



## 6. AIRPORT FACILITY AND SERVICE OBJECTIVE ANALYSIS

The Missouri State Airport System Plan Update established target objectives to enable airports to best fulfill their assigned role in the state airport system. Recommended roles for all system airports are identified in the Airport Roles chapter. Facility and service objectives apply to airports in each of the five role categories:

- Commercial
- National Business
- Regional Business
- Business Community
- Community Local

Facility and service objectives are based on those established as part of Missouri’s 2002 Airport System Plan. Objectives were updated in some cases to reflect industry, technology, and regulatory changes. Facility and service adequacies and deficiencies identified in this chapter provide the foundation for final system recommendations, as well as for recommendations for individual study airports.

It is worth noting that system plan facility objectives reflect the minimum level of development that is considered desirable at each airport. It is possible that the recommendations from local airport master planning efforts could result in additional or different improvements other than those identified through the System Plan Update. It is possible that airport-specific conditions may justify development that exceeds an airport’s objectives identified in the System Plan. Further, airport-specific constraints and/or other local conditions may prohibit some airports from fully developing to meet all of their applicable facility and service objectives.

A summary of facility and service objectives for Missouri airports, by role, is presented in **Table 6-1**. This chapter analyzes and summarizes existing airside facilities, other facilities, and services at 107<sup>1</sup> system airports. Tables that contain detailed analysis of each facility and service objective can be found in **Appendix B, Facility and Service Objective Compliance**. A “report card” for each of the system airports can be found in **Appendix D**.

TABLE 6-1: FACILITY AND SERVICE OBJECTIVES BY AIRPORT ROLE

Facility Type	Commercial	National Business	Regional Business	Business Community	Community Local
<b>Airside Facilities</b>					
ARC	C-II	B-II	B-II	B-II	A-I
Runway Length	6,000'	5,500'	5,000'	4,000'	Maintain existing
Runway Width	100'	100'	75'	75'	60' for NPIAS; maintain existing for Non-NPIAS
Taxiway System	Full Parallel	Full Parallel	Full Parallel	Turnaround both ends	Turnaround both ends

<sup>1</sup> The System Plan included 107 study airports; these airports represent Missouri’s public-use airports. It is important to note that there are many other airports in Missouri, but these airports are private-use and were therefore not included in the system planning analysis.



TABLE 6-1: FACILITY AND SERVICE OBJECTIVES BY AIRPORT ROLE

Facility Type	Commercial	National Business	Regional Business	Business Community	Community Local
NAVAIDs	Rotating Beacon Lighted Wind Cone Segmented Circle REILS VGSI (PAPI/VASI)	Rotating Beacon Lighted Wind Cone Segmented Circle REILS VGSI (PAPI/VASI)	Rotating Beacon Lighted Wind Cone Segmented Circle REILS VGSI (PAPI/VASI)	Rotating Beacon Lighted Wind Cone Segmented Circle REILS VGSI (PAPI/VASI)	Rotating Beacon Lighted Wind Cone Segmented Circle
Approach	Precision	Precision-Like Approach (ILS or LPV)	Precision-Like Approach (ILS or LPV)	Non-Precision	Visual
Lighting	HIRL MITL ALS	HIRL MITL	MIRL MITL	MIRL	LIRL (MIRL for new projects)
Weather	AWOS/ASOS	AWOS/ASOS	AWOS/ASOS	Not an objective	Not an objective
<b>Other Facilities</b>					
Hangar Storage	70% of based aircraft	70% of based aircraft	70% of based aircraft	70% of based aircraft	Maintain existing
Tie Downs	30% of based & 75% of daily transient	30% of based & 75% of daily transient	30% of based & 75% of daily transient	40% of based & 25% of daily transient	Maintain existing
General Aviation Admin Building	2,500 SF Public Restroom Conference Room Pilot Lounge	2,500 SF Public Restroom Conference Room Pilot Lounge	2,500 SF Public Restroom Conference Room Pilot Lounge	1,500 SF Public Restroom Conference Room Pilot Lounge	Maintain existing
General Aviation Auto Parking	1 space for each based & 50% for employees	1 space for each based & 50% for employees	1 space for each based & 50% for employees	1 space for each based aircraft & 25% for employees	Maintain existing
Ground Communications	Public phone	Public phone	Public phone	Public phone	Public phone
<b>Services</b>					
Fuel	Jet/AvGas	Jet/AvGas	Jet/AvGas	Jet/AvGas	AvGas
FBO	Yes	Yes	Yes	FBO or Maintenance	Not an objective
Maintenance	On-site	On-site	On-site	Not an objective	Not an objective
Rental Cars	On-site	Available	Available	Not an objective	Not an objective
Ground Transportation	Courtesy Car/Shuttle	Courtesy Car/Shuttle	Courtesy Car/Shuttle	Courtesy Car/Shuttle	Not an objective

Source: Missouri State Airport System Plan Update

Notes: ALS = Airport Lighting System; ASOS = Automated Surface Observing System; AWOS = Automated Weather Observing System; AvGas = Aviation Gasoline; FBO = Fixed Base Operator; HIRL = High Intensity Runway Lights; ILS = Instrument Landing System; LIRL = Low Intensity Runway Lights; LPV = Localizer Performance with Vertical Guidance; MIRL/MITL = Medium Intensity Runway/Taxiway Lights; NPIAS = National Plan of Integrated Airports System; REILS = Runway End Identifier Lights; VGSI = Visual Glide Slope Indicators; PAPI = Precision Approach Path Indicators; VGSI = Visual Approach Slope Indicator

### 6.1 Airside Facilities

Airside facility planning is largely driven by criteria and standards developed by the Federal Aviation Administration (FAA) that emphasize safety and efficiency while protecting federal investment in airport transportation infrastructure. The following airside facilities play a significant role in determining the ability of Missouri airports to support system needs:



- Airport Reference Code (ARC)
- Runway Length
- Runway Width
- Taxiway System NAVAIDs/Visual Aids (Rotating Beacon, Lighted Wind Cone, Runway End Identifier Lights, Segmented Circle, Visual Glide Slope Indicators)
- Approach
- Lighting
- Weather Reporting

### 6.1.1 Airport Reference Code

Airports included in the FAA’s National Plan of Integrated Airports System (NPIAS) are encouraged by the FAA to meet all applicable federal design and development standards. In its advisory circulars, the FAA provides specific guidance on which safety-related standards and dimensional requirements are applicable to airports in the federal system. Each airport’s individual design standards are based on the most demanding aircraft that operates at the airport on a regular basis (500 operations per year). This aircraft is known as the airport’s critical or design aircraft.

Once an airport’s critical aircraft is established, during the development of an airport master plan or airport layout plan (ALP), applicable design standards related to runways, taxiways, and other applicable facilities are identified. Each airport’s design standards are related to the approach speed (aircraft approach category (AAC)), wingspan, and tail height (airplane design group (ADG)) of its critical aircraft. Within FAA’s planning guidelines, these parameters are used to determine each airport’s reference code, which signifies the airport’s highest runway design code (RDC). Airport master plans are the appropriate forum for determining an airport’s ARC and then investigating whether the airport is able to achieve the dimensional and design setback requirements for that ARC.

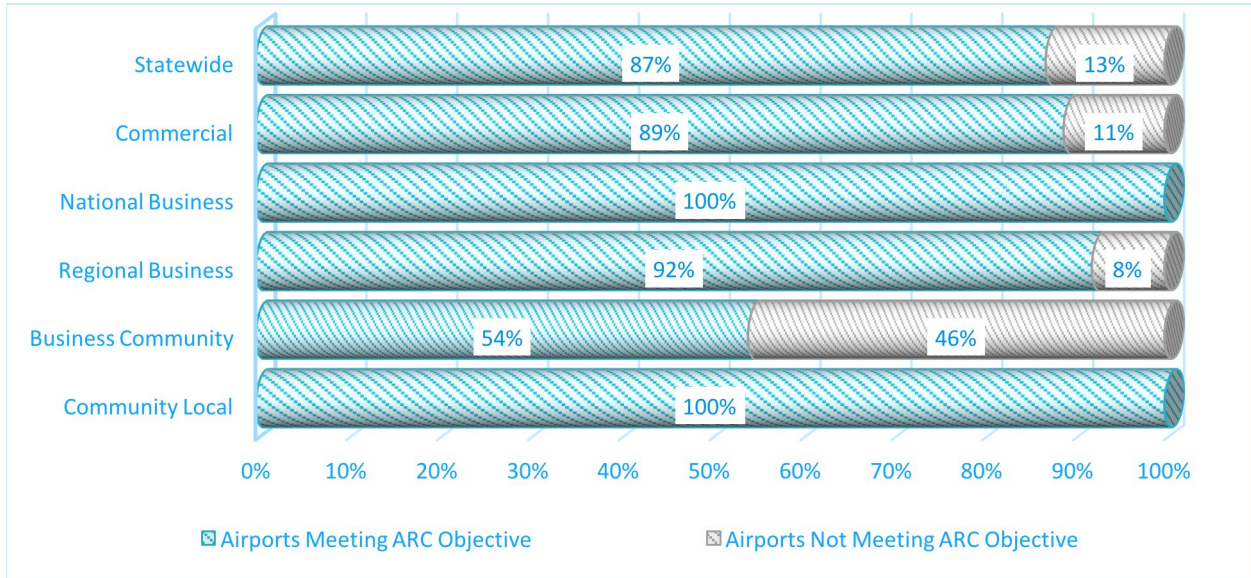
The following ARC objectives apply to Missouri airports:

- Commercial: C-II
- National Business: B-II
- Regional Business: B-II
- Business Community: B-II
- Community Local: A-I

A review of the current ARC at each study airport is presented in **Appendix B, Table B-1**. As shown in **Figure 6-1**, 87 percent of Missouri system airports currently meet or exceed their ARC objective.



FIGURE 6-1: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR ARC OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Airports that do not meet the System Plan’s ARC objective for their recommended role are presented in **Table 6-2**. Future master plans for these airports should consider increasing the airport’s ARC, if demand warrants. It is important to note that sufficient demand by a critical aircraft is needed to justify an increase to an airport’s ARC. Also, when an airport’s ARC is upgraded, there may be significant changes to an airport’s layout and its facility dimensions and separations that are required to support an upgraded ARC. Implications and costs to upgrade an airport’s ARC can only be determined through an airport master plan. Airport-specific projects and costs to achieve applicable ARC objectives were not estimated as part of the System Plan Update.

TABLE 6-2: AIRPORTS BY ROLE THAT DO NOT MEET THEIR ARC OBJECTIVE

Commercial	Regional Business	Business Community
<ul style="list-style-type: none"> <li>– Waynesville-St. Robert Regional</li> </ul>	<ul style="list-style-type: none"> <li>– St. Charles County Smartt Field</li> <li>– Washington Regional</li> </ul>	<ul style="list-style-type: none"> <li>– Jerry Sumners Sr Aurora Municipal</li> <li>– Ava Bill Martin Memorial</li> <li>– Cassville Municipal</li> <li>– Cuba Municipal</li> <li>– Elton Hensley Memorial</li> <li>– Lamar Municipal</li> <li>– Malden Regional</li> <li>– County Memorial (New Madrid)</li> <li>– Grand Glaize-Osage Beach</li> <li>– Washington County</li> <li>– Salem Memorial</li> </ul>

### 6.1.2 Runway Length

Adequate runways are key components for airports being able to fulfill their designated role in the state airport system. Runway objectives are based loosely on FAA runway length requirements for various types of planes. Actual runway length requirements are best identified through the master planning process, as lengths are determined by the critical aircraft operating at each airport.





