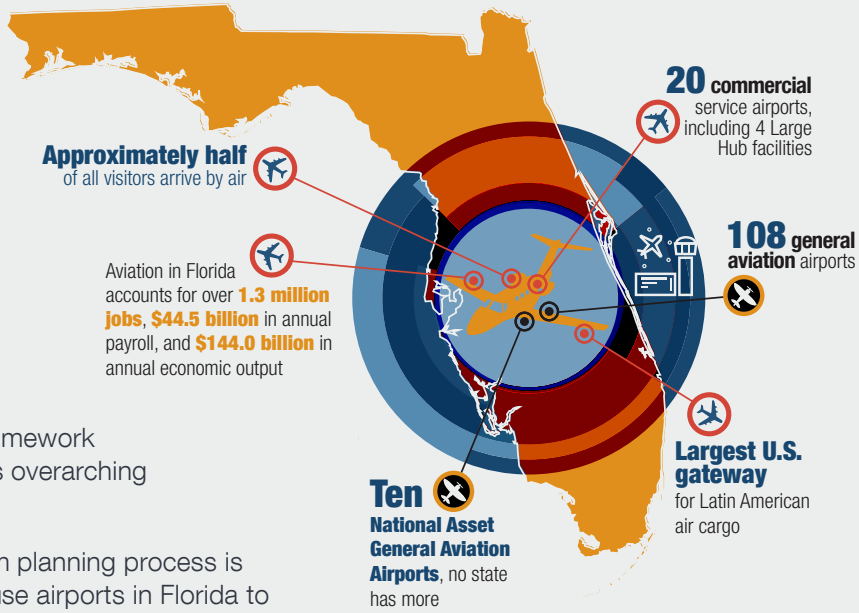
November 2017

Florida Aviation System Plan 2035 Update

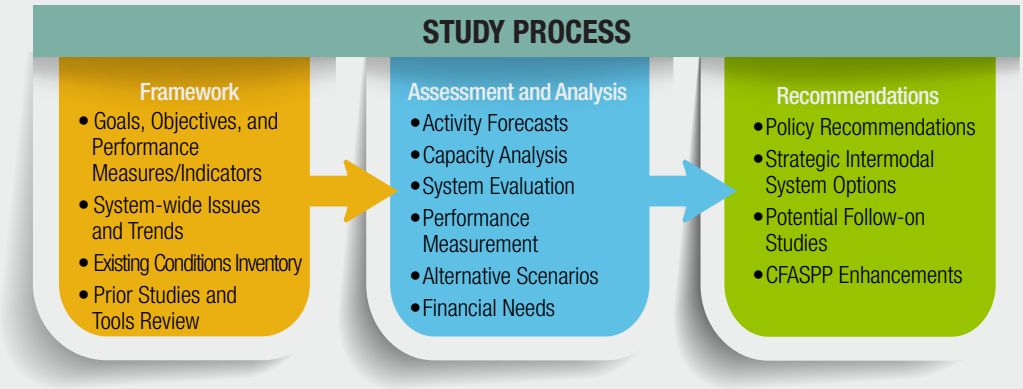
Florida offers the most dynamic and progressive aviation system in the United States (U.S.). The state's 128 public-use commercial service and general aviation airports supported nearly nine million aircraft operations in 2015, and that number is anticipated to continuously rise over the next 20 years. 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 in Florida and across the U.S. 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]

Florida by the Numbers



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 a safe, efficient, 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.



The FASP 2035 Update included analyses of the facilities, aviation activities, and future demands specific to the state's nine CFASPP regions or 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.*

Florida's Public-use Airports

Central

- Arcadia Municipal Airport
- Avon Park Executive Airport
- Bartow Municipal Airport
- Chalet Suzanne Air Strip
- Jack Brown's Seaplane Base
- Lake Wales Municipal Airport
- Lakeland Linder Regional Airport
- River Ranch Resort Airport
- Sebring Regional Airport
- South Lakeland Airport
- Wauchula Municipal Airport
- Winter Haven's Gilbert Field

East Central

- Arthur Dunn Air Park
- Bob Lee Flight Strip
- Bob White Field
- Daytona Beach International Airport
- DeLand Municipal-Sidney H Taylor Field
- Executive Airport
- Flagler Executive Airport
- Kissimmee Gateway Airport
- Leesburg International Airport
- Massey Ranch Airpark
- Melbourne International Airport
- Merritt Island Airport
- Mid Florida Air Service Airport
- New Smyrna Beach Municipal Airport
- Orlando Apopka Airport
- Orlando International Airport
- Orlando Sanford International Airport
- Ormond Beach Municipal Airport
- Pierson Municipal Airport
- Space Coast Regional Airport
- Tavares Seaplane Base
- Umatilla Municipal Airport
- Valkaria Airport

North Central

- Cross City Airport
- Crystal River-Captain Tom Davis Field
- Flying Ten Airport
- Gainesville Regional Airport
- George T Lewis Airport
- Inverness Airport
- Lake City Gateway Airport
- Marion County Airport
- Oak Tree Landing Airport
- Ocala International-Jim Taylor Field
- Perry-Foley Airport
- Suwannee County Airport
- Williston Municipal Airport

Northeast

- Cecil Airport
- Fernandina Beach Municipal Airport
- Herlong Recreational Airport
- Hilliard Airpark
- Jacksonville Executive at Craig Airport
- Jacksonville International Airport
- Keystone Airpark
- Northeast Florida Regional Airport
- Palatka Municipal - Lt Kay Larkin Field

Northwest

- Apalachicola Regional-Cleve Randolph Field
- Bob Sikes Airport
- Calhoun County Airport
- Carrabelle-Thompson Airport
- Costin Airport
- DeFuniak Springs Airport
- Destin Executive Airport
- Destin-Ft Walton Beach Airport
- Ferguson Airport
- Fort Walton Beach Airport
- Marianna Municipal Airport
- Northwest Florida Beaches International Airport
- Pensacola International Airport
- Peter Prince Field
- Quincy Municipal Airport
- St George Island Airport
- Tallahassee Commercial Airport
- Tallahassee International Airport
- Tri-County Airport
- Wakulla County Airport

Southeast

- Belle Glade State Municipal Airport
- Boca Raton Airport
- Dade-Collier Training And Transition Airport
- Downtown Fort Lauderdale Helistop
- Fort Lauderdale Executive Airport
- Fort Lauderdale/Hollywood International Airport
- Key West International Airport
- Miami Executive Airport
- Miami Homestead General Aviation Airport
- Miami International Airport
- Miami-Opa Locka Executive Airport
- Miami Seaplane Base
- North Palm Beach County General Aviation Airport
- North Perry Airport
- Palm Beach County Glades Airport
- Palm Beach County Park Airport
- Palm Beach International Airport
- Pompano Beach Airpark
- The Florida Keys Marathon International Airport

Southwest

- Airglades Airport
- Airport Manatee
- Buchan Airport
- Everglades Airpark
- Immokalee Regional Airport
- La Belle Municipal Airport
- Marco Island Airport
- Naples Municipal Airport
- Page Field
- Punta Gorda Airport
- Sarasota/Bradenton International Airport
- Shell Creek Airpark
- Southwest Florida International Airport
- Venice Municipal Airport

Treasure Coast

- Indiantown Airport
- New Hibiscus Airpark
- Okeechobee County Airport
- Sebastian Municipal Airport
- Treasure Coast International Airport
- Vero Beach Regional Airport
- Witham Field

West Central

- Albert Whitted Airport
- Brooksville-Tampa Bay Regional Airport
- Clearwater Air Park
- Peter O Knight Airport
- Pilot Country Airport
- Plant City Airport
- St Pete-Clearwater International Airport
- Tampa Executive Airport
- Tampa International Airport
- Tampa North Aero Park
- Zephyrhills Municipal Airport

Aviation in Florida Takes Flight

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

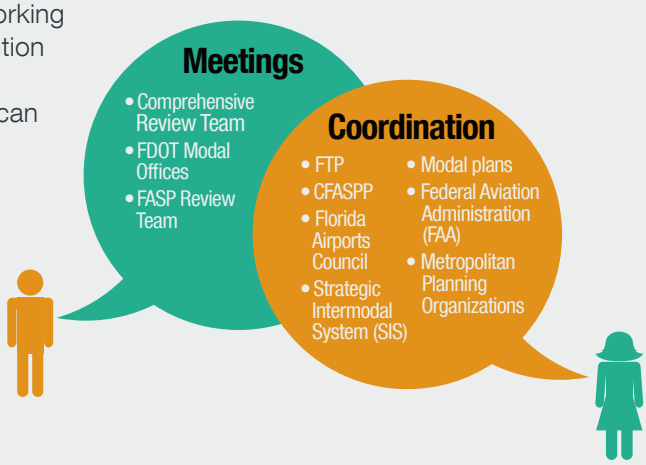
As part of this process, nine centers of aviation activity were identified in the state. Each of these CFASPP regions or MAs contributes to the aviation system by supporting different types and levels of aviation activity, driven by a unique set of social, economic, and environmental conditions impacting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

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

Florida's prominence as a global aviation leader is perhaps a natural outgrowth of the industry's long history in the state. In 1914, former St. Petersburg Mayor A.C. Pheil boarded Thomas Benoist's bi-wing seaplane for a 23-minute, 18-mile flight across Tampa Bay. Piloted by renowned aviator Tony Jannus, this short trip is now recognized as the first commercial flight in world history. After this inaugural trip, Benoist's "St. Petersburg-Tampa Airboat Line" began operating two flights a day at a fee of $5.00 per one-way ticket, and the commercial aviation industry was born.

Since those early days of flight, the aviation industry in Florida has evolved in response to new technologies and changing demands, and the public-use airport system now encompasses 20 commercial service and 108 general aviation airports. Florida has become the hub of air transport in the Americas for both people and cargo, the nation's premier provider of flight instruction, and a major center for maintenance, repair, and overhaul services. Florida's airports also serve critical roles during disaster response, providing the fastest way to bring people and supplies into and out of areas. Airports also serve as staging areas from which response-recovery efforts can be launched. More than 470 aviation and aerospace companies are located in Florida, with some of the largest names in the industry such as Boeing, Embraer, FlightSafety, General Dynamics, Lockheed Martin, Northrop Grumman, Piper, Pratt and Whitney, and Sikorsky conducting major operations.

Looking ahead, the future of aviation in Florida is bright. Yet to maintain this position of leadership, the airport system must continue to meet the ever-changing demands and trends affecting the industry. FDOT, the FAA, airport sponsors, and the many communities our airports serve are jointly tasked with ensuring Florida's infrastructure and services continue to safely, efficiently, securely, and conveniently meet the needs of all users. The coming years and decades promise changes that will affect how, when, and where we fly. Working together with focused attention on the needs of today and demands of the future, we can all ensure Florida's aviation industry continues to soar.



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

Bombardier E-9A over Tyndall Air Force Base

Florida Transportation Planning Timeline

The FDOT ASO, CFASPP regions and MAs, and other planning partners have continuously updated the state's long-term and aviation-specific planning and guidance documents to keep pace with new developments facing the industry and within the state.

2012

- FASP 2025
- FAA's NextGen Metroplex initiative launched

- Florida accommodated 143.5 million commercial airline passengers

2013

- Freight Mobility and Trade Plan Policy Element
- Spaceport System Plan

- 145.0 million commercial airline passengers used Florida's airports

2014

- Statewide Aviation Economic Impact Study
- Air Service Study Update

- Florida recorded 149.3 million commercial airline passengers
- Port Miami Tunnel opened to provide access to the seaport
- SunRail opened

2015

- Florida Transportation Plan (FTP) Vision Element
- FTP Policy Element

- Florida topped New York to become third-most populous state
- Florida hosted more than 100 million out-of-state visitors in a single year

2016

- SIS Policy Plan
- Guidebook for Airport Master Planning

- Florida surpassed Texas to become second nationally in the number of annual commercial airline passengers with over 168.7 million
- Panama Canal expansion project completed, allowing the expansion of Florida's cruise ship traffic

2017/2018

- Airport Land Use Guidebook Update
- Airport Sustainability Guidebook
- Air Cargo Study Update
- Air Service Study Update
- Statewide Aviation Economic Impact Study Update
- FASP 2035 Update

Future Trends and Issues

- Growth of unmanned aerial systems (UAS)
- Airline pilot shortage
- Demographic shifts in Florida
- State and federal policy changes, including Open Skies agreements, customs and immigration, safety and security, and international relations
- Lighter, more fuel-efficient aircraft
- NextGen implementation
- Continued growth in low-cost and ultra low-cost carriers

Vision and Goals

The FTP is the overarching long-range transportation plan guiding the future of Florida's transportation system. The FTP addresses the management, operations, and regulation of all transportation networks in the state, including air, road, rail, and multimodal alternatives. It also provides a policy framework for the expenditure of state and federal transportation funds.

More information about the FTP is available at www.FloridaTransportationPlan.com.

The FASP serves as a mode-specific strategic plan for the aviation system. The goals established as part of this plan have been developed to complement the FTP while specifically meeting the goals of the aviation system.

Ensuring a link between the FTP and FASP enhances the understanding of FDOT's funding priorities and helps identify those projects that advance the state's vision for its aviation and transportation future.

FASP 2035 Update Goals and Recommendations

Based on a comprehensive analysis of the state's aviation system, the FASP 2035 Update offers policy and development recommendations for the continuing improvement of the state aviation system.

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.

Punta Gorda Airport

Key Industry Trends

Numerous global, national, and state-specific trends have the potential to significantly impact Florida's aviation industry over the 20-year horizon of the FASP 2035 Update. Some of these trends, such as new technologies and the business of aviation, will be felt at broad scales. Others, like shifting demographics and increased reliance on intermodal connectivity, will be realized differently throughout Florida.

Technological Innovation

New technologies are revolutionizing aircraft, airports, and the National Airspace System. Aircraft such as the Boeing 787 Dreamliner are becoming larger, lighter, and capable of flying longer distances with less fuel. The growing popularity of UAS is presenting new coordination challenges as the technology becomes more advanced and accessible to the public. Regulators and airports are continuously working to implement the most effective strategies to ensure UAS and manned aircraft can safely and efficiently operate together in the sky.

NextGen is a multi-pronged FAA initiative to make air travel safer and more efficient. NextGen requires aircraft operators and airports to comply with key federal mandates impacting equipment and operations as part of the implementation process. While NextGen is an FAA-driven initiative, it requires aircraft operators to equip aircraft and pursue NextGen practices. Most acutely, many aircraft operators currently face a January 1, 2020 mandate to equip their aircraft with Automatic Dependent Surveillance-Broadcast (ADS-B) equipment, a key underlying feature of the FAA's NextGen air traffic modernization program.

Demographics

According to the U.S. Census Bureau's latest estimates, Florida is the third-most populous state with over 20 million residents in 2016, and the in-migration rate is the highest in the country. Moreover, Florida currently has the highest percentage of residents over the age of 65 years in the nation, and older Americans will account for most of the state's future growth. On a national scale, the millennial generation (generally encompassing people born between 1980 and 2000) accounts for the largest share of the country's population. In Florida, the millennial generation accounts for approximately 26 percent of the total population (2016). These concurrent trends will place new demands on Florida's airports.

Regulatory Changes

Regulatory changes designed to make our skies safer, more secure, and better able to meet current demands are resulting in important changes affecting all facets of the aviation industry. Some, such as Open Skies agreements, are intended to reduce barriers to international air travel and commerce. Evolving customs and immigration rules are being designed to facilitate legitimate travel while maintaining the highest standards of security and border protection. In recent years, the air traffic control system has faced intense scrutiny, with some officials advocating for the privatization of the system. The aviation industry is broadly confronting an international pilot shortage with serious effects projected in the next two decades. As the top provider of flight instruction in the U.S., this latter trend may have a particularly acute impact on Florida.

Intermodal Connectivity

Airports provide access to the national air transportation system, but also require links to other modes of transportation to facilitate the movement of goods and people to and from the airport. The linkages between airports and highways, passenger rail, transit, rental cars, and other modes of travel are essential aspects of an airport system's accessibility. In Florida, the modal facilities deemed essential for statewide mobility are designated as Strategic Intermodal System (SIS) facilities. Twenty of Florida's 128 airports are SIS or Emerging SIS facilities, including 18 commercial service and two general aviation reliever airports.

Intermodal Services at Florida's 20 SIS Airports

System Goals and Performance

Pompano Beach Airpark

Lakeland Linder Regional Airport

St. Pete-Clearwater International Airport

Naples Municipal Airport

The seven goals established during previous FASP efforts and validated by the FASP 2035 Update are designed to ensure Florida's airports continue to meet the evolving needs of FDOT, stakeholders, and the aviation public. In conjunction with these goals, the FDOT developed a comprehensive set of FASP performance measures and performance indicators to assess progress on a series of 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.

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

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.

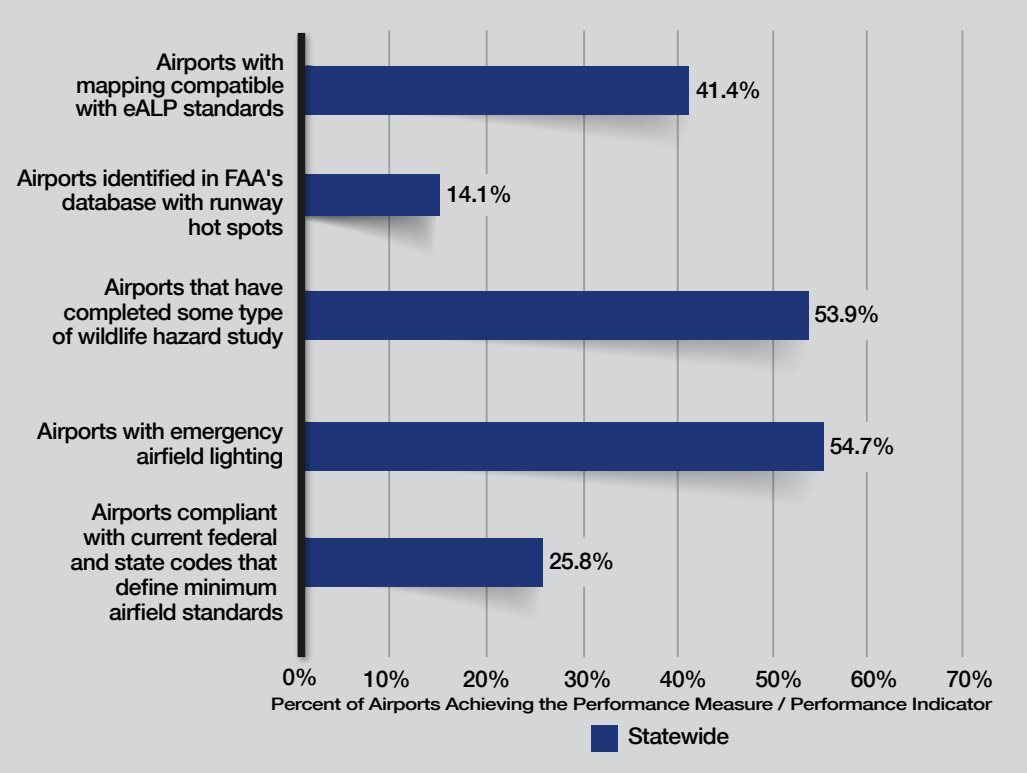
Emergency Airfield Lighting

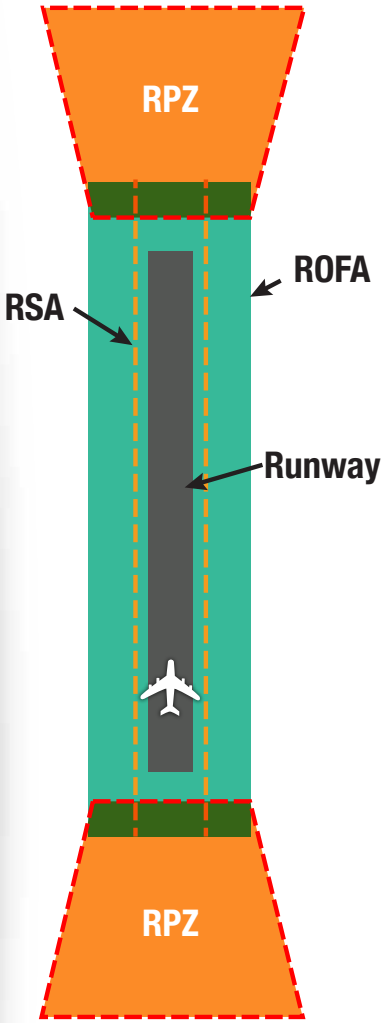
The ability for an airport to remain operational through natural and man-made disasters is critical for the movement of people, goods, and equipment to ensure that the needs of the affected communities are met. Emergency airfield lighting provides for continued operations during nighttime hours or low-visibility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

Measures / Indicators





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.*

Statewide Forecasts

Florida enjoys a strong aviation industry due to a number of structural conditions and market opportunities. The state offers multiple gateways between the U.S. and major international markets (primarily Latin American and the Caribbean, but also Asia, Europe, and Africa), a skilled labor pool and low labor costs, a robust intermodal network, and tax incentives and regulatory conditions designed to draw high-value jobs and industries into the state.

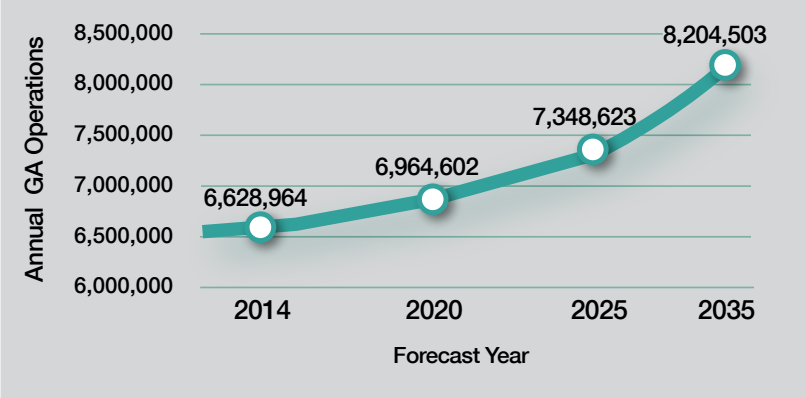
Each of these variables can be considered an aviation driver—an external condition that has influenced the development of the aviation industry in Florida.

Photo courtesy of the Florida Institute of Technology.

Aviation activity forecasts or projections for Florida's system of airports is a necessary step in assessing the need for and phasing of future airport development. Activity projections are used in part to determine the role of airports within the Florida system, evaluate the ability of the existing system to accommodate projected aviation demand, and plan future facilities for the system. 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 and statewide aviation drivers.[1]

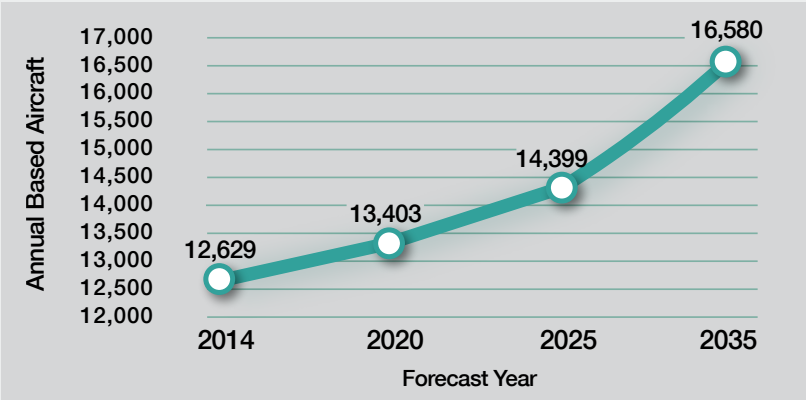
2014 - 2035 General Aviation (GA) Operations[2]

GA operations are anticipated to increase at an annual growth rate of 1.13 percent to reach 8,204,503 by 2035.



2014 - 2035 Based Aircraft[2]

The number of based aircraft in Florida is projected to increase at an annual growth rate of 1.49 percent to reach 16,580 by 2035.



[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.*

Regional Results

On a more micro-level, regional conditions shape the type and volume of aviation activity that occurs across Florida. As a result, specific markets and populations may become over- or under- served by particular types of airports in terms of facilities, service levels, and aviation activities. Local and regional economies can experience a wide range of impacts associated with air service.

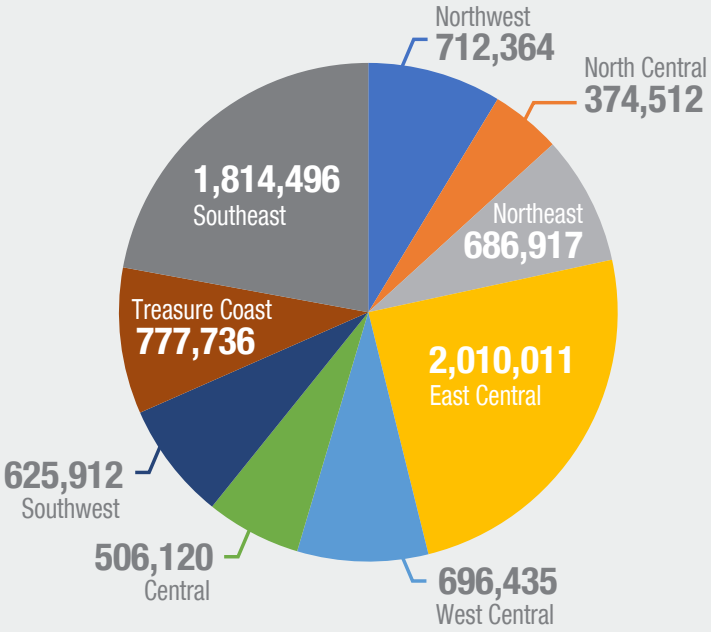
To understand these region-specific impacts, the FASP 2035 Update included aviation forecasts specific to each CFASPP region and MA. Understanding projected aviation activity on a more detailed level assists airports, FDOT Districts, CFASPP Regions, MAs, and the FDOT ASO identify potential opportunities for the development of facilities at local, regional, and statewide levels. These forecasts are not meant to take the place of individual airport forecasts developed during an airport's master planning process. Instead, these forecasts are used to supplement master plan forecasts and provide FDOT with high-level estimates of future demand.

The FlightSafety Academy was established at Vero Beach Regional Airport in 1966 to take advantage of the area's near-perfect flying weather. Located within Florida's Treasure Coast, Vero Beach Regional Airport has experienced significant growth in recent years, including the addition of commercial service to two domestic destinations in 2016.

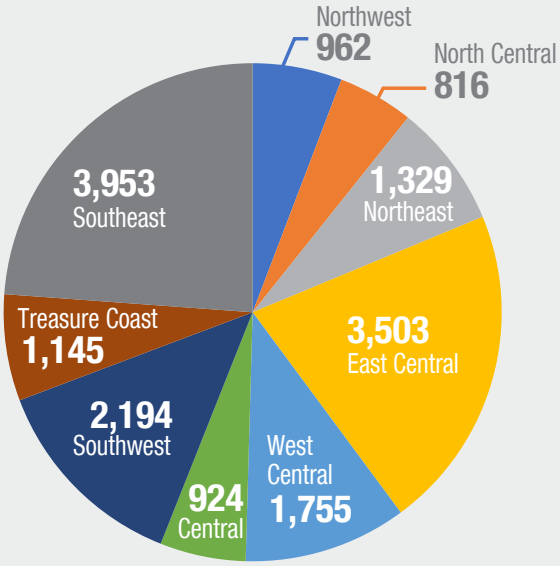
2035 GA Operations and Based Aircraft

Over the next 20 years, Florida's aviation industry will continue to grow in all areas of the state to significantly exceed national growth trends. Key factors influencing this growth include a rapidly growing population and flourishing flight instruction industry fueled by an international pilot shortage. From 2014 to 2035, it is anticipated that over 3,950 new based aircraft will be located at Florida's airports and an additional 1.6 million general annual aviation operations are forecast statewide.

2035 GA Operations by CFASPP Region/MA



2035 Based Aircraft by CFASPP Region/MA

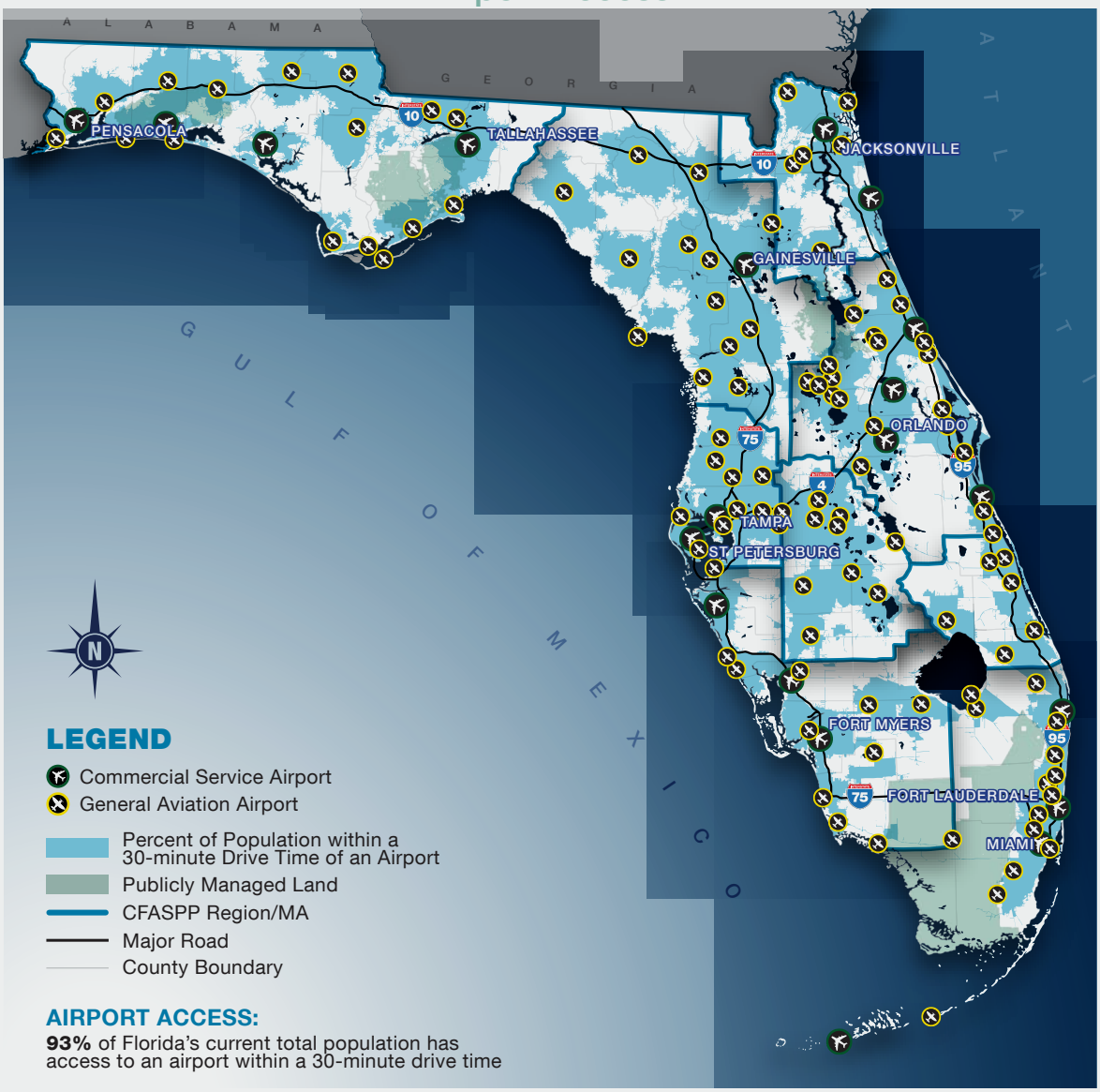


Accessibility Analysis

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. The results of this analysis demonstrate how well Florida's residents are served by the state aviation system and help pinpoint areas of potential service redundancy and opportunities for new facilities or services. The 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. 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.

Airport Access



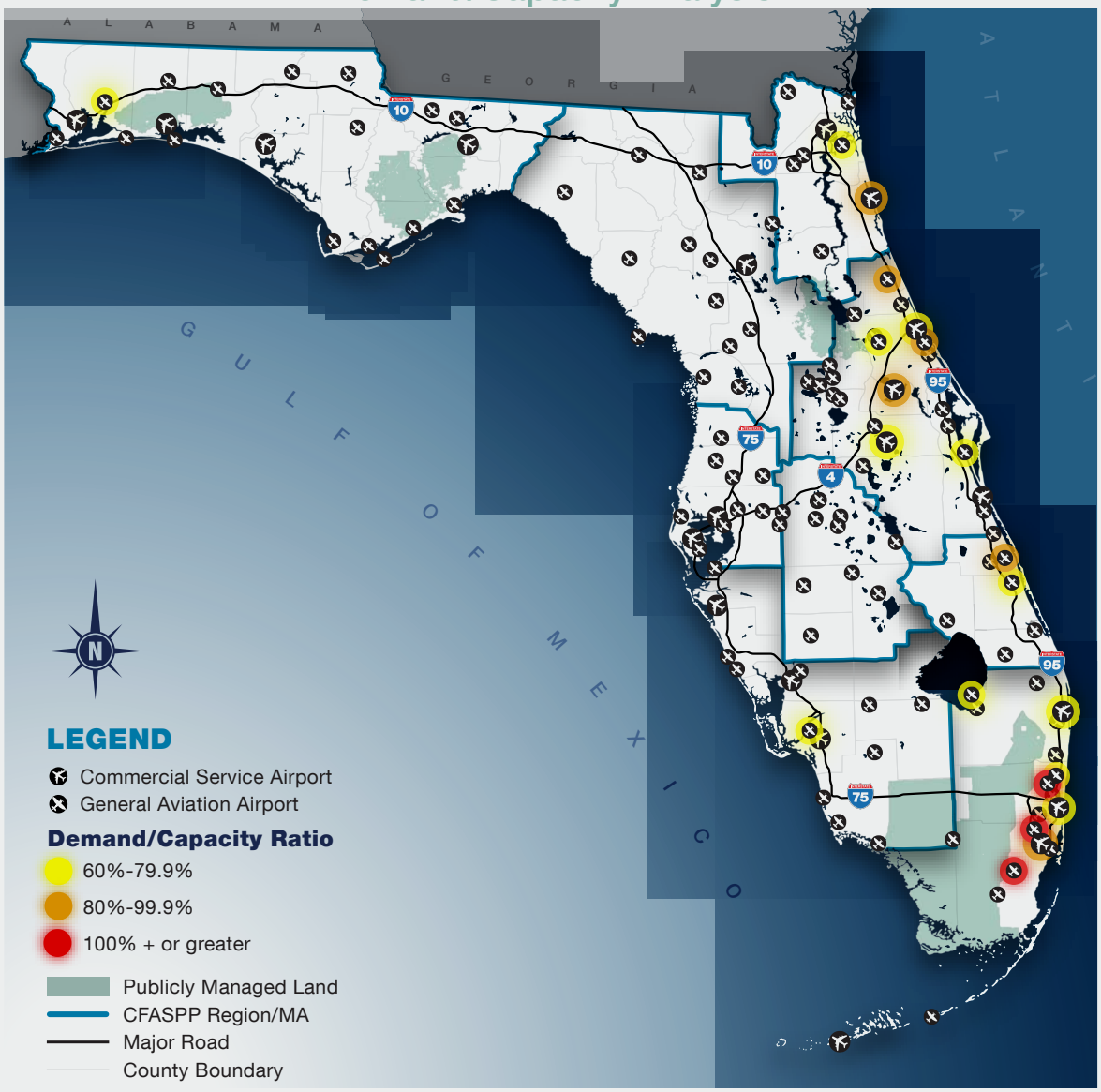
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, disaster response, and aerial firefighting services. Airport access is particularly important for rural areas without the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

Demand/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). 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.

Based on this analysis, 11 airports are anticipated to exceed the 60 percent threshold, six are anticipated to exceed the 80 percent threshold, and three are anticipated to reach the 100 percent threshold by 2035. Of these 20 airports, seven are designated as commercial service.

Demand/Capacity Analysis



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

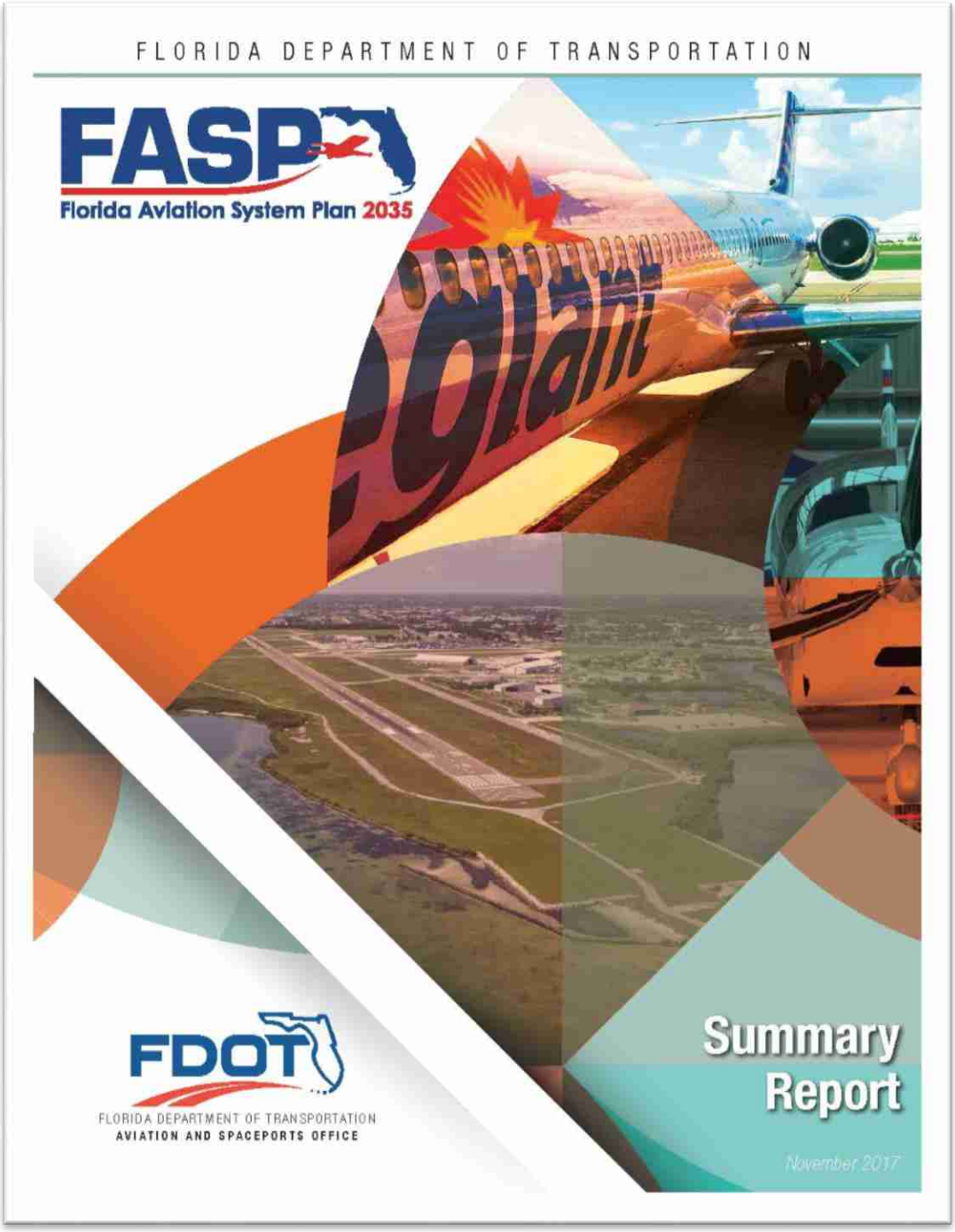
Goodyear Airship Base at the Pompano Beach Airpark

Gainesville Regional Airport

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

F.2 Summary Report

The Summary Report provides an abridged version of the Final Technical Report and includes information about the future of aviation in Florida at the statewide and FDOT District levels. This document is tailored to technical and non-technical audiences and provides more detail than the Executive Summary.



FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035

Summary Report

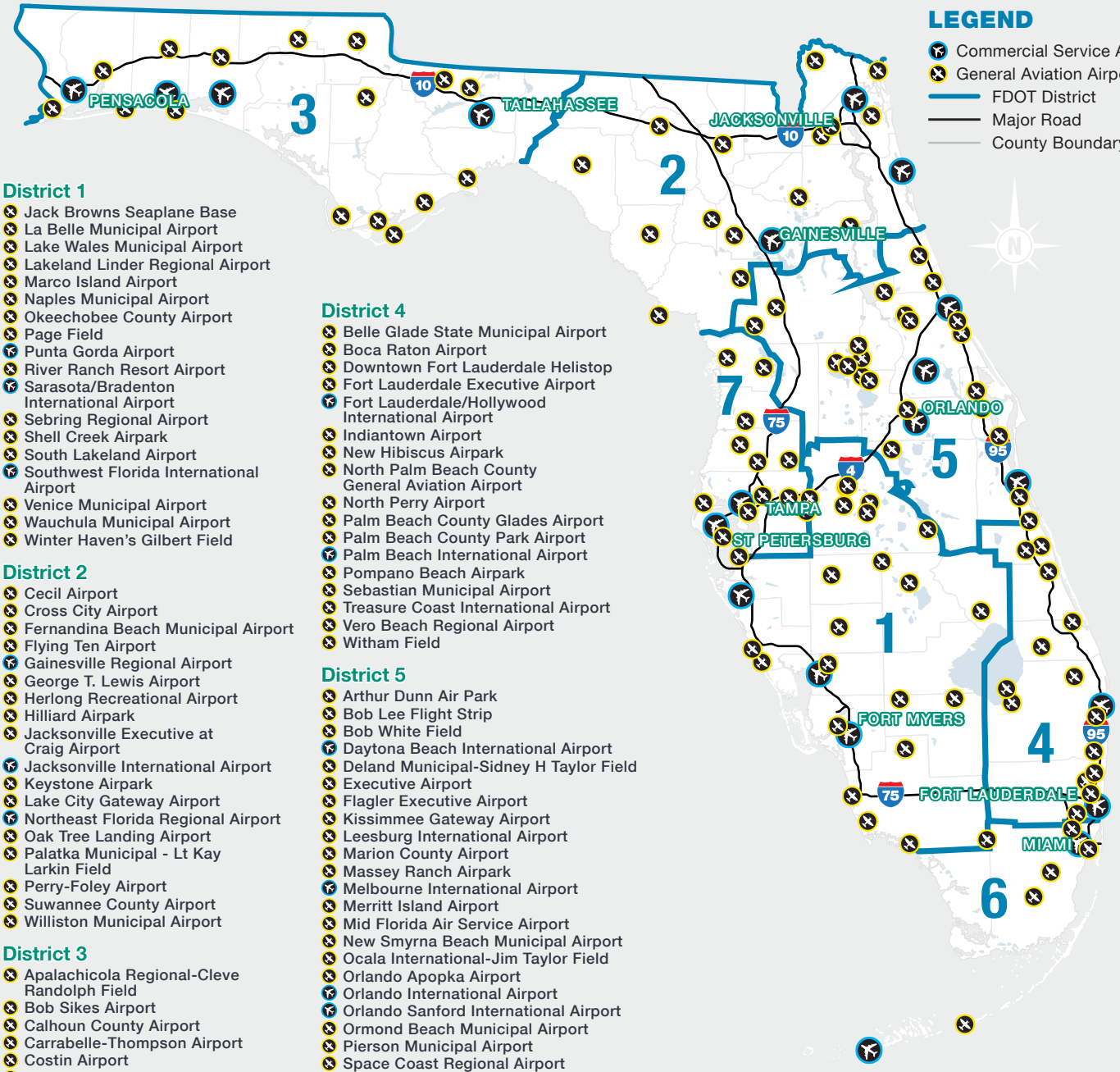
November 2017

FDOT

FLORIDA DEPARTMENT OF TRANSPORTATION

AVIATION AND SPACEPORTS OFFICE

Florida's Public-use Airports



District 1

- Jack Browns Seaplane Base
- La Belle Municipal Airport
- Lake Wales Municipal Airport
- Lakeland Linder Regional Airport
- Marco Island Airport
- Naples Municipal Airport
- Okeechobee County Airport
- Page Field
- Punta Gorda Airport
- River Ranch Resort Airport
- Sarasota/Bradenton International Airport
- Sebring Regional Airport
- Shell Creek Airpark
- South Lakeland Airport
- Southwest Florida International Airport
- Venice Municipal Airport
- Wauchula Municipal Airport
- Winter Haven's Gilbert Field

District 2

- Cecil Airport
- Cross City Airport
- Fernandina Beach Municipal Airport
- Flying Ten Airport
- Gainesville Regional Airport
- George T. Lewis Airport
- Herlong Recreational Airport
- Hilliard Airpark
- Jacksonville Executive at Craig Airport
- Jacksonville International Airport
- Keystone Airpark
- Lake City Gateway Airport
- Northeast Florida Regional Airport
- Oak Tree Landing Airport
- Palatka Municipal - Lt Kay Larkin Field
- Perry-Foley Airport
- Suwannee County Airport
- Williston Municipal Airport

District 3

- Apalachicola Regional-Cleve Randolph Field
- Bob Sikes Airport
- Calhoun County Airport
- Carrabelle-Thompson Airport
- Costin Airport
- Defuniak Springs Airport
- Destin Executive Airport
- Destin-Ft Walton Beach Airport
- Ferguson Airport
- Fort Walton Beach Airport
- Marianna Municipal Airport
- Northwest Florida Beaches International Airport
- Pensacola International Airport
- Peter Prince Field
- Quincy Municipal Airport
- St. George Island Airport
- Tallahassee Commercial Airport
- Tallahassee International Airport
- Tri-County Airport
- Wakulla County Airport

District 4

- Belle Glade State Municipal Airport
- Boca Raton Airport
- Downtown Fort Lauderdale Helistop
- Fort Lauderdale Executive Airport
- Fort Lauderdale/Hollywood International Airport
- Indiantown Airport
- New Hibiscus Airpark
- North Palm Beach County General Aviation Airport
- North Perry Airport
- Palm Beach County Glades Airport
- Palm Beach County Park Airport
- Palm Beach International Airport
- Pompano Beach Airpark
- Sebastian Municipal Airport
- Treasure Coast International Airport
- Vero Beach Regional Airport
- Witham Field

District 5

- Arthur Dunn Air Park
- Bob Lee Flight Strip
- Bob White Field
- Daytona Beach International Airport
- Deland Municipal-Sidney H Taylor Field
- Executive Airport
- Flagler Executive Airport
- Kissimmee Gateway Airport
- Leesburg International Airport
- Marion County Airport
- Massey Ranch Airpark
- Melbourne International Airport
- Merritt Island Airport
- Mid Florida Air Service Airport
- New Smyrna Beach Municipal Airport
- Ocala International-Jim Taylor Field
- Orlando Apopka Airport
- Orlando International Airport
- Orlando Sanford International Airport
- Ormond Beach Municipal Airport
- Pierson Municipal Airport
- Space Coast Regional Airport
- Tavares Seaplane Base
- Umatilla Municipal Airport
- Valkaria Airport

District 6

- Dade-Collier Training and Transition Airport
- Key West International Airport
- Miami Executive Airport
- Miami Homestead General Aviation Airport
- Miami International Airport
- Miami Seaplane Base
- Miami-Opa Locka Executive Airport
- The Florida Keys Marathon International Airport

District 7

- Albert Whitted Airport
- Brooksville-Tampa Bay Regional Airport
- Clearwater Air Park
- Crystal River-Captain Tom Davis Field
- Inverness Airport
- Peter O. Knight Airport
- Pilot Country Airport
- Plant City Airport
- St Pete-Clearwater International Airport
- Tampa Executive Airport
- Tampa International Airport
- Tampa North Aero Park
- Zephyrhills Municipal Airport

Table of Contents

1. Study Introduction 2

Role of the Continuing Florida Aviation System Planning Process 3

Study Process and Stakeholder Involvement 4

2. Florida's Aviation History and Current Trends and Issues 6

Aviation History 6

Global and National Trends 8

Florida Trends 10

3. Airport System and Classifications 14

Planning and Development Areas 15

The Florida Airport System 15

Strategic Intermodal System (SIS) 19

4. System Goals 22

Comparison of FASP Goals to FTP Goals 23

5. Data Collection and Inventory 26

6. Aviation Activity Forecasts 28

Demand/Capacity Analysis 32

Air Service and Air Cargo Studies 34

7. Analysis 40

System Performance 40

Multimodal Performance 47

Existing and Future Mapping Analysis 47

Intermodal Requirements and Connectivity 53

8. Alternative Scenarios 56

Stability of Oil Prices 56

Resiliency 57

Reliance on Tourism 58

9. Funding 60

Financial Comparison of Federal Needs and State Programming 60

Application of State Strategic Goal Assessment Tool 64

SIS-Funded Projects Analysis 65

10. Recommendations 70

Florida Airport System and FASP Inclusion Criteria 70

FASP Recommendations 72

Gaps and Deficiencies 75

Infrastructure Assessment Tool and State Strategic Goal Analysis Tool 77

CFASPP Recommendations and Enhancements 77

Follow-on Study Needs 78

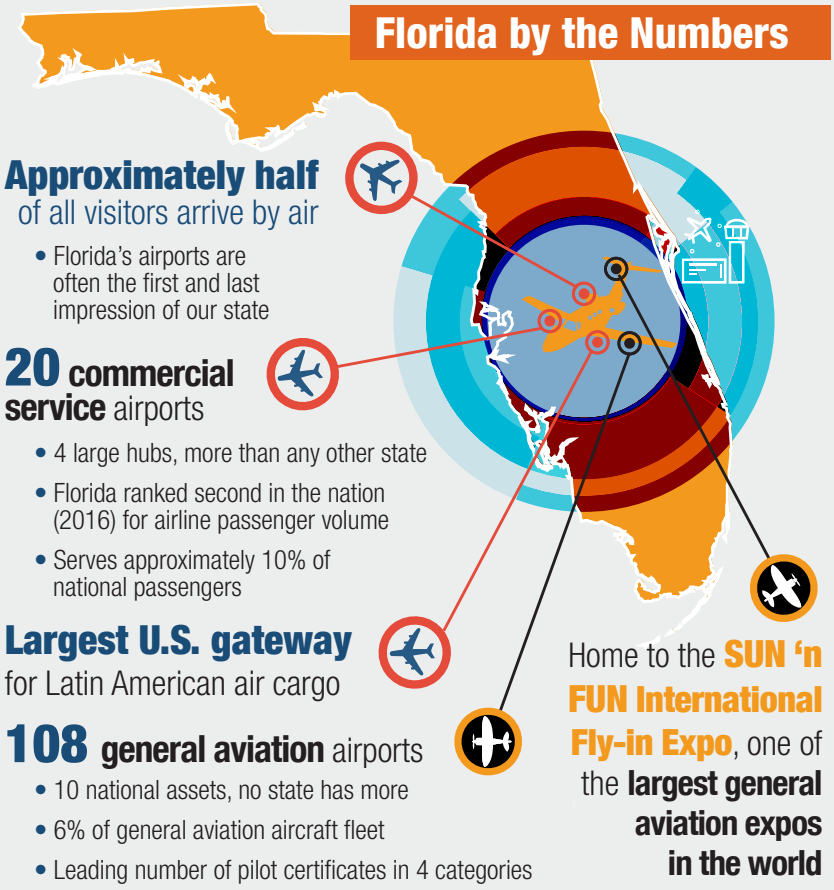
ATP JET CEN
2 16-34

1. Study Introduction

Florida's 128 public-use commercial service and general aviation airports are a cornerstone of the state's global economy and essential to the safety, resiliency, mobility, and security of residents, visitors, businesses, and the products that fly to, from, and through our state. To ensure Florida's airports continue to provide a high level of service to all users, 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). The development of the FASP is grounded on the framework of the Florida Transportation Plan (FTP), the statewide plan guiding Florida's transportation future.[1]

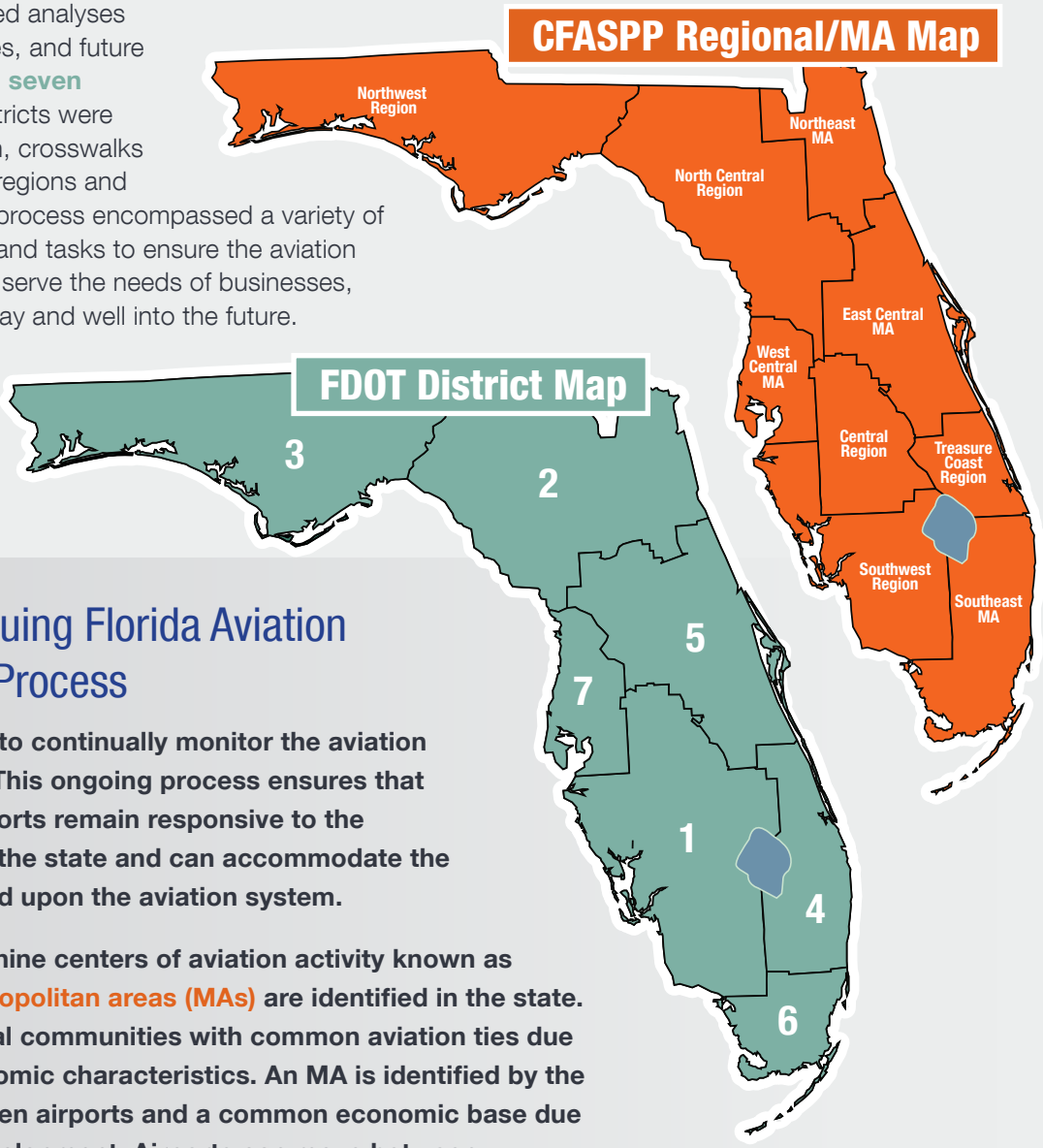
The FASP 2035 Update is a long-term strategic planning process designed to comprehensively assess all public-use airports in Florida to understand the relationships between these facilities and their unique users. This integrated study is designed to assess the ability of the existing system to achieve current and anticipated future demands. The FASP 2035 Update is a tool to help FDOT maintain a safe, efficient, and reliable system; identify capacity constraints that are impacting the system's ability to effectively serve demand; and evaluate future funding decisions by determining the facilities and services that are needed to meet future demand. The FASP 2035 Update offers policy and development recommendations for the continuing improvement of the state aviation system.

The FASP 2035 Update is a long-term strategic plan to comprehensively assess all public-use airports in Florida and evaluate the existing system's ability to accommodate current and anticipated future demands and other critical goals of the FDOT ASO.



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

The FASP 2035 Update included analyses of the facilities, aviation activities, and future demands specific to the state's **seven FDOT Districts**. While the Districts were the focal point of the evaluation, crosswalks were provided to the 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.



Role of the Continuing Florida Aviation System Planning Process

FDOT uses the CFASPP to continually monitor the aviation environment in Florida. This ongoing process ensures that Florida's public-use airports remain responsive to the transportation needs of the state and can accommodate the evolving demands placed upon the aviation system.

As part of this process, nine centers of aviation activity known as CFASPP regions or metropolitan areas (MAs) are identified in the state. A region contains several communities with common aviation ties due to geographic and economic characteristics. An MA is identified by the interrelationships between airports and a common economic base due to contiguous urban development. Airports can move between CFASPP regions or MAs as conditions change and activities become better aligned with an adjoining CFASPP region or MA. Each of these 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. The website also provides a set of nine brochures that highlights the aviation activity in each region or MA developed as part of the FASP 2035 Update.

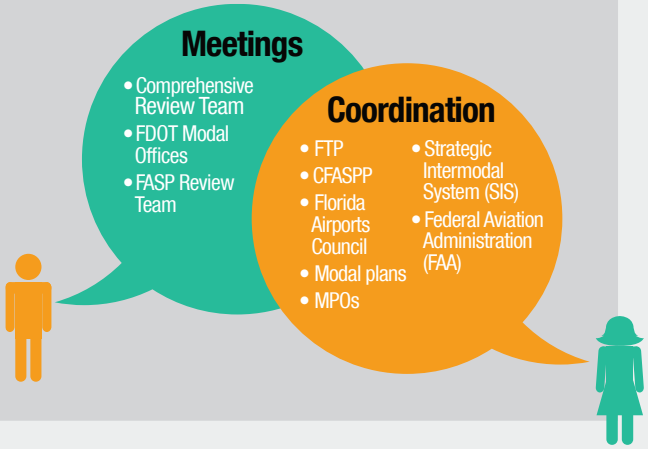
Study Process and Stakeholder Involvement

The FASP was initiated in 2005 and an interim update was completed in 2012. Designed in accordance with FAA Advisory Circular (AC) 150/5070-7, *The Airport System Planning Process*, the FASP 2035 Update reflects the processes, methodologies, and analyses required to produce an aviation system plan that can effectively inform the FDOT ASO's decision-making and funding allocations through the 20-year planning horizon.

The FASP 2035 Update included a comprehensive stakeholder engagement process to ensure the final products reflect the needs of commercial service and general aviation users throughout Florida. Furthermore, coordination with other transportation planning efforts helped FDOT analyze aviation as one component of the state's multimodal system. This multilayered coordination process aligned the FASP with FDOT's broader transportation goals and ensured consistency in funding, policy, and other decisions while addressing the specific needs of the aviation system.

Stakeholders included representatives of airports throughout the state, metropolitan planning organizations (MPOs), other FDOT modal offices, the FAA, and participants in the CFASPP process. These stakeholders worked with FDOT to:

- Identify current and potential issues facing the aviation system
- Establish FASP goals, objectives, performance measures, and performance indicators
- Refine the recommendations developed as the final outcome of the study
- Provide input and review completed tasks throughout the study process



From the FTP to the Strategic Intermodal System (SIS) and other modal plans, relationships between the FASP and FAA regulation and guidance, and the CFASPP, FDOT utilized a comprehensive process to obtain input and feedback on the FASP 2035 Update and to coordinate the FASP with numerous local, state, and federal planning efforts.

N2686C

2. Florida's Aviation History and Current Trends and Issues

Florida offers the most dynamic and progressive aviation system in the world. 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. In total, 2.7 million tons of domestic and international air cargo passed through Florida's airports that same year. Air transportation serves as a backbone of the state's tourism economy and links rural communities to lifesaving amenities such as disaster response, emergency medical care, and firefighting services. Florida is also the leading provider of flight instruction in the United States (U.S.), with training offered at over 80 airports.

Over the past several years, a number of major shifts have impacted the aviation industry in Florida and throughout the U.S. Against a background of rapidly evolving industry trends, the FDOT ASO, with the assistance of the CFASPP, updated the 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 FTP, Florida's overarching transportation planning document.

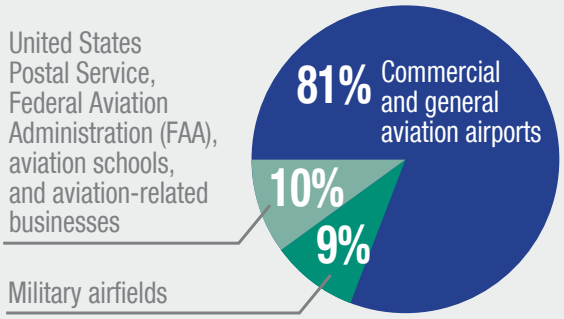
Total Economic Impact

1.3 million Jobs Supported

$44.5 billion Payroll Supported

$144.0 billion Total Output

Economic Impact by Activity



Source:
FDOT Statewide Aviation Economic Impact Study (2014)

Aviation History

Florida's prominence as a global aviation leader is a natural outgrowth of the industry's long history in the state. In 1914, former St. Petersburg Mayor A.C. Pheil boarded Thomas Benoist's bi-wing seaplane for a 23-minute, 21-mile flight across Tampa Bay. Piloted by renowned aviator Tony Jannus, this short trip is now recognized as the first commercial flight in world history. After this inaugural trip, Benoist's "St. Petersburg-Tampa Airboat Line" began operating two flights a day at a fee of $5.00 per one-way ticket, and the commercial aviation industry was born.

Since those early days of flight, the aviation industry in Florida has evolved in response to new technologies and changing demands, and the public-use airport system now encompasses 20 commercial service and 108 general aviation airports. Florida has become the hub of air transport in the Americas for both people and cargo; the nation's premier provider of flight instruction; and a major center for maintenance, repair, and overhaul services. More than 470 aviation and aerospace companies are located in Florida, with some of the largest names in the industry such as Boeing, Embraer, FlightSafety, General Dynamics, Lockheed Martin, Northrop Grumman, Piper, Pratt and Whitney, and Sikorsky conducting major operations.

Looking ahead, the future of aviation in Florida is bright. Yet to maintain this position of leadership, the airport system must continue to meet the ever-changing demands and trends affecting the industry. FDOT, the FAA, airport sponsors, and the many communities our airports serve are jointly tasked with ensuring Florida's infrastructure and services continue to safely, efficiently, securely, and conveniently meet the needs of all users. The coming years and decades promise changes that will affect how, when, and where we fly. Working together with focused attention on the needs of today and demands of the future, we can all ensure Florida's aviation industry continues to soar.

Florida Transportation Planning Timeline

The FDOT ASO, CFASPP steering committees, and other planning partners have continuously updated the state's long-term and aviation-specific planning and guidance documents to keep pace with new developments facing the industry and within the state.

2012

- FASP 2025
- FAA's NextGen Metroplex initiative launched

- Florida accommodated 143.5 million commercial airline passengers

2013

- Freight Mobility and Trade Plan Policy Element
- Spaceport System Plan

- 145.0 million commercial airline passengers used Florida's airports

2014

- Statewide Aviation Economic Impact Study
- Air Service Study Update

- Florida recorded 149.3 million commercial airline passengers
- Port Miami Tunnel opened to provide access to the seaport
- SunRail opened

2015

- Florida Transportation Plan (FTP) Vision Element
- FTP Policy Element

- Florida topped New York to become third-most populous state
- Florida hosted more than 100 million out-of-state visitors in a single year

2016

- SIS Policy Plan
- Guidebook for Airport Master Planning

- Florida surpassed Texas to become second nationally in the number of annual commercial airline passengers with over 168.7 million
- Panama Canal expansion project completed, allowing the expansion of Florida's cruise ship traffic

2017/2018

- Airport Land Use Guidebook Update
- Airport Sustainability Guidebook
- Air Cargo Study Update
- Air Service Study Update
- Statewide Aviation Economic Impact Study Update
- FASP 2035 Update

Future Trends and Issues

- Growth of unmanned aerial systems (UAS)
- Airline pilot shortage
- Demographic shifts in Florida
- State and federal policy changes, including Open Skies agreements, customs and immigration, safety and security, and international relations
- Lighter, more fuel-efficient aircraft
- NextGen implementation
- Continued growth in low-cost and ultra low-cost carriers

Global and National Trends

The commercial service and general aviation industries are broadly affected by technological, regulatory, and market trends that impact how pilots, passengers, and cargo fly through Florida's skies. A few of these are discussed below.

Technological Innovation

New technologies are revolutionizing aircraft, airports, and the National Airspace System (NAS). Newer larger, lighter, more fuel efficient, and faster aircraft may drive new routes for carriers and increase in passenger demand, while lowering noise levels in communities surrounding airports. At the same time, new demands will be placed on airports to accommodate these larger aircraft and the passengers they carry. The growing popularity of UAS is presenting new coordination challenges as technology becomes more advanced and accessible to the public, and its uses are expanding. From small recreational vehicles to large systems operated by the U.S. military, UAS activity at or near airports requires ongoing monitoring and evaluation. Regulators and airports are continuously working to implement the most effective strategies to ensure UAS and manned aircraft can safely and efficiently operate together in the sky.

NextGen is a multi-pronged FAA initiative to make air travel safer and more efficient. NextGen requires aircraft operators and airports to comply with key federal mandates impacting equipment and operations as part of the implementation process. While NextGen is an FAA-driven initiative, it requires aircraft operators to equip aircraft and pursue NextGen practices. Most acutely, many aircraft operators currently face a January 1, 2020 mandate to equip aircraft with Automatic Dependent Surveillance-Broadcast (ADS-B) equipment, a key underlying feature of the FAA's NextGen air traffic modernization program. ADS-B allows aircraft to communicate their positions using satellite-based technology instead of the existing radar-based system. While ADS-B offers numerous benefits to pilots, including greater situational awareness, traffic information, and free in-cockpit weather within the U.S., many general aviation aircraft may not meet the impending FAA deadline.

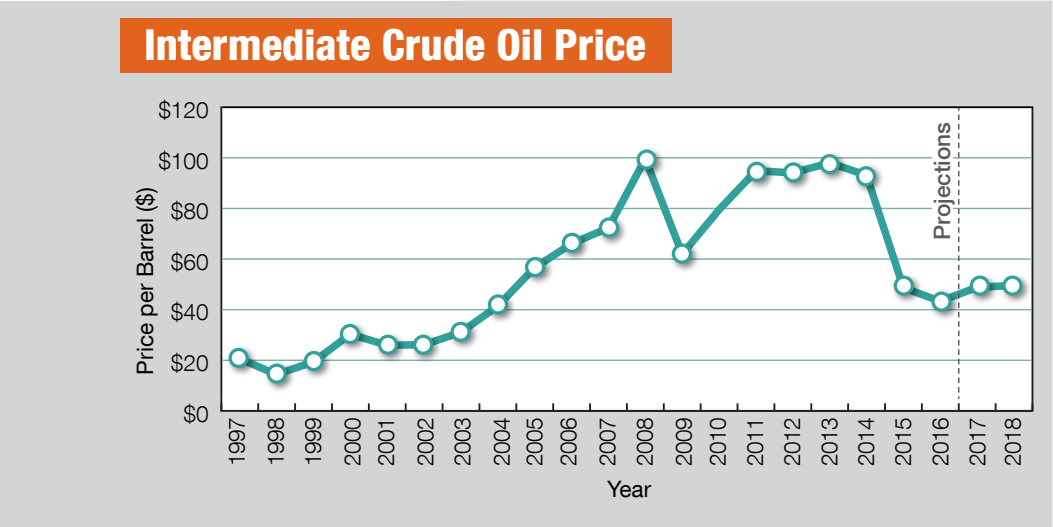
Regulatory Changes

Regulatory changes designed to make the country's skies safer, more secure, and better able to meet current demands are resulting in important changes affecting all facets of the aviation industry. Some, such as Open Skies agreements, are intended to reduce barriers to international air travel and commerce. Evolving customs and immigration rules are being designed to facilitate legitimate travel while maintaining the highest standards of security and border protection. In recent years, the air traffic control system has faced intense scrutiny, with some officials advocating for the privatization of the system. Whether privatized or remaining part of the FAA, air traffic control is also changing with NextGen implementation and the potential integration of remote or virtual towers (RVT). RVT will require additional regulatory changes and impact airport development needs.

Oil Prices

Oil is the largest operating expense for aircraft operators, and fluctuations in the oil and gas industry impact commercial service, cargo, and general aviation operations. Jet fuel prices comprise nearly three-quarters of airline expenses. The cost of AvGas, used by the internal-combustion engines of piston-powered aircraft, is a major driver of general aviation activity.

Over the past 20 years, the price of oil has swung significantly from a low of $20.59/barrel in 1997 to a high of $99.67/barrel in 2008. Since 2008, oil prices have fluctuated but remained high until 2014 when prices dropped below $50/barrel. The FAA *Aerospace Forecast 2017-2037* reports that the price of oil is anticipated to rise from around $39/barrel in 2016 to $47 in 2017. Prices are then anticipated to continuously rise to exceed $100 by 2026 and approach $132 by the end of the 20-year forecast period. However, it also must be noted that considerable uncertainty exists in the future of fuel costs given the worldwide geopolitical forces that impact its cost.

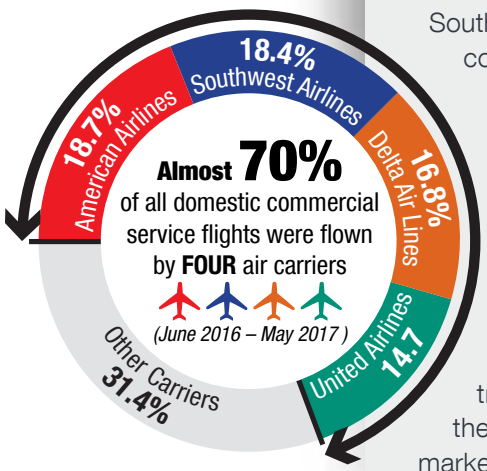


Source: West Texas Intermediate Crude Oil Price. Short-Term Energy Outlook – U.S. Energy Information Administration (2017)

Air Carrier Consolidations and New Market Players

Over the past decade, the consolidation of large air carriers in the U.S. has been actively taking place. The U.S. Bureau of Transportation Statistics (BTS) reports that four carriers were responsible for nearly 70 percent of all domestic commercial service between June 2016 and May 2017: American (18.7 percent), Southwest (18.4 percent), Delta (16.8 percent), and United (14.7 percent).[2] Airline consolidations decrease competition, which can lead to higher passenger fares and service reductions as airlines eliminate less-profitable routes. However, consolidations among smaller regional carriers can lead to lower fares as these airlines strive to compete with nationwide market players.

Some airlines are also facing challenges brought by low-cost and ultra-low-cost carriers (LCCs/ULLCs) such as Southwest, JetBlue, Spirit, Frontier, and Allegiant airlines, and the many new international carriers that are impacting global demand. These providers promise low base fares, but typically charge high fees for amenities such as baggage and food—a trend now emulated by many of the legacy carriers. LCCs/ULLCs focus their business models on targeting specific routes underserved by the existing marketplace, reducing costs per available seat mile, and maintaining extremely high levels of aircraft utilization. LCCs/ULLCs will continue to push legacy carriers to reduce flight costs and implement improvements to increase their competitive positions. As a result, demand for commercial service is anticipated to rise, which will force airports to find new ways to increase passenger throughput.



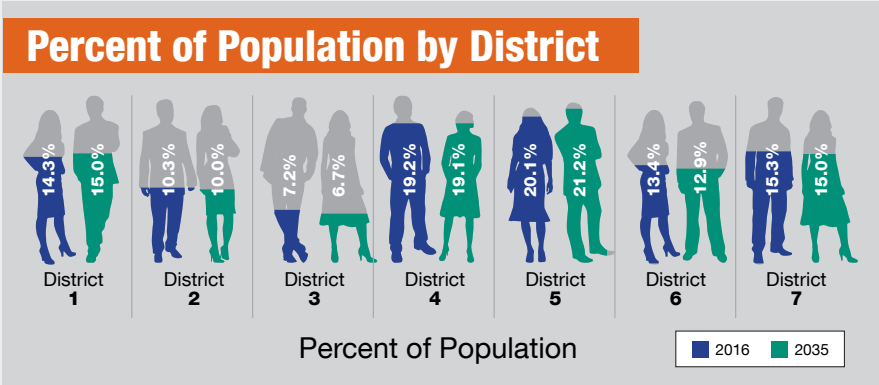
Source: U.S. Bureau of Transportation Statistics (2017)

[2] *Data extracted September 2017*

Florida Trends

In addition to these national and global trends, some issues will impact Florida more acutely than other areas in the country.

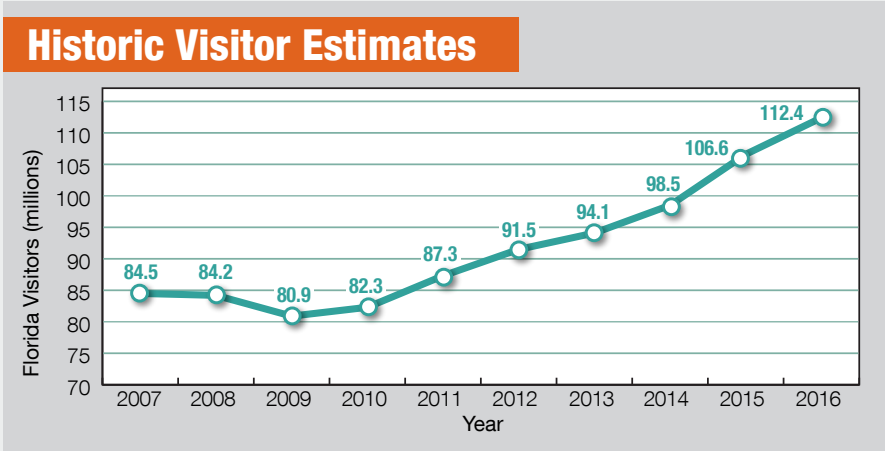
Demographics



Source: FASP 2035 Update

According to the U.S. Census Bureau's latest estimates, Florida is the third-most populous state with over 20 million residents in 2016. In 2015, the state's in-migration rate was the highest in the country, and the population is predicted to rapidly grow over the next decade. In fact, Florida's population growth will be driven primary by in-migration instead of births. Moreover, Florida currently has the highest percentage of residents over the age of 65 years in the nation, and these older Americans will account for most of the state's future growth. On a national scale, the millennial generation (generally encompassing people born between 1980 and 2000) accounts for the largest share of the country's total population. In Florida, the millennial generation accounts for approximately 26 percent of the total population (2016).

While the state's overall population is rising, this increase will not be equally distributed across all FDOT Districts. Projections show that population growth will be concentrated in Districts 1 and 5 in the southwest and east central areas of the state. Concurrently, Districts 2, 3, 4, 6, and 7 will host a smaller percentage of the state's total population than existing levels, although the total population will still grow over the forecast horizon. This shift may pose service concerns and require existing airports to work together to balance capacity with demand at local and/or regional levels.



Note: VISIT FLORIDA changed its visitor estimation methodology in 2009; therefore, estimates for 2007 - 2009 are not directly comparable to 2010 - 2016.

Sources: TNS TravelsAmerica; D.K. Shifflet & Associates, Inc; Individual Florida Airports; Statistics Canada; U.S. Department of Commerce, ITA, Tourism Industries; Visa Vue Travel; Diio, LLC aviation data

Tourism

In 2016, a record-setting 112.4 million visitors traveled to Florida from 189 countries across the globe. Since 2009, the state has experienced year-over-year growth in tourism spending to reach a record-setting $108.8 billion in 2015.[3] That same year, tourism supported 1.4 million jobs, generated $50.7 billion in income, and provided $11.3 billion in state and local and $13.0 billion in federal taxes.[4]

Because nearly half of all Florida visitors arrive by air, any reductions in visitor levels will likely have a significant impact on the state's commercial service and general aviation airports, particularly those which cater specifically to tourists.

[3] *2016 data is not yet available*

[4] *Tourism Economics (December 2016). The Economic Impact of Out-of-State Visitor Spending in Florida. Developed for VISIT FLORIDA.*

Aviation Workforce Shortages

The aviation industry has a growing demand for specialized aviation professionals including pilots, mechanics, air traffic controllers, and others. However, a number of economic and regulatory barriers have emerged that often deter or prevent potential students from pursuing a career in aviation. More broadly, the overall labor force has been on the decline for the past 60 years since the baby boom ended. This issue is particularly acute in Florida as the population ages and fewer experienced professionals are available to replace retiring workers.

As a top provider of aviation education in the U.S.—with specialized programs offered at over 80 airports across the state and numerous four-year institutions—Florida has the opportunity to play a major role in filling the gap that has arisen for skilled aviation professionals.

Florida is the top provider of flight instruction in the U.S. and leads the nation in four categories of pilot certificates: student, sport, ATP, and flight instructor.

U.S. Pilot Shortages

For years, analysts have anticipated an airline pilot shortage based on changing federal requirements and fewer trained pilots coming out of the military. The shortage in experienced pilots can be partly credited to the recent increase in FAA pilot qualification requirements.[5] In 2013, the FAA published a rule requiring first officers – also known as co-pilots – to hold an Airline Transport Pilot (ATP) certificate, requiring 1,500 hours of total time as a pilot. Previously, first officers were required to have only a commercial pilot certificate, which requires 250 hours of flight time. Furthermore, the pilot population is also still responding to a 2010 FAA regulatory change that increased the duration of validity of student pilot certificates issued to those students under the age of 40 from 36 months to 60 months, nearly doubling the time and associated cost of obtaining a pilot's license.

These new changes come at a high cost for potential new pilots—both in terms of time and cost associated with obtaining a pilot's license. Collegiate aviation programs can cost $150,000 to $200,000 and require four to five years to complete. Entry-level pilots can expect a relatively low average salary of $29,000 to $38,000 per year, which makes student loan repayment difficult for new graduates.

These issues are compounded by the declining availability of military-trained pilots to meet the aviation industry's growing needs. A 2014 Government Accountability Office (GAO) Report notes that 70 percent of airline pilots hired prior to 2001 had come from the military; fewer than 30 percent are hired from the military today. The pilot shortage is further exacerbated by the mandatory retirement of commercial pilots at age 65 (recently increased from 60).

These changes have led to an inverse relationship between student and active pilots. The FAA Aerospace Forecast 2017-2037 reports that the number of student pilots in the U.S. is projected to grow from 44,162 in 2016 to 141,200 in 2037. During that same period, commercial licenses are projected to decline from 96,081 to 83,300, and private licenses are projected to decline from 162,313 to 139,000. This indicates that new aviators are not matriculating as fully licensed pilots at a sufficient rate to maintain the existing pilot population in the U.S. Regional airlines are taking the brunt of the pilot shortage as their experienced pilots transition to mainliners to replace retiring pilots.

Maintenance Technicians

Like pilots, aircraft maintenance technicians face stringent educational requirements that may deter potential students from entering the field. While the required education can be obtained from various technical schools offering the two-year program, the aviation industry must compete with other industries (such as automobiles) for a limited technician workforce.

Air Traffic Controllers

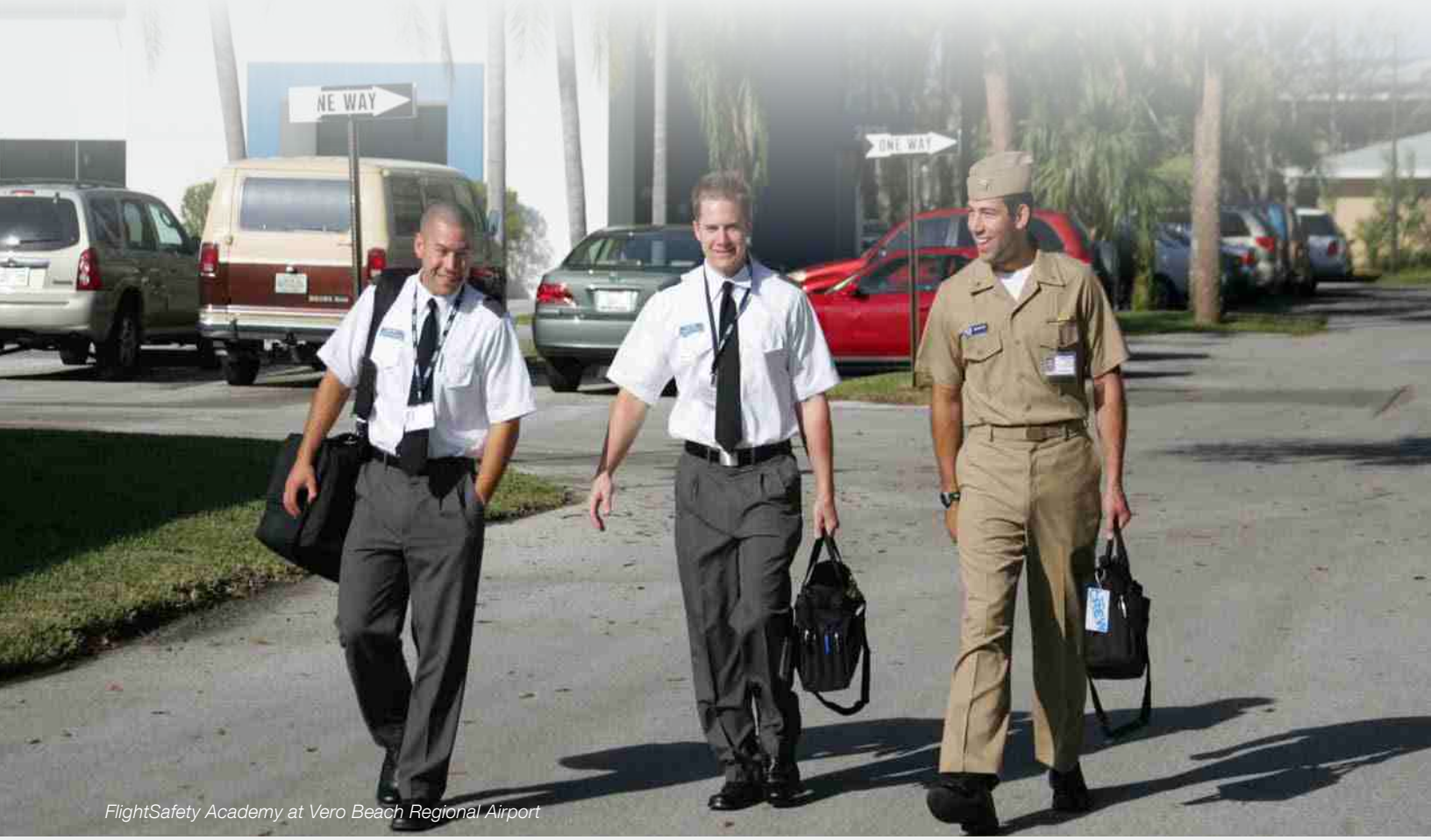
Potential air traffic controllers face strict medical and psychological screening and age, educational, and work-experience requirements. Controllers are also required to retire by age 56. As a result, a severe shortage is expected within the next 10 years as 12,000 to 14,000 existing professionals exit the profession.

[5] *Pilot Certification and Qualification Requirements for Air Carrier Operations, 78 F.R § 42323 (2013).*

Active FAA Certified Pilots and Flight Instructors in Florida and U.S.

Year		2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Difference (2007-2016)
Total Pilots	FL	48,244	49,991	48,163	51,671	52,037	52,566	52,437	52,967	54,254	55,692	7,448
	U.S.	590,349	613,746	594,285	627,588	617,128	610,576	599,086	593,499	590,038	584,362	-5,987
Students	FL	7,510	7,467	6,543	10,917	11,572	11,946	12,185	12,501	13,177	13,844	6,334
	U.S.	84,339	80,989	72,280	119,119	118,657	119,946	120,285	120,546	122,729	128,501	44,162
Recreational	FL	13	13	12	13	11	8	6	7	7	6	-7
	U.S.	239	252	234	212	227	218	238	220	190	175	-64
Sport	FL	137	198	262	316	357	397	434	466	499	544	407
	U.S.	2,031	2,623	3,248	3,682	4,066	4,493	4,824	5,517	5,482	5,889	3,858
Private	FL	15,614	16,307	15,462	14,857	14,490	14,302	13,694	13,437	13,552	13,090	-2,524
	U.S.	211,096	222,596	211,619	202,020	194,441	188,001	180,214	174,883	170,718	162,313	-48,783
Commercial	FL	10,331	11,102	11,000	10,727	10,515	10,336	9,953	9,786	9,797	9,959	-372
	U.S.	115,127	124,746	125,738	123,705	120,865	116,400	108,206	104,322	101,164	96,081	-19,046
Airline Transport	FL	14,639	14,904	14,884	14,841	15,092	15,577	16,165	16,770	17,222	18,249	3,610
	U.S.	143,953	146,838	144,600	142,198	142,511	145,590	149,824	152,933	154,730	157,894	13,941
Flight Instructor	FL	8,147	8,359	8,638	8,805	8,965	9,138	9,283	9,592	9,904	10,183	2,036
	U.S.	92,175	93,202	94,863	96,473	97,409	98,328	98,842	100,993	102,628	104,224	12,049

Source: GAMA General Aviation Statistical Databook & Industry Outlook (2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016)



FlightSafety Academy at Vero Beach Regional Airport

DELTA
77

3. Airport System and Classifications

According to the FAA's aviation facilities database, there are approximately 768 aviation sites in Florida encompassing commercial service and general aviation airports, seaports, gliderports, helipads, and other infrastructure capable of supporting aircraft operations.[6] These sites can be owned by public or private entities and may or may not be available for public use. Additionally, some sites are owned or jointly used by the U.S. military.

