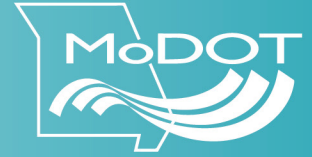




MISSOURI STATE AIRPORT SYSTEM PLAN UPDATE

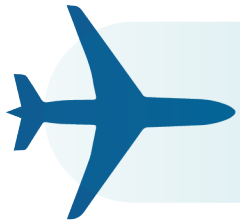


MODOT STATE AIRPORT SYSTEM PLAN

Project Webinar #2

August 8, 2018





Agenda

-
- Discussion of findings from UAS research
 - Summary of demand forecasts
 - Findings from the system evaluation analysis
 - Discussion on potential airport role changes



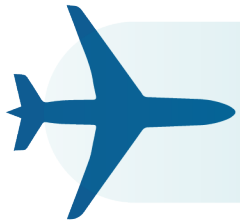


Status of the System Planning Process



Summary of UAS Research





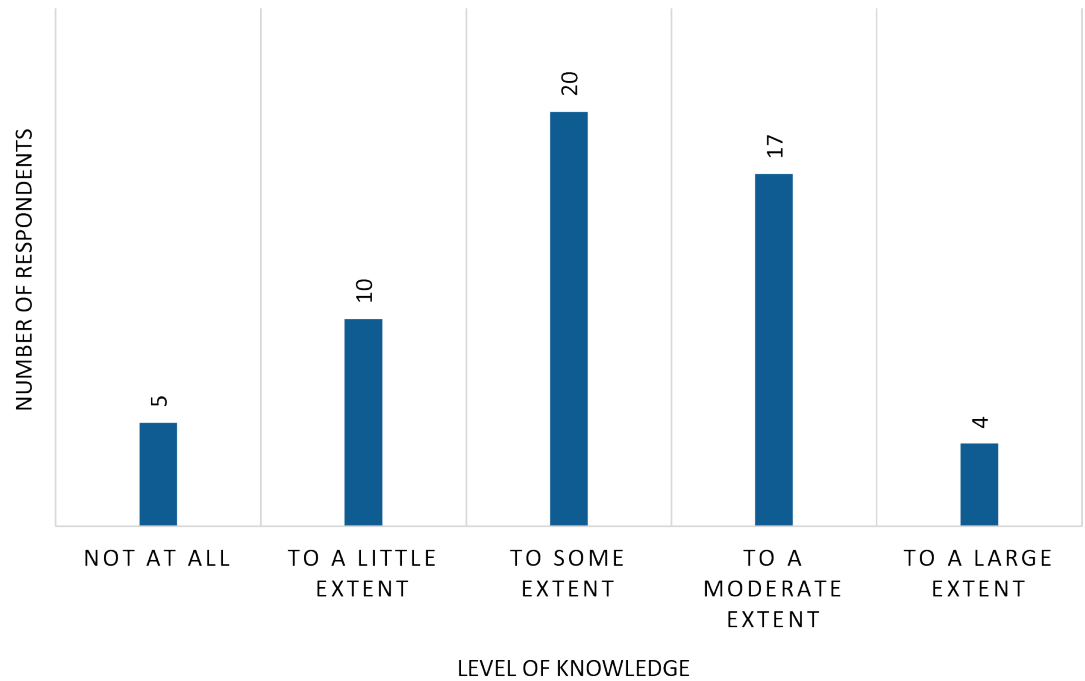
Missouri UAS Statistics

- 1,560 FAA Certified UAS Operators..... 31st
- 16,564 registered UAS in Missouri 44th



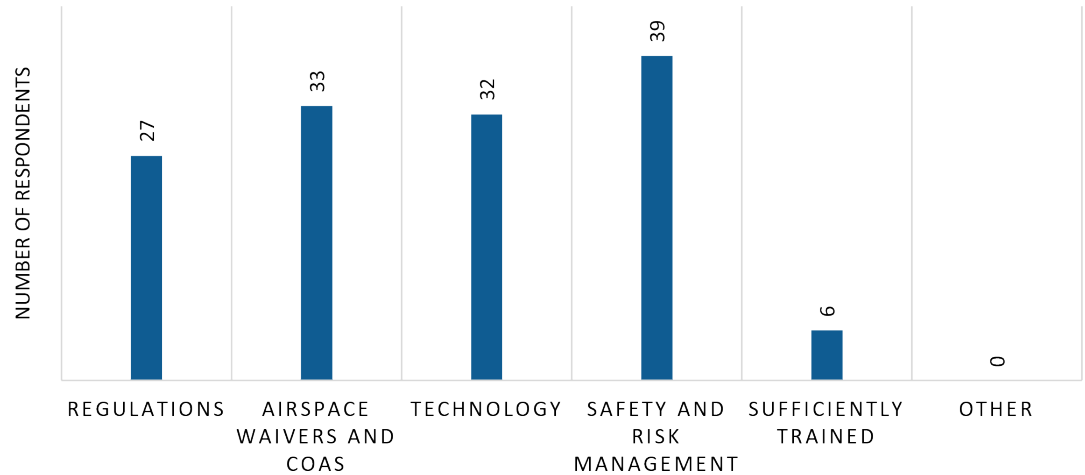
Missouri UAS

Airport Managers Survey – Airport Managers’ Familiarity with UAS Regulations



Missouri UAS

Airport Managers Survey –
Potential Areas of
Additional Education and
Training



Forecasts





Factors Considered in Forecast Development

- Historical and current aviation activity in Missouri
- Industry trends and issues that may impact future aviation growth
- Socioeconomic trends that may impact future aviation growth
- Forecast horizons: 2022, 2027, and 2037
- Forecasts developed for
 - Based Aircraft
 - General Aviation Aircraft Operations



Four Scenarios Were Considered to Project Based Aircraft – Preferred Scenario 1

MISSOURI BASED AIRCRAFT FORECAST SCENARIOS					
Scenarios	2017 Actual	2022	2027	2037	CAGR 2017-37
Scenario 1: Historical Growth/FAA Growth	3,233	3,306	3,382	3,542	0.46%
Scenario 2: Employment Growth/FAA Growth	3,233	3,312	3,393	3,567	0.49%
Scenario 3: Socioeconomic-County Population	3,233	3,324	3,420	3,627	0.58%
Scenario 4: Market Share- TAF Growth	3,233	3,284	3,336	3,442	0.31%



Factors that Influence Annual General Aviation Operations

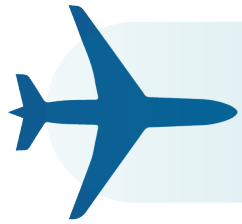
- Total based aircraft
- Airport facilities and services such as a control tower, approach, fuel, and FBO
- Airport location
- Activity and facilities at neighboring or competing airports
- Area demographics, including business density and types
- National aviation trends