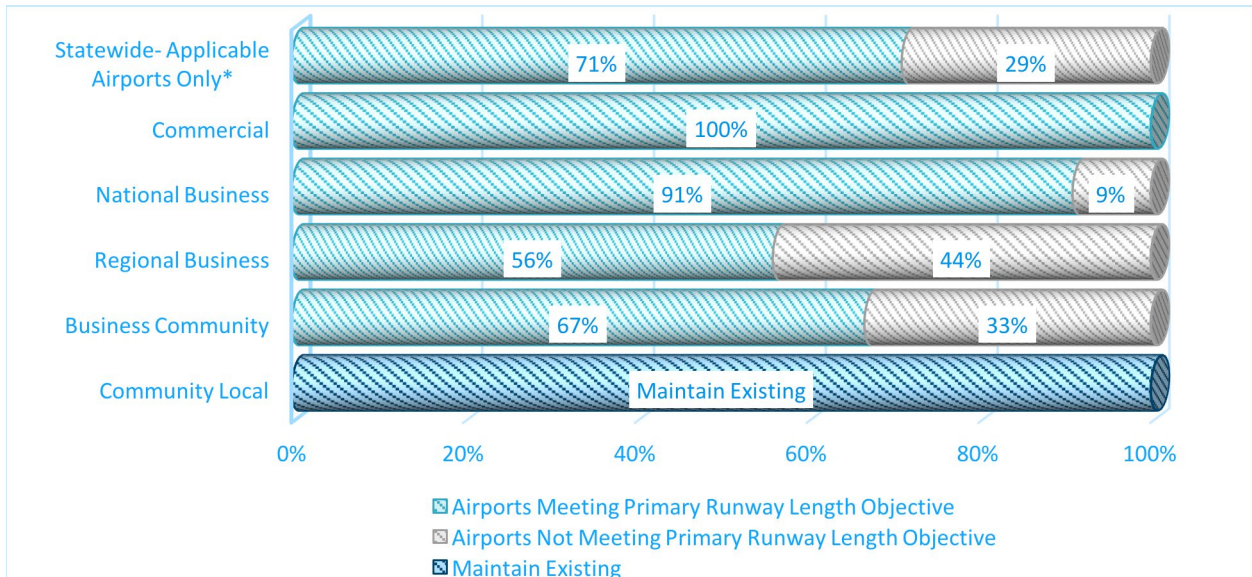
Runway length objectives set by the System Plan provide general guidance to all airports related to accommodating the types of planes and users they most frequently serve. It is possible that some airports, based on local need and justification, will exceed their runway length and width objectives. It is also possible, based on airport-specific conditions, that some airports may not be able to meet their runway length objectives. System Plan runway objectives are considered the minimum desirable length at each airport, based on the airport’s assigned system role.

The following runway length objectives apply to Missouri airports:

- Commercial: 6,000 feet
- National Business: 5,500 feet
- Regional Business: 5,000 feet
- Business Community: 4,000 feet
- Community Local: Maintain existing runway length

A review of the primary runway lengths at each study airport is presented in **Appendix B, Table B-2**. As noted in that table, some airports now exceed their minimum runway length objective. The objective established for Community Local airports is to maintain their existing runway length. As shown in **Figure 6-2**, 71 percent of Missouri system airports meet or exceed the length objective for their primary runway. The largest deficiencies occur in the Regional Business and Business Community roles.

FIGURE 6-2: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR RUNWAY LENGTH OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

**Table 6-3** identifies airports that do not meet the runway length objective for their system role. Although Butler Regional’s 3,999-foot-long runway does not meet the 4,000-foot runway length objective for Business Community airports, the deficiency is minor and no improvement is warranted; this airport was counted as currently meeting its runway length objective.



TABLE 6-3: AIRPORTS BY ROLE THAT DO NOT MEET RUNWAY LENGTH OBJECTIVE

National Business	Regional Business	Business Community
<ul style="list-style-type: none"> <li>- Monett Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Bolivar Municipal</li> <li>- Jesse Viertel Memorial</li> <li>- Camdenton Memorial-Lake Regional</li> <li>- Cameron Memorial</li> <li>- Chillicothe Municipal</li> <li>- Farmington Regional</li> <li>- Hannibal Regional</li> <li>- St. Charles County Smartt Field</li> <li>- Creve Coeur</li> <li>- Sullivan Regional</li> <li>- UCM-Skyhaven</li> </ul>	<ul style="list-style-type: none"> <li>- Jerry Sumners Sr Aurora Municipal</li> <li>- Ava Bill Martin Memorial</li> <li>- M. Graham Clark-Downtown</li> <li>- Cassville Municipal</li> <li>- Cuba Municipal</li> <li>- County Memorial (New Madrid)</li> <li>- Grand Glaize-Osage Beach</li> <li>- Salem Memorial</li> </ul>

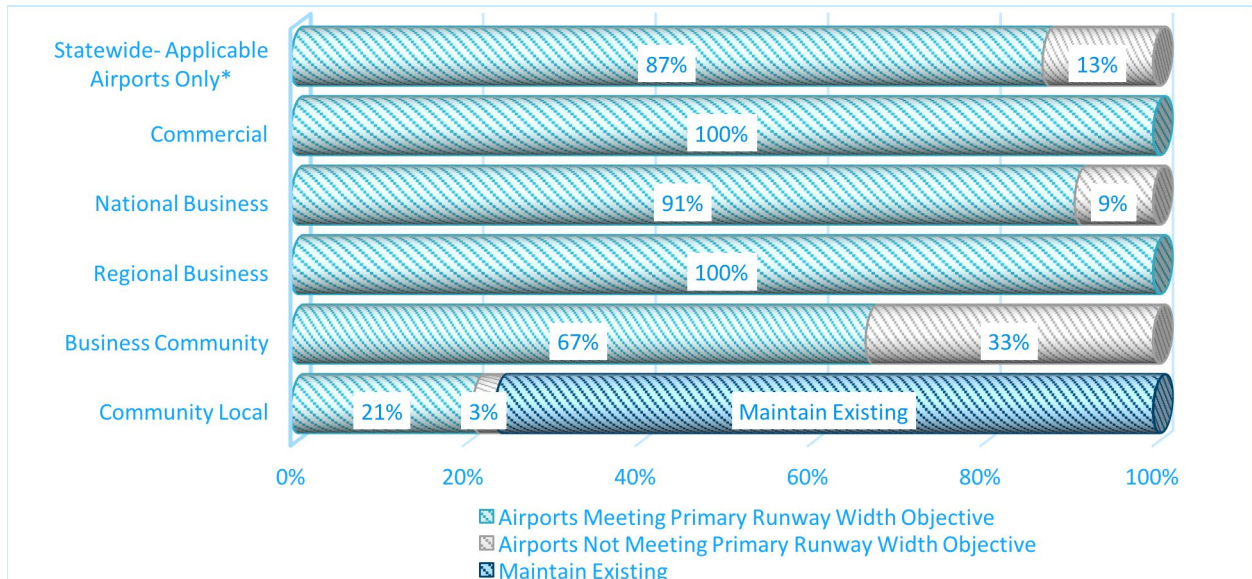
### 6.1.3 Runway Width

Runway width is another important component of each airport’s airfield facility objectives. Missouri’s objectives for runway width are determined based on FAA design standards. Runway width objectives, as established for airports in Missouri, include:

- Commercial and National Business: 100 feet
- Regional Business and Business Community: 75 feet
- Community Local: 60 feet for NPIAS airports; maintain existing width for Non-NPIAS airports

Appendix B, Table B-3 presents each airport’s ability to meet its primary runway width objective. As shown in Figure 6-3, 87 percent of airports meet the runway width objectives for their respective role in the state system.

FIGURE 6-3: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR PRIMARY RUNWAY WIDTH OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Non-NPIAS Community Local airports.

Table 6-4 identifies the system airports that do not meet their primary runway width objective.



TABLE 6-4: AIRPORTS BY ROLE THAT DO NOT MEET THEIR RUNWAY WIDTH OBJECTIVE

National Business	Business Community	Community Local
– Monett Regional	– Jerry Sumners Sr Aurora Municipal – Ava Bill Martin Memorial – Cassville Municipal – Cuba Municipal – County Memorial (New Madrid) – Grand Glaize-Osage Beach – Washington County – Salem Memorial	– Bowling Green Municipal

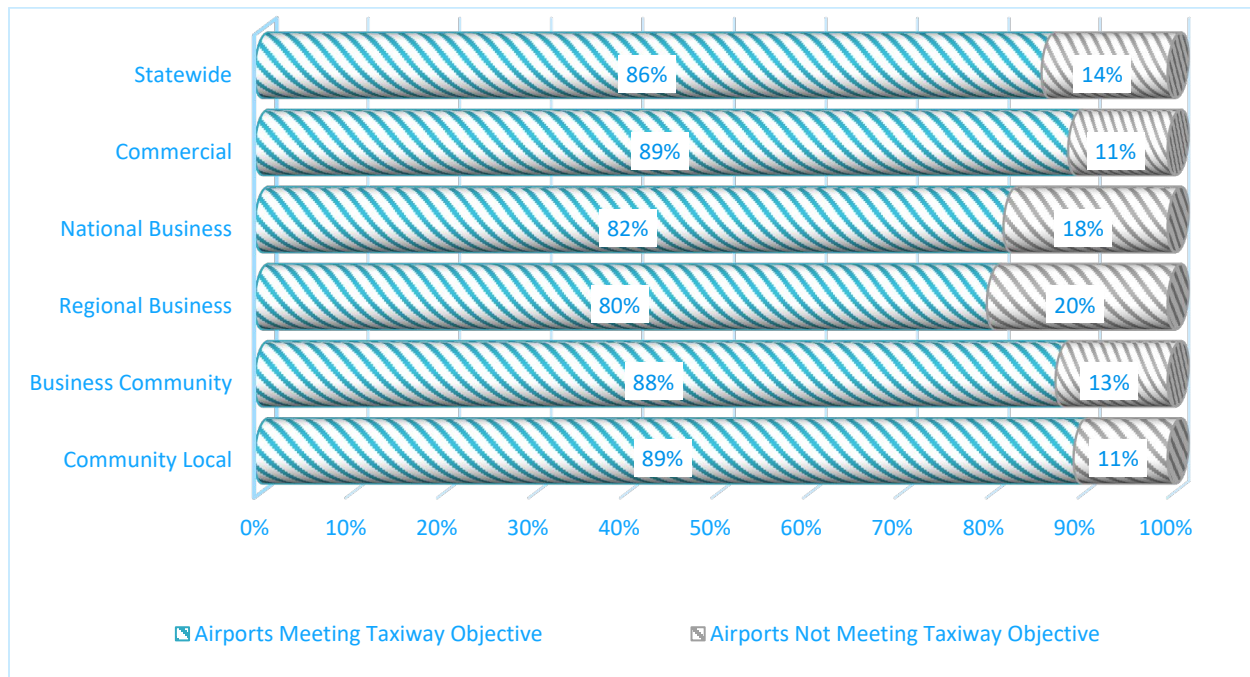
### 6.1.4 Taxiway System

Taxiways facilitate aircraft movement to and from the runway system, allowing for safer operations and increased operational efficiency. Taxiways become extremely important as activity increases and more efficient use of the airfield is required. Taxiway systems and exits permit aircraft to clear the runway quickly after landing and significantly increase runway capacity. Taxiways are also recommended to support certain types of instrument approaches. The following taxiway objectives apply to Missouri airports:

- Commercial, National Business, and Regional Business: Full parallel taxiway
- Business Community and Community Local (excluding airports with turf runways): Turnarounds on each runway end

As presented in **Appendix B, Table B-4** and summarized in **Figure 6-4**, 86 percent of system airports meet their respective objective for taxiway type. If an airport has a turf runway, it is shown as meeting its system objective.