Many of these sites, such as those operated by hospitals, government agencies, and the military, are vital to the safety, security, and resiliency of the state and nation. However, only public-use airports are operated to meet the needs of all users and available to meet existing and future civilian aviation demands. As a result, **FDOT defines the Florida aviation system as all existing and planned public-use airports (regardless of ownership) in accordance with Chapter 332, Florida Statute (F.S.), *Florida Aviation System.***

The Florida airport system comprises 20 commercial service and 108 general aviation airports. Twenty-three of these airports are privately owned, while the remaining 105 are owned by public entities (including 104 publicly owned airports and 1 military/civilian joint-use facility). Some of these airports are classified by the FAA's National Plan of Integrated Airport Systems (NPIAS) and the associated general aviation ASSET classifications. The NPIAS includes the aviation facilities in the U.S. deemed significant to the national air transportation system and are thus eligible for federal funding under the Airport Improvement Program (AIP). The *2017-2021 NPIAS* identifies 100 airports in the state including 20 primary airports and 80 non-primary airports. Primary airports are publicly owned airports that receive scheduled commercial service and support more than 10,000 passenger boardings each year. Nonprimary airports comprise publicly owned commercial service airports with at least 2,500 and no more than 10,000 passenger boardings each year, reliever airports, and general aviation facilities.

General Aviation Airports: A National Asset

To capture the diverse functions and economic contributions of general aviation airports, the FAA conducted two reviews of the network of general aviation facilities in the NPIAS. In 2012, the results were compiled into *General Aviation Airports: A National Asset* (ASSET). This report acknowledges the following five key aeronautical functions provided by the general aviation airport system:

- Emergency preparedness and response
- Critical community access for remote areas
- Commercial, industrial, and economic activity functions
- Access to tourism and special events
- Other aviation-specific functions, including corporate flights and flight instruction

Four new ASSET categories were introduced to provide policymakers with a better understanding of the vast and diverse nature of the general aviation system. The categories are primarily based on existing activity levels, number and type of based aircraft, and volume and types of flights. The ASSET categories also recognize NPIAS airports that are unclassified, as they do not meet other criteria and have limited activity and number of based aircraft. If a general aviation airport is eligible for inclusion in the NPIAS, it is also classified within the appropriate ASSET category.

For more information about ASSET, visit www.faa.gov/airports/planning_capacity/ga_study.

[6] *Data accessed August 2017*

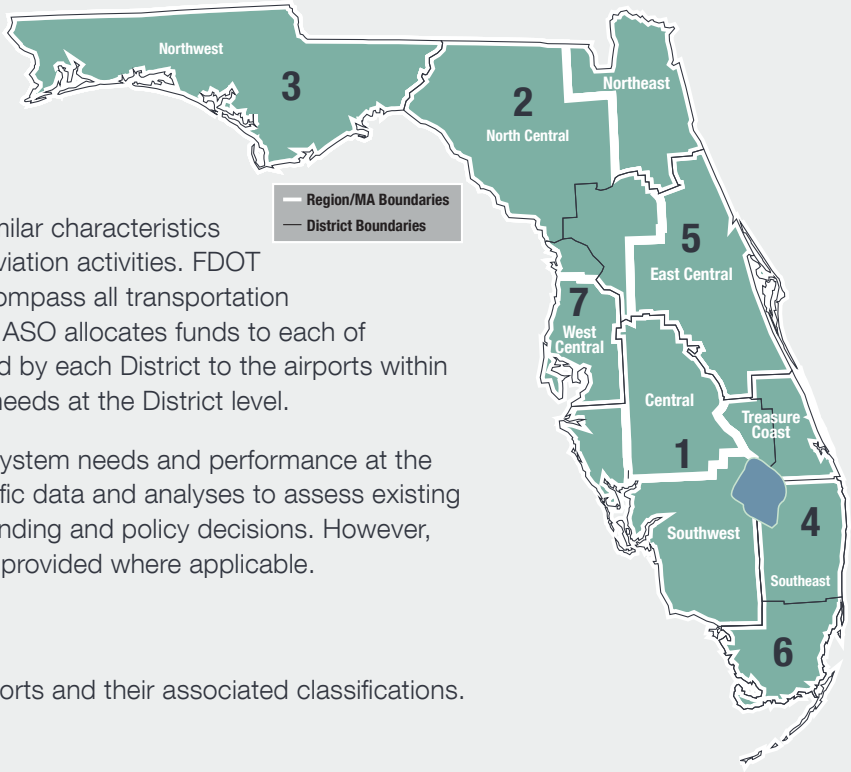
Planning and Development Areas

Because FDOT utilizes a regional approach to airport planning and administration, Florida's airports are bounded by both CFASPP regions or MAs and FDOT Districts.

The CFASPP organizes airports based on similar characteristics such as geography, economic drivers, and aviation activities. FDOT Districts are defined by county lines and encompass all transportation modes administered by the state. The FDOT ASO allocates funds to each of the seven FDOT Districts. Funds are allocated by each District to the airports within their jurisdictions based on an evaluation of needs at the District level.

The FASP 2035 Update primarily evaluated system needs and performance at the District level to provide FDOT staff with specific data and analyses to assess existing and potential future needs and associated funding and policy decisions. However, crosswalks to CFASPP regions or MAs were provided where applicable.

FDOT District and CFASPP Region/MA Boundary Map



The Florida Airport System

The table below identifies all 128 system airports and their associated classifications.

Florida's Airport System

	Associated City	Airport Name	FAA Identifier	Ownership*	FDOT District	CFASPP Region/MA	NPIAS Classification
Commercial Service	Daytona Beach	Daytona Beach International	DAB	PU	5	East Central	Primary - Non-hub
	Fort Lauderdale	Fort Lauderdale/Hollywood International	FLL	PU	4	Southeast	Primary - Large
	Fort Myers	Southwest Florida International	RSW	PU	1	Southwest	Primary - Medium
	Gainesville	Gainesville Regional	GNV	PU	2	North Central	Primary - Non-hub
	Jacksonville	Jacksonville International	JAX	PU	2	Northeast	Primary - Medium
	Key West	Key West International	EYW	PU	6	Southeast	Primary - Non-hub
	Melbourne	Melbourne International	MLB	PU	5	East Central	Primary - Non-hub
	Miami	Miami International	MIA	PU	6	Southeast	Primary - Large
	Orlando	Orlando International	MCO	PU	5	East Central	Primary - Large
	Orlando	Orlando Sanford International	SFB	PU	5	East Central	Primary - Small
	Panama City	Northwest Florida Beaches International	ECP	PU	3	Northwest	Primary - Small
	Pensacola	Pensacola International	PNS	PU	3	Northwest	Primary - Small
	Punta Gorda	Punta Gorda	PGD	PU	1	Southwest	Primary - Small
	Sarasota/Bradenton	Sarasota/Bradenton International	SRQ	PU	1	Southwest	Primary - Small
	St. Augustine	Northeast Florida Regional	SGJ	PU	2	Northeast	Primary - Non-hub
	St. Petersburg-Clearwater	St. Pete-Clearwater International	PIE	PU	7	West Central	Primary - Small
	Tallahassee	Tallahassee International	TLH	PU	3	Northwest	Primary - Non-hub
	Tampa	Tampa International	TPA	PU	7	West Central	Primary - Large
	Valparaiso/Destin-Ft. Walton Beach	Destin-Ft. Walton Beach	VPS	M-JU	3	Northwest	Primary - Non-hub
	West Palm Beach	Palm Beach International	PBI	PU	4	Southeast	Primary - Medium

**Ownership acronyms as follows: PU = Publicly owned, M-JU = Military Joint-use, PR = Privately owned*

	Associated City	Airport Name	FAA Identifier	Ownership	FDOT District	CFASPP Region/MA	NPIAS Classification (ASSET Classification)**
General Aviation	Apalachicola	Apalachicola General Aviation-Cleve Randolph Field	AAF	PU	3	Northwest	GA (Local)
	Apalachicola	St. George Island	F47	PR	3	Northwest	Non-NPIAS
	Apopka	Orlando Apopka	X04	PR	5	East Central	Non-NPIAS
	Arcadia	Arcadia Municipal	X06	PU	1	Central	GA (Local)
	Archer	Flying Ten	0J8	PR	2	North Central	Non-NPIAS
	Avon Park	Avon Park Executive	AVO	PU	1	Central	GA (Local)
	Bartow	Bartow Municipal	BOW	PU	1	Central	GA (Regional)
	Belle Glade	Belle Glade State Municipal	X10	PU	4	Southeast	GA (Basic)
	Blountstown	Calhoun County	F95	PU	3	Northwest	GA (Basic)
	Boca Raton	Boca Raton	BCT	PU	4	Southeast	Reliever (National)
	Bonifay	Tri-County	1J0	PU	3	Northwest	GA (Basic)
	Brooksville	Brooksville-Tampa Bay General Aviation	BKV	PU	7	West Central	GA (Regional)
	Brooksville	Pilot Country	X05	PR	7	West Central	Non-NPIAS
	Carrabelle	Carrabelle-Thompson	X13	PU	3	Northwest	Non-NPIAS
	Cedar Key	George T. Lewis	CDK	PU	2	North Central	GA (Basic)
	Clearwater	Clearwater Air Park	CLW	PU	7	West Central	Reliever (Regional)
	Clewiston	Airglades	2IS	PU	1	Southwest	GA (Local)
	Crestview	Bob Sikes	CEW	PU	3	Northwest	GA (Regional)
	Cross City	Cross City	CTY	PU	2	North Central	GA (Basic)
	Crystal River	Crystal River-Captain Tom Davis Field	CGC	PU	7	North Central	GA (Local)
	Defuniak Springs	Defuniak Springs	54J	PU	3	Northwest	GA (Local)
	Deland	Bob Lee Flight Strip	1J6	PR	5	East Central	Non-NPIAS
	Deland	Deland Municipal-Sidney H Taylor Field	DED	PU	5	East Central	Reliever (Regional)
	Destin	Destin Executive	DTS	PU	3	Northwest	GA (Regional)
	Dunnellon	Marion County	X35	PU	5	North Central	GA (Local)
	Englewood	Buchan	X36	PU	1	Southwest	Non-NPIAS
	Eustis	Mid Florida Air Service	X55	PR	5	East Central	Non-NPIAS
	Everglades	Everglades Airpark	X01	PU	1	Southwest	GA (Not Classified)
	Fernandina Beach	Fernandina Beach Municipal	FHB	PU	2	Northeast	GA (Regional)
	Fort Lauderdale	Downtown Fort Lauderdale Helistop	DT1	PU	4	Southeast	Non-NPIAS
	Fort Lauderdale	Fort Lauderdale Executive	FXE	PU	4	Southeast	Reliever (National)
	Fort Myers	Page Field	FMY	PU	1	Southwest	Reliever (Regional)
	Fort Pierce	Treasure Coast International	FPR	PU	4	Treasure Coast	GA (National)
	High Springs	Oak Tree Landing	6J8	PR	2	North Central	Non-NPIAS
	Hilliard	Hilliard Airpark	01J	PU	2	Northeast	GA (Local)
	Hollywood	North Perry	HWO	PU	4	Southeast	Reliever (Regional)
	Homestead	Miami Homestead General Aviation	X51	PU	6	Southeast	GA (Local)
	Immokalee	Immokalee Regional	IMM	PU	1	Southwest	GA (Local)
	Indiantown	Indiantown	X58	PR	4	Treasure Coast	Non-NPIAS
	Inverness	Inverness	INF	PU	7	North Central	GA (Local)
	Jacksonville	Cecil	VQQ	PU	2	Northeast	GA (Regional)
	Jacksonville	Herlong Recreational	HEG	PU	2	Northeast	Reliever (Regional)

**Ownership acronyms as follows: PU = Publicly owned, PR = Privately owned*

	Associated City	Airport Name	FAA Identifier	Ownership	FDOT District	CFASPP Region/MA	NPIAS Classification (ASSET Classification)**
General Aviation	Jacksonville	Jacksonville Executive At Craig	CRG	PU	2	Northeast	Reliever (National)
	Keystone Heights	Keystone Airpark	42J	PU	2	Northeast	GA (Local)
	La Belle	La Belle Municipal	X14	PU	1	Southwest	GA (Local)
	Lake City	Lake City Gateway	LCQ	PU	2	North Central	GA (Local)
	Lake Wales	Chalet Suzanne Air Strip	X25	PR	1	Central	Non-NPIAS
	Lake Wales	Lake Wales Municipal	X07	PU	1	Central	GA (Basic)
	Lakeland	Lakeland Linder Regional	LAL	PU	1	Central	Reliever (Regional)
	Lakeland	South Lakeland	X49	PR	1	Central	Non-NPIAS
	Leesburg	Leesburg International	LEE	PU	5	East Central	GA (Regional)
	Live Oak	Suwannee County	24J	PU	2	North Central	GA (Local)
	Marathon	The Florida Keys Marathon International	MTH	PU	6	Southeast	GA (Regional)
	Marco Island	Marco Island	MKY	PU	1	Southwest	GA (Regional)
	Marianna	Marianna Municipal	MAI	PU	3	Northwest	GA (Local)
	Merritt Island	Merritt Island	COI	PU	5	East Central	GA (Regional)
	Miami	Dade-Collier Training And Transition	TNT	PU	6	Southeast	GA (Basic)
	Miami	Miami Executive	TMB	PU	6	Southeast	Reliever (National)
	Miami	Miami Seaplane Base	X44	PU	6	Southeast	GA (Not Classified)
	Miami	Miami-Opa Locka Executive	OPF	PU	6	Southeast	Reliever (National)
	Milton	Peter Prince Field	2R4	PU	3	Northwest	GA (Local)
	Naples	Naples Municipal	APF	PU	1	Southwest	GA (Regional)
	Navarre	Fort Walton Beach	1J9	PR	3	Northwest	Non-NPIAS
	New Smyrna Beach	Massey Ranch Airpark	X50	PR	5	East Central	Non-NPIAS
	New Smyrna Beach	New Smyrna Beach Municipal	EVB	PU	5	East Central	Reliever (Regional)
	Ocala	Ocala International-Jim Taylor Field	OCF	PU	5	North Central	GA (National)
	Okeechobee	Okeechobee County	OBE	PU	1	Treasure Coast	GA (Local)
	Orlando	Executive	ORL	PU	5	East Central	Reliever (National)
	Orlando	Kissimmee Gateway	ISM	PU	5	East Central	Reliever (Regional)
	Ormond Beach	Ormond Beach Municipal	OMN	PU	5	East Central	Reliever (Regional)
	Pahokee	Palm Beach County Glades	PHK	PU	4	Southeast	GA (Local)
	Palatka	Palatka Municipal - Lt Kay Larkin Field	28J	PU	2	Northeast	GA (Local)
	Palm Coast	Flagler Executive	FIN	PU	5	East Central	GA (Regional)
	Palmetto	Airport Manatee	48X	PR	1	Southwest	Non-NPIAS
	Panacea	Wakulla County	2J0	PU	3	Northwest	Non-NPIAS
	Pensacola	Ferguson	82J	PR	3	Northwest	Non-NPIAS
	Perry	Perry-Foley	40J	PU	2	North Central	GA (Basic)
	Pierson	Pierson Municipal	2J8	PU	5	East Central	Non-NPIAS
	Plant City	Plant City	PCM	PU	7	West Central	GA (Local)
	Pompano Beach	Pompano Beach Airpark	PMP	PU	4	Southeast	GA (Local)
	Port St. Joe	Costin	A51	PR	3	Northwest	Non-NPIAS
	Punta Gorda	Shell Creek Airpark	F13	PR	1	Southwest	Non-NPIAS
	Quincy	Quincy Municipal	2J9	PU	3	Northwest	GA (Local)
	River Ranch	River Ranch Resort	2RR	PR	1	Central	Non-NPIAS
	Sebastian	Sebastian Municipal	X26	PU	4	Treasure Coast	GA (Local)

**Ownership acronyms as follows: PU = Publicly owned, PR = Privately owned*

	Associated City	Airport Name	FAA Identifier	Ownership	FDOT District	CFASPP Region/MA	NPIAS Classification (ASSET Classification)**
General Aviation	Sebring	Sebring General Aviation	SEF	PU	1	Central	GA (Local)
	St. Petersburg	Albert Whitted	SPG	PU	7	West Central	Reliever (Regional)
	Stuart	Witham Field	SUA	PU	4	Treasure Coast	GA (National)
	Tallahassee-Havana	Tallahassee Commercial	68J	PR	3	Northwest	Non-NPIAS
	Tampa	Peter O. Knight	TPF	PU	7	West Central	Reliever (Regional)
	Tampa	Tampa Executive	VDF	PU	7	West Central	Reliever (Regional)
	Tampa	Tampa North Aero Park	X39	PR	7	West Central	Non-NPIAS
	Tavares	Tavares Seaplane Base	FA1	PU	5	East Central	Non-NPIAS
	Titusville	Arthur Dunn Air Park	X21	PU	5	East Central	GA (Local)
	Titusville	Space Coast Regional	TIX	PU	5	East Central	GA (Regional)
	Umatilla	Umatilla Municipal	X23	PU	5	East Central	GA (Basic)
	Valkaria	Valkaria	X59	PU	5	East Central	GA (Local)
	Venice	Venice Municipal	VNC	PU	1	Southwest	Reliever (Regional)
	Vero Beach	New Hibiscus Airpark	X52	PR	4	Treasure Coast	Non-NPIAS
	Vero Beach	Vero Beach Regional	VRB	PU	4	Treasure Coast	GA (Regional)
	Wauchula	Wauchula Municipal	CHN	PU	1	Central	GA (Local)
	West Palm Beach	North Palm Beach County General Aviation	F45	PU	4	Southeast	Reliever (Regional)
	West Palm Beach	Palm Beach County Park	LNA	PU	4	Southeast	Reliever (Regional)
	Williston	Williston Municipal	X60	PU	2	North Central	GA (Local)
	Winter Haven	Jack Browns Seaplane Base	F57	PR	1	Central	Non-NPIAS
	Winter Haven	Winter Haven's Gilbert Field	GIF	PU	1	Central	GA (Regional)
	Zellwood	Bob White Field	X61	PR	5	East Central	Non-NPIAS
	Zephyrhills	Zephyrhills Municipal	ZPH	PU	7	West Central	GA (Regional)

**Ownership acronyms as follows: PU = Publicly owned, PR = Privately owned*

***ASSET Classifications are only applicable to the 80 general aviation airports included in the NPIAS.*
Sources: FDOT ASO, 2017-2021 NPIAS

Naples Municipal Airport

South Florida Regional Transportation Authority (SFRTA) Fort Lauderdale/ Hollywood International Airport at Dania Beach Tri-Rail Station

SFRTA Pompano Beach Tri-Rail Station

Miami Intermodal Center Rental Car Facility

Strategic Intermodal System (SIS)

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 transportation are essential aspects of an airport system's accessibility.

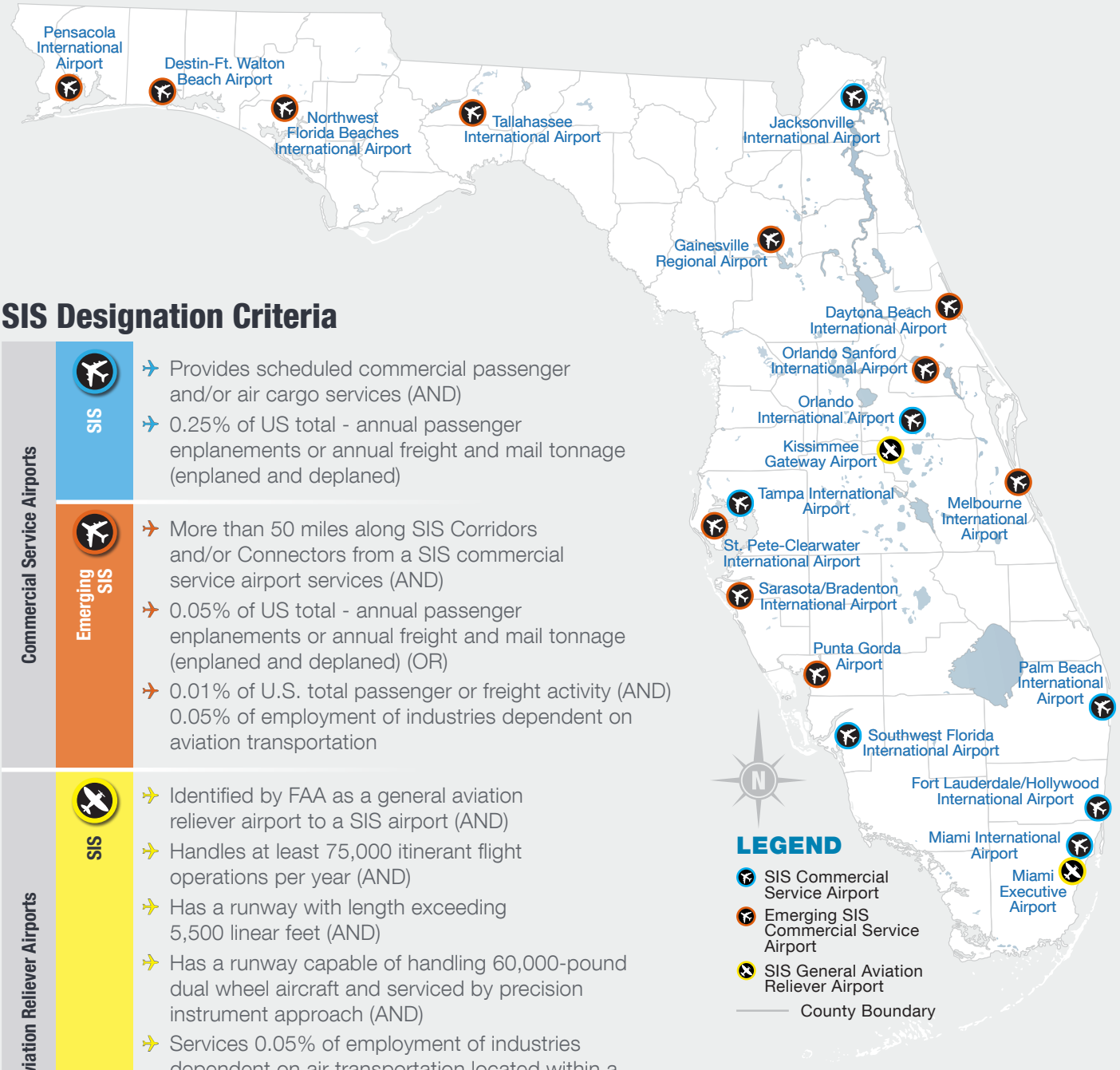
The FASP 2035 Update examined the airport system to understand its level of connectivity with these other modes of transit. In particular, the analysis focused on those airports designated as SIS facilities. The SIS is designed to enhance Florida's economic competitiveness by focusing state resources on the transportation facilities most critical for statewide and interregional travel. More specifically, the SIS is designed to:

- Ensure the efficiency and reliability of multimodal transportation connectivity between Florida's economic regions, as well as between Florida and other states and nations
- Expand transportation choices and integrate modes for interregional trips
- Provide transportation systems to support Florida as a global hub for trade, tourism, talent, innovation, business, and investment

Twenty of Florida's 128 airports are designated as SIS or Emerging SIS facilities, including 18 commercial service and two general aviation reliever airports. Commercial service airports require more connections to facilitate passenger access to scheduled airline service, while general aviation reliever airports typically serve a high level of general aviation demand in metropolitan areas to relieve demand pressures at nearby commercial service airports.

Rendering of the SFRTA South Florida Rail Corridor

SIS Airports



SIS Designation Criteria

Commercial Service Airports

SIS

- Provides scheduled commercial passenger and/or air cargo services (AND)
- 0.25% of US total - annual passenger enplanements or annual freight and mail tonnage (enplaned and deplaned)

Emerging SIS

- More than 50 miles along SIS Corridors and/or Connectors from a SIS commercial service airport services (AND)
- 0.05% of US total - annual passenger enplanements or annual freight and mail tonnage (enplaned and deplaned) (OR)
- 0.01% of U.S. total passenger or freight activity (AND) 0.05% of employment of industries dependent on aviation transportation

General Aviation Reliever Airports

SIS

- Identified by FAA as a general aviation reliever airport to a SIS airport (AND)
- Handles at least 75,000 itinerant flight operations per year (AND)
- Has a runway with length exceeding 5,500 linear feet (AND)
- Has a runway capable of handling 60,000-pound dual wheel aircraft and serviced by precision instrument approach (AND)
- Services 0.05% of employment of industries dependent on air transportation located within a 50-mile radius

Emerging SIS

- Identified as a reliever facility to an existing Emerging SIS commercial service airport (AND)
- Achieves the same criteria established above for SIS general aviation reliever airports

Source: FDOT Summary of Adopted SIS Facility Types, Criteria, and Thresholds. January 2014.

FedEx
The World On Time

4. System Goals

The FASP 2035 Update was guided by seven goals designed to ensure Florida's public-use airports continue to meet the evolving needs of Florida's citizens, visitors, and businesses.

These goals were developed during prior FASP efforts, then validated and refined during this effort by the FDOT ASO, stakeholders, airports, and FAA to confirm their continued appropriateness to meet current needs. Based on these goals and system objectives, performance measures and performance indicators were developed to serve as the metrics by which the health and adequacy of the existing system could be evaluated.

These metrics provided the framework for the analyses conducted during the FASP 2035 Update and all recommendations developed for the continuing improvement of the state aviation system.

Additional information about system objectives, performance measures, and performance indicators, as well as the outcomes of the statewide assessment, are presented in **Chapter 7 – Analysis**.

Florida Transportation Plan

The FTP is the overarching long-range strategic plan guiding the future of Florida's transportation system. The FTP provides direction and guidance for the multiple agencies and organizations involved in the planning, management, and regulation of transportation networks, including air, road, rail, and multimodal alternatives. It also provides a policy framework for the expenditure of state and federal transportation funds flowing through FDOT's work program.

FDOT released the Vision and Policy elements of the most recent FTP in 2015 following an extensive engagement process with public- and private-sector stakeholders and participants from across the state. This process envisioned the future of Florida's transportation system over the next 50 years and defined specific goals and objectives to advance that vision over the next 25 years.

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.

Comparison of FASP Goals to FTP Goals

The FASP 2035 Update is designed to complement the FTP while specifically meeting the needs of the aviation system. By coordinating the FASP with the FTP, FDOT can support continuity in state policy and funding decisions across modes while supporting an integrated intermodal system in Florida.

To foster this coordination, the FASP 2035 Update assessed the alignment between the goals of the two plans. This assessment allowed the FDOT ASO to identify those areas where aviation is effectively aligned with the state's overall transportation vision, identify targeted opportunities for improvement, and recognize those areas where the needs of the aviation system are unique to the mode.

		FASP						
		Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors	Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment	Support and enhance the national position of leadership and prominence held by Florida's aviation	Protect airspace and promote compatible land uses around public airports	Foster technological innovation and support the implementation of new technologies	Promote support for aviation from business, government, and the public	Foster Florida's reputation as a military- and aerospace industry-friendly state
FTP	Safety and security for residents, visitors, and businesses	★	½	☆	★	★	½	½
	Agile, resilient, and quality infrastructure	★	½	☆	½	½	★	½
	Efficient and reliable mobility for people and freight	★	½	½	☆	½	½	½
	More transportation choices for people and freight	½	★	½	☆	½	½	☆
	Transportation solutions that support Florida's global economic competitiveness	½	★	★	☆	½	½	☆
	Transportation solutions that support quality places to live, learn, work, and play	½	★	½	½	½	½	½
	Transportation solutions that enhance Florida's environment and conserve energy	½	★	½	½	½	☆	☆

★ High Relationship ½ Medium Relationship ☆ Low Relationship

St. Pete-Clearwater International Airport

DELTA
SOUTHWEST

5. Data Collection and Inventory

To gauge how the system is performing in meeting the goals, objectives, PMs, and PIs introduced in **Chapter 4 – System Goals**, an extensive data collection and inventory was conducted for Florida's 128 system airports. The information collected during this process formed a baseline of existing infrastructure and services offered by Florida's aviation system.

Additionally, the data were integral to the system performance assessment and mapping analyses presented in **Chapter 7 – Analysis.** Information about the data sources used for these two tasks is provided in the following section. Data collection efforts for other tasks, such as forecasting, are detailed in their respective sections.

Statewide System Performance Assessment

The system performance assessment evaluated the ability of Florida's system airports to achieve the seven goals of the FASP. In addition to the local, state, and federal sources included in the table to the right, a survey was administered to all system airports to gather data on six specific PMs and PIs between the fall of 2016 and spring of 2017.

Existing and Future Mapping Analyses

The mapping analysis of the FASP 2035 evaluated the percent of Florida's existing (2016) and future (2035) populations with access to airports with specific services and infrastructure within a 30-minute drive time. The existing and future access analyses were prepared using the ESRI Community Analyst software, which determines drive-times based on posted speed limits on the applicable roadway segment. For the future population analysis, the software accounts for varying growth rates across the state based on forecasted demographics. In addition to ESRI Community Analyst, multiple other data sources were used to identify airports with the specific characteristic under evaluation.

Summary of FASP 2035 Update Data Sources

	Source	Date*
FAA	5010 Airport Master Records	Extracted October 2016
	Aerospace Forecast 2017-2037	2017
	Air Carrier Activity Information System (ACAIS)	2015
	Basedaircraft.com	Extracted 2016
	FACT3: Airport Capacity Needs in the National Airspace System (FACT3)	2015
	Hot Spot Report as provided in the Airport/Facility Directory (A/FD)	2016
	National Flight Data Center (NFDC)	2016
	2017-2021 NPIAS	2017
	Satellite Navigation – GPS/WAAS Approach Database	2017
	Terminal Area Forecast (TAF)	2014
	The Economic Impact of Civil Aviation on the U.S. Economy	2015
	U.S. Civil Airmen Statistics	2016
FDOT	Five-Year Work Program	2016
	Florida Aviation Database (FAD)	2017
	Annual airport inspections	Extracted March 2017
	Aviation Project Handbook	2016
	Florida Air Cargo System Plan	2016
	Florida Statewide Aviation Economic Impact Study	2010, 2014
	Joint Automated Capital Improvement Program (JACIP)	2016
	Statewide Airfield Pavement Management Program (SAPMP)	2010-2012, 2013-2015
Other	City and county bus and transit maps	Various
	ESRI Community Analyst	2016
	Florida Department of Economic Opportunity (DEO)	2016
	Florida Natural Areas Inventory (FNAI)	2016
	Local comprehensive plans	Various
	SIS	2017
	U.S. Department of Transportation Bureau of Transportation Statistics (U.S. DOT BTS)	2016
	U.S. Parachute Association (USPA)	2017
	Visit Florida	2015

**Note: The FASP 2035 Update was initiated in 2014. The most current data was gathered for all tasks at the time of analysis.*

6

6. Aviation Activity Forecasts

As various trends impact the aviation industry and population centers shift, Florida's aviation needs will change over time. Forecasts help Florida's airport system keep pace with anticipated demands by projecting how and where aviation activity will occur through the forecast horizon. This process helps the FDOT ASO, airports, and other aviation stakeholders understand the type and location of future aviation activity and is one of the most important outcomes of the FASP 2035 Update.

Aviation forecasts are developed in consideration of numerous factors such as historical activity, local population trends, state and FAA activity forecasts, and regional aviation drivers. This information is used to evaluate the ability of the existing system to accommodate future projected needs. Based on this evaluation, airports, the FDOT ASO, FDOT Districts, and CFASPP regions and MAs can accurately assess the need for and phasing of future airport development. The aviation forecasting process provides a meaningful framework to guide the development of future system needs, evaluate the system's capacity to accommodate long-term aviation demand, and plan for future airside and landside facilities.

Measures of Aviation Activity

Civilian aviation activity encompasses scheduled commercial service, general aviation operations and based aircraft, and air cargo operations. The FASP 2035 Update only forecasted general aviation activity, as drivers of commercial operations can vary significantly, often due to factors beyond an airport's control such as airline consolidations, route restructuring, and fleet modifications. Commercial operations are also forecast as part of the FAA's TAF and by specific airports during other planning efforts. Cargo operations were forecast during FDOT's 2016 *Air Cargo Study*.

Data Collection

Because quality data are imperative to develop accurate aviation forecasts, this effort utilized multiple data sources to ensure each measure of activity was accurately reported. It is important to note that the based aircraft and general aviation operations forecasts used a 2014 base year—the most recent full year of data when the FASP 2035 Update was initiated in 2015. The composition of airport operations analysis assessed activity in 2016.

Forecasting Data Sources

Source	Data Year	Data Type
FAA Terminal Area Forecast	2014 (extracted January 2017)	Based aircraft and general aviation operations at NPIAS airports (100 facilities)
5010 Airport Master Records	Various (extracted October 2016)*	Based aircraft and general aviation operations at non-NPIAS airports (28 facilities)
FAA *Aerospace Forecast 2017-2037*	Not applicable	Projected growth rates for active aircraft in the U.S. general aviation fleet and general aviation operations used in one specific forecasting methodology (tailored to trends in Florida)
FAA Traffic Flow Management System Counts (TFMSC) Database	2016 (extracted January 2017)	Number of operations by type of aircraft for flights operating under Instrument Flight Rules (IFR) used in the composition of airport operations analysis

**Note: While 5010 Airport Master Records are regularly updated, not all of the data are specific to 2014. However, it was assumed that airport activity data were applicable for base year 2014 regardless of the year that an individual airport may have updated it.*

Source: FASP 2035 Update

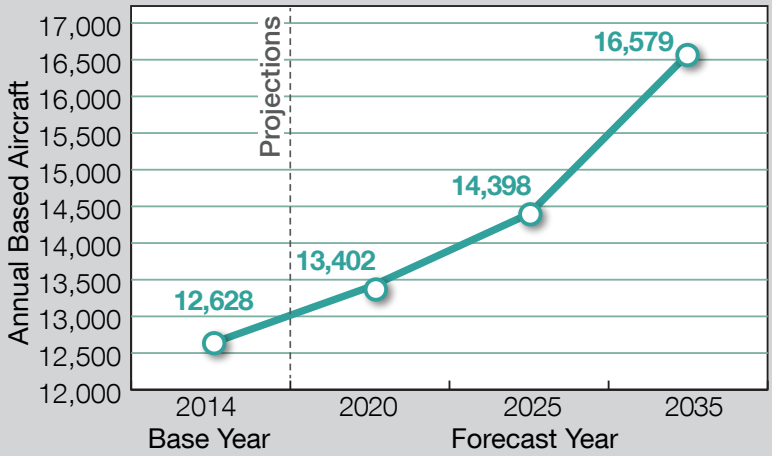
Based Aircraft Forecasts

A based aircraft is an operational and airworthy aircraft typically housed at a particular airport for the majority of the year. Based aircraft only consist of the general aviation fleet, as commercial service aircraft are registered at the state level. An airport's based aircraft are one of the best indicators of activity levels and reflect an airport's role in meeting the air transportation and economic needs of the market it serves. Based aircraft also drive an airport's aircraft parking apron and storage requirements, which are important to understand for long-term planning purposes.

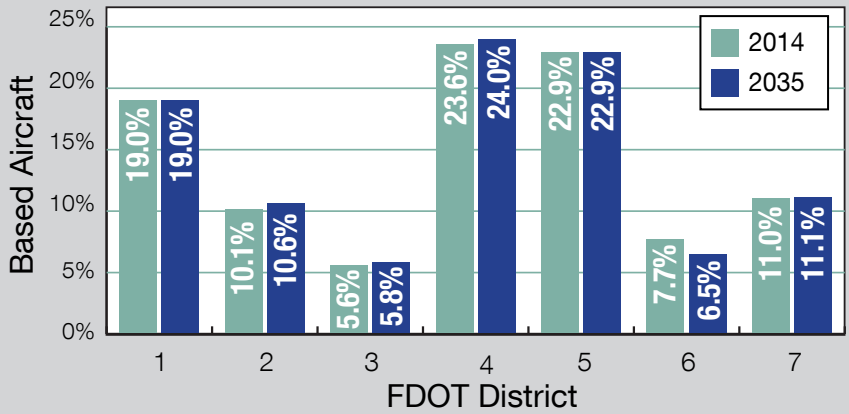
Growth is anticipated across all FDOT Districts, although the annual growth rate varies from 0.57 percent in District 6 to 1.77 percent in District 2. District 4 will continue to have the highest number of based aircraft throughout the planning horizon, although the rate of growth is relatively moderate compared to other FDOT Districts.

On a statewide level, the total number of based aircraft in Florida is anticipated to grow at an average annual growth rate (AAGR) of 1.49 percent to reach **16,579 aircraft by 2035.**

Statewide Based Aircraft



Based Aircraft by FDOT District

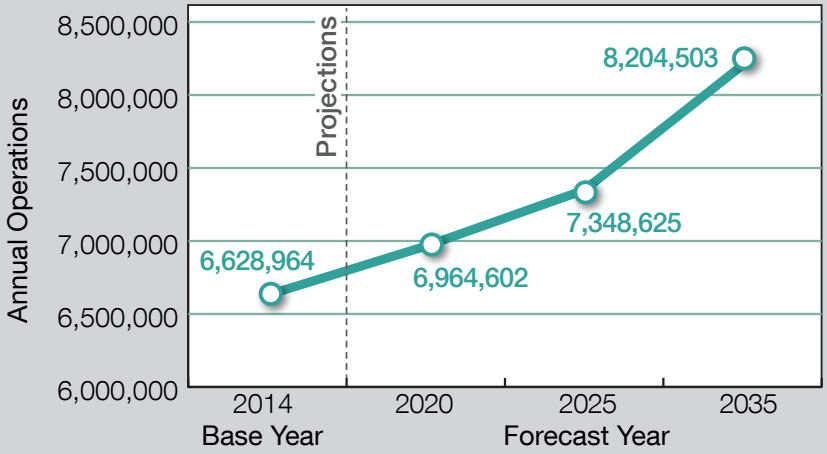


Historic and Projected Based Aircraft

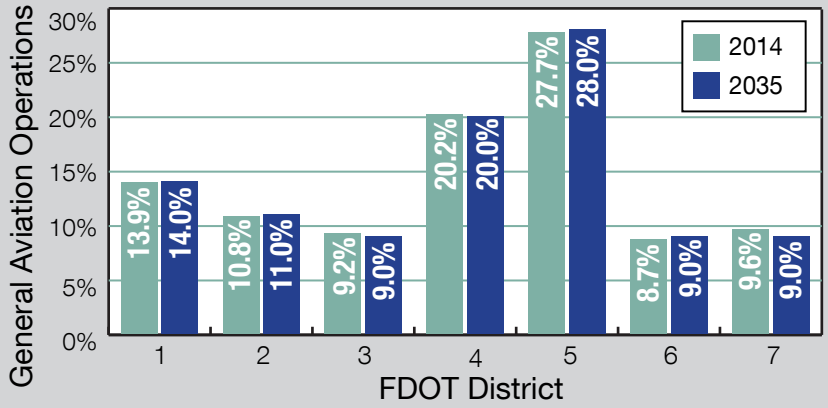
FDOT District	Base Year	Forecast Year			Average Annual Growth Rate
	2014	2020	2025	2035	
1	2,403	2,508	2,711	3,156	1.49%
2	1,277	1,354	1,479	1,751	1.77%
3	709	796	846	961	1.69%
4	2,986	3,244	3,478	3,977	1.58%
5	2,895	3,066	3,290	3,803	1.49%
6	968	969	1,009	1,083	0.57%
7	1,390	1,464	1,586	1,847	1.57%
State Total	**12,628**	**13,402**	**14,398**	**16,579**	**1.49%**

Sources: FAA TAF issued January 2017, 5010 Airport Master Record, Woods & Poole, Inc., FAA Aerospace Forecast 2017-2037. Kimley-Horn. Prepared April 2017.

Statewide General Aviation Operations



General Aviation Operations



Historic and Projected General Aviation Operations

FDOT District	Base Year	Forecast Year			Average Annual Growth Rate
	2014	2020	2025	2035	
1	920,749	997,711	1,056,971	1,189,580	1.39%
2	717,070	778,164	813,014	889,389	1.14%
3	607,495	643,717	665,030	712,364	0.82%
4	1,337,244	1,463,068	1,576,161	1,831,592	1.76%
5	1,833,922	1,823,851	1,918,342	2,128,577	0.77%
6	578,140	614,409	642,501	703,093	1.03%
7	634,344	643,682	676,604	749,909	0.87%
State Total	**6,628,964**	**6,964,602**	**7,348,623**	**8,204,503**	**1.13%**

Sources: FAA TAF issued January 2017, 5010 Airport Master Record, Woods & Poole, Inc., FAA Aerospace Forecast 2017-2037. Kimley-Horn. Prepared April 2017.

General Aviation Operations

The number of total operations at an airport reports the overall volume of flights occurring at the facility. An aircraft operation represents either a take-off or a landing; for example, a touch-and-go, which is most often performed by student pilots during training and includes a take-off and a landing, counts as two operations. This example is particularly relevant in Florida, as the state experiences some of the highest levels of flight instruction in the nation. It is important to note that operations typically comprise commercial, military, and general aviation activity; however, the FASP 2035 Update only assessed general aviation activity.

Knowledge of projected operational activity assists FDOT Districts and the Central Office understand trends in local growth, airport system capacity, and facility planning needs.

Growth in general aviation operations is anticipated across all FDOT Districts, although the annual growth rate varies from 0.77 percent in District 5 to 1.76 percent in District 4. While District 5 will continue to experience the highest total number of operations through the planning horizon, the annual growth rate is the lowest in the state at 0.77 percent.

On a statewide level, the total number of aircraft operations in Florida is anticipated to grow at an AAGR of 1.13 percent to reach **8,204,503 aircraft operations by 2035.**

Composition of Airport Operations

The FASP 2035 Update identified system airports that regularly experience aircraft operations by aircraft that are larger than they were originally designed to support. This analysis assessed the total number of operations at each airport that exceeded its airport reference code (ARC). The ARC is an airport designation used for planning and design that indicates the size and type of the most demanding aircraft that operate at a particular facility. This analysis indicates where more demanding aircraft are conducting operations, which has important implications for future recommendations and facility needs.

Based on this analysis, 14 airports in the Florida system experience at least 500 annual operations from aircraft larger than their ARCs, including seven commercial service and seven general aviation airports. **It is important to note that many of the FAA's design standards for different ARCs are the same, so it is possible that these activities can be safely accommodated if an airport experiences more than 500 operations that exceed its ARC.**

There is also mitigation that can be employed to safely serve the activity such as specific operational maneuvers on the airfield. The emphasis of the analysis was to identify general aviation airports that are experiencing activity by larger aircraft, possibly business or corporate, for which additional analysis is warranted to determine whether facility improvements are needed to better accommodate this activity.

ARC Categories

The ARC is the combination of an airport's Aircraft Approach Category (AAC) and Airplane Design Group (ADG). The AAC, represented by a letter A-E, indicates the approach speed of an airport's design aircraft (the most demanding aircraft or group of similar aircraft that conducts at least 500 annual operations). The ADG, represented by a Roman numeral I-VI, indicates the wingspan and tail height of an airport's design aircraft.

In general, ARC categories represent the following types of aircraft:

- A-I through B-I represent small, single- and multi-engine piston aircraft
- B-II to C-III represent turbo-prop and corporate aircraft
- C-IV and up generally represent commercial airliners and heavy military aircraft

Miami International Airport. Photo courtesy of Prayitno via Flickr.

Demand/Capacity Analysis

As part of the statewide and District-specific 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 assessed the ratio of aircraft operations at individual airports to Annual Service Volume (ASV). 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 demand/capacity (D/C) analysis identified individual airports and areas of the state that may need to enhance airfield capacity currently or in the future. According to the FAA, an airport should begin planning for capacity enhancements when the ratio of an airport's annual operations to its ASV reaches 60 percent. Implementation (i.e., construction) of airport capacity enhancements should begin when this ratio reaches 80 percent. Based on this analysis, 11 airports are anticipated to exceed the 60 percent threshold, six are anticipated to exceed the 80 percent threshold, and three are anticipated to reach the 100 percent threshold by 2035. Of these 20 airports, seven are commercial service airports. It is important to note that ASV is a relatively simplistic approach to capacity evaluations and that more detailed hourly capacity analyses are appropriate for commercial service airports.

The majority of the airports projected to reach D/C ratios of 60 percent or above by 2035 are concentrated in FDOT Districts 4, 5, and 6 (East Central, Treasure Coast, and Southeast CFASPP Regions/MAs). These areas are primarily located in the coastal corridor between Jacksonville and Miami where airport activity is impacted by tourism, corporate activity, and flight schools, among other factors.

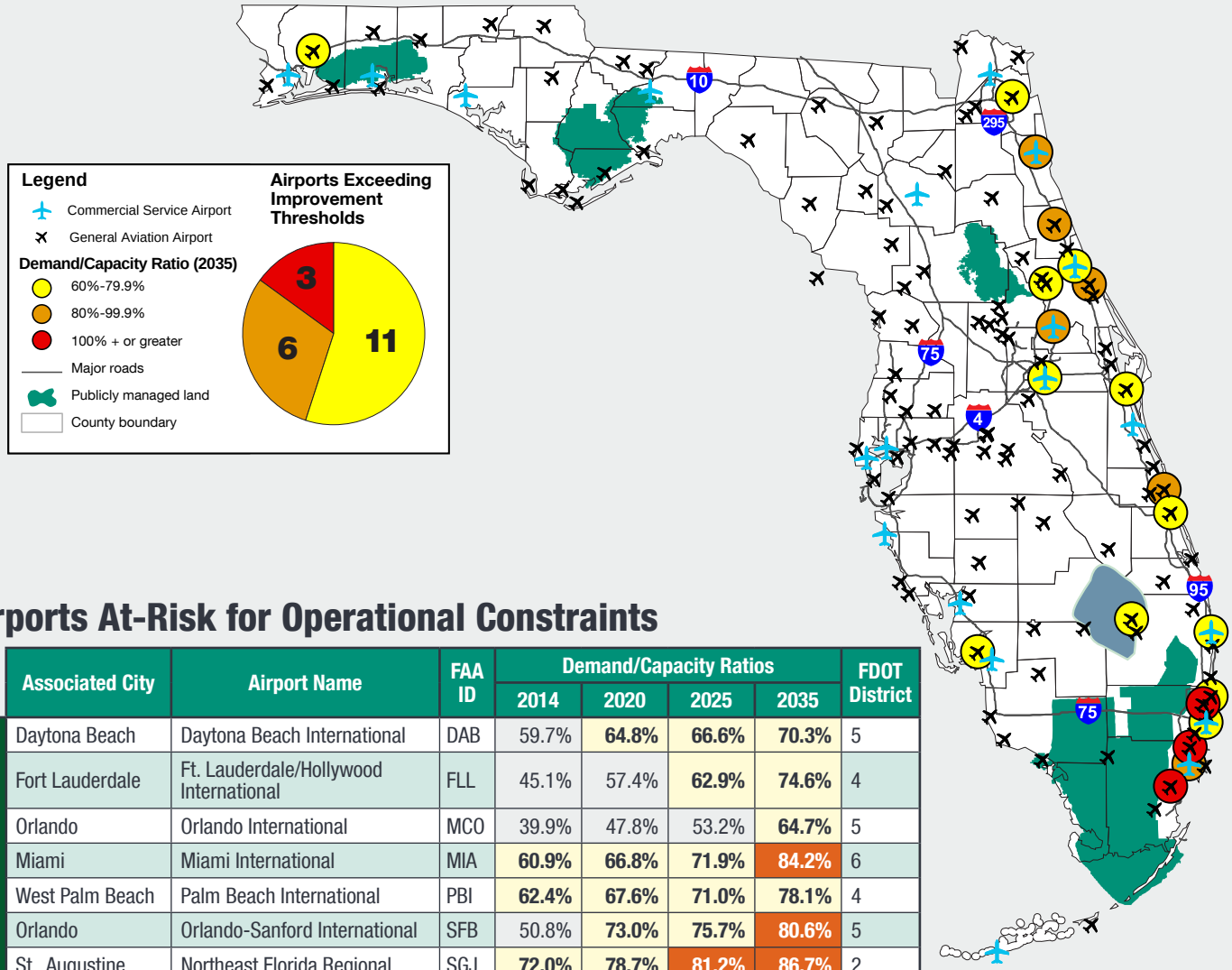
Airports are often able to mitigate capacity constraints by adding exit taxiways, implementing Airport Traffic Control Towers (ATCT), constructing additional runways, reducing flight training operations (often relocated to other reliever facilities), and other measures.

Miami International Airport. Photo courtesy of BriYYZ via Flickr.

The FASP 2035 Update recommends that FDOT conduct additional capacity studies on Districts 4, 5, and 6 due to the complex nature of individual airport capacity, regional connectivity between airports, the types of demand accommodated by individual airports (e.g., commercial, corporate, flight training), and potential capacity enhancement measures that can be pursued.

FDOT should also consider maintaining a database of demand/capacity needs to be updated as individual airport master plans and other studies are completed to prepare for and prioritize future capacity enhancements.

Areas of Potential Capacity Constraints



Airports At-Risk for Operational Constraints

	Associated City	Airport Name	FAA ID	Demand/Capacity Ratios				FDOT District
				2014	2020	2025	2035	
Commercial Service	Daytona Beach	Daytona Beach International	DAB	59.7%	64.8%	66.6%	70.3%	5
	Fort Lauderdale	Ft. Lauderdale/Hollywood International	FLL	45.1%	57.4%	62.9%	74.6%	4
	Orlando	Orlando International	MCO	39.9%	47.8%	53.2%	64.7%	5
	Miami	Miami International	MIA	60.9%	66.8%	71.9%	84.2%	6
	West Palm Beach	Palm Beach International	PBI	62.4%	67.6%	71.0%	78.1%	4
	Orlando	Orlando-Sanford International	SFB	50.8%	73.0%	75.7%	80.6%	5
	St. Augustine	Northeast Florida Regional	SGJ	72.0%	78.7%	81.2%	86.7%	2
General Aviation	Milton	Peter Prince Field	2R4	48.1%	54.1%	59.7%	72.8%	3
	Merritt Island	Merritt Island	COI	57.7%	60.9%	63.6%	69.5%	5
	Jacksonville	Jacksonville Executive at Craig	CRG	51.2%	55.0%	58.1%	64.9%	2
	New Smyrna Beach	New Smyrna Beach Municipal	EVB	68.8%	71.9%	74.8%	80.9%	5
	Palm Coast	Flagler County	FIN	57.3%	65.6%	73.4%	91.9%	5
	Fort Myers	Page Field	FMY	44.3%	49.1%	53.1%	62.0%	1
	Fort Pierce	Treasure Coast International	FPR	41.8%	47.0%	51.8%	63.1%	4
	Fort Lauderdale	Ft. Lauderdale Executive	FXE	87.5%	93.5%	99.7%	113.4%	4
	Miami	Miami-Opa Locka Executive	OPF	80.9%	87.6%	92.5%	103.3%	6
	Pahokee	Palm Beach County Glades	PHK	53.1%	58.7%	63.8%	75.4%	4
	Pompano Beach	Pompano Beach	PMP	58.2%	62.7%	66.9%	76.3%	4
	Miami	Miami Executive	TMB	99.1%	105.4%	110.9%	122.9%	6
	Vero Beach	Vero Beach Regional	VRB	62.6%	69.4%	75.4%	89.0%	4

Sources: FASP 2035 Phase 1 Airport D/C Analysis, FAA TAF (January 2017), 5010 Airport Master Records (extracted October 2016).

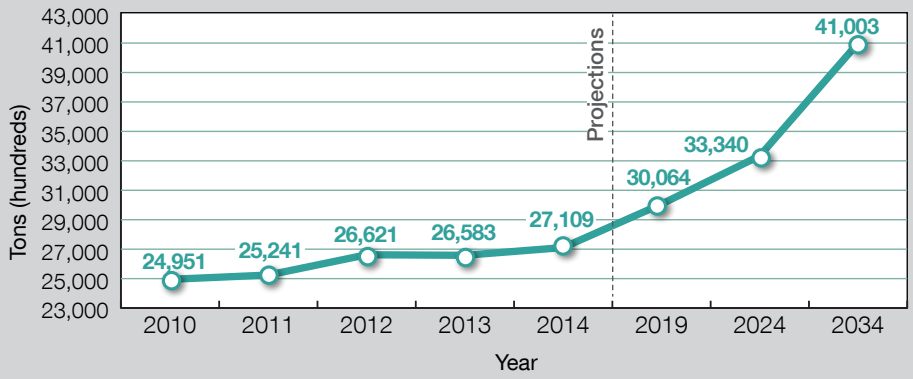
Air Service and Air Cargo Studies

In 2016, the FDOT ASO completed the Air Service and Air Cargo studies, which both provide input into two key components of civilian aviation activity. Understanding the volume, frequency, and type of commercial service and cargo activity helps the FDOT ASO evaluate the system's ability to efficiently serve as gateways to destinations within the state and across the globe. This data also supports FDOT Districts' and airports' abilities to determine existing and future facility needs.

Air Cargo

In today's global economy, new logistics and supply-chain concepts have arisen that couple a demand for low fuel and labor costs with trends in just-in-time production and final manufacturing assembly at destination. Concurrently, the shelf-life of new products has decreased (particularly in consumer electronics), while the value of shipped goods and the demand for expeditious transport and control have risen. As a result, air transport fills an important need within a complex logistics network encompassing multiple modes of transportation. Air cargo supports trade and investment, promotes connectivity, enhances shipping security, and improves efficiency and competitiveness.

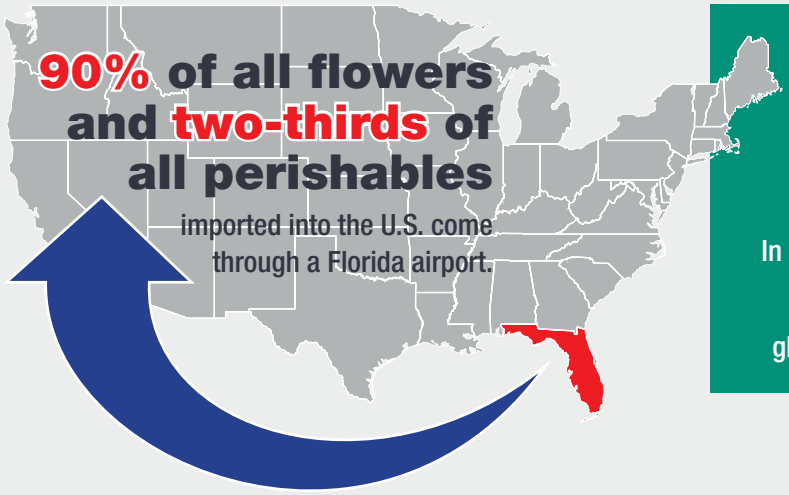
Historic and Projected Florida Air Cargo Tonnage



Source: FDOT ASO Florida Air Cargo Study (2016)

In Florida, total air cargo tonnage peaked at nearly 2.8 million tons in 2007 before dropping to 2.2 million tons in 2008 in the midst of the economic downturn. Enplaned and deplaned air cargo has since rebounded to nearly 2.7 million tons in 2014. Over the 20-year planning horizon, total air cargo tonnage is anticipated to increase at a 2.1 percent compound annual growth rate (CAGR) to reach 4.1 million tons by 2034.[7]

Photo courtesy of Aero Icarus



Air cargo is typified by time-sensitive, high-value products such as electronics, fresh flowers, and perishable food.

In 2014, the world's airlines transported 51.3 million metric tons of air cargo, representing more than 35 percent of global trade by value but less than one percent by volume.

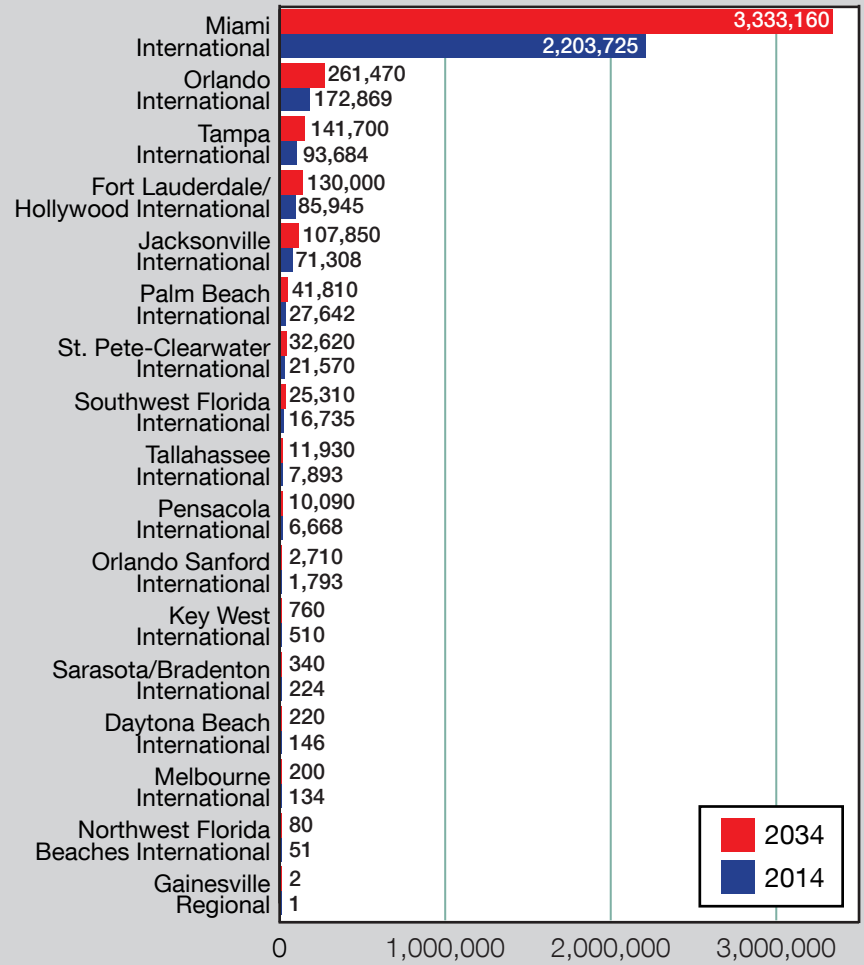
[7] *The 2016 Air Cargo Study forecasted through 2034 instead of the 2035 planning horizon of the FASP 2035 Update.*

Of the Florida airports, Miami International Airport (MIA) is dominant in terms of enplaned and deplaned air cargo tonnage. MIA is the leader in the Americas in international air freight and the world's largest gateway to Latin America and the Caribbean, serving as a hub for the distribution of perishable products, hi-tech commodities, telecommunications equipment, textiles, pharmaceuticals, and industrial machinery. **MIA has increased its market share in Florida in terms of air cargo tonnage throughput from 73 percent in 1997 to 81 percent in 2014. During the same period, airports such as Orlando International (MCO), Fort Lauderdale/Hollywood International (FLL), and Tampa International (TPA) all saw their market share decrease. Over the next 20 years, percent market share of air cargo operations is projected to remain constant.** By 2034, MIA will serve 3.3 million tons of enplaned and deplaned shipments, followed by MCO (261,470), TPA (141,700), and FLL (130,000).

In the coming decades, Florida's airports will be challenged to keep pace with the growing demand for air cargo. Online retailers now promise consumers near-immediate delivery of goods, placing new pressures on existing logistics networks. This issue will be compounded by an aging demographic that will increase demand for home deliveries of pharmaceuticals and other medical products.

As demand rises, airports must develop new infrastructure to seamlessly transition goods from air to surface networks. Further, automobile and truck traffic bottlenecks around airports may limit the ability of airports to effectively serve new, larger cargo aircraft now entering service—an issue over which Florida's airports have little control.

Historic and Forecast: Total Air Tonnage by Airport



Note: Destin-Ft. Walton Beach, Northeast Florida Regional, and Punta Gorda airports report zero current or anticipated future air cargo activity and are thus excluded from this chart.

Source: FDOT ASO Florida Air Cargo Study (2016)

2016 Air Service Study

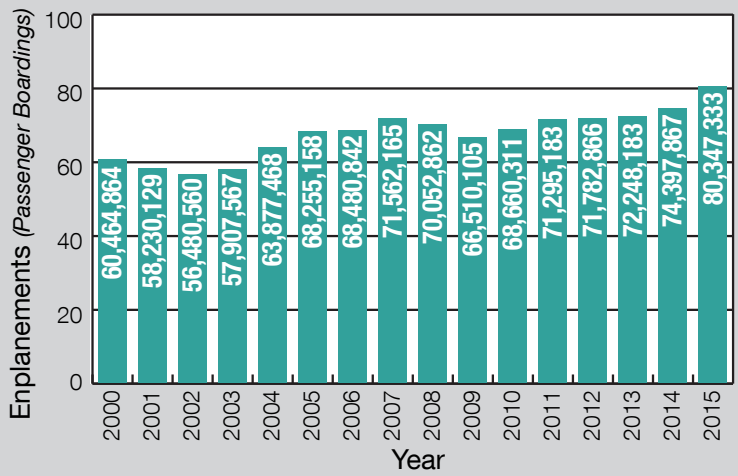
Florida continues to have one of the most comprehensive aviation systems in the U.S. with 20 airports offering regularly scheduled commercial service. In 2016, the state welcomed a record-setting 168.7 million commercial airline passengers (both enplaning and deplaning), surpassing Texas to become second in the nation in total passengers. Today, Florida airports are carrying more passengers to more destinations than ever before.

Today, Florida's airports offer **direct, non-stop service to 132 domestic destinations—** up from just 78 destinations in 2000.

Domestic Service Trends

In the summer of 2015, an average of 10,180 nonstop domestic flights were scheduled each week from Florida's airports. These flights supported an average of 1.33 million departing seats, a noticeable increase from the 1.24 million departing weekly seats reported in 2013. During this same time, Florida experienced the highest number of average seats per flight ever reported during the study period (2000 – 2015). The increase in the average seats per flight can be attributed to an increase in jet utilization over other aircraft types.

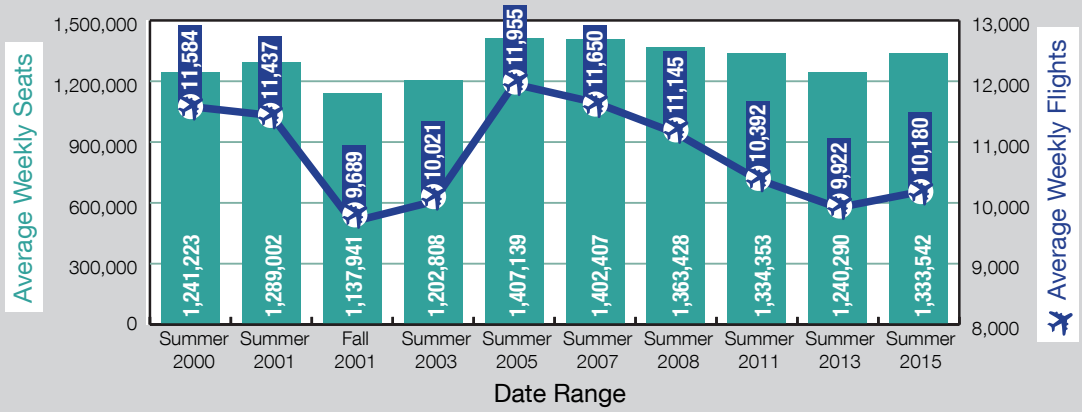
Annual Statewide Enplanements



Source: Summarized from U.S. DOT DB1B Market Fare Data and O&D Survey, Reconciled from Schedules T-100

In all study years, Orlando International Airport has had the highest number of domestic destinations served and weekly departing domestic seats. While this service pattern remained unchanged through the summer of 2015, there was a decline in the scheduled weekly departures between 2013 to 2015 from 2,479 to 2,405. During this same period, the number of destinations served increased from 70 in 2013 to 76 in 2015.

Weekly Flight Data



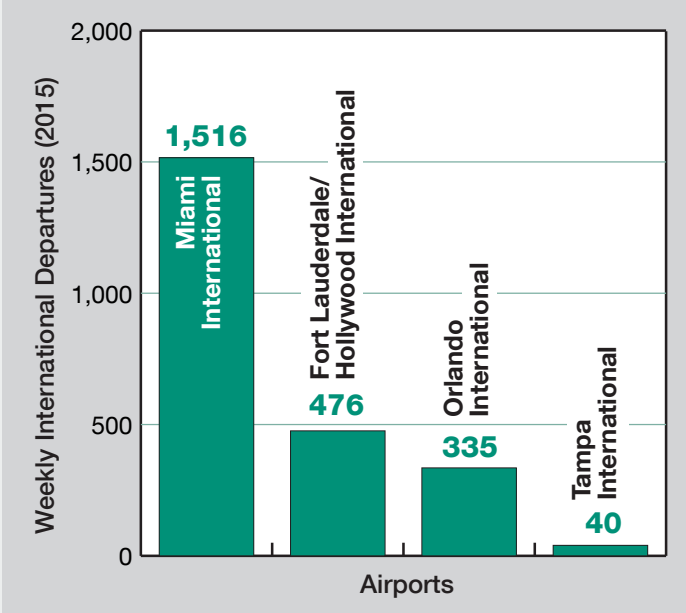
Source: FDOT ASO Air Service Study (2016)

International Service Trends[8]

In addition to domestic scheduled commercial service, nine of Florida's airports offer service to international destinations. Most recently, Jacksonville International (JAX) added service to the Bahamas, and Sarasota–Bradenton International (SRQ) added service to Canada. MIA has offered the highest number of weekly departures to international destinations in all years of the study period (2000 to 2015). In 2015, MIA hosted 1,516 departures representing 71 percent of the state total. Other major international commercial service providers include Orlando International Airport (MCO), Fort Lauderdale/Hollywood International (FLL), and Tampa International (TPA).

Overall, the number of departures for international destinations has steadily increased since 2011, with the largest increase in flights to destinations in South America. Florida witnessed 2,414 weekly international departures in 2015, a 10 percent increase since the Air Service Study was last completed in 2013.

Top International Service Providers in Florida



Source: FDOT ASO Air Service Study (2016)

In 2016, Vero Beach Regional Airport became the newest in Florida to establish scheduled commercial service and now provides direct access to Asheville, North Carolina and Newark, New Jersey. Northeast Florida Regional Airport added commercial service in 2014 when Frontier Airlines began offering scheduled commercial flights between St. Augustine and Trenton, New Jersey.

[8] *Note: International service data does not include international charter service for any of the airports, including Orlando Sanford International Airport (SFB), which accommodates a notable number of international charter flights.*

Tampa International Airport

34-16
Sky Chefs

7. Analysis

The Florida airport system serves the needs of diverse types of users such as business and leisure travelers; recreational, corporate/business, and sport aviators; global air cargo shippers; emergency responders and medical personnel; the U.S. military; and the federal and state agencies that support safety, security, and resiliency in Florida and across the nation.

To understand if the system is able to safety, efficiently, securely, and conveniently accommodate the diverse demands placed upon it, the FASP 2035 Update conducted a series of interrelated analyses. These analyses assessed the adequacy of the system from multiple perspectives to help FDOT Districts and the Central Office plan for future demands and guide decision-making and funding allocation processes.

System Performance

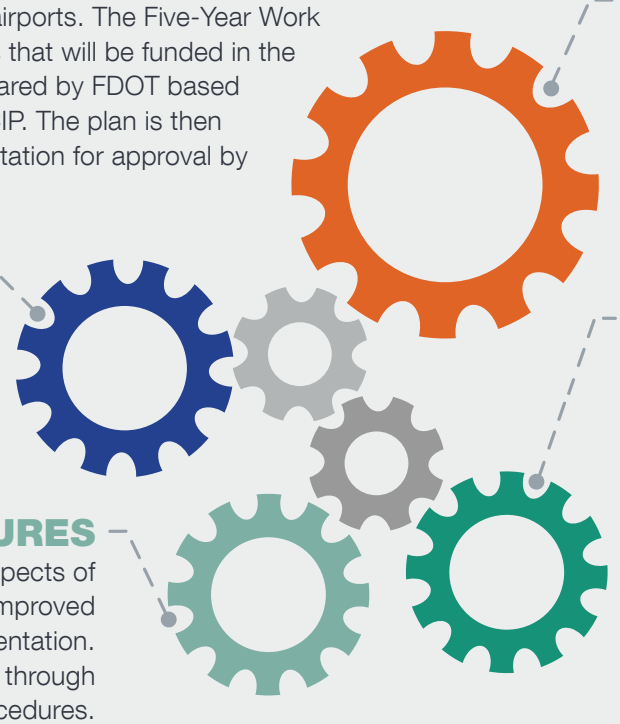
The FASP 2035 Update began by validating the seven goals of the Florida airport system established during prior planning efforts. These goals were developed as a collaborative effort between the FDOT ASO, Florida's public-use airports, the FAA, and other interested parties.

Based on these goals, the FASP 2035 Update developed objectives, performance measures, and performance indicators that provide the framework for measuring the system's ability to achieve existing and future demands. Performance measures and indicators serve as the mechanisms for identifying specific areas of achievement, prioritizing opportunities for improvement, and quantifying the system's overall success in achieving the goals of the FASP.

It is important to note that this effort serves only to assess the performance of the FDOT ASO and Aviation Five-Year Work Program and is not used to evaluate individual airports. The Five-Year Work Program identifies the specific projects that will be funded in the coming year. The plan is annually prepared by FDOT based on the projects submitted into the JACIP. The plan is then submitted to the Secretary of Transportation for approval by July 1 of each year.

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.



GOALS are the overarching targets that the Florida airport system is striving to achieve. Goals provide the guiding compass by which all other measures and tasks are designed.

OBJECTIVES identify specific areas where progress is desired to achieve each goal. Because goals tend to be broad in nature, multiple objectives are required to support each goal.

PERFORMANCE MEASURES quantitatively evaluate specific aspects of system performance that can be improved through funding or project implementation. FDOT can influence these items through funding, projects, policies, and procedures.

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. These are items that FDOT cannot influence but help to assess the performance of the system.

Statewide Performance Assessment

The following tables provide the goals, objectives, performance measures, and performance indicators used to measure the performance of the Florida aviation system during the FASP 2035 Update. Performance measures are the metrics that FDOT can influence through funding, planning efforts, or policies and procedures, while performance indicators are used to gather data on those aspects of the system that cannot be directly affected by FDOT action. Additional information about statewide performance measures is provided below the table. The PMs/PIs denoted with an asterisk (*) are also measured by FDOT in its evaluation of the state's multimodal connectivity.

Statewide Performance by Objectives, Measures, and Indicators

Objectives		Performance Measure (PM) / Performance Indicator (PI)		Statewide Performance Assessment
Goal 1: Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors				
1.1	Ensure that FASP airports operate at an efficient demand/capacity (D/C) ratio.	PM 1.1.1	Number of FASP airports with an annual airfield D/C ratio of 60% or more*	9.4%
		PM 1.1.2	Number of FASP airports with an annual airfield D/C ratio of 80% or more*	7.0%
		PM 1.1.3	Number of FASP airports identified in FAA Future Airport Capacity Task (FACT) reports for capacity concerns	0.7%
		PI 1.1.1	Number of FASP airports with terminal-related development projects (building, rental car, parking) and the amount of JACIP funding identified for these projects	41.4%
		PI 1.1.2	Percentage of "on time" flights relative to departure reliability*	83.0%
1.2	Achieve and maintain 100% of primary runways at FASP airports in compliance with FAA and FAC 14-60 Runway Safety Area (RSA) standards.	PM 1.2.1	Number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their primary runways	24.2%
1.3	Achieve and maintain 100% of non-primary runways at FASP airports in compliance with FAA and FAC 14-60 RSA standard.	PM 1.3.1	Number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their non-primary runways	12.5%
1.4	Support protection of people and appropriate land uses and controls of runway protection zones (RPZs) at FASP airports.	PM 1.4.1	Number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for RPZ of the primary runway	Performance to be determined (TBD) during future analyses
		PI 1.4.1	Number of FASP airports that have incompatible land uses within the RPZs of the primary runway	96.1%
		PM 1.4.2	Number of FASP airports, as determined by a statewide database of land use, that control (through fee simple) the land for the RPZs of non-primary runways	Performance TBD during future analyses
		PI 1.4.2	Number of FASP airports that have incompatible land uses within the RPZs of the non-primary runways	68.0%
1.5	Achieve compliance with Florida statute regarding security plans.	PI 1.5.1	Number of FASP airports with a runway greater or equal to 5,000 feet in length that report having a security plan	73.0%
1.6	Ensure FASP airports can maintain operational capabilities during disasters.	PI 1.6.1	Number of FASP airports with standby emergency power for airfield lighting	54.7%
		PI 1.6.2	Number of FASP airports with standby emergency power for fueling operations	35.9%
		PI 1.6.3	Number of FASP airports with standby emergency power for its terminal	44.5%
1.7	Ensure FASP airports address wildlife hazards through appropriate means.	PM 1.7.1	Number of FASP airports with completed wildlife hazard site visits, assessments, and/or management plans	53.9%

Objectives		Performance Measure (PM) / Performance Indicator (PI)		Statewide Performance Assessment
1.8	Support FASP airports in meeting FAA airfield geometric design criteria to promote operational safety.	PM 1.8.1	Number of FAA-obligated FASP airports that meet current FAA taxiway design standards	81.3%
		PM 1.8.2	Number of FAA-obligated FASP airports that have FAA designated airfield "hot spots"	14.1%
Goal 2: Contribute to operational efficiency, economic growth, and competitiveness while remaining sensitive to Florida's natural environment				
2.1	Encourage revenue generation at FASP airports to enhance airport self-sufficiency by assisting airports to develop business plans in accordance with FDOT's Florida General Aviation Airport Business Plan Guidebook.	PI 2.1.1	Number of FASP airports that report having a business/marketing plan	48.4
2.2	Enhance the competitiveness of Florida SIS airports for intermodal enhancement funding. Provide seamless transportation for Florida's travelers from point of departure to destination.	PI 2.2.1	Number of commercial service SIS airports reporting direct bus service	67.0%
		PI 2.2.2	Number of commercial service SIS airports reporting direct passenger rail connections	17.0%
		PI 2.2.3	Percentage of levels of service (or LOS) on SIS Highway Airport Connectors that are LOS A through C*	59.0%
2.3	Encourage economic, environmental, and community sustainability planning for FASP airports.	PI 2.3.1	Number of airports that have plans on file with FDOT (master plans and sustainability plans)	80.5%
Goal 3: Support and enhance the national position of leadership and prominence held by Florida's aviation industry				
3.1	Maintain Florida's status as a national leader in supporting aviation.	PI 3.1.1	Amount of Florida's aviation funding in relation to other states	$252M (Fiscal year [FY] 2016/17)/ First in U.S.
		PI 3.1.2	Amount of Florida's aviation economic impact in relation to other states	$94,047M/Third in U.S (2015)
		PI 3.1.3	Number of pilot certificates held in Florida (by category)	55,692 (total, 2016)
		PI 3.1.4	Number of US Parachute Association licenses issued in Florida	2,567 (total, 2017)
		PI 3.1.5	Number of revenue passengers boarding aircraft*	78,074,209 (2015)
		PI 3.1.6	Tonnage of all air cargo landed at FASP airports*	1,237,269 tons (2014)
		PI 3.1.7	Value of air cargo transported at FASP airports*	$132,541M (2014)
		PI 3.1.8	Number of based aircraft in Florida	11,897 (2016)
Goal 4: Protect airspace and promote compatible land uses around public airports				
4.1	Encourage FASP airports to work with communities to enact airport zoning ordinances compatible with Chapter 333, F.S. and FDOT's Florida Airport Compatible Land Use Guidebook.	PM 4.1.1	Number of FASP airports reporting that surrounding municipalities have enacted airport zoning ordinances compatible with Chapter 333, F.S.	0.0%
4.2	Encourage mapping at FASP airports that is compatible with FAA's electronic Airport Layout Plan (eALP) standards.	PM 4.2.1	Number of FASP airports reporting that they have mapping compatible with FAA eALP standards	41.1%

Objectives		Performance Measure (PM) / Performance Indicator (PI)		Statewide Performance Assessment
Goal 5: Foster technological innovation and support the implementation of new technologies				
5.1	Encourage the development of GPS-based instrument approaches.	PM 5.1.1	Number of FASP airports with a Global Positioning System (GPS) approach	64.1%
5.2	Encourage readiness of FASP airports to meet NextGen requirements.	PI 5.2.1	Number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima between 3/4 mile and less than one mile	19.5%
		PI 5.2.2	Number of FASP airports that meet the FAA standards for an instrument approach procedure with visibility minima less than 3/4 mile	16.4%
5.3	Ensure unmanned aerial system (UAS) operations are considered in the state infrastructure and airway system in accordance with FAA directives.	PI 5.3.1	Number of coordination events with various UAS stakeholders (e.g., institutions of higher learning, UAS manufacturers, etc.) in the development of UAS technologies	Performance TBD during future analyses
Goal 6: Promote support for aviation from business, government, and the public				
6.1	Quantify and communicate the economic impact of FASP airports.	PI 6.1.1	Change in the economic impact of FASP airports	+3.1% (2010 to 2014)
6.2	Coordinate with Enterprise Florida to advertise the availability of resources and developable land at FASP airports to aviation-minded businesses around the country.	PI 6.2.1	Number of coordination meetings with Enterprise Florida representatives to communicate the economic impact and business development opportunities of FASP airports	Performance TBD during future analyses
6.3	Encourage airports to maintain pavement in an above average level of condition.	PI 6.3.1	Number of airport pavement condition index (PCI) inspections per year	45 – 50 airports per year (historic)
Goal 7: Foster Florida's reputation as a military- and aerospace-friendly state				
7.1	Coordinate with military aviation representatives as it relates to the Florida aviation system.	PI 7.1.1	Number of military officials participating in the CFASPP process	Performance TBD during future analyses
		PI 7.1.2	Number of task force meetings held with military officials	Performance TBD during future analyses
7.2	Coordinate with military on emergency response coordination efforts.	PI 7.2.1	Number of coordination meetings held with emergency response officials, including the military	Performance TBD during future analyses
7.3	Measure the economic impact of military aviation in Florida.	PI 7.3.1	Amount of Florida's aviation economic impact with military aviation units and airports included	$12,786M (2016)

Sources: FASP 2035 Update

The FASP 2035 Update assessed progress on system-wide objectives using 13 performance measures. Because performance measures can be influenced through funding, planning efforts, or policies or procedures, they provide important insight into FDOT's funding priorities. Airports should take performance measures into consideration during the development of capital improvement plans and master planning processes to advance the continued improvement of the Florida aviation system.

Performance Measures

Because performance measures can be directly impacted by FDOT action, these measures provide critical data to FDOT as project funding is allocated and recommendations are implemented across the state. This section provides additional information about the 13 performance measures defined by the FASP 2035 Update to guide the agency's decision-making processes through the planning horizon.

PM 1.1.1 FASP airports with an annual airfield D/C ratio of greater than 60 percent and less than 80 percent

9.4%
Airports with an annual D/C ratio greater than 60 but less than 80 percent

Ensuring that Florida's airports have adequate capacity to handle the demand for aircraft at their airport is paramount to the overall success of the system. If users are not able to quickly and efficiently access an airport, the overall viability of the system greatly diminishes. To assess this measure, the ratio of airfield D/C was analyzed to understand the number of airports that currently have a D/C ratio of greater than 60 percent and less than 80 percent, the point at which planning should be initiated to improve capacity. This data indicates that airfield capacity is not a concern at the statewide level, but planning is needed at individual airports and in certain Districts.

PM 1.1.2 FASP airports with an annual airfield D/C ratio of 80 percent or more

7.0%
Airports with an annual D/C ratio of 80 percent or more

The FASP 2035 Update also reviewed airports with an annual airfield D/C ratio of 80 percent or more, the point at which airports should be implementing steps to enhance airfield capacity to reduce the delays typically associated with such levels of demand. Based on this analysis, FDOT District 6 has the greatest percentage of airports that are at or above the 80 percent threshold (37.5 percent). Approximately 12 percent of airports in Districts 4 and 5 report such figures.

PM 1.1.3 FASP airports identified in FAA FACT reports for capacity concerns

0.7%
Airports identified in FAA FACT reports for capacity concerns

The FAA's Future Airport Capacity Task (FACT) reports identify capacity concerns over a 20-year planning horizon at the national level. The analysis includes current aircraft fleet mix projections, updated NextGen planning, and modeling of gate and surface constraints.

FACT3: Airport Capacity Needs in the National Airspace System, the most current report available (January 2015), evaluated 48 U.S. airports, including six in Florida. Of these six, Fort Lauderdale/Hollywood International Airport is the only airport in Florida identified as having capacity constraints by 2030, although the airport will be "unconstrained if planned improvements are implemented." Based on this analysis, it does not appear that any of Florida's major airports are expected to experience significant capacity constraints that will hinder the national airspace system.

PM 1.2.1 Number of FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their primary runways

24.2%
Airports that do not meet relevant RSA standards on their primary runways

According to the FAA, Runway Safety Areas (RSAs) are rectangular areas surrounding a runway designed to reduce the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runways. An RSA's dimensions are defined based on the runway design code, which is a planning tool based on the approach speed and physical characteristics of the aircraft the runway is designed to support. The dimensions range from 120 feet to 500 feet in width and 240 feet to 1000 feet in length beyond the runway ends. Additionally, Florida Administrative Code (FAC) 14-60.007 defines minimum runway standards for all airports licensed in the state of Florida.

Over 24 percent of airports statewide do not meet RSA standards on their primary runway. Notably, FDOT Districts 1, 5, and 7 have approximately 30 percent of airports not meeting this threshold on primary runways, while close to 10 percent of the primary runways at airports in Districts 3 and 6 are out-of-compliance.

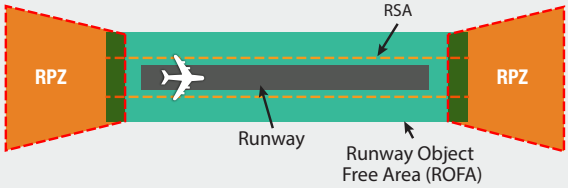
12.5%
Airports that do not meet relevant RSA standards on their non-primary runways

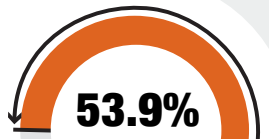
PM 1.3.1 FASP airports identified by FDOT inspection that do not meet relevant RSA standards on their non-primary runways

Seventy-two airports in Florida have more than one runway. Statewide, just over 12 percent of airports with two runways have RSA deficiencies on one of their non-primary runways. However, deficiencies are concentrated in FDOT Districts 1, 5, and 7, with District 7 reporting close to 38 percent of their airports having deficient RSAs for the non-primary runways. None of the non-primary runways at airports within Districts 2, 3 4, and 6 are out-of-compliance.

PM 1.4.1 / PM 1.4.2 FASP airports, as determined by a statewide database of land use, that control (through fee simple ownership) the land for the RPZ of the primary/non-primary runways[9]

The FAA defines several key safety areas on and adjacent to runways. The runway protection zone (RPZ) is a trapezoid-shaped area off each end of the runway designed to protect people and property on the ground if the aircraft lands or crashes off the runway end. These performance measures were established at the beginning of the FASP 2035 Update with the anticipation that data would be supplied through a separate FDOT study to assess compliance with recent amendments to the F.S. Ultimately, this statewide database of land use project was never completed and obtaining complete data for evaluation of these PMs was deemed not feasible at this time. It is recommended that FDOT pursue the completion of this statewide database for evaluation of these PMs in future updates to the FASP.

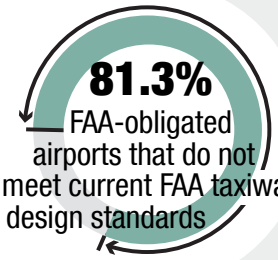




53.9%
Airports that have completed some type of wildlife hazard study

PM 1.7.1 FASP airports with completed wildlife hazard site visits, assessments, and/or management plans

Wildlife proximate to an airfield causes concern for the safe and efficient operation of users. Though birds are the most common type of wildlife hazard at an airport, representing 97 percent of reported strikes, animals such as deer, coyotes, and alligators have also been reported in Florida. Airports can perform wildlife site visits to understand potential threats or develop wildlife hazard assessments or management plans to mitigate these hazards. Over 50 percent of airports in Florida have completed some type of wildlife hazard study. District 4 leads the state in percentage of airports that have conducted a wildlife hazard study at nearly 77 percent.



81.3%
FAA-obligated airports that do not meet current FAA taxiway design standards

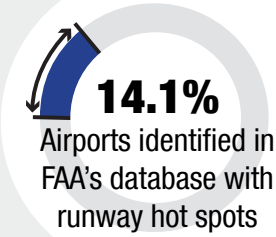
PM 1.8.1 FAA-obligated FASP airports that meet current FAA taxiway design standards

Current FAA design standards identify three primary types of taxiway design deficiencies as direct runway access, wide expanse of pavement, and three-node conflicts. Based on an evaluation of the paved runways in Florida, approximately 80 percent of airports do not meet current FAA taxiway design standards, with all Districts reporting over 70 percent of airports needing improvements to meet the newer standards.

[9] *For purposes of brevity, this text describes PMs 1.4.1 and 1.4.2 concurrently. These measures are identical except for the coverage of primary versus non-primary runways.*

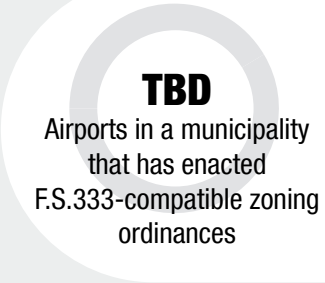
PM 1.8.2 FAA-obligated FASP airports that have FAA-designated airfield "hot spots"

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. The area may also have a history of surface incidents or the potential for surface incidents. Statewide, 14.1 percent of airports have runway hot spots as identified by the FAA. Districts 3 and 7 do not report any hot spots, while Districts 4 and 6 report that over 35 percent of airports have these problematic areas.