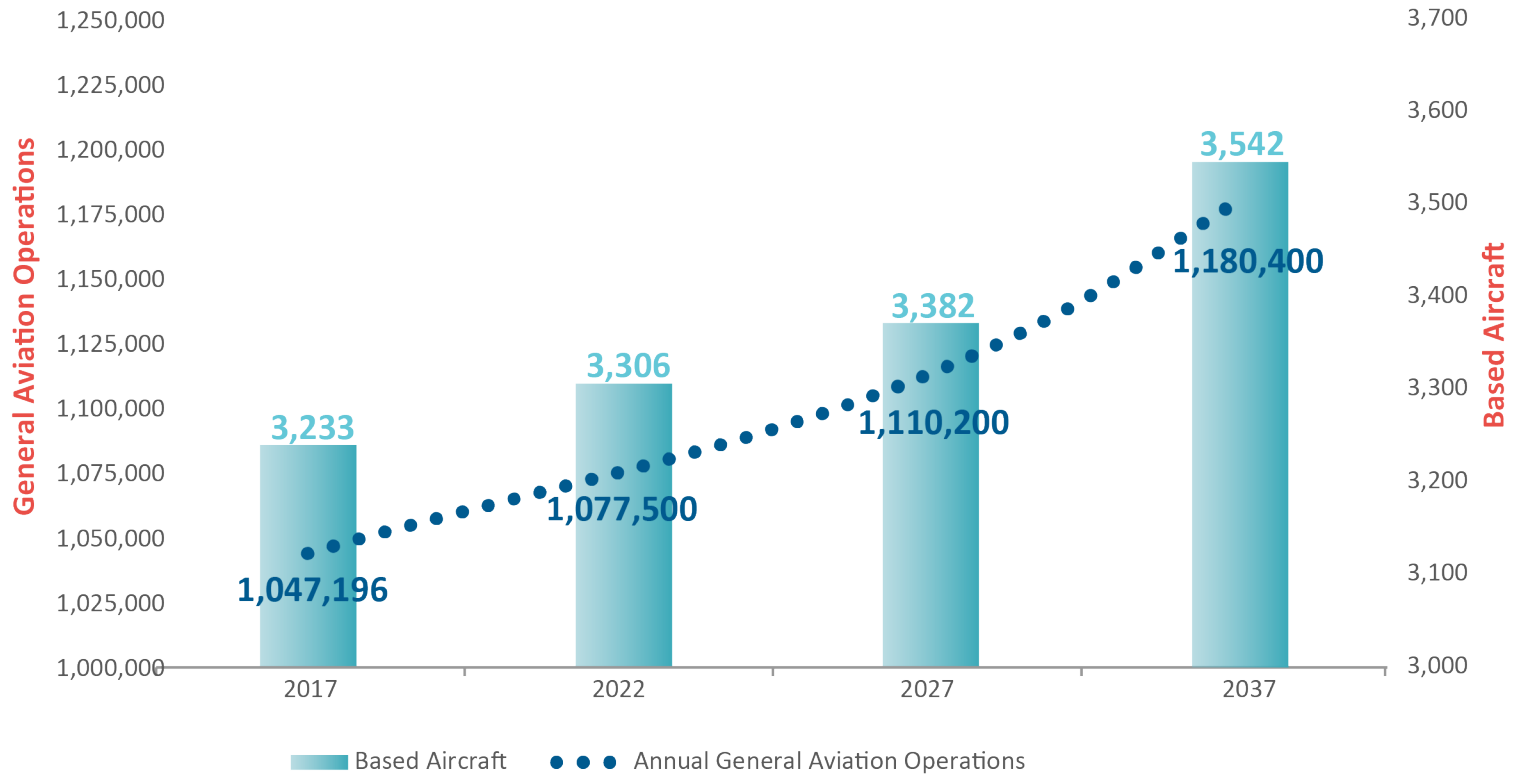
Four Scenarios Considered to Forecast Annual General Aviation Operations – Scenario 3

MISSOURI GENERAL AVIATION OPERATIONS FORECAST SCENARIOS – SCENARIO 3 PREFERRED FORECAST

Scenarios	2017 Actual	2022	2027	2037	CAGR 2017-37
Scenario 1: OPBA	1,047,196	1,070,300	1,094,700	1,146,000	0.45%
Scenario 2: Employment Growth	1,047,196	1,097,000	1,150,600	1,267,500	0.96%
Scenario 3: FAA Growth	1,047,196	1,077,500	1,110,200	1,180,400	0.60%
Scenario 4: Market Share Towered Ops	1,047,196	1,061,500	1,077,000	1,108,800	0.29%