FIGURE 6-4: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR TAXIWAY SYSTEM OBJECTIVES



Source: MoDOT, Missouri Airport Manager Survey

The airports shown in **Table 6-5** do not currently meet their taxiway system objective.





TABLE 6-5: AIRPORTS BY ROLE THAT DO NOT MEET THEIR TAXIWAY SYSTEM OBJECTIVE

Commercial	National Business	Regional Business	Business Community	Community Local
<ul style="list-style-type: none"> <li>- Branson</li> </ul>	<ul style="list-style-type: none"> <li>- Rolla National</li> <li>- Sedalia Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Camdenton Memorial-Lake Regional</li> <li>- Clinton Regional</li> <li>- Nevada Municipal</li> <li>- Perryville Regional</li> <li>- UCM Skyhaven</li> </ul>	<ul style="list-style-type: none"> <li>- Ava Bill Martin Memorial</li> <li>- Caruthersville Memorial</li> <li>- Mountain View</li> </ul>	<ul style="list-style-type: none"> <li>- Bethany Memorial</li> <li>- Bismarck Memorial</li> <li>- Doniphan Municipal</li> <li>- Mountain Grove Memorial</li> </ul>

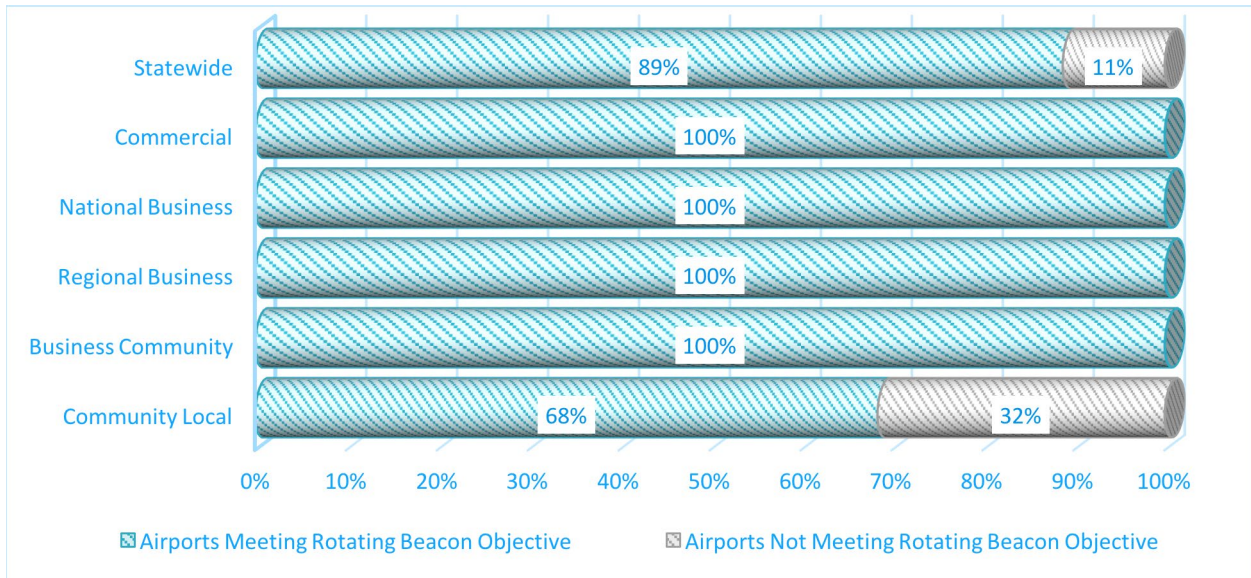
### 6.1.5 Visual Navigational Aids

There are several visual navigational aids (NAVAIDs) that provide navigational assistance to aircraft arriving and departing Missouri’s airports. Three common visual aids include a rotating beacon, segmented circle, and wind cone. Other visual aids that support instrument approaches are Runway End Identifier Lights (REILs) and Visual Glide Slope Indicators (VGSIs); VGSIs include Precision Approach Path Indicators (PAPIs) or a Visual Approach Slope Indicator (VASIs). Objectives by airport role have been established for each of these five NAVAIDs and are discussed below. **Appendix B, Table B-5** shows which airports meet their NAVAIDs system objectives.

#### Rotating Beacon

A rotating beacon assists pilots in locating an airport during periods of darkness or low visibility. It is an objective for all Missouri system airports to have a rotating beacon. As shown in **Figure 6-5**, 89 percent of system airports have a rotating beacon. Twelve Community Local airports do not have a rotating beacon, as noted in **Table 6-6**.

FIGURE 6-5: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR ROTATING BEACON OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey



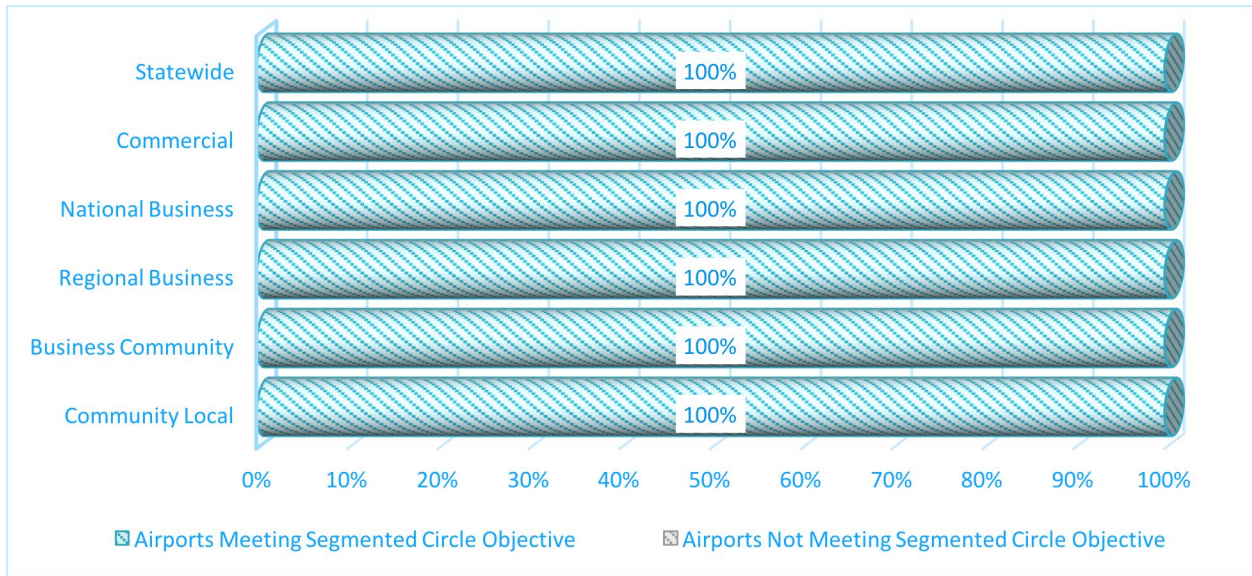
TABLE 6-6: AIRPORTS BY ROLE THAT DO NOT MEET THEIR ROTATING BEACON OBJECTIVE

Community Local
- Bethany Memorial
- Bonne Terre Municipal
- Campbell Municipal
- Doniphan Municipal
- Gideon Memorial
- Kahoka Municipal
- Lincoln Municipal
- State Technical College of Missouri
- Mount Vernon Municipal
- Richland Municipal
- Shelby County
- Willow Springs Memorial

### Segmented Circle

All system airports should also have a segmented circle, a NAVAID that provides pilots with traffic pattern information. As reflected in **Figure 6-6**, 100 percent of system airports have a segmented circle.

FIGURE 6-6: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET SEGMENTED CIRCLE OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

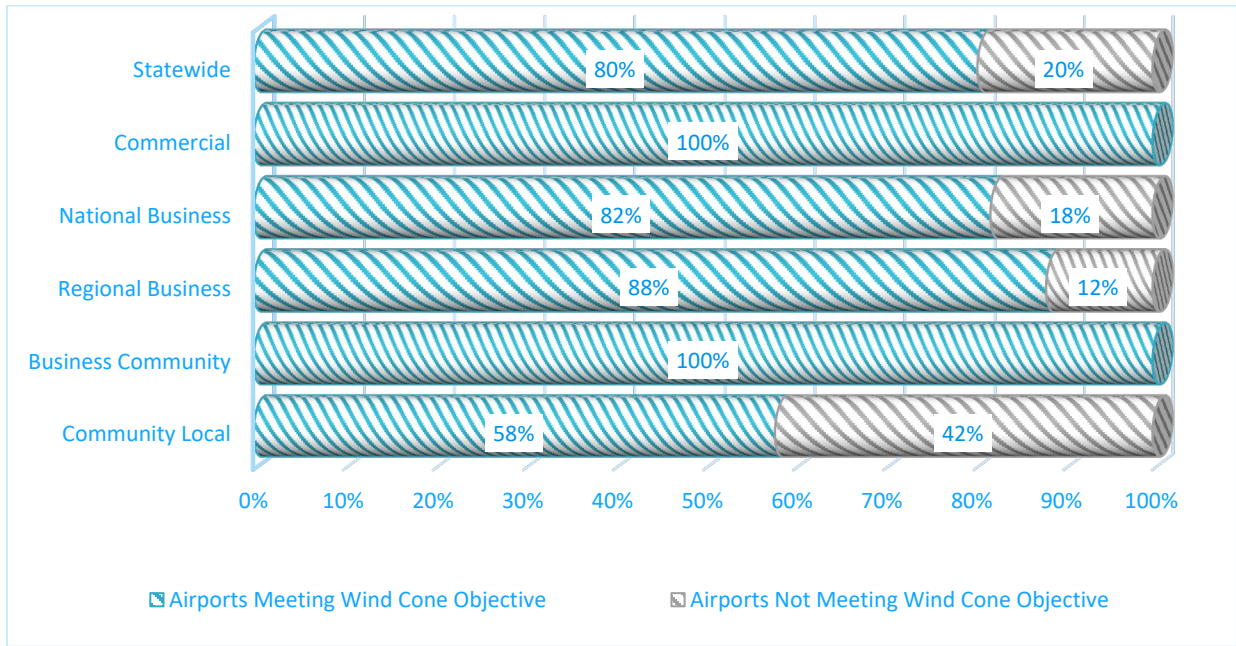
### Lighted Wind Cone

A wind cone is a visual aid that helps pilots determine the speed and direction of the wind. When lighted, it provides pilot assistance at night for takeoffs and landings. The objective is for all system airports to have a lighted wind cone; as shown in **Figure 6-7**, 80 percent of system airports meet this objective. Many of the airports that do not meet the objective have a wind cone, but the cones are not currently lighted.





FIGURE 6-7: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR LIGHTED WIND CONE OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Table 6-7 presents the airports that currently do not meet the system objective to have a lighted wind cone.