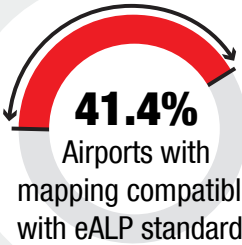
PM 4.1.1 FASP airports reporting that surrounding municipalities have enacted airport zoning ordinances compatible with F.S. 333

On July 1, 2016, the Florida legislature updated the requirements of Chapter 333, F.S. to require all municipalities and counties in Florida to enact local airport-compatible zoning ordinances, including requirements for handling federal height and airspace obstructions. As of October 2017, few municipalities or counties have enacted airport zoning ordinances to meet the updated requirements of Chapter 333, F.S. However, the requirement is new, and many local governments are currently evaluating their existing zoning to determine the best methods to ensure compliance with the new mandate.



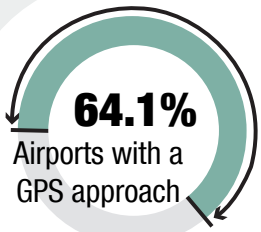
PM 4.2.1 FASP airports reporting that they have mapping compatible with FAA eALP standards

To support NextGen implementation, the FAA is shifting its standards toward electronic Airport Layout Plans (eALPs) instead of the traditional static-map format. eALPs use a GIS to allow airports and the FAA to collect and store aeronautical data, develop satellite-based approach procedures, and better manage the NAS. Statewide, over 41 percent of airports have eALP-compatible mapping. Over 60 percent of airports in FDOT Districts 2 and 6 have eALP-compatible mapping, while FDOT District 1 reported only 22 percent compatibility. Further guidance on eALPs is available at www.faa.gov/airports/planning_capacity/airports_gis_electronic_alp.



PM 5.1.1 FASP airports with a GPS approach

GPS-based approaches enhance the safety of pilots, their passengers, and people on the ground, particularly during inclement weather when visibility is poor. Each type of GPS approach (e.g., LPV, LNAV, LP) provides a different level of guidance to pilots. According to the latest data from the FAA's Satellite Navigation Database, 64.1 percent of airports have a GPS approach. That figure has risen from 54 percent of airports since the data were last collected during the 2004 FASP. All FDOT Districts except District 3 report having over 60 percent of airports with GPS approaches.



Multimodal Performance

In addition to assessing the aviation system through the framework of the performance measures and indicators of the FASP, FDOT annually evaluates the ability of Florida's transportation system to effectively move people and freight in the Florida Multimodal Mobility Performance Measures Source Book (Source Book). Compiled by the Transportation Statistics Office, the Source Book provides current and historical data describing the performance for all major modes of transportation in Florida comprising roadways, aviation, bicycles, pedestrians, railways, seaports, transit, and motor carriers.

The Source Book assesses each mode of travel in three categories using mode-specific performance criteria. Performance criteria are categorized into the four dimensions of mobility:

- **Quantity:** Determines the magnitude of travel on a facility or service, including how much freight is moved and the number of people served
- **Quality:** Describes how good or bad the travel experience is, which has served as the traditional focus for measurements of transportation effectiveness
- **Accessibility:** Gauges the ease of engaging in mobility activities by addressing issues such as connectivity, modal options, and travel durations
- **Utilization:** Measures how much of the transportation system is used or available by describing the relative demand and supply of transportation facilities

The aviation system's performance is presented in the table to the right. Seven of the FASP performance measures and performance indicators are documented in the Source Book.

Multimodal Performance of Florida's Aviation System

Category	Performance Criteria	Results (Data Year)	Dimension
People	Passengers: Total number of revenue passengers boarding aircraft (enplanements)	74.0 million (2015)	Quantity
	Departure reliability: Percent of flights departing less than 15 minutes after the scheduled time	82.6% (2015)	Quantity
	Demand capacity (D/C) ratios: Ratio of the annual operational demand to service operations	35.1% (2020)	Utilization
People and Freight	Highway adequacy (level of service [LOS]): LOS on SIS Highway Airport Connectors	5% at LOS A (2013)	Accessibility
Freight	Tonnage: Weight of all air cargo landed at public airports	2.7 million tons (2015)	Quantity
	Value: Value of air cargo as extracted from the Freight Analysis Framework	$246.3 billion (2015)	Quantity

Note: The Source Book documents the D/C ration of the FDOT airport system. The FASP 2035 evaluated the number of FASP airports with annual D/C ratios of greater than 60 percent but less than 80 percent and greater than 80 percent.

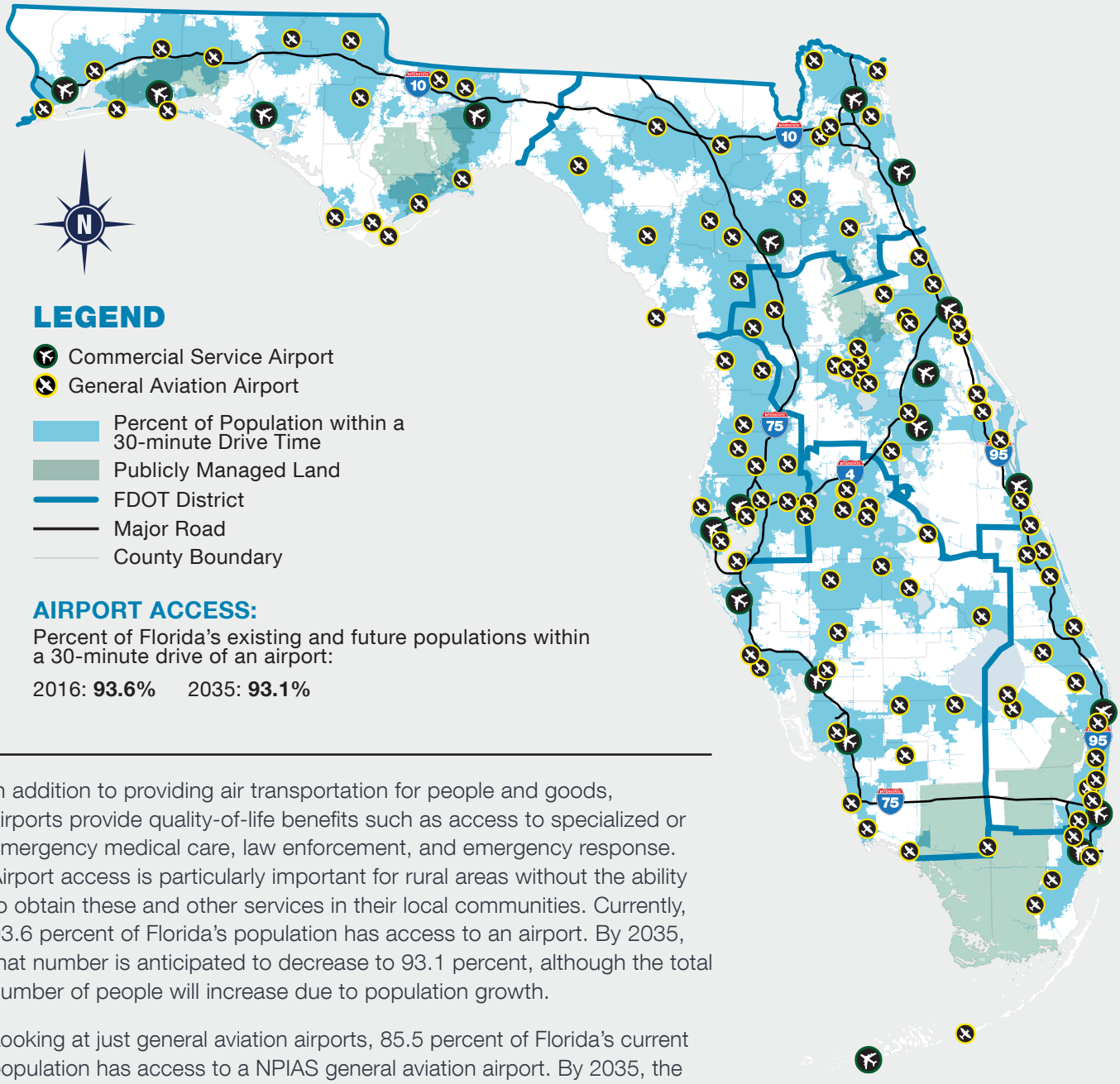
Source: FDOT Multimodal Performance Measures Source Book (2016)

Existing and Future Mapping 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 2035 Update conducted an analysis to determine the percent of Florida's current and anticipated future populations that can access different types of airports within a 30-minute drive or 30 actual miles by air. The FAA uses a 30-minute drive-time criterion to determine the airports that are eligible for inclusion in the 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.

The results of this analysis demonstrate how well Florida's residents are served by the existing aviation system and help identify opportunities for new facilities or services in the future.

Airport Access



LEGEND

- Commercial Service Airport
- General Aviation Airport
- Percent of Population within a 30-minute Drive Time
- Publicly Managed Land
- FDOT District
- Major Road
- County Boundary

AIRPORT ACCESS:

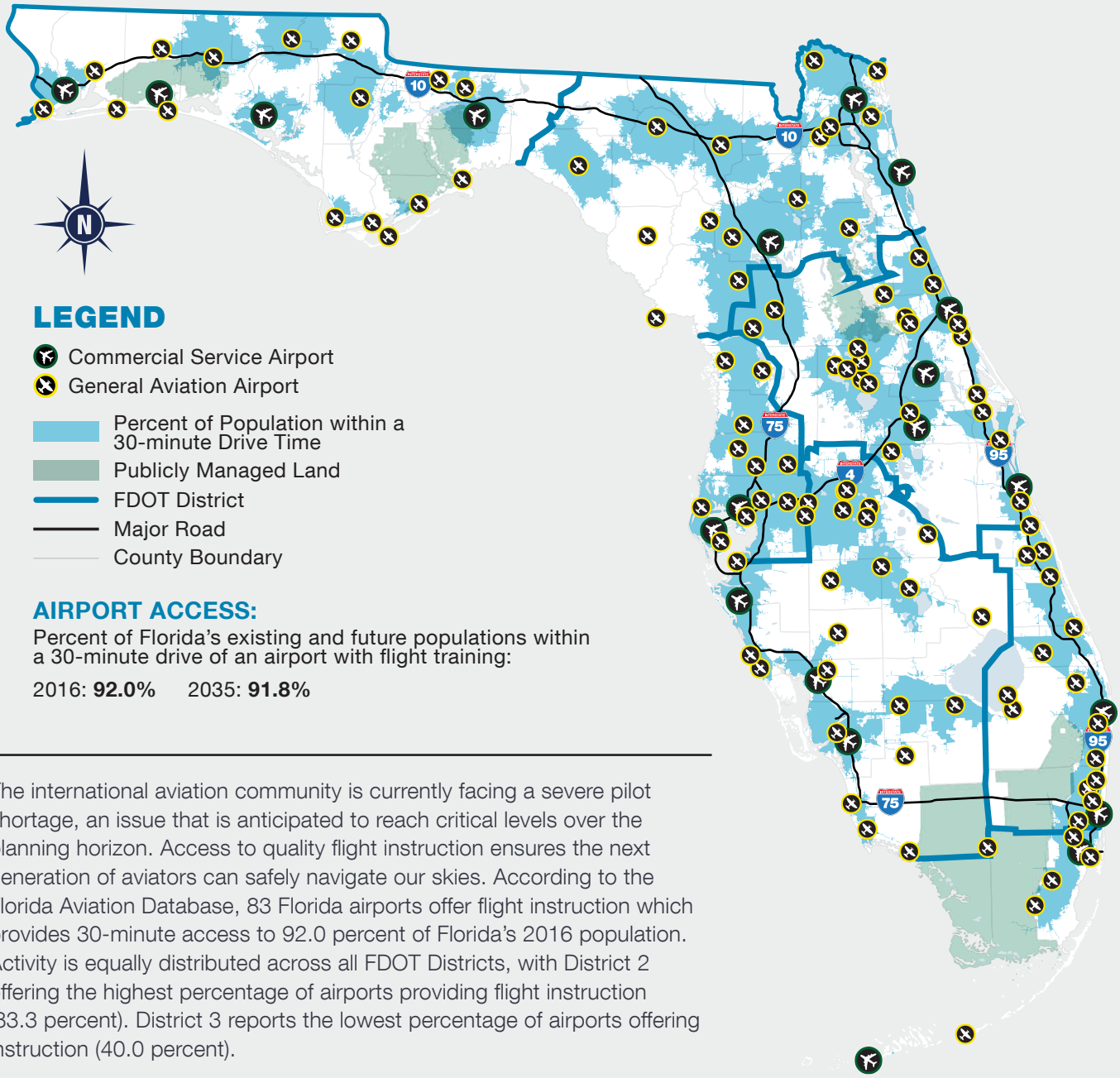
Percent of Florida's existing and future populations within a 30-minute drive of an airport:

2016: **93.6%** 2035: **93.1%**

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 emergency response. Airport access is particularly important for rural areas without the ability to obtain these and other services in their local communities. Currently, 93.6 percent of Florida's population has access to an airport. By 2035, that number is anticipated to decrease to 93.1 percent, although the total number of people will increase due to population growth.

Looking at just general aviation airports, 85.5 percent of Florida's current population has access to a NPIAS general aviation airport. By 2035, the population access will drop slightly to 85.0 percent. Based on this analysis, no major general aviation service gaps exist in the state.

Flight Instruction



AIRPORT ACCESS:

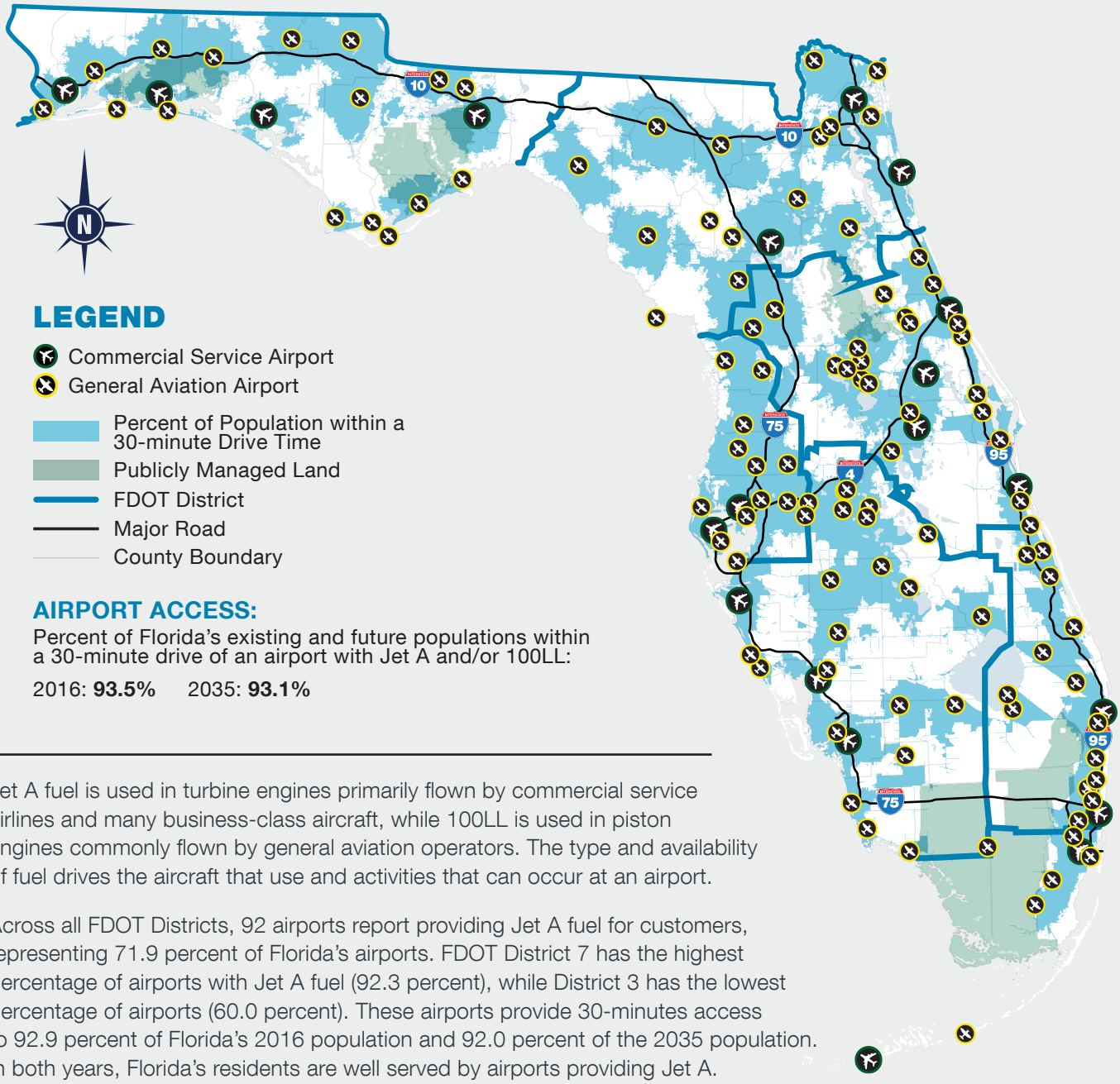
Percent of Florida's existing and future populations within a 30-minute drive of an airport with flight training:

2016: **92.0%** 2035: **91.8%**

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. According to the Florida Aviation Database, 83 Florida airports offer flight instruction which provides 30-minute access to 92.0 percent of Florida's 2016 population. Activity is equally distributed across all FDOT Districts, with District 2 offering the highest percentage of airports providing flight instruction (83.3 percent). District 3 reports the lowest percentage of airports offering instruction (40.0 percent).

Based on projected population growth between 2016 and 2035, the percent of population within 30 minutes of an airport providing flight instruction will fall slightly to 91.8 percent by 2035. Districts 4 and 6 appear to provide the least coverage, although these areas contain relatively low populations and large areas of undeveloped land.

Fuel Availability



LEGEND

- Commercial Service Airport
- General Aviation Airport
- Percent of Population within a 30-minute Drive Time
- Publicly Managed Land
- FDOT District
- Major Road
- County Boundary

AIRPORT ACCESS:

Percent of Florida's existing and future populations within a 30-minute drive of an airport with Jet A and/or 100LL:

2016: **93.5%** 2035: **93.1%**

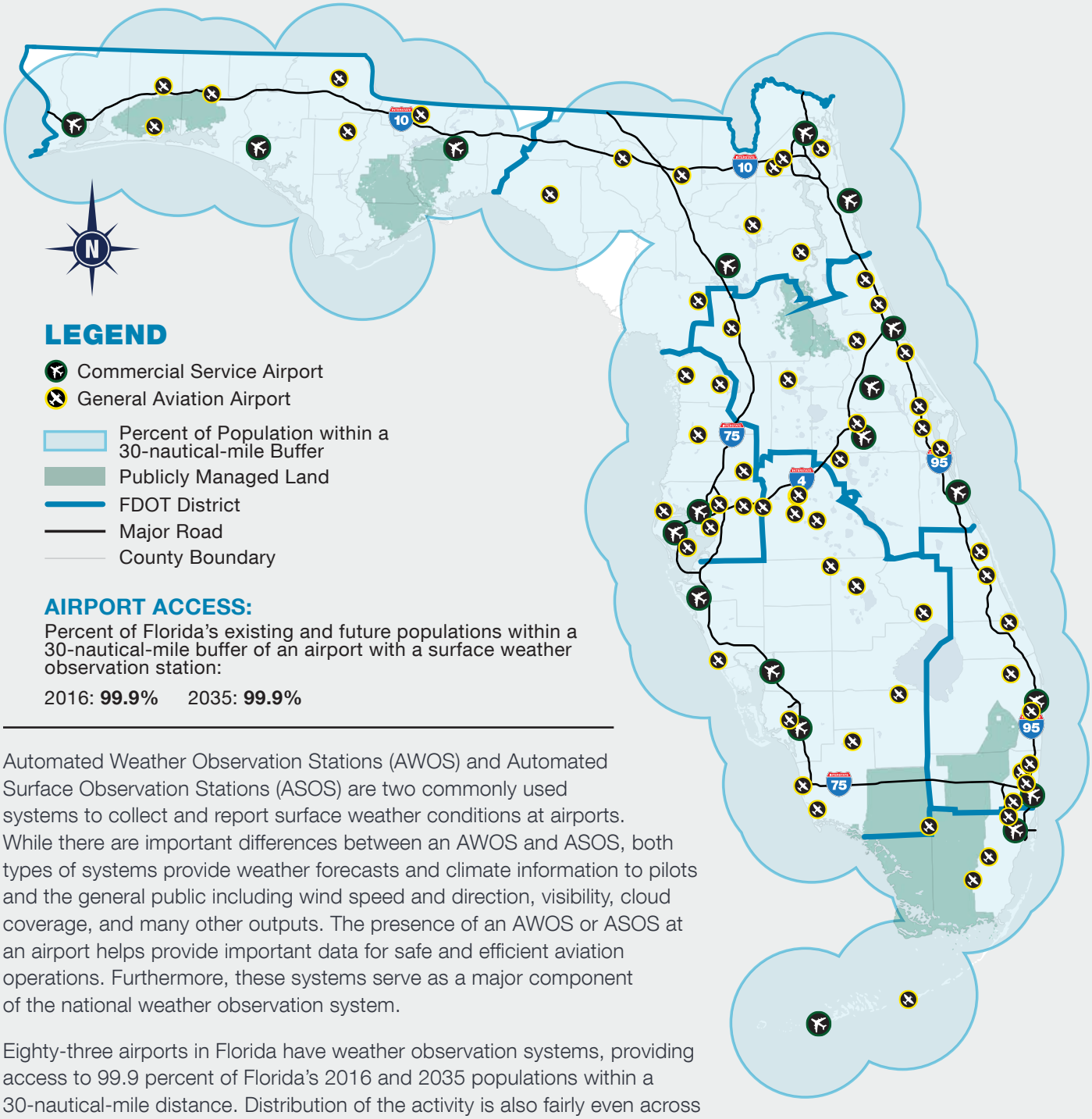
Jet A fuel is used in turbine engines primarily flown by commercial service airlines and many business-class aircraft, while 100LL is used in piston engines commonly flown by general aviation operators. The type and availability of fuel drives the aircraft that use and activities that can occur at an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

Across all FDOT Districts, 92 airports report providing Jet A fuel for customers, representing 71.9 percent of Florida's airports. FDOT District 7 has the highest percentage of airports with Jet A fuel (92.3 percent), while District 3 has the lowest percentage of airports (60.0 percent). These airports provide 30-minutes access to 92.9 percent of Florida's 2016 population and 92.0 percent of the 2035 population. In both years, Florida's residents are well served by airports providing Jet A.

100LL is offered at 107 Florida airports (83.6 percent). In District 7, 100 percent of airports offer 100LL, while District 3 offers 100LL at 75 percent of facilities. In total, 93.5 percent of Florida's 2016 population lives within a 30-minute drive of an airport that offers 100LL. In 2035, that figure will decrease slightly to 93.2 percent.

When considered together, 93.5 percent of Florida's 2016 population lives within 30 minutes of an airport that offers either 100LL or Jet A (or both), decreasing to 93.1 percent by 2035. The largest gaps in service appear in Districts 4 and 6.

Airports with Surface Weather Observation Stations



LEGEND

- Commercial Service Airport
- General Aviation Airport
- Percent of Population within a 30-nautical-mile Buffer
- Publicly Managed Land
- FDOT District
- Major Road
- County Boundary

AIRPORT ACCESS:

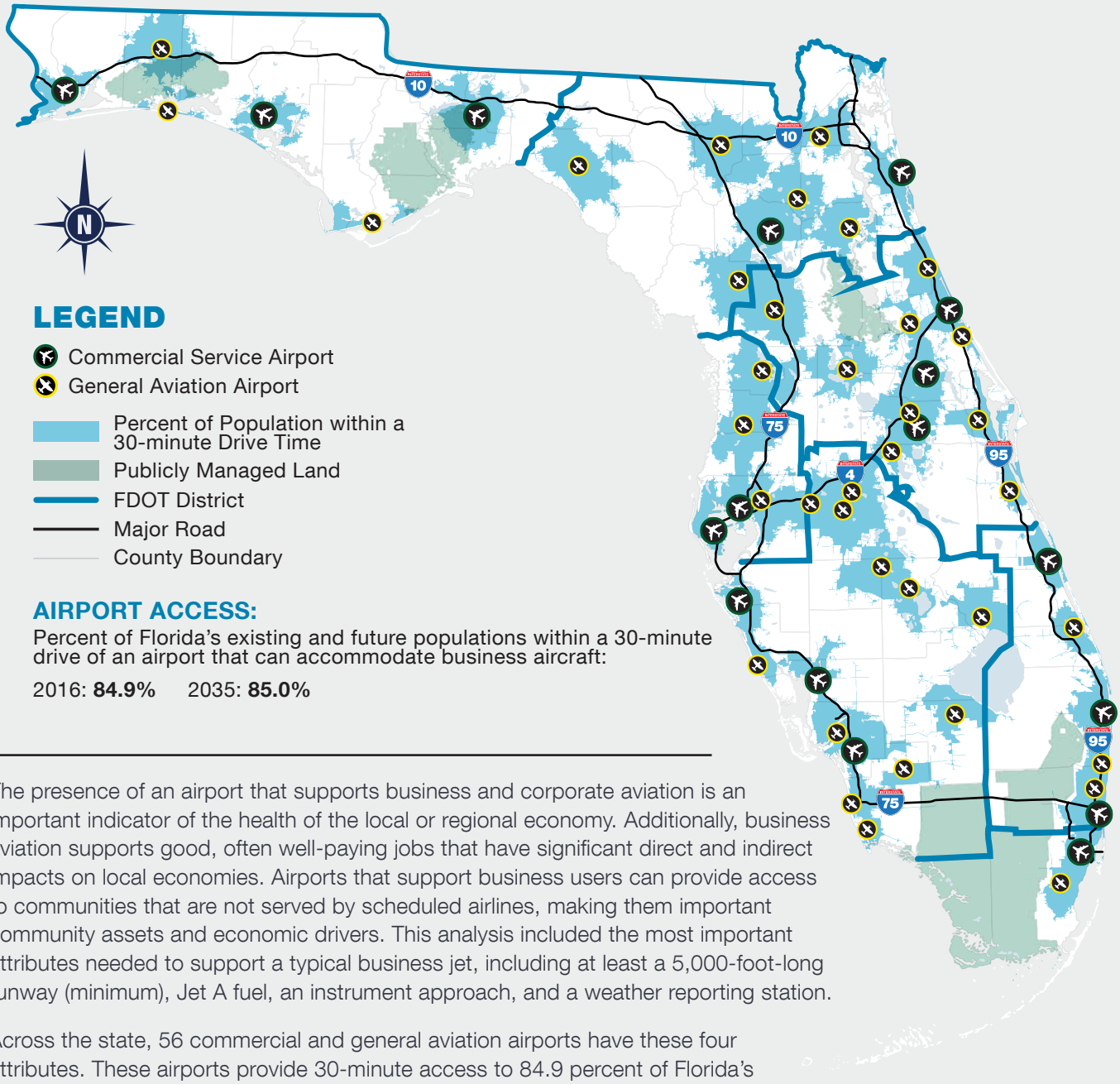
Percent of Florida's existing and future populations within a 30-nautical-mile buffer of an airport with a surface weather observation station:

2016: **99.9%** 2035: **99.9%**

Automated Weather Observation Stations (AWOS) and Automated Surface Observation Stations (ASOS) are two commonly used systems to collect and report surface weather conditions at airports. While there are important differences between an AWOS and ASOS, both types of systems provide weather forecasts and climate information to pilots and the general public including wind speed and direction, visibility, cloud coverage, and many other outputs. The presence of an AWOS or ASOS at an airport helps provide important data for safe and efficient aviation operations. Furthermore, these systems serve as a major component of the national weather observation system.

Eighty-three airports in Florida have weather observation systems, providing access to 99.9 percent of Florida's 2016 and 2035 populations within a 30-nautical-mile distance. Distribution of the activity is also fairly even across all FDOT Districts. District 6 has the highest percentage of airports with weather systems (87.5 percent), while District 3 reports the lowest percentage (50.0 percent). Based on this analysis, almost the entirety of Florida's current and projected future populations are within 30 nautical-miles of an airport with an AWOS or ASOS. The small areas throughout the state without coverage contain relatively few people consisting of less than one percent of Florida's total population. Nautical miles were used for this analysis because this characteristic is most applicable to pilots while in-flight.

Business-user Accessibility



LEGEND

- Commercial Service Airport
- General Aviation Airport
- Percent of Population within a 30-minute Drive Time
- Publicly Managed Land
- FDOT District
- Major Road
- County Boundary

AIRPORT ACCESS:

Percent of Florida's existing and future populations within a 30-minute drive of an airport that can accommodate business aircraft:

2016: **84.9%** 2035: **85.0%**

The presence of an airport that supports business and corporate aviation is an important indicator of the health of the local or regional economy. Additionally, business aviation supports good, often well-paying jobs that have significant direct and indirect impacts on local economies. Airports that support business users can provide access to communities that are not served by scheduled airlines, making them important community assets and economic drivers. This analysis included the most important attributes needed to support a typical business jet, including at least a 5,000-foot-long runway (minimum), Jet A fuel, an instrument approach, and a weather reporting station.

Across the state, 56 commercial and general aviation airports have these four attributes. These airports provide 30-minute access to 84.9 percent of Florida's 2016 population. While each FDOT District has at least three airports that have all four attributes, the majority of facilities are located in Districts 1, 2, and 5. The largest service gaps can be found in Districts 2, 3, 4, and 6 within areas with extensive conservation lands and generally low populations. Most of the major population centers in Florida are accommodated by airports with business-user amenities.

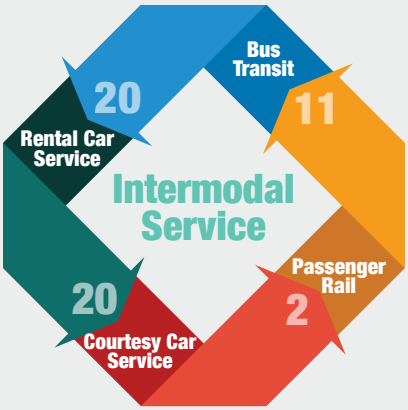
By 2035, the percent of Florida's population with 30-minute access to a business-use airport is anticipated to increase by .01 percent to 85.0 percent. Based on this analysis, nearly all of the state's projected population will have access to a facility with the four attributes of a business-use airport.

Intermodal Requirements and Connectivity

The FASP 2035 Update identified the connections from SIS airports to other modes of transportation to understand the level of integration between Florida's airports, roadways, and alternative modes of transportation including bus transit and passenger rail. 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

The intermodal connections provided at Florida's 20 SIS-designated facilities are provided in the table below.



Total SIS Airports Where Service is Provided

The SIS airports have direct access to 37 roadway connections, 24 of which are designated SIS roadways.

Intermodal Connectivity at SIS Airports

Associated City	Airport Name	FAA ID	Bus Transit	Passenger Rail	Onsite Rental Car	Roadways (Number of Connections)	
						Direct	Indirect
Daytona Beach	Daytona Beach International	DAB			✓	1	4
Valparaiso/Destin-Ft Walton Beach	Destin-Ft. Walton Beach	VPS			✓	3	7
Fort Lauderdale	Fort Lauderdale/Hollywood International	FLL	✓		✓	2	7
Gainesville	Gainesville Regional	GNV	✓		✓	2	6
Jacksonville	Jacksonville International	JAX	✓		✓	2	3
Orlando	Kissimmee Gateway	ISM			✓	2	4
Melbourne	Melbourne International	MLB	✓		✓	1	7
Miami	Miami Executive	TMB			✓	1	6
Miami	Miami International	MIA	✓	✓	✓	2	12
Panama City	Northwest Florida Beaches International	ECP			✓	1	2
Orlando	Orlando International	MCO	✓	✓	✓	2	9
Orlando	Orlando Sanford International	SFB			✓	1	4
West Palm Beach	Palm Beach International	PBI	✓		✓	1	8
Pensacola	Pensacola International	PNS	✓		✓	3	7
Punta Gorda	Punta Gorda	PGD			✓	1	2
Sarasota/Bradenton	Sarasota/Bradenton International	SRQ	✓		✓	3	4
Fort Myers	Southwest Florida International	RSW	✓		✓	2	2
St Petersburg-Clearwater	St. Pete-Clearwater International	PIE			✓	2	8
Tallahassee	Tallahassee International	TLH			✓	1	5
Tampa	Tampa International	TPA	✓		✓	4	4

Daytona Beach International Airport

8. Alternative Scenarios

Planning for the future requires looking ahead to consider the challenges that might lie ahead. Some shifts are gradual, like new technologies and changing demographics, which necessitate minor adjustments to the system over time. Others, like the events of September 11, 2001, and catastrophic weather events such as Hurricane Irma can cause massive changes to entire industries seemingly overnight. By preemptively planning for alternative futures, Florida's airport system becomes more resilient, secure, and adaptable to whatever the future may hold.

While there are many alternative scenarios that Florida may face in the coming decades, the FASP 2035 Update analyzed the potential impacts of three major concepts with the potential to most significantly impact Florida's aviation system.

Stability of Oil Prices

Oil prices are the largest operating expense for aircraft operators. As a result, any fluctuations in the global oil market can have serious implications for commercial service and general aviation industries.

Commercial Service Impacts

The price of jet fuel closely mimics the price trend of oil. When jet fuel prices rise, some airlines try to offset the increased operational costs by raising ticket prices or implementing additional amenity fees such as seat selection and checked baggage. When prices drop, consumers may or may not reap the benefits. Some airlines may use the additional profit to re-invest in their companies, while others will decrease ticket prices to spur additional business. Fluctuations in the oil industry impact commercial service in two key ways:

Airline Capacity

Generally, airlines' profits increase when oil prices drop (unless they have hedged oil at a higher price). In turn, airlines may reduce fares, which can result in an increase in air travel demand. As demand increases, airlines increase capacity by growing their fleet or operations. Florida may benefit from such a capacity increase by drawing more visitors into the state. Conversely, if airlines decrease capacity to counter high oil prices, routes and frequencies may be cut, causing more travelers to choose ground-based travel.

Changing Airline Fleet

Airlines have placed an emphasis on the replacement of older, less fuel-efficient aircraft with new fuel-efficient aircraft to reduce operating costs over time. While orders have fluctuated with the cost of oil, U.S. travelers are likely to see more new aircraft enter the skies in the coming years.

What if...

airlines want to decrease capacity and routes to Florida communities due to increases in oil prices?

Could we...

support service at airports that reach the majority of Florida's population?

General Aviation Impacts

General aviation is undoubtedly the hardest hit segment of the aviation industry when oil prices rise. Business and recreational activities are often constrained by costs, so flying may no longer be economical when oil prices rise. Based on the extent and duration of the increase, new pilots and aviation enthusiasts may also be discouraged from entering the market. This will further exacerbate the current shortage in pilots, mechanics, and other aviation professionals who are critical to sustain the health and vibrancy of the aviation industry.

Furthermore, aircraft owners may be more likely to purchase more fuel-efficient aircraft as oil prices rise. Owners and fixed base operators (FBOs) may then experience a decrease in demand for aviation fuel—which often compose a large portion of an airport's revenue stream. Airports and FBOs in Florida should consider investing in facilities designed to support potential changes in aircraft technology (e.g., electric engines) and alternative fuels (e.g., unleaded AvGas) to keep airports sustainable. FDOT must also be prepared for these advancements, especially as they pertain to state grant programs and the State Transportation Trust Fund which may be used to supplement the cost of infrastructure modifications.

What if...

general aviation activity decreases at Florida airports?

Could we...

assist general aviation airports in diversifying revenue streams and decreasing expenses through state guidance and programs?

Resiliency

The capacity to recover during challenging times is necessary for long-term sustainability. While Florida's airports have played a role in the resiliency of communities, they also face challenges in the form of industry changes that impact their long-term sustainability.

Community

Airports serve as a cornerstone of community resiliency, whether used to provide rapid response to emergency situations or as a staging ground for recovery efforts in the wake of a disaster.

What if...

a natural disaster strikes?

Could we...

maintain Florida's aviation facilities now and in the future to support response efforts?

Fort Lauderdale Executive Airport (FXE) served as a critical base to transport supplies and personnel between the U.S. and Haiti following the devastating earthquakes in late 2009. General aviation aircraft were able to land at small airports and in very rural areas inaccessible to many large aircraft with the flexibility to provide immediate aid to the areas where it was most needed.

Industry

In addition to serving critical functions such as helping Florida's communities remain resilient in challenging times, the aviation system must also be resilient to changes in the industry that threaten the long-term viability of aviation in the state. Florida's aviation industry is currently confronting significant shifts in commercial service strategies, general aviation industry changes, and a diminishing aviation workforce.

Commercial Service

Airline fleets, routes and frequencies, and fare structures are all experiencing a time of transition as airlines strive to keep pace with new technologies, maintain regulatory compliance, and meet the needs of aviation users while maintaining a profit. In turn, Florida's airports will have to adapt airside infrastructure to accommodate new, larger aircraft. Further, changes to routes, frequencies, and fleets can dramatically change landside terminal needs ranging from terminal, security, and baggage facilities to parking structures and ground transportation options.

What if...

airlines change their fleets or service levels?

Could we...

adapt Florida's commercial service airports to support changes in aircraft and capacity?

General Aviation

Increased activity by new aircraft categories including experimental and light sport aircraft, very light jets, rotocraft designs, and aircraft with vertical take-off and landing capabilities has the potential to impact existing and future infrastructure needs. Modifications may entail minor adjustments to major changes to airfield design criteria. The rapid rise in UAS operations also poses new safety concerns if not operated in accordance with federal, state, and local requirements.

What if...

the development and use of new aircraft types accelerates?

Could we...

prepare Florida's general aviation airports to meet new infrastructure needs?

Workforce Adaptation

The number of pilot certificates issued by the FAA has generally been on the decline over the last decade. In particular, the number of student pilot certificates has dropped by nearly 18,000 since 2007. Non-pilot certificates issued by the FAA to the aviation workforce have also declined in many categories, including mechanics, repairmen, ground instructors, and more. While the shortage in the aviation workforce is not a new issue, it has received considerable attention in recent years across industry resources.

In light of this major workforce shortage, industry groups, state departments of transportation, universities, and more have been placing greater emphasis on recruitment and support for students entering the aviation field. Establishing outreach programs and securing funding resources can help offset some of the impending shortage. Florida's unique aviation education assets, including four-year institutions providing specialized programs in aviation such as Embry Riddle Aeronautical University and the Florida Institute of Technology, draw students from around the globe.

What if...

the aviation workforce in Florida continues to decline?

Could we...

establish and enhance educational outreach programs, support infrastructure needs, or provide support for marketing and recruitment to encourage careers in aviation?

Reliance on Tourism

As one of Florida's most important economic drivers, Florida's tourism industry is critically important to many of the state's commercial service and general aviation airports. In 2016, approximately 56 million domestic and international visitors arrived through Florida's airports.

Commercial airports with high concentrations of LCCs and ULCCs operations will likely be impacted first if Florida tourism rates decrease. These carriers typically cater to a large concentration of leisure travelers due to generally lower ticket costs. Legacy carriers often serve a broader mix of flyers, such as business travelers who select an air carrier based on factors such as flight schedules, convenience, and ticket flexibility. Similarly, tourism will likely decline if LCCs or ULCCs reduce service levels to the state. If LCC or ULCCs are unavailable, leisure travelers may select a destination that is served by one of these carriers or choose an alternative mode of transportation (e.g., car, bus, or rail). Under either scenario, the continued success of LCCs and ULCCs is necessary for a sustained level of tourism in Florida.

Although changes in tourism activity in Florida are not anticipated at this time, it is important that airports plan ahead so they are best equipped to handle any shifts in activity if they do occur. Airports with diversified operations such as business/corporate aviation, flight training, and emergency operations will be better poised to adapt to operational changes if tourism rates decline.

What if...

Florida tourism rates decline?

Could we...

prepare Florida's airports to support diverse operations through policy changes?

Sky Chefs

9. Funding

Maintaining a safe, financially sustainable, and efficient statewide system of airports is the responsibility of the FDOT ASO, the FAA, airports sponsors, and local communities. This chapter explores some of the funding mechanisms and processes that are used to continually improve Florida's system of airports. FDOT allocates funds at the state level through the Florida Aviation Grant Program, SIS, and several other mechanisms, while the FAA funds Florida's 100 NPIAS airports through the AIP. With a large system and historical funding levels of close to $500 million per year from federal, state, local, and other sources, these programs help the FDOT ASO and FDOT Districts prioritize project needs and identify funding resources.

Financial Comparison of Federal Needs and State Programming

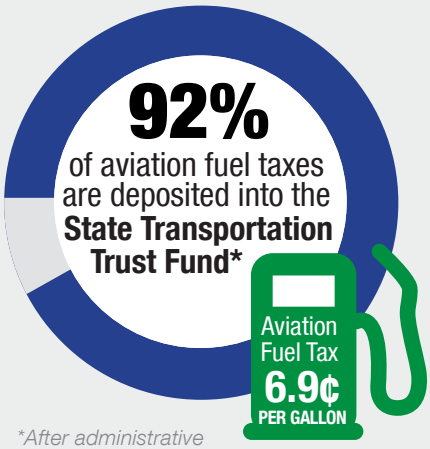
All publicly owned airports open for public use are eligible to receive funding from the FDOT ASO through the Florida Aviation Grant Program. The Florida Aviation Grant Program is the largest single source of airport funding in the state and is the focus of the analysis in this task. This task summarizes the identified needs for the aviation system utilizing available information from both FDOT and the FAA.

Overview of Florida Aviation Grant Program

The FDOT ASO maintains a grant program to assist in providing a safe, cost-effective, and efficient statewide aviation system. FDOT grant funds help airports build and maintain runways and taxiways, eliminate airport hazards, protect airspace, develop plans, acquire land, build terminals and other facilities, and complete other types of airport improvement projects.

The Florida Aviation Grant Program is funded through the State Transportation Trust Fund (STTF), which, in turn, is partially funded by a 6.9¢ per gallon tax imposed on qualifying aviation fuel sales. Per the F.S., at least 15 percent of the STTF must be allocated to the Office of Freight, Logistics and Passenger Operations (FLP). From there, funds are allocated to the four modal offices. While specific funding amounts change each year, the ASO has received over $150 million in each of the last five years. Since 1990, over $3 billion has been appropriated by the state legislature towards the Florida Aviation Grant Program. In general, Florida law allows FDOT to fund:[10]

Florida Aviation Grant Program Funding



**After administrative costs and commercial carrier refunds are taken out.*

- Any capital project on airport property
- Services that lead to capital projects, such as planning and design services
- Selected off-airport projects limited to the purchase of mitigation lands and avigation easements, noise mitigation measures, and access projects for intercontinental airports
- Airport capital equipment if it is not too closely related to day-to-day operations

Projects that receive funding through the Florida Aviation Grant Program must be part of an FDOT-accepted airport master plan and/or an FDOT-approved ALP; be at an airport that is publicly owned, open for use by the public, and included in the FASP; and be entered into the JACIP. Based on the projects that are in JACIP, FDOT District Aviation representatives develop a priority list for projects to be included in the FDOT Five-Year Work Program, which ultimately is used to fund projects.

[10] *Additional information about project eligibility for the Florida Aviation Grant Program are available in the Florida Aviation Project Handbook at www.fdot.gov/aviation/flpub.shtm.*

FDOT ASO Grant Funding

FDOT operates the most robust state aviation funding program in the U.S., contributing upwards of $350 million towards airport projects in some years. As such, the Aviation Grant Program utilizes a very sophisticated funding process to equitably distribute resources between FDOT Districts and airports.

Current Funding Process

Understanding the composition of FDOT is paramount to understanding the FDOT ASO funding process. The FDOT Central Office is responsible for developing policies and guidance for the transportation system. FDOT District offices are responsible for coordinating with the airports within their Districts to fund and complete projects. As shown in the FDOT Project Funding Process diagram, the FDOT ASO and District offices work directly with airports, the FAA, and local governments to ensure that funded projects support the FASP, FTP, and, when relevant, the SIS.

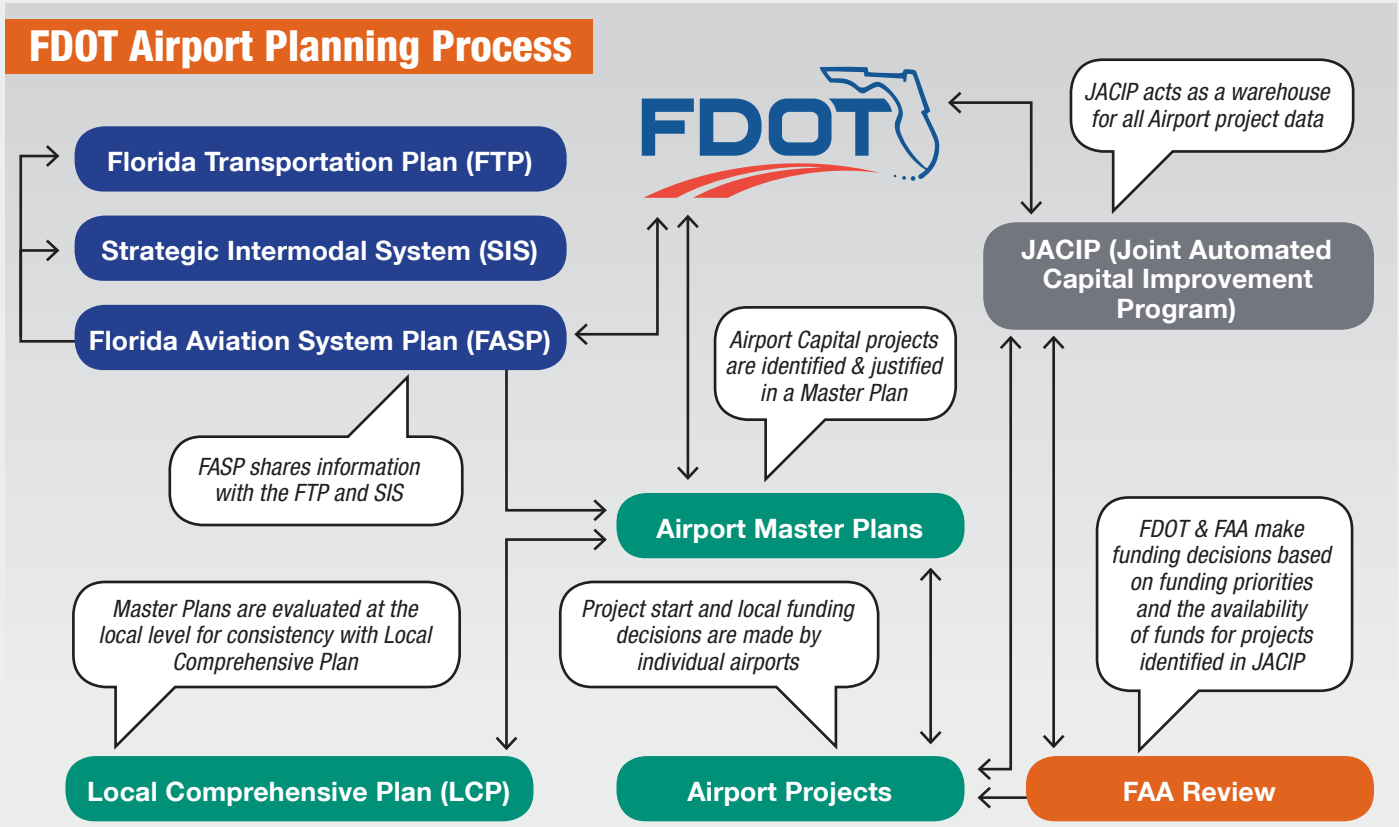
Funding Process Evaluation

The FDOT ASO grant funding process has been instrumental in the development and preservation of Florida's aviation system. The process allows funding decisions to be made at a local level to better address the needs of the airports. The funding process also works well with the FDOT Work Program, which is the financial engine that powers the transportation system.

The Florida Aviation Grant Program is effective as evident by the current operation of the system and the orderly development of airports.

Ability of Funding Processes to Address FASP Goals

It is important for the FDOT funding process to support the seven FASP goals for the Florida aviation system. Based on an evaluation conducted during the FASP 2035 Update, the FDOT grant program is very supportive of the FASP goals related to airport development projects. While specific ties to other, more general goals are not evident, development funding does impact the wider system. Thus, all FASP goals are supported by the grant program.



Source: Florida Aviation Project Handbook

Analysis of FDOT Funding Needs and Programs

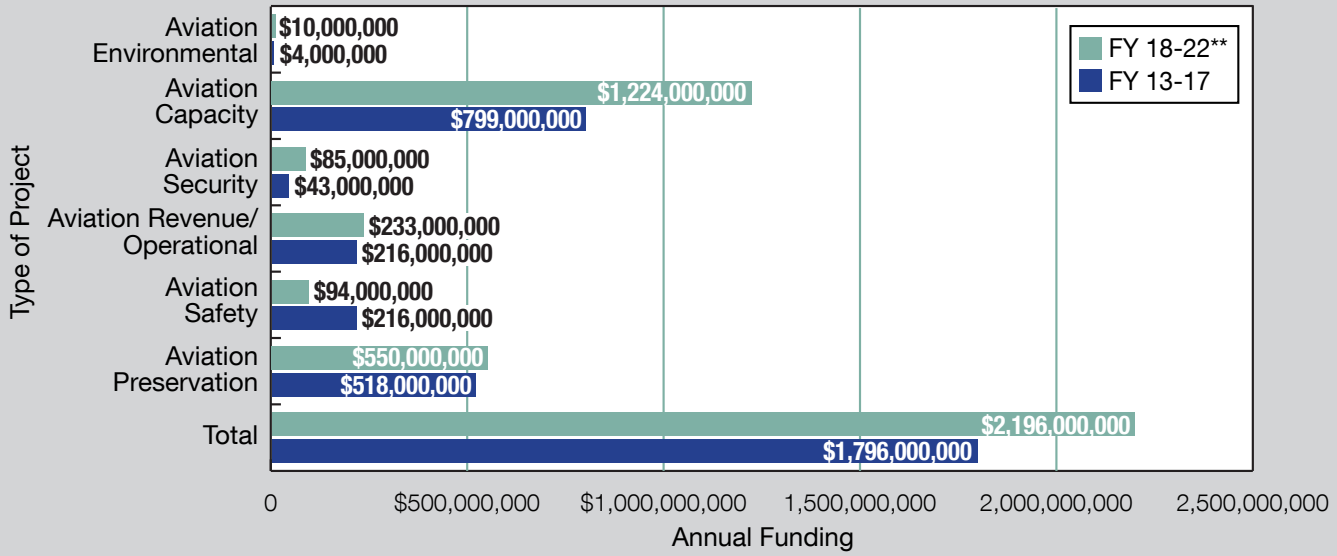
Understanding project funding requests versus project funding needs is useful in evaluating funding distribution and determining if established priorities are being supported. Ultimately, project funding is based on consideration of airport priorities and the following state priorities as identified by F.S. 332:

- Encourage the maximum allocation of federal funds
- State licensing standards per Chapter 14-60, FAC
- State and federal standards for safety
- State and federal standards for security
- Preserve existing airport infrastructure
- Increase the capacity of Florida's airports

F.S. 332.006(8) additionally states that FDOT must encourage the maximum allocation of federal funds to airport projects. Although it is provided in state statute, this priority is not directly accounted for in the FDOT Work Program. It can be assumed that this state priority has applications to all project types that are funded through the Work Program.

The chart provides a breakdown of the changes in funding between the current and previous Five-Year Work Programs by project category. Funding has increased over the past five years across almost all categories, with the notable exception of Aviation Safety Projects. It should be noted that projects in the Work Program are not always categorized correctly and projects can encompass other project categories. For example, there are significant funds allocated for Aviation Capacity Projects; it is likely that the projects also serve to enhance the operational safety of an airport, not just increase capacity.

FDOT Work Program Project Type Comparison*



**Values presented in Florida Department of Transportation (FDOT) fiscal year (July – June). These funds involve varies sources including FDOT, local sponsors, the FAA, and others.*

***Includes non-NPIAS airports, therefore funding is greater than shown for NPIAS airports*

Source: Office of Work Program and Budget (www2.dot.state.fl.us/fmsupportapps/workprogram/workprogram.aspx), Accessed July 2017.

Comparison of FAA and FDOT-Identified Funding Needs

In addition to funds from the Florida Aviation Grant Program, most Florida airports are eligible to apply for and receive grants from the FAA. Through the AIP, the FAA provides funding to airports included in the NPIAS. Over the past five years, the FAA has contributed an average of $157 million in funding to Florida's 100 NPIAS airports annually.

As part of the NPIAS report, a development estimate is provided for each airport that helps to "provide an adequate national airport system." The figures presented are the most realistic estimate of the funding that is needed to keep the national airport system running smoothly and efficiently. According to the FAA's 2017 – 2021 development estimates, Florida's NPIAS airports have over $2.9 billion in identified funding needs over the next five years. Over $1.1 billion (38 percent of the total) is needed for the four large hub airports in Florida. The regional ASSET airports require close to $500 million (16 percent of the total), which indicates substantial needs at those facilities. Because some of these airports relieve commercial service airports, less-than-ideal conditions could limit their ability to optimally function.

The FDOT Work Program has identified approximately $2.2 billion in funding needs for Florida's NPIAS airports over the next five years.[11] Fifty-five percent of the total is identified for large hub airports. Similar to data reported by the FAA 2017 – 2021 development estimates, regional ASSET airports make up the next highest category at 12 percent, highlighting the commitment to funding the needs identified by the latest NPIAS Report.

The evaluation of identified needs and funding from the FAA and FDOT shows that there is a gap in the identified funding between what FDOT has programmed for NPIAS airport projects and the development needs identified in the FAA's latest NPIAS. This gap is approximately $800 million; however, it is not known at this time how much FAA funding will be provided for airports during this timeframe.

Projected FDOT Work Program and FAA Development Estimates For Florida's NPIAS Airports

Airport Categories (Number of Airports)	FDOT Work Program		FAA Development Estimates	
	FY 2018 – 2022	Percent of Total	2017 – 2021	Percent of Total
Large Hub (4)	$1,204,936,504	55%	$1,147,678,721	38%
Medium Hub (3)	$151,645,956	7%	$268,662,845	9%
Small Hub (7)	$185,368,753	8%	$334,314,772	11%
Non Hub (6)	$167,040,874	8%	$270,061,415	9%
National ASSET (10)	$79,877,924	4%	$199,401,103	7%
Regional ASSET (31)	$260,690,317	12%	$478,302,295	16%
Local ASSET (30)	$118,082,286	5%	$254,630,548	9%
Basic ASSET (8)	$15,932,886	1%	$37,572,203	1%
Unclassified ASSET (1)	$150,000	0%	$0	0%
Total (100)	$2,183,725,500	100%	$2,990,623,902	100%

Sources: Office of Work program and Budget (www2.dot.state.fl.us/fmsupportapps/workprogram/workprogram.aspx), Accessed July 2017; 2017 – 2021 National Plan of Integrated Airport Systems (NPIAS) Report.

Note: Funding identified in the Five Year Work Program includes federal funding for projects.

Passenger Facility Charge Program

The Passenger Facility Charge (PFC) program allows airports that enplane at least 2,500 passengers per year to impose a facility fee on enplaning revenue passengers up to $4.50 per each flight segment, for a maximum of $18.00 roundtrip total. PFCs may fund preapproved safety, security, capacity, noise reduction, and air carrier competition enhancements. PFCs can only be expended at commercial service airports or the general aviation relivers owned and operated by the same airport sponsor as the commercial service airport at which the PFC was collected.

Currently, some airport sponsors and airport industry and builder groups are advocating to increase the per-segment limit, with associated increases in roundtrip limits. Airports often rely on PFCs to fund improvements catalyzed by increasing enplanements and operations, emerging technologies, and changing federal airport design standards.

With limited grant funding available, airports are looking to raise capital funds on their own in lieu of solely relying on federal and state grants and the local funds often required to match those grants. With over 80 million passengers enplaning each year at Florida's commercial service airports, PFCs are an effective way to close the $800 million gap between the FAA's 2017 – 2021 development estimates and the anticipated state and federal funding identified for the same period.

[11] *This funding figure includes all FAA, FDOT, and local funds that have been identified in the Five-Year Work Program. Of this total, FDOT will contribute approximately $785,000,000.*

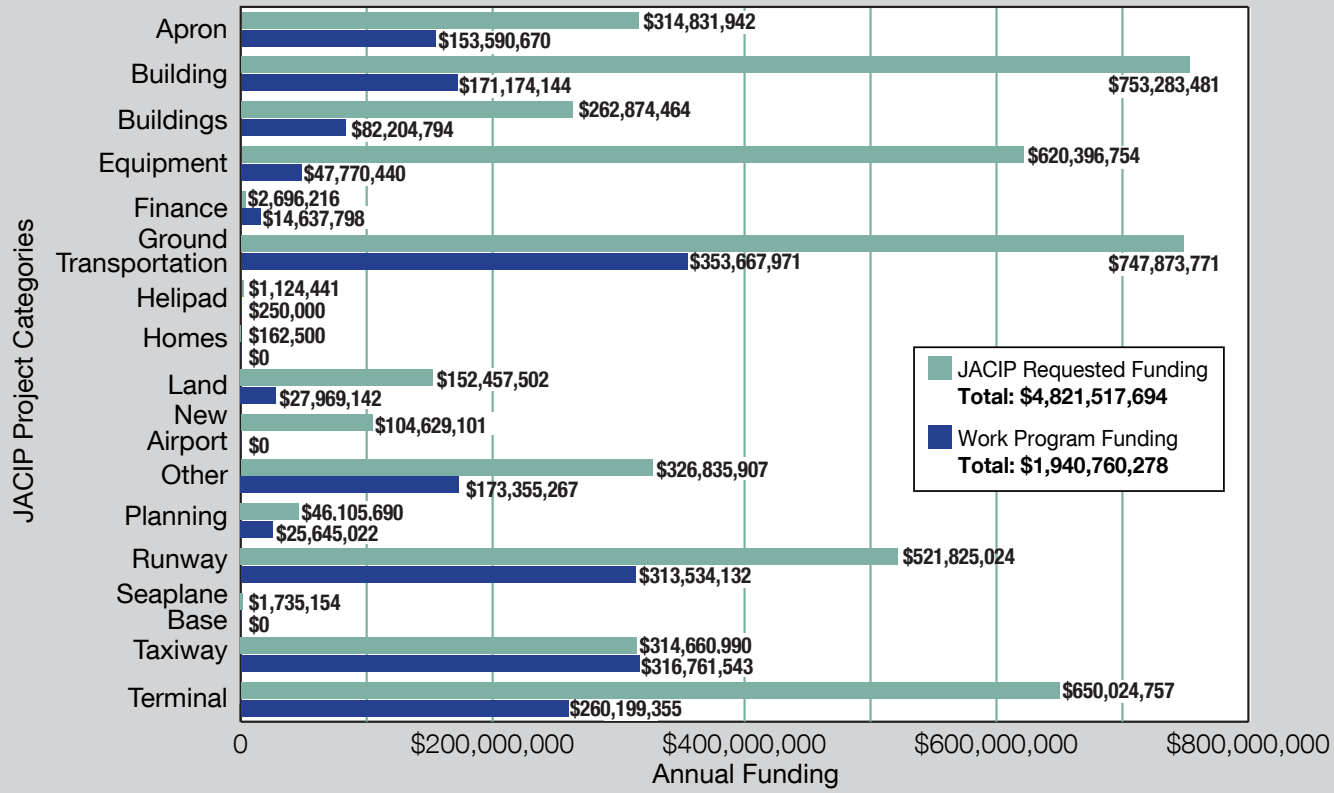
Application of State Strategic Goal Assessment Tool

The State Strategic Goal Assessment Tool (SSGAT) was developed as part of the FASP 2025 Update to evaluate projects that are entered in the JACIP. The SSGAT uses a weighted matrix based on how well each project addresses the goals established by the FASP and its FAA project category. FAA project category weights are static, while FASP goal values are adjusted based on the ability of a specific project to accomplish the goals of the FASP. The final score of a project within the JACIP is the combined total of its FAA project category and FASP goal values.

The FASP 2035 Update examined the relationship between the state's planned investment in aviation projects (Work Program) and attainment of the FASP 2035 Update goals by comparing projects in the JACIP to the current Work Program and the associated funding levels. The results of this analysis demonstrate how much funding has been allocated to achieve the goals of the FASP 2035 Update, assuming the SSGAT's methodology is considered appropriate.

The chart depicts the findings of this analysis presented by the 16 project types of the JACIP. The SSGAT analysis revealed many project categories from the SSGAT are successful in supporting the goals of the FASP; however, there are some that do not appear to have a high correlation. There also appears to be a large discrepancy in how SSGAT scores are assigned, which could impact the projects that are programmed and their abilities to support the goals of the FASP.

Comparison of JACIP and Work Program Funding (FY17-22)



Source: Florida Aviation Database (FAD); Florida Department of Transportation (FDOT) Work Program Data, Accessed March 2017.

SIS-Funded Projects Analysis

The SIS represents the largest, most significant, and highest priority transportation facilities in the state. Data on the SIS program from the FDOT Office of Policy Planning and FDOT Systems Implementation Office, and aviation-specific SIS data from the FDOT Florida Aviation Project Handbook, were analyzed to better understand the project eligibility and use of SIS funding in the last five years. This section also includes a brief summary of the aviation projects that are programmed to receive SIS funds in the next five fiscal years, as well as a summary of roadway projects near SIS airports that are receiving SIS funds.

Projects Eligible for Funding

Airports included in the SIS have access to additional state funding for projects that meet strict eligibility criteria. Specifically, SIS funds are reserved for projects that increase capacity, including terminal expansion, automated people movers, and runway and taxiway expansion. Details about the types of projects eligible for SIS funding are available in the FDOT Florida Aviation Project Handbook.

Historical SIS Funding

An analysis was conducted that evaluated the use of SIS funds over the last five years using data from the FDOT Work Program to understand the types of projects receiving SIS funding.

SIS Funding by Project Type

For all SIS aviation funds programmed between FY13 and FY17, close to 50 percent were used for automated people mover projects, accounting for over $156 million in funding. The second most common project type was terminal expansions, representing 28 percent (over $90 million) of SIS expenditures. Following terminal expansion, runway projects and manufacturing facilities[12] were the next two most common types of projects, which received eight percent ($27 million) and seven percent ($22 million) of SIS funding, respectively. Across all other project types, none received more than three percent of the total SIS aviation funding.

Looking ahead, $115,688,320 in SIS aviation funds are expected to be spent on airports and aviation projects in Florida in the next five years of the FDOT Work Program (FY18 to FY22). A majority (48 percent) of these SIS aviation funds will be spent on terminal expansions, followed by automated people movers. Together, these two project categories account for over 80 percent of all SIS aviation funds over the next five years.

SIS Funding by Project Type, Historic and Future

Project Type	FY13 to FY17		FY18 to FY22	
	Amount	Percentage	Amount	Percentage
Automated People Mover	$156,500,000	47%	$40,000,000	35%
Terminal	$90,812,200	28%	$56,000,000	48%
Runway	$27,774,889	8%	$1,750,000	2%
Aviation Manufacturing	$22,000,000	7%	$0	0%
Taxiway	$8,799,300	3%	$3,425,500	3%
Access Road	$7,553,768	2%	$6,712,820	6%
Air Commerce Park	$7,000,000	2%	$0	0%
Terminal Shuttle Cars	$5,400,000	2%	$0	0%
Cargo Facility	$3,031,546	1%	$300,000	0.3%
Apron	$1,000,000	0.3%	$0	0%
Hangar	$0	0%	$7,500,000	6%
Total	$329,871,703	100%	$115,688,320	100%

Source: Florida Department of Transportation (FDOT) Work Program, FASP 2035 Update

[12] *These projects included the design and construction of aviation manufacturing buildings and supporting infrastructure.*

Funding by FDOT District

As shown in the table below, only four FDOT Districts have or will receive SIS aviation funding during the current and anticipated future funding cycles. In both cases, Districts 5 and 7 are allocated the most SIS funding. Between FY13 and FY17, these two Districts received a combined total of 88 percent of all SIS aviation funding. They are anticipated to receive 84 percent between FY18 and FY22.

SIS Funding by Project Type, Historic and Future

FDOT District	FY13 to FY17		FY18 to FY22	
	Amount	Percentage	Amount	Percentage
District 7	$178,811,500	54%	$78,000,000	67%
District 5	$113,714,577	34%	$19,300,000	17%
District 4	$28,774,889	9%	$7,712,820	7%
District 3	$8,570,737	3%	$10,675,500	9%
Total	$329,871,703	100%	$115,688,320	100%

Source: Florida Department of Transportation (FDOT) Work Program, FASP 2035 Update

Based on this analysis, SIS aviation funds are being used for a very specific set of projects and are most often used at the largest airports in the state. Ninety percent of all SIS aviation funds analyzed from the previous Five-Year Work Program went to large hub airports. This supports the purpose of the SIS, which is to "represent the state's primary means for moving people and freight between Florida's diverse regions, as well as between Florida and other states and nations."

SIS recommendations developed during the FASP 2035 Update are included in **Chapter 10 – Recommendations.**

Tampa International Airport photo courtesy of Michel Curi

Looking Ahead – Non-Aviation SIS Funding

In addition to the numerous projects that have been funded at airports, access to SIS airport facilities on SIS roads is a critically important factor in the overall state transportation system. SIS road facilities make up 25 percent of all state highway centerline miles that account for 55 percent of all vehicle miles traveled on Florida's state highway system and 70 percent of all truck miles traveled on the state highway system. Though these facilities do not explicitly enhance capacity at airports, they do improve overall mobility and access to them.

To understand the level of impact SIS roadway facilities are having on airports, an analysis was completed to determine what SIS roadway projects are being funded within one mile and within five miles of an airport (note: the analysis for projects within five miles of the airport includes the projects that are within one mile of the airport). Funding amounts reflect the number of dollars committed to a project, adjusted to the year of planned expenditure for inflation.

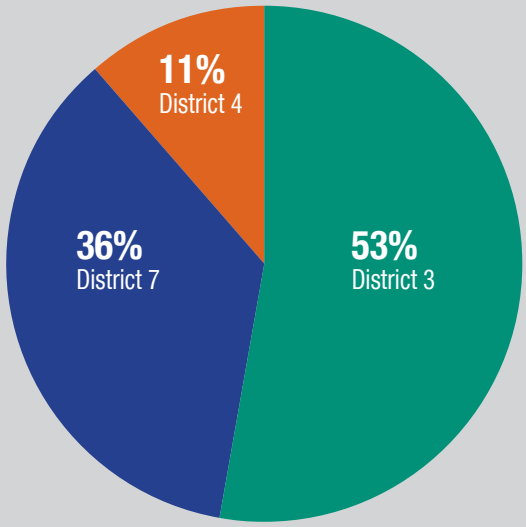
Non-Aviation Project Within One Mile of a SIS Airport

Approximately $519 million of roadway projects are scheduled for funding between FY17 and FY21 for SIS roadways within one mile of a SIS airport.[13]

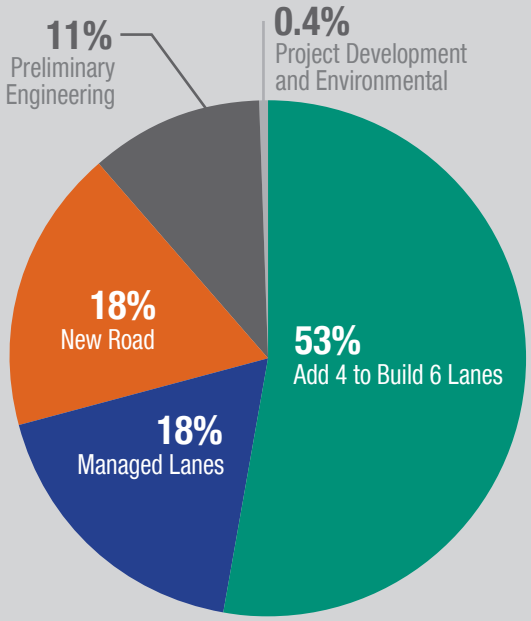
All funds will be expended in three FDOT Districts across five different project types. Of these, a project that involves adding four travel lanes is receiving 53 percent of the funding. Other projects receiving a significant amount of funding include constructing managed lanes and building new roads. Together, these two project types account for 36 percent (18 percent each) of the SIS funding. The other two project types that are programed to receive funding include preliminary engineering, and project development and environmental (PD&E) work.

[13] *FY18-22 data was not available at the time of this writing so FY17-21 was used.*

SIS Roadway Funding Within One Mile



FDOT District



Project Type

Source: Florida Department of Transportation (FDOT) Work Program, FASP 2035 Update

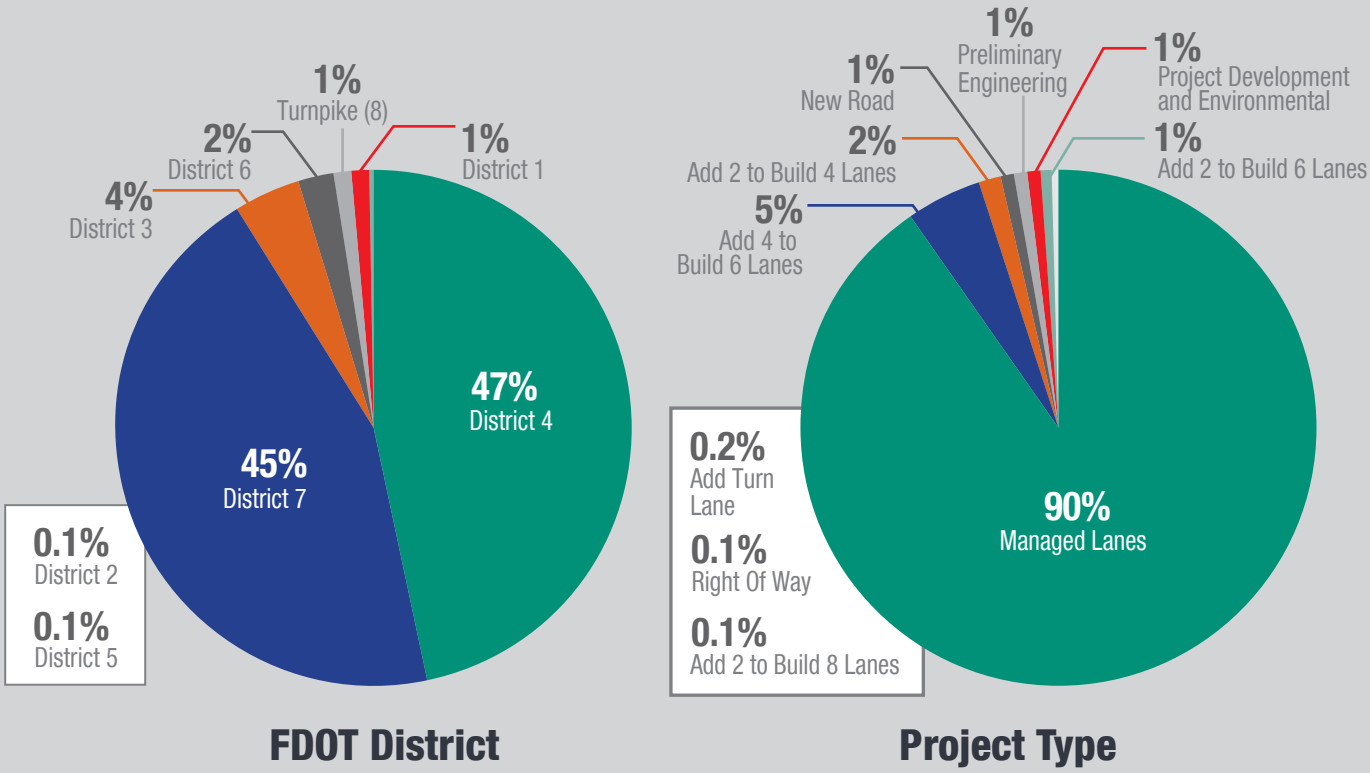
Non-Aviation Project Within Five Miles of a SIS Airport

Over $12 billion of SIS road projects within five miles of an SIS airport are scheduled for funding between FY17 and FY21. FDOT Districts 4 and 7 are programmed to receive 47 and 45 percent, respectively, while all the other FDOT Districts (including the Turnpike[14]), are programmed to receive approximately nine percent of funding. Similarly, projects to construct managed lane facilities are programmed to receive 90 percent of all SIS funds for roadway projects. In total, managed lanes are programmed to receive close to $10 billion more in funding than all other project types combined.

Summary

To help plan improvements and allocate limited resources across the state's system of airports, FDOT ASO and FDOT District staff rely on prioritization processes and alternate sources of funding available to eligible airports. While programs like the SIS help in this effort, a gap remains between the projects identified in the FDOT's FY 18-22 Work Plan and the development estimates included in the 2017 – 2021 NPIAS. The findings in this chapter emphasize the importance of continued coordination between the FAA, the FDOT ASO, FDOT Districts, and airport sponsors to make the most effective use of available resources.

SIS Roadway Funding Within Five Miles



Source: Florida Department of Transportation (FDOT) Work Program, FASP 2035 Update

[14] *The Turnpike is an enterprise under FDOT, but is independent of any District.*

10. Recommendations

Florida has an incredible transportation and economic asset in the form of 128 system airports across the state. These facilities support business, tourism, safety and resiliency, aerospace development and education, and many other functions. The analysis of Florida's aviation system throughout the FASP 2035 Update process revealed a number of strengths. Opportunities for enhancement and change were also revealed during the study's evaluation.

This chapter represents a culmination of recommendations for Florida's aviation system, along with recommendations for existing programs and processes that are used to support continuous system planning efforts.

This collection of recommendations is a result of a collaborative effort between the FDOT ASO and stakeholders to identify opportunities for system enhancement. These recommendations will help guide and inform the FDOT ASO, airport sponsors, FAA, and aviation stakeholders in planning facility, service, and program enhancements moving forward.

Florida Airport System and FASP Inclusion Criteria

Chapter 332 of the F.S. defines the Florida airport system as, "all existing public-use airports that are owned and operated within the state..." However, the statute also states that only publicly owned, public-use airports are eligible for state funding. Privately owned airports have no access to Florida Aviation Grant Program money for airport improvements, and the FDOT generally is unable to influence or assist in their abilities to accommodate aviation demands.

As of October 2017, there are 23 privately owned, public-use airports in the Florida system. Because there are no advantages to the inclusion of private airports, the FASP 2035 Update recommends that the system be changed to only include publicly owned, public-use facilities in accordance with funding stipulations established by state law. This change would reduce the current airport system to 105 facilities with little risk of social or economic impacts resulting from the exclusion of privately owned and operated airports.

The FASP also considered how airports contribute to the system to determine if certain airports provide limited or unidentified benefits. Based on this review, additional criteria for an airport's inclusion in the system were developed. To be included in the system, the FASP 2035 Update recommends an airport must:

- Be verified to be open for public-use
- Be owned and operated by a public agency
- Have a current license per Chapter 14-60, FAC
- Meet current licensing standards for safety, compatible land-use, and/or airspace obstructions per FAC and requirements under Florida statutes
- Be in compliance with Florida Aviation Program Assurances (Grant Assurances)
- Have an eligible sponsor that is able and willing to assume responsibility for managing, maintaining, and developing the facility

Based on the analyses of the FASP 2035 Update,

Florida does not require any new airports. Instead, the existing system can be leveraged to accommodate existing and projected future needs through the 20-year planning horizon.

Any system airport that does not meet the above criteria should be considered for removal. These recommendations would require changes to Chapter 332 F.S. and the FASP. FDOT should also develop a procedure for removing an airport from the FASP to provide established guidance in the event an airport's removal is deemed advisable.

NPIAS/ASSET Recommendations

The FAA's classification system of airports is important because NPIAS airports are deemed to be vital to the national system of airports and are eligible to receive Federal funding for certain project types. Currently, 100 Florida airports are included in the NPIAS. Twenty-two of the 28 non-NPIAS airports are privately owned, and thus generally not adopted into the NPIAS.

Based on an evaluation of eligibility criteria, Wakulla County Airport (2J0) is the only non-NPIAS airport that appears to meet all three criteria for potential inclusion in the NPIAS. 2J0 has at least 10 based aircraft, is located more than 30 miles from the nearest NPIAS airport (TLH), and is included in the FASP 2035 Update. If 2J0 were included in the NPIAS, it would receive an ASSET classification of a Basic airport based on current conditions.

Because ASSET classifications were reviewed by the FAA for the 2017-2021 NPIAS, the FASP 2035 Update did not re-evaluate the existing classifications. However, 16 of Florida's NPIAS general aviation airports were recategorized in the FAA's most recent update. Most notably, Northeast Florida Regional (SGJ) gained commercial service, thus removing its general aviation classification.

SIS Recommendations

Florida's Governor and Legislature established the SIS in 2003 to enhance Florida's economic competitiveness by focusing state resources on the transportation facilities most critical for statewide and interregional travel. Based on the findings of this study and feedback from the Comprehensive Review Team (CRT), the following key recommendations have been developed.

- All commercial service airports in the state should be included in the SIS to promote intermodal connectivity and development opportunities at commercial airports that are not currently eligible for SIS inclusion. The primary impact of this recommendation would be that all commercial service airports previously categorized as Emerging SIS would be full SIS facilities.
- The general aviation designation criteria should be evaluated for potential changes to more accurately reflect the strategic nature of Florida's general aviation airports and to align more closely with industry-accepted stratification methodologies for general aviation airports, such as the ASSET Study.

FASP Recommendations

Based on the analyses of the FASP 2035 Update and in coordination with the FDOT ASO, CFASPP regions and MAs, CRT, and other stakeholders, 32 recommendations have been developed for the continued improvement of the Florida aviation system. Each of these recommendations is associated with the goal it is designed to achieve.

GOAL 1
Provide safe, efficient, secure, and convenient service to Florida's citizens, businesses, and visitors.

Access to safe, efficient, secure, and convenient air transportation for all users is the cornerstones of a well-functioning aviation system. Based on a preliminary D/C analysis of Florida's airports, more detailed analyses may be warranted in some Districts to ensure all citizens, businesses, and visitors have access to air travel. Service availability is secondary to a safe and secure system compliant with state and federal statutes and regulations. The FASP 2035 Update recommends prioritizing funds to address state licensing standards and federal requirements, as well as other indicators of safety, protection, and resiliency.

Goal 1 recommendations:

- Preserve existing infrastructure or replace when necessary.
- Conduct a more detailed capacity study, looking specifically in FDOT Districts 4, 5, and 6.
- Monitor FAA FACT studies as they are developed.
- Prioritize funding for projects that address state licensing standards per Rule 14-60, Florida Administrative Code (FAC).
- Compile 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.

FDOT has the opportunity to implement policies designed to actively support activities that significantly benefit the state's economy and encourage economic growth and the marketability of aviation in Florida. This support requires active coordination with local, regional, and statewide partners; the cultivation of appropriate business development on airport property; and support for key aviation activities including aviation education, flight training, and workforce development.

Enhancing the state's multimodal infrastructure may be the most important singular step towards advancing this overall goal. FDOT should support the development of multimodal options at and around airports, and existing SIS criteria should be modified to better leverage the economic competitiveness and strategic nature of Florida's airports. Airport planning processes, including airport master plans and ALPs, also have a role in creating business-friendly environments.

Goal 2 recommendations:

- 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 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

Ensuring the state's continued leadership and prominence in the aviation industry requires an ongoing commitment to identifying and communicating the value of investing in Florida's airport system through various forums including publications and industry organizations.

Goal 3 recommendations:

- 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

FDOT and policymakers have an obligation to protect airspace and ensure compatible land use around public airports to support the safety of aircraft, their passengers, and individuals on the ground. FDOT offers continuous training for airport sponsors to comply with the latest state and federal requirements, as well as provides the necessary resources for developing and implementing airport compatible land use zoning and policies for airport protection.

Goal 4 recommendations:

- Provide continuous training on the latest requirements of Chapter 333, 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 UAS 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

Technological innovations are driving major changes within the aviation industry that will affect nearly every aspect of flying—from how we board, to the aircraft we fly, to the way aircraft move through our skies. In the coming years and decades, airports and FDOT must be prepared to evolve with the changes that are likely to be brought by NextGen, RVT, UAS, and larger and lighter aircraft capable of flying longer distances with less fuel—among many others potential technological advancements. FDOT should take a proactive approach to meet the needs of these changes to keep Florida on the leading edge of modern aviation.

Goal 5 recommendations:

- 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

Enhancing businesses', policymakers', and the public's understanding of the importance of airports promotes aviation and encourages economic growth. To strengthen the ties between airports and their communities, the FASP 2035 Update recommends leveraging the resources provided by the Airport Cooperative Research Program (ACRP) to develop Florida-specific tools for aviation support. Furthermore, FDOT should continue to support and improve existing systems to act as good stewards of public resources while maintaining the highest quality of aviation services across the state.

Goal 6 recommendations:

- Leverage 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 inspections and training.
- Improve Capital Improvement Plan management and coordination to better manage financial resources for the JACIP.

GOAL 7
Foster Florida's reputation as a military- and aerospace-friendly state

Florida is home to numerous military installations that provide safety, security, resiliency, meaningful employment, and a significant economic contribution to the state—among numerous other benefits. The U.S. military brings a unique perspective on the aviation industry with specific needs associated with the airport system. Furthermore, the military serves as an important driver of the state's aerospace and defense industries. Today, Florida is home to many of the world's largest aerospace and defense firms, many of which are clustered at or near airports across the state. Most notably, a dense concentration of aerospace and defense contractors has arisen along the Space Coast near Cape Canaveral and the Kennedy Space Center and within the Florida panhandle in the vicinity of Eglin Air Force Base.

Goal 7 recommendations:

- Ensure that military and aerospace industry 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.

Gaps and Deficiencies

While Florida will experience changes that affect how, when, and where we fly over the next 20 years, Florida is prepared to meet the challenges that lie ahead. With the input of users in every corner of the state, the FASP 2035 Update evaluated the existing and future state of the system from multiple perspectives. The results show that Florida's airports are well equipped to handle existing and future levels of demand. Though Florida's airport system is poised to handle the new demands that will arise in the coming decades, several areas present specific opportunities for improvement to best leverage the assets of the existing system.

Airport Traffic Control Tower

Issue: While 90 percent of Florida's current and future populations reside or will reside within a 30-minute drive of an airport with an ATCT, there are large portions of the state that lack coverage from a geographic perspective. These gaps are most prevalent in FDOT Districts 1, 4, 5, 6, and 7, although Districts 2 and 3 also have substantial areas without coverage.

Recommendation: FDOT should continue to monitor operational activity within geographic areas without immediate access to an airport equipped with an ATCT. Significant increases in operations may merit further studies to determine if an ATCT should be considered for implementation. New technologies such as RVTs may also be pursued as these technologies become more common in the industry.

Runways Exceeding 3,200 Feet

Issue: Runways over 3,200 feet in length provide the distance required to accommodate all small general aviation aircraft (12,500 pounds or less) at mean sea level and standard day temperature of 59° Fahrenheit (AC 150/5325-4B, Runway Length Requirements for Airport Design). Nearly 94 percent of the state's current population resides within a 30-minute drive of an airport with a runway of at least 3,200 feet in length. Population coverage is anticipated to decrease to approximately 93 percent by 2035. Although home to large conservation areas including the Everglades National Park, District 6 experiences a service gap, which may present an opportunity to increase the accessibility of the system in this remote, yet sparsely populated area.

Recommendation: FDOT should continue to monitor District 6 to determine if safety and access concerns warrant improvements at an existing airport to provide a 3,200-foot-long runway for emergency operations.

Precision Approach

Issue: Precision approaches provide data for the safe and efficient landing of all aircraft, but most commercial service and corporate aircraft prefer the availability of a precision approach at airports where they frequently operate, especially during inclement weather. Currently, 73 percent of Florida's population is located within 30 minutes of an airport equipped with a precision approach, most of whom are clustered around developed or metropolitan areas. Geographical service gaps are present within FDOT Districts 1 and 2.

Recommendation: Because precision approaches increase safety and improve community access during poor weather conditions, it should be a priority to minimize geographical areas without adequately equipped airports.

Business Use Airports

Issue: Nearly 85 percent of current and anticipated future Florida residents reside or will reside within a 30-minute drive of an airport with the infrastructure and services necessary to support business aircraft, including a 5,000-foot-long runway, Jet A fuel, an instrument approach, and a weather reporting station. Populations are generally clustered around metropolitan areas, and coverage gaps are prevalent in Districts 2, 3, 4, and 6.

Recommendation: FDOT should routinely evaluate master plans and other planning studies for the airports within the identified Districts to identify if activities at these facilities are business-related and if additional facilities are needed to satisfy the demand to serve as a more effective business use airport.

Flight Training

Issue: According to the FAD, 83 commercial service and general aviation airports in Florida offer flight training. The state trains more pilots than any other state in the U.S., and convenient access to airports that offer training programs is critical to the overall success of the aviation industry in Florida. Ninety-two percent of Florida's current population lives within 30 minutes of an airport with flight training capabilities; that figure drops just slightly by 2035. Districts 1, 4, and 6 experience significant coverage gaps, although populations in these areas is relatively low.

Recommendation: FDOT should continue to support Florida's vibrant flight training industry and aviation-related careers through various channels and publications throughout the 20-year planning horizon of the FASP 2035 Update. FDOT personnel can work with District staff to leverage existing opportunities to enhance interest in aviation in underserved areas and across the state. Further, the economic impacts of aviation education in Florida can be promoted to increase the public's and policymakers' support of this valuable asset.