Summary of System Plan Demand Projections



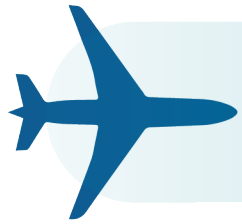
Current System Performance Evaluation



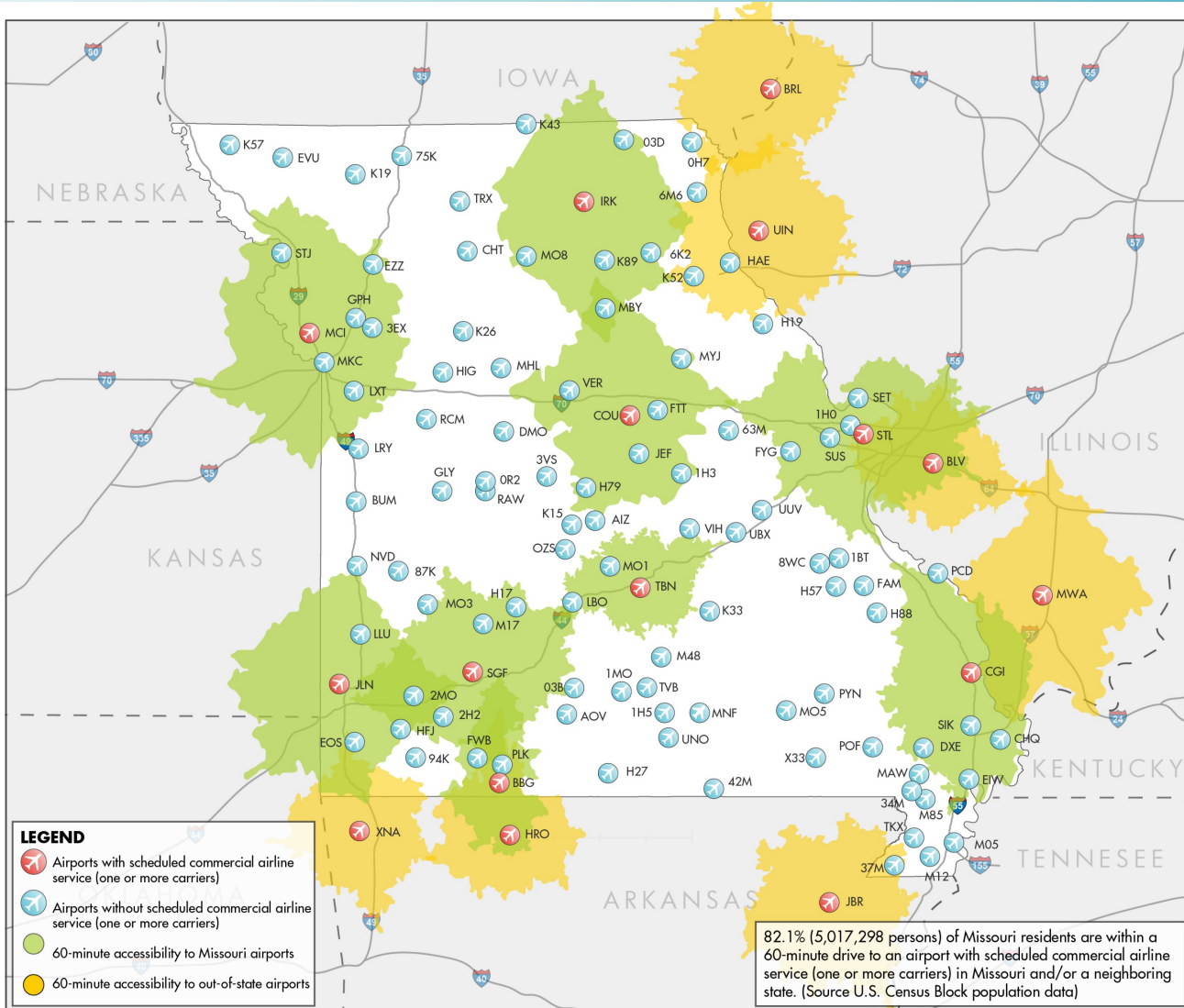


System Performance Measures Identify System Adequacies and Deficiencies

- 60 minute accessibility to an airport with scheduled commercial airline service (one or more carriers)
- 90 minute accessibility to an airport with scheduled commercial airline service (more than one carrier)
- 30 minute accessibility to an airport with any published approach
- 30 minute accessibility to an airport with an approach with vertical guidance (precision approach/LPV)
- 30 minute accessibility to an airport with AWOS (or other on-site weather reporting equipment)
- 30 and 45 minute accessibility to an airport meeting selected NBAA Business Airport characteristics
- Primary runways with a PCI of 70 or greater

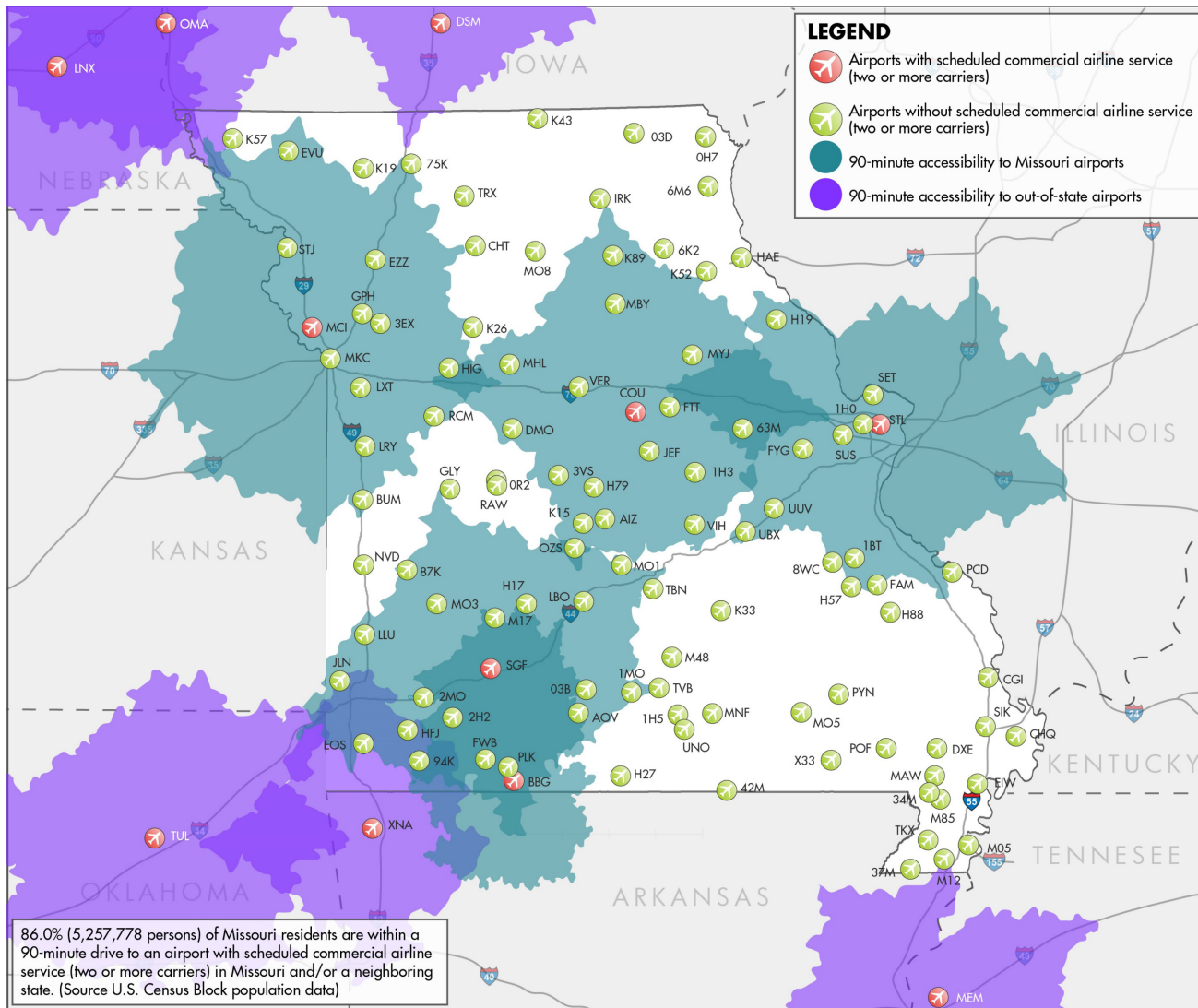


60 Minute Accessibility to Missouri & Nearby Commercial Airports – 82.1%





90 Minute Accessibility to Missouri and Nearby Airports/More than One Carrier – 86%



Conclusions from Commercial Airport Accessibility Analysis

Accessibility is not significantly different when 60 and 90 minute service areas are considered

Out-of-state commercial airports do not add notably to commercial airport accessibility

Additional commercial airports in Missouri are not likely

Some parts of Missouri will most likely continue to be beyond a 60 or 90-minute service area for a commercial airport

Airports served by a single carrier may face challenges with pilot shortages, lack of small commercial planes, and carrier desires to curtail operating costs