TABLE 6-7: AIRPORTS BY ROLE THAT DO NOT MEET THEIR LIGHTED WIND CONE OBJECTIVE

National Business	Regional Business	Community Local
<ul style="list-style-type: none"> <li>- Monett Regional</li> <li>- Spirit of St. Louis</li> </ul>	<ul style="list-style-type: none"> <li>- Chillicothe Municipal</li> <li>- Dexter Municipal</li> <li>- West Plains Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Bethany Memorial</li> <li>- Bismarck Memorial</li> <li>- Bollinger-Crass Memorial</li> <li>- Bonne Terre Municipal</li> <li>- Cabool Memorial</li> <li>- Campbell Municipal</li> <li>- Doniphan Municipal</li> <li>- Gainesville Memorial</li> <li>- Gideon Memorial</li> <li>- Hornersville Memorial</li> <li>- Kahoka Municipal</li> <li>- Lincoln Municipal</li> <li>- Shelby County</li> <li>- Steele Municipal</li> <li>- Stockton Municipal</li> <li>- Thayer Memorial</li> </ul>

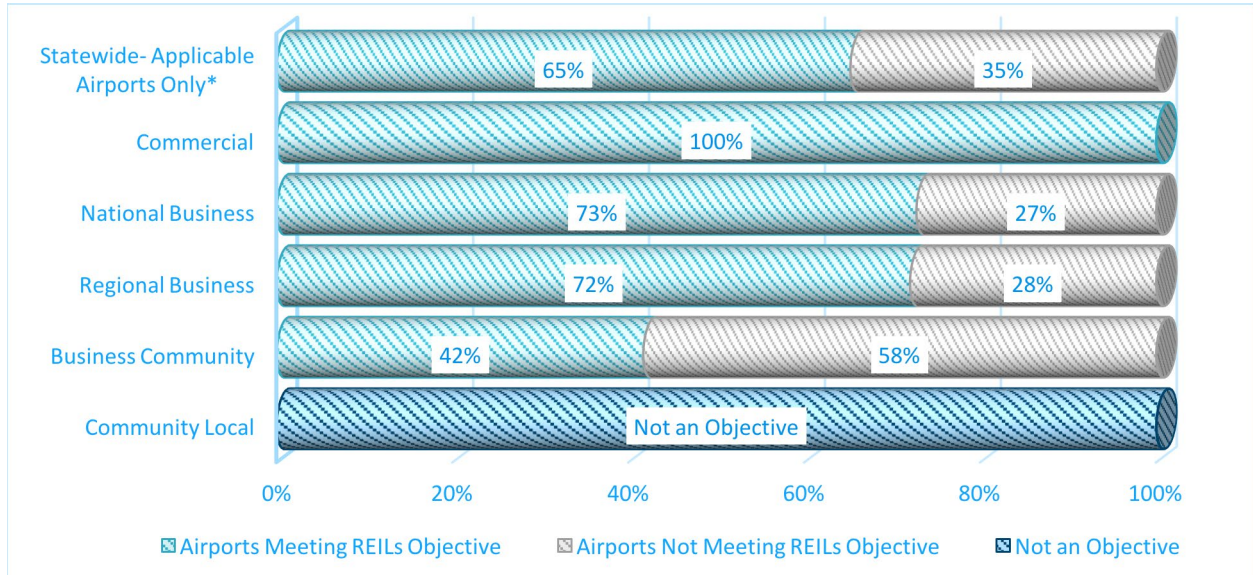
### Runway End Identifier Lights

Runway End Identifier Lights (REILs) provide rapid and positive identification of the approach end of a runway. The System Plan objective is for all system airports, excluding Community Local airports, to have REILs on both ends of their primary runway. It is important to note that approach lighting systems (ALS) such as a Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR), Medium-intensity Approach Lighting System with Sequenced Flashing lights (MALSF), or Omnidirectional Approach Lighting



System (ODALS) contain runway end lights and replaces the need for REILs on that runway end. **Figure 6-8** shows that 65 percent of applicable system airports meet the REILs objective.

FIGURE 6-8: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR REILS OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

The airports listed in **Table 6-8** do not currently meet the objective of having REILs on both runway ends.

TABLE 6-8: AIRPORTS BY ROLE THAT DO NOT MEET THEIR REILS OBJECTIVE

National Business	Regional Business	Business Community
<ul style="list-style-type: none"> <li>- Mexico Memorial</li> <li>- Rolla National</li> <li>- Sikeston Memorial</li> </ul>	<ul style="list-style-type: none"> <li>- Bolivar Municipal</li> <li>- Chillicothe Municipal</li> <li>- Dexter Municipal</li> <li>- Farmington Regional</li> <li>- Lee C Fine Memorial</li> <li>- St. Charles County Smartt Field</li> <li>- Sullivan Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Jerry Sumners Sr Aurora Municipal</li> <li>- Ava Bill Martin Memorial</li> <li>- Butler Memorial</li> <li>- Caruthersville Memorial</li> <li>- Cassville Municipal</li> <li>- A. Paul Vance Fredericktown Regional</li> <li>- Lawrence Smith Memorial</li> <li>- Macon Fower Memorial</li> <li>- Marshall Memorial Municipal</li> <li>- Malden Regional</li> <li>- Mountain View</li> <li>- County Memorial (New Madrid)</li> <li>- Grand Glaize-Osage Beach</li> <li>- Washington County</li> </ul>

Although no objective has been established, the following six Community Local airports have REILs located on both runway ends, and help support the system objective to provide pilots with approach lighting.

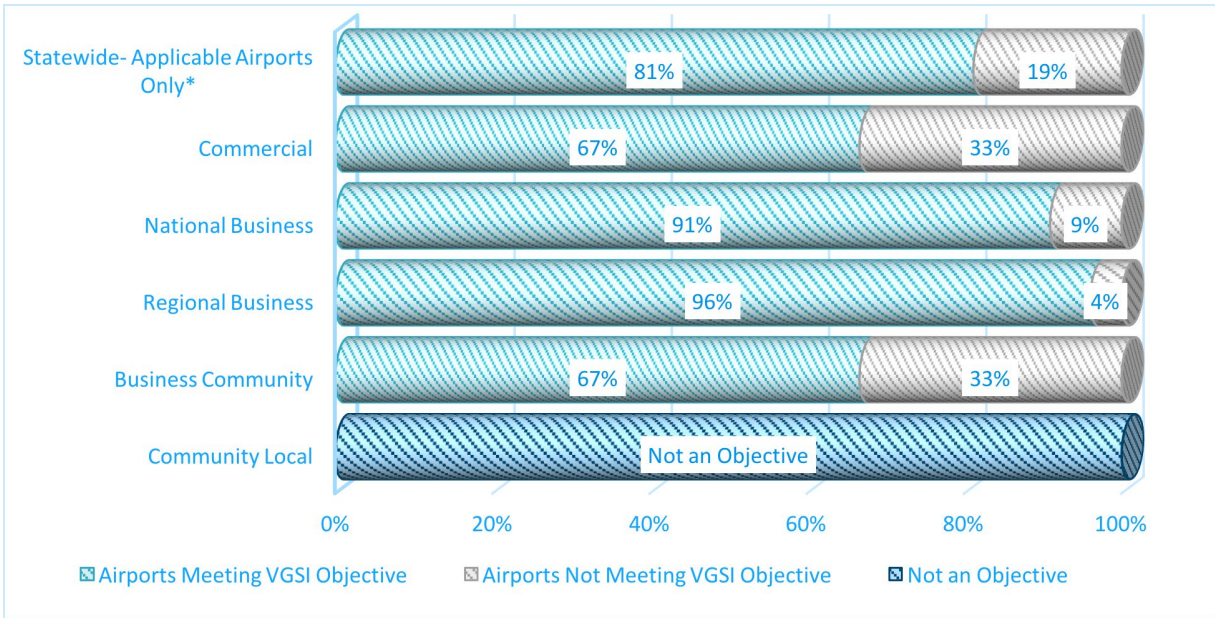
- Mississippi County
- Houston Memorial
- State Technical College of Missouri
- Lewis County Regional
- Mountain Grove Memorial
- Piedmont Municipal



### Visual Glide Slope Indicators

Visual Glide Slope Indicators (VGSIs) are lighting systems located adjacent to the runway to assist aircraft with visually based vertical alignment on approach. VGSIs include Precision Approach Path Indicators (PAPIs) or Visual Approach Slope Indicators (VASIs). VASIs are older technology and are typically replaced with PAPIs as needed. The VGSI objective for Missouri system airports (excluding Community Local) is to have PAPIs or VASIs on both ends of the primary runway; the System Plan does not have a VGSI objective for Community Local airports. As shown in **Figure 6-9**, 81 percent of applicable system airports statewide have VGSIs on both runway ends.

FIGURE 6-9: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR VGSI OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

The airports shown in **Table 6-9** do not meet their VGSI objective.

TABLE 6-9: AIRPORTS BY ROLE THAT DO NOT MEET THEIR VGSI OBJECTIVE

Commercial	National Business	Regional Business	Business Community
<ul style="list-style-type: none"> <li>– Cape Girardeau Regional</li> <li>– Columbia Regional</li> <li>– Joplin Regional</li> </ul>	<ul style="list-style-type: none"> <li>– Mexico Memorial</li> </ul>	<ul style="list-style-type: none"> <li>– Farmington Regional</li> </ul>	<ul style="list-style-type: none"> <li>– Jerry Sumners Sr Aurora Municipal</li> <li>– Ava Bill Martin Memorial</li> <li>– M. Graham Clark-Downtown</li> <li>– Malden Regional</li> <li>– Mountain View</li> <li>– County Memorial (New Madrid)</li> <li>– Grand Glaize-Osage Beach</li> <li>– Washington County</li> </ul>



Although it is not an established objective, the following Community Local airports have VGSI on both runway ends and support the system’s lighting needs:

- Mississippi County
- Houston Memorial
- State Technical College of Missouri
- Memphis Memorial
- Captain Ben Smith Airfield
- Lewis County Regional
- Mountain Grove Memorial

### 6.1.6 Approach

An instrument approach improves airport air access and operational efficiency and helps improve safety during a wide variety of meteorological conditions. Historically, most flight procedures have been based on land-based navigational aids requiring considerable investment for equipment and maintenance. Land-based approach equipment includes: Instrument Landing Systems (ILS), Very High Frequency Omni-Directional Range (VORs), and Non-Directional Beacons (NDBs).

In the last decade, many of the approaches using land-based equipment have been replaced with satellite-based approaches that utilize Global Positioning Systems (GPS). GPS procedures accommodate precision-like approaches without requiring additional land-based navigation equipment at an airport. Area Navigation (RNAV) GPS approaches offer improved accuracy and lower approach minimums without land-based equipment. Localizer Performance with Vertical Guidance (LPV) or Lateral Navigation (LNAV) are the most popular RNAV GPS approaches. LPV minimums offer improved accuracy with Wide Area Augmentation System (WAAS) and provide both lateral and vertical guidance.