Gainesville Regional Airport

Infrastructure Assessment Tool and State Strategic Goal Analysis Tool

As part of the FASP 2035 Update, the current use of the Infrastructure Assessment Tool (IAT) and SSGAT were evaluated for their role in assessing the services of airports as well as the ability of projects that are funded to fulfill the goals of the state. This section provides recommended future actions and polices related to the IAT and SSGAT as it relates to their use by both the FDOT ASO and FDOT District offices.

IAT

FDOT created the IAT to categorize Florida's airports and assess airports' abilities to meet specific mission areas based on the measurements of various airport characteristics. Commercial service airports are assessed by the IAT for their abilities to support tourism, air cargo, and intercontinental service. General aviation airports are assessed for their abilities to support flight training, corporate, tourism, recreational/sport, and business/recreational activities.

Based on data collection efforts and review of the IAT during the FASP, it was found that the purpose, value, and methodology behind the IAT is not clear. Based on discussions with the FDOT ASO, it is recommended that the IAT no longer be utilized or displayed in the FAD. The data that are presented portrays incorrect and inconsistent information that does not benefit FDOT or the airports and may result in an incorrect perception of the service level of an airport.

SSGAT

The SSGAT was developed as part of the FASP 2025 Update to evaluate projects that are entered in the JACIP. The SSGAT is designed to help evaluate project types based on their FAA Project Categories and ability to support the goals of the FASP using a weighted matrix. The SSGAT was not designed to be a critical determinant of project funding; rather, it was developed to be an additional data element in the consideration of the viability of a proposed project. The FASP 2035 Update developed the following key recommendations for the improvement of the SSGAT:

- The use of the SSGAT should be consistent across all FDOT Districts to aid in funding decisions while promoting the implementation of projects that support the goals of the FASP.
- It is possible that SSGAT users may categorize similar projects differently in the JACIP, which results in different SSGAT scores. FDOT should work to enhance consistency across project types.

It is further recommended that goals included in the SSGAT be updated based on final goals of the FASP 2035 Update.

CFASPP Recommendations and Enhancements

Florida's airports are delineated by CFASPP Region/MA and FDOT District. The CFASPP is primarily aimed at continuously monitoring and improving the aviation system from a planning perspective, while FDOT uses Districts for funding and coordination activities.

Based on extensive coordination with CFASPP participants, it was determined that the existing processes, outreach efforts, and outcomes of the CFASPP meet the needs of airports during planning efforts. The FASP 2035 also reviewed CFASPP boundaries to determine if they should align with existing geographic delineations, including FDOT Districts or Florida Economic Development Council (FEDC) regions, which reflect commonalities in economic development opportunities. While this evaluation identified the potential impacts of changing boundaries, further analysis and coordination with CFASPP steering committees are required to determine the effects of such a change. The completion of this task has been recommended as a follow-on study need as discussed below.

Follow-on Study Needs

Throughout the development of the FASP, a significant amount of data was collected on the aviation system. During this process, additional data opportunities became apparent in which information was unavailable or data was collected and compiled in an inconsistent manner. Further, development of the FASP also led to the identification of additional projects and/or studies that would support the continued implementation of the FASP and support FDOT's overall transportation system. The FASP 2035 Update developed eight project concepts that will be integrated into future projects during continuous planning efforts. These efforts are listed below in order of priority of completion:

1. Statewide airport resiliency and disaster response assessment to identify infrastructure, environmental, and planning considerations relevant to increasing an airport's resiliency related to natural and man-made situations, climate trends, and Florida-specific considerations. This assessment will also identify those services and facilities needed to make an airport effective and responsive during and immediately after a natural disaster. A statewide gap analysis should be conducted by airport and minimum disaster response-related infrastructure, equipment, facilities, and services should be identified by airport type.
2. Business suitability study to identify gaps and opportunities at airports, including commercial air service enhancements, and develop facility, infrastructure, and service guidelines for various types of business needs by airport size and role.
3. Replace the FAD with new, modernized tools and technology solutions. This process will start by developing an asset management framework that evaluates the value and use of data currently maintained, as well as data maintenance needs for various management support activities. Additional components have also been identified for future integration into the FAD.
4. Detailed capacity study looking specifically in FDOT Districts 4, 5, and 6.
5. Facility, infrastructure, and service guidelines for lower-activity general aviation airports to assist airports make project and funding decisions by establishing criteria to be used during evaluation processes.
6. Statewide roadmap to address airport wildlife hazards for non-Part 139 airports to identify statewide actions and recommendations for airports to conduct wildlife site visits or wildlife hazards assessments and to provide guidance for effective wildlife management to improve the safety of Florida's 102 non-Part 139 airports.
7. RPZ ownership data compilation to help identify incompatible land uses within and the land ownership of these safety areas.
8. CFASPP boundary evaluation to determine if the existing delineations continue to be the most appropriate divisions for statewide planning efforts.

Vero Beach Regional Airport

FLORIDA AVIATION SYSTEM PLAN 2035

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

F.3 CFASPP Regional Brochures

The CFASPP Regional Brochures summarize the results of the FASP 2035 Update relative to Florida's nine CFASPP Regions/Metropolitan Areas (MAs). The deliverables highlight the primary aviation drivers within each CFASPP Region/MA and provide details about the study results applicable to each. The Regional Brochures also present selected airport-specific data, which may be valuable to airports, airport sponsors, and other regional and local aviation stakeholders involved in airport or other planning efforts.

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035

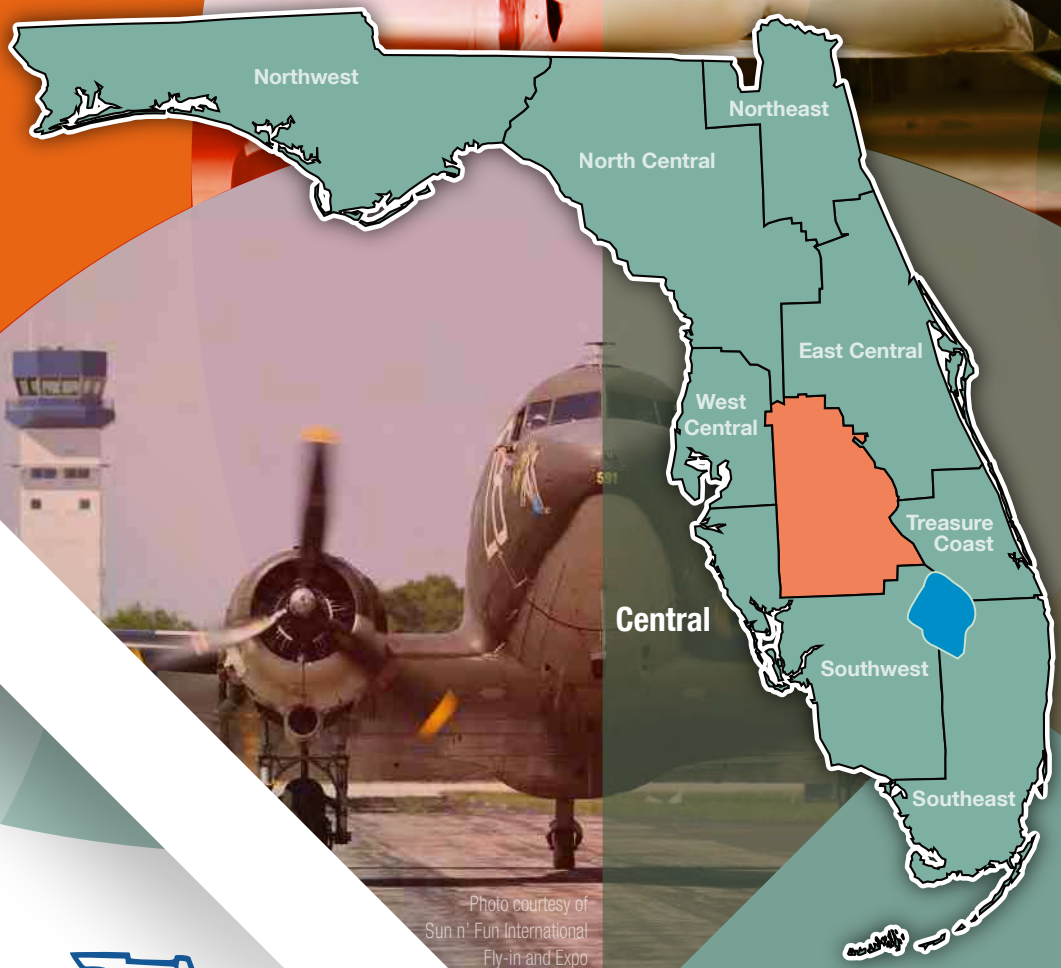


Photo courtesy of Sun n' Fun International Fly-in and Expo

Central
CFASPP Region

FDOT

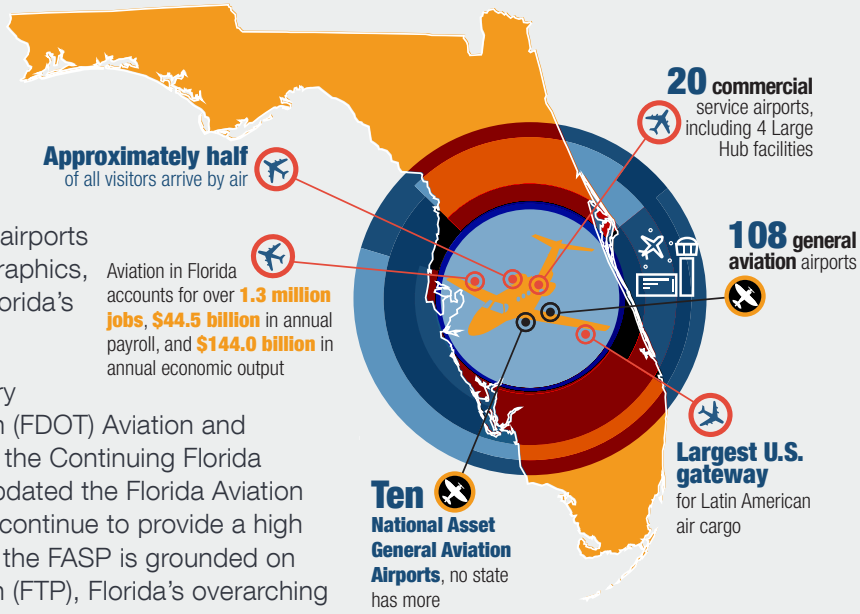
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

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.

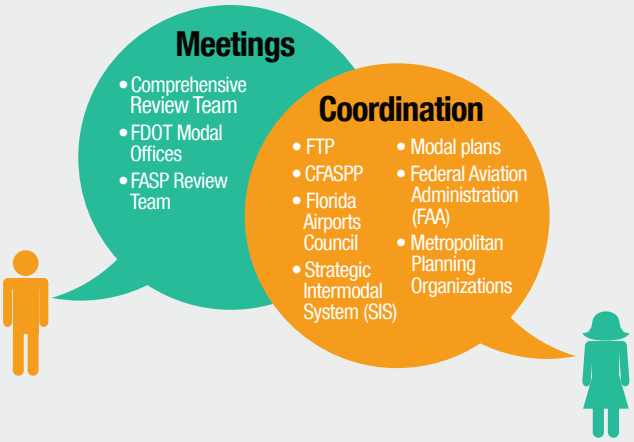
Florida by the Numbers



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.

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.

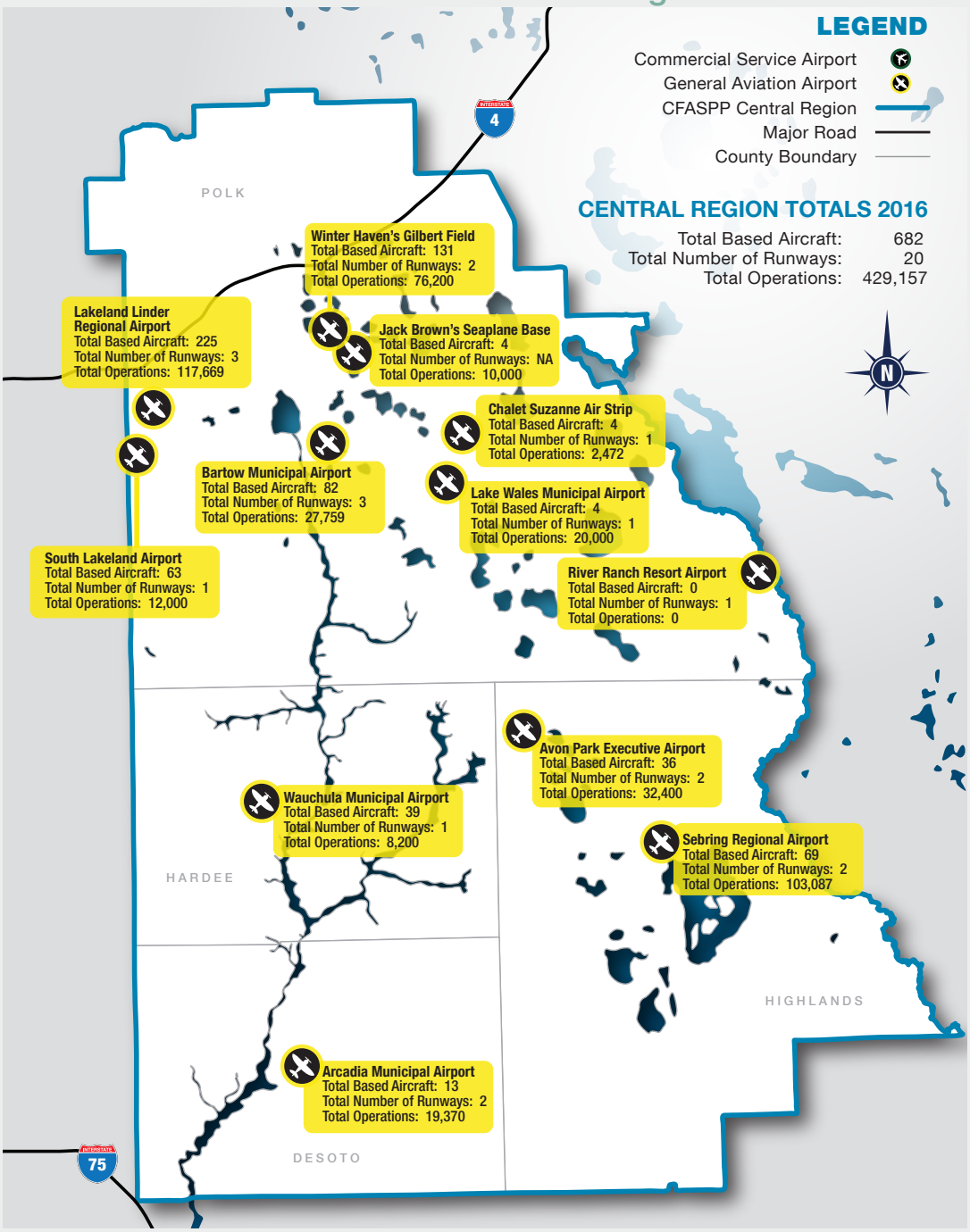


FDOT used a comprehensive public outreach and stakeholder engagement process to ensure the FASP 2035 Update was developed with the input of many audiences.

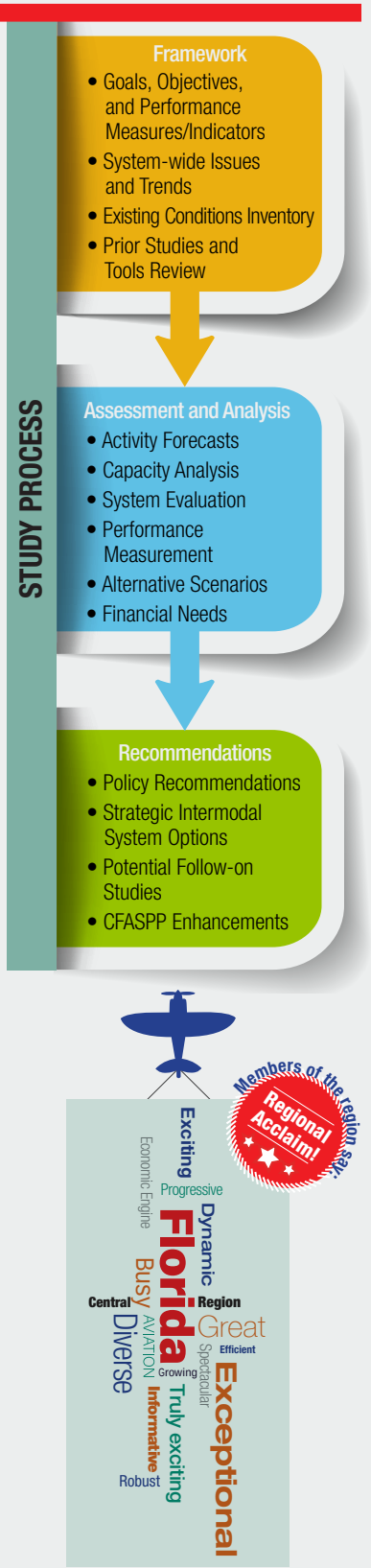
The FASP 2035 Update included analyses of the facilities, aviation activities, and future demands specific to the state's nine CFASPP regions and metropolitan areas (MAs). The process encompassed a variety of interrelated technical analyses and tasks to ensure the aviation system continues to effectively 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.*

Central Florida CFASPP Region



Source: FAA 5010 (extracted October 2016)



The Central CFASPP Region is contained within FDOT District One. The Central CFASPP Steering Committee is actively supported by the Heartland Regional Transportation Planning Organization, Central Florida Regional Planning Council, and FDOT.

Central Florida CFASPP Region 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.

Sun 'n Fun International Fly-in and Expo. Photo courtesy of Sun 'n Fun Photographers (2017).

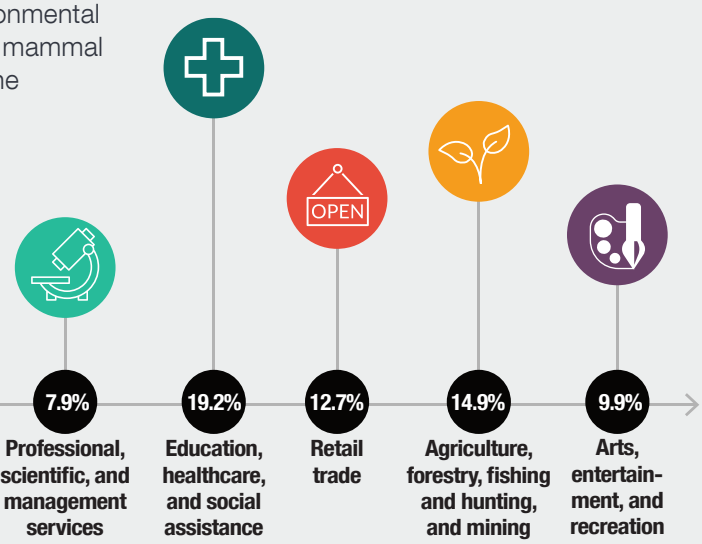
The Central CFASPP Region comprises DeSoto, Hardee, Highlands, and Polk counties encompassing 4,400 square miles with a total population of approximately 809,000 people. The majority of population resides in Polk County, which hosts nearly three times as many residents as the other three counties combined. Urbanization has concentrated along U.S. 27 running north-south from the Florida Turnpike in Lake County through Polk and Highlands counties before turning to the southeast.

The Central Region has remained largely rural beyond this urban corridor. DeSoto, Hardee, and Highlands counties are part of Florida's Heartland. Agriculture is the primary economic driver; regional crops include sugarcane, tomatoes, cucumbers, and citrus. Hardee County also has a substantial phosphate mining industry along the Peace River Basin.

The Central Region's 12 general aviation airports are equally distributed across the area to improve access and mobility for rural communities, while providing the significant economic impacts associated with aviation activity. Lakeland Linder Regional Airport located along the I-4 corridor between Tampa and Orlando is the largest airport in the Central Region in terms of number of based aircraft and annual operations. The airport is home to the Sun 'n Fun Fly-In, an annual six-day aviation expo that raises funds to support aerospace and aviation education in Polk County. Each year, the expo provides more than $430,000 in annual scholarships for students pursuing a career in the aerospace industry. In addition to being the region's largest airport, Lakeland Linder Regional Airport also holds a Part 139 certificate. While the airport does not currently offer scheduled service, it does meet the federal requirements to do so as a result of this certificate.

Lakeland Linder Regional Airport also serves as the main base for the National Oceanic and Atmospheric Administration's (NOAA) Aircraft Operations Center (AOC), part of NOAA's Office of Marine and Aviation Operations. The NOAA AOC provides airborne data collection capabilities vital "to understanding the Earth, conserving and managing coastal and marine resources, and protecting lives and property" with a fleet of nine manned aircraft. NOAA's fleet including two specialized Lockheed WP-3D Orion "hurricane hunter" aircraft and one Gulfstream IV-SP. NOAA light aircraft and UAS fleet are vital for environmental monitoring such as marine mammal population studies, shoreline change assessments, and remote sensing projects.

Top 5 industries in the region

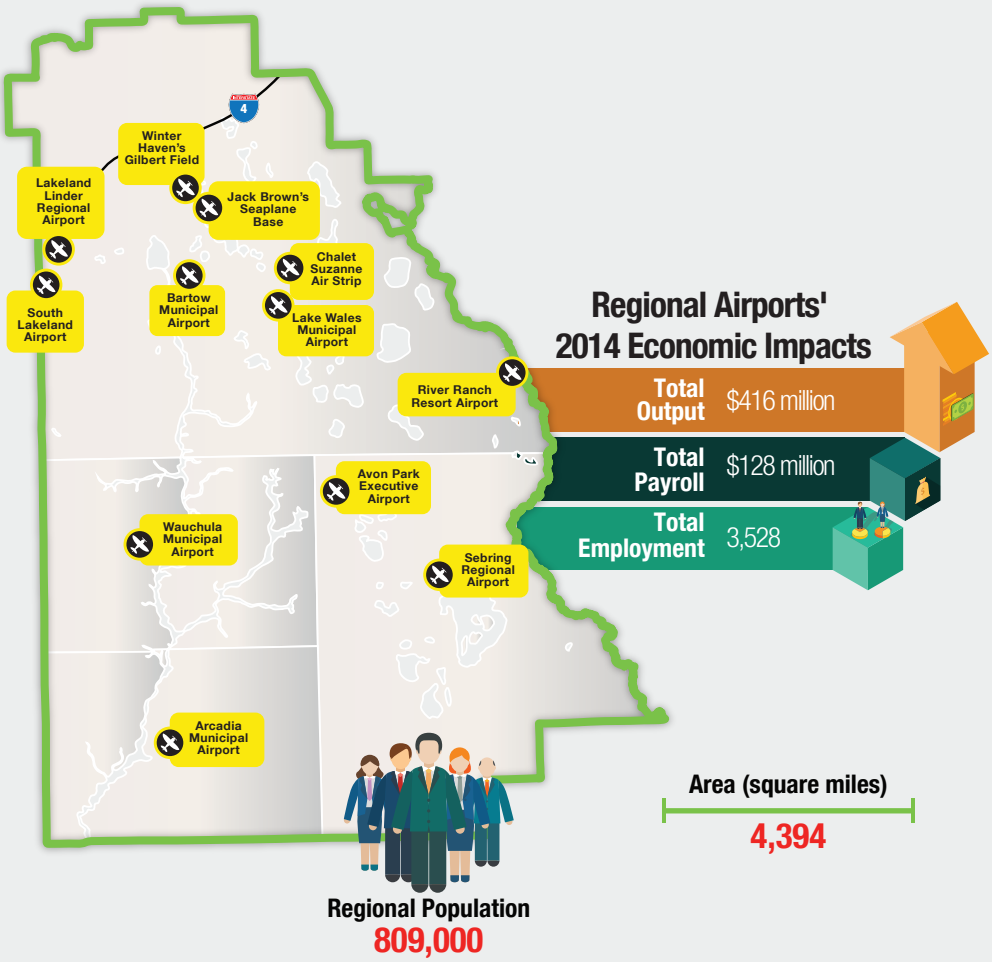


Sebring Regional Airport and Commerce Park in Highlands County has taken a proactive role in growing and developing its economic impact. In fact, county residents established the Sebring Regional Airport Community Redevelopment Agency specifically to promote development at the airport. As a Rural Enterprise Zone, businesses on the property benefit from numerous financial incentives, including significant tax credits for job creation. As a Foreign Trade Zone, goods can be landed, then manufactured or re-configured for re-export, without being subject to the prevailing customs duties. The airport is also home to the Sebring International Raceway, the annual 12 Hours of Sebring International Grand Prix of Endurance, and the U.S. Sport Aviation Expo.

Other aviation facilities in the Central Region include Bartow Municipal, South Lakeland, Lake Wales Municipal, Avon Park Executive, Wauchula Municipal, River Ranch, and Arcadia Municipal airports; Winter Haven's Gilbert Field; Chalet Suzanne Air Strip; and Jack Brown's Seaplane Base. In addition to offering significant benefits to regional economies, these general aviation airports provide numerous quality-of-life advantages. Airports serve as key logistics and communications centers to improve Florida's resiliency and response to natural disasters and other emergency situations. Residents also have access to specialized medical care that may not be available in local areas.

Each county in the Central Region is supported by at least one general aviation airport, all of which experience ongoing aviation activity. Lake Wales Municipal Airport is also home to the Florida Skydiving Center. The facility recently made headlines after a nighttime 27-way canopy formation broke the Guinness and FAI/World Air Sports Federation Parachuting Commission world records.

The Central Region's airport system offers a wide range of general aviation services that are significant to residents' quality of life and local economies, including flight training; emergency preparedness and response; critical community access, including air charter and scheduled air cargo services; and other activities such as business aviation, recreational flying, and access to tourism destinations and special events.



Intermodal Connectivity

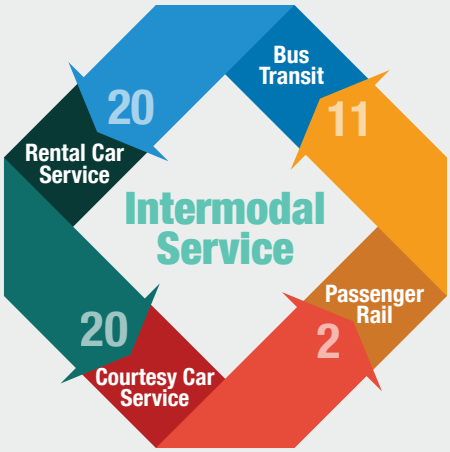
An integrated multimodal transportation system:

- 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



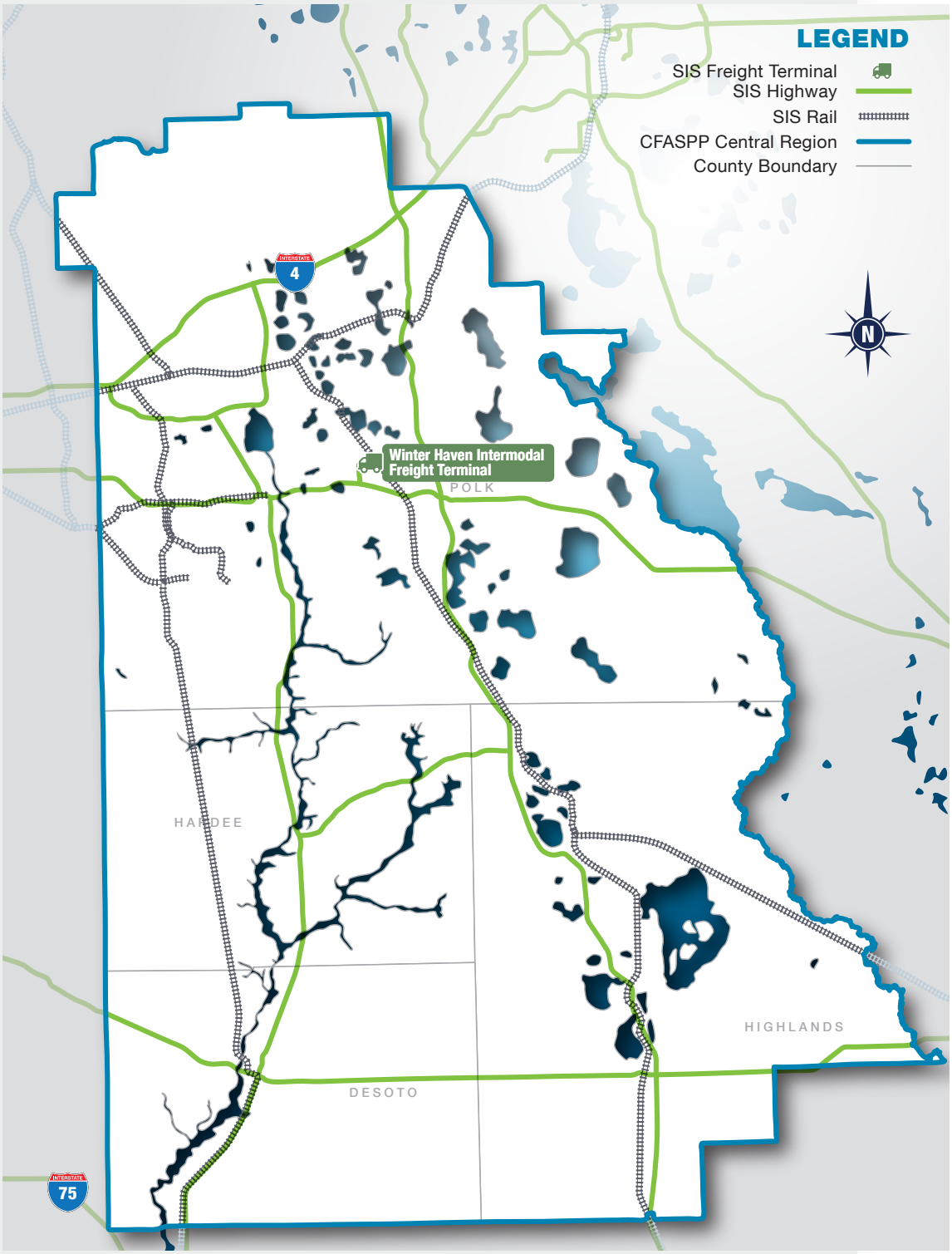
Total Airports Where Service is Provided

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 the general aviation reliever airports typically serve a high level of demand in metropolitan areas. The FASP 2035 Update evaluated all airports' level of connectivity with a particular emphasis on the SIS facilities' integration with other key modes of transportation.

NOAA's Gulfstream IV-SP hurricane hunter jet at the NOAA AOC at Lakeland Linder Regional Airport. Photo by David Hall.

Canopy formation over Lake Wales Municipal Airport. Photo courtesy of NASA.

Regional SIS Facilities



While the Central Region does not host any SIS airports, travelers can access such facilities via the SIS highway corridors that traverse the region. Punta Gorda Airport in the Southwest CFASPP Region is accessible to the south. Kissimmee Gateway, Orlando International, Orlando Sanford International, and Daytona Beach International airports in the East Central CFASPP MA are available via I-4 to the north.

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.

None of the airports in the Central Region contain safety-related areas of concern known as runway hot spots.

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

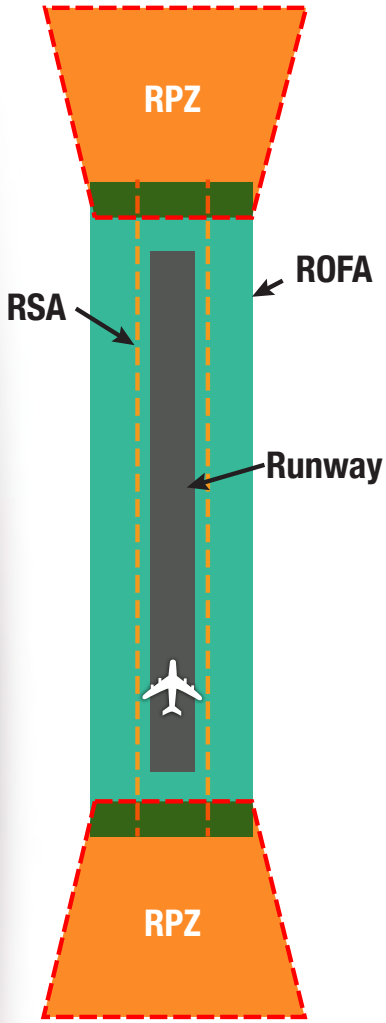
Performance indicators are generally used as a reporting mechanism to gather data on those aspects of system performance that cannot be directly impacted by FDOT action.

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.

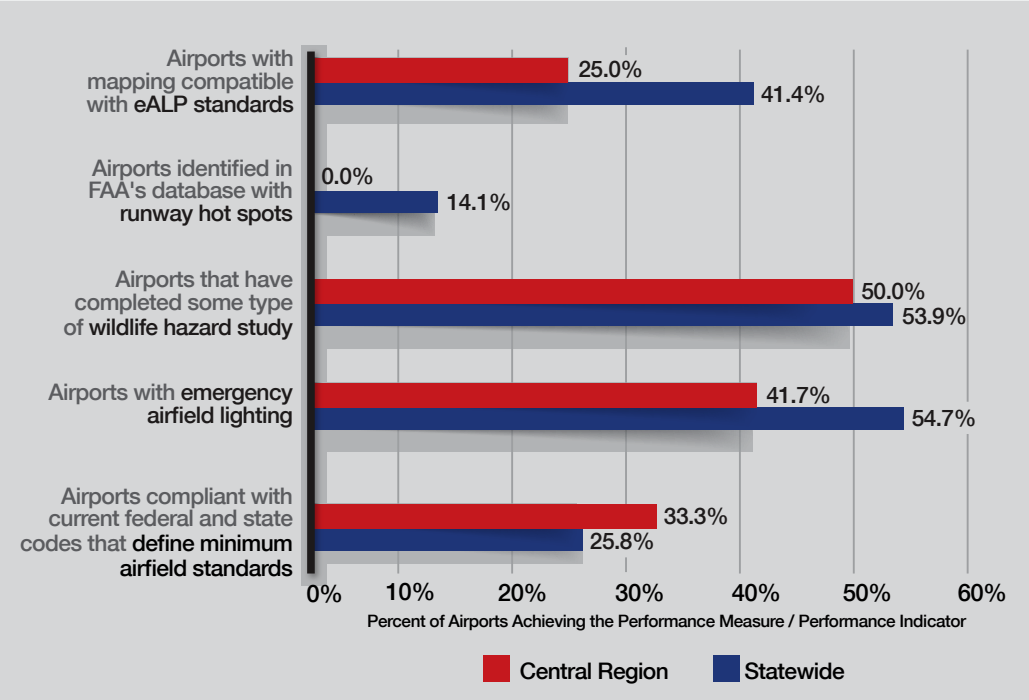
Runway Safety Areas (RSA)

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 Central Region has evolved to offer 12 general aviation airports that support local economies and offer the many benefits and services associated with air transport. Many of these airports are clustered south of the I-4 corridor within a nexus of U.S. routes and state highways that provide connectivity to commercial centers in adjacent regions. Such levels of high connectivity often serve as a key indicator of aviation activity.

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.

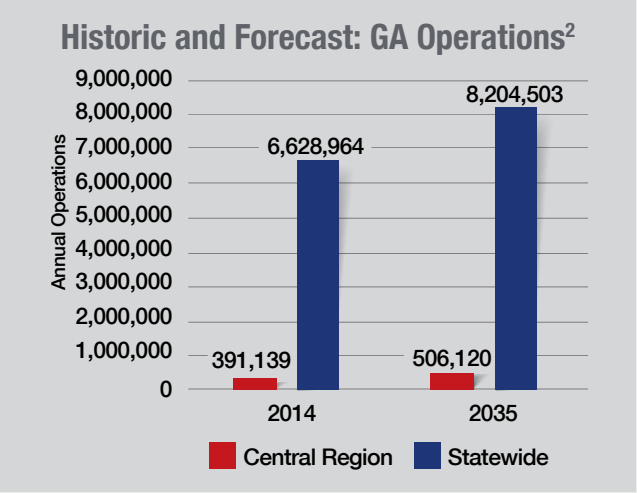
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

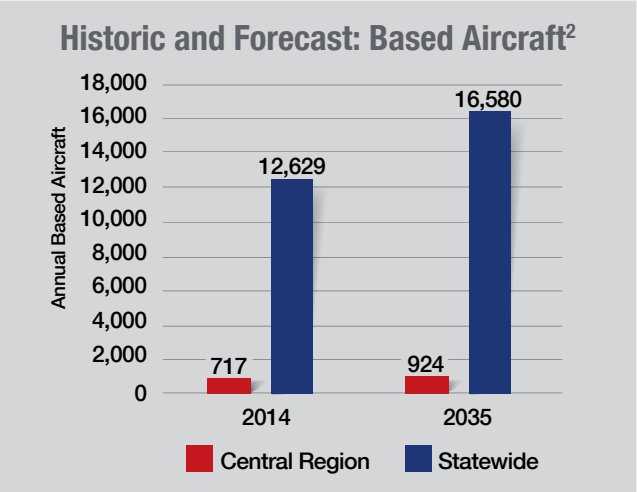
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

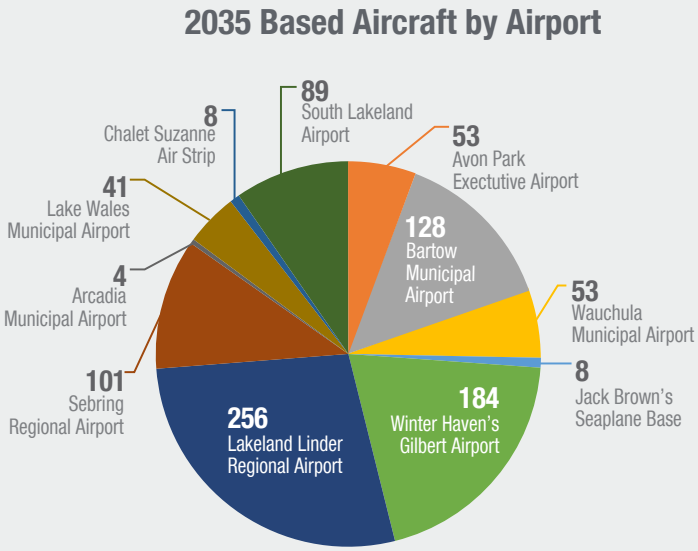
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to 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.



General aviation (GA) operations in the Central Region are projected to increase at an annual growth rate of 1.40 percent over the forecast horizon to exceed the statewide annual growth rate of 1.13 percent over this same time period.



Based aircraft in the Central Region are projected to increase at an annual growth rate of 1.37 percent over the forecast horizon to fall slightly below the statewide annual growth rate of 1.49 percent over this same time period.



[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.*

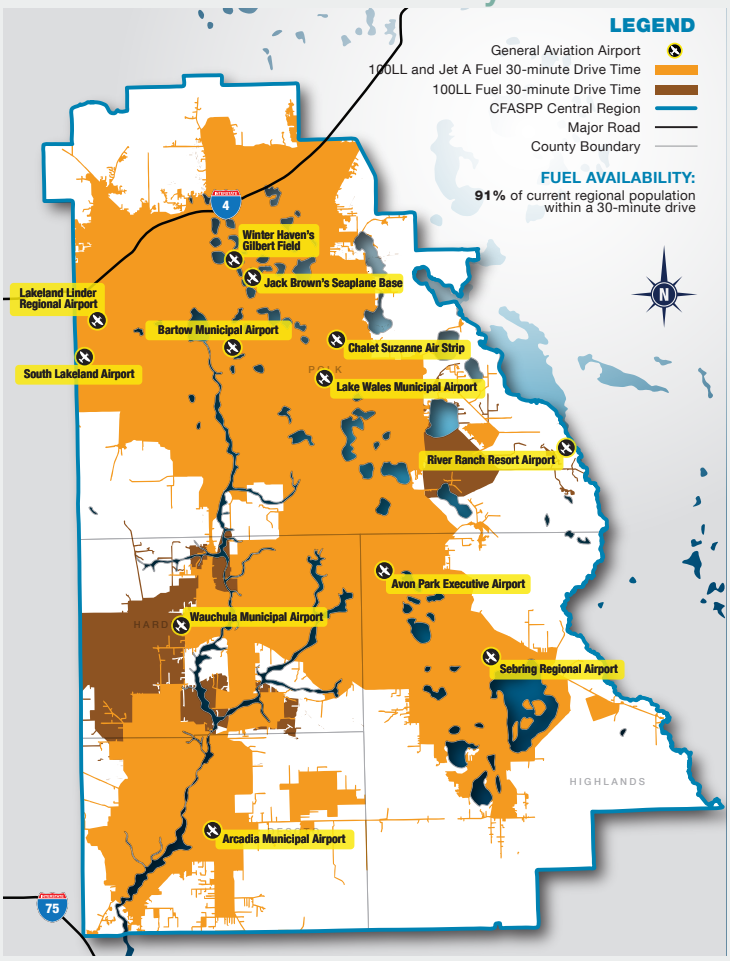
Accessibility Analysis

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.

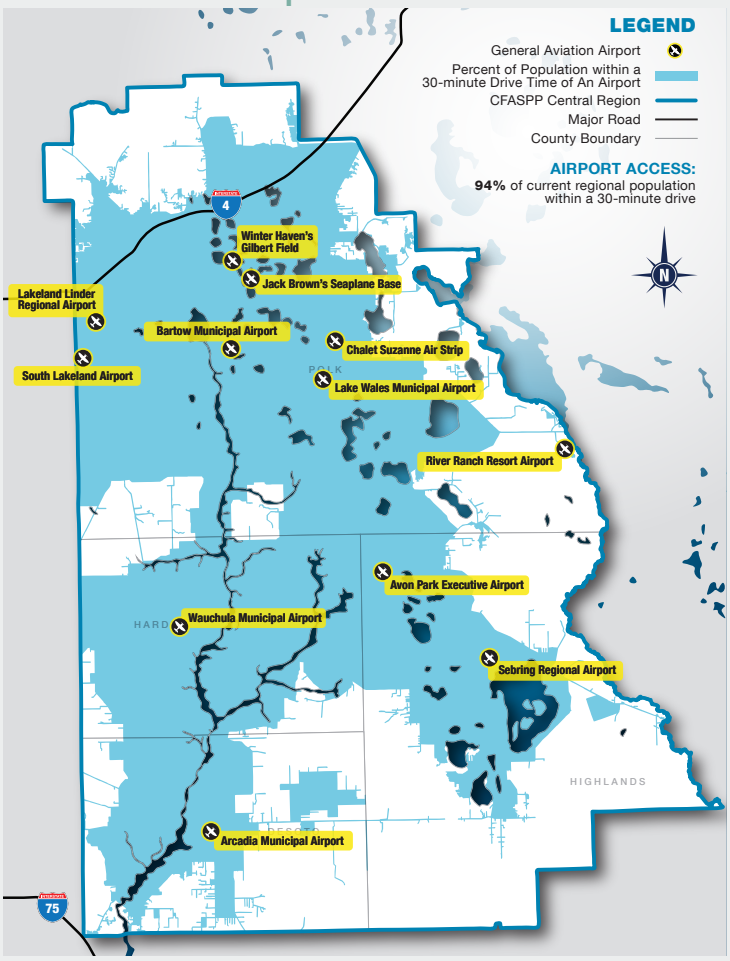
This same threshold is often used by businesses that operate general aviation aircraft as a decision-making factor when seeking locations to build or relocate their facilities.

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.

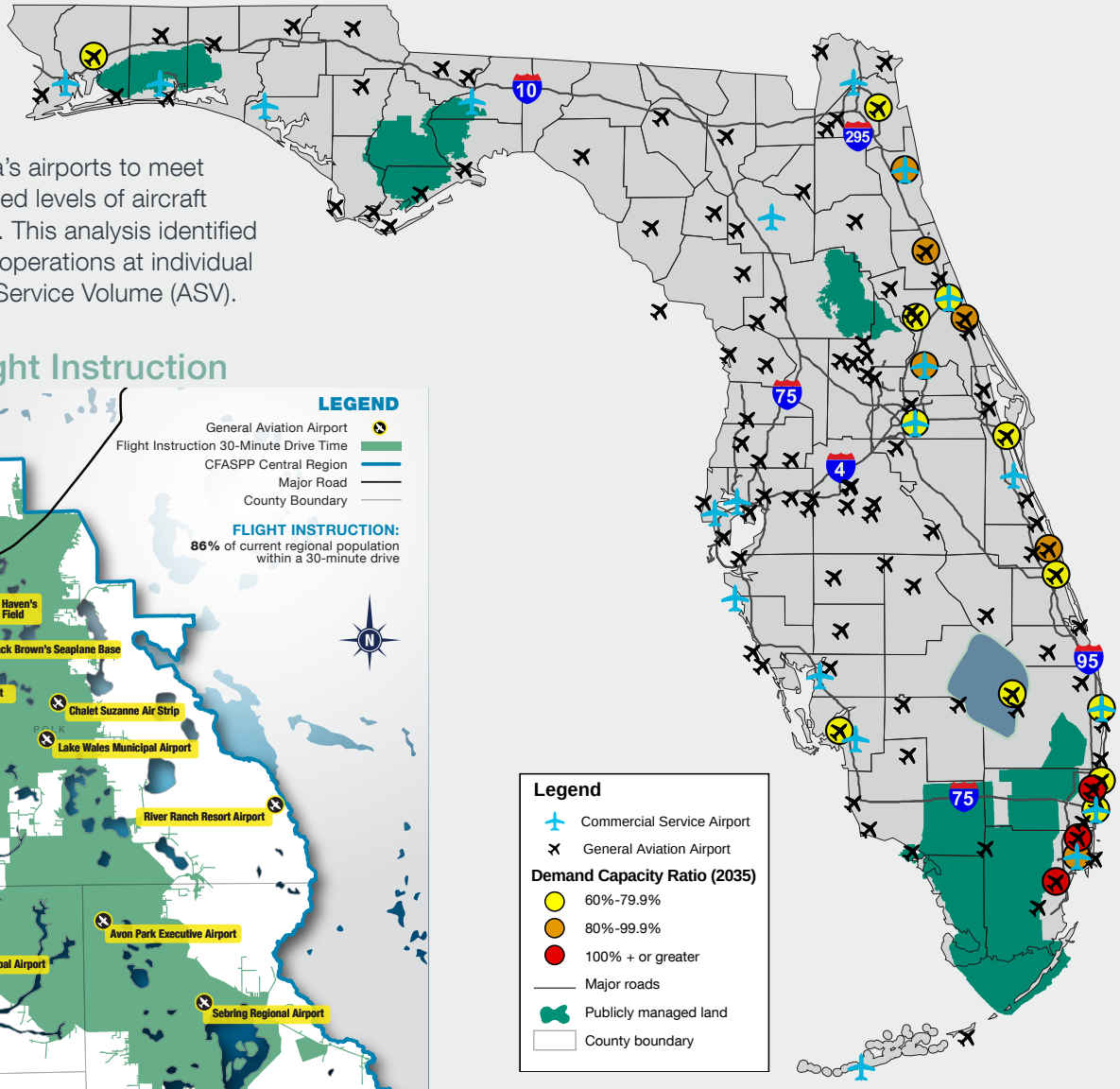
Airport Access



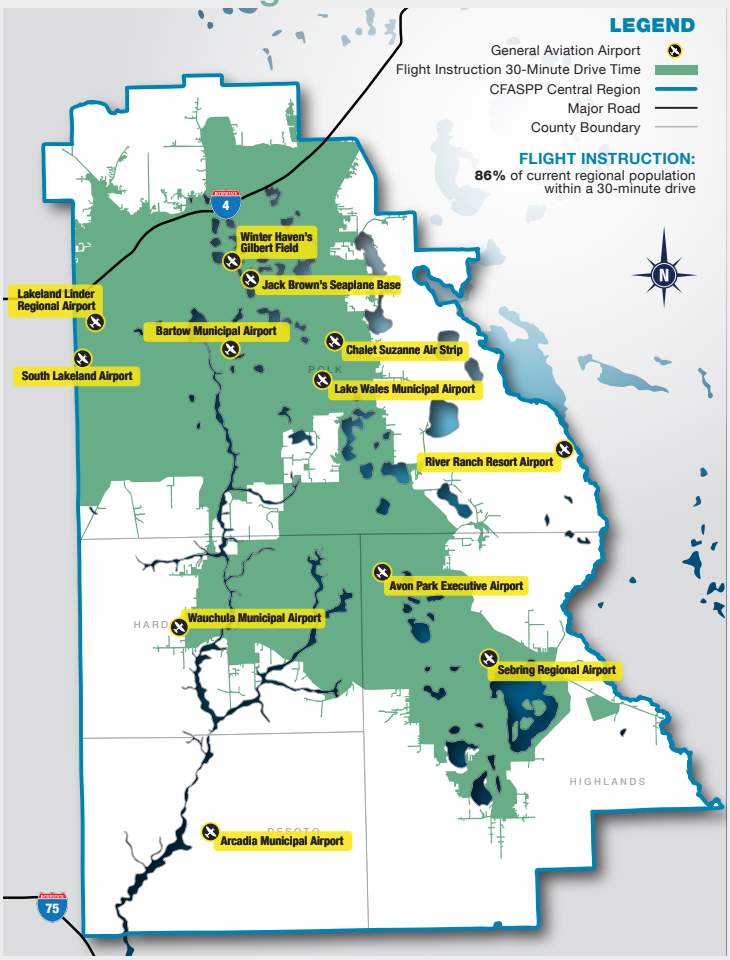
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

Photo courtesy of David Hall

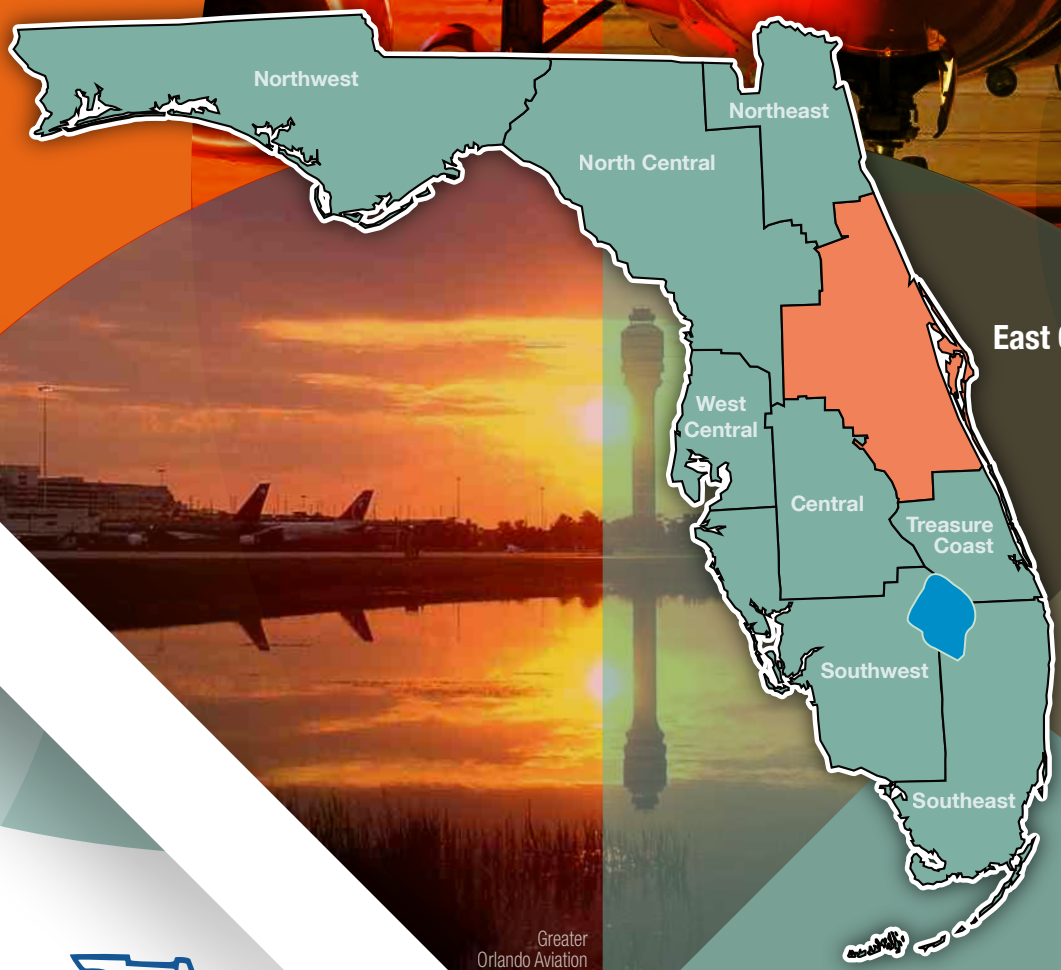
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

Photo courtesy of
Sun n' Fun International
Fly-in and Expo

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035



Greater Orlando Aviation Authority (GOAA)

East Central

CFASPP Metropolitan Area

FDOT

FLORIDA DEPARTMENT OF TRANSPORTATION

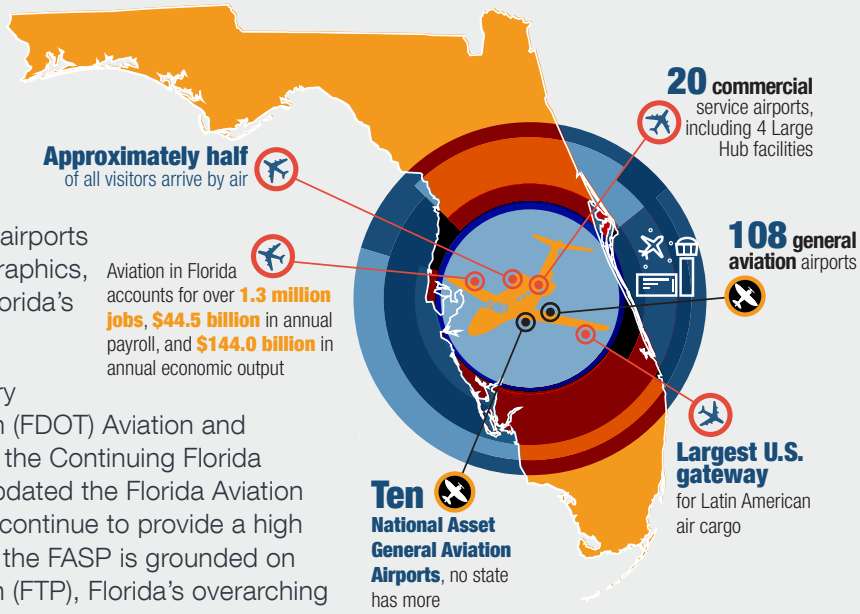
AVIATION AND SPACEPORTS OFFICE

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.

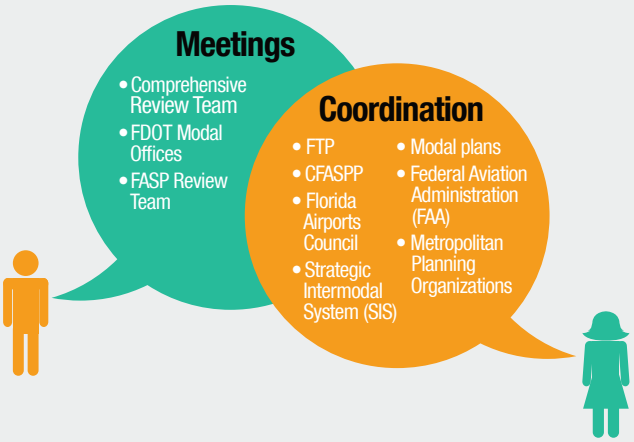
Florida by the Numbers



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.

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.

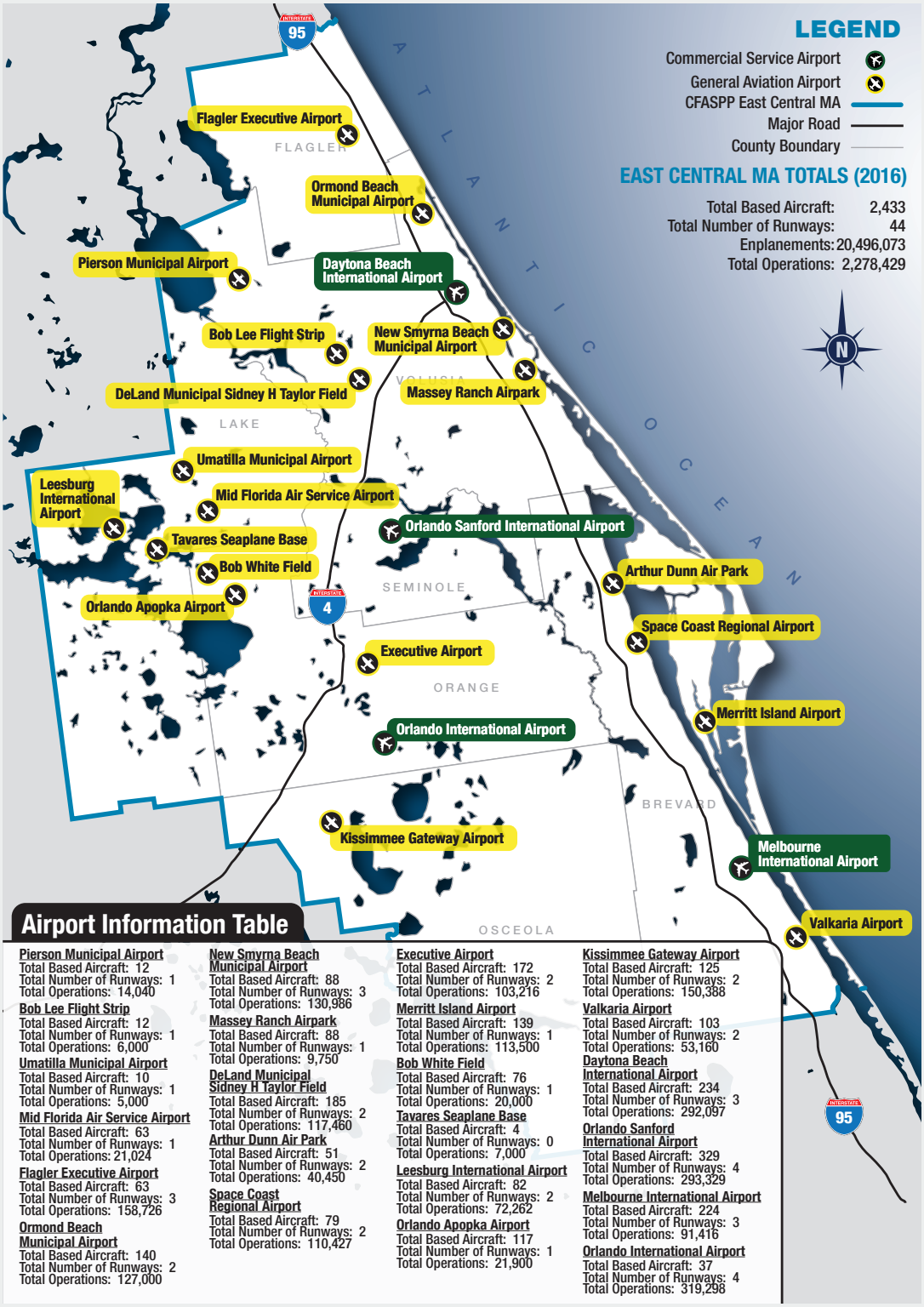


FDOT used a comprehensive public outreach and stakeholder engagement process to ensure the FASP 2035 Update was developed with the input of many audiences.

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.*

East Central Florida CFASPP MA



Airport Information Table

Pierson Municipal Airport
Total Based Aircraft: 12
Total Number of Runways: 1
Total Operations: 14,040

Bob Lee Flight Strip
Total Based Aircraft: 12
Total Number of Runways: 1
Total Operations: 6,000

Umatilla Municipal Airport
Total Based Aircraft: 10
Total Number of Runways: 1
Total Operations: 5,000

Mid Florida Air Service Airport
Total Based Aircraft: 63
Total Number of Runways: 1
Total Operations: 21,024

Flagler Executive Airport
Total Based Aircraft: 63
Total Number of Runways: 3
Total Operations: 158,726

Ormond Beach Municipal Airport
Total Based Aircraft: 140
Total Number of Runways: 2
Total Operations: 127,000

New Smyrna Beach Municipal Airport
Total Based Aircraft: 88
Total Number of Runways: 3
Total Operations: 130,986

Massey Ranch Airpark
Total Based Aircraft: 88
Total Number of Runways: 1
Total Operations: 9,750

DeLand Municipal Sidney H Taylor Field
Total Based Aircraft: 185
Total Number of Runways: 2
Total Operations: 117,460

Arthur Dunn Air Park
Total Based Aircraft: 51
Total Number of Runways: 2
Total Operations: 40,450

Space Coast Regional Airport
Total Based Aircraft: 79
Total Number of Runways: 2
Total Operations: 110,427

Executive Airport
Total Based Aircraft: 172
Total Number of Runways: 2
Total Operations: 103,216

Merritt Island Airport
Total Based Aircraft: 139
Total Number of Runways: 1
Total Operations: 113,500

Bob White Field
Total Based Aircraft: 76
Total Number of Runways: 1
Total Operations: 20,000

Tavares Seaplane Base
Total Based Aircraft: 4
Total Number of Runways: 0
Total Operations: 7,000

Leesburg International Airport
Total Based Aircraft: 82
Total Number of Runways: 2
Total Operations: 72,262

Orlando Apopka Airport
Total Based Aircraft: 117
Total Number of Runways: 1
Total Operations: 21,900

Kissimmee Gateway Airport
Total Based Aircraft: 125
Total Number of Runways: 2
Total Operations: 150,388

Valkaria Airport
Total Based Aircraft: 103
Total Number of Runways: 2
Total Operations: 53,160

Daytona Beach International Airport
Total Based Aircraft: 234
Total Number of Runways: 3
Total Operations: 292,097

Orlando Sanford International Airport
Total Based Aircraft: 329
Total Number of Runways: 4
Total Operations: 293,329

Melbourne International Airport
Total Based Aircraft: 224
Total Number of Runways: 3
Total Operations: 91,416

Orlando International Airport
Total Based Aircraft: 37
Total Number of Runways: 4
Total Operations: 319,298

Source: FAA 5010 (extracted October 2016)

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

The East Central CFASPP MA is located within FDOT District Five. The East Central CFASPP Steering Committee is supported by the Space Coast and River to Sea Transportation Planning Organizations (TPOs); Lake/Sumter, Brevard County, Metroplan Orlando, and Volusia County Metropolitan Planning Organization (MPOs); and FDOT.

East Central 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.

The East Central CFASPP MA is approximately 6,800 square miles with a 2016 population of 3.6 million. The region comprises Brevard, Flagler, Lake, Orange, Osceola, Seminole, and Volusia counties. Located along and inland from Florida's central Atlantic coast, this area is home to some of Florida's most renowned destinations including Orlando's theme parks, Daytona Beach, Cocoa Beach, the Kennedy Space Center (KSC), and Port Canaveral.

The East Central MA hosts four commercial service and 19 general aviation airports, which include five FAA-designated relievers. Orlando International Airport is the primary commercial service provider, with all counties supported by at least one general aviation or commercial service airport. Orlando International is the second busiest airport in the state and the 14th busiest in the U.S. in terms of passengers and operations (2015). Together with Orlando Sanford International, Daytona Beach International, Melbourne International, and a host of general aviation airports, Orlando International Airport is one of the most important links in central Florida's flourishing tourism, leisure travel, and business convention industries.

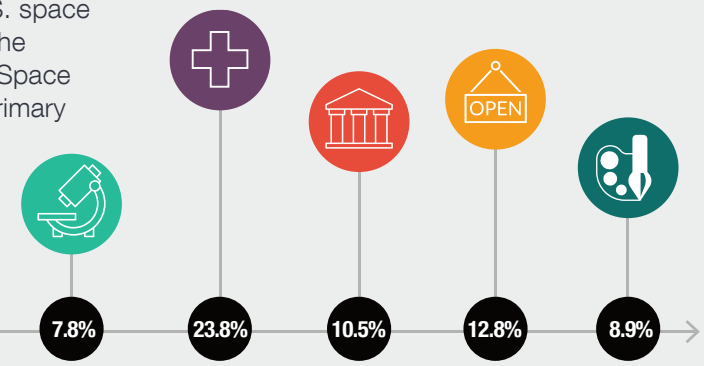
Orlando is constantly ranked among the nation's most popular vacation destinations, welcoming 66 million domestic and international visitors in 2015. That same year, visitors contributed $230 million in tourist development tax collections and were responsible for 33 million hotel nights sold. A 2011 study reported that Walt Disney World, led by its flagship Magic Kingdom, and its related businesses generate an estimated $18.2 billion in annual economic activity—accounting for 2.5 percent of Florida's cumulative gross state product. That same report also found that one in every 50 jobs in the state are directly or indirectly tied to Disney; in central Florida, that figure rises to six percent of total employment.

Forty-five minutes east of Orlando, Port Canaveral is the second-busiest multi-day cruise embarkation point in the world. Cargo operations at the port also provide access to domestic consumers throughout the southeastern U.S. and markets in Central and South America, the Caribbean, Africa, and Europe. The port is currently undertaking a series of major capital investments to improve the capabilities and efficiencies of its 10 deepwater berths.

The Atlantic coast of the East Central MA is also known as Florida's Space Coast for its eminence in the U.S. space program. KSC serves as the National Aeronautics and Space Administration's (NASA) primary launch center for human spaceflight.

First Embraer Legacy 450 test flight at Melbourne International Airport (MLB), October 4, 2016.

Top 5 industries in the region



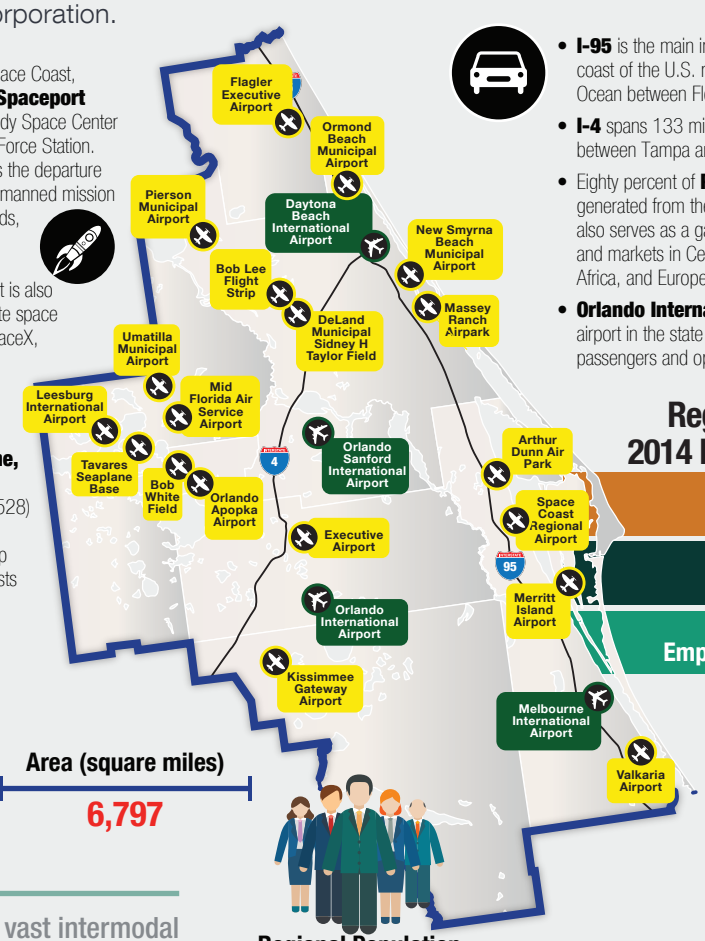
The KSC Visitor Complex inspires children and adults alike with the history and science of the space program, as well as the stories of the men and women who have truly reached for the stars. The KSC is adjacent to Cape Canaveral Air Force Station, and the two entities work closely together.

The East Central MA is also home to Patrick Air Force Base, Naval Support Activity Orlando and its tenant commands, and the Naval Ordnance Test Unit. Naval Support Activity Orlando is located in the Central Florida Research Park (CFRP). CFRP is one of the largest research parks in the U.S. and is affiliated with and adjacent to the University of Central Florida (UCF). CFRP hosts centers under the aegis of the U.S. Department of Defense; UCF; and major aerospace and aviation contractors such as Lockheed Martin, Northrop Grumman, Boeing, and Raytheon.

Aviation-related education in the East Central MA significantly contributes to the regional economy while supporting the long-term development and health of the aviation and aerospace industries. Flight training is offered at both commercial service and general aviation airports throughout the MA, with a particularly dense concentration of schools located along the coast. For example, Embry-Riddle Aeronautical University in Daytona Beach and the Florida Institute of Technology in Melbourne offer specialized degree programs in aviation- and aerospace- related fields. Both schools offer major flight training programs at Daytona Beach International Airport and Melbourne International Airports, respectively. Melbourne International Airport is also home to major aviation corporations such as Northrop Grumman, Embraer, and the Harris Corporation.

- Sitting along Florida's Space Coast, the **Cape Canaveral Spaceport** encompasses the Kennedy Space Center and Cape Canaveral Air Force Station. The facility has served as the departure gate for every American manned mission and thousands of payloads, including scientific spacecraft and satellites, over the past 60 years. It is also home to a growing private space industry that includes SpaceX, Blue Origin, and others.

- The **Florida Turnpike Mainline, Marin Andersen Beachline Expressway** (State Route [SR] 528) cross the region as part of an innovative public/private partnership that serves over 1.8 million motorists in Florida each day.
- The **SunRail** is central Florida's commuter rail currently connecting 12 stations through three different counties.



- **I-95** is the main interstate highway on the east coast of the U.S. running parallel to the Atlantic Ocean between Florida and Maine.
- **I-4** spans 133 miles along a southwest-northeast axis between Tampa and Daytona Beach.
- Eighty percent of **Port Canaveral's** revenue is generated from the cruise industry. Port Canaveral also serves as a gateway between the southeastern U.S. and markets in Central and South America, the Caribbean, Africa, and Europe.
- **Orlando International Airport** is the second busiest airport in the state and 14th busiest in the U.S. in terms of passengers and operations (2015).

Regional Airports' 2014 Economic Impacts

Total Output	$38 billion
Total Payroll	$9.4 billion
Total Employment	331,000

Area (square miles)

6,797

Regional Population

3,566,100

INTERSTATE 4 INTERSTATE 95

Major Interstates

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

Intermodal Connectivity

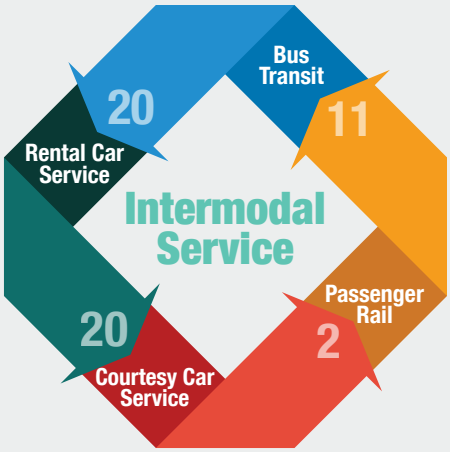
An integrated multimodal transportation system:

- 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



Total Airports Where Service is Provided

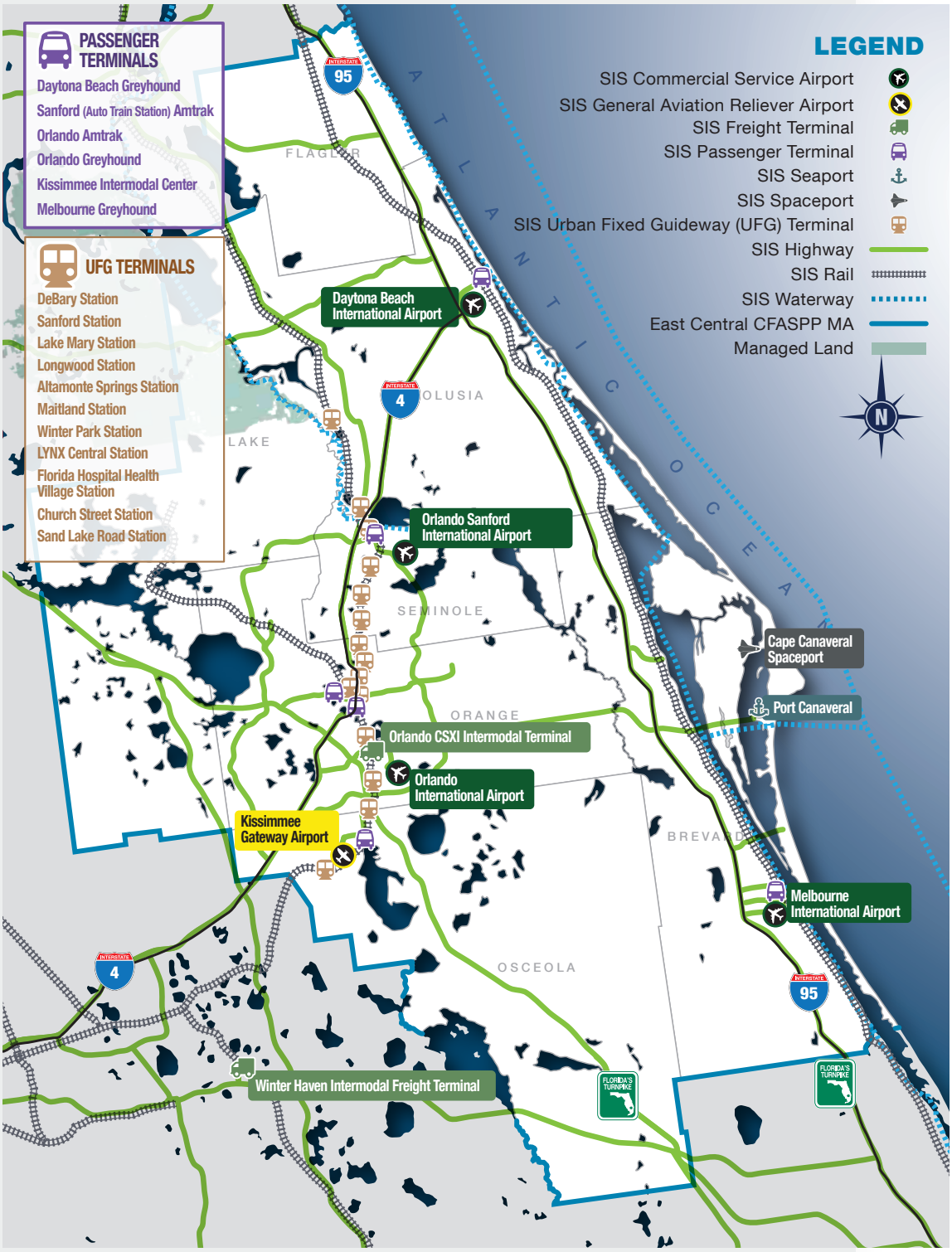
Twenty of Florida's 128 airports are SIS or emerging SIS facilities, including 18 commercial service and two general aviation reliever airports. Commercial service airports require more connections to facilitate access to airline service, while the general aviation reliever airports typically serve a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

The East Central MA is home to four SIS airports, including Daytona Beach International, Orlando International, Orlando Sanford International, and Melbourne International. Additionally, Kissimmee Gateway Airport holds a special designation as a SIS general aviation reliever airport in its role as a reliever facility for Orlando International Airport. Cape Canaveral is also a SIS-designated spaceport.

Greater Orlando Aviation Authority (GOAA)

Port Canaveral

Regional SIS Facilities



The region's intermodal connectivity provides a major advantage for the transportation of people and goods. The region offers an exceptionally high level of roadway access via I-4 and I-95. Additionally, the Florida Turnpike provides access to areas to the north and south, as well as a direct route to the Space Coast via The Martin Anderson Beachline Expressway (SR 528).

Port Canaveral, approximately 45 minutes east of Orlando, is one of the busiest ports in Florida and serves as a cruise, cargo, and naval port. Visitors and residents also enjoy the convenience of the SunRail, Central Florida's commuter rail line that opened in 2014.

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 East Central MA, over 80 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

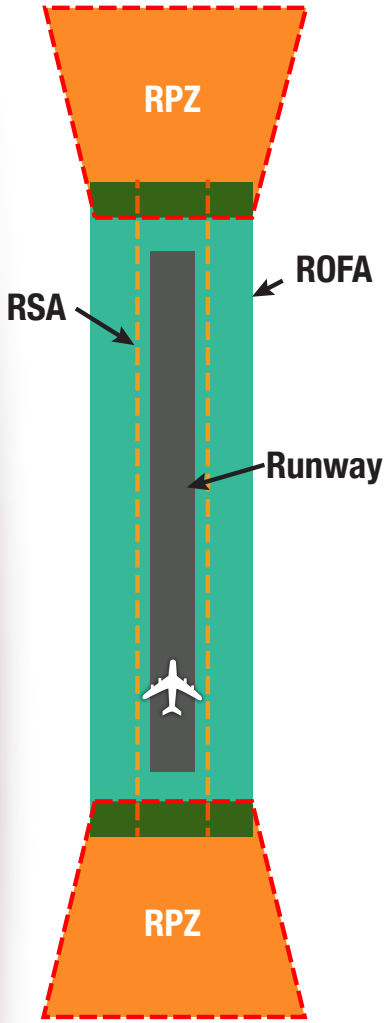
Performance indicators are generally used as a reporting mechanism to gather data on those aspects of system performance that cannot be directly impacted by FDOT action.

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.

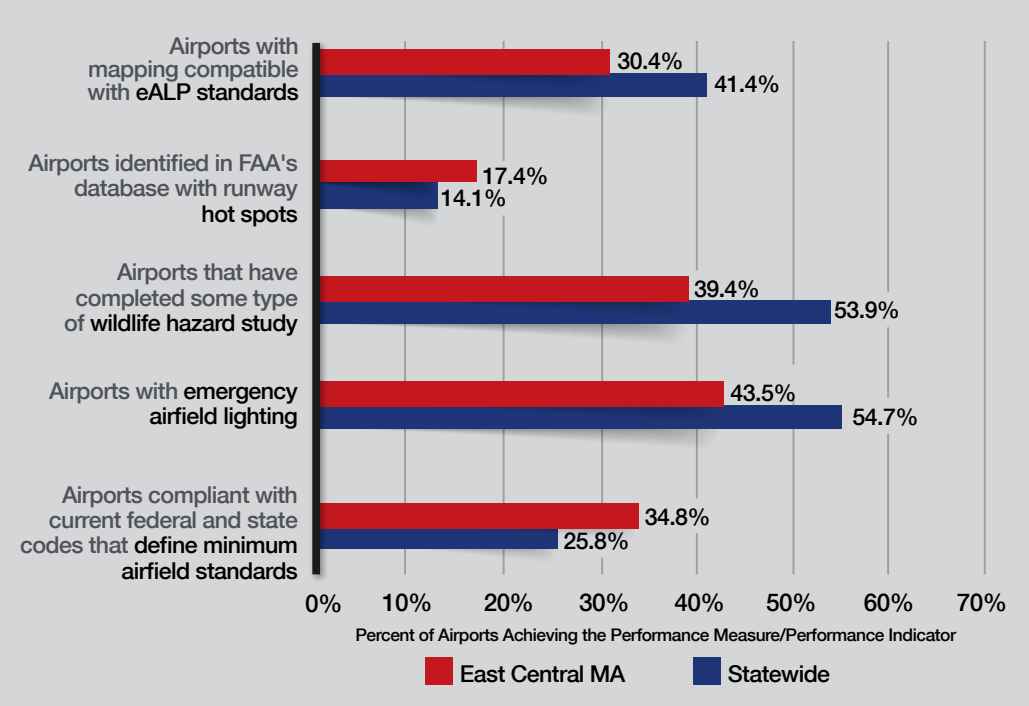
Runway Safety Areas (RSA)

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.

Aviation activity in the East Central MA is undoubtedly driven by the thriving tourism, leisure travel, and business convention industries centered in greater Orlando, which draws travelers from around the nation and world. Additionally, the region is home to world-renowned aerospace programs, a diverse manufacturing community, and a growing regional population that is increasingly dependent on the services offered by commercial service and general aviation airports.

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.

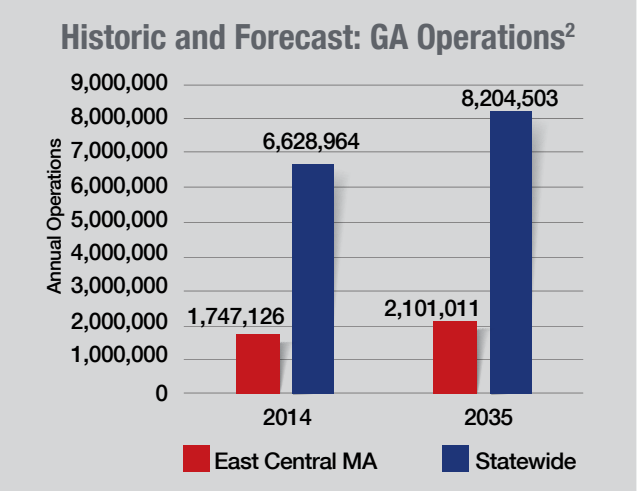
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

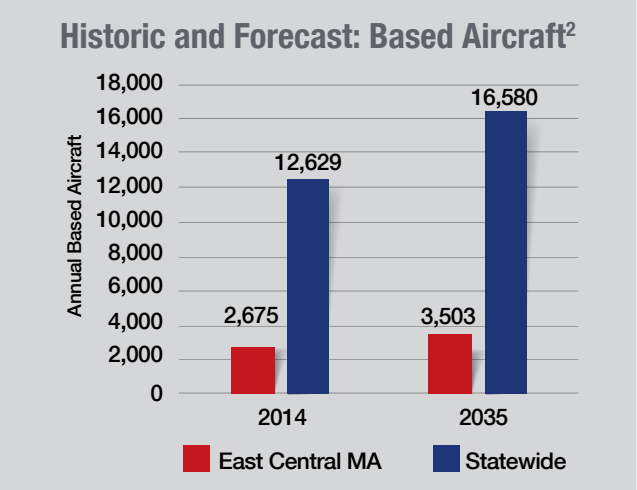
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

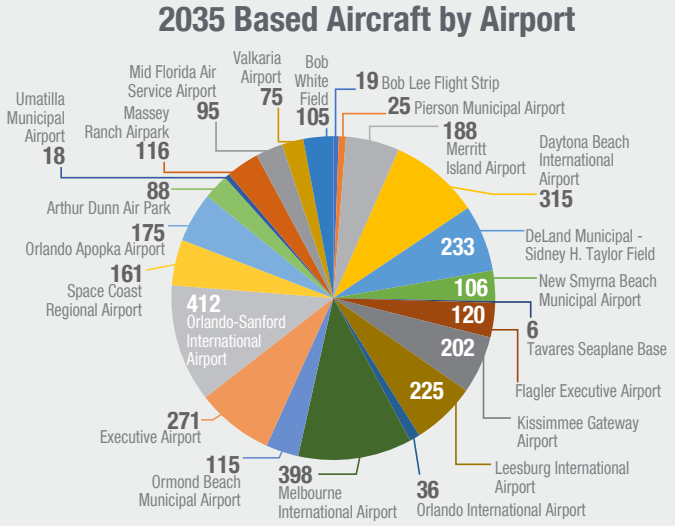
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to 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.



General aviation (GA) operations in the East Central MA are projected to increase at an annual growth rate of 0.72 percent over the forecast horizon, falling below the statewide annual growth rate of 1.13 percent over the same time period.



Based aircraft in the East Central MA are projected to increase at an annual growth rate of 1.47 percent over the forecast horizon concurrent with the statewide annual growth rate of 1.49 percent over this same time period.



[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.*

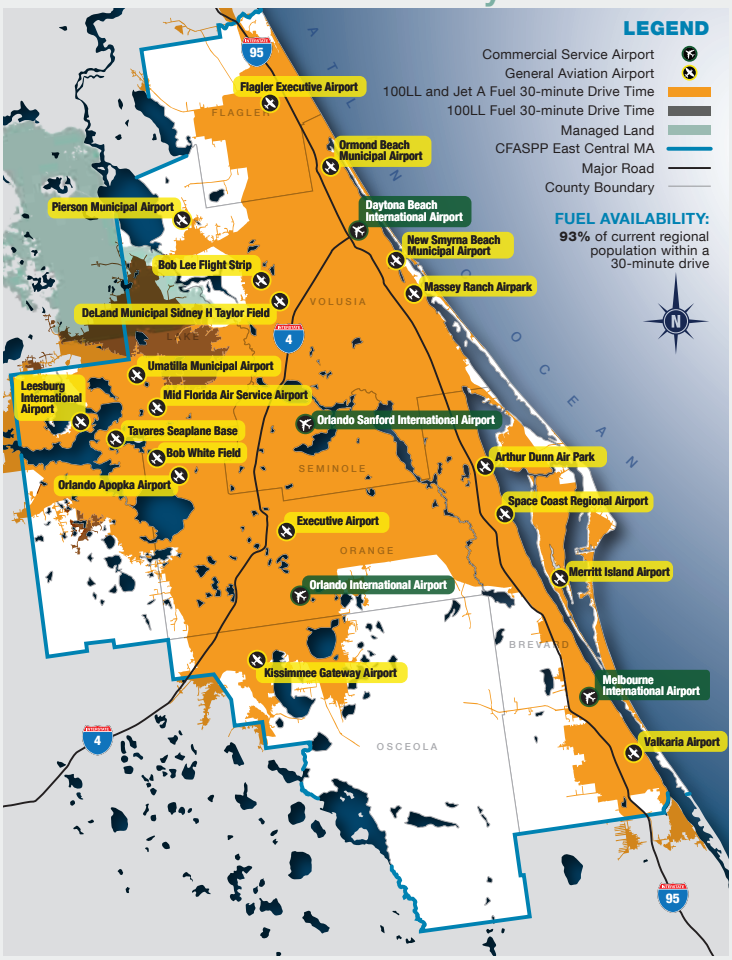
Accessibility Analysis

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.