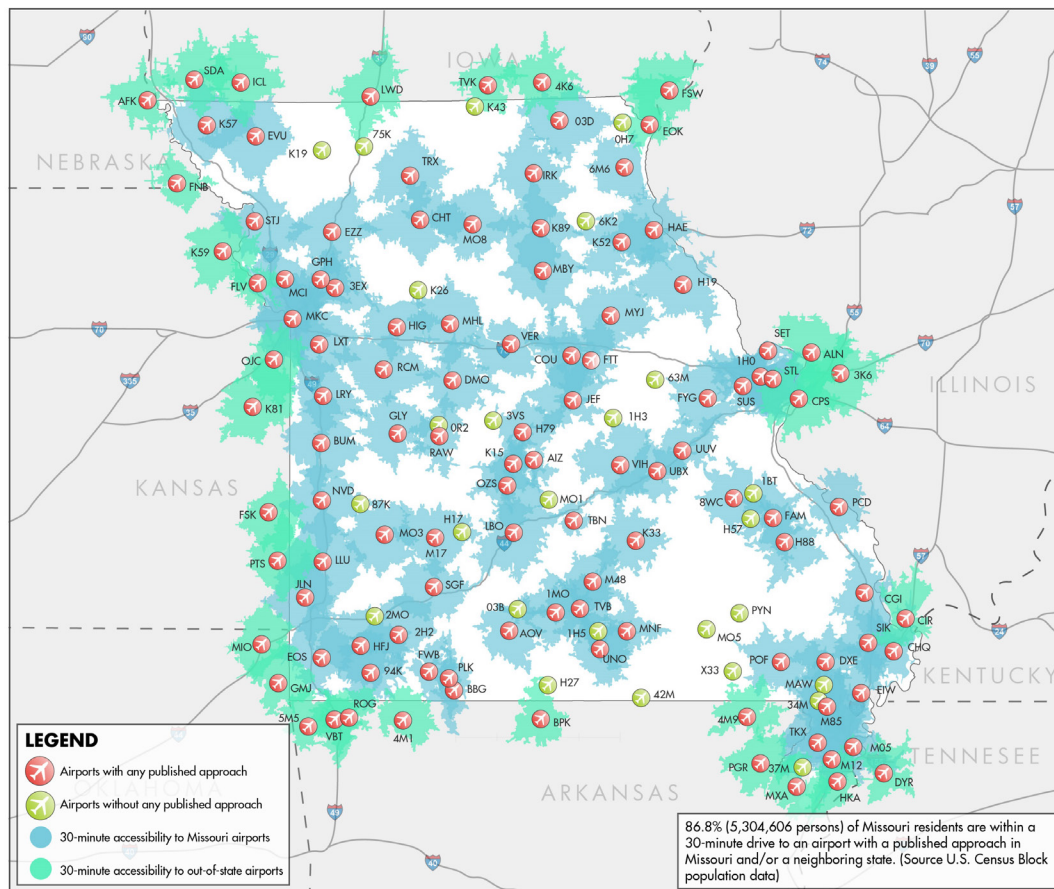
Summary of Current System Performance Cont...

CURRENT SYSTEM PERFORMANCE BY MEASURE

Performance Measure	Missouri residents in Service Area
60-Minute Accessibility to an Airport with Scheduled Commercial Airline Service (one or more carriers)	
60 Minute Current Accessibility to Missouri Commercial Airports (one or more carriers)	80.9%
60 Minute Current Accessibility to Missouri and Nearby Commercial Airports (one or more carriers)	82.1%
90-Minute Accessibility to an Airport with Scheduled Commercial Airline Service (more than one carrier)	
90 Minute Current Accessibility to Missouri Commercial Airports (more than one carrier)	85.6%
90 Minute Current Accessibility to Missouri and Nearby Commercial Airports (more than one carrier)	86.0%



Accessibility to a Missouri or Nearby Airport with a Published Approach



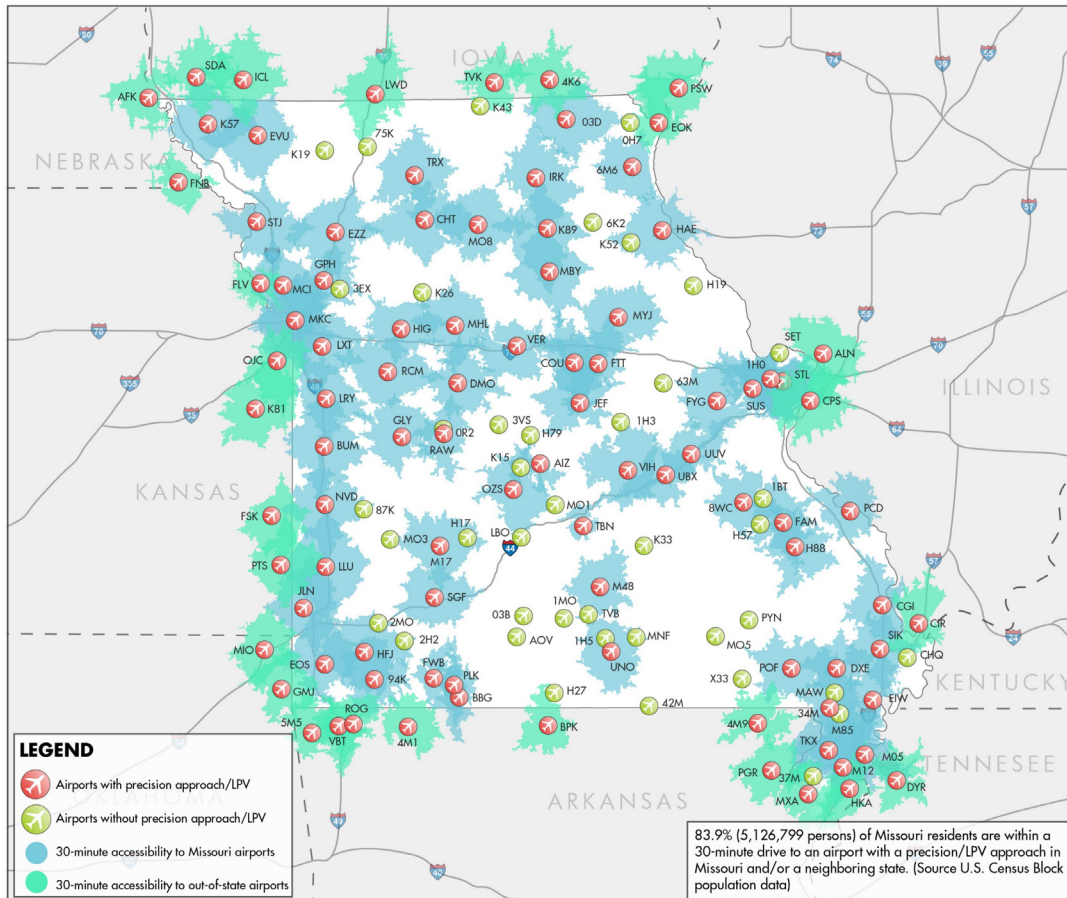
30 minute accessibility to Missouri airports: **85%**

30 minute combined accessibility to Missouri and nearby airports: **87%**

The recommended plan will determine if accessibility for this measure should increase in the future