Approach objectives for system airports are as follows:

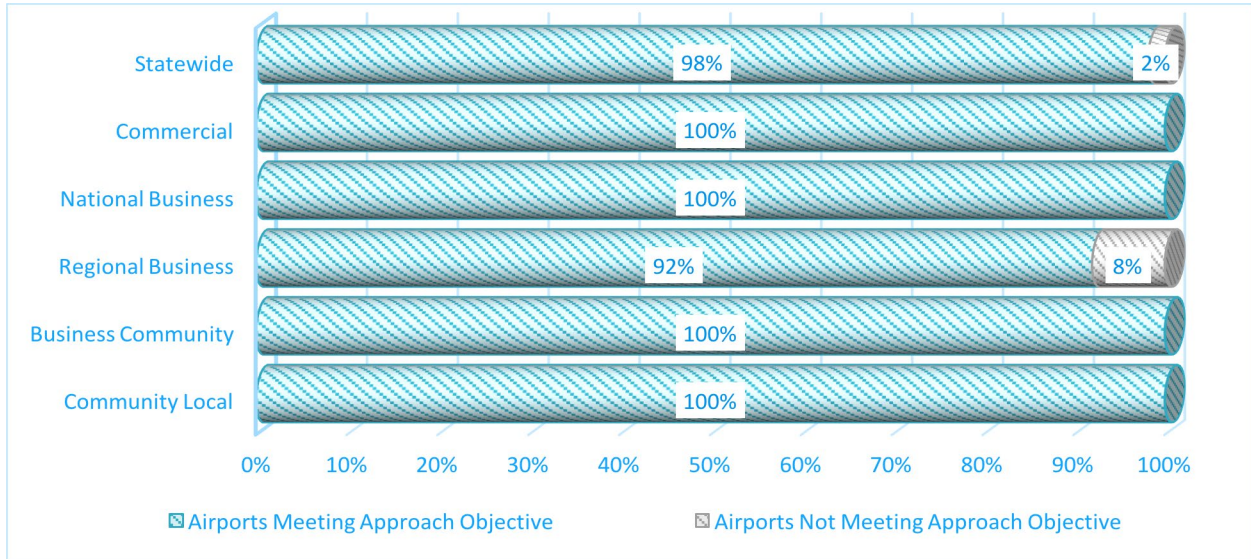
- Commercial: Precision Approach
- National Business and Regional Business: Precision-Like Approach (ILS or LPV)
- Business Community: Non-Precision Approach
- Community Local: Visual Approach

As shown in **Appendix B, Table B-6** and **Figure 6-10**, all but two airports in the Regional Business category meet their applicable approach objectives. These airports are listed in **Table 6-10**.





FIGURE 6-10: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR APPROACH OBJECTIVES



Source: MoDOT, Missouri Airport Manager Survey

TABLE 6-10: AIRPORTS BY ROLE THAT DO NOT MEET THEIR APPROACH OBJECTIVE

Regional Business
– Floyd W. Jones Lebanon
– St. Charles County Smartt Field

Several Community Local airports also have a published instrument approach. These approaches provide improved access to the following airports even though an approach objective has not been established for airports in this role:

- Bowling Green Municipal
- Cabool Memorial
- Mississippi County
- Excelsior Springs
- Gideon Memorial
- Houston Memorial
- Memphis Memorial
- Captain Ben Smith Airfield
- Lewis County Regional
- Mountain Grove Memorial
- Steele Municipal
- Stockton Municipal
- Gould Peterson Municipal

While having a published approach is a valuable asset, sometimes circumstances can limit an airport’s ability to take full advantage of its approach capabilities. As part of the System Plan Update, a separate analysis was completed to review the approach and departure capabilities of airports in southeast Missouri. As part of this study’s Focus Group, reports from pilots using airports in this part of the state indicated that current conditions limit communications for clearance for departures and arrivals. The System Plan included analysis to investigate this situation; the analysis concluded that airports, especially in and near the Poplar Bluff area, are experiencing approach and departure delays as a result of limited communications capabilities. This analysis is included in **Appendix C, Analysis on Air Traffic Communication** to the System Plan Update. Missouri airports included in this review should work with MoDOT and FAA to identify an appropriate path for resolving the noted communications deficiency.





### 6.1.7 Airport Lighting

Appropriate airfield lighting is essential to safe nighttime aircraft operations and those operations that occur during periods of reduced visibility. The System Plan has objectives for runway edge lighting, taxiway lighting, and approach lighting systems. A summary of the lighting found at each system airport and information on which airports meet their system objectives for lighting is presented in **Appendix B, Table B-7** and is discussed below.

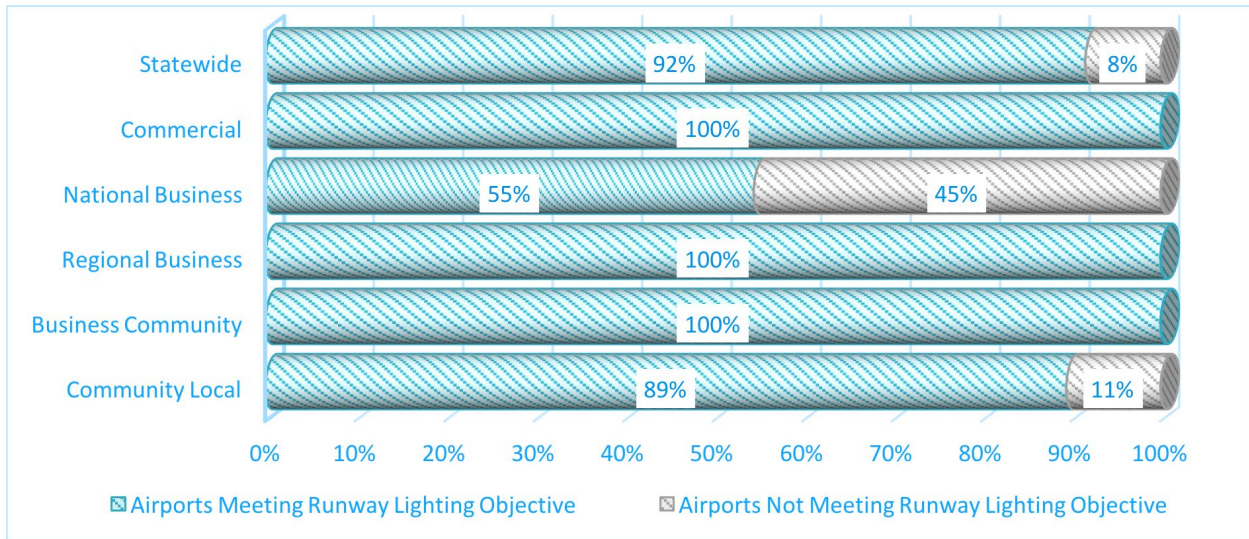
#### Runway Lighting

At night and during periods of reduced visibility, various types of lighting are used to outline the edges of the runway; lighting provides an increased margin of safety. The three runway lighting systems: High Intensity Runway Lights (HIRL), Medium Intensity Runway Lights (MIRL), and Low Intensity Runway Lights (LIRL), are differentiated by their brightness. System plan objectives for runway lighting are as follows:

- Commercial and National Business: HIRL
- Regional Business and Business Community: MIRL
- Community Local (excluding turf runways): LIRL (Any new runway lighting should include MIRL)

**Figure 6-11** shows that 92 percent of all system airports currently meet their objective for runway edge lighting. All Commercial, Regional Business, and Business Community airports meet their runway lighting objectives.

FIGURE 6-11: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR RUNWAY LIGHTING OBJECTIVES



Source: MoDOT, Missouri Airport Manager Survey

The airports in **Table 6-11** do not meet the runway edge lighting objective for their respective role in the state airport system.



TABLE 6-11: AIRPORTS BY ROLE THAT DO NOT MEET THEIR RUNWAY LIGHTING OBJECTIVE

National Business	Community Local
– Lee’s Summit Municipal	– Bonne Terre Municipal
– Mexico Memorial	– Gideon Memorial
– Monett Regional	– Hornersville Memorial
– Sedalia Regional	– Bollinger-Crass Memorial
– Sikeston Memorial Municipal	

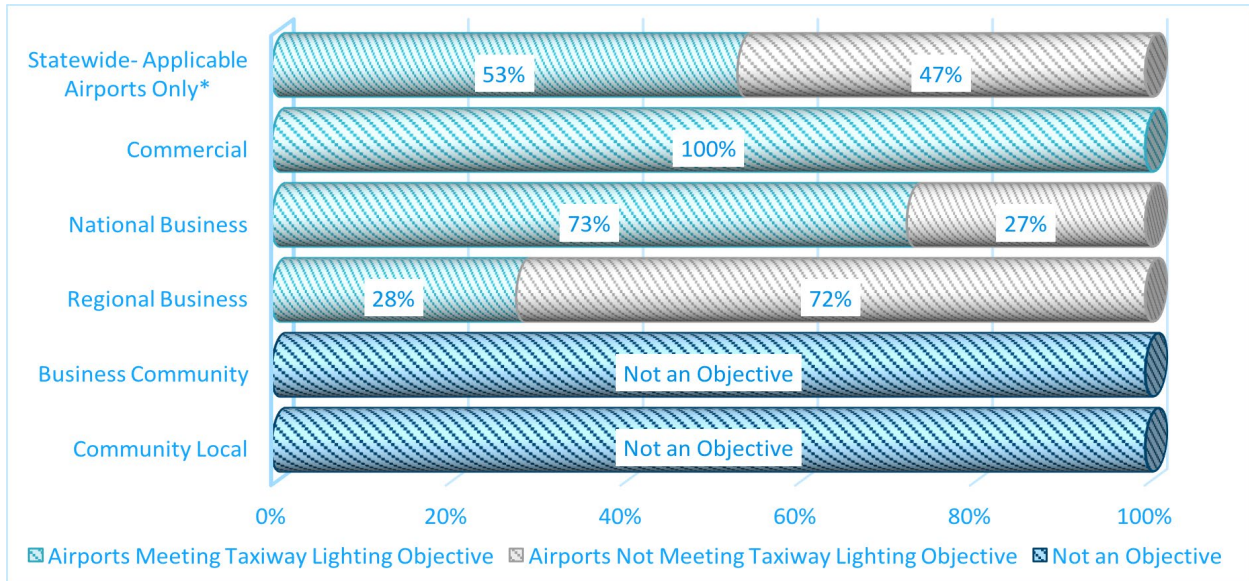
### Taxiway Lighting

Similar to runway edge lighting, taxiway lighting provides identification of the taxiways at night and during periods of reduced visibility. Objectives established for taxiway lighting are as follows:

- Commercial, National Business and Regional Business: Medium Intensity Taxiway Lights (MITL)
- Business Community and Community Local: No taxiway lighting objective established

Appendix B, Table B-7 presents which airports, by role, currently meet the system objectives for taxiway lighting. As shown in Figure 6-12, just 53 percent of all airports currently meet their taxiway lighting objectives.

FIGURE 6-12: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR TAXIWAY LIGHTING OBJECTIVES



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Business Community and Community Local airports.

Table 6-12 shows the system airports that need improvements in order to meet their taxiway lighting objective.