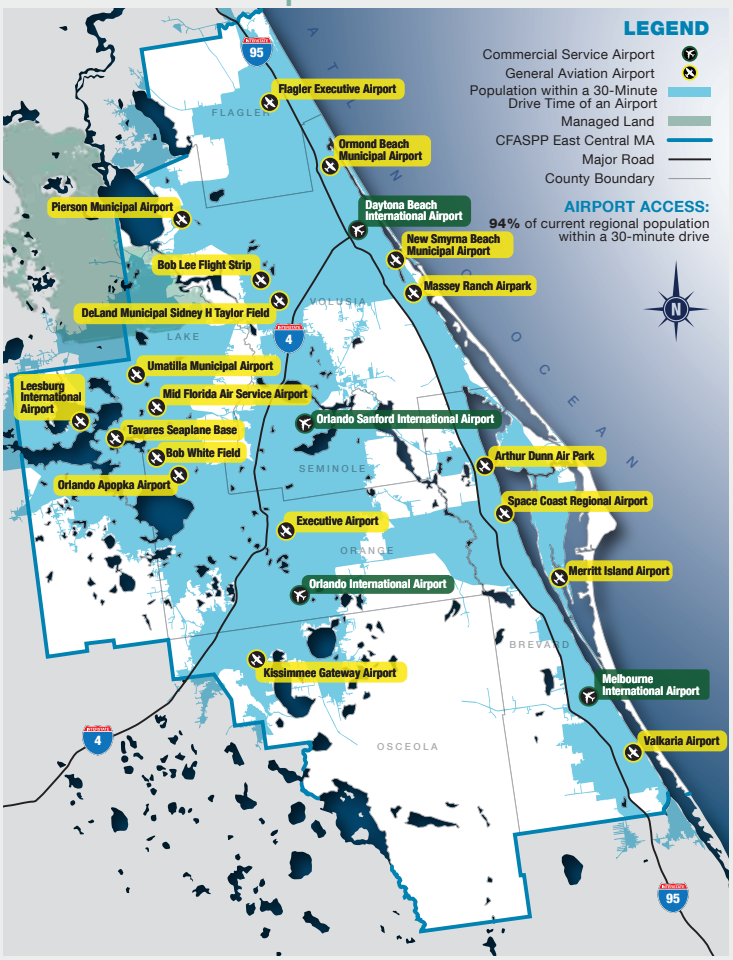
This same threshold is often used by businesses that operate general aviation aircraft as a decision-making factor when seeking locations to build or relocate their facilities.

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.

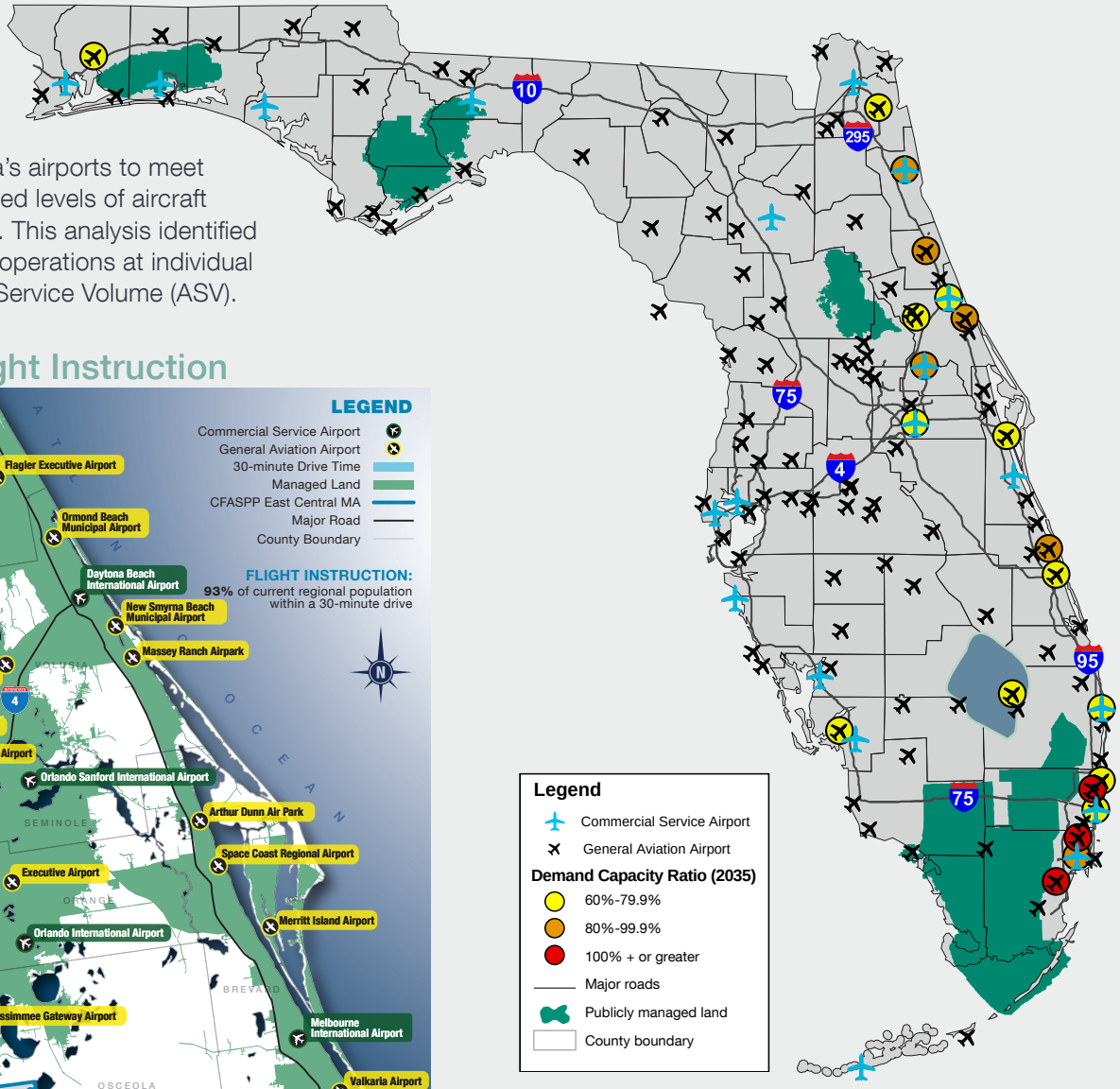
Airport Access



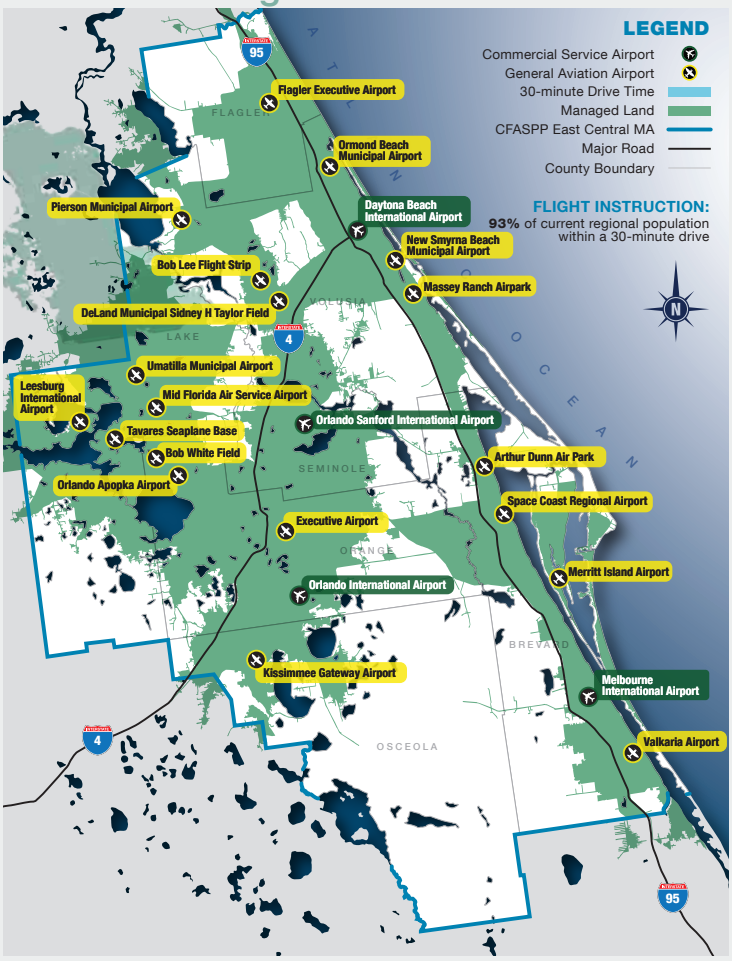
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

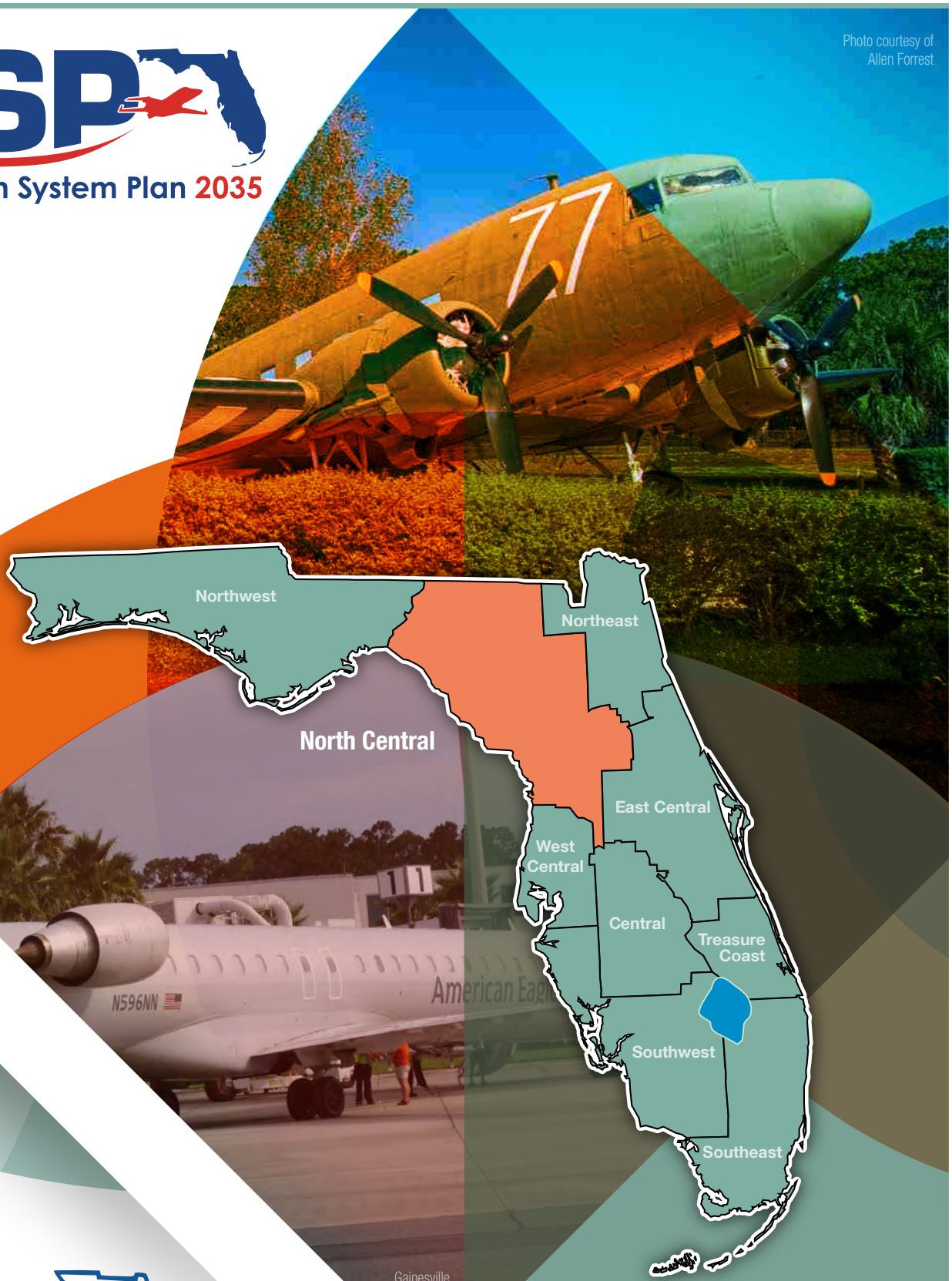
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035

Photo courtesy of Allen Forrest



Gainesville Regional Airport

North Central
CFASPP Region

FDOT

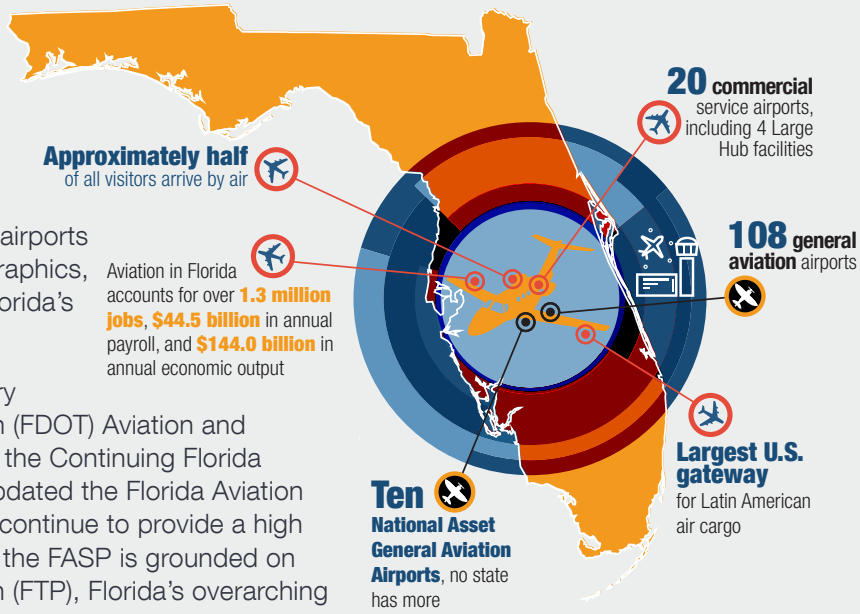
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

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.

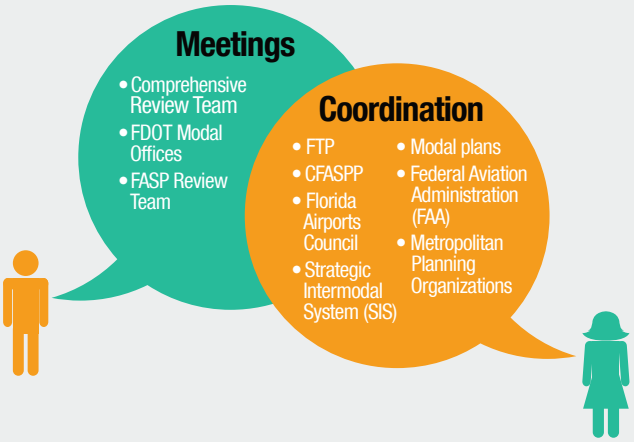
Florida by the Numbers



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.

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.

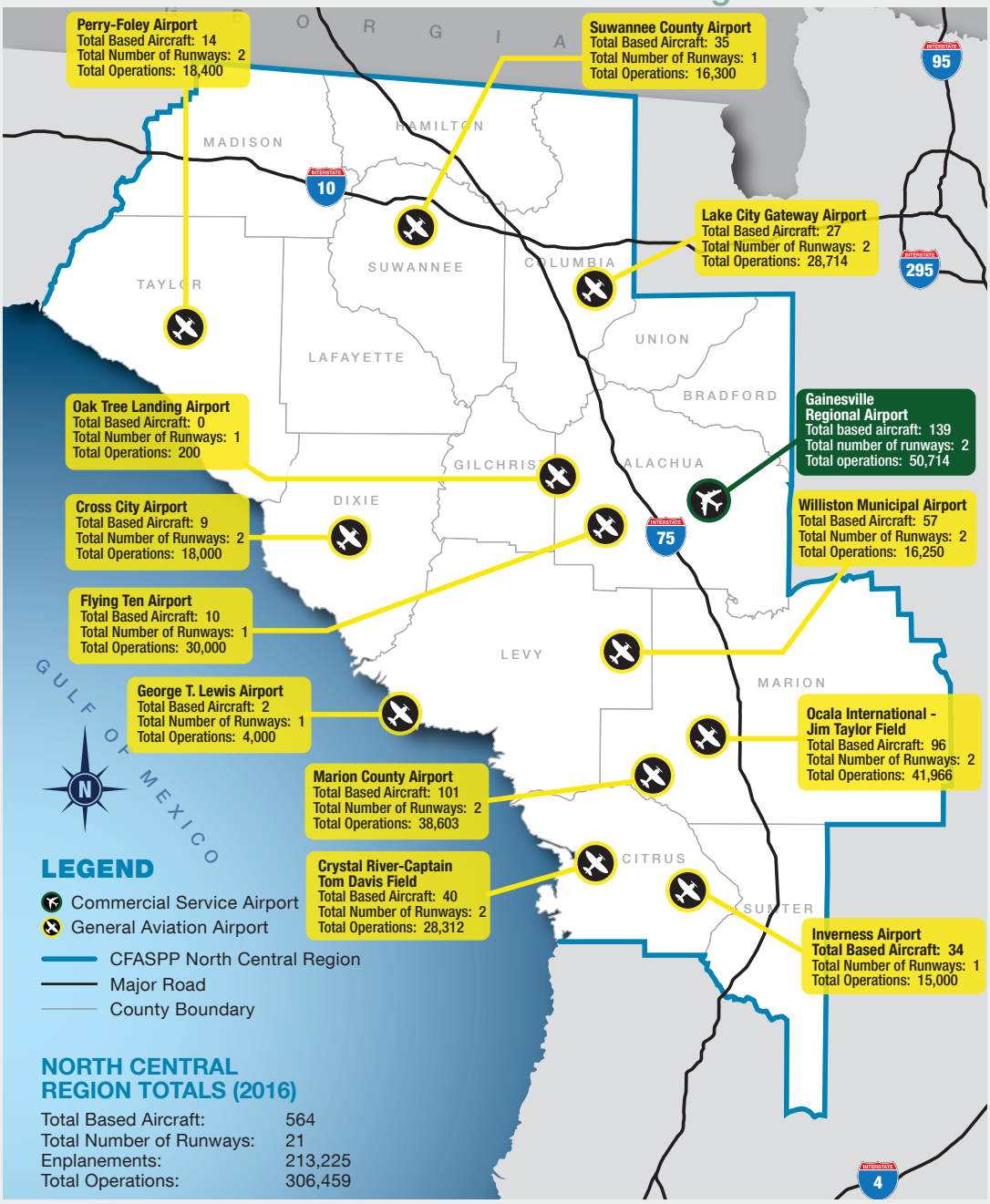


FDOT used a comprehensive public outreach and stakeholder engagement process to ensure the FASP 2035 Update was developed with the input of many audiences.

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.*

North Central Florida CFASPP Region



Source: FAA 5010 (extracted October 2016)

The North Central CFASPP Region is located within FDOT Districts Two, Five, and Seven. The North Central CFASPP Steering Committee is supported by the North Central and Withlacoochee Regional Planning Councils (RPCs); Gainesville Urbanized Area and Ocala/Marion County Metropolitan Planning Organizations (MPOs); 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

North Central Florida CFASPP Region 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.

The North Central CFASPP Region is 10,924 square miles including areas in Alachua, Bradford, Citrus, Columbia, Dixie, Gilchrist, Hamilton, Lafayette, Levy, Madison, Marion, Suwannee, Sumter, Taylor, and Union counties. The region is home to approximately 1.2 million residents, approximately half of whom live in rural areas. The majority of residents live in the Ocala metropolitan statistical area (MSA) followed by the Gainesville MSA.

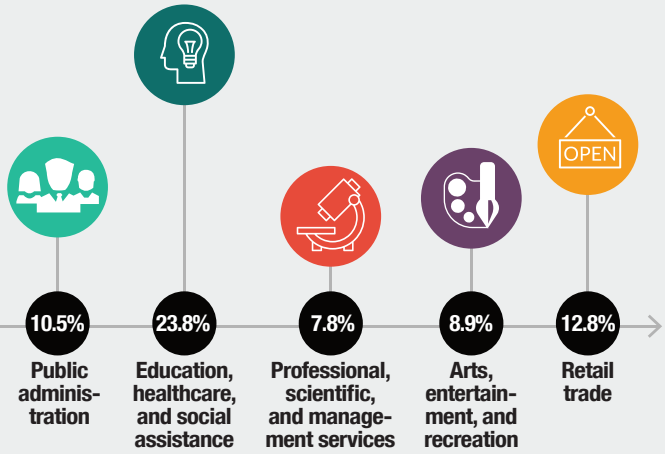
Gainesville Regional Airport is the region's only provider of scheduled commercial air service with three air carriers. The North Central Region hosts 12 general aviation facilities generally clustered around the south-central area of the region. Marion County and Ocala International-Jim Taylor Field are the two largest general aviation airports in terms of based aircraft and total operations, respectively. Lake City Gateway Airport provides maintenance and modifications services to civilian and military aircraft and hosts the only fire support base in the southeastern U.S. operated by the U.S. Forest Service.

The region is home to Camp Blanding Joint Training Center and the Pinecastle Bombing Range. Defense activities generated nearly 18,800 jobs and contributed approximately $1.4 billion in gross regional product (GRP), accounting for 5.7 percent of the region's total GRP.[1] Camp Blanding is the primary installation and training base for the Florida National Guard and is composed of 73,000 acres of forest, lakes, and grasslands. Additionally, Florida and Georgia defense training units perform low-level aviation training across the region and over the Ocala National Forest.

Much of the North Central Region's economic activity is centered in Gainesville. The University of Florida (UF) in Gainesville is ranked as one of the top public universities in the nation by U.S. News & World Report (2017). UF is also the only institution of higher education in the state elected for inclusion in the Association of American Universities. UF Health is a comprehensive academic health center that encompasses the UF Health Science Center, UF Health Shands, and UF Health Jacksonville family of hospitals and clinics. UF Health Shands Hospital is consistently recognized as one of the nation's best hospitals by U.S. News & World Report, and employs nearly 900 physicians and 9,000 nursing and support staff at its Gainesville location.

Ocala Breeders Sale. Photo by Caitlin Hunter via Flickr.

Top 5 industries in the region

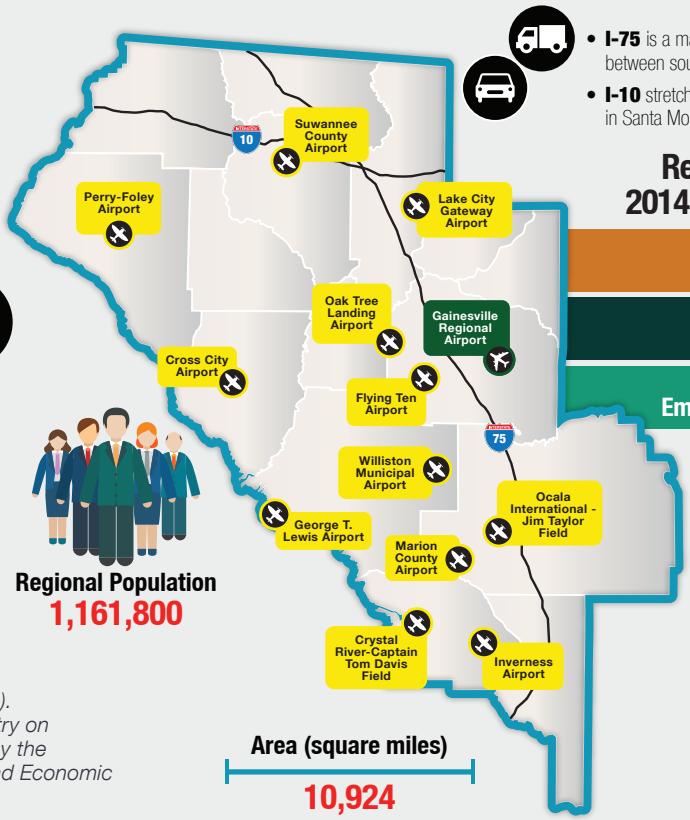


[1] *Enterprise Florida and Career Source Florida (2015). Florida Defense Factbook.*

To the south, Ocala/Marion County is officially known as the "Horse Capital of the World" for its involvement in all things equestrian. Perhaps most notably, the last two Triple Crown winners have ties to the region: American Pharoah trained and Affirmed was born, bred, and trained in Ocala/Marion County. The region also hosts the annual Ocala Breeders Sales thoroughbred auction, which sold 3,100 horses in 2014 for a record $142 million to buyers from 42 states and 18 countries. A buyer from Qatar purchased a single horse for $1.6 million, tying the North American record for highest price ever paid for a two-year-old in-training. The annual Horses in The Sun Ocala Winter Circuit is one of the largest horse shows in the country and attracts approximately 20,000 spectators during the 10-week event. Scheduled to open in 2018, the 300-acre World Equestrian Center and Golden Ocala Golf & Equestrian Club will combine world-class equestrian facilities and country club living. The facility has access to 3,100 additional acres with residential and retail amenities. In total, the equine industry of Ocala/Marion County offers a $1.6 billion value-added contribution to the gross regional product, $2.62 billion in industry outputs, and 19,209 full and part-time jobs.2

Over the last several years, Ocala has taken significant steps to attract new employers to the region and diversify its economic base. As a result, FedEx, Chewy, and AutoZone have each chosen to locate major distribution centers in Ocala/Marion County. FedEx, the first of the three companies to establish in the Ocala/Marion County Commerce Park, constructed a new 400,000-square-foot distribution center in 2016. Chewy and AutoZone both announced their decisions to locate in the area in 2017. These moves will bring nearly 1,500 new jobs to the area.

- **Gainesville Regional Airport's** green initiatives include a 292-kilowatt solar array on the roof of its commercial terminal and rental car wash facility, LED lighting, building envelope improvements, terminal recycling, and water conservation measures.



- **I-75** is a major north-south route traversing the U.S. between southern Florida and the northern tip of Michigan.
- **I-10** stretches from Jacksonville, Florida to the Pacific Ocean in Santa Monica, California.

[2] *Sports Management Research Institute (SMRI) of California (2014). Economic Impact of Equine Industry on Ocala/Marion County. Produced by the Ocala/Marion County Chamber and Economic Partnership.*

The North Central Region's airport system offers a wide range of general aviation services that are significant to residents' quality of life and local economies, including emergency preparedness and response; critical community access including air charter and scheduled air cargo services; and other aviation functions such as agricultural support, corporate and recreational flying, flight instruction, and access to tourism destinations and special events.

Intermodal Connectivity

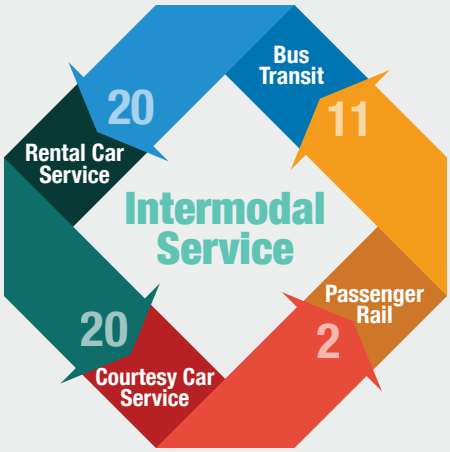
An integrated multimodal transportation system:

- 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

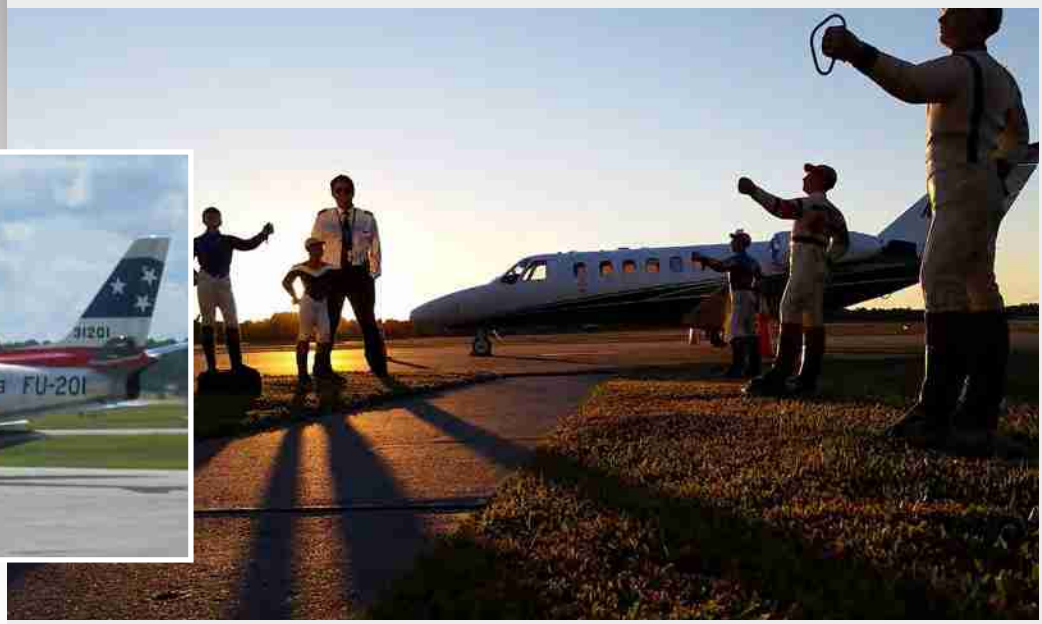


Total Airports Where Service is Provided

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 the general aviation reliever airports typically serve a high level of demand in metropolitan areas. The FASP 2035 Update evaluated all airports' level of connectivity with a particular emphasis on the SIS facilities' integration with other key modes of transportation.

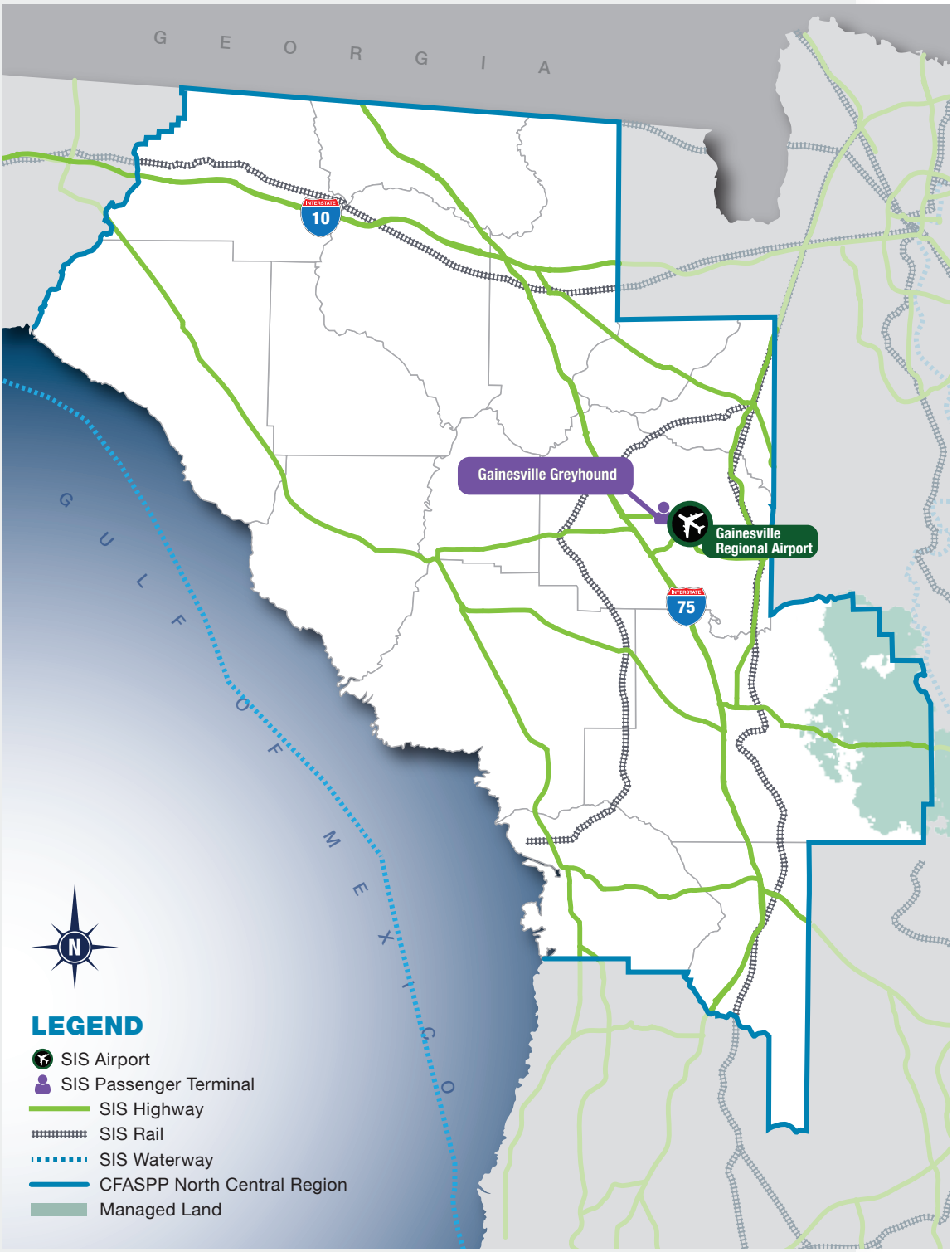
Gainesville Regional Airport is the only SIS airport in the North Central Region.

Ocala International-Jim Taylor Field. Photo by Diesel Demon via Flickr.



Gainesville Air Show 2005. Photo by Mark Jaquith.

Regional SIS Facilities



In addition to Gainesville Regional Airport, residents, citizens, and businesses in the North Central Region have access to I-75 and I-10, two of the longest and most critical north-south and east-west corridors in the U.S.

The region also hosts a robust rail network. Rail travel offers businesses a reliable and efficient way to ship cargo, and passengers benefit from a comfortable and safe journey to their destinations. A CSX railway traverses the northern portion of the region following the I-10 corridor as it makes its way westward from its origin near Jacksonville. An emerging SIS rail line bisects the North Central Region from the coast to its intersection with a second CSX railway northeast of Gainesville Regional Airport in Bradford County.

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.

More than 90 percent of airports in the North Central Region meet FAA runway hot spot safety 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

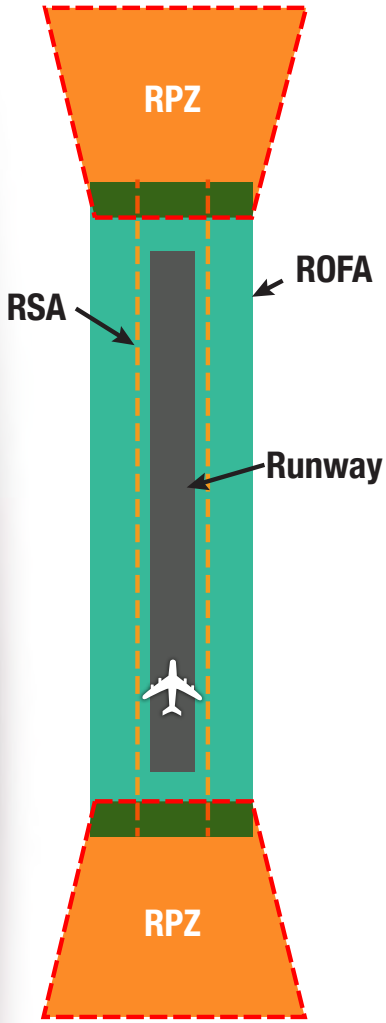
Performance indicators are generally used as a reporting mechanism to gather data on those aspects of system performance that cannot be directly impacted by FDOT action.

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.

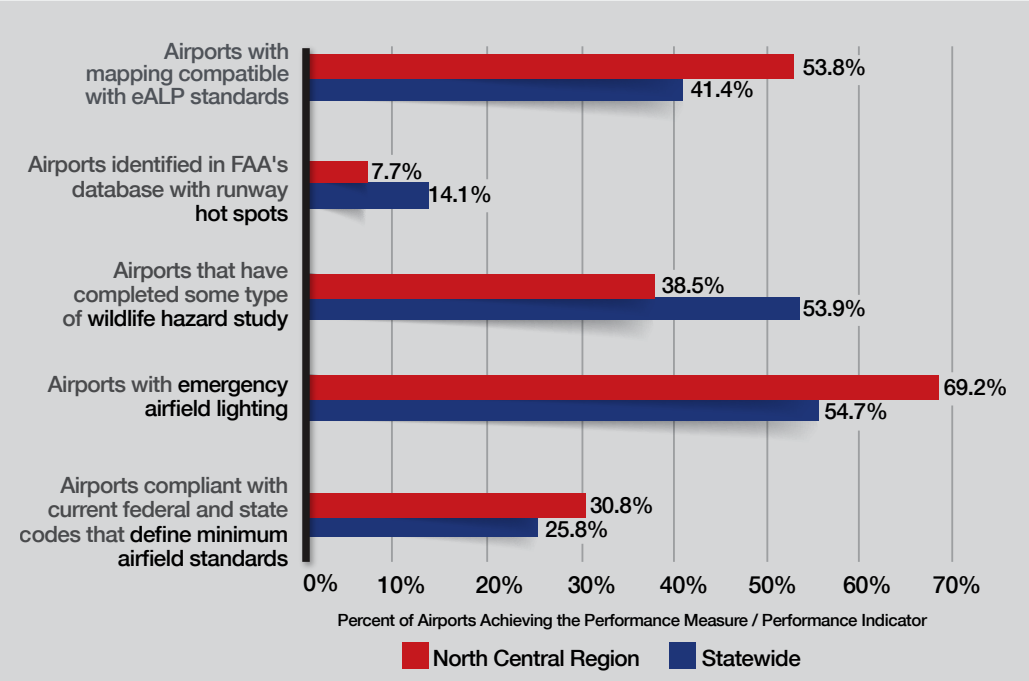
Runway Safety Areas (RSA)

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.

Aviation activity in the North Central Region is primarily driven by the prominent educational and medical facilities offered by UF and UF Health, one of the best and most comprehensive health centers in the U.S. Additionally, commercial and general aviation airports serve as a gateway to the "Horse Capital of the World" centered in Ocala/Marion County.

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.

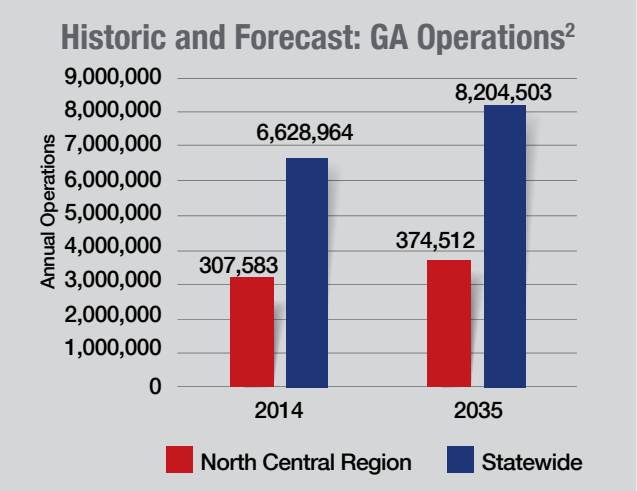
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

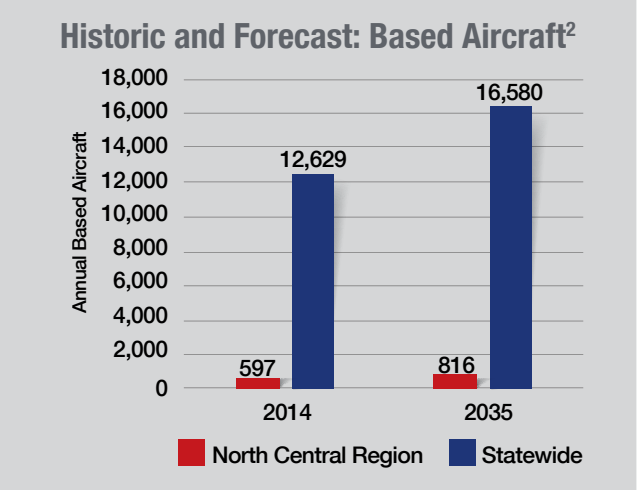
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

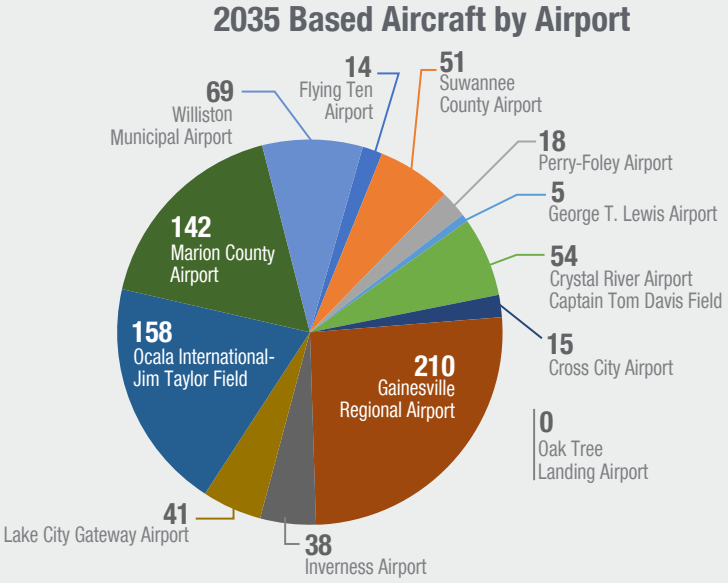
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to 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.



General aviation (GA) operations in the North Central Region are projected to increase at an annual growth rate of 1.04 percent over the forecast horizon concurrent with the statewide annual growth rate of 1.13 percent over this same time period.



Based aircraft in the North Central Region are projected to increase at an annual growth rate of 1.74 percent over the forecast horizon to exceed the statewide annual growth rate of 1.49 percent over this same time period.



[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.*

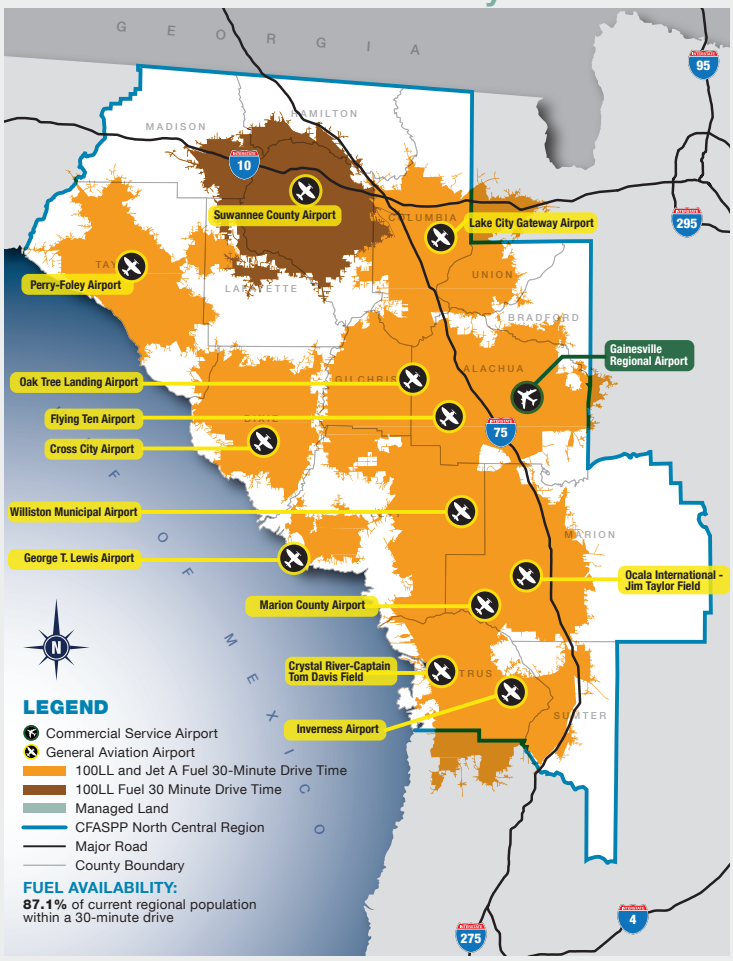
Accessibility Analysis

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.

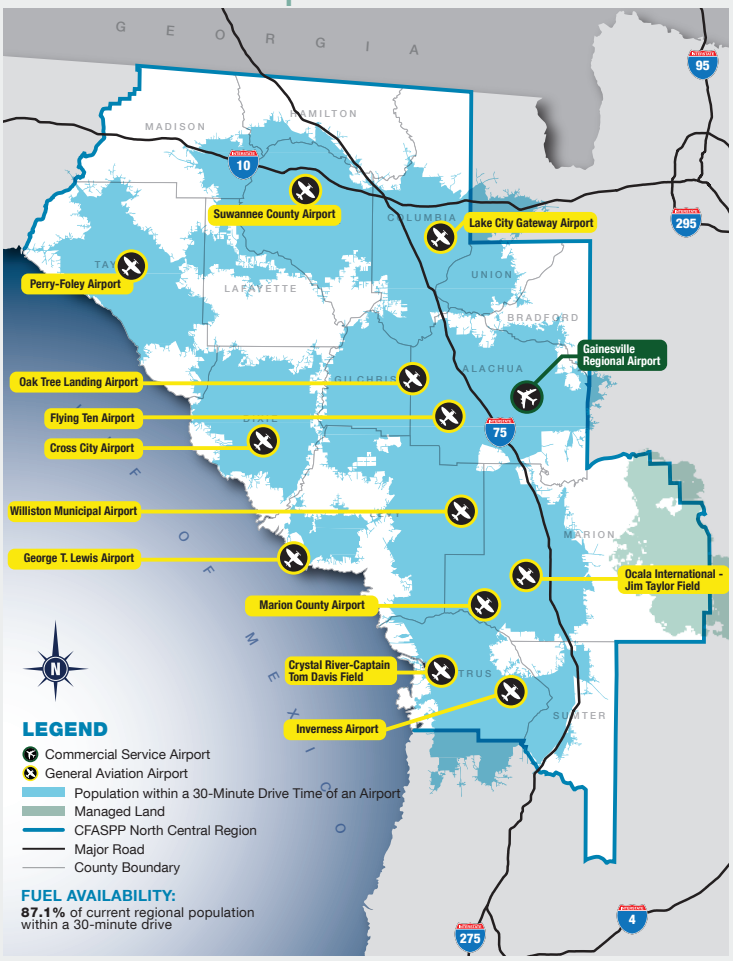
This same threshold is often used by businesses that operate general aviation aircraft as a decision-making factor when seeking locations to build or relocate their facilities.

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.

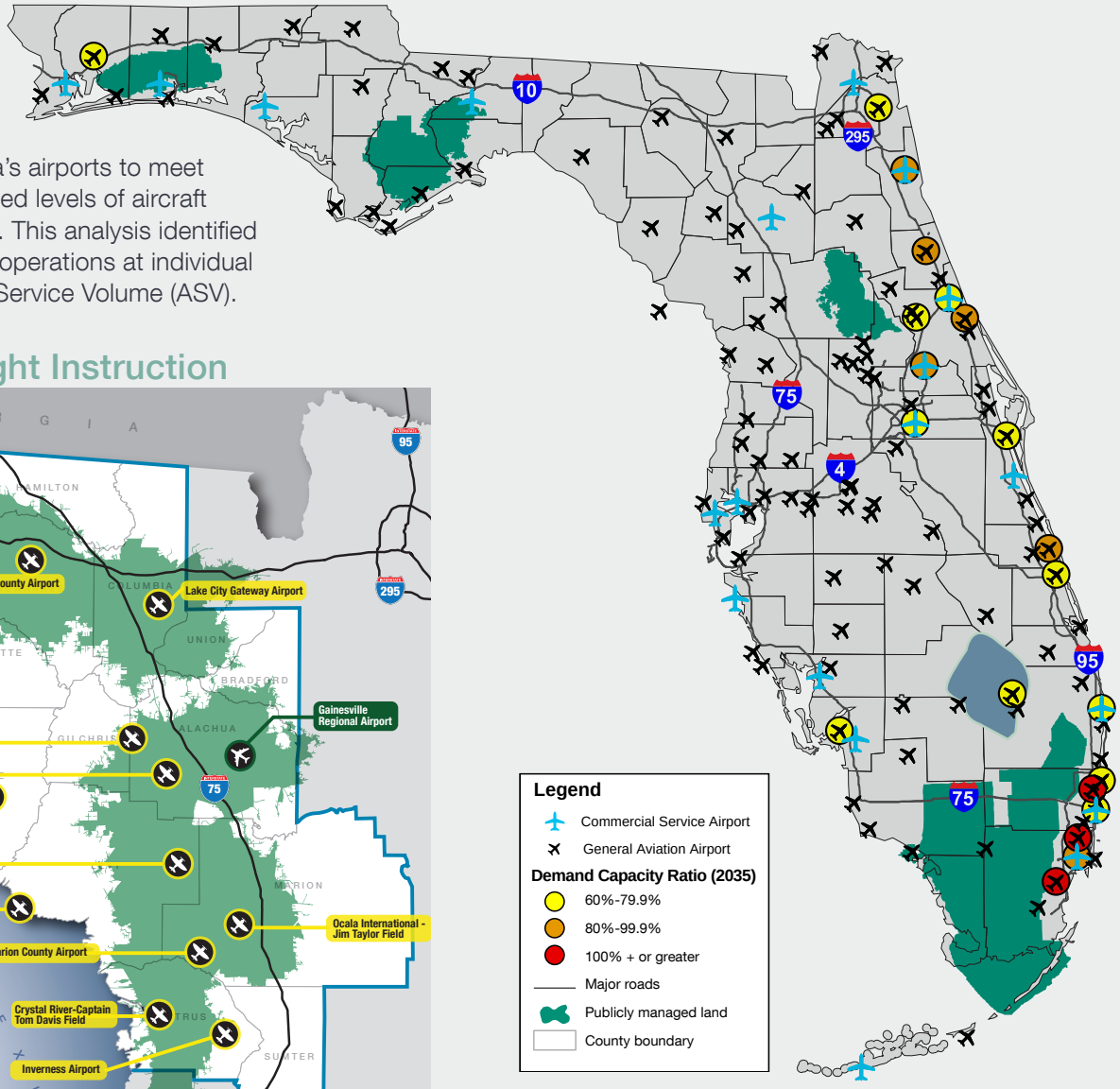
Airport Access



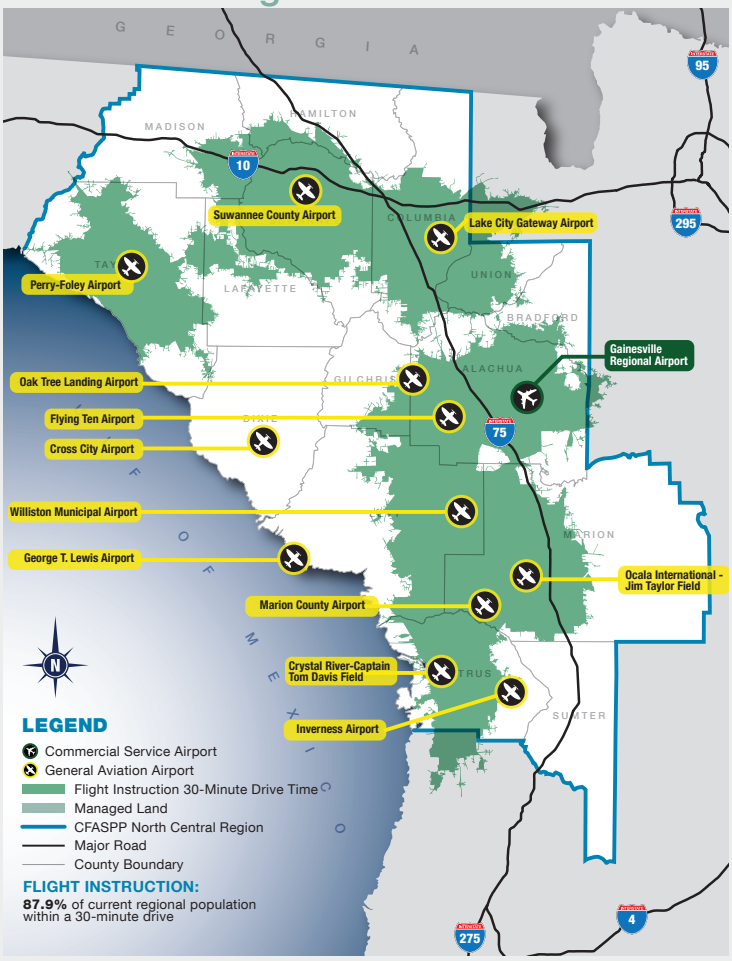
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

Photo courtesy of
Allen Forrest

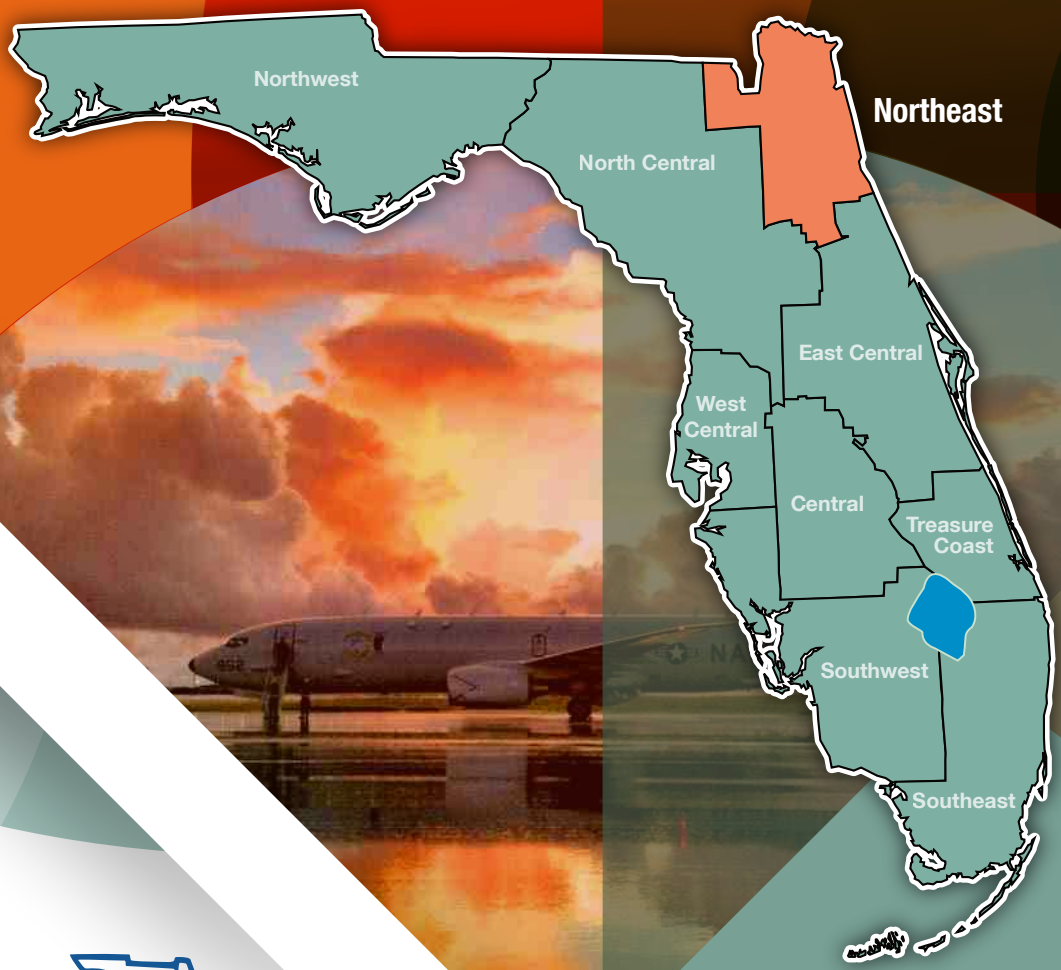
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

Gainesville Regional Airport

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035



Northeast

CFASPP Metropolitan Area

FDOT

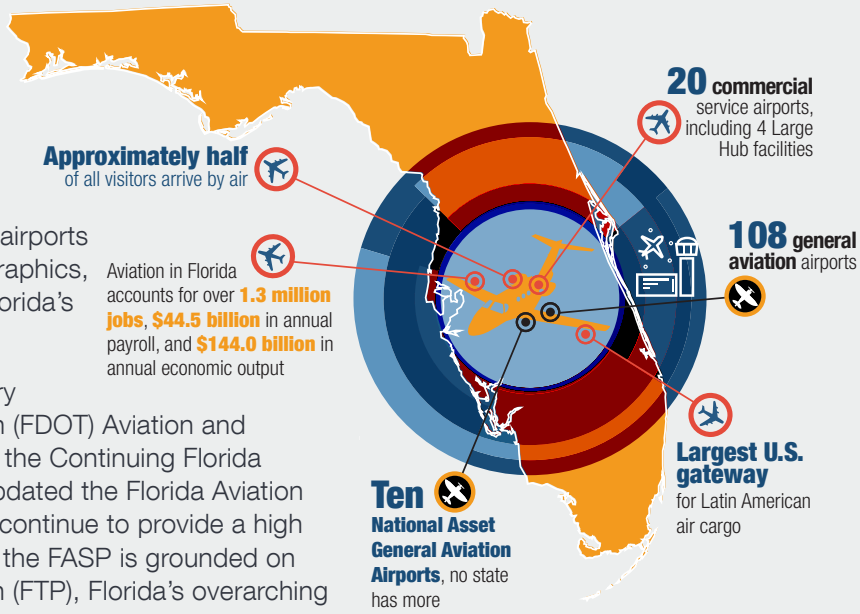
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

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.

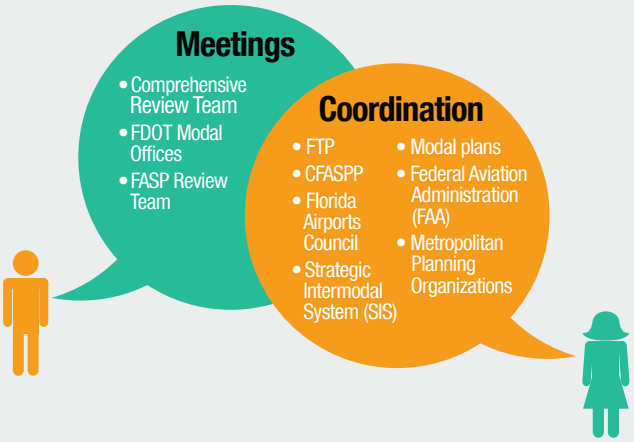
Florida by the Numbers



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.

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.

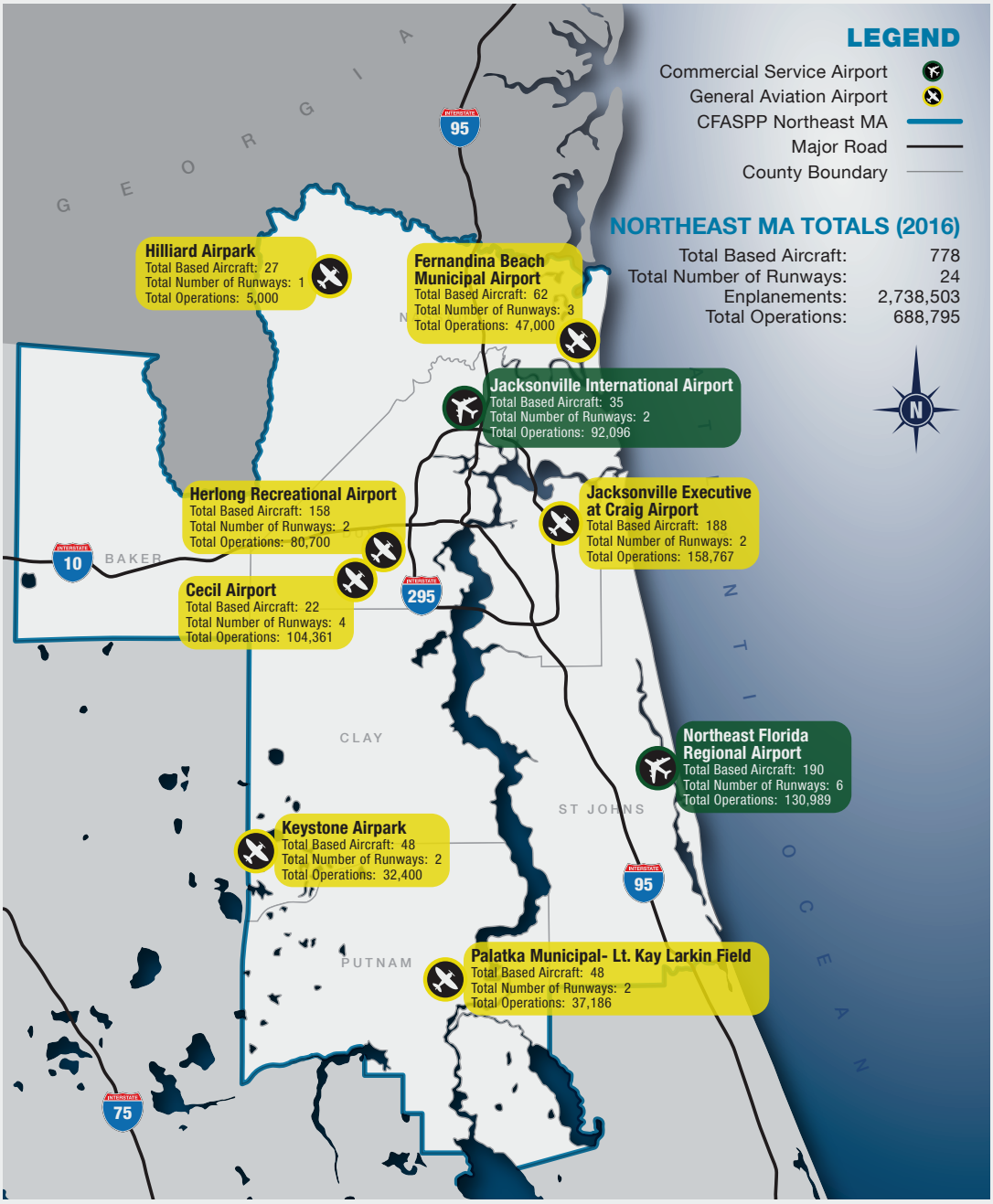


FDOT used a comprehensive public outreach and stakeholder engagement process to ensure the FASP 2035 Update was developed with the input of many audiences.

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.

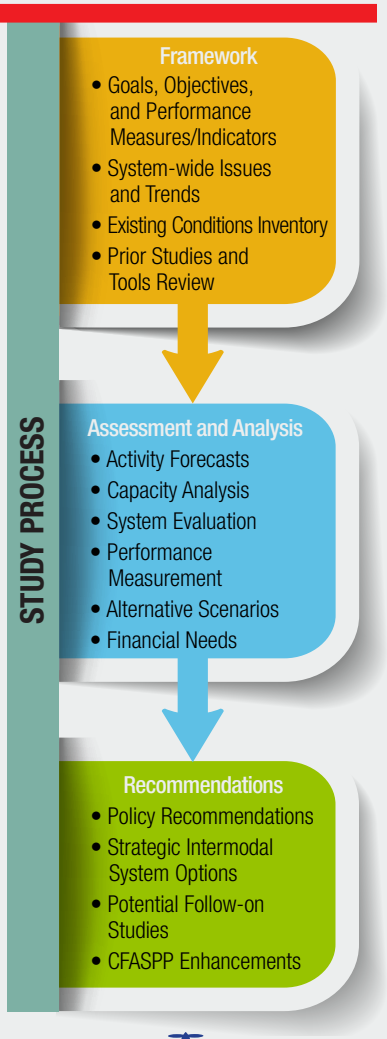
[1] *The FTP can be accessed at www.FloridaTransportationPlan.com.*

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.



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

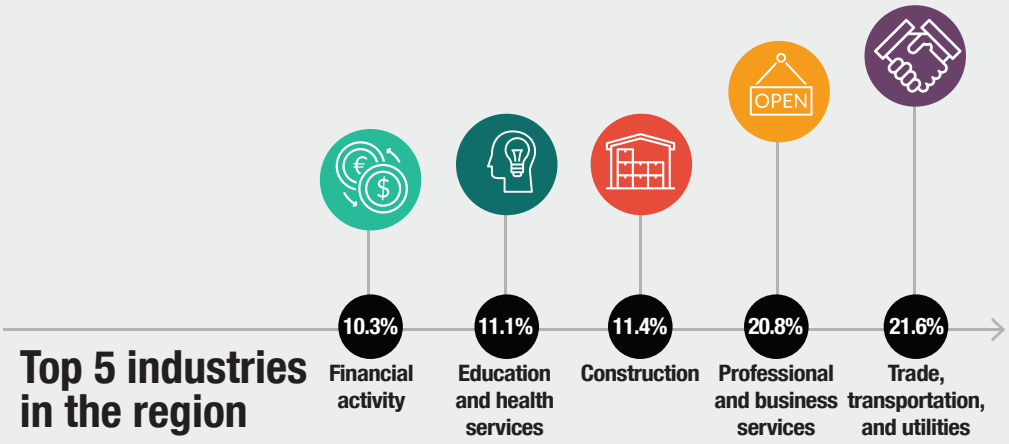
Covering 3,857 square miles, the Northeast MA includes Baker, Clay, Duval, Putnam, Nassau, and St. Johns counties. The MA is home to 1.5 million residents, comprising 7.6 percent of the state's total population. Duval County serves as the largest population base with over 900,000 residents, most of whom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

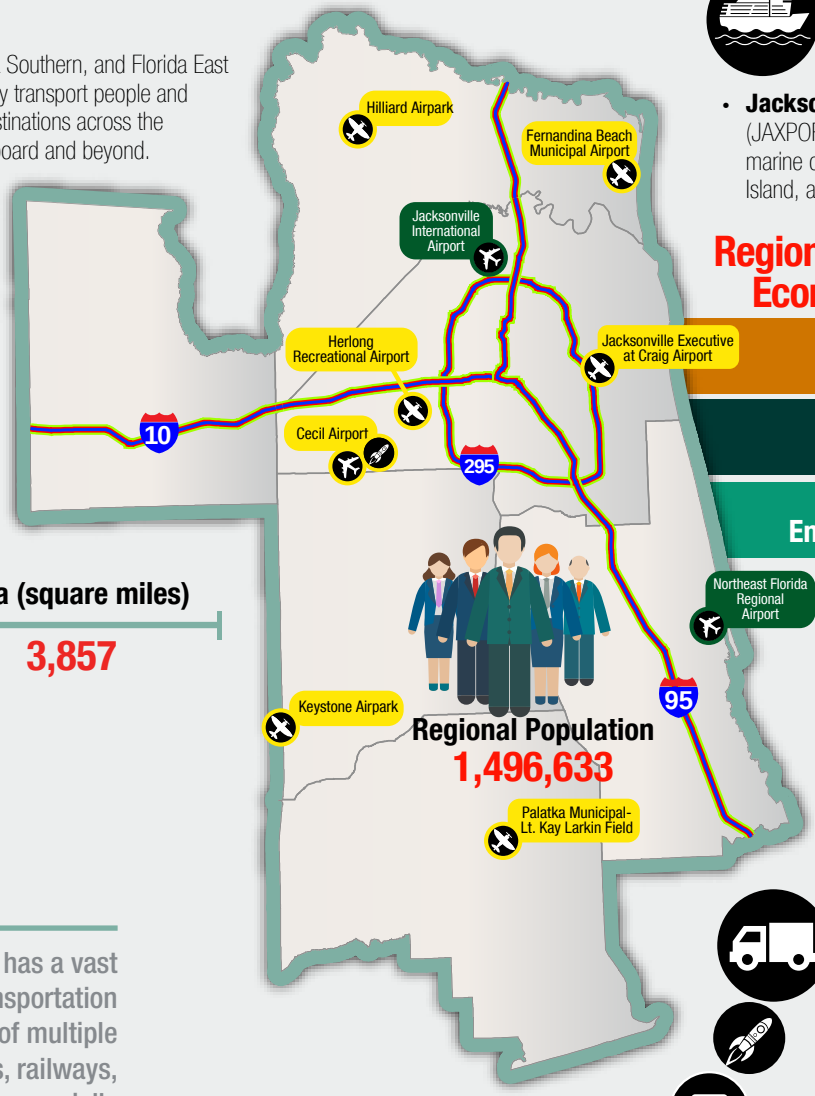


Military activity is also a vital component of the regional economy and a major employer in Northeast Florida. Camp Blanding Joint Training Center, Naval Outlying Landing Field Whitehouse, Jacksonville Air National Guard Base, Marine Corps Support Facility Blount Island, Naval Station Mayport, and Naval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

- **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.



Area (square miles)

3,857

Regional Population

1,496,633

Regional Airports' 2014 Economic Impacts

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

Major Interstates

INTERSTATE 295 · INTERSTATE 10 · INTERSTATE 95

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

- **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.**

Intermodal Connectivity

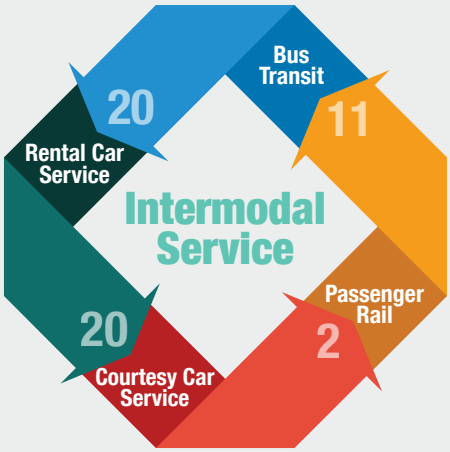
An integrated multimodal transportation system:

- 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



Total Airports Where Service is Provided

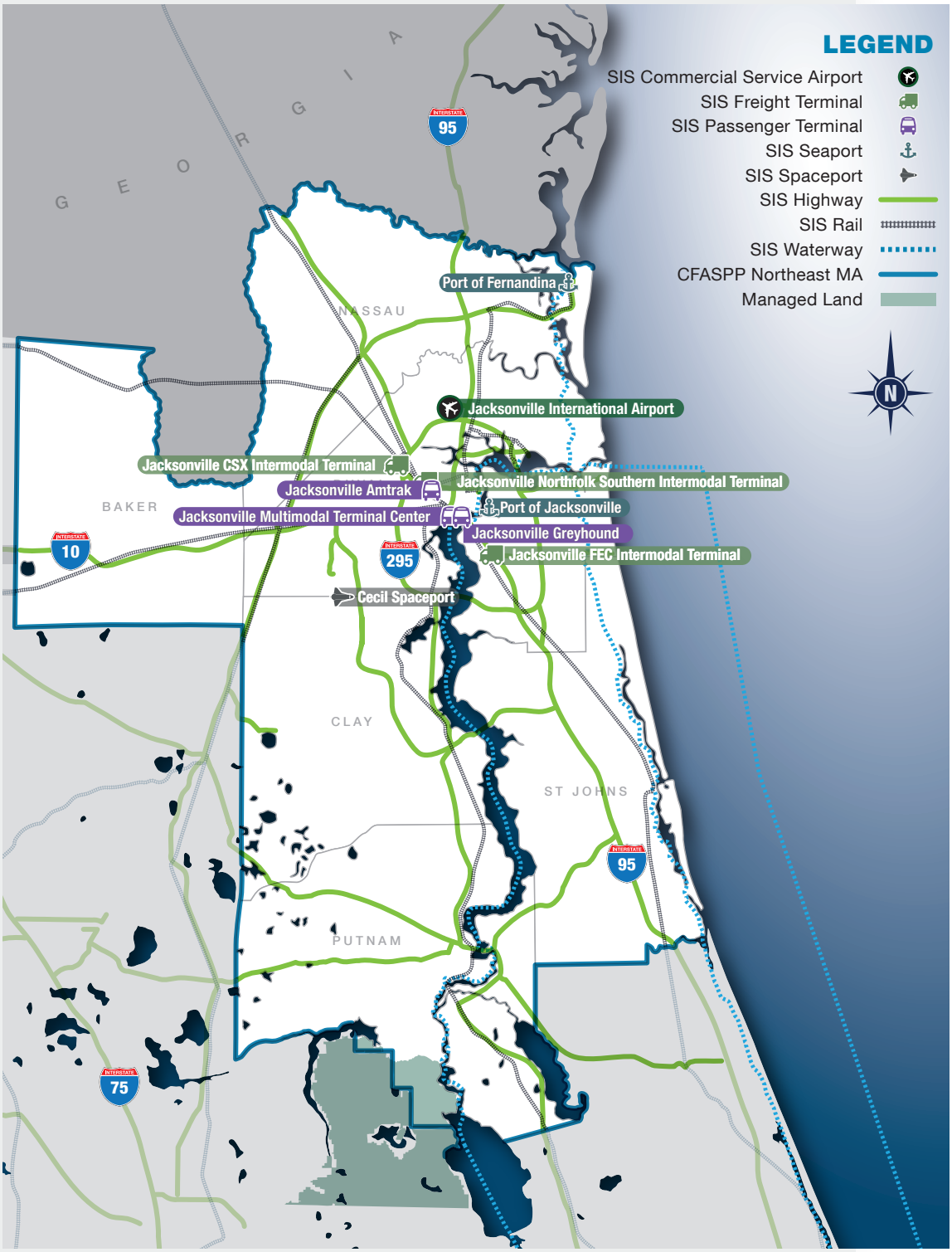
Twenty of Florida's 128 airports are SIS or Emerging SIS facilities, including 18 commercial service and two general aviation reliever airports. Commercial service airports require more connections to facilitate access to airline service, while general aviation reliever airports typically serve a high 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.

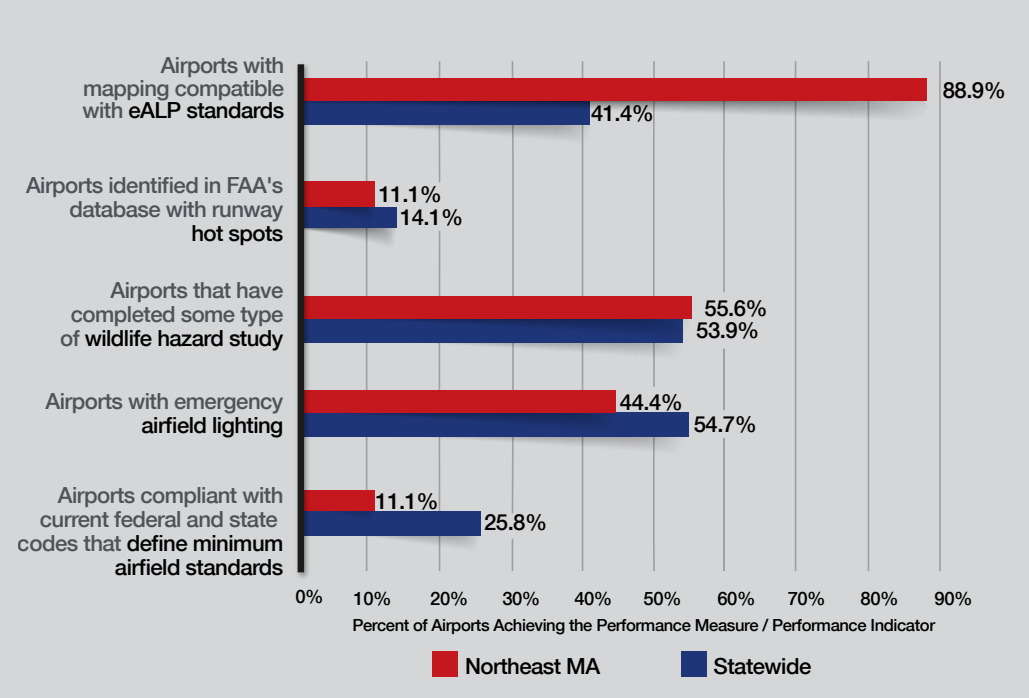
Emergency Airfield Lighting

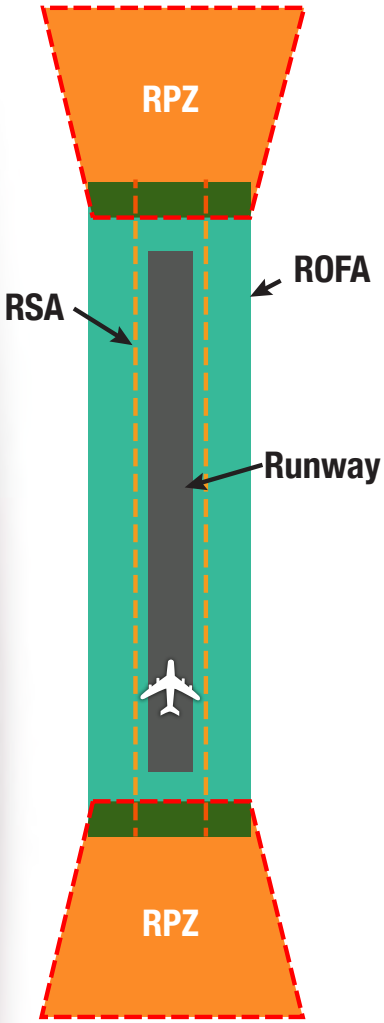
The ability for an airport to remain operational through natural and man-made disasters is critical for the movement of people, goods, and equipment to ensure that the needs of the affected communities are met. Emergency airfield lighting provides for continued operations during nighttime hours or low-visibility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

Measures / Indicators





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.*

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.

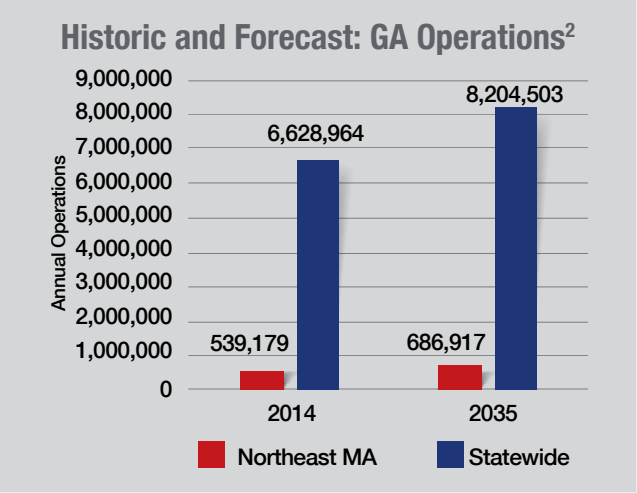
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

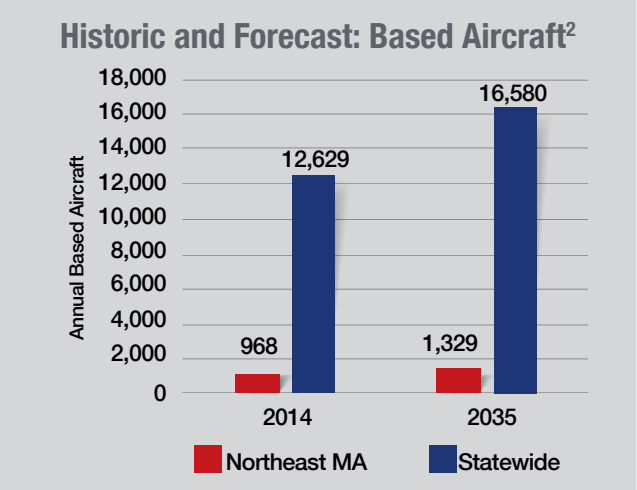
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

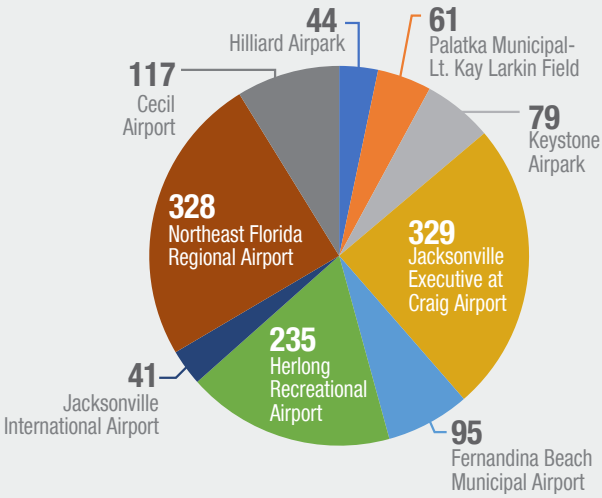
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to 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.



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.



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.



[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.*

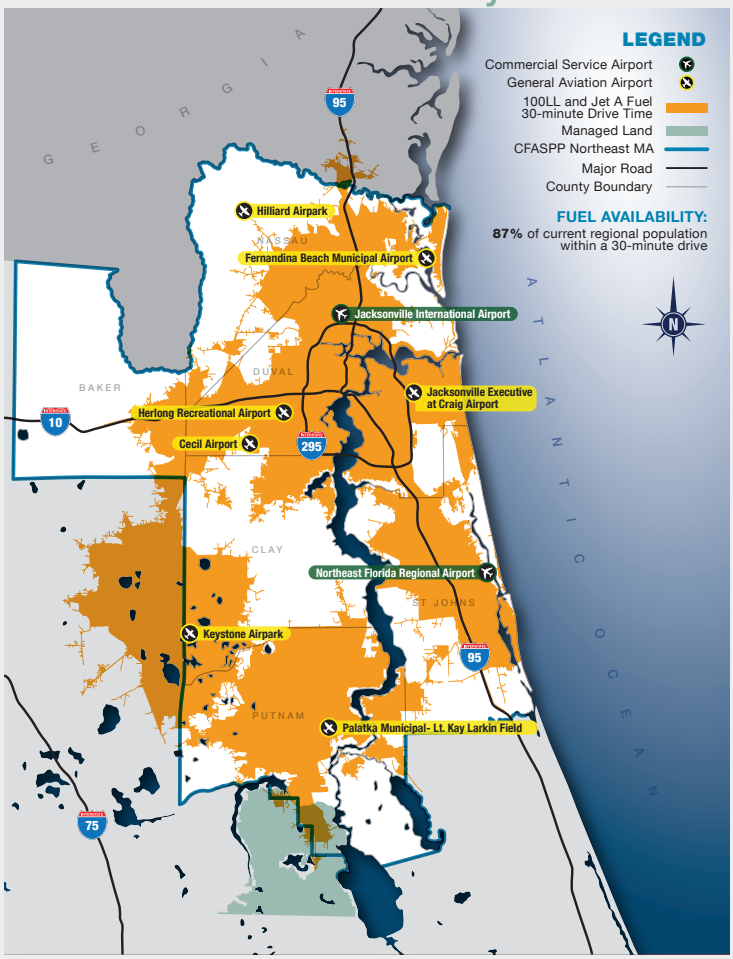
Accessibility Analysis

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.

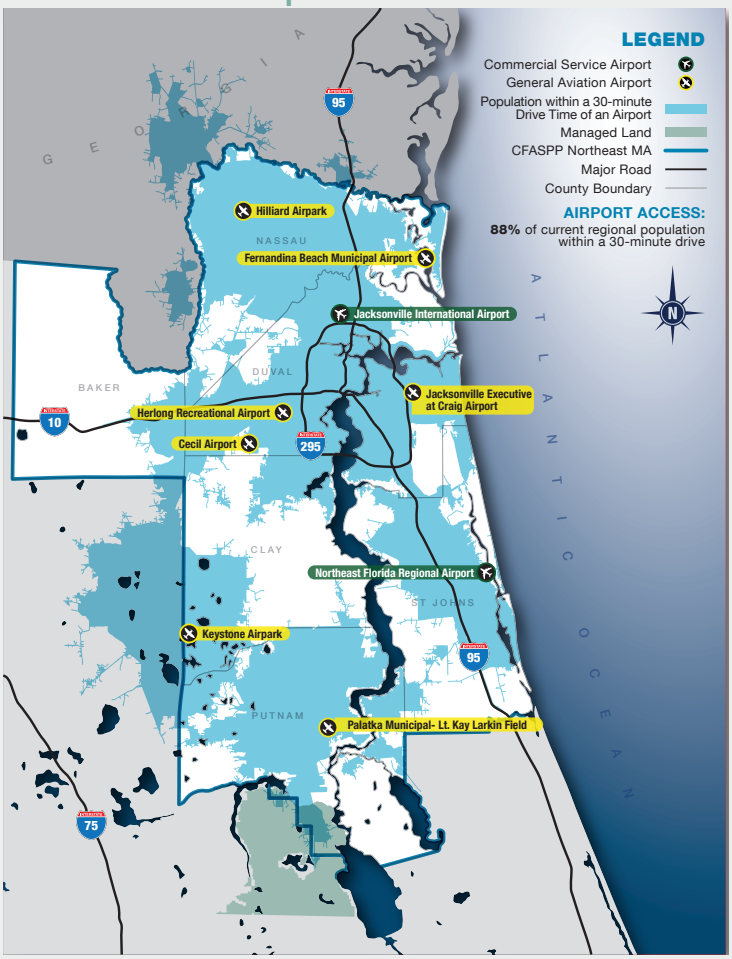
This same threshold is often used by businesses that operate general aviation aircraft as a decision-making factor when seeking locations to build or relocate their facilities.

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.