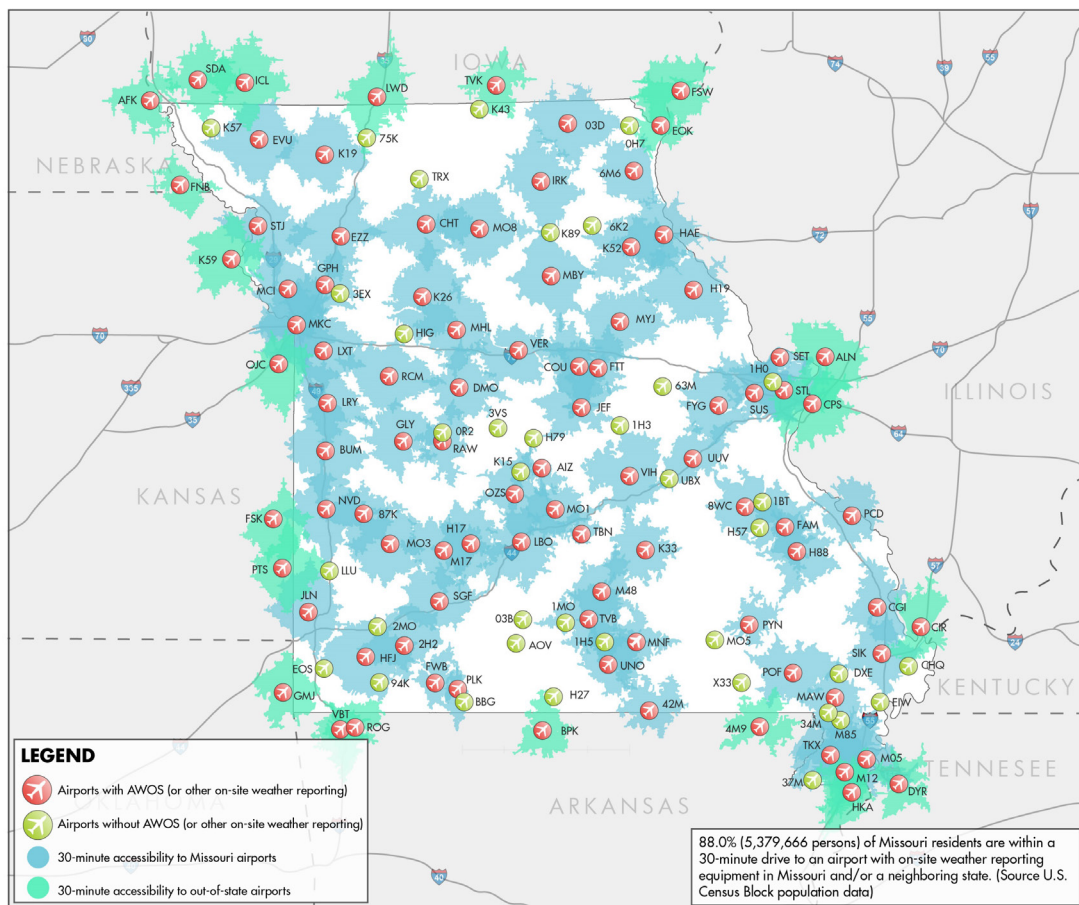
Accessibility to Missouri and Nearby Airports with a Precision-Like Approach (Vertical Guidance ILS or LPV)




- 30 minute accessibility to an airport with a Missouri airport precision-like approach: **80%**
- 30 minute accessibility to Missouri and nearby airports with precision-like approach: **87%**
- The recommended plan will determine if additional airports in Missouri should be equipped with this capability



Accessibility to Missouri and Nearby Airports with On-Site Weather Reporting Equipment



- 30 minute accessibility to Missouri airports with on-site weather reporting: **83%**
- 30 minute accessibility to Missouri or nearby airport with on-site weather reporting equipment: **88%**
- The recommended plan will determine if additional airports in Missouri should be equipped with this capability



Accessibility to Airports Exhibiting Business Airport Characteristics

- Business airport characteristics from the National Business Aviation Association (NBAA) were considered for this measure
- NBAA business airport characteristics were established by NBAA members
- Business aviation is the fastest growing segment of general aviation
- NBAA characteristics considered those most often needed to serve medium business jets and light business jets

NBAA business characteristics not meant to supplant ASSET categories/AIP eligibility



NBAA Characteristics Used in this Analysis

NBAA Medium Business Jet Airports:

Up To 50,000 lbs

- Runway 5,000 feet by 100 feet
- Approach supported by vertical guidance
- Visual Glideslope Indicator (VGSI)
- Medium Intensity Runway Lighting (MIRL)
- On-site weather reporting equipment
- FBO services/aircraft maintenance
- Jet fuel

NBAA Light Business Jet Airports:

Up To 25,000 lbs

- Runway 4,000 feet by 75 feet
- Approach supported by vertical guidance
- Visual Glideslope Indicator (VGSI) – at least one runway end
- Medium Intensity Runway Lighting (MIRL)
- On-site weather reporting equipment
- FBO services/aircraft maintenance
- Jet fuel

Airports Currently Meeting NBAA Business Airport Characteristics

1

16% of all Missouri airports currently have all NBAA characteristics to serve medium business jets

2

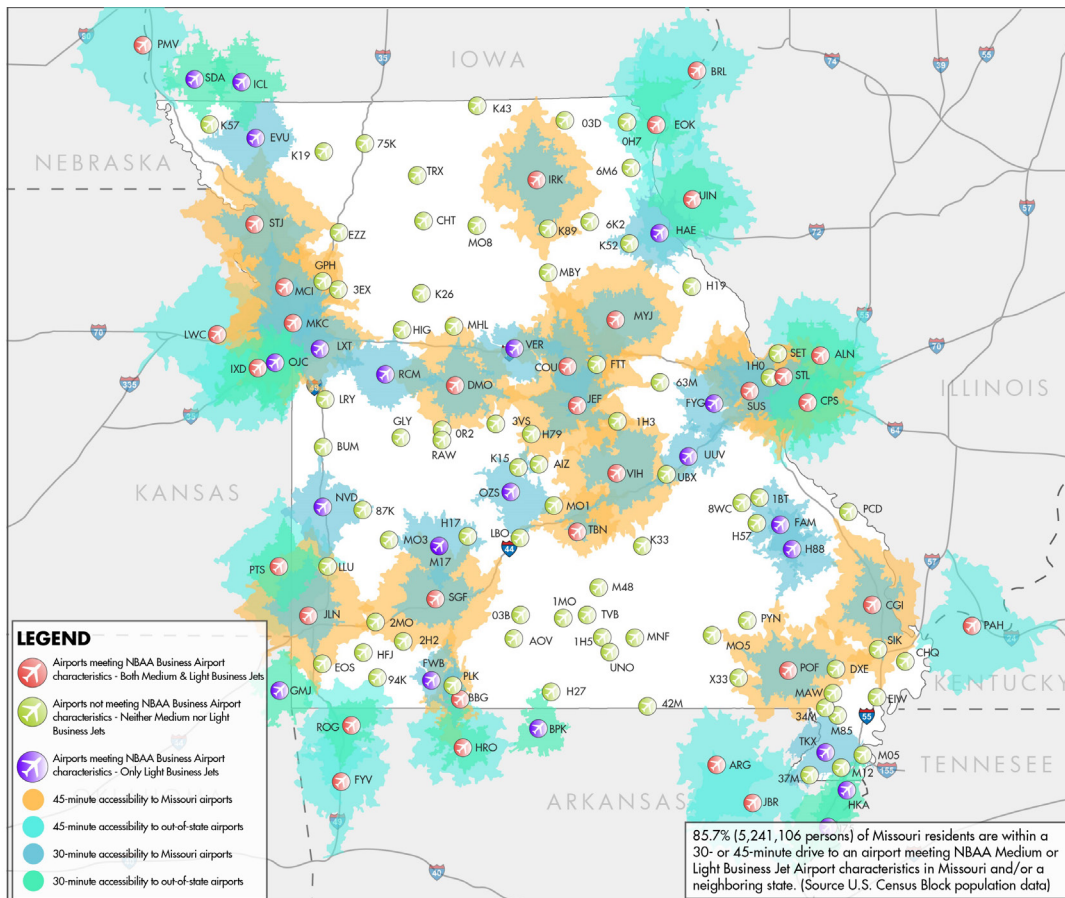
29% of all Missouri airports currently have all NBAA characteristics to serve light business jets

3

For this performance measure, medium business jet business airports were assigned a 45-minute service area and light business jet airports a 30 minute service area



Current Combined Accessibility Missouri and Nearby Airports – NBAA Business Airports/Light and Medium Jets