TABLE 6-12: AIRPORTS BY ROLE THAT DO NOT MEET THEIR TAXIWAY LIGHTING OBJECTIVE

National Business	Regional Business
<ul style="list-style-type: none"> <li>- Mexico Memorial</li> <li>- Monett Regional</li> <li>- Sedalia Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Bolivar Municipal</li> <li>- Jesse Viertel Memorial</li> <li>- Branson West Municipal-Emerson Field</li> <li>- North Central Missouri Regional</li> <li>- Camdenton Memorial-Lake Regional</li> <li>- Clinton Regional</li> <li>- Farmington Regional</li> <li>- Lee C. Fine Memorial</li> <li>- Floyd W. Jones Lebanon</li> <li>- Omar N Bradley</li> <li>- Neosho Hugh Robinson</li> <li>- Perryville Regional</li> <li>- St. Charles County Smartt Field</li> <li>- Creve Coeur</li> <li>- Sullivan Regional</li> <li>- UCM-Skyhaven</li> <li>- Washington Regional</li> <li>- West Plains Regional</li> </ul>

### Approach Lighting Systems

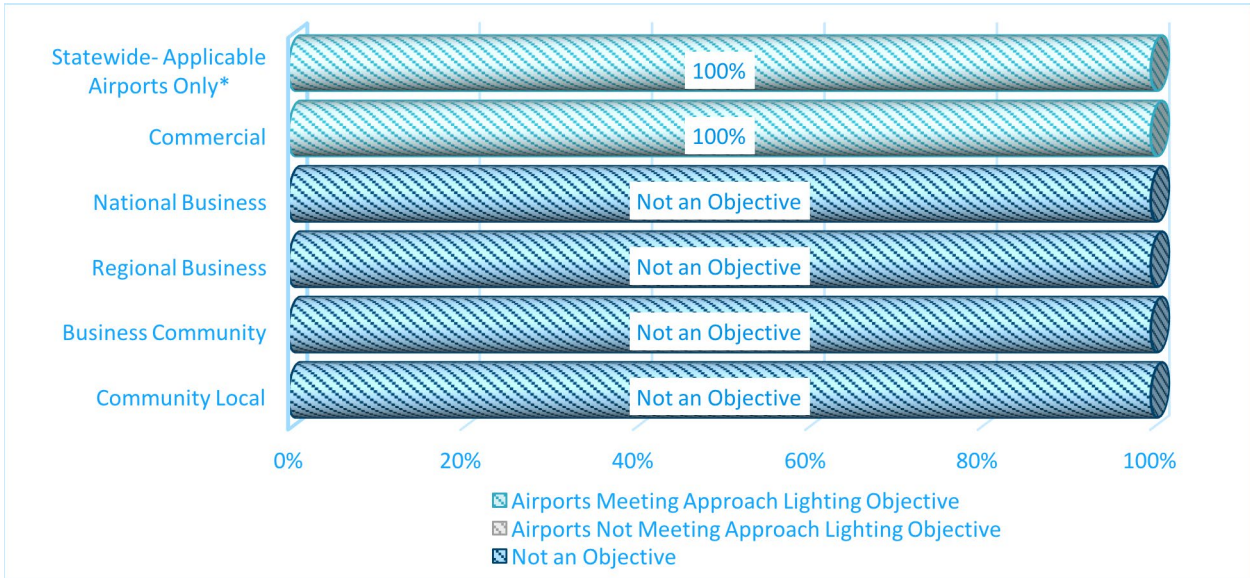
Approach lighting systems (ALS) contain a series of light bars and strobe lights that extend outward from the runway end to enhance safe approaches to the airfield. There are several different ALSs an airport can have in place, depending on their approach type, including:

- Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)
- Medium-intensity Approach Lighting System with Sequenced Flashing lights (MALSF)
- Approach Lighting System with Sequenced Flashing Lights (ALSF)
- Omnidirectional Approach Lighting System (ODALS)

The System Plan objective for Commercial airports is to have an ALS in place. There is no objective established for ALSs for airports in other role categories. As shown in **Figure 6-13**, 100 percent of Commercial airports meet the ALS objective. In addition to the nine Commercial airports, five National Business airports have an ALS in place: Jefferson City Memorial, Charles B. Wheeler-Downtown, Mexico Memorial, Monett Regional, and Spirit of St. Louis.



FIGURE 6-13: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR AIRPORT LIGHTING SYSTEM OBJECTIVES



Source: MoDOT, Missouri Airport Manager Survey  
 Note: \*The statewide total calculation only includes Commercial airports

### 6.1.8 Weather Reporting

Onsite weather reporting equipment at an airport improves operational capabilities during periods of inclement or changing weather. By providing an Automated Weather Observing System (AWOS) or Automated Surface Observing System (ASOS), pilots have improved information related to weather conditions at their destination airport or other potential backup airports.

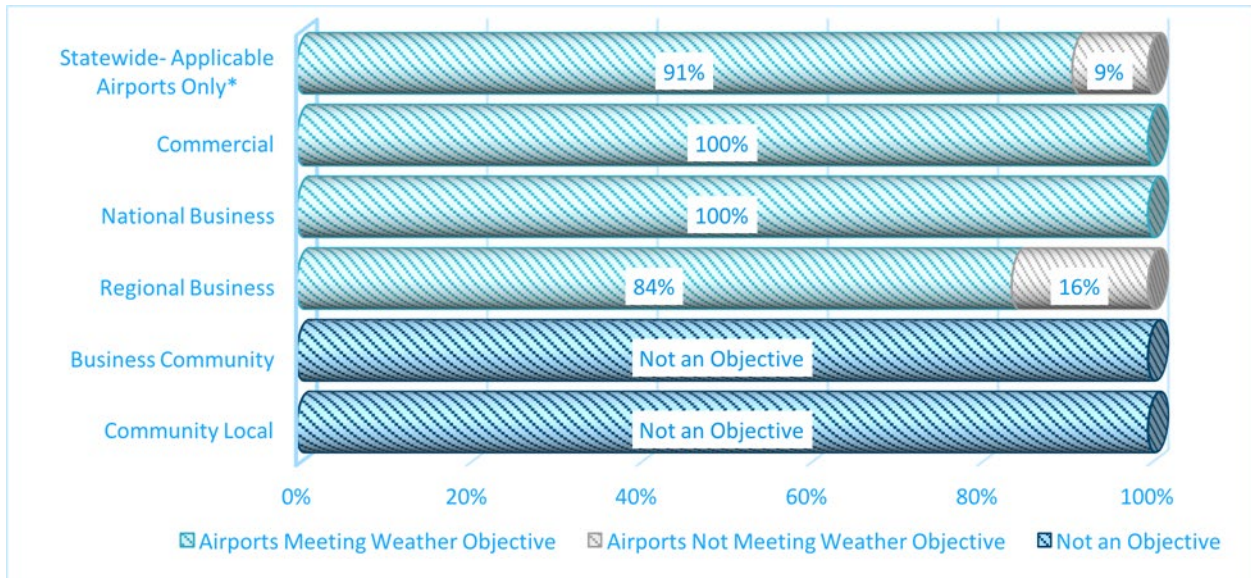
Appendix B, Table B-8 indicates whether airports, by role, currently meet their system objective for weather reporting. Only Commercial, National Business, and Regional Business airports have an objective for onsite weather reporting equipment.

Figure 6-14 shows that 91 percent of applicable system airports currently have onsite weather reporting capabilities and meet their objective for weather reporting equipment. All Commercial and National Business airports meet the weather reporting objective.





FIGURE 6-14: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR WEATHER REPORTING OBJECTIVES



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Business Community and Community Local airports.

Table 6-13 presents the four Regional Business airports in the Missouri system that do not currently meet their weather reporting objective.

TABLE 6-13: AIRPORTS BY ROLE THAT DO NOT MEET THEIR WEATHER REPORTING OBJECTIVE

Regional Business
– Bolivar Municipal
– Dexter Municipal
– Neosho Hugh Robinson
– Creve Coeur





In addition, the following five Business Community airports and one Community Local airport have weather reporting equipment in place:

- Lawrence Smith Memorial
- Malden Regional
- Marshall Memorial Municipal
- Northwest Missouri Regional
- Warsaw Municipal
- Piedmont Municipal (Community Local)

## 6.2 Other Facilities

Other general aviation facilities are important for serving both aircraft and airport customers. These facility objectives include:

- Aircraft Hangar Storage
- Tie-downs
- General Aviation Terminal/Administration Building
- General Aviation Auto Parking
- Ground Communications/Public Phone

### 6.2.1 Aircraft Hangar Storage

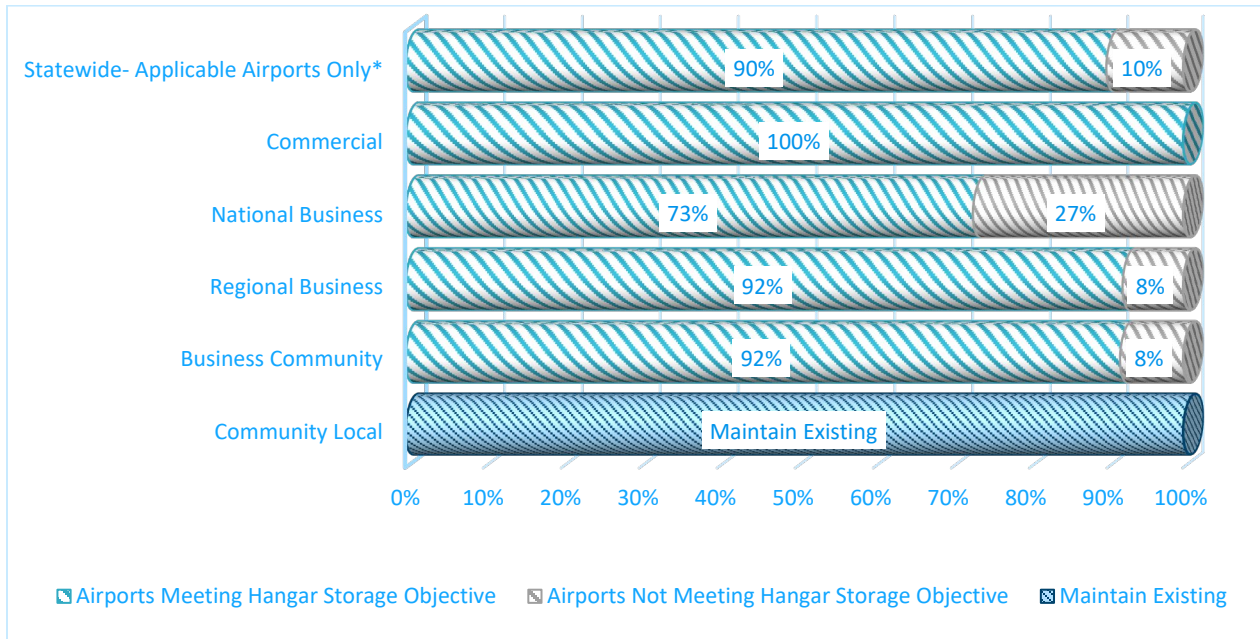
Demand for hangar space is directly related to the local climate and the type of based aircraft at each airport; for example, areas with severe weather conditions may have a higher demand for hangar storage facilities. In addition, larger investments for jet and turboprop aircraft increase the demand for hangar storage. In the last decade, more and more aircraft owners want to hangar their aircraft in order to protect their investment.

As part of the inventory collection process, an effort was made to collect detailed hangar storage data to evaluate each airport's ability to provide sufficient aircraft storage to meet its hangar storage objective. The objective is for Commercial, National Business, Regional Business, and Business Community airports to provide storage for 70 percent of their based aircraft. The objective for Community Local airports is to maintain existing hangar storage.

An analysis of the number of hangar parking spaces at each airport and each airport's objective for current hangar spaces is presented in **Appendix B, Table B-9. Figure 6-15** shows that 90 percent of system airports currently meet their hangar storage objective.



FIGURE 6-15: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR HANGAR STORAGE OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

Table 6-14 presents the airports that need additional hangars in order to meet their current system objective for hangar storage.

TABLE 6-14: AIRPORTS BY ROLE THAT DO NOT MEET THEIR HANGAR STORAGE OBJECTIVE

National Business	Regional Business	Business Community
<ul style="list-style-type: none"> <li>- Rolla National</li> <li>- Sedalia Regional</li> <li>- Spirit of St. Louis</li> </ul>	<ul style="list-style-type: none"> <li>- Floyd W. Jones Lebanon</li> <li>- St. Charles County Smartt Field</li> </ul>	<ul style="list-style-type: none"> <li>- Eldon Model Airpark</li> <li>- County Memorial (New Madrid)</li> </ul>

The System Plan objectives call for 70 percent of an airport’s based aircraft to have covered hangar storage. However, during the preparation of the System Plan, input from members of the Project Advisory Committee (PAC) indicated that this objective may not be adequate. PAC members indicated that at some system airports, 100 percent of the based aircraft seek hangar storage. Subsequently, while some system airports show adequate storage based on the System Plan’s facility and service objectives analysis, some of these airports have waiting lists for hangar facilities and actually need to provide additional hangar facilities. This is best addressed on an airport-by-airport basis.