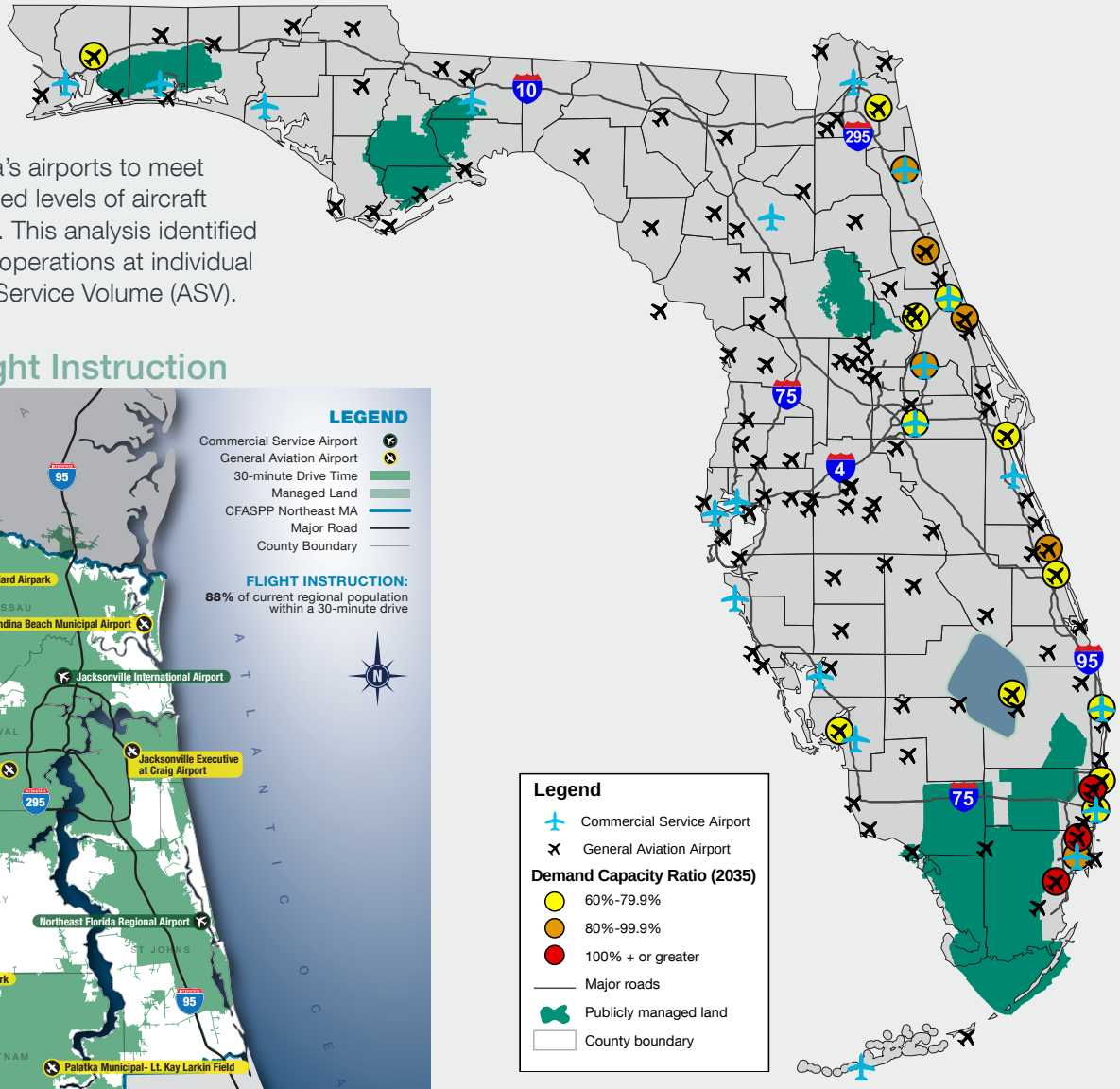
Airport Access



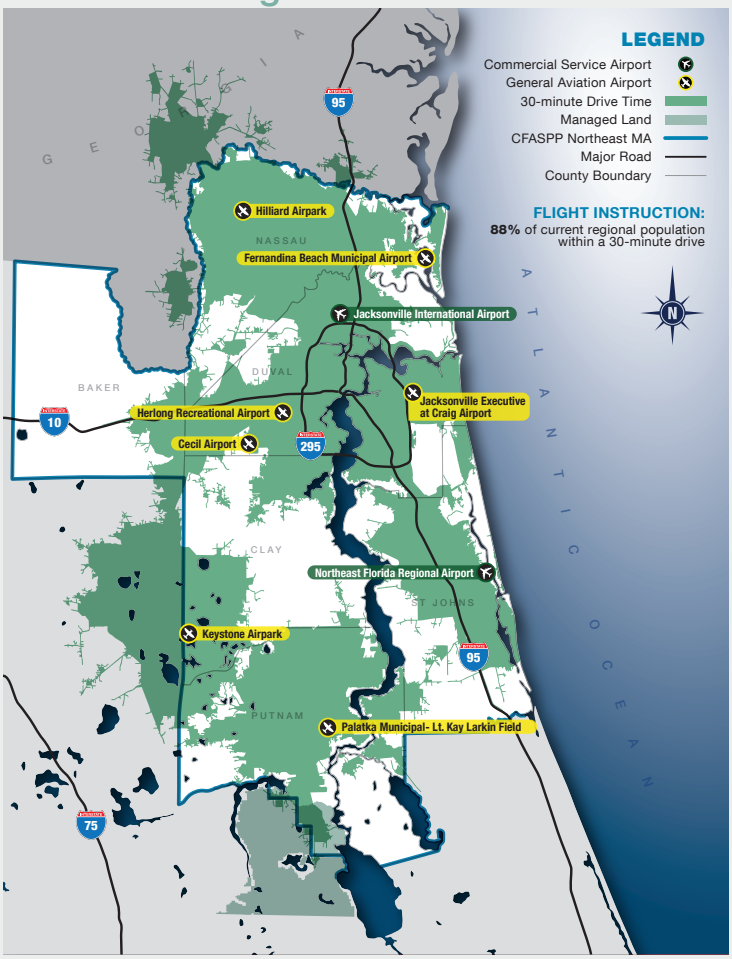
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035

Northwest
CFASPP Region

FDOT

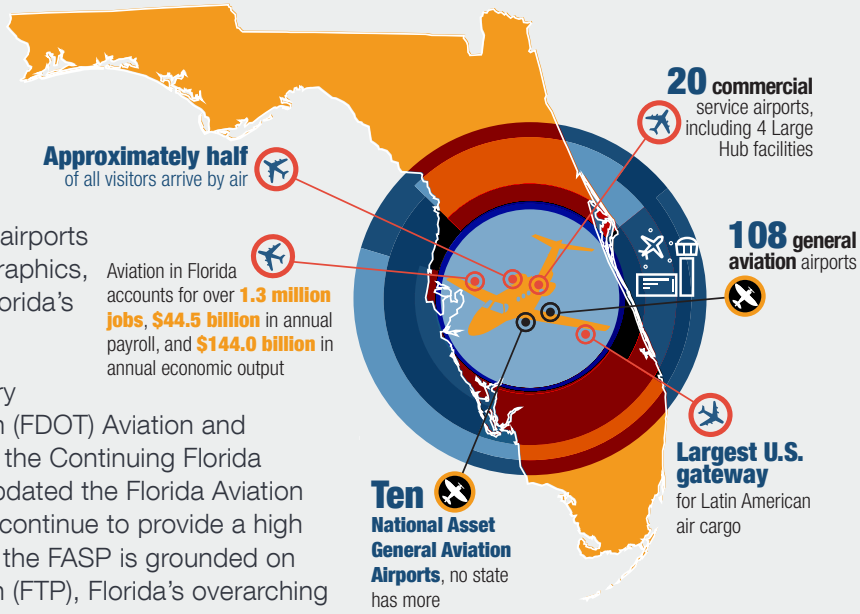
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

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.

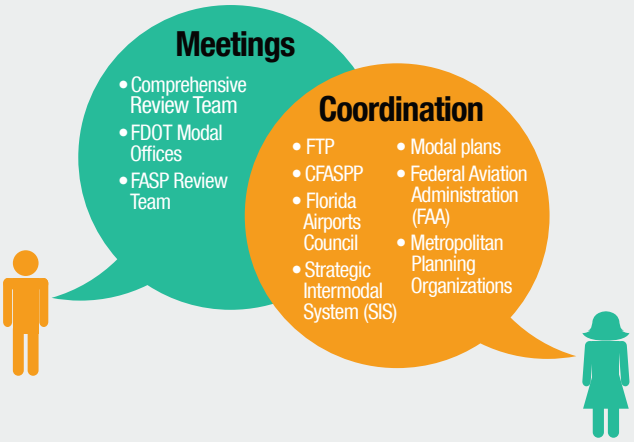
Florida by the Numbers



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.

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.

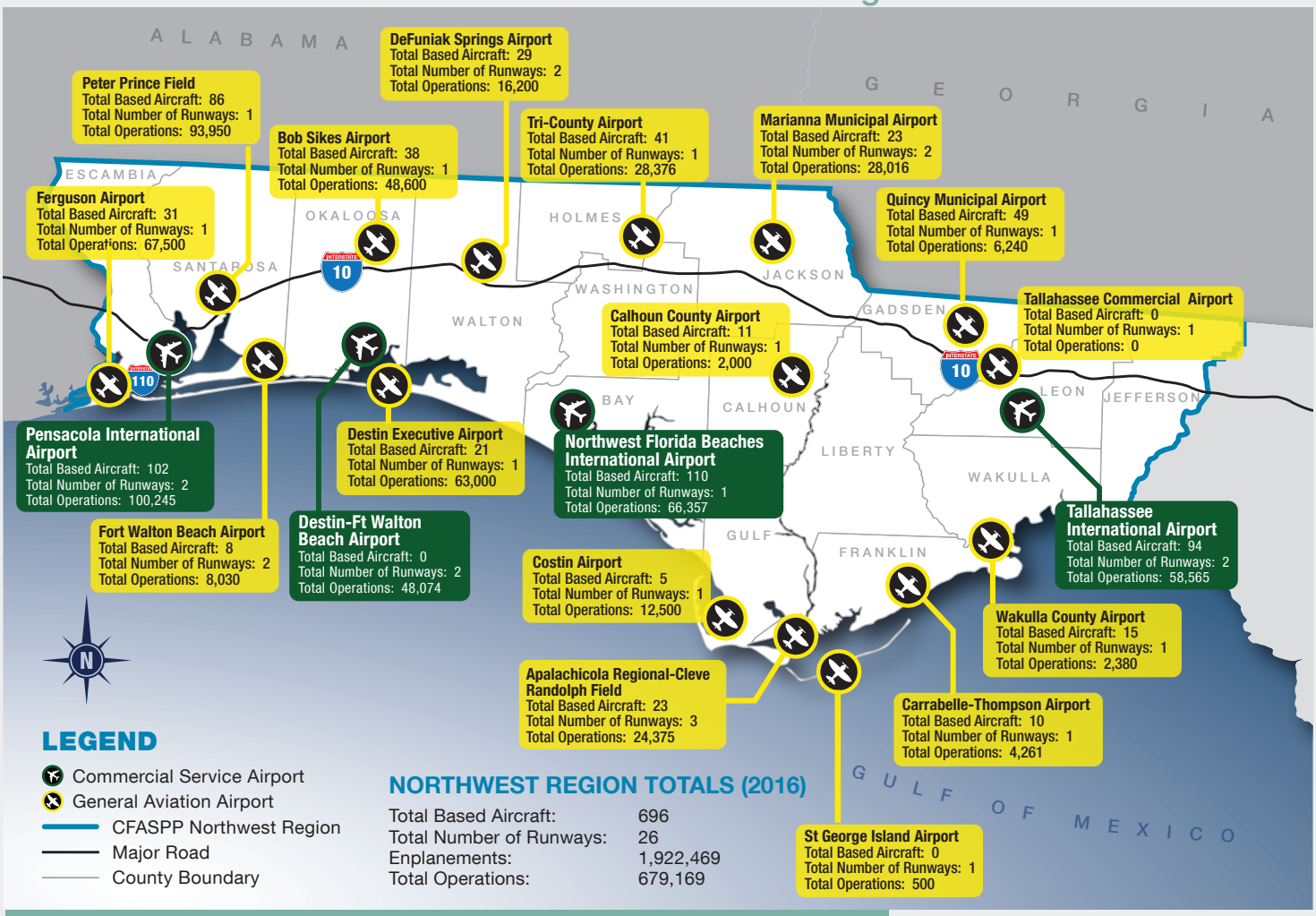


FDOT used a comprehensive public outreach and stakeholder engagement process to ensure the FASP 2035 Update was developed with the input of many audiences.

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.*

Northwest Florida CFASPP Region



Source: FAA 5010 (extracted October 2016)

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

The Northwest CFASPP Region is contained within FDOT District Three. The Northwest CFASPP Steering Committee is actively supported by the Apalachee Regional Planning Council; West Florida Regional Planning Council; Capital Region Transportation Planning Agency; and the Pensacola, Panama City, and Fort Walton Beach Metropolitan Planning Organizations (MPOs).

Northwest Florida CFASPP Region 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.

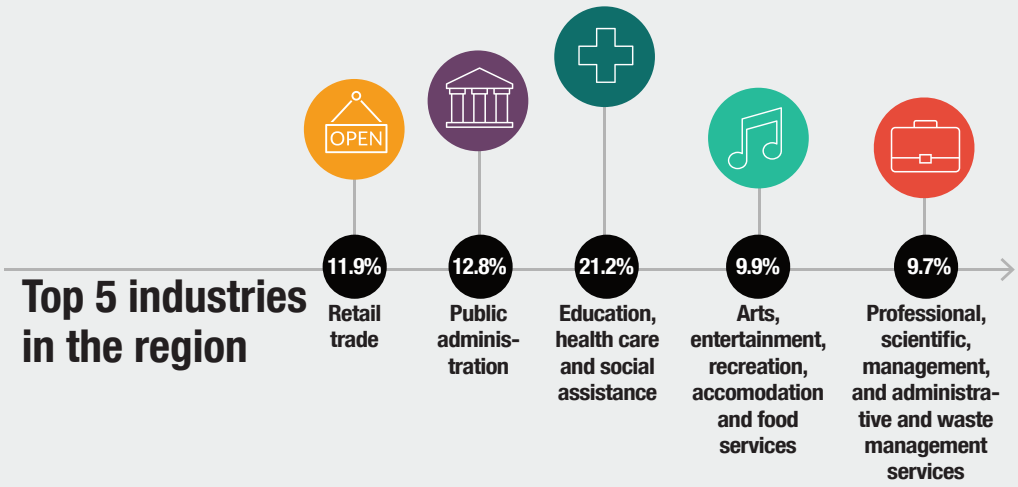
Florida Supreme Court. Photo by Steven Martin via Flickr.

The Northwest CFASPP Region covers 11,540 square miles encompassing the entire Florida panhandle with a total population of 1.4 million people. The largest CFASPP region by geographic area, the Northwest Region includes the counties of Escambia, Franklin, Gadsden, Gulf, Holmes, Jackson, Jefferson, Leon, Liberty, Okaloosa, Santa Rosa, Wakulla, Walton, and Washington. The region has experienced rapid population growth and urbanization since the 1970s, and this upward growth trend is anticipated to continue through the planning horizon. Much of this growth can be attributed to the state's retiree population who are drawn to the newly developed communities along the Gulf Coast.

Tallahassee is the largest city in the region with approximately 190,000 residents in 2016. As the state capital, Tallahassee is home to the Supreme Court of Florida, Florida's Governor and Legislature, and the headquarters of nearly 30 state agencies, including FDOT. The capital city also serves as a main center of trade and agriculture in northern Florida and southwest Georgia.

With 20 general aviation and commercial service airports, the Northwest Region offers air travelers access to the numerous recreational, corporate, and military assets in the Florida panhandle. The region is served by four commercial service facilities dispersed across the region. As a result, the Northwest Region provides a significant level of airport access coverage for residents, visitors, businesses, and federal employees and contractors. Commercial service is provided by Pensacola International, Tallahassee International, Northwest Florida Beaches International, and Destin-Ft. Walton Beach airports. In 2011 and 2016, both Pensacola and Tallahassee International airports (respectively) changed their names from regional to international airports, reflecting the region's growing involvement in international commerce and tourism. The services provided by these four commercial facilities is complemented by 16 general aviation airports located in nearly all of the counties in the Northwest Region.

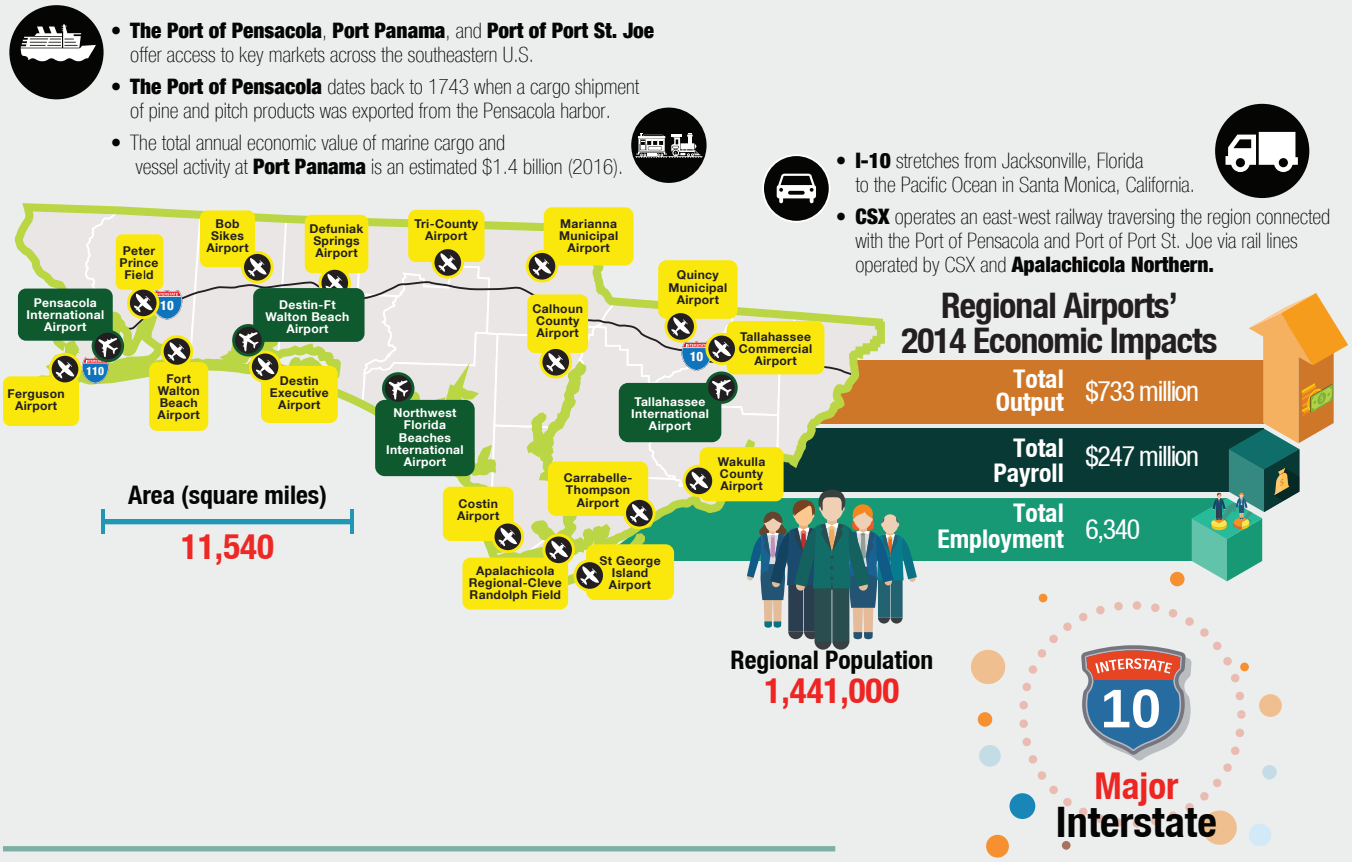
The Northwest Region is home to Tyndall Air Force Base (AFB), Naval Support Activity Panama City, Eglin AFB, Hurlburt Field, Naval Air Station Whiting Field, NAS Pensacola, Corry Field, and Saufly Field. Eglin is the U.S. Air Force's (USAF) largest base by geographic area and is responsible for all air-delivered non-nuclear weapons for the U.S. military. Tyndall AFB hosts the largest F-22 (Raptor) Fighter Wing in the



USAF. NAS Pensacola is home to the Blue Angels and is primarily dedicated to the training of Navy, Marine Corps, and Coast Guard personnel in Naval aviation. In total, defense activities account for 182,000 jobs and over $20 billion in regional economic impact, accounting for 35 percent of gross regional product.

This concentration of Air Force and Navy installations has helped the Northwest Region attract some of the largest U.S. aerospace, aviation, and defense contractors in the U.S., such as Boeing, Lockheed Martin, and Honeywell. Such high-tech industries are further incentivized by the presence of several major research institutions and a regional network of community and state colleges including major research-based institutions such as Florida A&M University, Florida State University, and the University of West Florida. The strong military and educational presence has helped develop a skilled and dedicated workforce in the Northwest Region.

While the future may be tied to aviation, aerospace, and technology, the endless beaches of the Gulf Coast have always made the Northwest Region a popular tourist destination. Some of the more popular beaches include Crystal, Destin, Fort Walton, Panama City, Pensacola, and Rosemary. Additionally, the region offers world-class golf opportunities primarily concentrated in Okaloosa, Walton, and Bay counties; Destin; and Panama City.



Northwest Florida's intermodal transportation network is an important driver of economic diversification as the region transforms into a global leader in the high-tech aerospace and defense industry while continuing to thrive as a popular destination for tourists and community for retirees.

Intermodal Connectivity

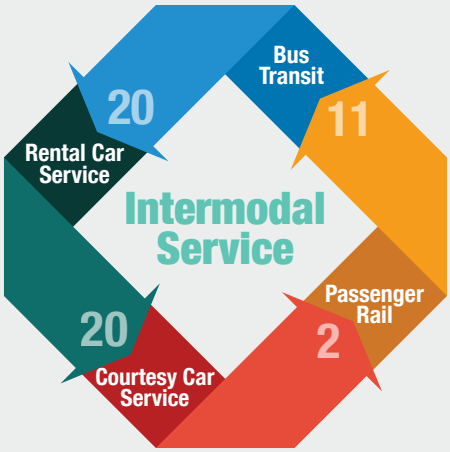
An integrated multimodal transportation system:

- 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



Total Airports Where Service is Provided

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 the general aviation reliever airports typically serve a high level of demand in metropolitan areas. The FASP 2035 Update evaluated all airports' level of connectivity with a particular emphasis on the SIS facilities' integration with other key modes of transportation.

The Northwest Region hosts four SIS airports distributed across the region comprising Destin-Ft. Walton Beach, Northwest Florida Beaches International, Pensacola International, and Tallahassee International airports. Pensacola International Airport is the largest of the region's four SIS airports in terms of annual enplanements (passenger boardings) and operations.

Bombardier E-9A over Tyndall AFB

Northwest Florida Beaches International Airport. Photo by albedo20 via Flickr.

Regional SIS Facilities

The Northwest Region's intermodal connectivity has played a key part in the development of the growing aerospace and defense industry, while continuing to support the region's thriving tourism economy and extensive military presence. The Port of Pensacola, Port Panama City, and Port of Port St. Joe offer access to key markets across the southeastern U.S., including Alabama, Georgia, Tennessee, and the Carolinas. A SIS waterway traverses the coast that links these ports with commerce across the globe.

I-10, the southernmost cross-country interstate highway in the U.S., bisects the Northwest Region. A SIS railway corridor generally follows the I-10 corridor, enhanced by a series of SIS railway connectors that link the coast with areas inland. The Pensacola, Panama City, and Tallahassee Greyhound terminals are distributed across the region to offer convenient roadway transit to residents and visitors.

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.

None of the airports in the Northwest Region contain safety-related areas of concern known as runway hot spots.

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

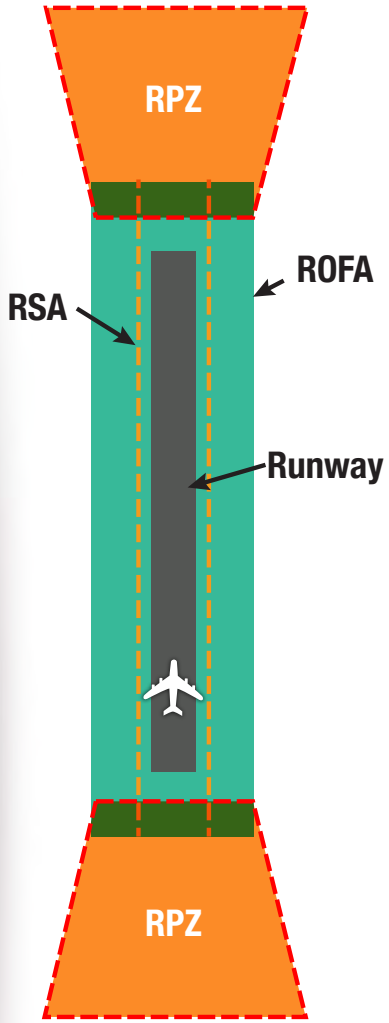
Performance indicators are generally used as a reporting mechanism to gather data on those aspects of system performance that cannot be directly impacted by FDOT action.

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.

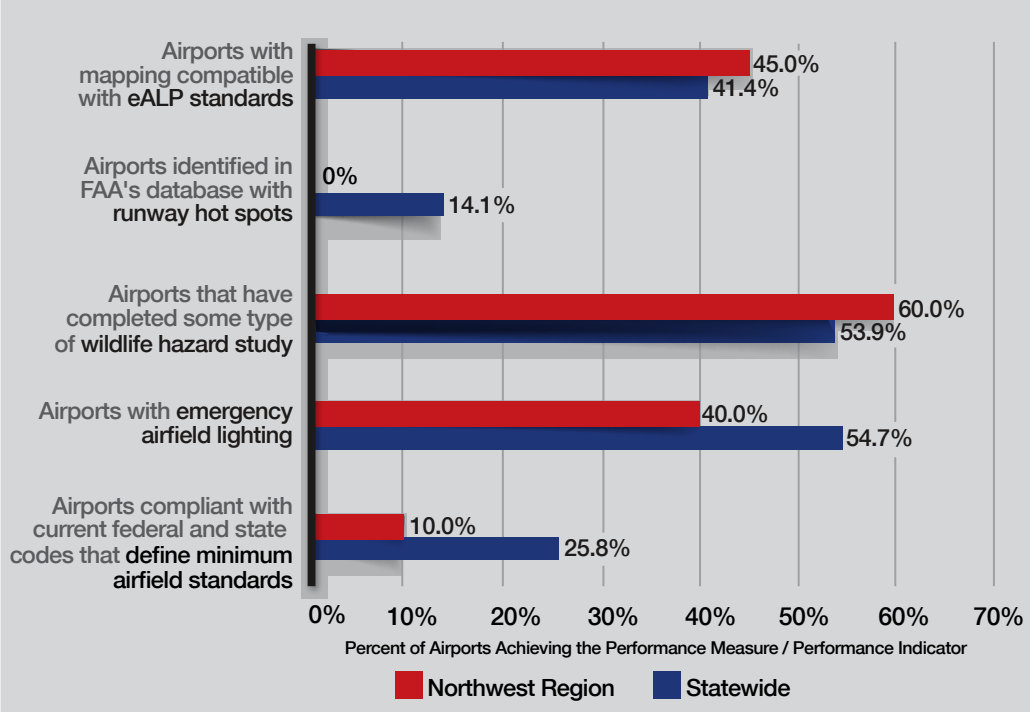
Runway Safety Areas (RSA)

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 Northwest Region has evolved to offer an extensive air transportation network. Key drivers of aviation activity include an active tourism industry; high level of intermodal connectivity; robust aerospace and aviation industry; and a skilled, disciplined workforce resulting from the region's numerous military installations and educational institutions.

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.

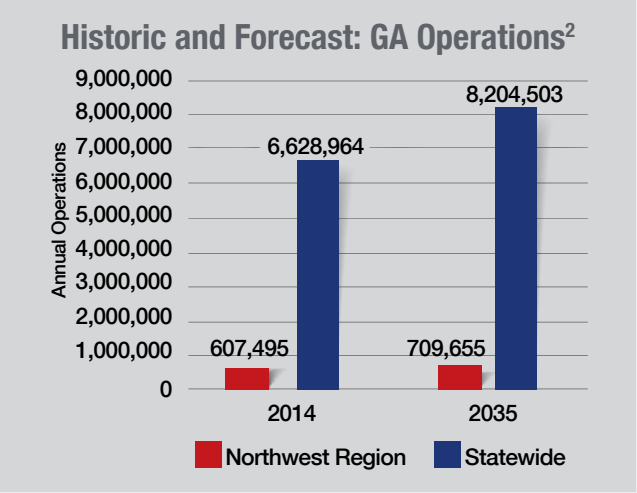
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

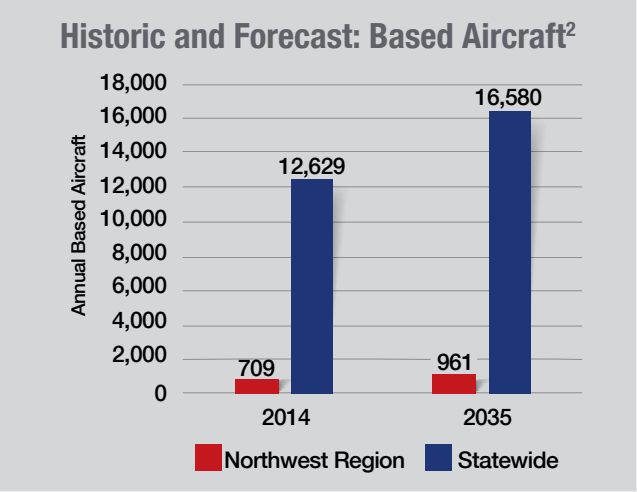
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

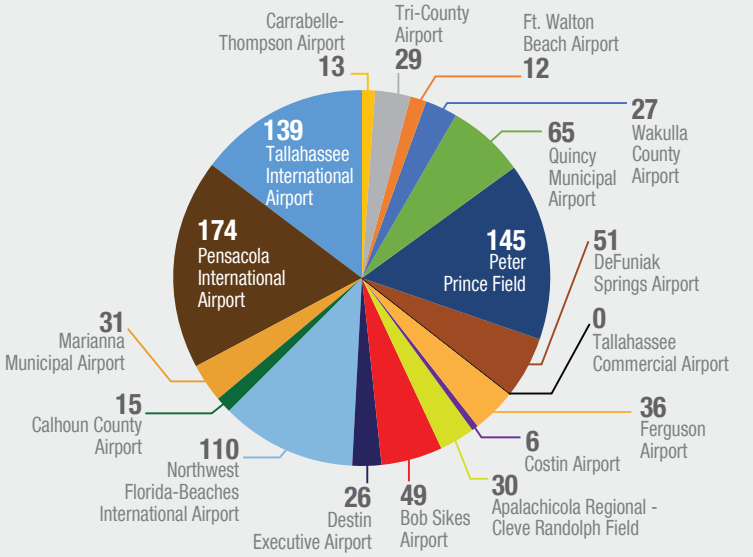
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to 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.



General aviation (GA) operations in the Northwest Region are projected to increase at an annual growth rate of 0.82 percent over the forecast horizon, falling below the statewide annual growth rate of 1.13 percent over this same time period.



Based aircraft in the Northwest Region are projected to increase at an annual growth rate of 1.69 percent over the forecast horizon to exceed the statewide annual growth rate of 1.49 percent over this same time period.



[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

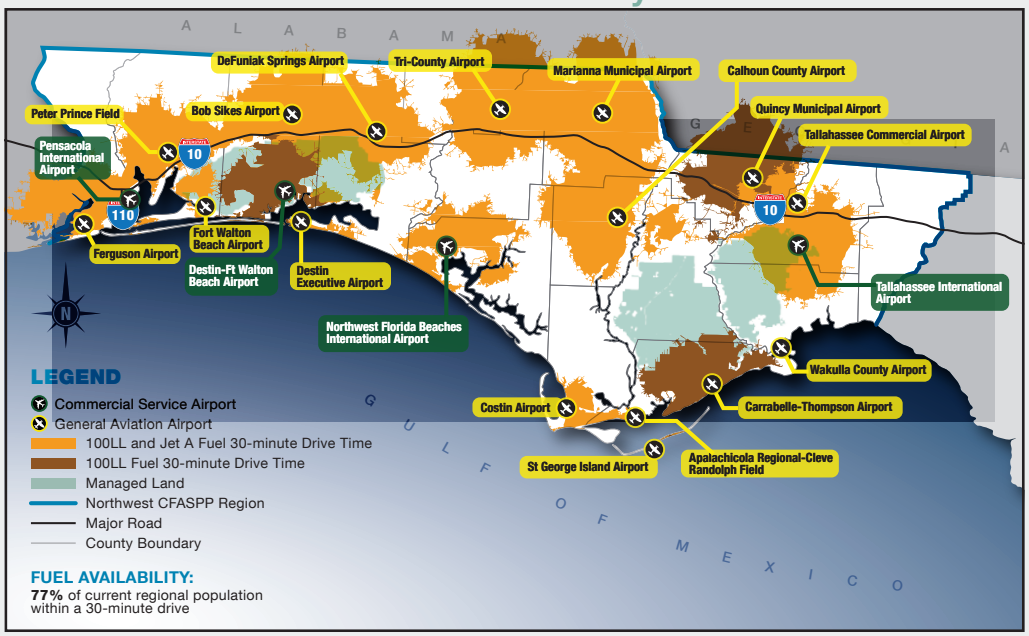
A functional airport system that meets the state's safety, economic, and accessibility objectives must be accessible from the ground as people travel to airports, as well as from the air for pilots seeking particular airport characteristics. The FASP Update 2035 conducted an analysis to determine the 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.

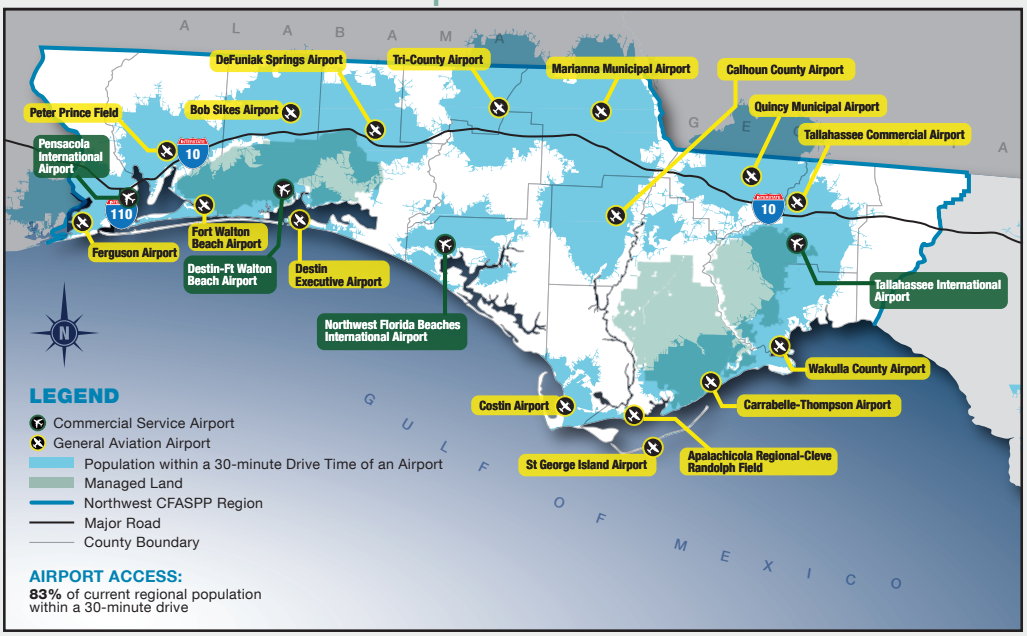
This same threshold is often used by businesses that operate general aviation aircraft as a decision-making factor when seeking locations to build or relocate their facilities.

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



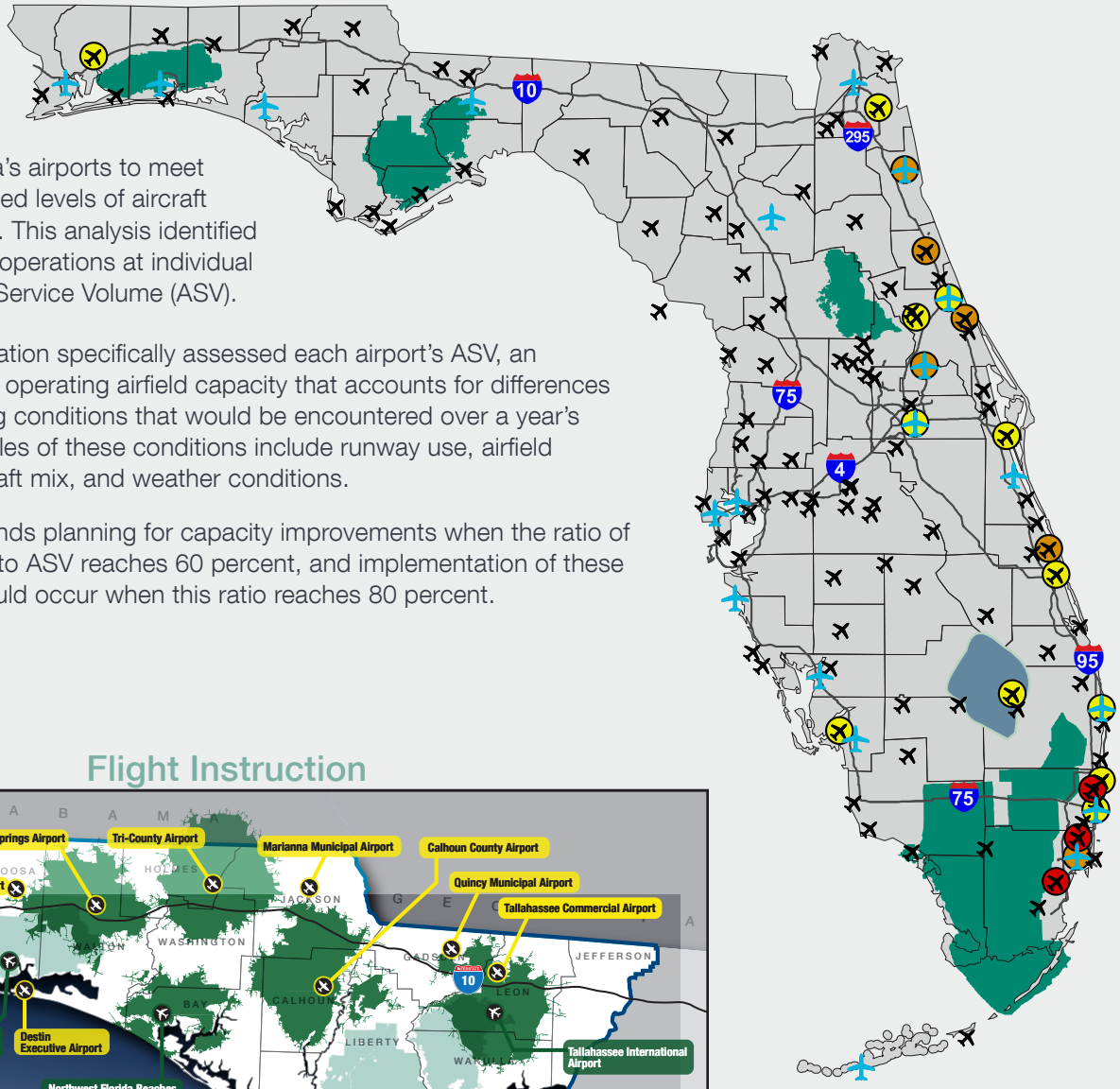
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

Capacity Analysis

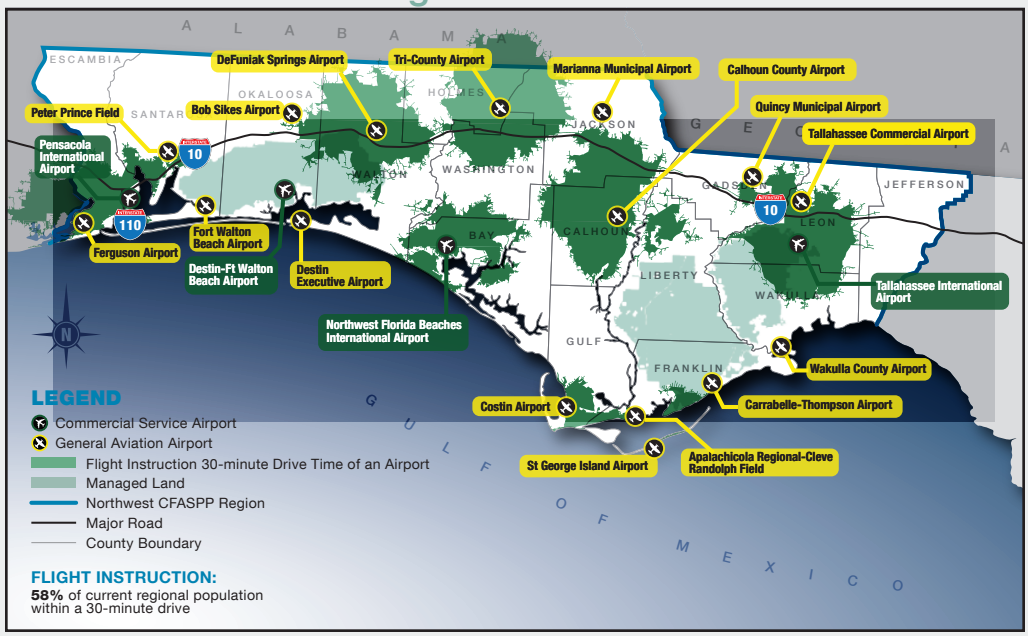
As part of the regional aviation forecasting effort, the FASP 2035 Update assessed the ability of Florida's airports to meet current and projected levels of aircraft operations in 2035. This analysis identified the ratio of aircraft operations at individual airports to Annual Service Volume (ASV).

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.



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.

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

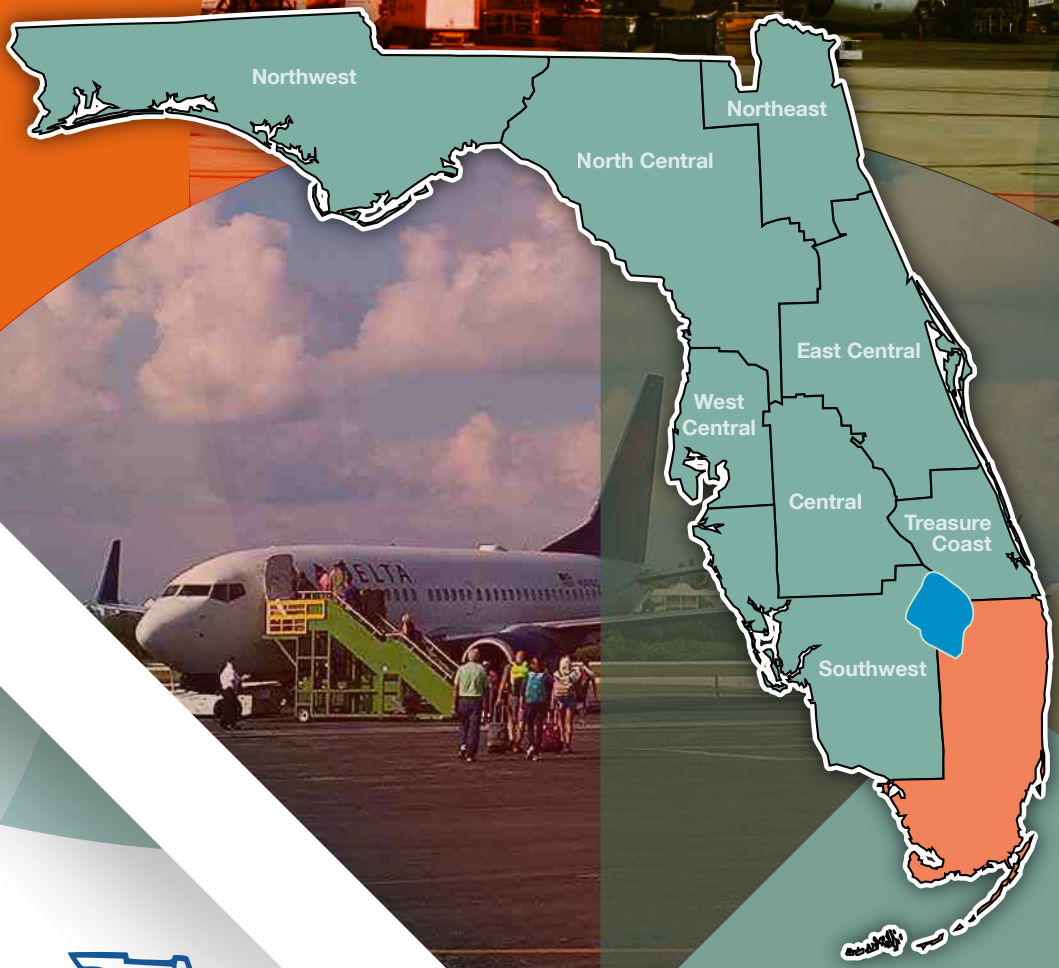
Photo courtesy of Bill Larkin

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035



Southeast

CFASPP Metropolitan Area

FDOT

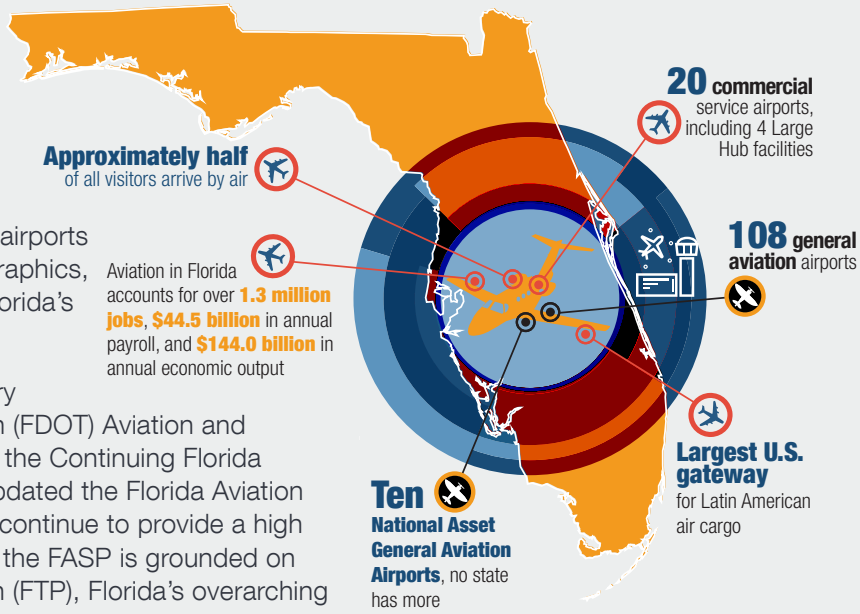
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

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.

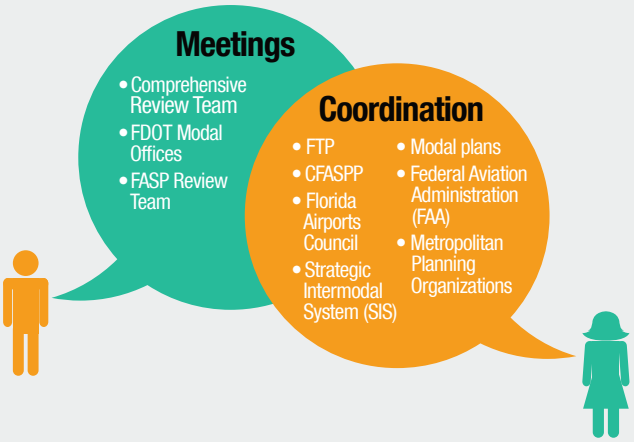
Florida by the Numbers



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.

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.

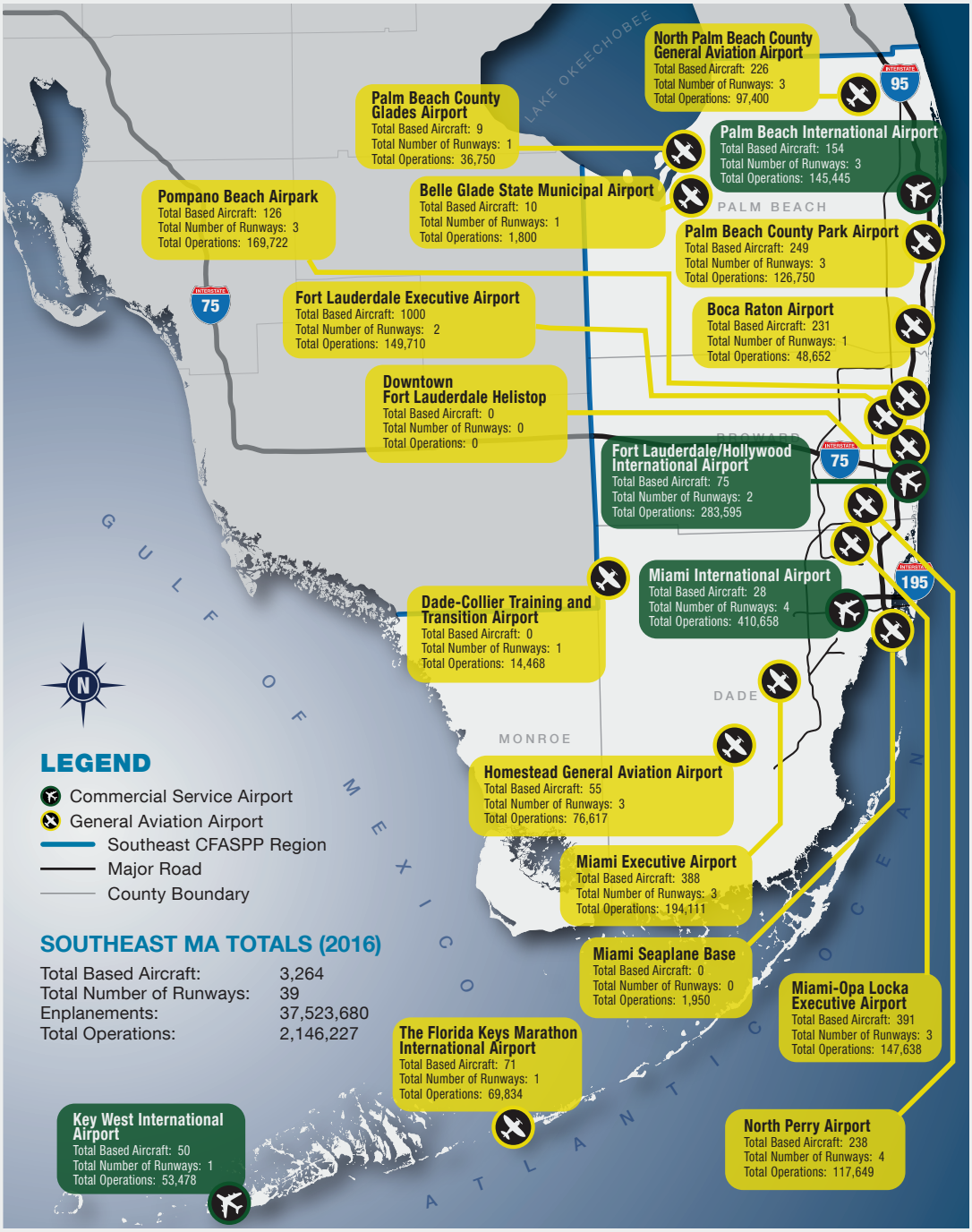


FDOT used a comprehensive public outreach and stakeholder engagement process to ensure the FASP 2035 Update was developed with the input of many audiences.

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.*

Southeast Florida CFASPP MA



Source: FAA 5010 (extracted October 2016)

The Southeast CFASPP MA is located within FDOT Districts Four and Six. District Four extends further to the north, while the Southeast CFASPP MA encompasses the entirely of District Six. The Southeast Florida Metropolitan Area CFASPP Steering Committee is supported by the Broward County, Miami Urbanized Area, and Palm Beach Metropolitan Planning Organizations (MPOs) 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

Southeast 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.

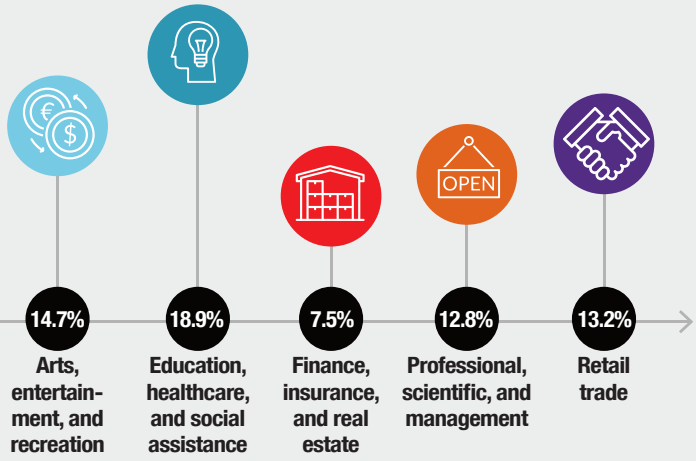
One of the fastest growing regions in the state, the Southeast CFASPP MA covers approximately 6,500 square miles encompassing areas in Palm Beach, Broward, Miami-Dade, and Monroe counties. Miami-Dade, Broward, and Palm Beach counties are the top three most populous in Florida. Some of the region's major cities are Boca Raton, Fort Lauderdale, Key West, Miami, and West Palm Beach. The Miami area is the eighth largest metropolitan area in the country and 67th largest in the world.

The Southeast MA has the most concentrated aviation activity in Florida. Palm Beach International, Fort Lauderdale/Hollywood International, Miami International, and Key West International all provide scheduled air carrier service. Led by Miami International, the region is also the most important gateway between the U.S., Caribbean, and Latin America. In fact, Miami International offers more flights to Latin America and the Caribbean than any other U.S. airport, is the second-busiest airport in the U.S. for international passengers, and is the top U.S. airport for international freight. These commercial facilities are supported by a robust system of general aviation airports providing the infrastructure and services for recreational flying, flight training, corporate, and other aviation activities. Some general aviation airports, such as Fort Lauderdale Executive Airport in its role as a designated Foreign Trade Zone, also play an important role in international commerce.

Over the last three decades, the Southeast MA has continuously grown and now boasts one of the most diverse economies in the state. South Florida's strategic location at the nexus between North and South Americas has drawn numerous Fortune 500 multinational companies such as FedEx Latin America, Medtronic Latin America, Telefonica, Univision, and UPS Latin America and Caribbean. A 2016 WorldCity study reports that 65 multinational companies oversee more than $311 billion in revenues from the region annually. The same study notes that south Florida's flourishing export-import industry is attributable to the area's tropical weather, rich cultural diversity, and intermodal network anchored by Miami International Airport and Port Miami.

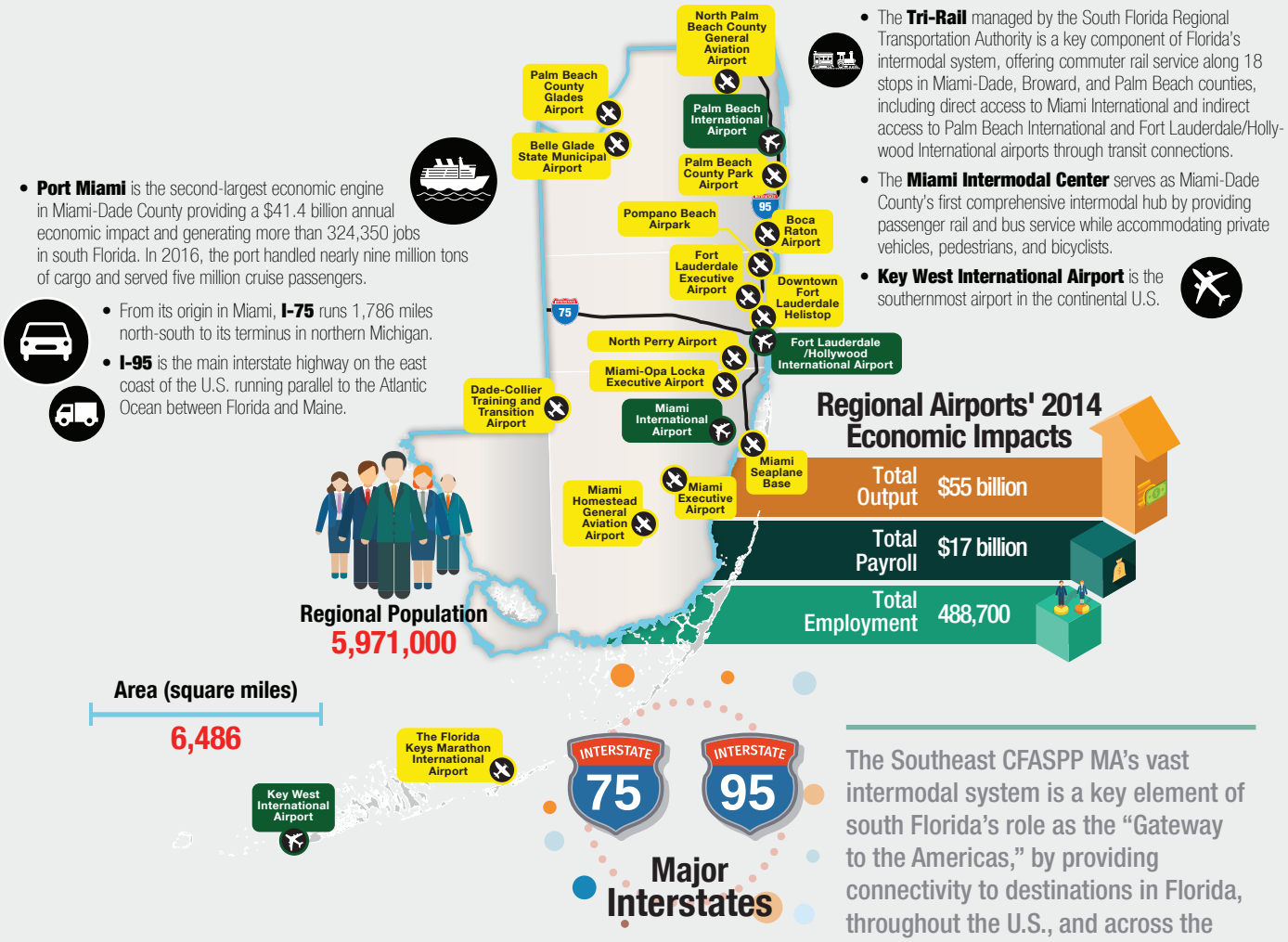
Cruise ships leaving Port Miami. Photo by Adventures of KM&G Morris via Flickr.

Top 5 industries in the region



While the region has diversified into a major commercial center, tourism remains an anchor of the economy. Tourists from around the world are drawn to the Southeast MA seeking destinations ranging from Miami's internationally renowned food, five-star hotels, and nightlife; to the tranquility of the Florida Everglades; and the laid-back attitude and turquoise water of the Florida Keys. Airboat rides in the Everglades and trail hikes through Big Cypress National Preserve offer visitors the opportunity to see alligators and other native species up-close. Scuba diving, snorkeling, and deep sea fishing are the top attractions in the Keys—along with Key West's Duval Street and Conch District. Miami's South Beach is the top beach and nightlife destination in Florida. The South Beach Art Deco District is the first 20th century neighborhood to be recognized by the National Register of Historic Places with 800 structures of historical significance built between the 1920s and 40s.

Agriculture is also a significant component of the regional economy. According to the latest U.S. Department of Agriculture Agricultural Census, Palm Beach and Miami-Dade were ranked as the top two counties in the state for agricultural products sold in the state with a combined total output of an estimated two billion dollars.



- **Port Miami** is the second-largest economic engine in Miami-Dade County providing a $41.4 billion annual economic impact and generating more than 324,350 jobs in south Florida. In 2016, the port handled nearly nine million tons of cargo and served five million cruise passengers.
- From its origin in Miami, **I-75** runs 1,786 miles north-south to its terminus in northern Michigan.
- **I-95** is the main interstate highway on the east coast of the U.S. running parallel to the Atlantic Ocean between Florida and Maine.
- The **Tri-Rail** managed by the South Florida Regional Transportation Authority is a key component of Florida's intermodal system, offering commuter rail service along 18 stops in Miami-Dade, Broward, and Palm Beach counties, including direct access to Miami International and indirect access to Palm Beach International and Fort Lauderdale/Hollywood International airports through transit connections.
- The **Miami Intermodal Center** serves as Miami-Dade County's first comprehensive intermodal hub by providing passenger rail and bus service while accommodating private vehicles, pedestrians, and bicyclists.
- **Key West International Airport** is the southernmost airport in the continental U.S.

The Southeast CFASPP MA's vast intermodal system is a key element of south Florida's role as the "Gateway to the Americas," by providing connectivity to destinations in Florida, throughout the U.S., and across the globe for passengers and cargo alike.

Intermodal Connectivity

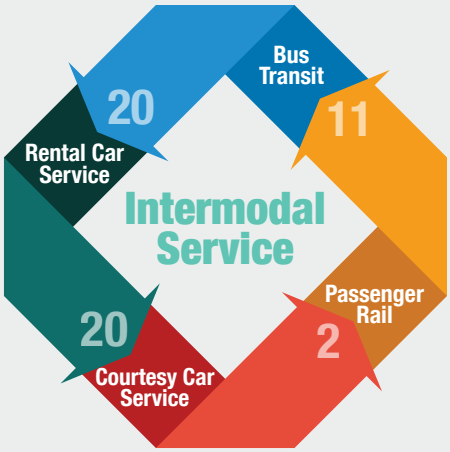
An integrated multimodal transportation system:

- 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



Total Airports Where Service is Provided

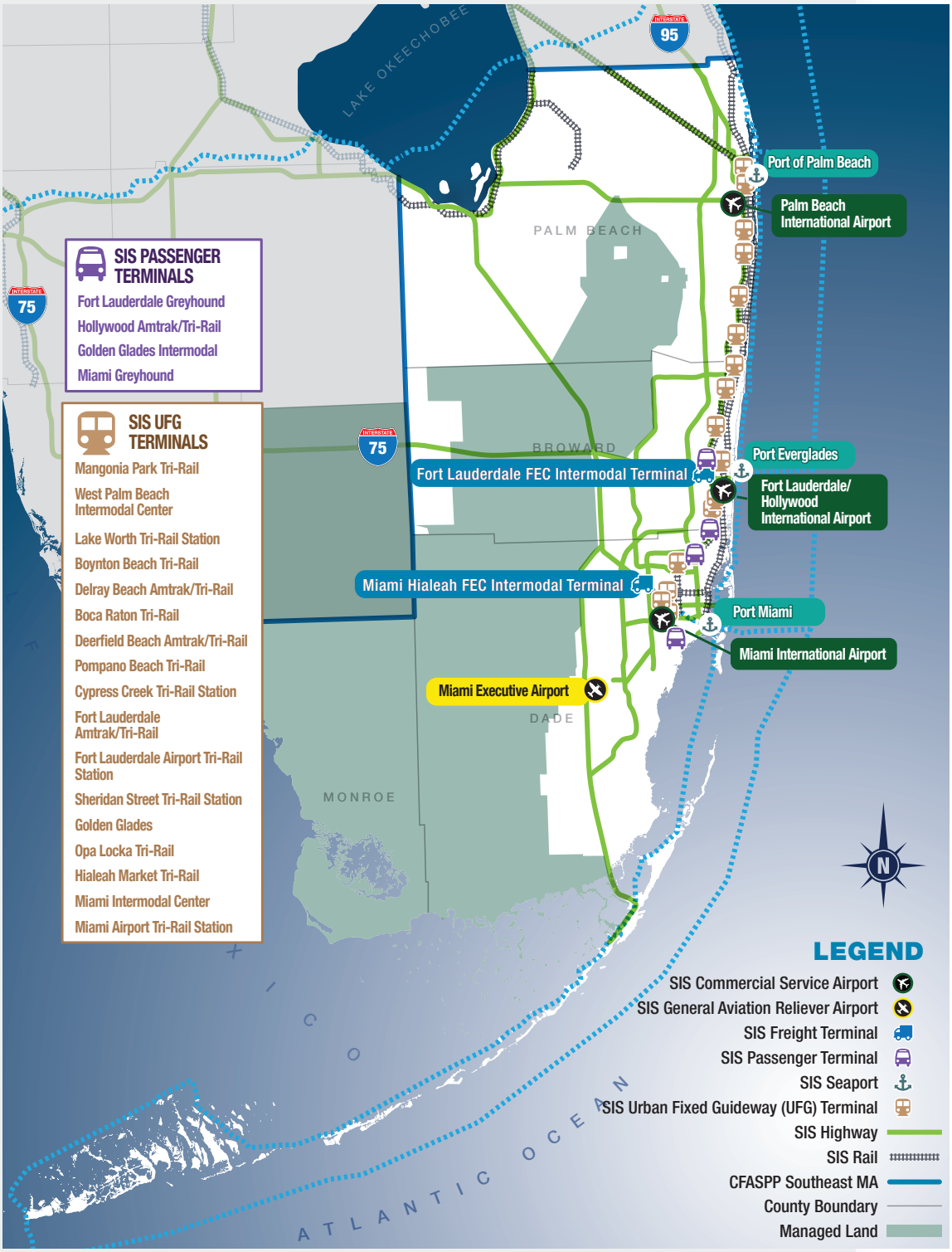
Twenty of Florida's 128 airports are SIS or Emerging SIS facilities, including 18 commercial service and two general aviation reliever airports. Commercial service airports require more connections to facilitate access to airline service, while the general aviation reliever airports typically serve a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

SIS airports in the Southeast CFASPP MA include Palm Beach International, Fort Lauderdale/Hollywood International, and Miami International airports. Additionally, Miami Executive Airport holds a special designation as a SIS general aviation reliever airport in its role as a reliever facility for Miami International Airport.

Miami International Airport

Gulfstream at Ft. Lauderdale Executive Airport. Photo by Daniel Piraino.

Regional SIS Facilities



The Southeast MA's prominence as an international shipping hub and gateway between the U.S. and its southern neighbors is largely attributable to the intermodal network led by Miami International Airport and Port Miami. The region is also home to the Port of Palm Beach, Port Everglades, and the Port of Key West, all of which are among the busiest in the nation for both containerized cargo and cruise ships.

The Tri-Rail is a commuter rail service linking Miami, Fort Lauderdale, and West Palm Beach. The rail line provides direct connection with Miami International Airport at its southernmost terminus and features multiple points of intersection with other modal systems. Other rail connections include the Florida East Coast Railway, CSX Transportation, and South Central Florida Express. Major highways including I-75 and I-95 help link travelers and goods to their final destinations.

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.

Nearly 85 percent of airports in the Southeast MA have emergency airfield lighting, a critical system for continued operations when local power is unavailable.

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

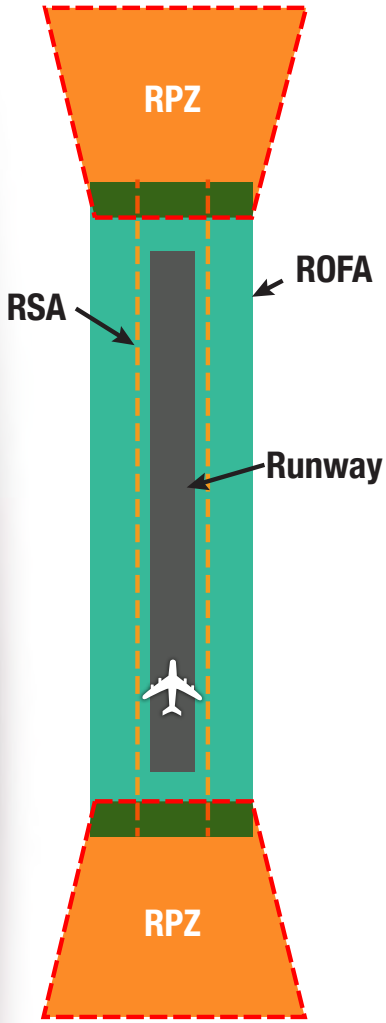
Performance indicators are generally used as a reporting mechanism to gather data on those aspects of system performance that cannot be directly impacted by FDOT action.

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.

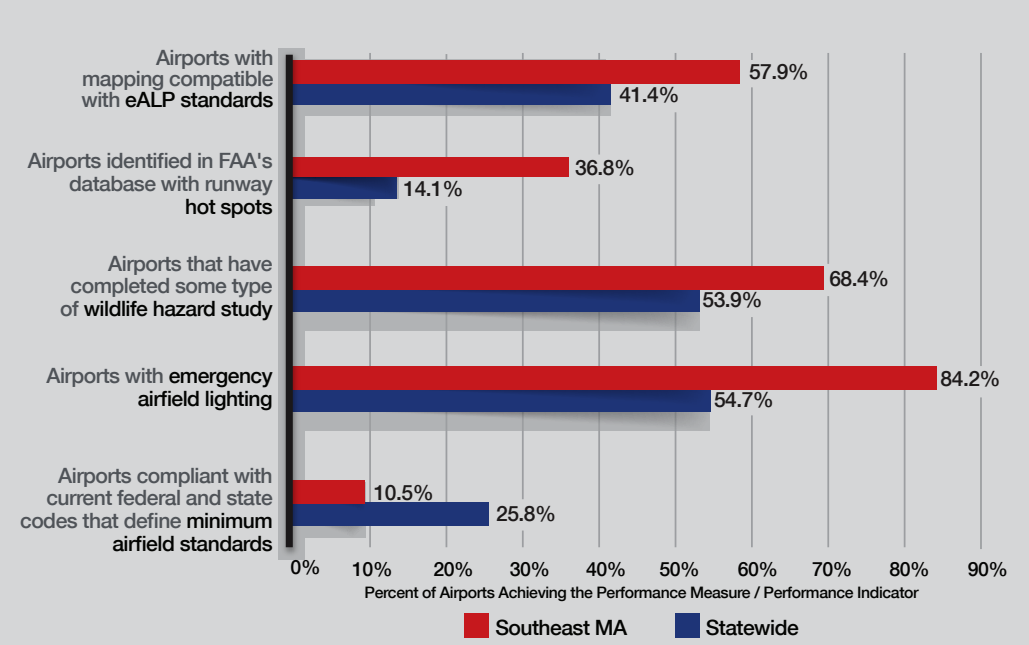
Runway Safety Areas (RSA)

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 Southeast MA has evolved to offer the highest density of aviation activity in the state, led primarily by the region's role as a gateway between the U.S. and Latin America. Other key drivers of aviation activity include an active tourism industry, growing population, and high level of intermodal connectivity that has arisen to support the high volume of goods and people traveling through the region.

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.

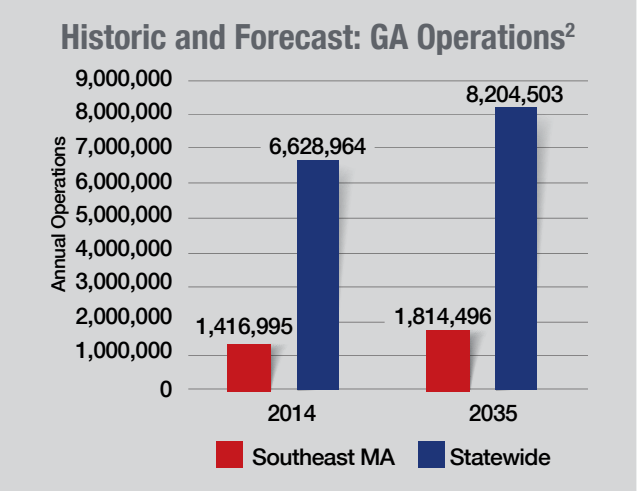
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

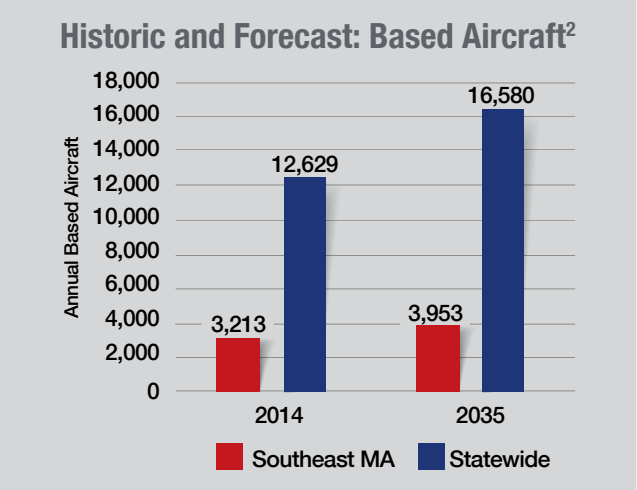
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

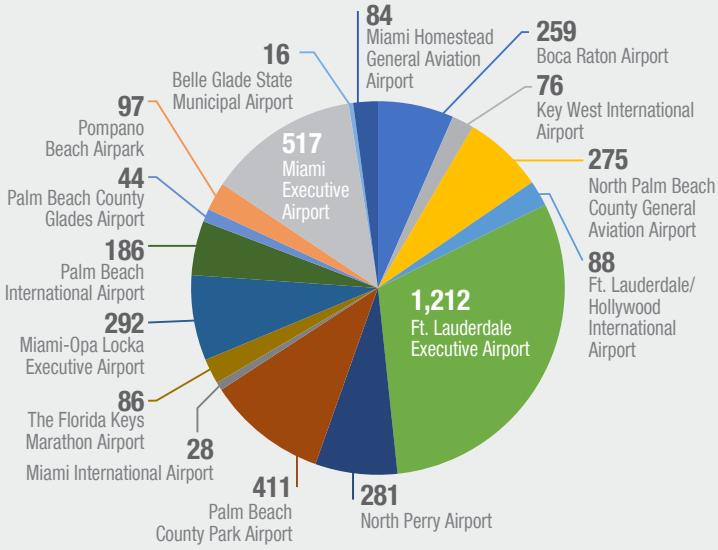
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to 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.



General aviation (GA) operations in the Southeast MA are projected to increase at an annual growth rate of 1.34 percent over the forecast horizon to exceed the statewide annual growth rate of 1.13 percent over this same time period.



Based aircraft in the Southeast MA are projected to increase at an annual growth rate of 1.10 percent over the forecast horizon to fall slightly below the statewide annual growth rate of 1.49 percent over this same time period.



[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.*

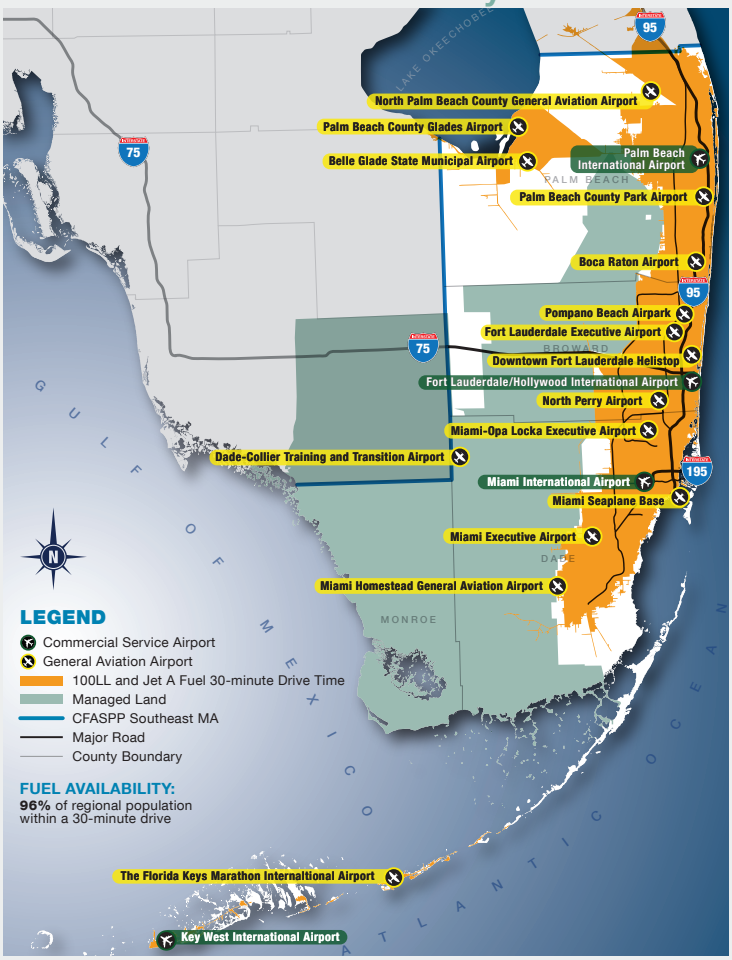
Accessibility Analysis

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.

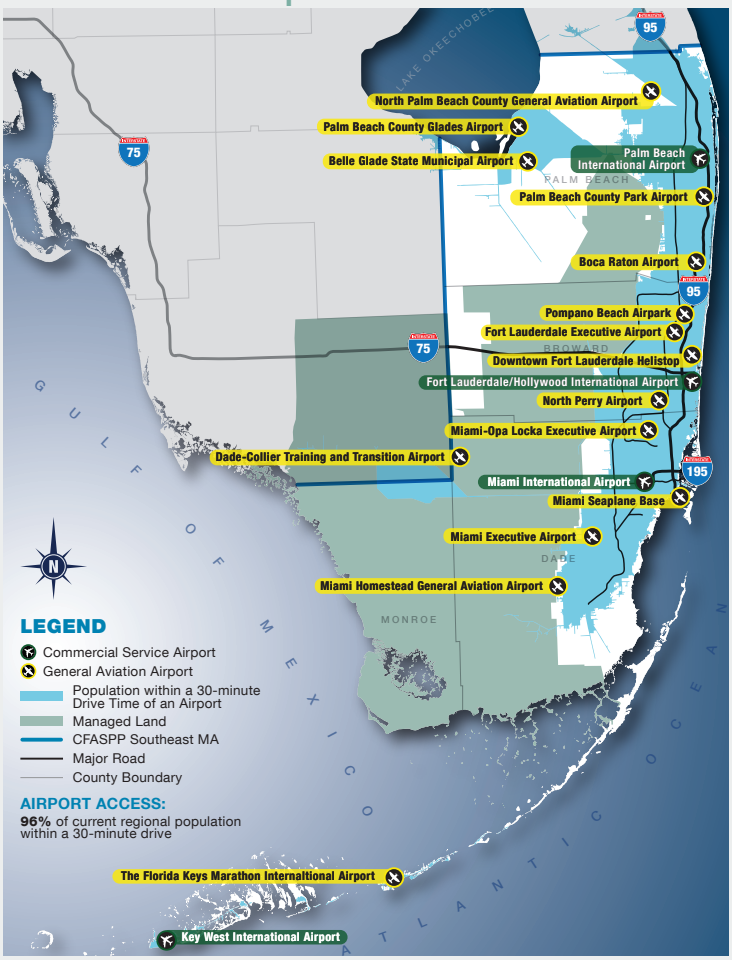
This same threshold is often used by businesses that operate general aviation aircraft as a decision-making factor when seeking locations to build or relocate their facilities.

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.

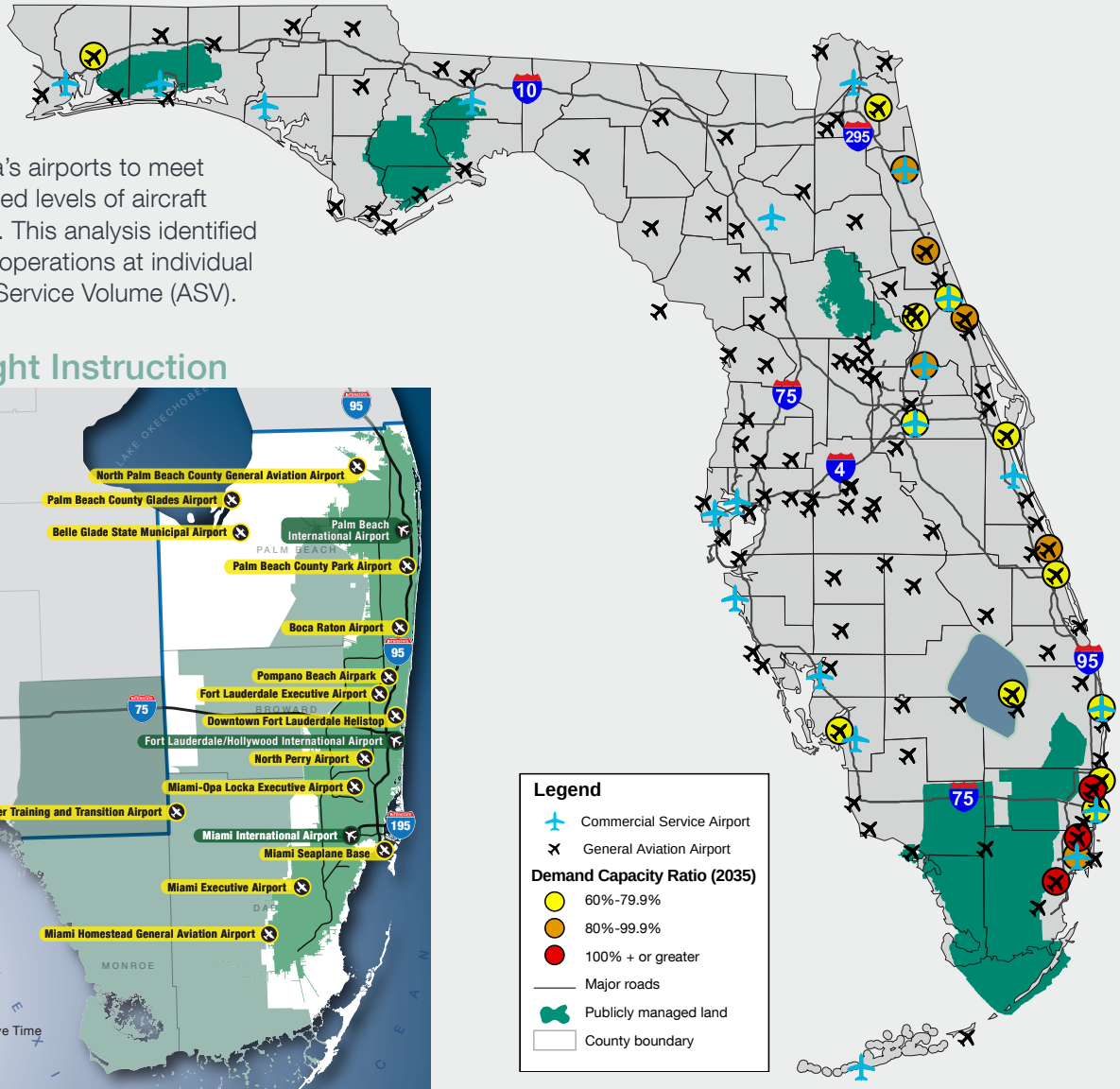
Airport Access



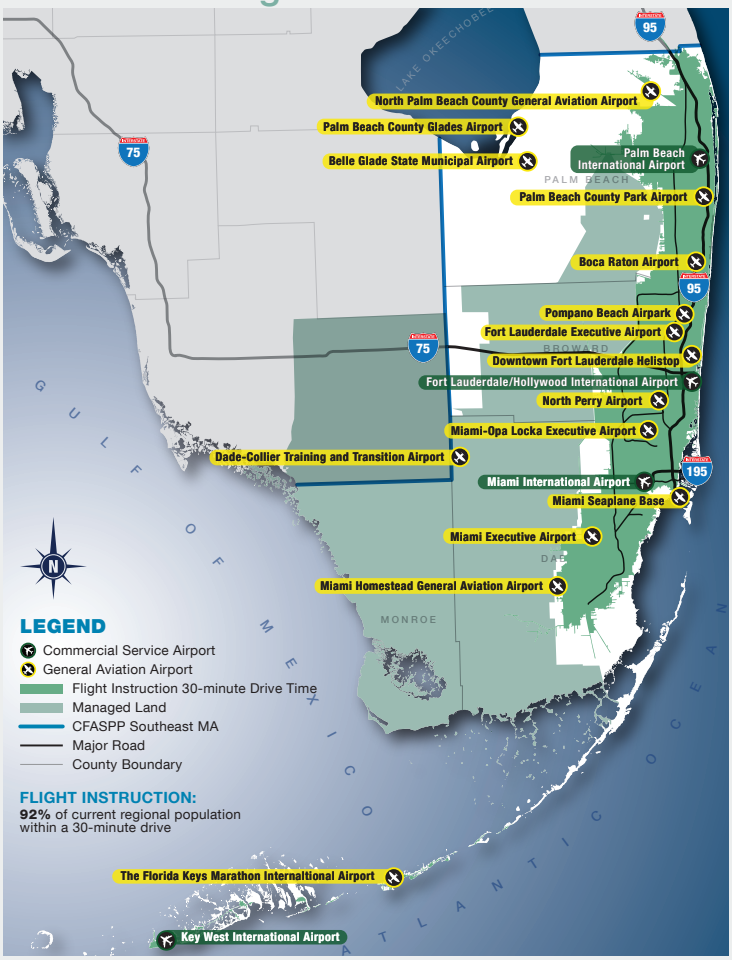
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

Fort Lauderdale/Hollywood International Airpark

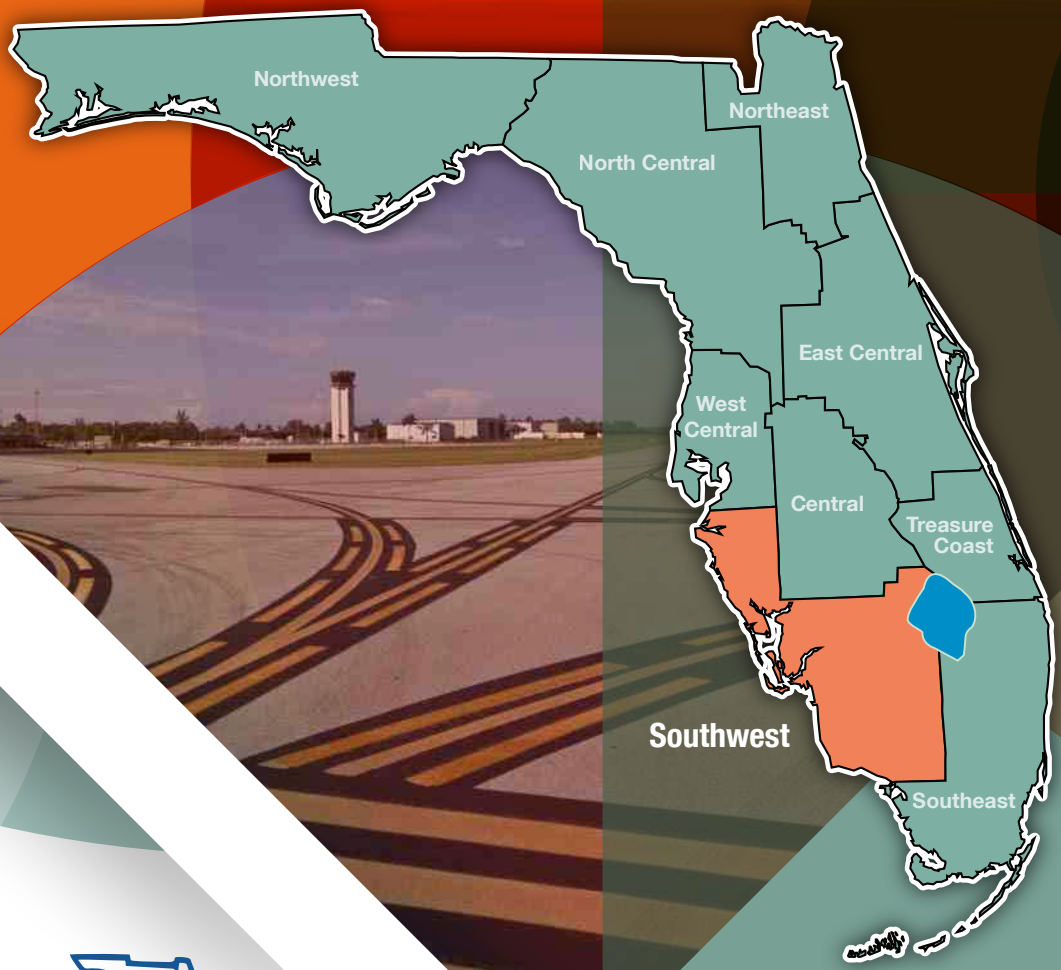
Goodyear Airship Base at the Pompano Beach Airpark

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035



Southwest
CFASPP Region

FDOT

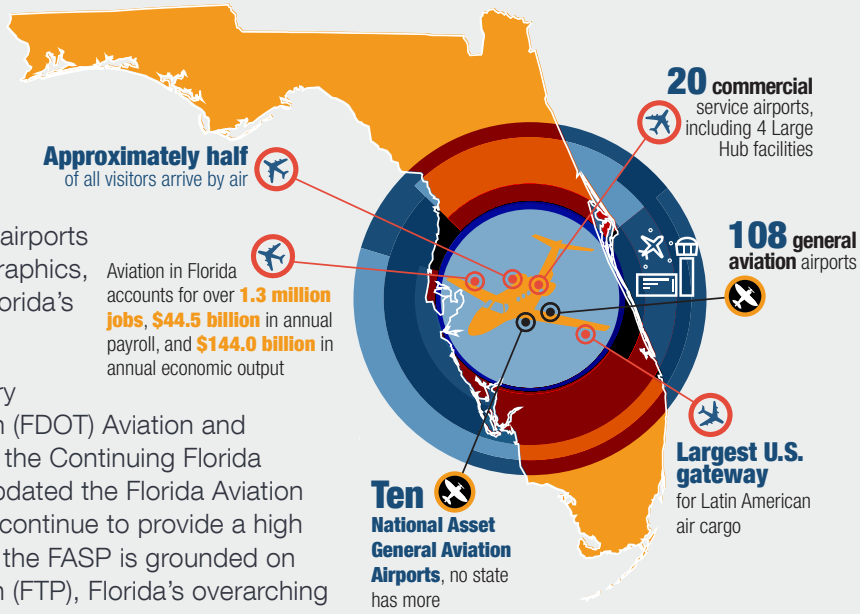
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

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.