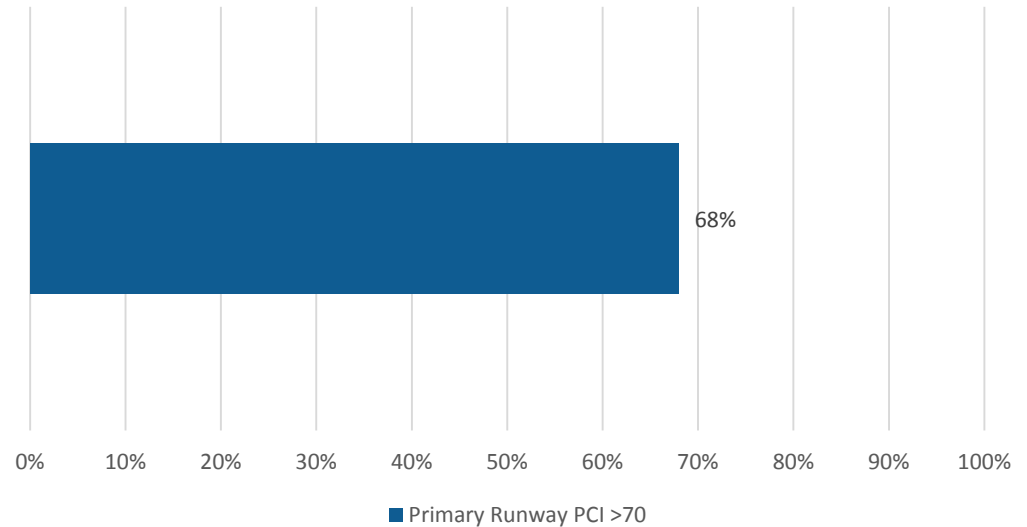


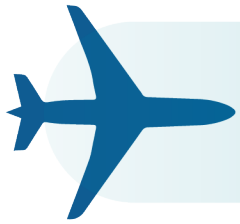
- Current combined accessibility to business airports, Missouri only, is **85%** of all residents
- Current combined accessibility to business airports, Missouri and nearby, **86%** of all residents
- Final airport role and study recommendations will determine if additional study airports should have facilities and services that meet NBAA business airport characteristics



System Performance Measure PCI on Primary Runway

- Missouri periodically updates its Statewide Pavement Management Study – Results from most current update are currently being analyzed
- Established goal for all primary paved runways to have a pavement condition index (PCI) of 70 or greater
- This rating signals pavement is in generally good condition
- Currently, **68%** of all paved primary runways at study airports have a PCI of 70 or greater
- Airports needing a project to increase their PCI to meet study objectives will be identified in the next task of the system plan





Summary of Current System Performance

CURRENT SYSTEM PERFORMANCE BY MEASURE

Performance Measure	Missouri residents in Service Area
30 Minute Current Accessibility to a Missouri Airport with a Published Approach	84.7%
30 Minute Current Accessibility to a Missouri or Nearby Airport with a Published Approach	86.7%
30-Minute Accessibility to an Airport with an Approach Supported by Vertical Guidance	
30 Minute Current Accessibility to a Missouri Airport with a Vertical Guidance Approach	79.7%
30 Minute Current Accessibility to a Missouri or Nearby Airport with an Approach Supported by Vertical Guidance	83.8%
30-Minute Accessibility to an Airport with On-Site Weather Reporting Equipment	
30 Minute Current Accessibility to a Missouri Airport with On-Site Weather Reporting Equipment	82.6%
30 Minute Current Accessibility to Missouri or Nearby Airport with On-Site Weather Reporting Equipment	88%
30-and 45-Minute Accessibility to Airports Exhibiting Selected NBAA Medium & Light Business Jet Airport Characteristics	
45 Minute Current Accessibility to Missouri Airports Meeting Acceptable NBAA Medium Business Jet Airport Characteristics	77.8%
45 Minute Current Accessibility to Missouri or Nearby Airports Meeting Acceptable NBAA Medium Business Jet Airport Characteristics	79.3%
30 Minute Current Accessibility to Missouri Airports Meeting Acceptable NBAA Light Business Jet Airport Characteristics	70.9%
30 Minute Current Accessibility to Missouri or Nearby Airports Meeting Acceptable NBAA Light Business Jet Airport Characteristics	73.1%
45 and 30 Minute Current Accessibility to Missouri Airports Meeting Acceptable NBAA Medium or Light Business Jet Airport Characteristics	84.6%
45 and 30 Minute Current Accessibility to Missouri or Nearby Airports Meeting Acceptable NBAA Medium or Light Business Jet Airport Characteristics	85.7%
System Performance for Pavement Condition Index (PCI)	
- Percentage of System Airports with a PCI of 70 or greater	68.0%

Recommended Airport Roles





Airport Roles Were Established in the 2002 SASP Using a Variety of Factors

Economic Support

- Total based aircraft
- Fuel facilities
- Aviation services
- Net taxable sales

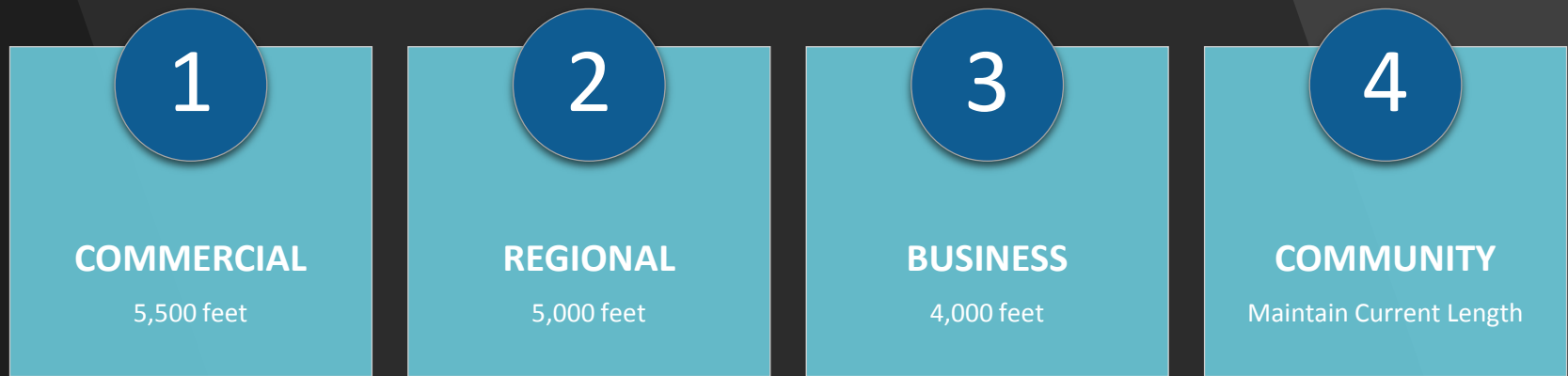
Accessibility

- Population within a 30 minute drive time
 - Surface access to airport
 - Businesses within a 30-minute drive time
 - Registered pilots within a 30 minute drive time

Physical Facilities/Prior Investment

- Primary runway lengths
- Approach type
- Aircraft storage units

Airports in Missouri Are Currently Assigned to One of Four Roles



- In 2002, general aviation airports with Part 139 Certificates or classified by FAA as a Reliever were assigned to the Commercial role.
- Changing airport, community, and industry conditions make it appropriate to re-visit 2002 role assignments