### 6.2.2 Tie-downs

Aprons or aircraft ramps are designated surfaces typically adjacent to terminal buildings, maintenance hangars, air cargo facilities, and aircraft hangars that provide areas for parking aircraft, loading and unloading aircraft, fueling, and servicing aircraft. Apron areas typically vary in size and location based on a variety of factors including: role and nature of demand; type and size of aircraft intended to use the parking area; FAA design standards; and aircraft maneuvering needs.

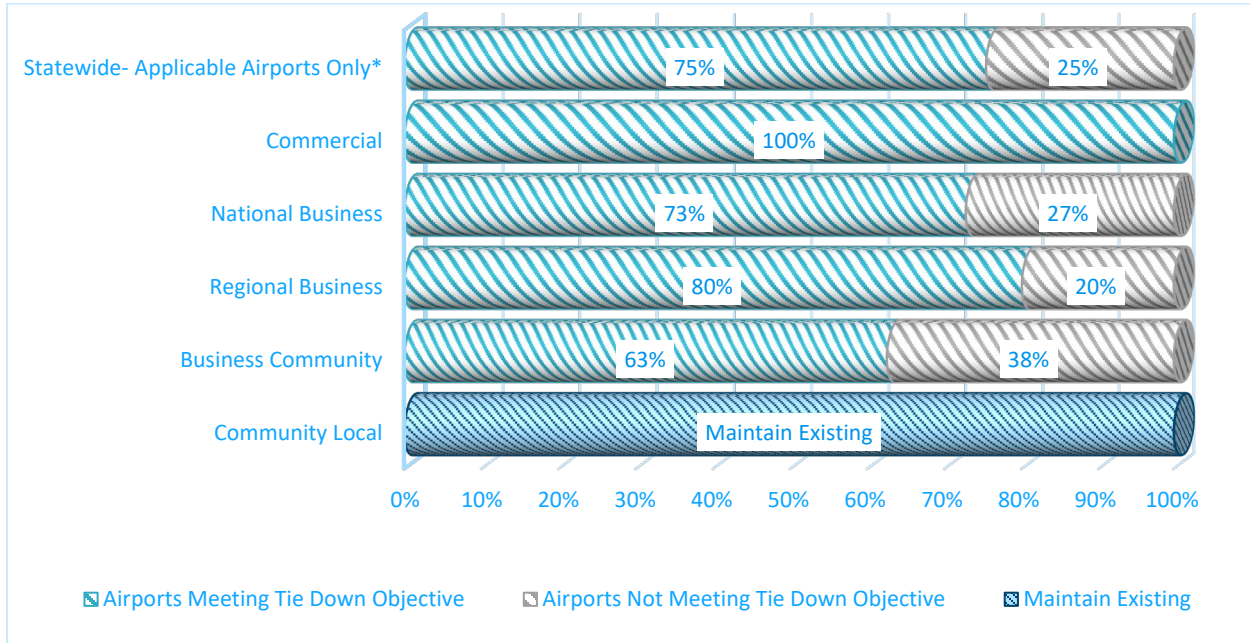
Paved tie-down/apron areas were calculated for based aircraft and transient or visiting aircraft. The following objectives, by role, were established for aircraft tie-down/apron requirements:



- Commercial, National Business, and Regional Business: 30 percent of based aircraft fleet plus 75 percent of daily transient aircraft
- Business Community: 40 percent of based aircraft fleet plus 25 percent of daily transient aircraft
- Local Community: Maintain existing tie-downs

The tie-down objective for each airport is presented in **Appendix B, Table B-10**. As shown in **Figure 6-16**, 75 percent of applicable system airports currently meet their aircraft tie-down objective.

FIGURE 6-16: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR TIE-DOWN OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

**Table 6-15** presents the system airports that currently do not meet their objective for the number of apron tie-down spaces.

TABLE 6-15: AIRPORTS BY ROLE THAT DO NOT MEET THEIR TIE-DOWN OBJECTIVE

National Business	Regional Business	Business Community
<ul style="list-style-type: none"> <li>– Midwest National Air Center</li> <li>– Rolla National</li> <li>– Spirit of St. Louis</li> </ul>	<ul style="list-style-type: none"> <li>– Chillicothe Municipal</li> <li>– Dexter Municipal</li> <li>– Poplar Bluff Municipal</li> <li>– Creve Coeur</li> <li>– Washington Regional</li> </ul>	<ul style="list-style-type: none"> <li>– Jerry Sumners Sr Aurora Municipal</li> <li>– Cassville Municipal</li> <li>– Cuba Municipal</li> <li>– A. Paul Vance Fredericktown Regional</li> <li>– Elton Hensley Memorial</li> <li>– Lamar Municipal*</li> <li>– Lawrence Smith Memorial</li> <li>– Macon-Fower Memoria</li> <li>– Mountain View</li> </ul>

Note: \* The deficiency is minor and therefore no improvement is warranted.



### 6.2.3 General Aviation Administration/Terminal Building

General aviation administration/terminal buildings provide essential services for passengers and pilots, as well as a facility for the transfer of passengers and flight crews to and from their aircraft. Terminal facilities can range in size based upon several factors, the most important being the type of users. Buildings can range from a small pilot room for flight planning and resting to a large multi-room building that provides services for multiple uses. A terminal building provides visitors with the first impression of a community, so it is important for it to be welcoming and provide a positive experience.

Specific areas or uses in an administration building can include: waiting areas; restrooms; pilots lounge; flight planning area; conference rooms or public meeting rooms; vending; and airport manager offices. The system objectives for general aviation administration building, by role, are as follows:

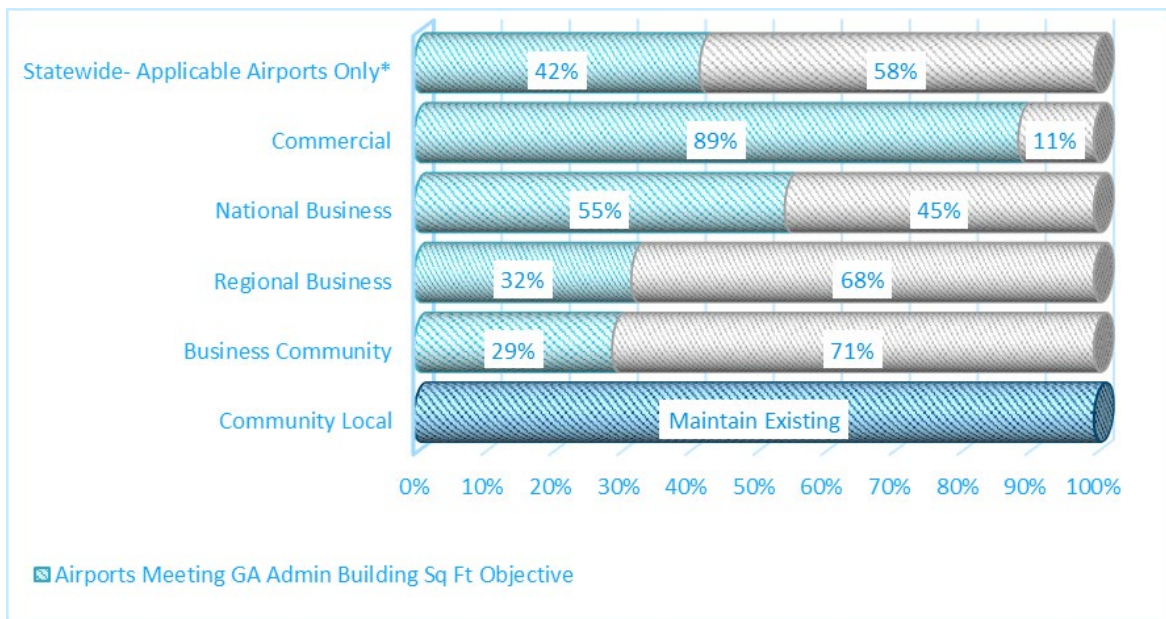
- Commercial, National Business, and Regional Business: Minimum of 2,500 square feet of public space including: restrooms, conference area, and pilot’s lounge
- Business Community: Minimum of 1,500 square feet of public space including: restrooms, conference area, and pilot’s lounge
- Community Local: Maintain existing terminal

An analysis of the general aviation administration/terminal building objective for each airport is presented in **Appendix B, Table B-11**.

#### Building Size

As shown in **Figure 6-17**, 42 percent of system airports meet their applicable objectives for general aviation administration building size. Just 32 percent of Regional Business airports meet the objective to have 2,500 square feet of building space, and only 29 percent of Business Community airports have an administration building of at least 1,500 square feet or more.

FIGURE 6-17: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR GENERAL AVIATION ADMINISTRATION BUILDING SIZE OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey





Note: \*The statewide total calculation does not include Community Local airports.

**Table 6-16** presents the airports that do not currently meet the square footage objective for general aviation administration building size.

TABLE 6-16: AIRPORTS BY ROLE THAT DO NOT MEET THEIR ADMINISTRATION BUILDING SQUARE FOOTAGE OBJECTIVE

Commercial	National Business	Regional Business	Business Community
<ul style="list-style-type: none"> <li>- Waynesville-St. Robert Regional*</li> </ul>	<ul style="list-style-type: none"> <li>- Lee's Summit Municipal</li> <li>- Mexico Memorial</li> <li>- Monett Regional*</li> <li>- Sedalia Regional</li> <li>- Sikeston Memorial Municipal</li> </ul>	<ul style="list-style-type: none"> <li>- Bolivar Municipal</li> <li>- Jesse Viertel Memorial</li> <li>- North Central Missouri Regional</li> <li>- Camdenton Memorial-Lake Regional</li> <li>- Cameron Memorial</li> <li>- Chillicothe Municipal</li> <li>- Clinton Regional</li> <li>- Dexter Municipal</li> <li>- Farmington Regional</li> <li>- Kennett Memorial*</li> <li>- Floyd W. Jones Lebanon</li> <li>- Omar N Bradley</li> <li>- Perryville Regional</li> <li>- Poplar Bluff Municipal</li> <li>- Sullivan Regional</li> <li>- UCM-Skyhaven</li> <li>- West Plains Regional*</li> </ul>	<ul style="list-style-type: none"> <li>- Jerry Sumners Sr Aurora Municipal</li> <li>- Ava Bill Martin Memorial</li> <li>- Butler Memorial</li> <li>- Caruthersville Memorial</li> <li>- Cassville Municipal</li> <li>- Cuba Municipal</li> <li>- A. Paul Vance Fredericktown Regional*</li> <li>- Eldon Model Airpark</li> <li>- Lawrence Smith Memorial</li> <li>- Macon-Fower Memorial</li> <li>- Mountain View</li> <li>- County Memorial (New Madrid)</li> <li>- Grand Glaize-Osage Beach*</li> <li>- Salem Memorial</li> <li>- Trenton Municipal</li> </ul>

Note: \* The deficiency is minor and therefore no improvement is warranted.