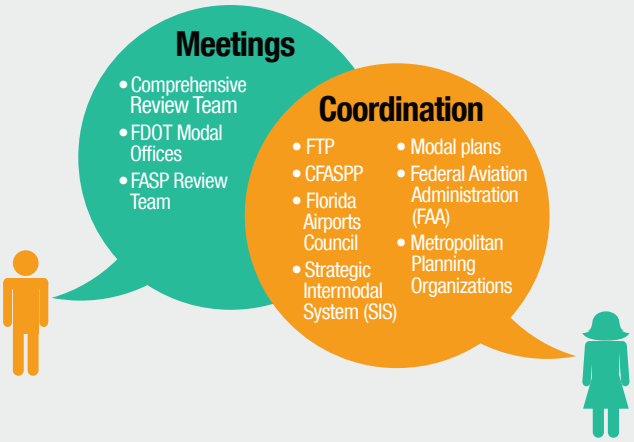
Florida by the Numbers



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.

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.*

Southwest Florida CFASPP Region

Source: FAA 5010 (extracted October 2016)

The Southwest CFASPP Region is located within FDOT District One. District One extends further to the north to include parts of the Central CFASPP Region. The Southwest CFASPP Steering Committee is supported by the Heartland Regional, Charlotte-Punta Gorda, Sarasota-Manatee, Naples-Collier, and Lee County Metropolitan Planning Organizations (MPOs) 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

Southwest Florida CFASPP Region 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.

Ringling Art Museum in Sarasota, Florida. Photo by Marianne Serra.

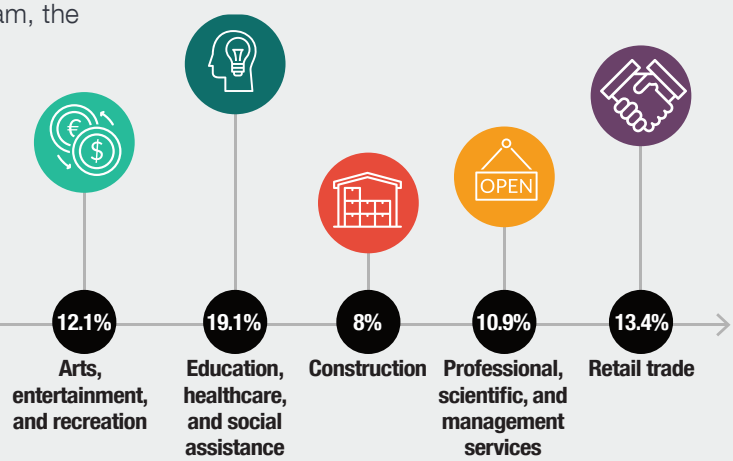
The Southwest CFASPP Region covers approximately 7,100 square miles encompassing parts of Charlotte, Collier, Glades, Hendry, Lee, Manatee, and Sarasota counties. The four main metropolitan statistical areas in the region include North Port-Bradenton-Sarasota, Cape Coral-Fort Myers, Naples-Marco Island, and Punta Gorda. Lee County has the highest population in the region with 722,000 residents, and Cape Coral is the most populous city with approximately 180,000 residents (2016).

Southwest Florida International Airport (RSW) in Fort Myers is the region's busiest airport and is among the top 50 U.S. airports in terms of passenger traffic. RSW currently serves 15 airlines offering service throughout North America, Canada, and Germany. Sarasota-Bradenton International Airport (SRQ) is the region's busiest airport in terms of operations. SRQ provides commercial air services to over 15 destinations in the U.S. and Canada. Punta Gorda Airport (PGD) is served by low-cost carriers including Allegiant Air and Frontier Airlines, offering service to nearly 40 domestic destinations in the eastern U.S. The Collier County Airport System supports general aviation. Naples Municipal Airport (APF) is the busiest general aviation airport in the Southwest Region.

Southwest Florida is driven by tourism, with sugar-white beaches, golf, and warm winter temperatures drawing tourists from across the U.S. and the world. In fact, the region has a rich history as a winter escape for wealthy northerners. The Vanderbilts, Ringlings, and others built mansions in Sarasota overlooking the Gulf of Mexico in the 1920s to usher in the modern era of land development. Similarly, Edison and Ford built an estate in Fort Myers that now serves as a museum and research laboratory. Today, destinations such as Fort Myers and Naples; Sanibel, Captiva, and Marco Islands; and beaches including Bonita Springs and Siesta Key continue to offer visitors the chance to learn why Florida earned a reputation as the Sunshine State.

Major League Baseball's (MLB) Spring Training Grapefruit League is also drawn by Southwest Florida's sunny days and warm winters. The Boston Red Sox, Baltimore Orioles, Minnesota Twins, and Pittsburgh Pirates train in cities across the region. During the MLB regular season, the region is home to numerous minor league baseball teams including the Fort Myers Miracle, Bradenton Marauders, and Port Charlotte Stone Crabs. The Village of Estero is also home to the region's minor league hockey team, the Florida Everblades.

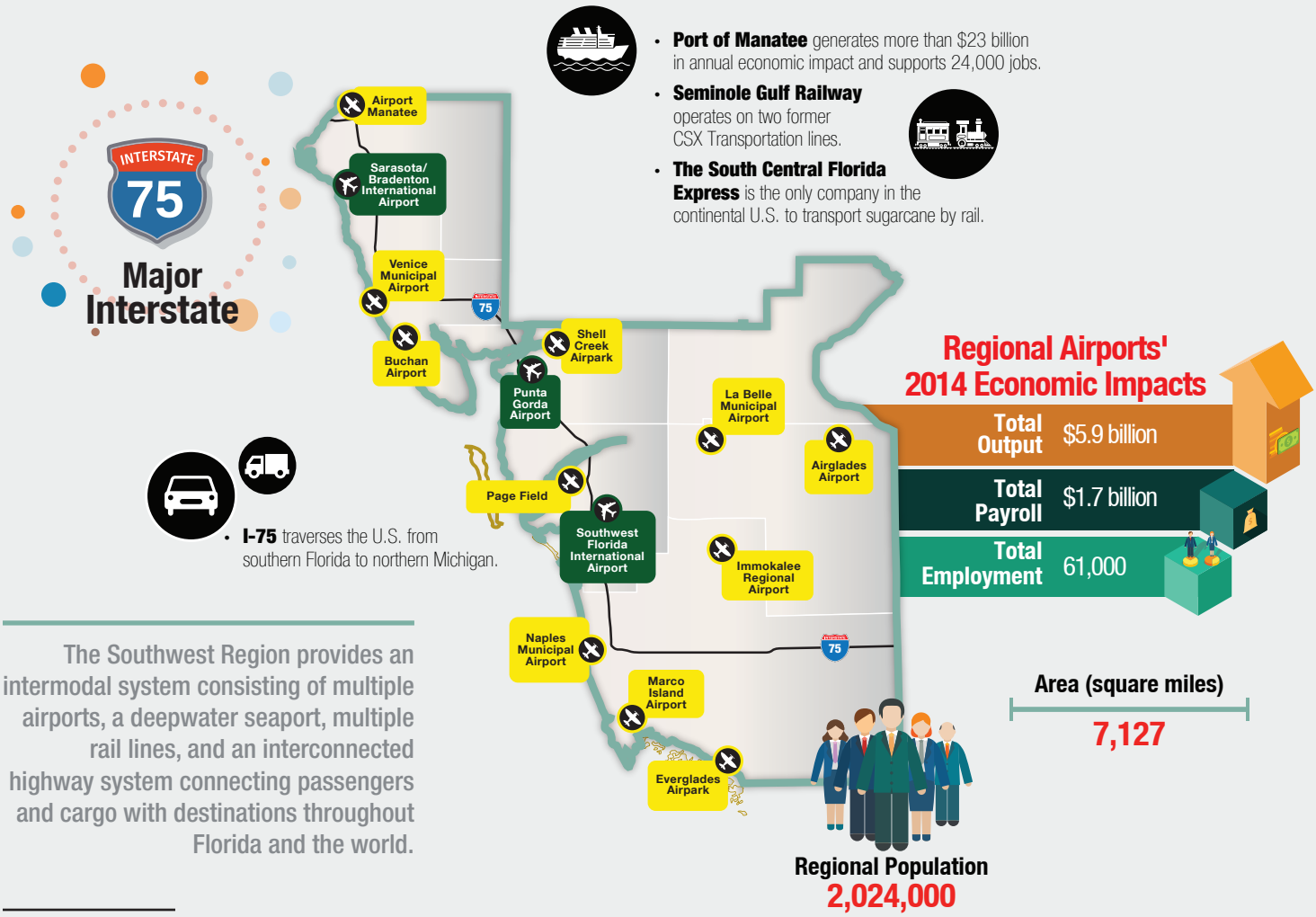
Top 5 industries in the region



Over the last century, Southwest Florida has witnessed some of the most severe economic booms and busts in the country. In the years leading up to the most recent Great Recession, Lee County had the highest number of new home starts in the state. While the region was hard-hit by the downturn, the economy continues to stabilize. Today, the cities of Fort Myers and Bradenton and Collier and Lee counties are some of the fastest growing regions in the state. This growth can, in part, be attributed to new residents moving north along the coast as the cost of living rises in Miami and other areas to the south. Naples is also becoming an increasingly popular community for young families and offers numerous amenities for children such as a zoo, children's museum, and water park

Despite shifting economic and demographic contexts in some areas, Glades and Hendry counties remain primarily agricultural. Nearly 16,000 seasonal farm workers are drawn to these areas each year to harvest tomatoes, sugarcane, limes, lemons, oranges, and other citrus fruit.

While the Southwest Region has no major military installations, multiple low-level training exercises occur in the regional airspace. Furthermore, the area benefits from military activity occurring in adjacent areas, particularly in the Tampa Bay area to the north. In 2014, direct defense spending in the Southwest Region totaled $875 million. This activity generated more than 22,100 jobs and $1.8 billion in gross regional product—roughly 4.5 percent of the region's total.[1]



The Southwest Region provides an intermodal system consisting of multiple airports, a deepwater seaport, multiple rail lines, and an interconnected highway system connecting passengers and cargo with destinations throughout Florida and the world.

[1] *Enterprise Florida and Career Source Florida (2015). Florida Defense Factbook. Available at www.enterpriseflorida.com/wp-content/uploads/Florida-Defense-Factbook.pdf.*

Intermodal Connectivity

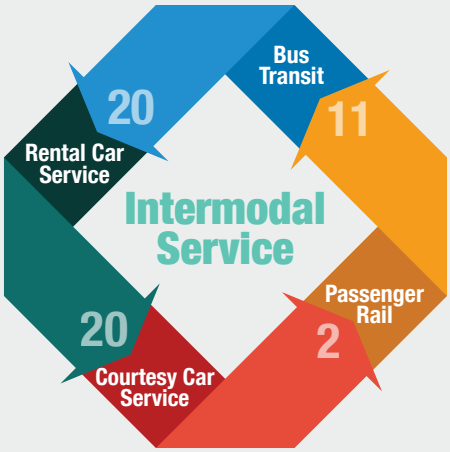
An integrated multimodal transportation system:

- 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



Total Airports Where Service is Provided

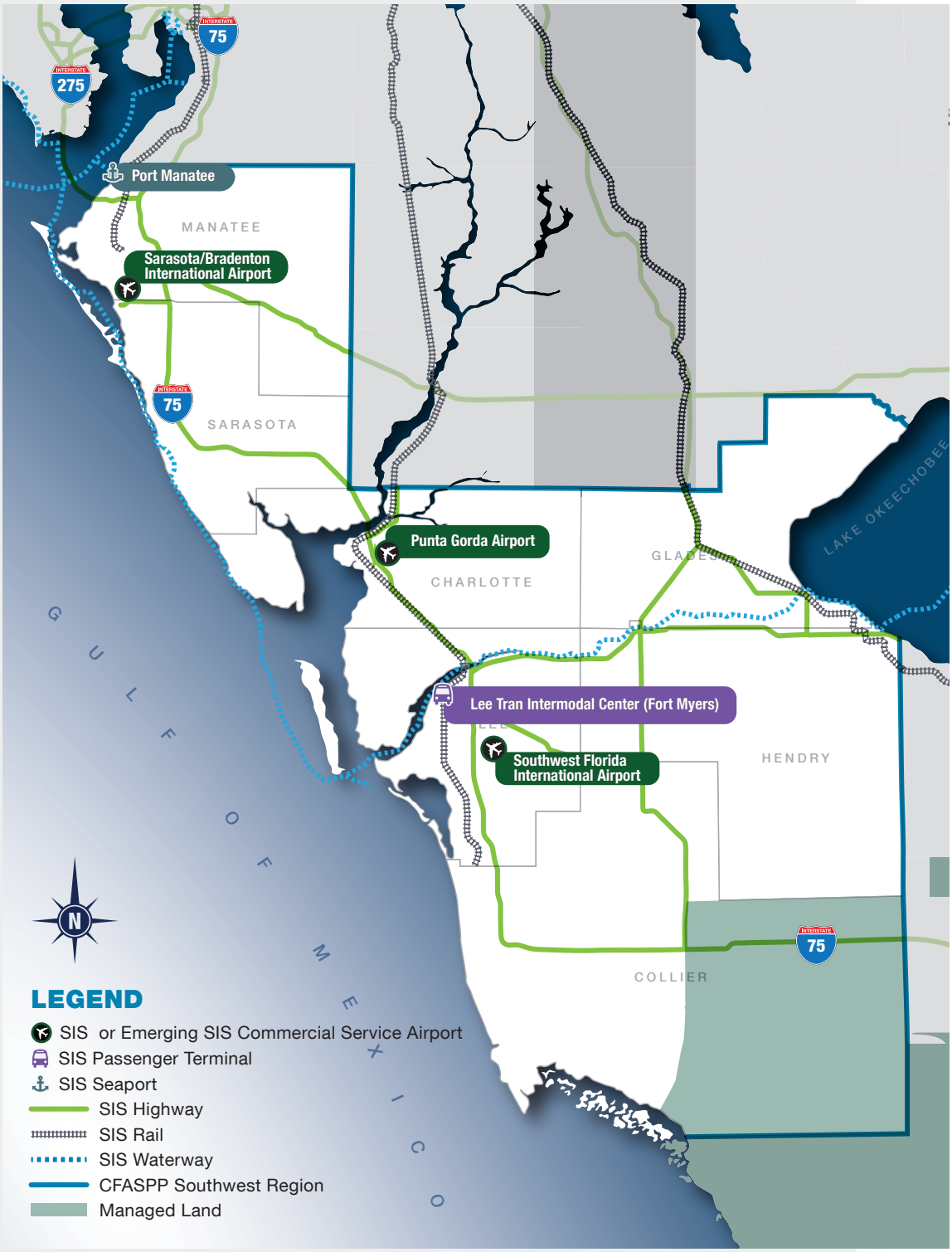
Twenty of Florida's 128 airports are SIS or Emerging SIS facilities, including 18 commercial service and two general aviation reliever airports. Commercial service airports require more connections to facilitate access to airline service, while the general aviation reliever airports typically serve a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

Southwest Florida International Airport is the only SIS airport in the Southwest Region, while Punta Gorda Airport and Sarasota/Bradenton International Airport are designated as Emerging SIS airports. The Emerging SIS designation is given to facilities that meet a defined size criteria or provide service to aviation-dependent industries within 50 miles and are located in an area with a 25 percent or higher projected population growth rate over the next 20 years.

Sarasota/Bradenton International Airport

Spirit Airlines at Southwest Florida International Airport. Photo by Timothy Wildey via Flickr.

Regional SIS Facilities



In addition to air service, several intermodal facilities provide connectivity via road, sea, and rail. Located in northern Manatee County, Port Manatee is one of the largest deep-water ports in Florida, providing service to commercial, industrial, and cruise ships. I-75 traverses the region along its cross-country route from southern Florida to the northern tip of Florida.

The Southwest Region also hosts the Seminole Gulf Railway operating on two former CSX Transportation lines, as well as the South Central Florida Express (SCFE). The SCFE is a short-line railroad operated by the U.S. Sugar Corporation—the only company in the continental U.S. to transport sugarcane by rail. Residents and visitors are also served by LeeTran, the Lee County public transit system headquartered in Fort Myers that operates an interconnected system of bus and trolley routes, paratransit services for the disabled, and a vanpool program.

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 Southwest Region, nearly 80 percent of airports do not 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.

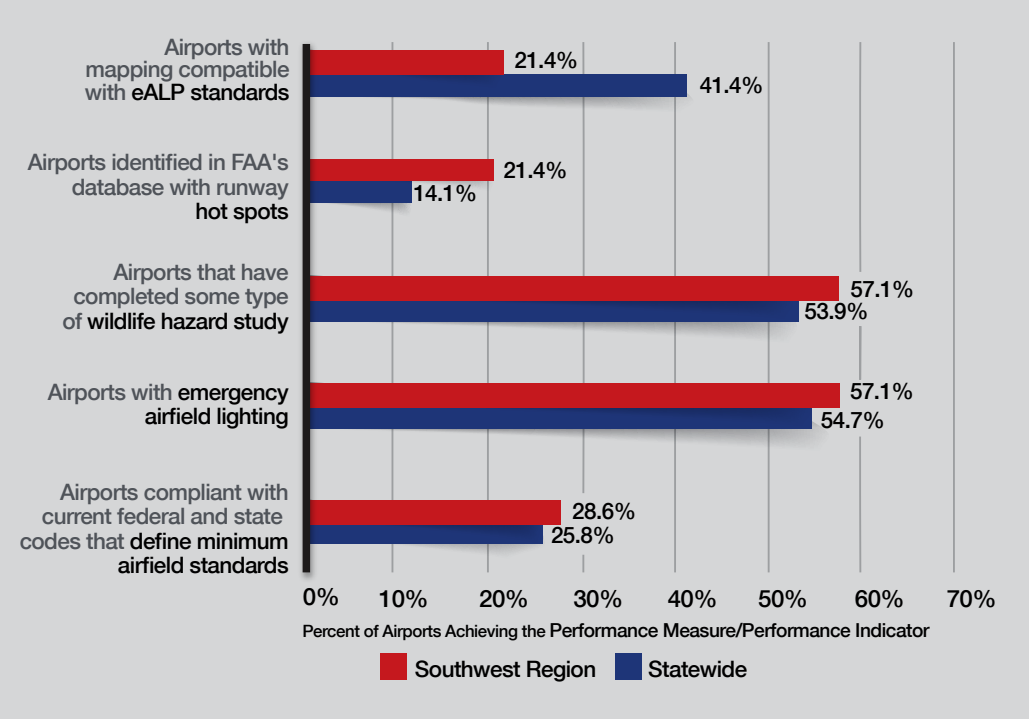
Emergency Airfield Lighting

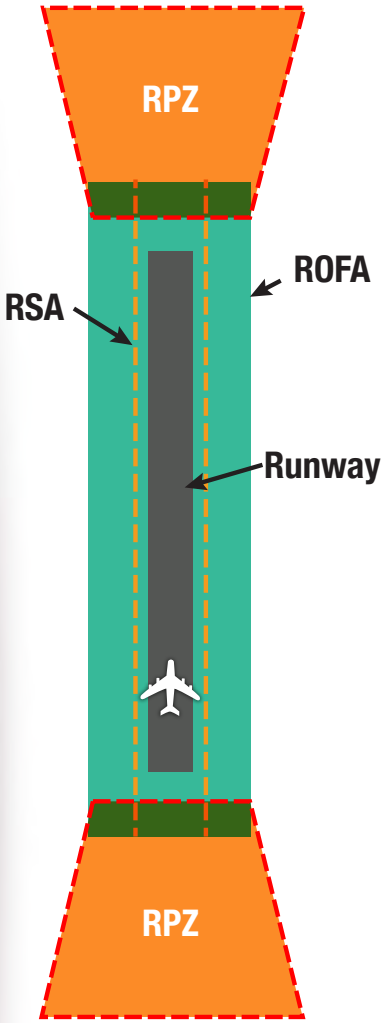
The ability for an airport to remain operational through natural and man-made disasters is critical for the movement of people, goods, and equipment to ensure that the needs of the affected communities are met. Emergency airfield lighting provides for continued operations during nighttime hours or low-visibility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

Measures / Indicators





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.*

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.

Aviation activity in the Southwest Region is primarily driven by high level of tourism that defines the region. Travelers and seasonal winter residents depend on commercial and general aviation airports to reach the world-class beaches, golf, and resort communities of Florida's southern Gulf Coast.

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.

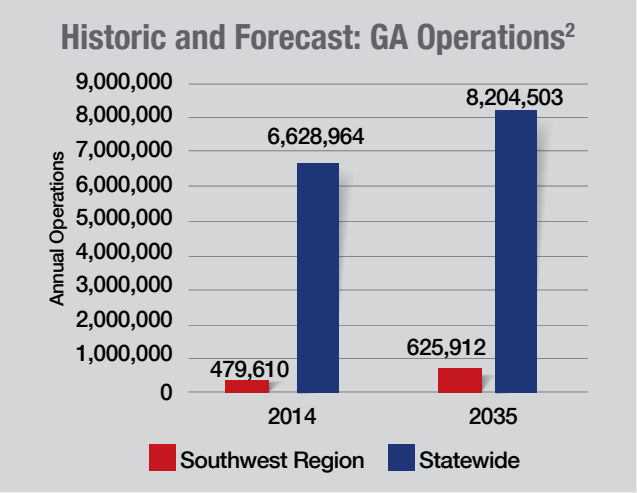
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

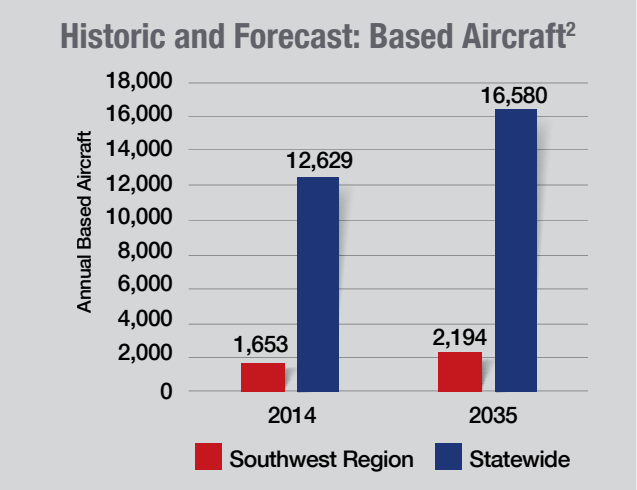
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

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.



General aviation (GA) operations in the Southwest Region are projected to increase at an annual growth rate of 1.45 percent over the forecast horizon to exceed the statewide annual growth rate of 1.13 percent over this same time period.



Based aircraft in the Southwest Region are projected to increase at an annual growth rate of 1.56 percent over the forecast horizon to exceed the statewide annual growth rate of 1.49 percent over this same time period.

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.

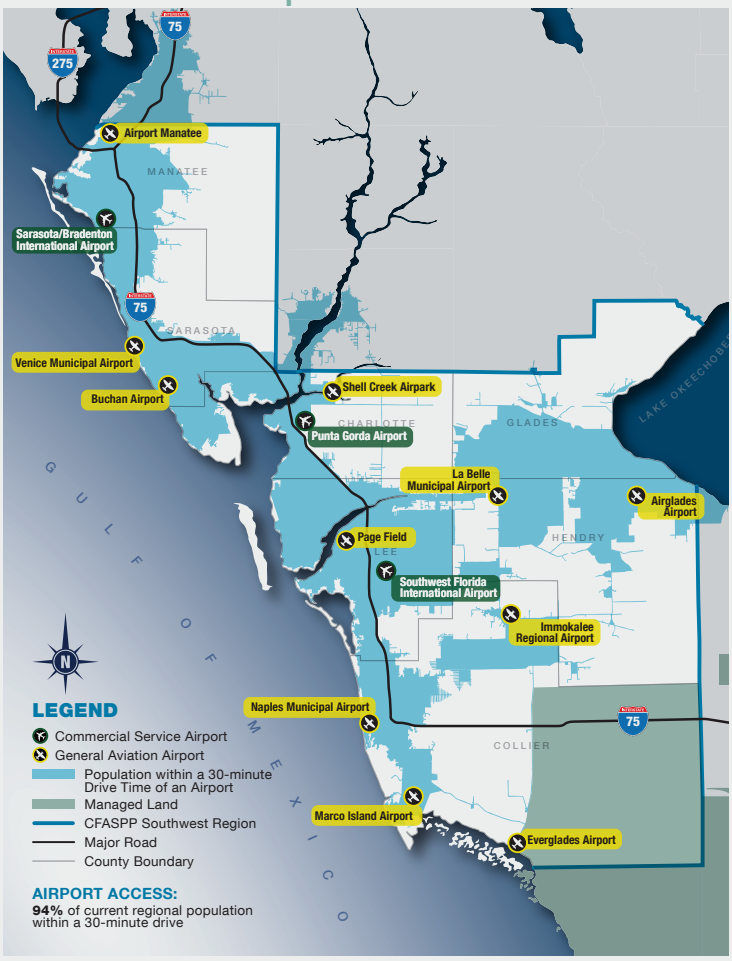
The FAA uses a 30-minute criterion to determine the airports that are eligible for inclusion in the National Plan of Integrated Airport Systems. More information is available at www.faa.gov/airports/planning_capacity/npias.

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.

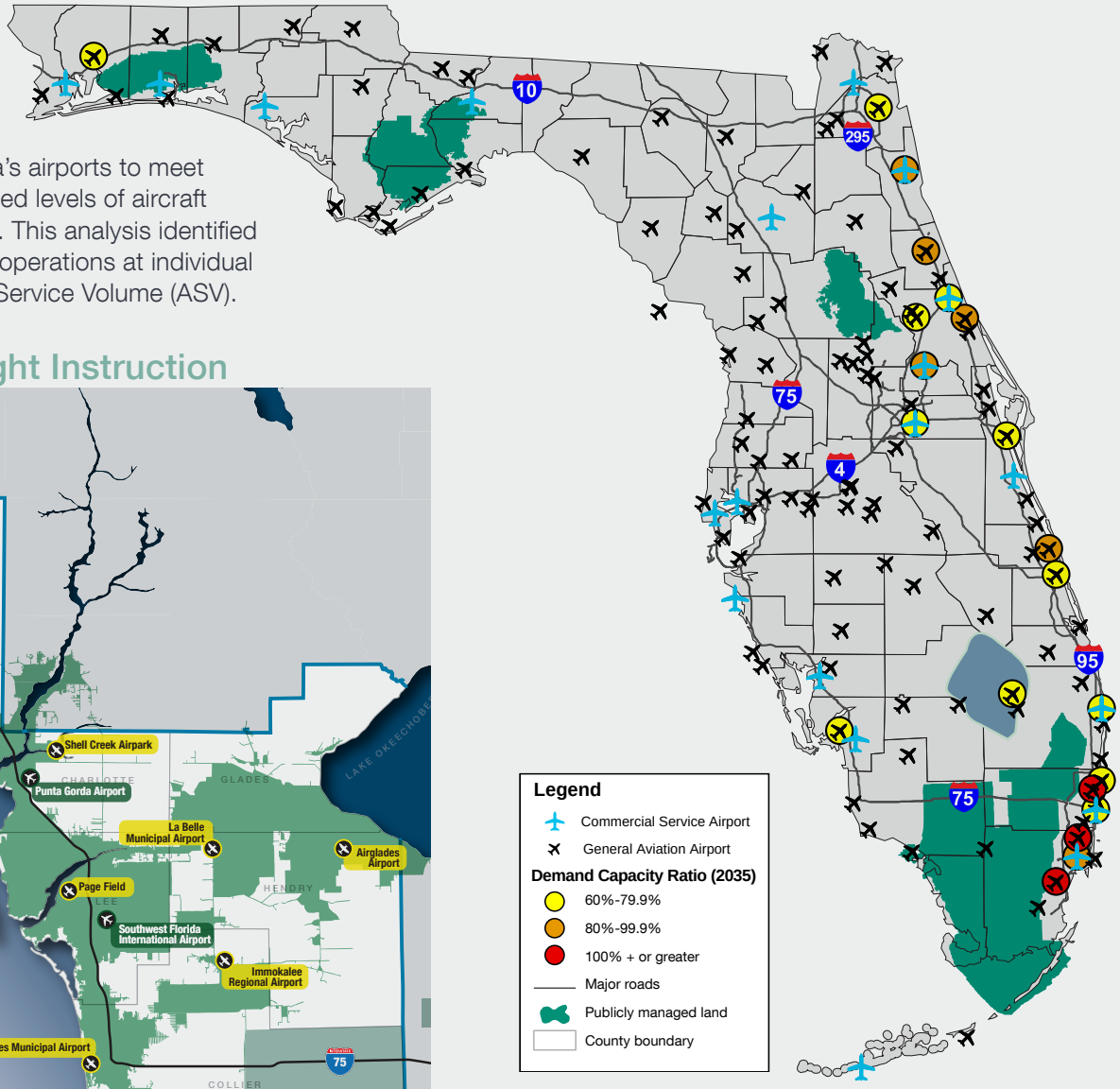
Airport Access



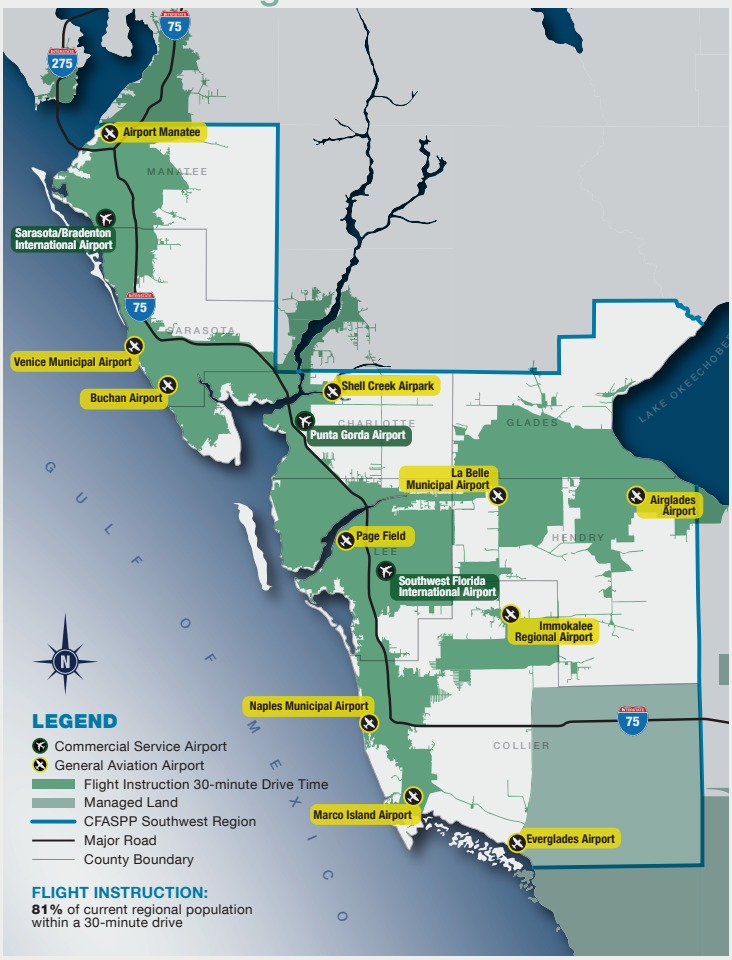
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

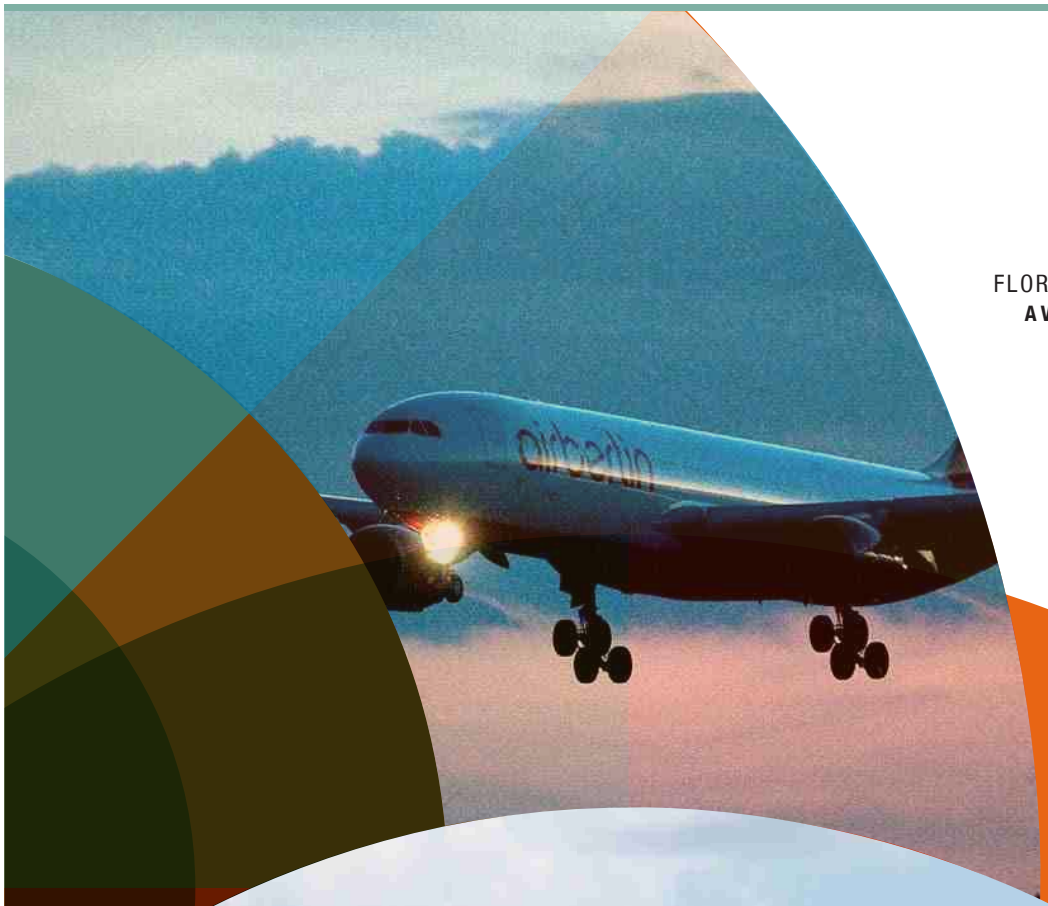
- Leverage Airport Cooperative Research Program (ACRP) information to develop Florida-specific resources and tools to gain support from businesses, public, and government representatives.
- Continue to fund and provide statewide Pavement Condition Index (PCI) inspections and training.
- Improve Capital 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



FDOT

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035

Treasure Coast
CFASPP Region

FDOT

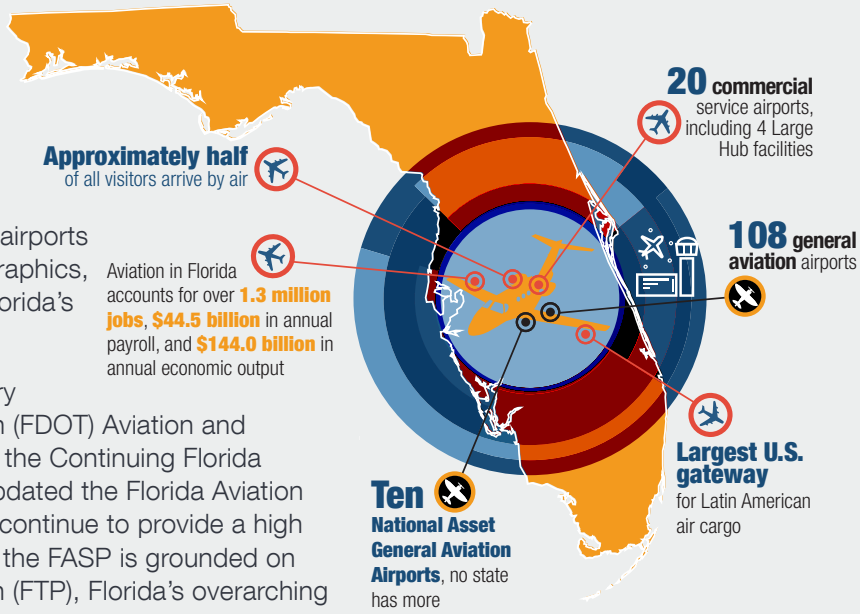
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

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.

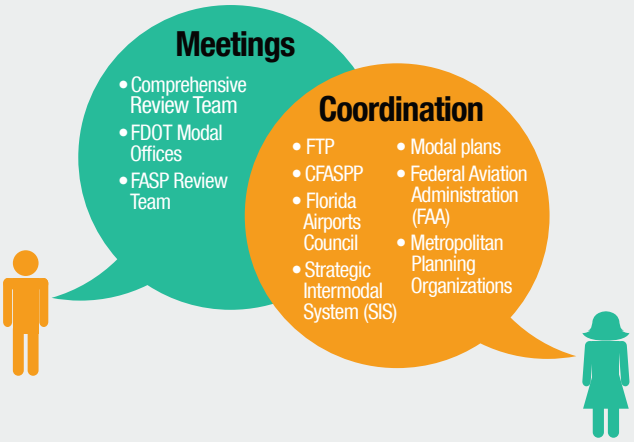
Florida by the Numbers



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.

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.

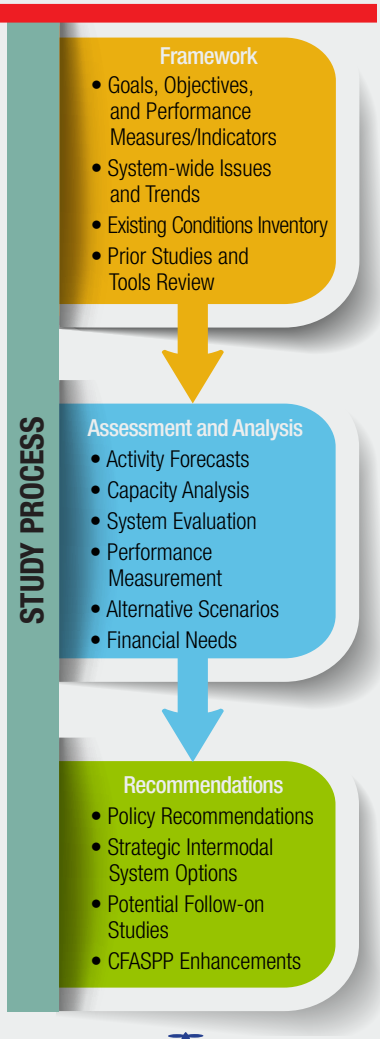
The FASP 2035 Update included analyses of the facilities, aviation activities, and future demands specific to the state's nine CFASPP regions and metropolitan areas (MAs). The process encompassed a variety of interrelated technical analyses and tasks to ensure the aviation system continues to effectively 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.*

Treasure Coast Florida CFASPP Region

Source: FAA 5010 (extracted October 2016)

The Treasure Coast CFASPP Region is encompassed within FDOT Districts One and Four. The Treasure Coast CFASPP Steering Committee is supported by the St. Lucie, Indian River, and Martin County Metropolitan Planning Organizations (MPOs) and FDOT.



Treasure Coast Florida CFASPP Region 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.

The Treasure Coast CFASPP Region is approximately 2,651 square miles encompassing Indian River, Martin, St. Lucie, and Okeechobee counties. The 2016 population was 635,300, the overwhelming majority of whom live in urban areas along the southeast coast and inland to Lake Okeechobee. The Treasure Coast is a booming area that can attribute much of its growth to the expanding retiree population moving northward along the Atlantic coast.

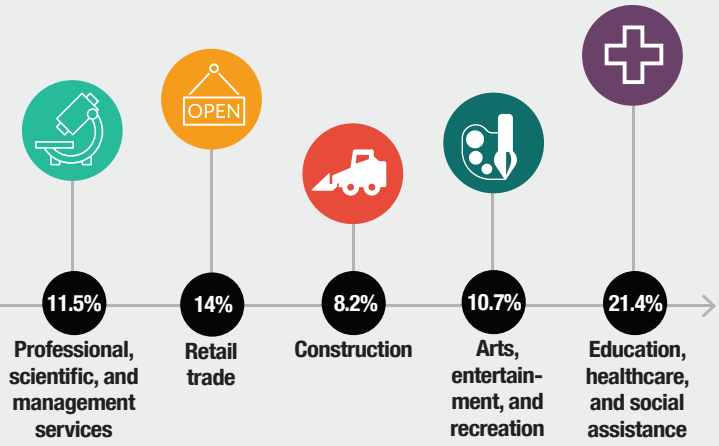
Vero Beach Regional Airport is the busiest airport in the Treasure Coast, and the facility has experienced extraordinary growth in recent years. In 2016, Elite Airways served an estimated 12,000 commercial passengers during its first full-year of operations. The carrier now offers flights to Newark, New Jersey and Asheville, North Carolina (as of May 2017). Vero Beach Regional Airport is currently moving forward with a plan to improve Transportation Security Administration-compliant infrastructure and services that will allow Elite Airways or other carriers to fly larger aircraft and further expand service levels. Additionally, Piper Aircraft has developed and manufactured aircraft at Vero Beach Regional Airport since 1957. Nine years later (in 1966), FlightSafety International established the FlightSafety Academy at the airport. Today, the academy trains future aviators from around the world at its 15-building complex adjacent to the flight line.

Treasure Coast International Airport, located between Vero Beach and West Palm Beach, hosts a Federal Inspection Station administered by the U.S. Customs and Border Protection. The airport's economic development potential was recently bolstered by a $1.5 million grant from the U.S. Commerce Division of the Economic Development Administration. Combined with state and county dollars, this federal grant will help fund a 30,000-square-foot hangar with sufficient space for two Boeing 737 aircraft. Treasure Coast International Airport has also recently made significant investments to expand its customs processing capacity and improve its taxiway system.

Recognizing the growing demands in the Treasure Coast, other airport sponsors have also taken a proactive role in expanding and improving their airports' facilities and services as well. The Okeechobee County Airport is currently working on an airport master plan update to expand its hangar and business opportunities. The Sebastian Municipal Airport has undertaken numerous airside and landside airport improvements

Everglades Restoration Tour at Okeechobee County Airport. Photo by the South Florida Water Management District.

Top 5 industries in the region

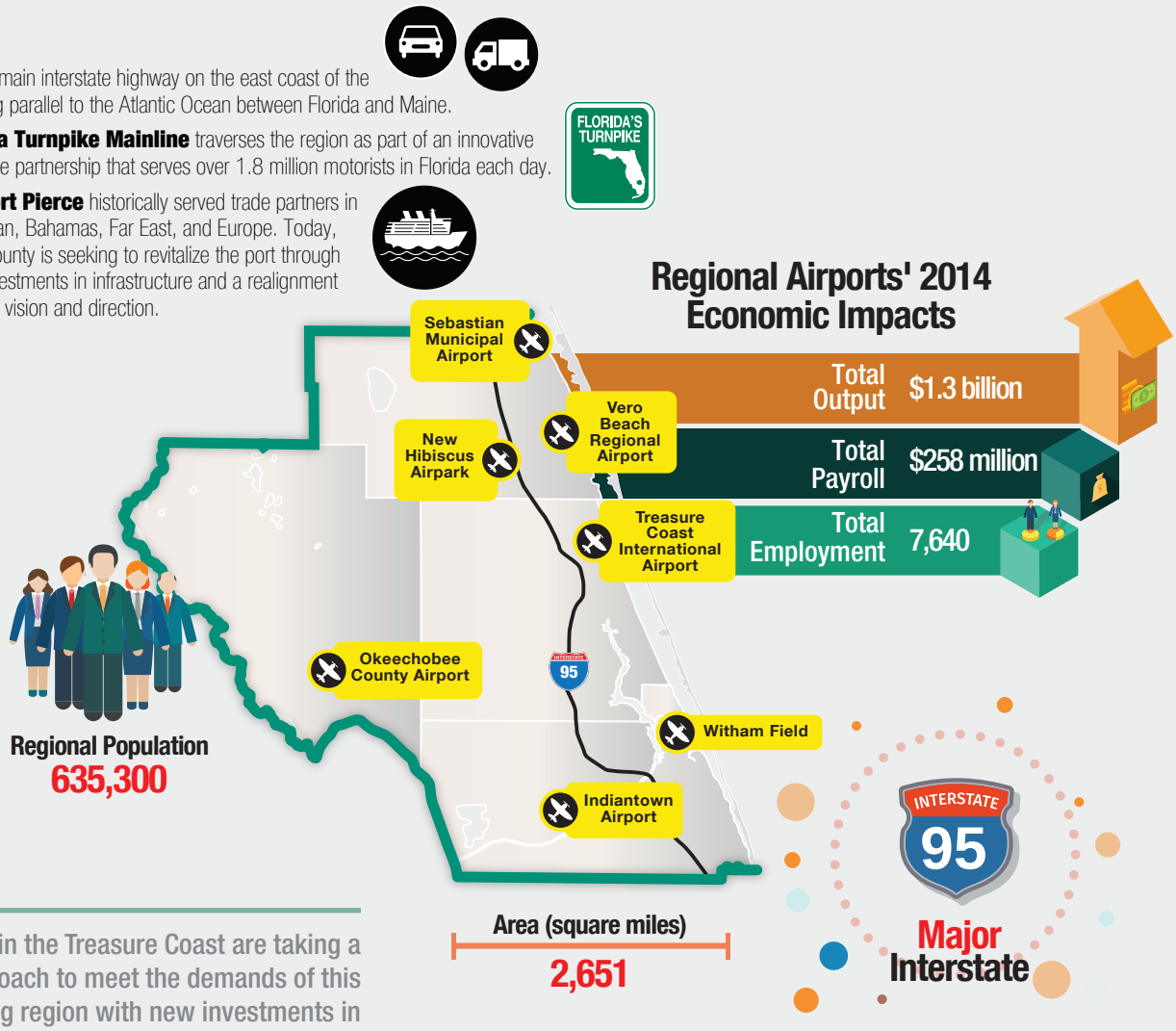


in recent years. Witham Field hosts two fixed-base operators who welcome general aviation users to the Treasure Coast. Indiantown Airport and New Hibiscus Airpark both offer well maintained grass landing strips.

The Treasure Coast offers residents and visitors the opportunity to experience the warm climate and beaches that have earned Florida its enduring reputation as the Sunshine State. Port St. Lucie is home to the New York Mets Spring Training as part of the Grapefruit League. The Professional Golfers' Association (PGA) Village is also located in Port St. Lucie. The PGA Village is a world-class resort offering 54 holes of championship golf and a 35-acre PGA Learning Center.

Hutchinson Island is a 23-mile-long barrier island stretching along St. Lucie and Martin counties in the middle of the Treasure Coast. The island offers an abundance of wildlife, natural beaches, and a variety of outdoor activities. Hutchinson Island is also one of the most important nesting areas for loggerhead turtles in the world. Other popular beaches in the Treasure Coast—so named for the treasure of 11 Spanish ships lost during a 1715 hurricane—include Stuart, Jensen, Vero, and Bathtub beaches.

- **I-95** is the main interstate highway on the east coast of the U.S. running parallel to the Atlantic Ocean between Florida and Maine.
- The **Florida Turnpike Mainline** traverses the region as part of an innovative public/private partnership that serves over 1.8 million motorists in Florida each day.
- **Port of Fort Pierce** historically served trade partners in the Caribbean, Bahamas, Far East, and Europe. Today, St. Lucie County is seeking to revitalize the port through strategic investments in infrastructure and a realignment of the port's vision and direction.



Many airports in the Treasure Coast are taking a proactive approach to meet the demands of this rapidly growing region with new investments in infrastructure and service offerings.

Intermodal Connectivity

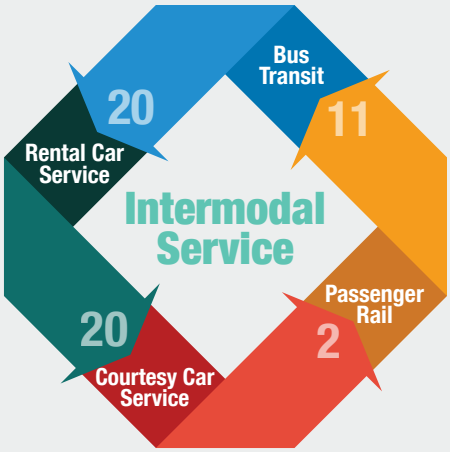
An integrated multimodal transportation system:

- 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



Total Airports Where Service is Provided

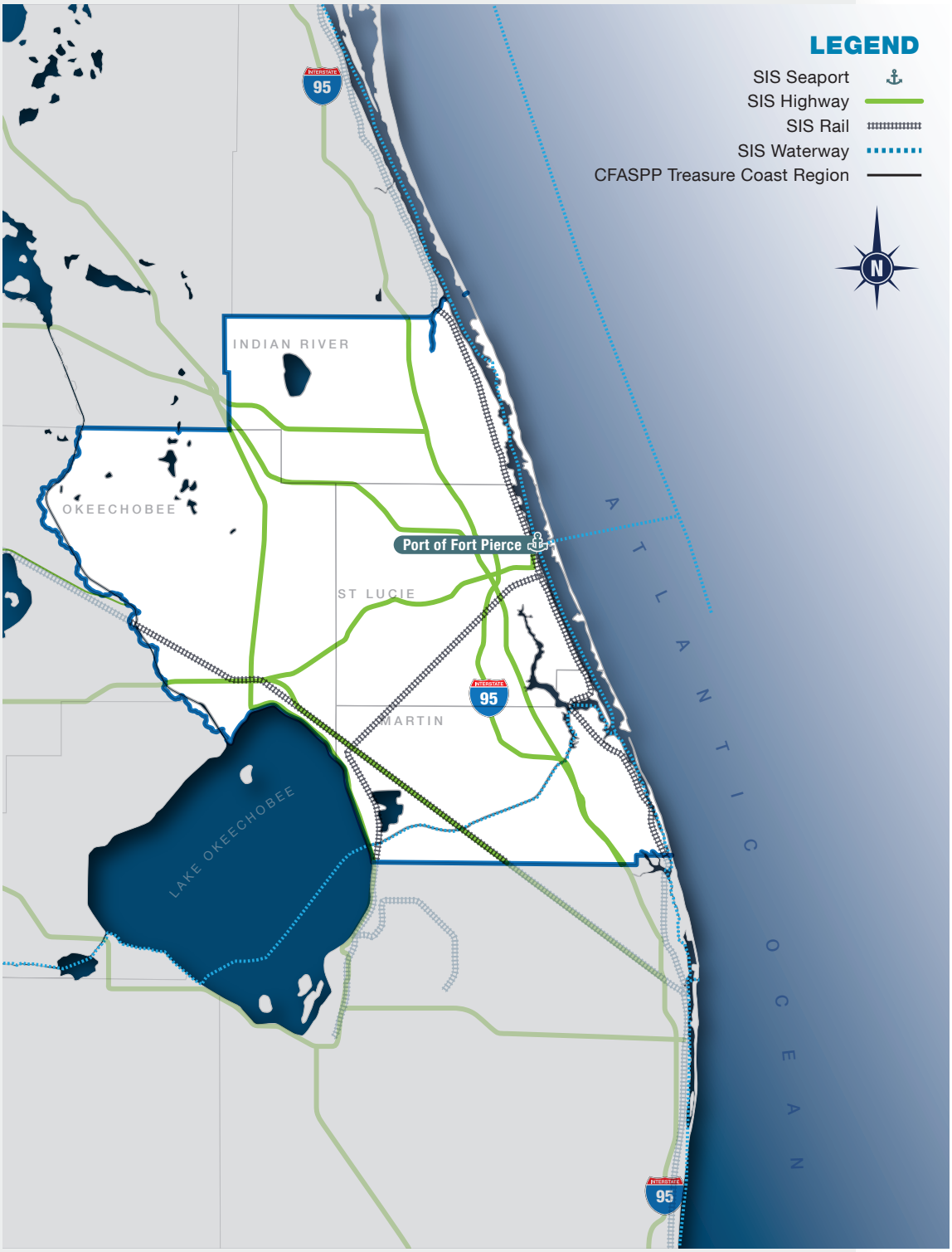
Twenty of Florida's 128 airports are SIS or Emerging SIS facilities, including 18 commercial service and two general aviation reliever airports. Commercial service airports require more connections to facilitate access to airline service, while the general aviation reliever airports typically serve a high level of demand in metropolitan areas.

The FASP 2035 Update evaluated all airports' level of connectivity with a particular emphasis on the SIS facilities' integration with other key modes of transportation.

FlightSafety Academy at Vero Beach Regional Airport

Vero Beach Regional Airport once served as the Naval Air Station Vero Beach, a training base for airmen during World War II.

Regional SIS Facilities



While the Treasure Coast does not host any SIS airports, such facilities are available to travelers via I-95, a major north/south SIS highway corridor that traverses the length of the region. Southbound I-95 provides access to one of the most concentrated areas of aviation activities in the state in the Southeast CFASPP MA. Two additional SIS airports are available via I-95 to the north within the East Central CFASPP MA.

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.

Over 70 percent of airports in the Treasure Coast have emergency airfield lighting, a critical system for continued operations when local power is unavailable.

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.

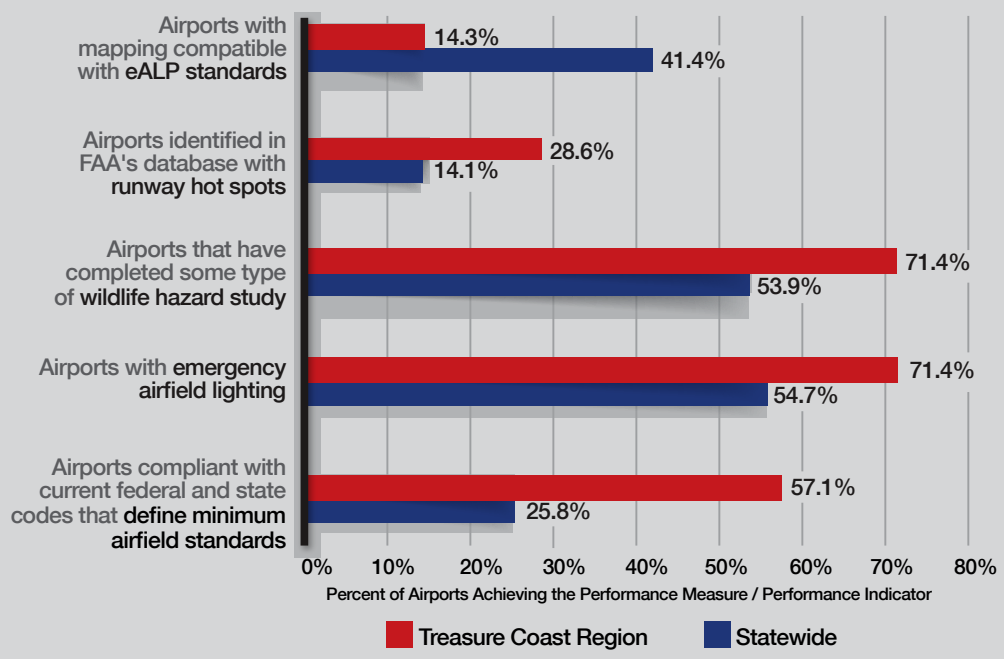
Emergency Airfield Lighting

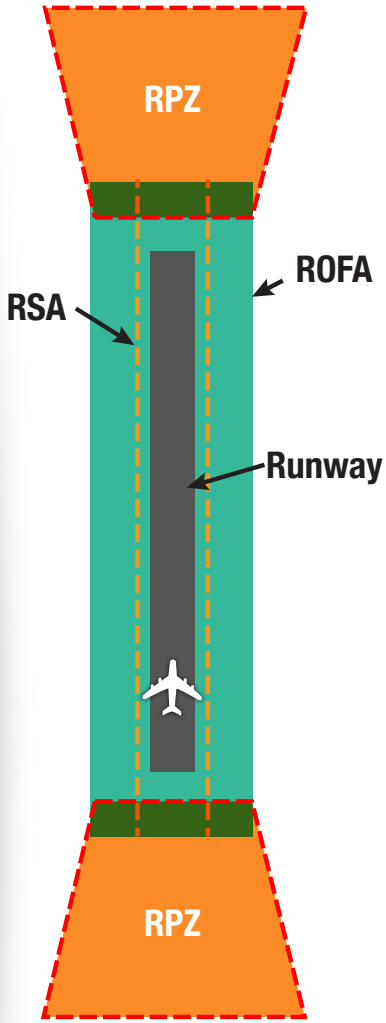
The ability for an airport to remain operational through natural and man-made disasters is critical for the movement of people, goods, and equipment to ensure that the needs of the affected communities are met. Emergency airfield lighting provides for continued operations during nighttime hours or low-visibility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

Measures / Indicators





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.*

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 Treasure Coast's rapidly growing population and economic diversification has led to a swift rise in the level of service offered by the region's commercial service and general aviation airports. The region's thriving tourism industry is another key driver of aviation activity as domestic and international travelers seek the renowned golf, beaches, and sun found along Florida's Atlantic coast.

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.

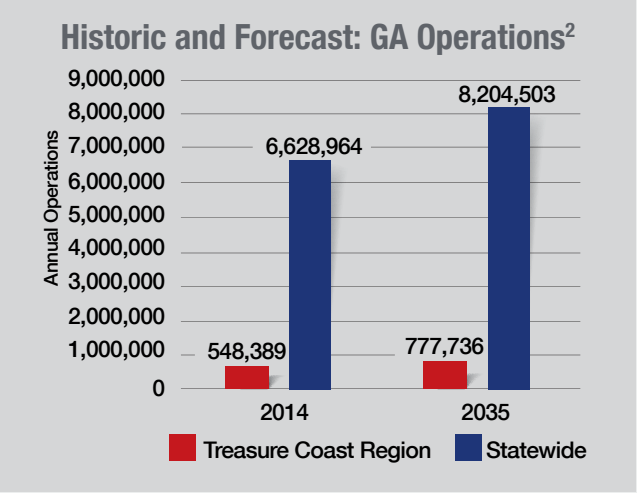
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

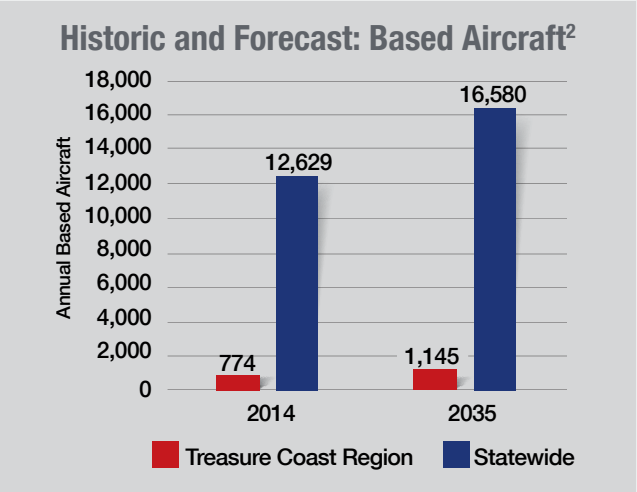
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

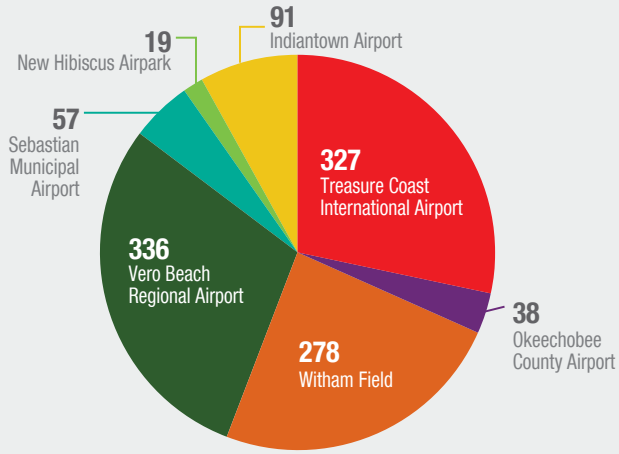
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to 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.



General aviation (GA) operations in the Treasure Coast Region are projected to increase at an annual growth rate of 1.99 percent over the forecast horizon to exceed the statewide annual growth rate of 1.13 percent over this same time period.



Based aircraft in the Treasure Coast Region are projected to increase at an annual growth rate of 2.28 percent over the forecast horizon to significantly exceed the statewide annual growth rate of 1.49 percent over this same time period.



[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.*

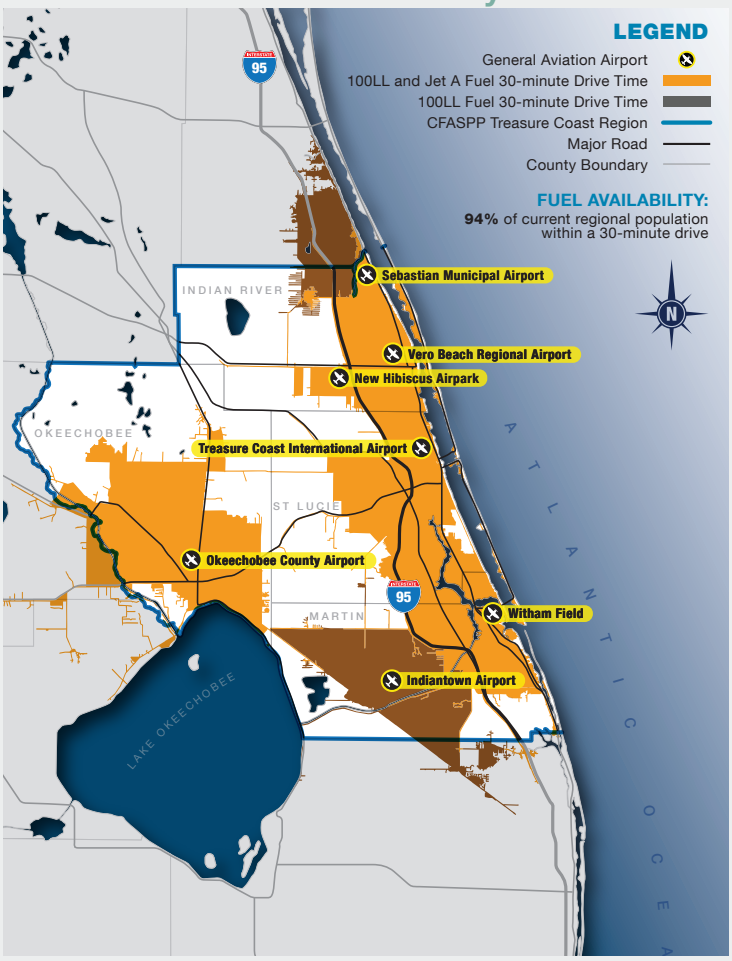
Accessibility Analysis

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.

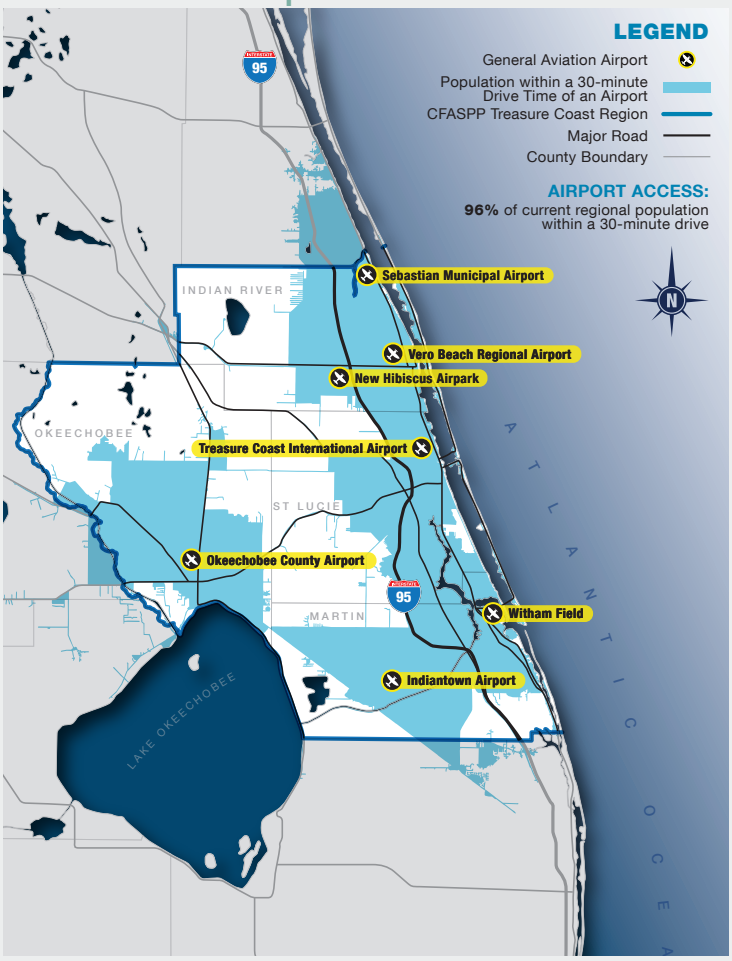
This same threshold is often used by businesses that operate general aviation aircraft as a decision-making factor when seeking locations to build or relocate their facilities.

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.

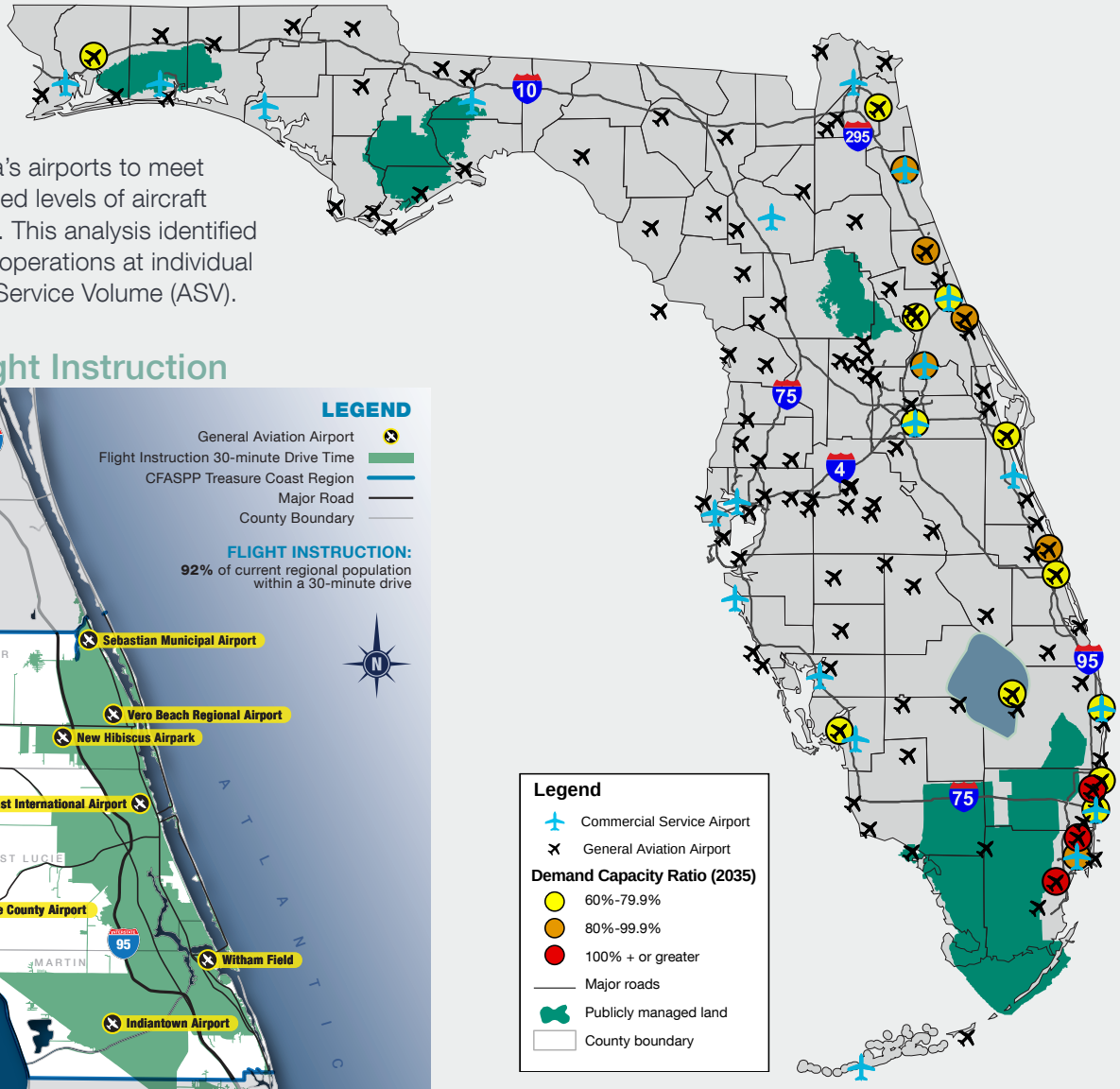
Airport Access



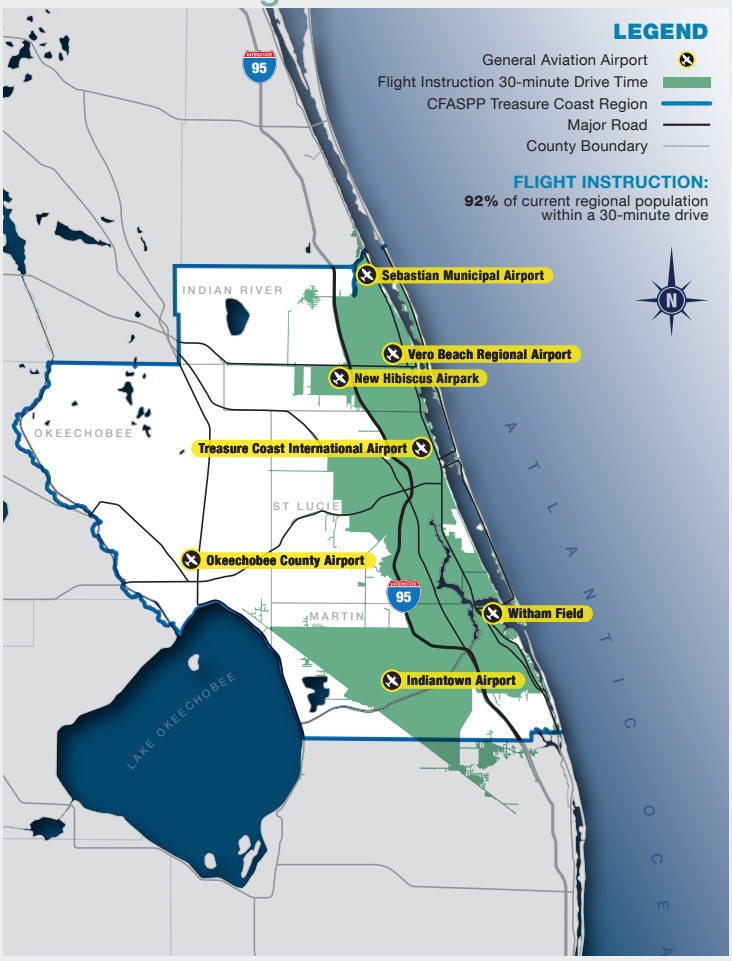
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

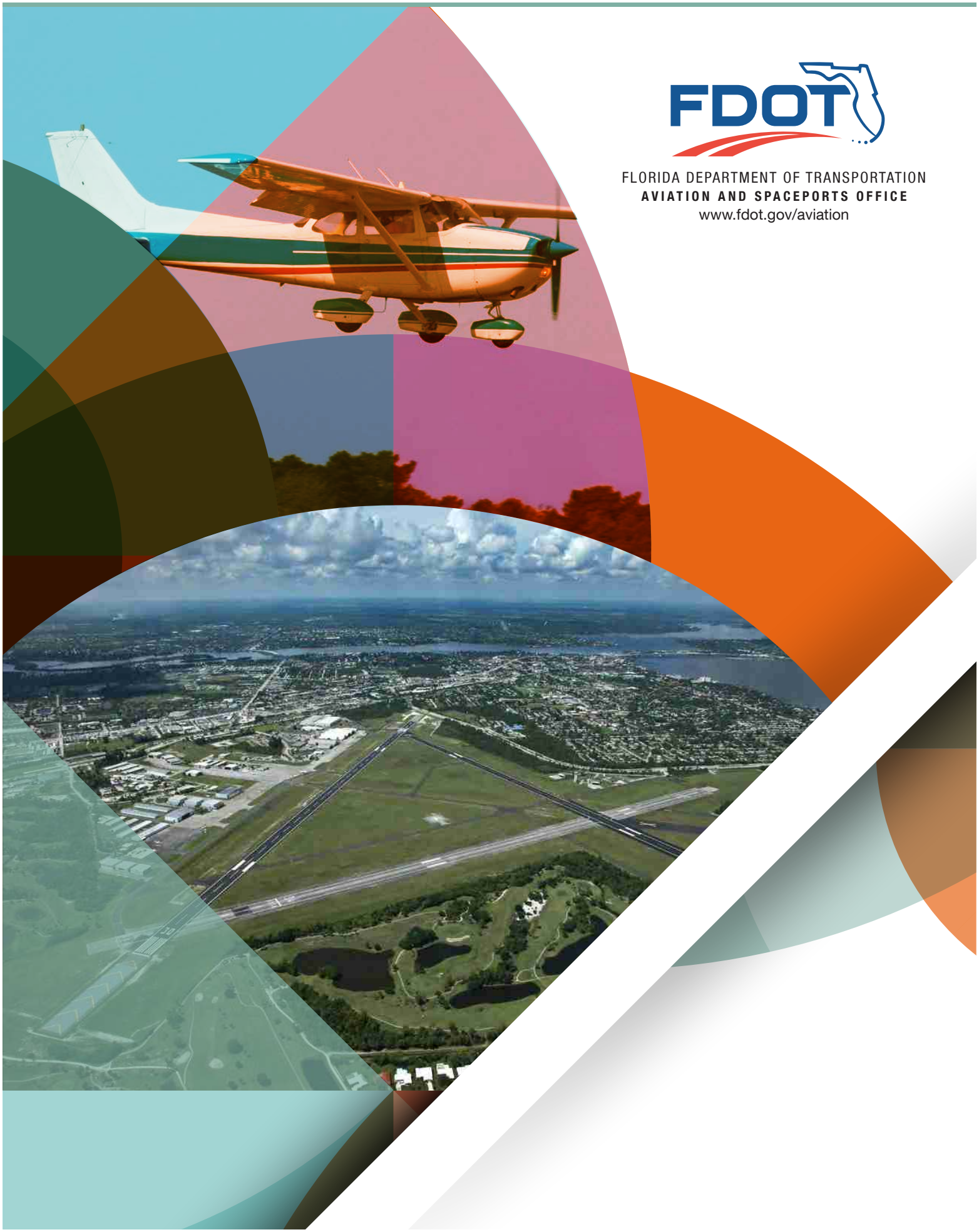
- Leverage Airport Cooperative Research Program (ACRP) information to develop Florida-specific resources and tools to gain support from businesses, public, and government representatives.
- Continue to fund and provide statewide Pavement Condition Index (PCI) inspections and training.
- Improve Capital 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

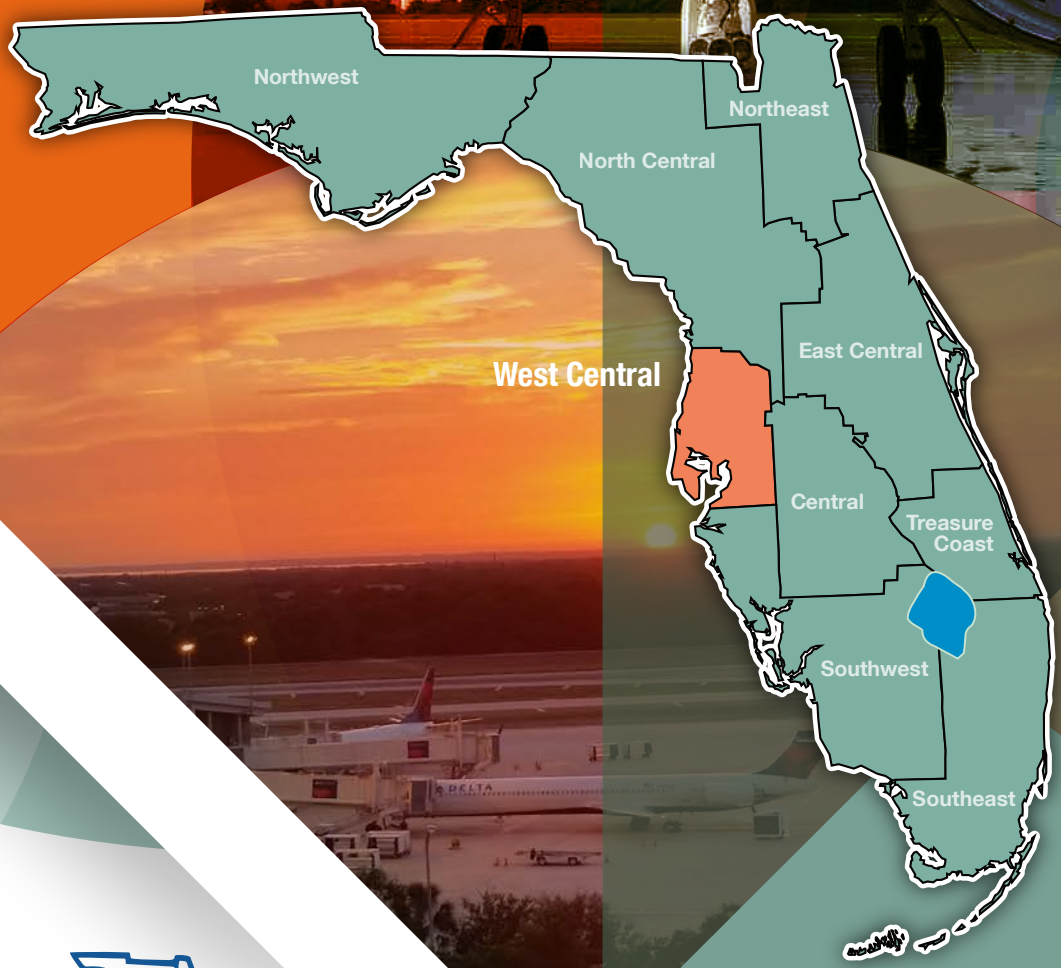


FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

FLORIDA DEPARTMENT OF TRANSPORTATION

FASP

Florida Aviation System Plan 2035



West Central

CFASPP Metropolitan Area

FDOT

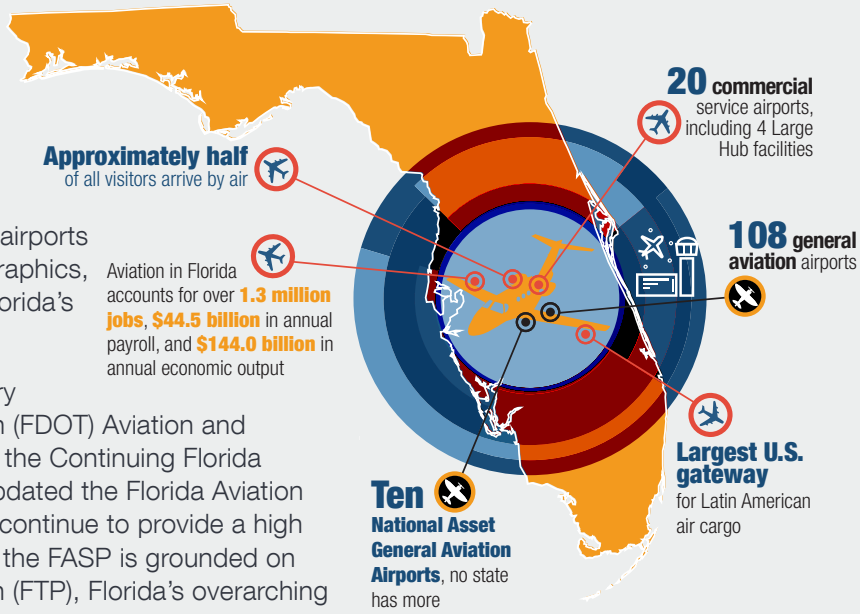
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

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.

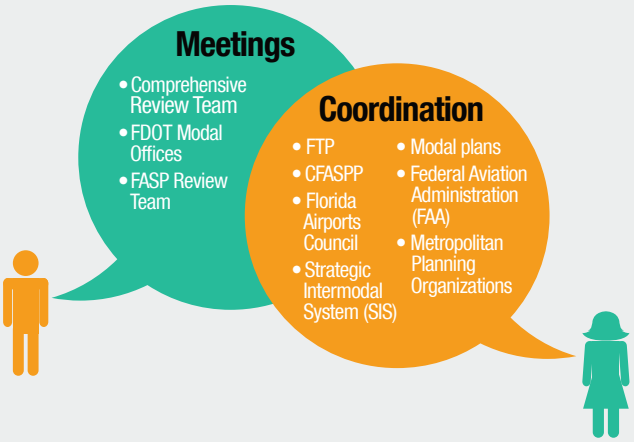
Florida by the Numbers



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.

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.*

West Central Florida CFASPP MA

Source: FAA 5010 (extracted October 2016)

The West Central CFASPP MA is located within FDOT District Seven. The West Central CFASPP Steering Committee is supported by the Hillsborough County, Pinellas County, Pasco County, and Springhill/Hernando County Metropolitan Planning Organizations (MPOs); Withlacoochee and Tampa Bay Regional Planning Councils (RPCs); 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

West Central 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.