Factors Considered by PAC for Recommended Airport Roles

- FAA roles for NPIAS general aviation airports
- Changes in based aircraft 2002 and current
- Operational fleet mix data from FAA National Offload Program (NOP)
- Geographic relationship of airports in each role category
- Runway lengths
- Expected rates of population/employment increase
- PAC input on airport/community conditions/changes

One single factor from the list above was not used to identify a potential role change; multiple factors were considered

PAC Recommended New Role Category

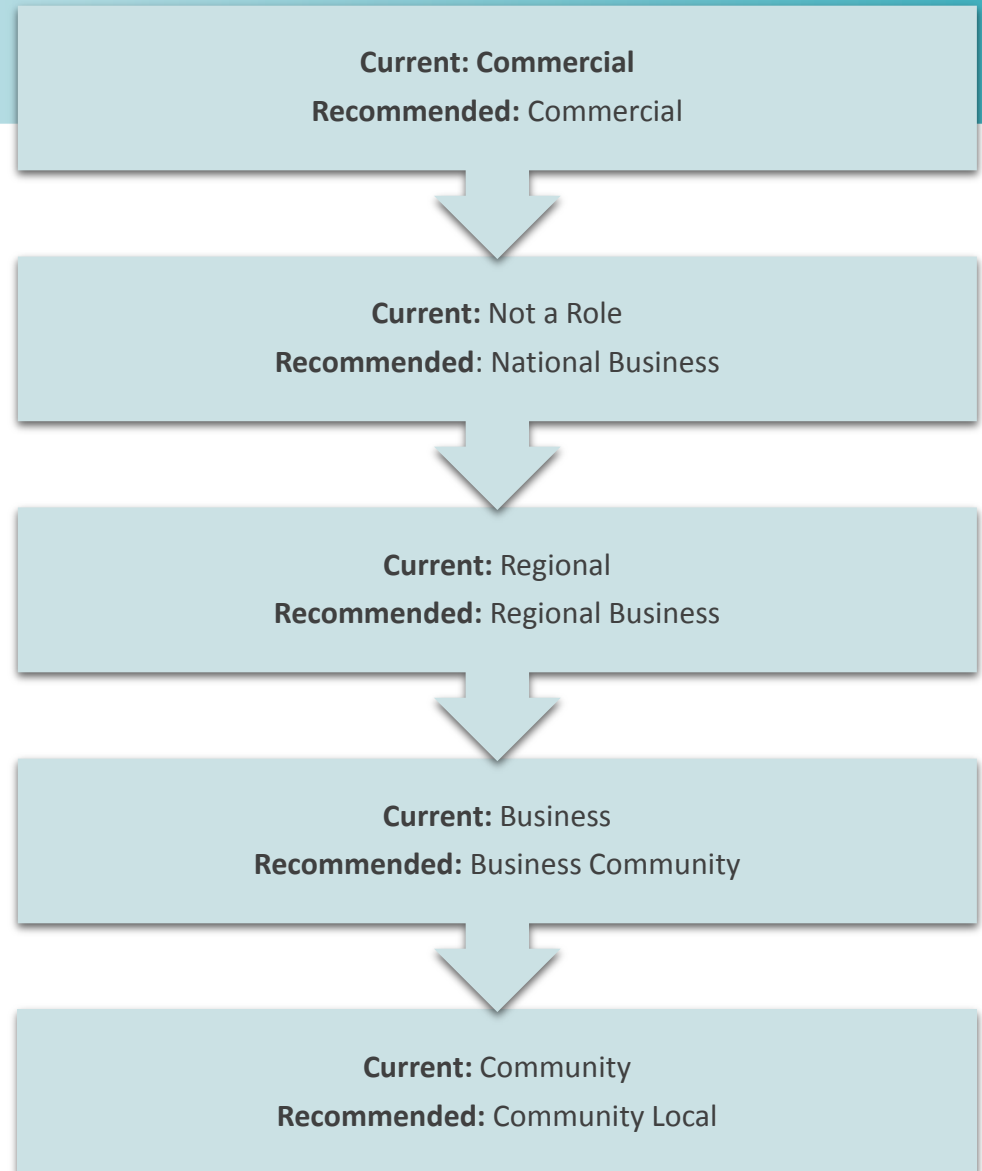
Reliever/Part 139 general aviation airports were originally assigned to the Commercial role

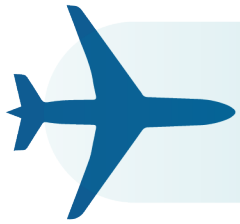
According to General Aviation Manufacturers Association (GAMA), Bombardier, and Honeywell, large business jets (over 50,000 lbs) are the fastest growing segment of the general aviation fleet

PAC recommended new role category between Commercial and Regional. New role is National Business

The runway length objective for airports in the National Business role is 5,500 feet

PAC Changes for Airport Role Names





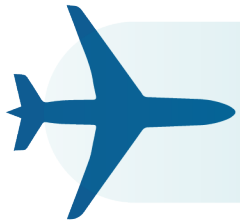
Recommended Commercial Airports

CITY	AIRPORT
Branson	Branson Airport
Cape Girardeau	Cape Girardeau Regional Airport
Columbia	Columbia Regional Airport
Fort Leonard Wood	Waynesville-St. Robert Regional Airport
Joplin	Joplin Regional Airport
Kansas City	Kansas City International Airport
Kirksville	Kirksville Regional
Springfield	Springfield-Branson National Airport
St Louis	St. Louis Lambert International



Recommended National Business Airports

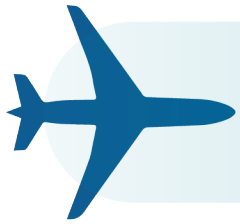
CITY	AIRPORT
Jefferson City	Jefferson City Memorial
Kansas City	Charles B. Wheeler-Downtown Airport
Lee's Summit	Lee's Summit Municipal
Mexico	Mexico Memorial
Monett	Monett Regional
Mosby	Midwest National Air Center
Rolla/Vichy	Rolla National
Sedalia	Sedalia Regional
Sikeston	Sikeston Memorial Municipal
St Joseph	Rosecrans Memorial
St. Louis	Spirit of St. Louis



Recommended Regional Business Airports

CITY	AIRPORT
Bolivar	Bolivar Municipal
Boonville	Jesse Viertel Memorial
Branson West	Branson West Municipal - Emerson Field
Brookfield/ Marceline	North Central Missouri Regional
Camdenton	Camdenton Memorial-Lake Regional
Cameron	Cameron Memorial
Chillicothe	Chillicothe Municipal
Clinton	Clinton Memorial
Dexter	Dexter Municipal
Farmington	Farmington Regional
Hannibal	Hannibal Regional
Kaiser/Lake Ozark	Lee C Fine Memorial
Kennett	Kennett Memorial