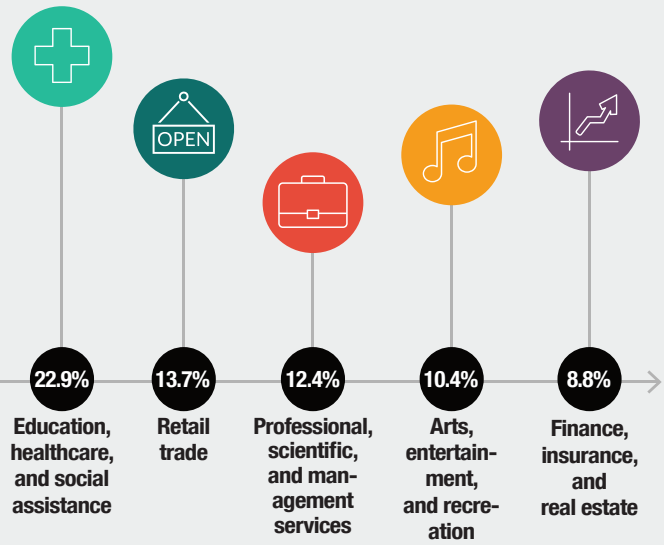
The West Central CFASPP MA encompasses 2,616 square miles in Hernando, Hillsborough, Pasco, and Pinellas counties along Florida's Gulf Coast with a population of approximately 2.9 million people—making it the most densely populated CFASPP region. The majority of residents live in the urbanized areas of the Tampa-St. Pete-Clearwater Metropolitan Statistical (MSA), the second largest MSA in the state and 18th largest in the U.S.

Tampa International and St. Pete-Clearwater International airports provide commercial service in the West Central Region. Tampa International Airport is served by nearly 20 major air carriers, as well as several charter companies specializing in travel to Cuba. The airport is known as the "Gateway to the West Coast of Florida" and serves as a passenger-friendly, accessible, and convenient entry point into Florida for domestic and international travelers. In 2014, Tampa International Airport began design and construction on a three-phase project to expand its facilities to accommodate 35 million passengers each year—more than double its current number. Scheduled for completion in late 2018, the first phase will decongest curbsides, roads, and the main terminal.

On the other side of Tampa Bay, St. Pete-Clearwater International Airport is similarly experiencing rapid growth. In 2015, the airport served a record-breaking 1.6 million passengers—a 32 percent increase of the previous record set in 2014. Several low-cost carriers provide non-stop service to destinations in the U.S. and Canada, and limited charter service is provided to the Beau Rivage Casino in Gulfport-Biloxi, Mississippi. St. Pete-Clearwater International Airport is one of Allegiant Air's primary Florida cities, with service to domestic destinations. The airport is also frequently used for general aviation activities with particularly high levels of business aviation.

The West Central MA also hosts nine general aviation airports. Each county is home to at least one general aviation airport, although half of these airports are located in or near the urban centers of Tampa or St. Pete-Clearwater. Hillsborough County Aviation Authority operates three general aviation airports, two of which serve as relievers to Tampa International Airport.

Top 5 industries in the region

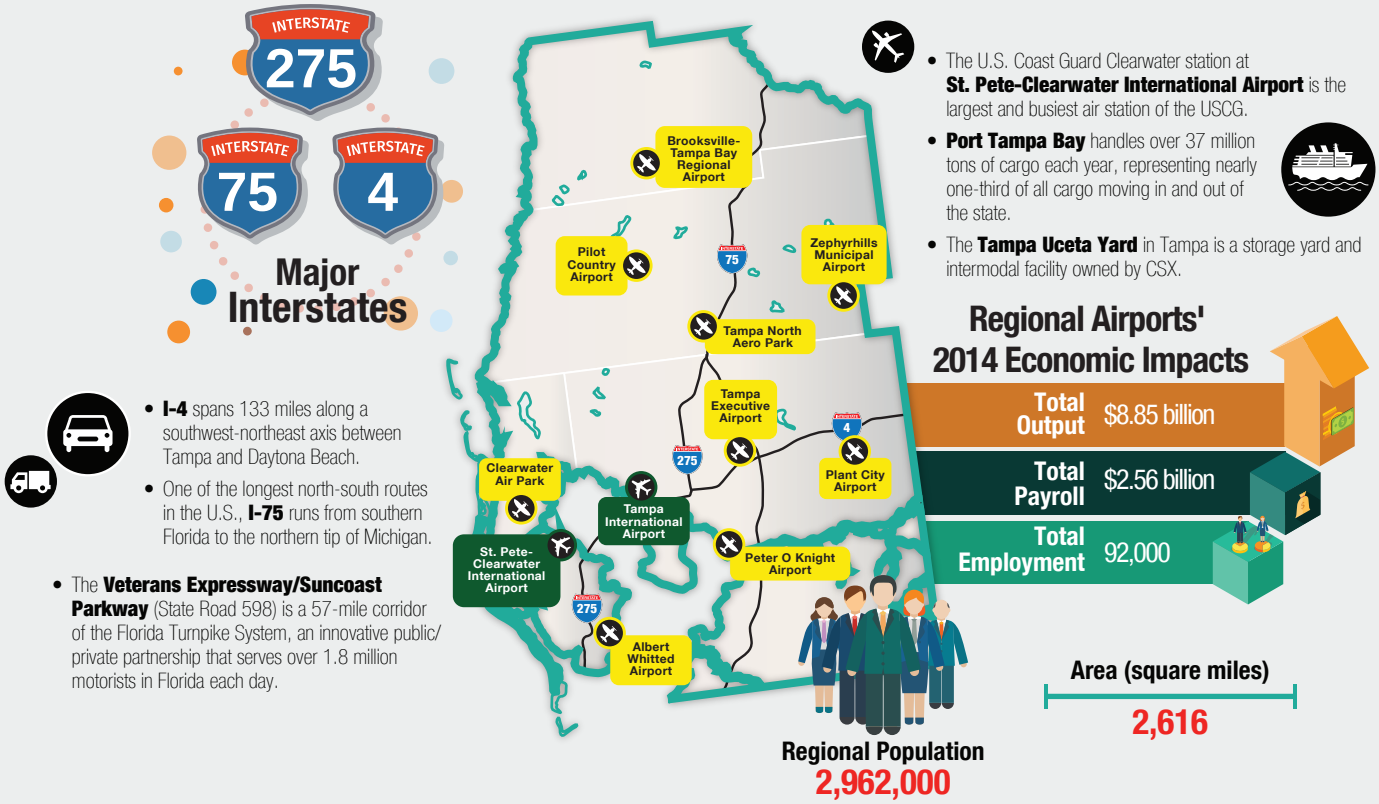


X

The region's growing and diversifying economy is founded in the financial, manufacturing, and trade industries. West Central Florida also boasts some of the state's most popular tourist attractions, including theme parks, entertainment and nightlife venues, and museums. Several of the area's beaches, renowned for their clear water and white sand, have earned the distinction of America's Top Beach, including Fort De Soto's North Beach (2005) and Caladesi Island (2008). West Central Florida also hosts three professional sports teams and is the Spring Training home to three Major League Baseball teams as part of the Grapefruit League.

Education is another regional asset for economic development. The University of South Florida (USF) is a top-tier research institution and the fourth-largest public university in the state. In addition to its main Tampa campus, USF operates two satellite campuses in St. Petersburg and Sarasota (known as USF Sarasota-Manatee located in the Southwest CFASPP Region to the south). The region also has numerous community colleges and private institutions.

Military operations in the West Central MA generate approximately 155,000 jobs and provide an estimated $16 billion regional economic impact annually, accounting for 9.1 percent of the total gross regional product.[1] MacDill Air Force Base in Hillsborough County is home to U.S. Special Operations Command and U.S. Central Command, one of six unified command centers of the U.S. Department of Defense. U.S. Coast Guard (USCG) Clearwater is the largest and busiest air station of the USCG. Located at St. Petersburg-Clearwater Airport, this station is responsible for operations in the Gulf of Mexico, the Caribbean basin, and the Bahamas with a fleet of H-60s and C-130s. Avon Park Air Force Range in Polk County and the adjacent Highlands County (Central CFASPP Region) is the largest live ordnance bombing and gunnery range east of the Mississippi River.



[1] *Enterprise Florida and Career Source Florida (2015). Florida Defense Factbook. Available at www.enterpriseflorida.com/wp-content/uploads/Florida-Defense-Factbook.pdf.*

Intermodal Connectivity

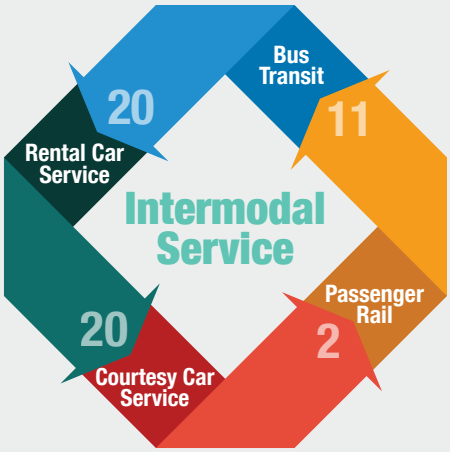
An integrated multimodal transportation system:

- 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



Total Airports Where Service is Provided

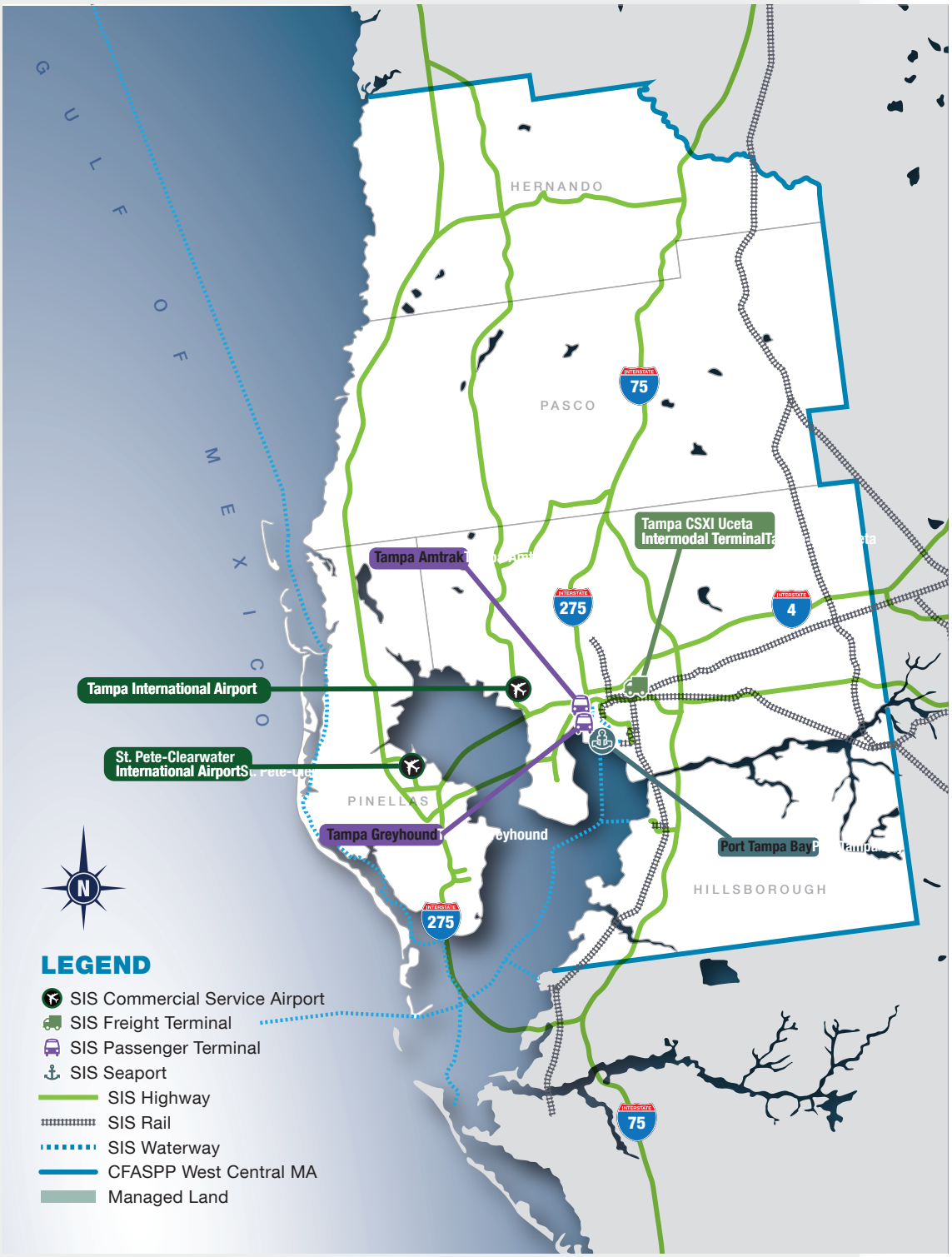
Twenty of Florida's 128 airports are SIS or Emerging SIS facilities, including 18 commercial service and two general aviation reliever airports. Commercial service airports require more connections to facilitate access to airline service, while the general aviation reliever airports typically serve a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

The SIS airports in the West Central MA include St. Pete-Clearwater International and Tampa International airports.

St. Pete-Clearwater International Airport

Cruise terminal at Port Tampa Bay. Photo by Paul Huber via Flickr.

Regional SIS Facilities



The development of the two SIS airports in the West Central MA has been driven, in part, by the high level of intermodal connectivity centered in the Tampa-St. Petersburg area. Most notably, Port Tampa Bay is Florida's largest port in terms of cargo handled and physical size, encompassing over 5,000 acres—also making it one of the largest in the U.S. In addition to cargo, Port Tampa Bay offers shipbuilding and repair services and operates as a major cruise port serving nearly a million passengers each year.

The West Central MA also sits at the nexus of some of Florida's largest highways, including I-75 oriented north-south and I-4 oriented northeast-southwest. Roadway users also have access to the Veterans Expressway/ Suncoast Parkway (SR 598) corridor of the Florida Turnpike System.

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.

None of the airports in the West Central MA contain safety-related areas of concern known as runway hot spots.

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.

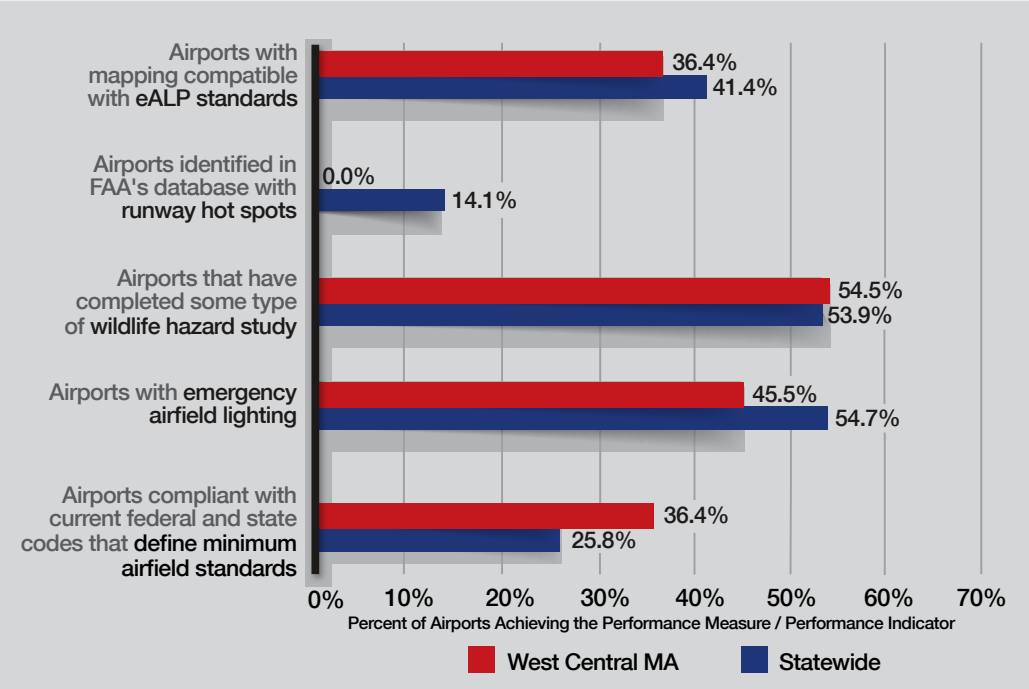
Emergency Airfield Lighting

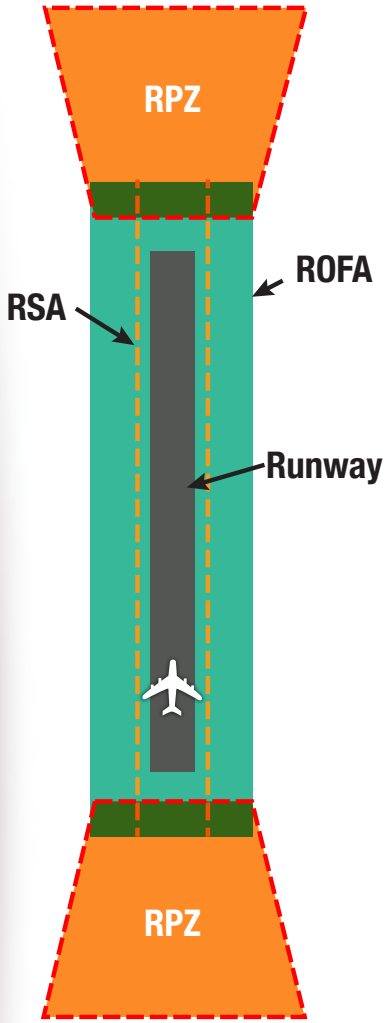
The ability for an airport to remain operational through natural and man-made disasters is critical for the movement of people, goods, and equipment to ensure that the needs of the affected communities are met. Emergency airfield lighting provides for continued operations during nighttime hours or low-visibility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

Measures / Indicators





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.*

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 West Central MA offers two highly active commercial service airports and several general aviation airports near the regional commercial center of Tampa-St. Petersburg/Clearwater. This air network has evolved due to the area's strong intermodal connectivity, active tourism industry, diverse economic base, and skilled workforce resulting from a military presence and numerous 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.

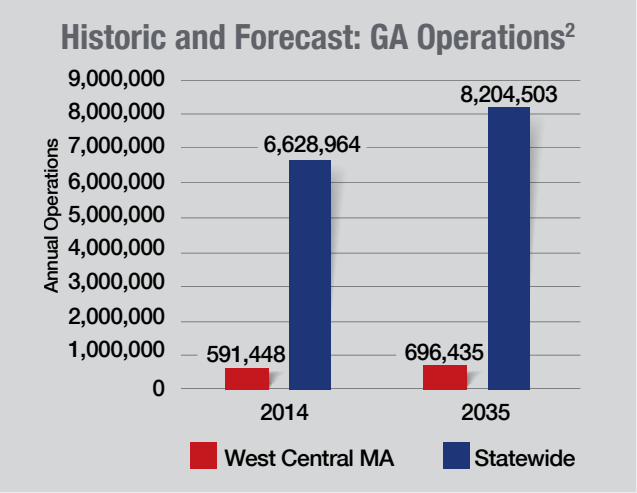
- **Flight Training:** Florida is the leading provider of flight instruction in the U.S., with training offered at over 80 airports. In 2014, aviation education was estimated to contribute $980 million to Florida's annual economic output. Florida ranks first nationally in the following pilot certificates: 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.

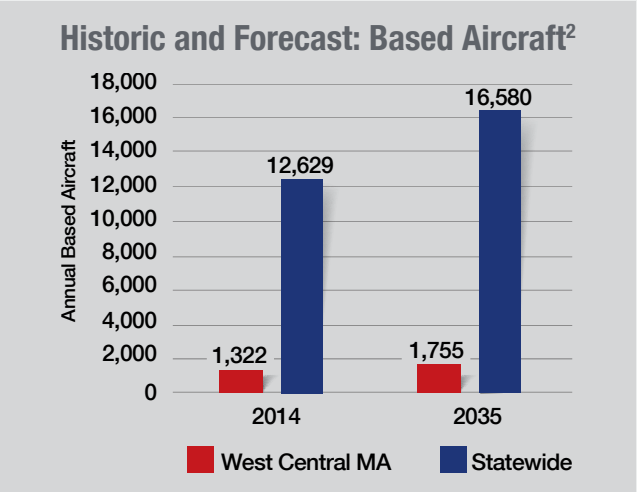
- **Sport Activity:** Gliders, powered parachutes, skydiving, certain light fixed-wing aircraft, and other types of sport aircraft offer pilots some of the easiest, most cost-effective, and accessible ways to fly.

Regional Forecasts

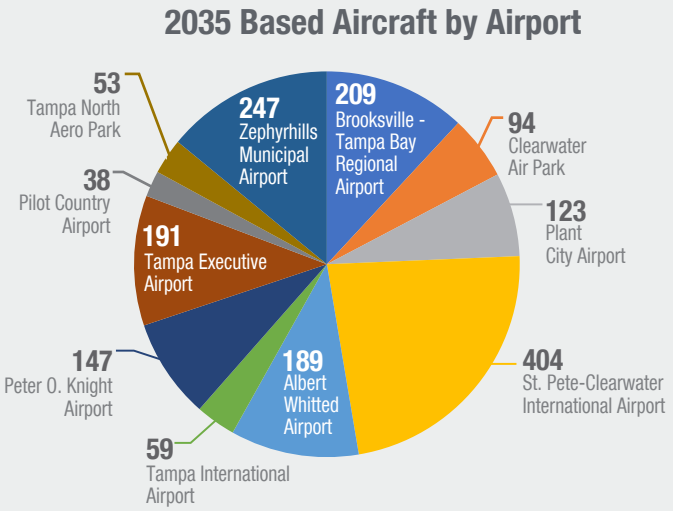
Aviation forecasts describe the anticipated levels of aviation demand over the planning horizon based on numerous factors, including historical activity, population trends, state and FAA activity forecasts, and regional aviation drivers.[1] This forecasting process provides a meaningful framework to 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.



General aviation (GA) operations in the West Central MA are projected to increase at an annual growth rate of 0.85 percent over the forecast horizon, falling below the statewide annual growth rate of 1.13 percent over this same time period.



Based aircraft in the West Central MA are projected to increase at an annual growth rate of 1.56 percent over the forecast horizon to exceed the statewide annual growth rate of 1.49 percent over this same time period.



[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.

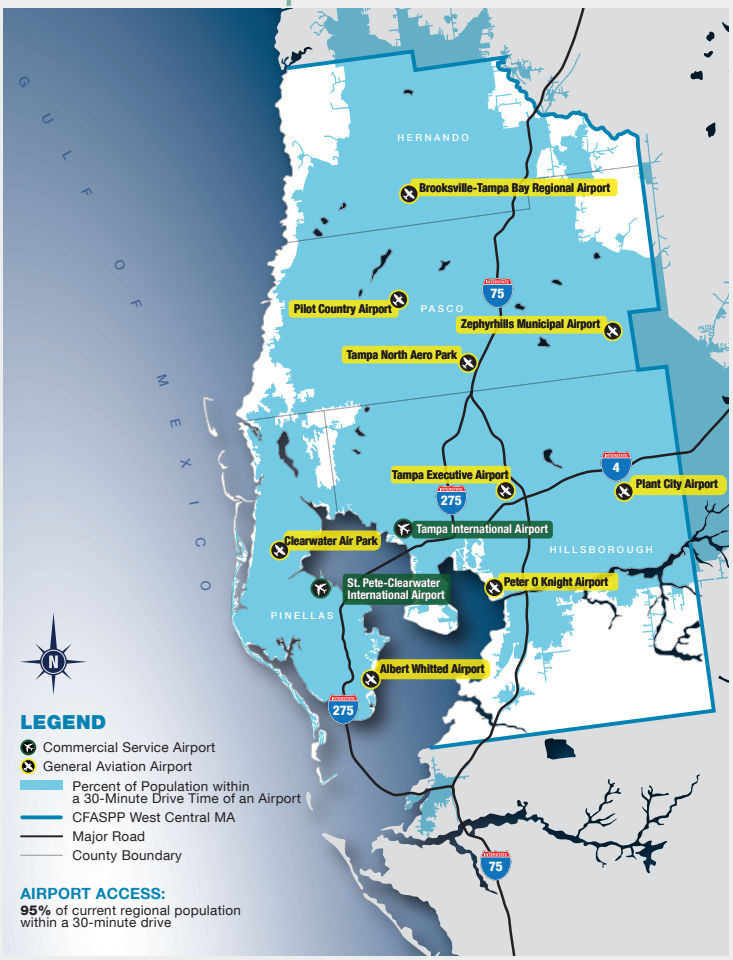
The FAA uses a 30-minute criterion to determine the airports that are eligible for inclusion in the National Plan of Integrated Airport Systems. More information is available at www.faa.gov/airports/planning_capacity/npias.

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.

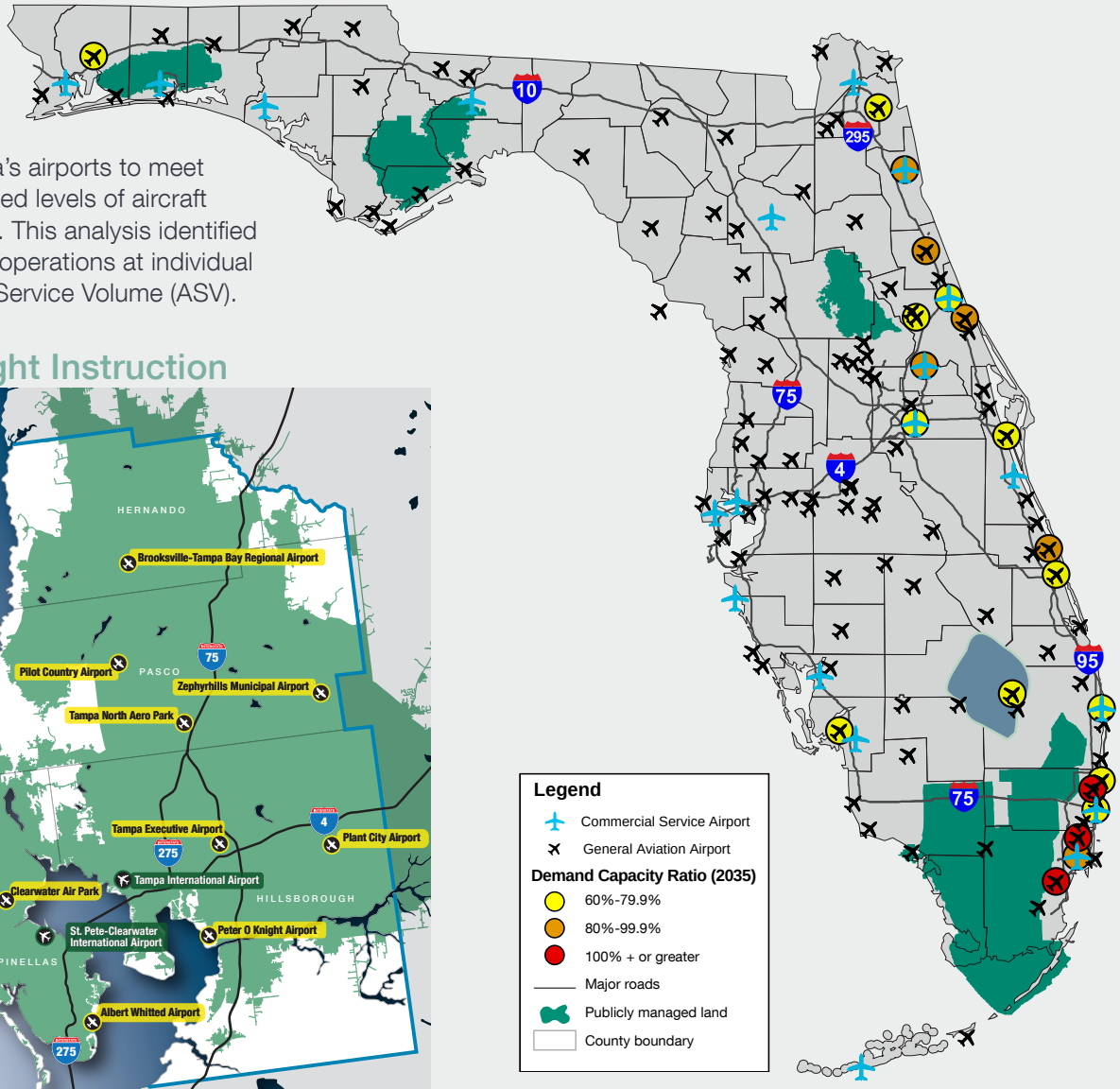
Airport Access



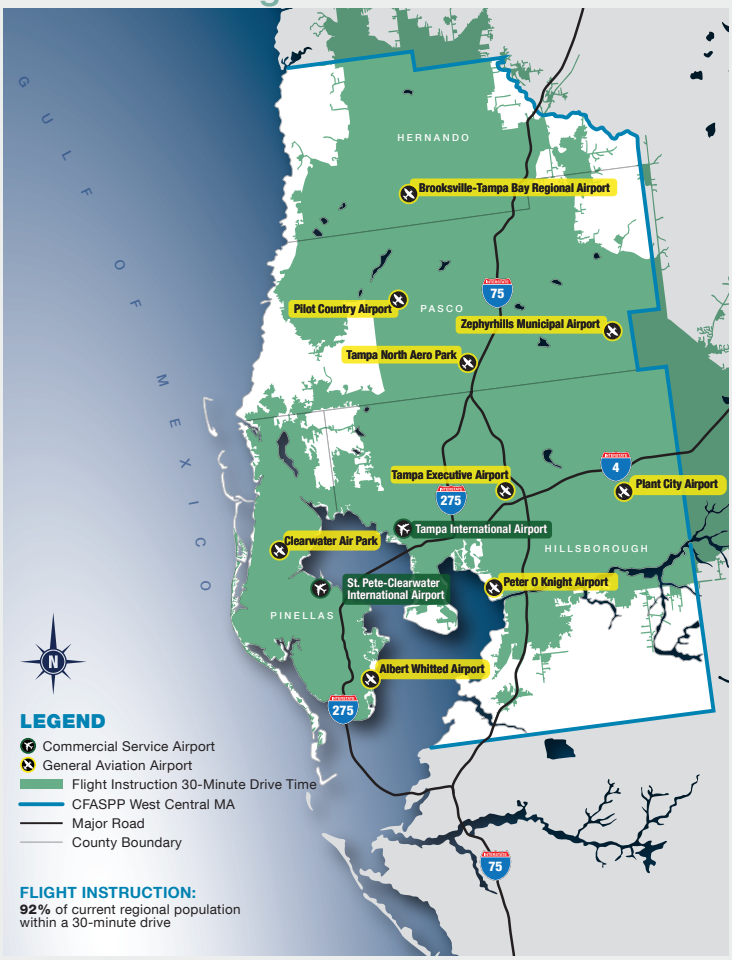
In addition to providing air transportation for people and goods, airports provide quality-of-life benefits such as access to specialized or emergency medical care, law enforcement, and aerial firefighting services. Airport access is particularly important for rural areas without the ability to obtain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

Photo courtesy of Michel Curi

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation

F.4 Executive Summary Primers

Four Executive Summary Primers present the findings of the FASP 2035 Update most relevant to the following audiences:

- Airport Managers and Consultants
- Policymakers
- FDOT
- General Public

The primers consider the needs, interests, and technical familiarity of the target audiences and highlight how the FASP 2035 Update can be leveraged in their own unique planning efforts.

FASP
Florida Aviation System Plan 2035

Introduction for Consultants and Airport Managers

Florida's 128 public-use commercial service and general aviation airports are a cornerstone of the state's economy and essential to the safety, resiliency, mobility, and security of residents, visitors, businesses, and the products that fly through our state. To ensure Florida's airports continue to provide a high level of service to all users, 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). The development of the FASP is grounded on the framework of the Florida Transportation Plan (FTP), Florida's statewide plan guiding Florida's transportation future.

The FASP 2035 Update is a long-term strategic vision plan to comprehensively assess all public-use airports in Florida and evaluate the existing system's ability to achieve current and anticipated future demands. The FASP 2035 Update is a tool to help FDOT maintain a safe, efficient, secure, and reliable system; evaluate future funding decisions; and effectively expand capacity in those areas where it is most needed and beneficial for the continuing improvement of the state aviation system.

FDOT
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

November 2017

Florida Aviation System Plan 2035 Update

Aviation Funding

Maintaining a safe, financially sustainable, and efficient statewide system is the responsibility of the FDOT ASO, the Federal Aviation Administration (FAA), airport sponsors, and local communities. Accordingly, funding for Florida's aviation system is available from a variety of federal, state, and local programs. FDOT allocates funds at the state level through the Florida Aviation Grant Program, Strategic Intermodal System (SIS), and several other mechanisms. These programs allocate state and federal funds to airport projects through specific eligibility criteria and decision-making processes.

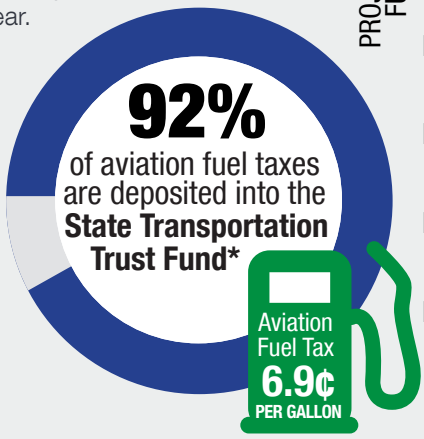
Florida Aviation Grant Program Allocations

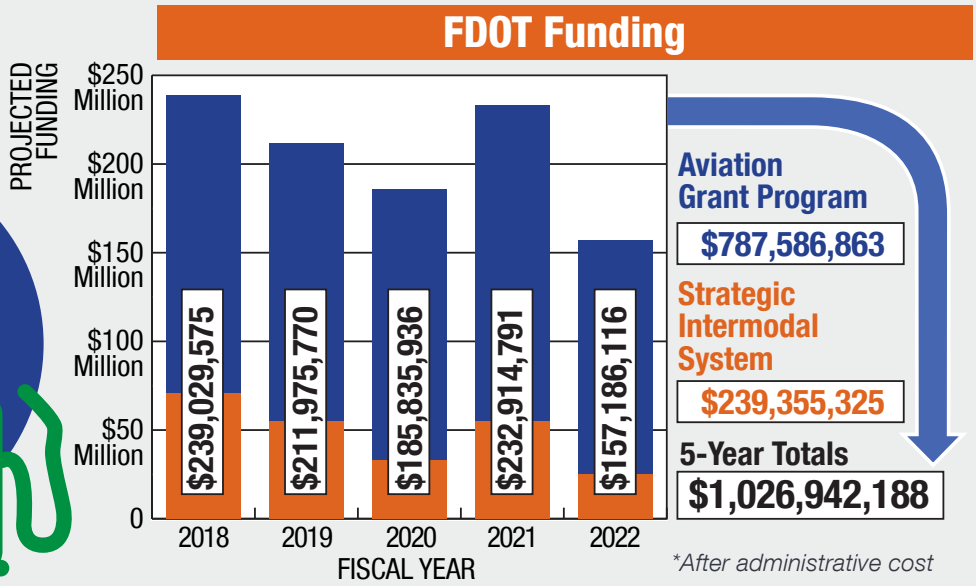
The Florida Aviation Grant Program is designed to help provide a safe, cost-effective, and efficient statewide aviation system. FDOT grant funds help airports build and maintain runways and taxiways, eliminate airport hazards, protect airspace, develop plans, acquire land, build terminals and other facilities, and complete other types of airport improvement projects.

The Florida Aviation Grant Program is funded from the State Transportation Trust Fund (STTF). By statute, at least 15 percent of STTF revenues must be earmarked for the Office of Freight, Logistics, and Passenger Operations (FLP). The FLP Office then allocates funding to the four FDOT modal offices, including the ASO. Aviation program allocations vary each year.

State Program		Eligibility Criteria
Florida Aviation Grant Program		Airport planning, capital improvement, land acquisition, and economic development at Florida's publicly owned public-use airports
Strategic Intermodal System		Capacity improvements at SIS-designated facilities in the following categories: ground transportation and airside, terminal, and landside connections[1]
Other	State Infrastructure Bank	Various types in need of funds to improve project feasibility
Other	Transportation Regional Incentive Program	Improvements to regionally significant transportation facilities
Other	Economic Development Transportation Fund	Improvements to alleviate transportation problems affecting businesses and impacting businesses' decisions to relocate to the state
Other	Rural Economic Development Initiative	Improvements located in certain rural counties and communities

[1] SIS or Emerging SIS Airports comprise 18 commercial service and two general aviation reliever airports deemed critical to the state's economic competitiveness or transportation mobility.



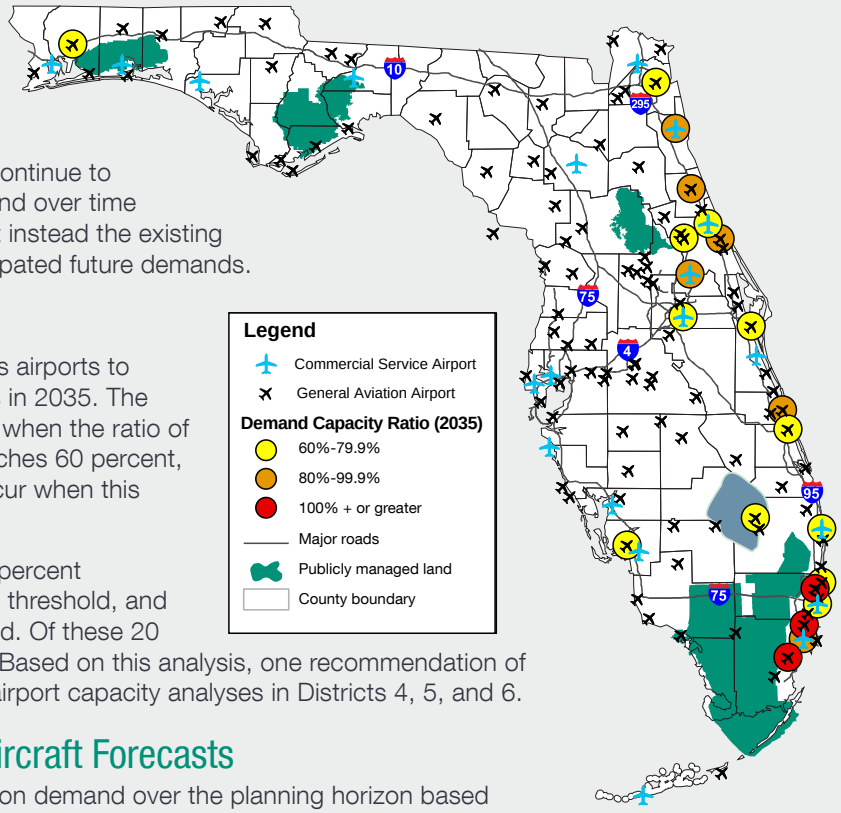


**After administrative cost and commercial carrier refunds are taken out.*

Additional information about aviation funding is available in the Florida Aviation Project Handbook at *fdot.gov/aviation/flpub.shtm*.

Aviation's Future

FDOT, the FAA, airport sponsors, and the many communities our airports serve are jointly tasked with ensuring Florida's aviation infrastructure and services continue to meet the needs of all users. Analyses of aviation demand over time reveal that Florida does not need any new airports, but instead the existing system should be leveraged to meet current and anticipated future demands.



Demand Capacity Analysis

The FASP 2035 Update assessed the ability of Florida's airports to meet current and projected levels of aircraft operations in 2035. The FAA recommends planning for capacity improvements when the ratio of aircraft operations to Annual Service Volume (ASV) reaches 60 percent, and implementation of these improvements should occur when this ratio reaches 80 percent.

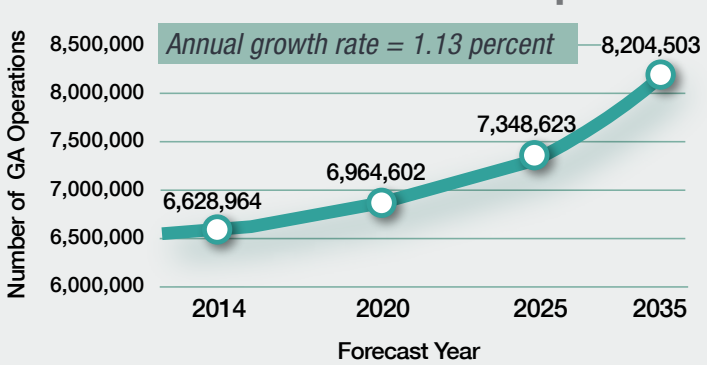
By 2035, 11 airports are anticipated to exceed the 60 percent threshold, six are anticipated to exceed the 80 percent threshold, and three are anticipated to reach the 100 percent threshold. Of these 20 airports, seven are designated as commercial service. Based on this analysis, one recommendation of the FASP 2035 Update is to conduct District-specific airport capacity analyses in Districts 4, 5, and 6.

General Aviation Operations and Based Aircraft Forecasts

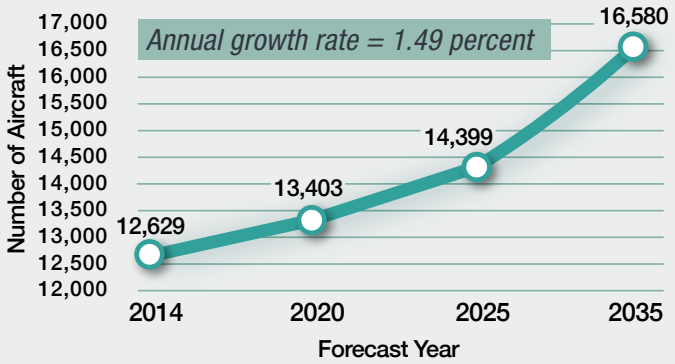
Aviation forecasts determine anticipated levels of aviation demand over the planning horizon based on historical activity, population trends, FAA and state activity forecasts, and regional and statewide aviation drivers. The FASP 2035 Update updated projections of general aviation operations and based aircraft; commercial operations were excluded from this evaluation because drivers of commercial activity at airports can significantly vary, often based on factors outside of an airport's control.

From 2014 to 2035, over 3,950 new based aircraft are anticipated to be located at Florida's airports, and an additional 1.6 million annual general aviation operations are forecast statewide.[2] Much of this growth is anticipated to occur within Florida's southern and central Atlantic coastal areas as new residents and businesses move to historically less-populated areas.

2014 – 2035 Annual General Aviation Operations



2014 – 2035 Based Aircraft



Sources: FAA Terminal Area Forecast and 5010 Airport Master Records.

[2] 2014 is the base year because it was the last full year of data available from the FAA when the study was initiated in 2015.

What Does the FASP Mean to You?

The FASP provides a link between federal planning efforts and airport-specific master plans. FDOT and the FAA use the results of the FASP to identify future system demand, guide decision-making processes, and responsibly apply resources to the development of Florida's airport system to meet existing and future needs. Airports can use FASP goals in evaluating master planning analyses and proactively contribute to the performance of the state aviation system.[3] At the local level, airport master plans and projects funded through FDOT's Aviation Grant Program must be consistent with the FASP, both the statewide and regional goals and objectives as well as the individual airport's role as identified in the FASP. More details on the FASP's relationship to local airport planning and development can be found in FDOT's *Guidebook for Airport Master Planning*.[4]

The FASP 2035 resulted in several key take-aways directly applicable to airports for future planning and design efforts, consistent with current FAA guidance.

FASP Goals and Performance Measures

A total of 13 performance measures were validated to assess progress on system-wide objectives developed in association with the goals of the FASP. FDOT uses these performance measures as a tool to better understand the ability of the system to meet existing and future needs, develop system recommendations, and guide funding and planning decisions. Goals and performance measures provide important insight into FDOT's funding priorities. Because performance measures can be influenced through funding, planning efforts, or policies or procedures, they should be taken into consideration during the development of capital improvement plans and master planning processes.

Design and Capacity Constraints

The FASP 2035 Update examined operational activity at Florida's airports relative to the need to increase capabilities and serve current and future demand with appropriate capacity in the right areas of the state.

- The analysis identified 14 airports that experience substantial operational activity beyond what the airports are designed to accommodate. These airports may need to closely examine their activity and ability to meet greater design standards.
- Airports along Florida's Atlantic Coast are at greatest risk for exceeding the FAA's recommended annual capacity thresholds in the future. The airports along the southeast coast will experience the most severe capacity constraints, although airports along the entire eastern coastline are trending towards reaching capacity constraints.
- The FASP 2035 Update determined that Florida does not require any new airports; instead, the existing airport system can be leveraged to meet current and future demand by balancing capacity with demand so the needs of aviation activities are met when and where required.

More information and additional resources about the FASP 2035 Update are available at fdot.gov/aviation/FASP_details.shtm.

[3] *AC 150/5070-7, change 1,* The Airport System Planning Process*, provides further details about the relationship between federal planning efforts, including the NPIAS, state system planning, and airport master plans.*

[4] *The* Airport Master Planning Guidebook *is available for download at fdot.gov/aviation/flpub.shtm.*

Economic Self-Sufficiency

FDOT developed the *General Aviation Airport Business Plan Guidebook* to help airports develop implementable business plans to improve the financial health of their operations. Economic self-sufficiency and diversification helps airports:

- Reduce/eliminate dependency on state and federal subsidies
- Improve budget flexibility
- Create jobs
- Increase economic impact
- Serve as public enterprises and stewards of tax dollars

Sustainability

FDOT developed the *Airport Sustainability Guidebook* to lead airports into a successful and sustainable future. Airports have the opportunity to incorporate sustainability through targeted strategies and policies, enhancements to capital improvements, and stand-alone sustainability projects. The *Guidebook* helps airports to increase economic viability, operational efficiency, natural resource conservation, and social responsibility.

Both guidebooks are available at *fdot.gov/aviation/flpub.shtm.*

FASP
Florida Aviation System Plan 2035

Introduction for Policymakers

Florida's 128 public-use commercial service and general aviation airports are a cornerstone of the state's economy and essential to the safety, resiliency, mobility, and security of residents, visitors, businesses, and the products that fly through our state. To ensure Florida's airports continue to provide a high level of service to all users, 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). The FASP is grounded on the framework of the Florida Transportation Plan (FTP), Florida's statewide plan guiding Florida's transportation future.

The FASP 2035 Update is a long-term strategic vision plan to comprehensively assess all public-use airports in Florida and evaluate the existing system's ability to achieve current and anticipated future demands. The FASP 2035 Update is used by FDOT as a tool to maintain a safe, efficient, secure, and reliable system; evaluate future funding decisions; and effectively expand capacity in those areas where it is most needed and beneficial for the continuing improvement of the state aviation system.

FDOT
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

November 2017

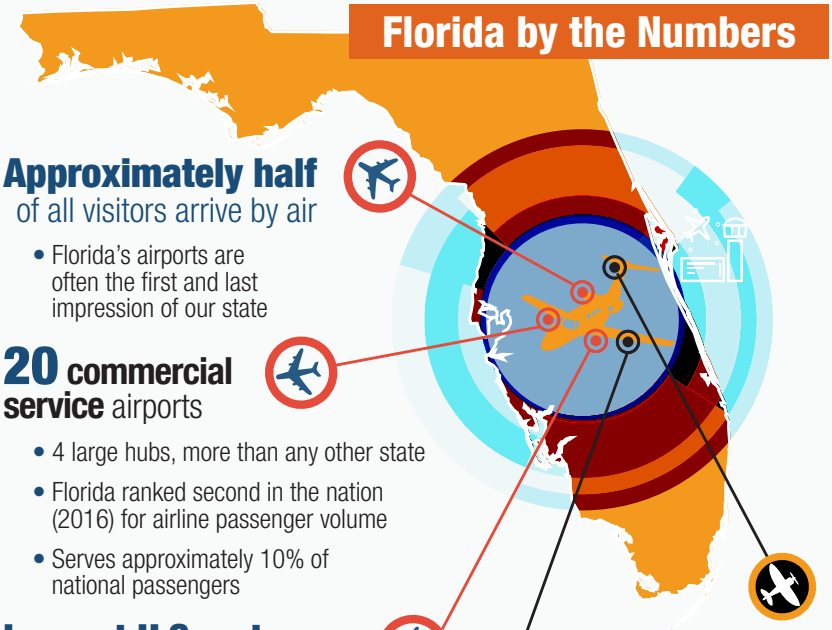
Consultants and Airport Managers
FDOT
General Public
Policymakers

Florida Aviation System Plan 2035 Update

Florida's Airports: A Global Asset

Florida offers the world's most dynamic and progressive aviation system. Florida's airports serve as a backbone of our tourism economy and provide critical community services during emergencies. In 2015, aircraft conducted nearly nine million operations in Florida and that number will significantly rise over the next 20 years. Over $64 billion in international air cargo, and 2.7 million tons of domestic and international cargo passed through Florida's airports in 2014. Florida is also the leading provider of flight instruction in the U.S., with training offered at over 80 airports.

Florida by the Numbers



Approximately half of all visitors arrive by air

- Florida's airports are often the first and last impression of our state

20 commercial service airports

- 4 large hubs, more than any other state
- Florida ranked second in the nation (2016) for airline passenger volume
- Serves approximately 10% of national passengers

Largest U.S. gateway for Latin American air cargo

108 general aviation airports

- 10 national assets, no state has more
- 6% of general aviation aircraft fleet
- Leading number of pilot certificates in 4 categories

Home to the **SUN 'n FUN International Fly-in Expo**, one of the **largest general aviation expos in the world**

The strength of aviation in Florida is rooted in numerous structural conditions and market opportunities designed to support the continuous evolution and expansion of the system, including:

- Direct access to major international markets
- Skilled labor pool Tax incentives and regulations designed to attract high-value jobs and industries
- Robust intermodal network encompassing all modes of transportation
- Proactive funding structure and progressive regulations to support aviation
- Forward-thinking leadership at all levels of government that understand and support aviation's importance to Florida

Aviation Makes the State Money!

For every dollar spent on the Florida Aviation Program, the state receives **$1.37 in tax revenue in return.**[1] In total, aviation contributes $144.0 billion to the state.

Return on Investment

The 2014 Statewide Aviation Economic Impact Study determined that the total annual economic impact of aviation-related activities in Florida is an estimated $144.0 billion. Yet these numbers are only part of the story.

In addition to providing a 1.37 return on investment to the state, annual spending on the Aviation Program:[1]

- Increases real disposable personal income by $9.9 billion
- Increases the gross domestic product by $9.1 billion

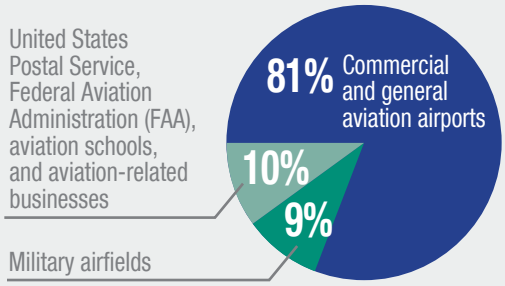
Total Economic Impact

1.3 million Jobs Supported

$44.5 billion Payroll Supported

$144.0 billion Total Output

Economic Impact by Activity



1. Florida Office of Economic & Demographic Research (December 2016). Return on Investment for the Department of Transportation's Work Program.

Aviation's Future

FDOT, the Federal Aviation Administration (FAA), airport sponsors, and the many communities our airports serve ensure Florida's aviation infrastructure and services continue to meet the needs of all users. Over the past several years, a number of major shifts have affected the aviation industry. Considering the potential implications of these trends helps FDOT and airports understand and plan for future aviation facility and service needs, as well as prioritize projects so funds can be allocated most efficiently.

General Aviation Operations and Based Aircraft Forecasts

Based on industry trends, historical activity, FAA and state activity forecasts, and other factors, the FASP 2035 Update developed aviation forecasts to determine anticipated levels of aviation demand over the planning horizon. Commercial operations were excluded from this evaluation because drivers of commercial activity at airports can significantly vary, often based on factors outside of an airport's control. Based on this analysis:

- Annual general aviation operations are anticipated to increase 23.8 percent between 2014 and 2035. By 2035, an additional 1.6 million general aviation operations are anticipated to annually occur in Florida to reach 8,204,503 per year.
- The number of based aircraft in Florida is projected to increase by 31.1 percent between 2014 and 2035, adding over 3,950 based aircraft to the state for a total of 16,580 in 2035.
- Much of the growth in general aviation operations and based aircraft is anticipated to occur along Florida's southern and central Atlantic coastal areas.

Demand Capacity Analysis

The FASP 2035 Update assessed the ability of Florida's airports to meet current and projected levels of aircraft operations in 2035. The FAA recommends planning for capacity improvements when the ratio of aircraft operations to Annual Service Volume (ASV) reaches 60 percent, and implementation of these improvements should occur when ratio reaches 80 percent. By 2035, 20 of Florida's airports, including seven commercial service facilities, are anticipated to exceed the FAA's recommended improvement thresholds.

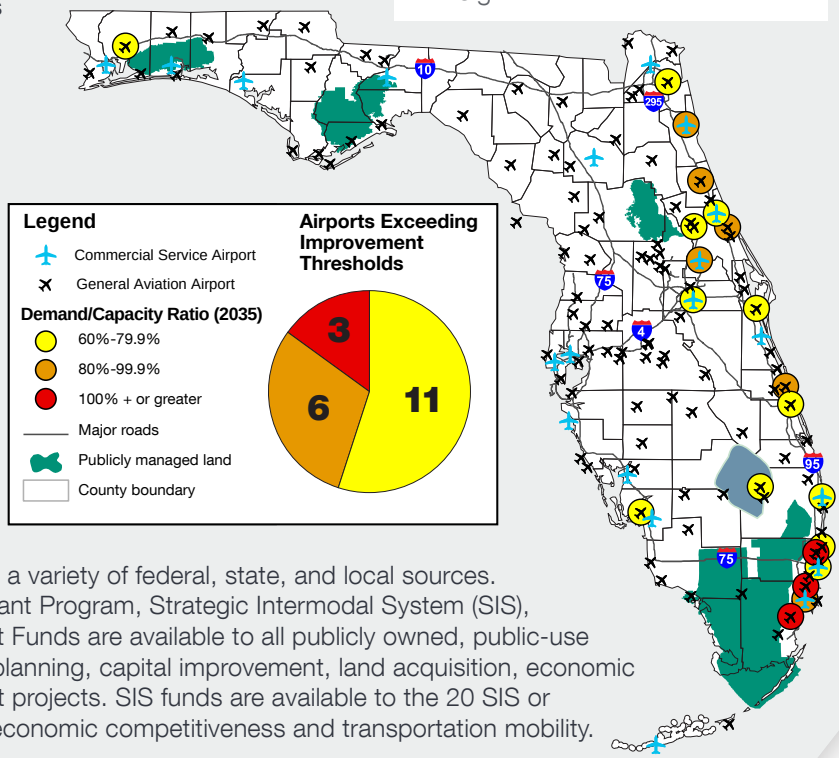
Based on this statewide demand capacity analysis, one recommendation out of the FASP 2035 Update to conduct District-specific airport capacity analyses for Districts 4, 5, and 6.

Example National/Global Trends

- Airline consolidations and the emergence of ultra-low-cost carriers (ULCCs)
- Larger, lighter aircraft capable of longer flights
- Unmanned vehicles, including unmanned aerial systems (UAS) and automated/autonomous/connected vehicles
- Air traffic control system changes including enhancements from NextGen and potential privatization
- Oil prices
- Regulatory changes and volatility impacting immigration, customs, border protection, and air safety

Example Florida-specific Trends

- Aging population
- International pilot shortage
- Intermodal connectivity
- Population and tourism growth
- Intercontinental visitors and freight



Aviation Funding

Funding for Florida's aviation system is available from a variety of federal, state, and local sources. FDOT allocates funds through the Florida Aviation Grant Program, Strategic Intermodal System (SIS), and several other mechanisms. Florida Aviation Grant Funds are available to all publicly owned, public-use commercial service and general aviation airports for planning, capital improvement, land acquisition, economic development, and other types of airport improvement projects. SIS funds are available to the 20 SIS or Emerging SIS airports deemed critical to the state's economic competitiveness and transportation mobility.

Community Benefits and Takeaways

General Aviation

Florida's dynamic network of 108 general aviation airports provides our communities with some of the most important benefits associated with air service. General aviation airports in Florida generate $7.7 billion in annual economic activity, as well as support 64,000 jobs with $2.5 billion in annual payroll. The state is ranked third in the U.S. for total gross domestic product and jobs attributable to general aviation. Yet the benefits of general aviation extend farther than economics. These facilities improve the quality of life for millions of Floridians by making our communities safer, more secure, and more resilient when the unexpected occurs.

Commercial, Industrial, and Economic Activities

General aviation airports provide the facilities and services to support a range of business endeavours such as aviation and aerospace research, development, and manufacturing; agricultural support; aerial surveying and observation; air cargo; and flight instruction. Many of these types of activities support high-skill, high-wage jobs critical for Florida's continued economic growth. In just one example, Lake City Gateway Airport (LCQ) supports a 12-acre industrial park anchored by a large maintenance, repair, and overhaul operation with over 1,900 skilled employees.

Emergency Preparedness and Response

When disaster strikes, general aviation airports often offer the quickest access to aid as first responders arrive on the scene or residents are transported to medical care. General aviation airports support aeromedical flights; serve as a base to enforce local, state, and federal laws; and provide staging areas for disaster-recovery efforts. Additionally, over 390 aviation facilities (including six in Florida) are designated by the federal government to support the critical services of U.S. Customs and Border Protection, U.S. Forest Service, U.S. Marshals Service, and other agencies.

Fort Lauderdale Executive Airport (FXE) served as a critical base to transport supplies and personnel between the U.S. and Haiti following the devastating earthquakes in late 2009. General aviation aircraft were able to land at small airports and in very rural areas inaccessible to many large aircraft with the flexibility to provide immediate aid to the areas where it was most needed.

What FASP 2035 Means to You

The FASP 2035 resulted in several key takeaways directly applicable to policymakers for future planning and design efforts, consistent with current FAA guidance.

Design and Capacity Constraints

The FASP 2035 Update examined operational activity at Florida's airports relative to the need to increase capabilities and serve the demand with appropriate capacity.

- The analysis identified 14 airports, including seven commercial service facilities, that experience substantial operational activity beyond what the airports are designed to accommodate. These airports may need to closely examine their activity and ability to meet greater design standards.
- Airports along the state's southeast coast are expected to experience the most severe capacity constraints through 2035, although all airports along the Atlantic Coast are at risk.
- Florida does not require any new airports; instead, the existing airport system can be leveraged to meet current and future demand.

How to Get Involved

Airport planning occurs at federal, state, and local levels, providing policymakers with many opportunities to actively support aviation in Florida:

- Promote the economic and qualitative benefits of commercial service and general aviation to the community and others in leadership positions
- Support airport compatible land use planning, zoning ordinances, and community planning efforts that promote safety and positive community relationships with airports
- Participate in state and local airport planning efforts, including the development of airport master plans, which guide future airport development activities and serve as a resource for other community plans
- Participate in the CFASPP (visit cfaspp.com for more details)

More information about the FASP 2035 Update, including a list of policy and development recommendations, and additional FASP resources are available at *fdot.gov/aviation/FASP_details.shtm*.

FASP
Florida Aviation System Plan 2035

Introduction for FDOT

Florida's 128 public-use commercial service and general aviation airports are a cornerstone of the state's global economy and essential to the safety, resiliency, mobility, and security of residents, visitors, businesses, and the products that fly through our state. To ensure Florida's airports continue to provide a high level of service to all users, 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). The development of the FASP is grounded on the framework of the Florida Transportation Plan (FTP), the statewide plan guiding Florida's transportation future.

The FASP 2035 Update is used by FDOT as a tool to maintain a safe, efficient, secure, and reliable system; evaluate future funding decisions; and effectively expand capacity in those areas where it is most needed and beneficial for the continuing improvement of the state aviation system.

FDOT
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

November 2017

Consultants and Airport Managers
FDOT
General Public
Policymakers

Florida Aviation System Plan 2035 Update

The FASP 2035 Update is a long-term strategic vision plan to comprehensively assess all public-use airports in Florida and evaluate the existing system's ability to achieve current and anticipated future demands. The process included analyses of the facilities, aviation activities, and future demands statewide and within each CFASPP region or metropolitan area. The process encompassed a variety of interrelated technical tasks to ensure the aviation system continues to effectively serve the evolving needs of businesses, citizens, and visitors through the 20-year planning horizon.

The seven goals established during previous FASP efforts and validated by the FASP 2035 Update were designed to complement the FTP while addressing the needs specific to aviation. Ensuring a link between the FTP and FASP helps implement FDOT's funding priorities, identify those projects that advance the state's vision for its transportation future, and create an interconnected intermodal system. The FDOT ASO also developed system objectives associated with each of these goals.

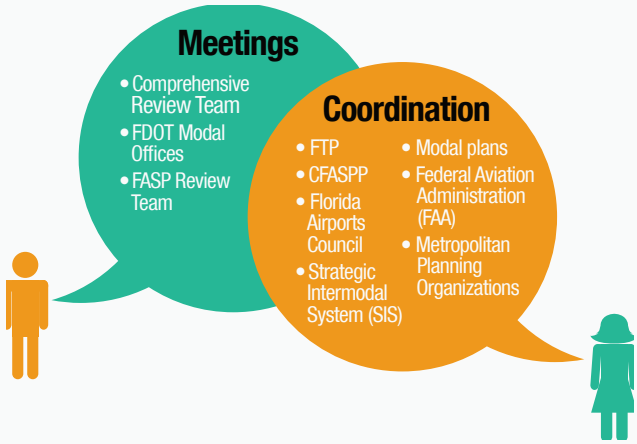
STUDY PROCESS

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 (SIS) Options
- Potential Follow-on Studies
- CFASPP Enhancements

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



FASP 2035 Update Goals

Based on these goals, the FASP 2035 Update offers policy and development recommendations for the continuing improvement of the state aviation system. The recommendations associated with each of the following goals are available at www.fdot.gov/FASP.

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.

FASP Performance Measures and Indicators

The FASP 2035 Update identified 13 performance measures and 31 performance indicators to assess the system's performance in each of the FASP goal categories. Performance measures can be quantitatively evaluated and influenced through funding, planning efforts, or policies and procedures. Performance indicators serve as reporting mechanisms to gather data on those aspects of system performance that cannot be directly impacted by FDOT action. A representative sample of performance measures and indicators with statewide results are provided below.

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.

Multimodal Performance

In addition to conducting mode-specific assessments like the FASP 2035 Update, FDOT annually assesses the ability of Florida's transportation system to effectively move people and freight in the *Florida Multimodal Mobility Performance Measures Source Book* (Source Book). Intended to be the primary source of mobility performance measures for the state, the Source Book looks at four dimensions of travel in three categories for all major modes of transportation. Seven of the FASP performance measures and indicators are documented in the Source Book.[1]

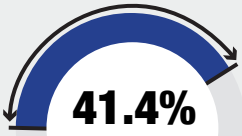
Category	Performance Criteria	Results (Data Year)	Dimension
People	**Passengers:** Total number of revenue passengers boarding aircraft (enplanements)	74.0 million (2015)	Quantity
	Departure reliability: Percent of flights departing less than 15 minutes after the scheduled time	82.6% (2015)	Quality
	Demand capacity (D/C) ratios: Ratio of the annual operational demand to service operations[1]	29.0% (2014)	Utilization
People and Freight	**Highway adequacy (level of service [LOS]):** LOS on SIS Highway Airport Connectors	5% at LOS A (2013)	Accessibility
Freight	**Tonnage:** Weight of all air cargo landed at public airports	2.7 million tons (2015)	Quantity
	Value: Value of air cargo as extracted from the Freight Analysis Framework	$246.3 billion (2015)	Quantity

Source: FDOT Multimodal Performance Measures Source Book (2016), FASP 2035 Update (2017)

[1] The Source Book documents the D/C ratio of the FDOT airport system. The FASP 2035 evaluated the number of FASP airports with annual D/C ratios of 60 percent or more and 80 percent or more.

**Note: Further guidance on eALPs is available at faa.gov/airports/planning_capacity/airports_gis_electronic_alp.*

Sample Performance Measures

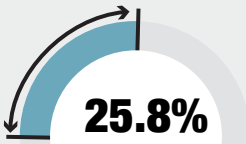


41.4%
Airports with mapping compatible with electronic Airport Layout Plans (eALPs)*

14.1%
Airports identified in FAA's database with runway hot spots

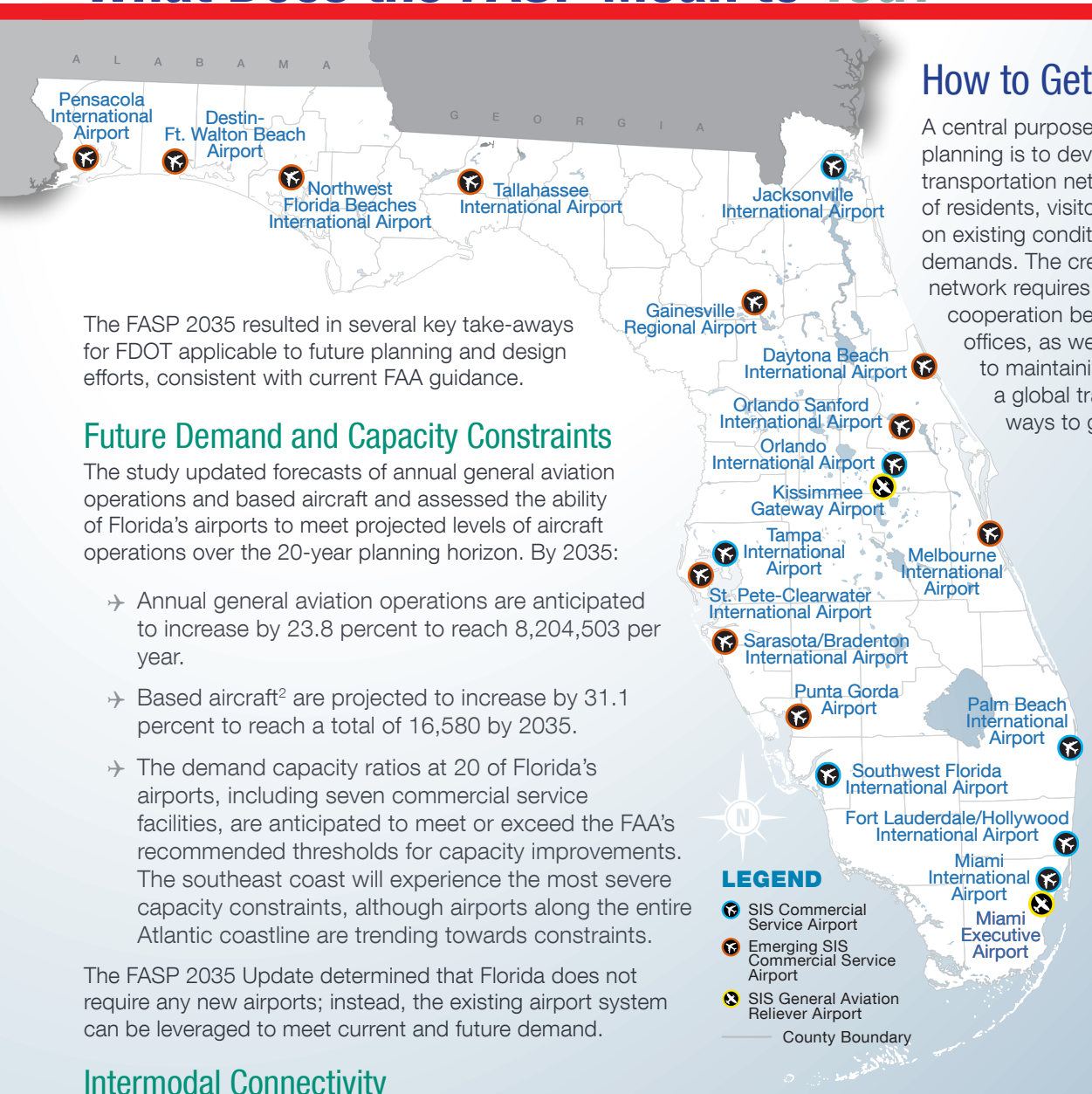
53.9%
Airports that have completed some type of wildlife hazard study

54.7%
Airports with emergency airfield lighting



25.8%
Airports compliant with current federal and state codes that define minimum airfield standards

What Does the FASP Mean to You?



The FASP 2035 resulted in several key take-aways for FDOT applicable to future planning and design efforts, consistent with current FAA guidance.

Future Demand and Capacity Constraints

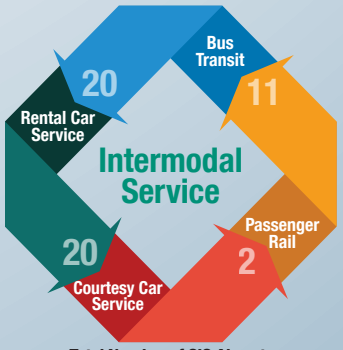
The study updated forecasts of annual general aviation operations and based aircraft and assessed the ability of Florida's airports to meet projected levels of aircraft operations over the 20-year planning horizon. By 2035:

- Annual general aviation operations are anticipated to increase by 23.8 percent to reach 8,204,503 per year.
- Based aircraft[2] are projected to increase by 31.1 percent to reach a total of 16,580 by 2035.
- The demand capacity ratios at 20 of Florida's airports, including seven commercial service facilities, are anticipated to meet or exceed the FAA's recommended thresholds for capacity improvements. The southeast coast will experience the most severe capacity constraints, although airports along the entire Atlantic coastline are trending towards constraints.

The FASP 2035 Update determined that Florida does not require any new airports; instead, the existing airport system can be leveraged to meet current and future demand.

Intermodal Connectivity

The SIS comprises those facilities deemed critical to the state's economic competitiveness and mobility and serves as one of the primary tools for implementing the FTP. 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 passenger access to scheduled airline service, while general aviation reliever airports typically serve a high level of general aviation demand in metropolitan areas, relieving the pressures of the demand at nearby commercial service airports.



Total Number of SIS Airports Where Service is Provided

How to Get Involved

A central purpose of aviation system planning is to develop an interconnected transportation network that serves the needs of residents, visitors, and businesses based on existing conditions and projected future demands. The creation of such an intermodal network requires active and ongoing cooperation between all FDOT modal offices, as well as a joint commitment to maintaining Florida's prominence as a global transportation leader. Key ways to get involved include:

- Participate in the CFASPP. The CFASPP is a method for continually monitoring and improving Florida's aviation system (more information at www.cfaspp.com)
- Support coordinated planning efforts at federal, state, and local levels via the National Plan of Integrated Airport Systems (NPIAS)[3]; FASP; and local efforts including airport master plans, community master plans, and zoning
- Prioritize improving the connections between modes during mode-specific planning efforts

[2] A based aircraft is an operational and air-worthy aircraft based at a specific facility for the majority of the year.

[3] The NPIAS is the Federal Aviation Administration's (FAA's) comprehensive planning document that identifies those airports deemed significant to national air transportation.

More information about the FASP 2035 Update is available at *fdot.gov/aviation/FASP_details.shtm*.

FASP
Florida Aviation System Plan 2035

Introduction for the General Public

Florida's 128 public-use commercial service and general aviation airports are a cornerstone of the state's economy and essential to the safety, resiliency, and security of residents, visitors, businesses, and the products that fly through our state. To ensure Florida's airports continue to provide a high level of service to all users, 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). The FASP is grounded on the framework of the Florida Transportation Plan (FTP), Florida's overarching planning document guiding the state's transportation future.

The FASP 2035 Update is a long-term strategic vision plan to comprehensively assess all public-use airports in Florida and evaluate the existing system's ability to achieve current and anticipated future demands. The FASP 2035 Update is used by FDOT as a tool to maintain a safe, efficient, and reliable system; evaluate future funding decisions; and effectively expand capacity in those areas where it is most needed and beneficial for the continuing improvement of the state aviation system.

FDOT
FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE

November 2017

Florida Aviation System Plan 2035 Update

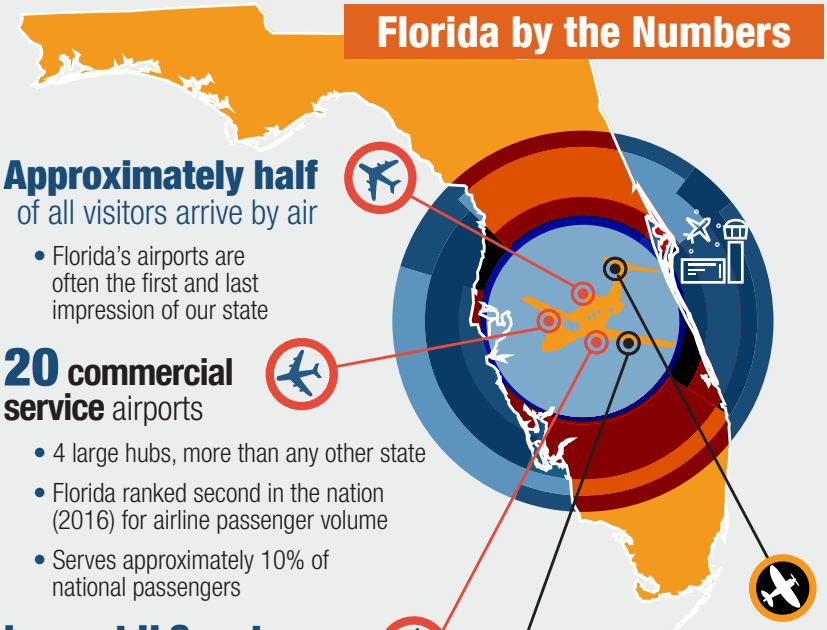
Florida's Airports: A Global Asset

Florida offers the most dynamic and progressive aviation system in the world. Commercial service and general aviation airports serve as a backbone of the state's global economy and provide critical community services in times of emergency. In 2015, aircraft conducted nearly nine million operations in Florida, and that number is anticipated to grow 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. 2.7 million tons of domestic and international air cargo passed through Florida's airports in 2014. Florida is also the leading provider of flight instruction in the U.S., with training offered at over 80 airports statewide. The state also leads the nation in four categories of pilot certifications including student, sport, airline transport, and flight instructor.

Aviation Makes the State Money!

For every dollar spent on the Florida Aviation Program, the state receives **$1.37 in tax revenue in return.**[1] In total, aviation contributes $144.0 billion to the state.

Florida by the Numbers



Approximately half of all visitors arrive by air

- Florida's airports are often the first and last impression of our state

20 commercial service airports

- 4 large hubs, more than any other state
- Florida ranked second in the nation (2016) for airline passenger volume
- Serves approximately 10% of national passengers

Largest U.S. gateway for Latin American air cargo

108 general aviation airports

- 10 national assets, no state has more
- 6% of general aviation aircraft fleet
- Leading number of pilot certificates in 4 categories

Home to the **SUN 'n FUN International Fly-in Expo**, one of the **largest general aviation expos in the world**

Taxpayer Dollars at Work

Investing in our airports pays dividends. The 2014 Statewide Aviation Economic Impact analyzed the economic contribution of Florida's aviation industry focusing on specific aviation activities including commercial and general aviation airports, air cargo, aviation education, military aviation, and federal agency usage. Together, these and other aviation activities support more than 1.3 million jobs with an annual payroll of $44.5 billion. In total, the annual economic impact of aviation-related activities in Florida is an estimated $144.0 billion.

Yet these numbers are only part of the story. In addition to providing a 1.37 return on investment to the state,[1] annual spending on the Aviation Program:

- Increases real disposable personal income by $9.9 billion
- Increases the gross domestic product by $9.1 billion
- Supports nearly 72,000 Florida jobs

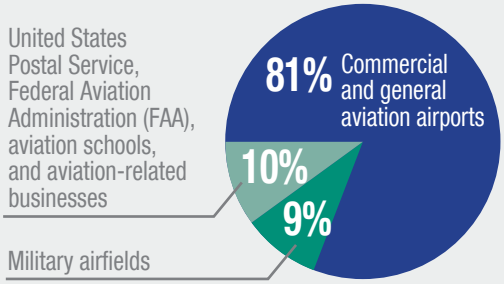
Total Economic Impact

1.3 million Jobs Supported

$44.5 billion Payroll Supported

$144.0 billion Total Output

Economic Impact by Activity



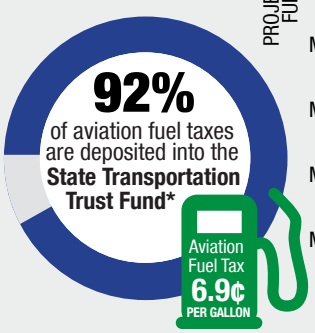
Given that the Florida Legislature has appropriated approximately $3 billion to the Aviation Program since 1990, investing in Florida's airports only makes sense.

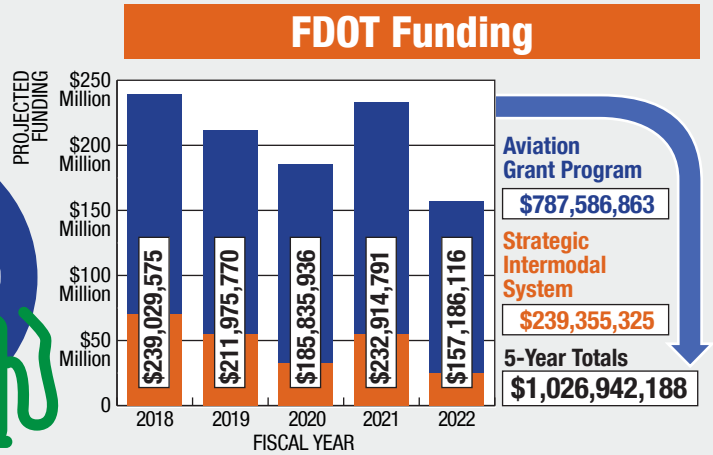
[1] *Florida Office of Economic & Demographic Research (December 2016). Return on Investment for the Department of Transportation's Work Program.*

Aviation Funding

Maintaining a safe, financially sustainable, and efficient statewide system is the responsibility of the FDOT ASO, the Federal Aviation Administration (FAA), airport sponsors, and local communities. Accordingly, funding for Florida's aviation system is available from a variety of federal, state, and local sources. FDOT allocates funds at the state level through the Florida Aviation Grant Program, Strategic Intermodal System (SIS), and other mechanisms including the State Infrastructure Bank and Transportation Regional Incentive Program, among others.

Florida Aviation Grant Funds are available to all publicly owned, public-use commercial service and general aviation airports in the FDOT airport system for planning, capital improvement, land acquisition, economic development, security, and other types of projects. SIS funds are available to improve capacity at the 20 aviation facilities designated as SIS or Emerging SIS Airports, including 18 commercial service and two general aviation reliever airports. These facilities are deemed critical to the state's economic competitiveness and transportation mobility.



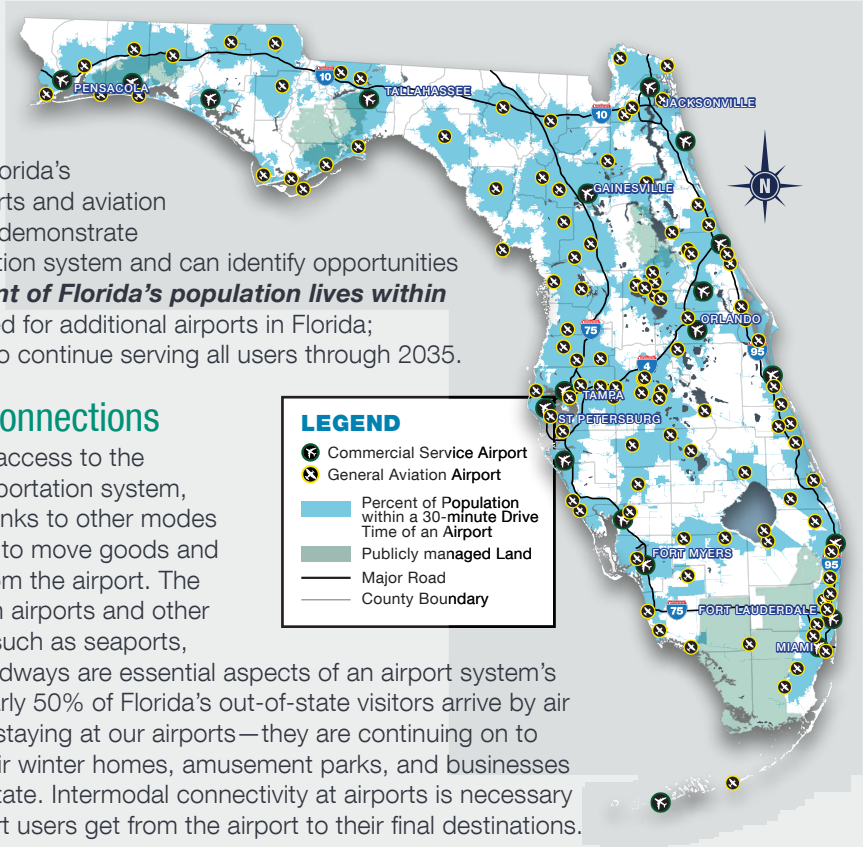


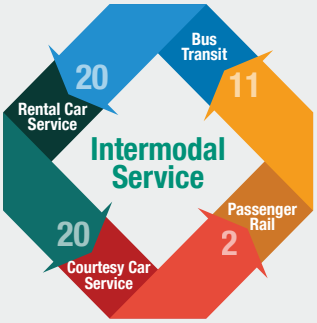
*After administrative cost and commercial carrier refunds are taken out.

Accessibility

Drive-time Analysis

The FASP 2035 Update analyzed the percent of Florida's population that can access different types of airports and aviation services within a 30-minute drive. These analyses demonstrate how well Florida's residents are served by the aviation system and can identify opportunities for new facilities or services. ***Currently, 93 percent of Florida's population lives within a 30-minute drive of an airport.*** There is no need for additional airports in Florida; instead, the existing system should be leveraged to continue serving all users through 2035.





Total Number of SIS Airports Where Service is Provided

Intermodal Connections

Airports provide access to the national air transportation system, but also require links to other modes of transportation to move goods and people to and from the airport. The linkages between airports and other modes of travel such as seaports, railways, and roadways are essential aspects of an airport system's accessibility. Nearly 50% of Florida's out-of-state visitors arrive by air but they are not staying at our airports—they are continuing on to the beaches, their winter homes, amusement parks, and businesses throughout the state. Intermodal connectivity at airports is necessary to help our airport users get from the airport to their final destinations.

Community Benefits and Takeaways

General Aviation

Florida's dynamic network of 108 general aviation airports provides our communities with some of the most important benefits associated with air service. General aviation airports in Florida generate $7.7 billion in annual economic activity, as well as support 64,000 jobs with $2.5 billion in annual payroll. The state is ranked third in the U.S. for total gross domestic product and jobs attributable to general aviation. Yet the benefits of general aviation extend farther than economics. These facilities improve the quality of life for millions of Floridians by making our communities safer, more secure, and more resilient when the unexpected occurs.

Commercial, Industrial, and Economic Activities

General aviation airports provide the facilities and services to support a range of business endeavours such as aviation and aerospace research, development, and manufacturing; agricultural support; aerial surveying and observation; air cargo; and flight instruction. Many of these types of activities support high-skill, high-wage jobs critical for Florida's continued economic growth. In just one example, Lake City Gateway Airport (LCQ) supports a 12-acre industrial park anchored by a large maintenance, repair, and overhaul operation with over 1,900 skilled employees.

Emergency Preparedness and Response

When disaster strikes, general aviation airports often offer the quickest access to aid as first responders arrive on the scene or residents are transported to medical care. General aviation airports support aeromedical flights; serve as a base to enforce local, state, and federal laws; and provide staging areas for disaster-recovery efforts. Additionally, over 390 aviation facilities (including six in Florida) are designated by the federal government to support the critical services of U.S. Customs and Border Protection, U.S. Forest Service, U.S. Marshals Service, and other agencies.

Fort Lauderdale Executive Airport (FXE) served as a critical base to transport supplies and personnel between the U.S. and Haiti following the devastating earthquakes in late 2009. General aviation aircraft were able to land at small airports and in very rural areas inaccessible to many large aircraft with the flexibility to provide immediate aid to the areas where it was most needed.

What FASP 2035 Means to You

The FASP 2035 resulted in several key takeaways directly applicable to the general public. These issues will be important considerations for future planning and design efforts, consistent with current FAA guidance.

Design and Capacity Constraints

The FASP 2035 Update examined operational activity at Florida's airports relative to the need to increase capabilities and serve the demand with appropriate capacity.

- Airports along the southeast coast are expected to experience the most severe capacity constraints through 2035, although all airports along the Atlantic Coast are at risk.
- Florida does not require any new airports; instead, the existing airport system can be leveraged to meet current and future demand.

Intermodal Connectivity

The SIS includes the transportation facilities in Florida that are deemed critical to the state's mobility and economic competitiveness. As one of the primary tools for implementing the FTP, capacity improvements at SIS facilities are a priority for FDOT to ensure people and goods can efficiently move between the airport and their final destinations.

How to Get Involved

Understanding your needs is critical to ensure Florida's publicly owned, public-use airports serve the needs of the traveling public. To get involved:

- Participate in the development of airport master plans. These strategic plans guide future development and provide a resource for other community planning efforts so airports can serve the needs of users today and into the future. The *FDOT Guidebook for Airport Master Planning* provides details about this important process. The Guidebook can be downloaded at fdot.gov/aviation/flpub.shtm
- Protect your local airport. Planning and development in the vicinity of an airport must be airport-compatible. Support planning efforts, including zoning, permitting, and other regulations, that keep aircraft, their passengers, and people on the ground safe and ensure airports can be good neighbors in the community.

More information about the FASP 2035 Update, including a list of policy and development recommendations, and additional FASP resources are available at *fdot.gov/aviation/FASP_details.shtm*.

FLORIDA AVIATION SYSTEM PLAN 2035

Daytona Beach International Airport

Southwest Florida International Airport
photo courtesy of Timothy Wildey

FDOT

FLORIDA DEPARTMENT OF TRANSPORTATION
AVIATION AND SPACEPORTS OFFICE
www.fdot.gov/aviation