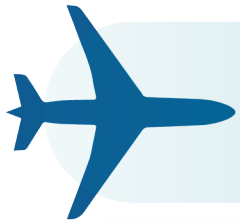
CITY	AIRPORT
Lebanon	Floyd W. Jones Lebanon
Moberly	Omar N Bradley
Neosho	Neosho Hugh Robinson
Nevada	Nevada Municipal
Perryville	Perryville Regional
Poplar Bluff	Poplar Bluff Municipal
St. Charles	St. Charles County Smartt Field
St. Louis	Creve Coeur Airport
Sullivan	Sullivan Regional
Warrensburg	UCM-Skyhaven
Washington	Washington Regional
West Plains	West Plains Regional



Recommended Business Community Airports

CITY	AIRPORT
Aurora	Jerry Sumners Sr Aurora Municipal
Ava	Ava Bill Martin Memorial
Branson	M. Graham Clark - Downtown
Butler	Butler Memorial
Caruthersville	Caruthersville Memorial
Cassville	Cassville Municipal
Cuba	Cuba Municipal
Eldon	Eldon Model Airpark
Fredericktown	A. Paul Vance Fredericktown Regional
Fulton	Elton Hensley Memorial
Harrisonville	Lawrence Smith Memorial
Higginsville	Higginsville Industrial Municipal

CITY	AIRPORT
Lamar	Lamar Municipal
Macon	Macon-Fower Memorial
Malden	Malden Regional
Marshall	Marshall Memorial Municipal
Maryville	Northwest Missouri Regional
Mountain View	Mountain View
New Madrid	County Memorial
Osage Beach	Grand Glaize- Osage Beach
Potosi	Washington County
Salem	Salem Memorial
Trenton	Trenton Municipal
Warsaw	Warsaw Municipal



Recommended Community Local Airports

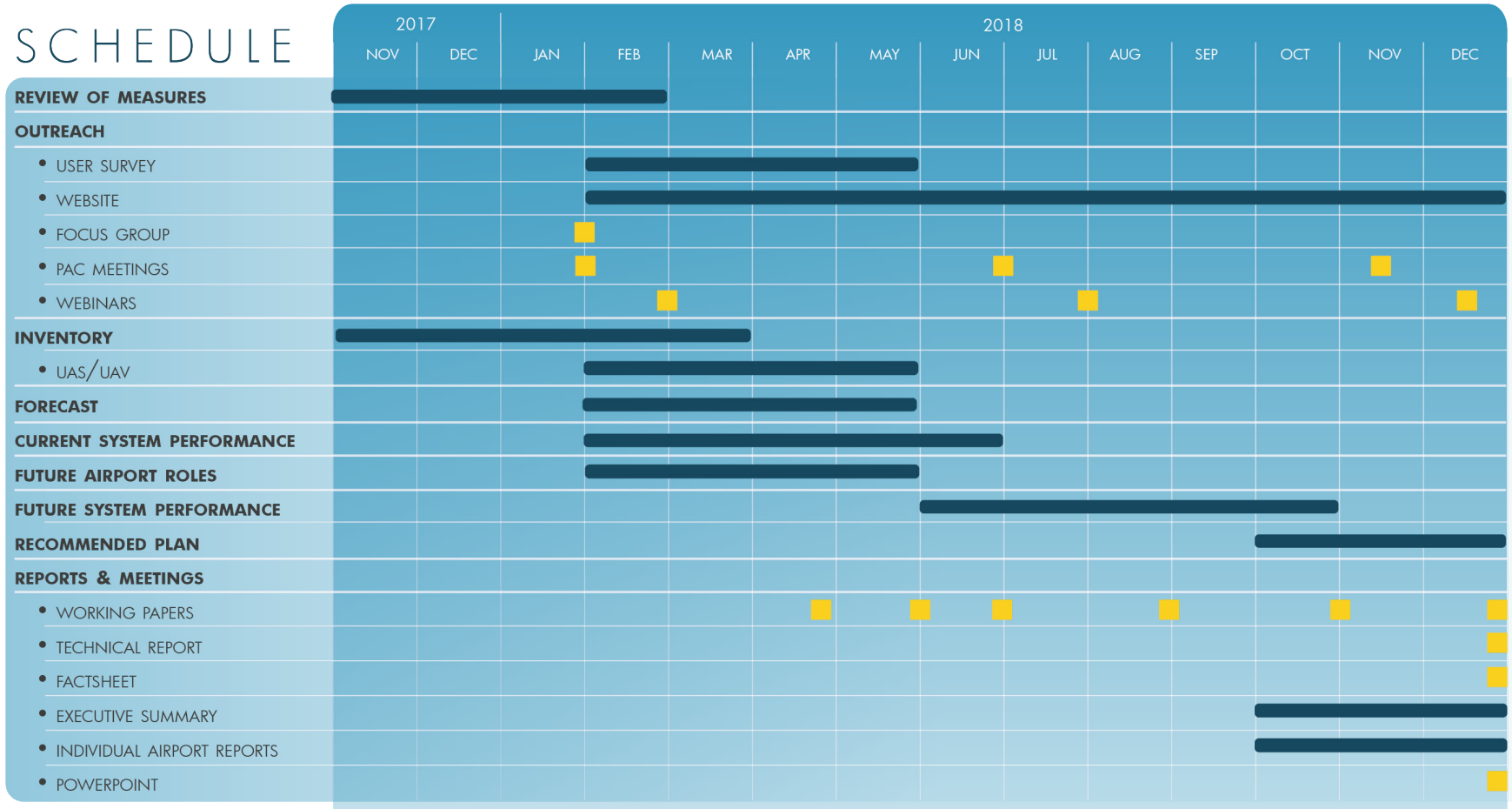
CITY	AIRPORT
Albany	Albany Municipal
Bethany	Bethany Memorial
Bismarck	Bismarck Memorial
Bonne Terre	Bonne Terre Municipal
Bowling Green	Bowling Green Municipal
Buffalo	Buffalo Municipal
Cabool	Cabool Memorial
Campbell	Campbell Municipal
Carrollton	Carrollton Memorial
Charleston	Mississippi County
Doniphan	Doniphan Municipal
El Dorado Springs	El Dorado Springs Memorial
Excelsior Springs	Excelsior Springs Memorial
Gainesville	Gainesville Memorial
Gideon	Gideon Memorial
Hermann	Hermann Municipal
Hornersville	Hornersville Memorial
Houston	Houston Memorial
Kahoka	Kahoka Municipal

CITY	AIRPORT
Lincoln	Lincoln Municipal
Linn	State Technical College of Missouri
Mansfield	Mansfield Municipal
Memphis	Memphis Memorial
Monroe City	Captain Ben Smith Airfield
Monticello	Lewis County Regional
Mount Vernon	Mount Vernon Municipal Airport
Mountain Grove	Mountain Grove Memorial
Piedmont	Piedmont Municipal
Richland	Richland Municipal
Shelbyville	Shelby County
Steele	Steele Municipal
Stockton	Stockton Municipal
Tarkio	Gould Peterson Municipal
Thayer	Thayer Memorial
Unionville	Unionville Municipal
Van Buren	Bollinger-Crass Memorial
Versailles	Roy Otten Memorial Airfield
Willow Springs	Willow Springs Memorial



Project Schedule

SCHEDULE



■ MEETING & REPORTS



What are the Next Steps?

- Analysis undertaken to determine the ability of airports to satisfy facility/service objectives associated with the airport's recommended role/future airport performance
- Develop costs for projects identified by the system plan
- Project wrap-up December/January; Webinar #3 in this time frame



QUESTIONS

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MoDOTAirportSystemPlan.com