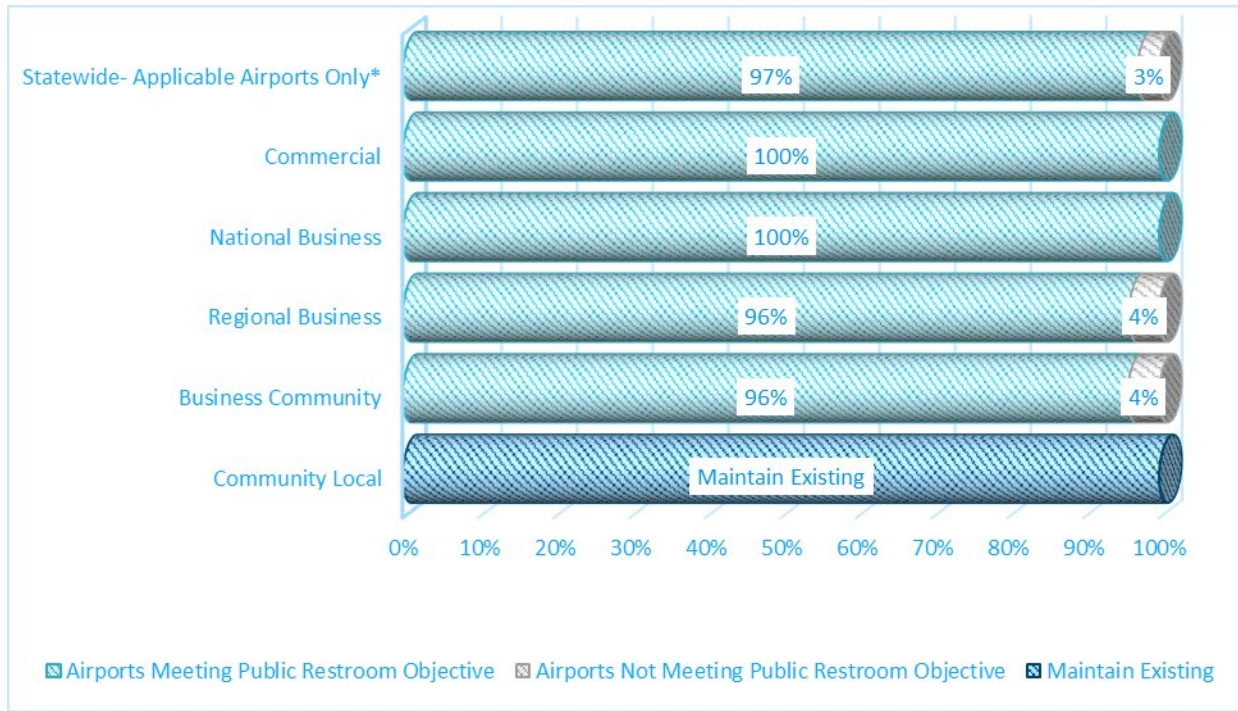
### Public Restrooms

An objective has been established that all Commercial, National Business, Regional Business, and Business Community airports should have restrooms available for use by local users and visitors. As shown in **Figure 6-18**, 97 percent of applicable system airports meet the public restroom objective.





FIGURE 6-18: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR PUBLIC RESTROOM OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

Table 6-17 presents the two system airports that should provide public restrooms to meet this objective.

TABLE 6-17: AIRPORTS BY ROLE THAT DO NOT MEET THEIR PUBLIC RESTROOM OBJECTIVE

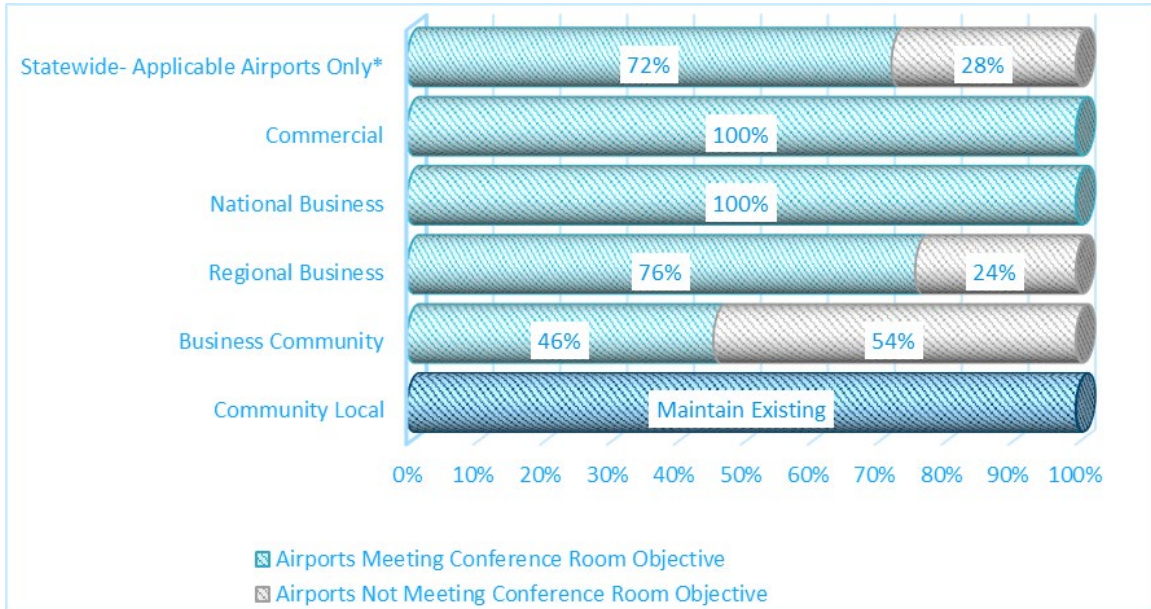
Regional Business	Business Community
– UCM-Skyhaven	– Eldon Model Airpark

### Conference Room

An objective was established for all Commercial, National Business, Regional Business, and Business Community airports to provide a conference room. As shown in Figure 6-19, 72 percent of applicable airports currently have a conference room located in their administration building.



FIGURE 6-19: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR CONFERENCE ROOM OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

Table 6-18 lists the airports by role that currently do not meet their conference room objective.

TABLE 6-18: AIRPORTS BY ROLE THAT DO NOT MEET THEIR CONFERENCE ROOM OBJECTIVE

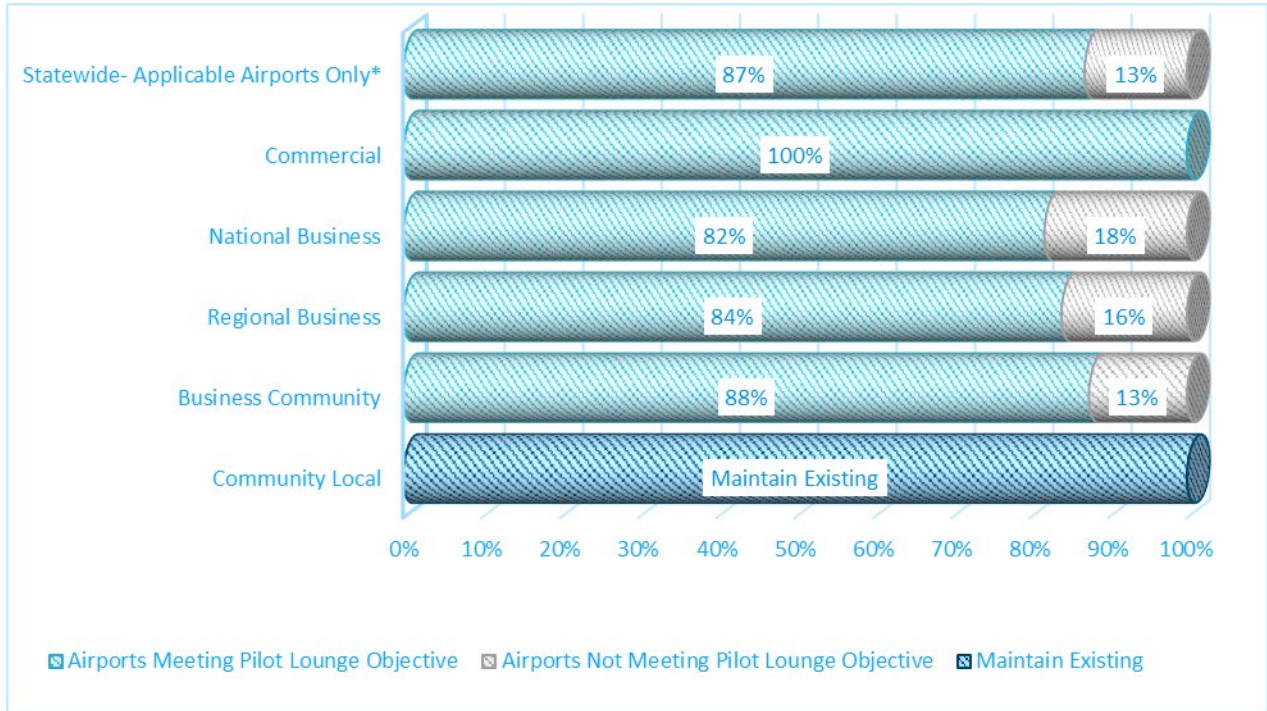
Regional Business	Business Community
<ul style="list-style-type: none"> <li>- Bolivar Municipal</li> <li>- Cameron Memorial</li> <li>- Clinton Regional</li> <li>- Floyd W. Jones Lebanon</li> <li>- Poplar Bluff Municipal</li> <li>- UCM-Skyhaven</li> </ul>	<ul style="list-style-type: none"> <li>- Ava Bill Martin Memorial</li> <li>- Butler Memorial</li> <li>- Caruthersville Memorial</li> <li>- Cassville Municipal</li> <li>- Cuba Municipal</li> <li>- Eldon Model Airpark</li> <li>- Elton Hensley Memorial</li> <li>- Lamar Municipal</li> <li>- Macon-Fower Memorial</li> <li>- Mountain View</li> <li>- County Memorial (New Madrid)</li> <li>- Salem Memorial</li> <li>- Trenton Municipal</li> </ul>

### Pilot Lounge

A pilot lounge offers pilots a place to rest as well as a place to plan their trips. The general aviation administration building at Commercial, National Business, Regional Business, and Business Community airports should include a pilot lounge. Figure 6-20 shows that 87 percent of these airports meet the pilot lounge objective.



FIGURE 6-20: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THE PILOT LOUNGE OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

A pilot lounge should be considered by the airports in **Table 6-19** to meet this objective.

TABLE 6-19: AIRPORTS BY ROLE THAT DO NOT MEET THEIR PILOT LOUNGE OBJECTIVE

National Business	Regional Business	Business Community
<ul style="list-style-type: none"> <li>- Jefferson City Memorial</li> <li>- Rosecrans Memorial</li> </ul>	<ul style="list-style-type: none"> <li>- Bolivar Municipal</li> <li>- Jesse Viertel Memorial</li> <li>- Creve Coeur</li> <li>- UCM-Skyhaven</li> </ul>	<ul style="list-style-type: none"> <li>- Jerry Sumners Sr Aurora Municipal</li> <li>- Caruthersville Memorial</li> <li>- Eldon Model Airport</li> </ul>

### 6.2.4 General Aviation Auto Parking

It is important to provide adequate auto parking for general aviation employees, airport users, and visitors. The number of auto parking spaces at an airport varies based on demand and airport services. The System Plan developed the following general aviation auto parking objectives for airports in each role:

- Commercial, National Business, and Regional Business: one paved parking space for each based aircraft plus an additional 50 percent for visitors/employees
- Business Community: one paved parking space for each based aircraft plus an additional 25 percent for visitors/employees
- Community Local: Maintain existing parking

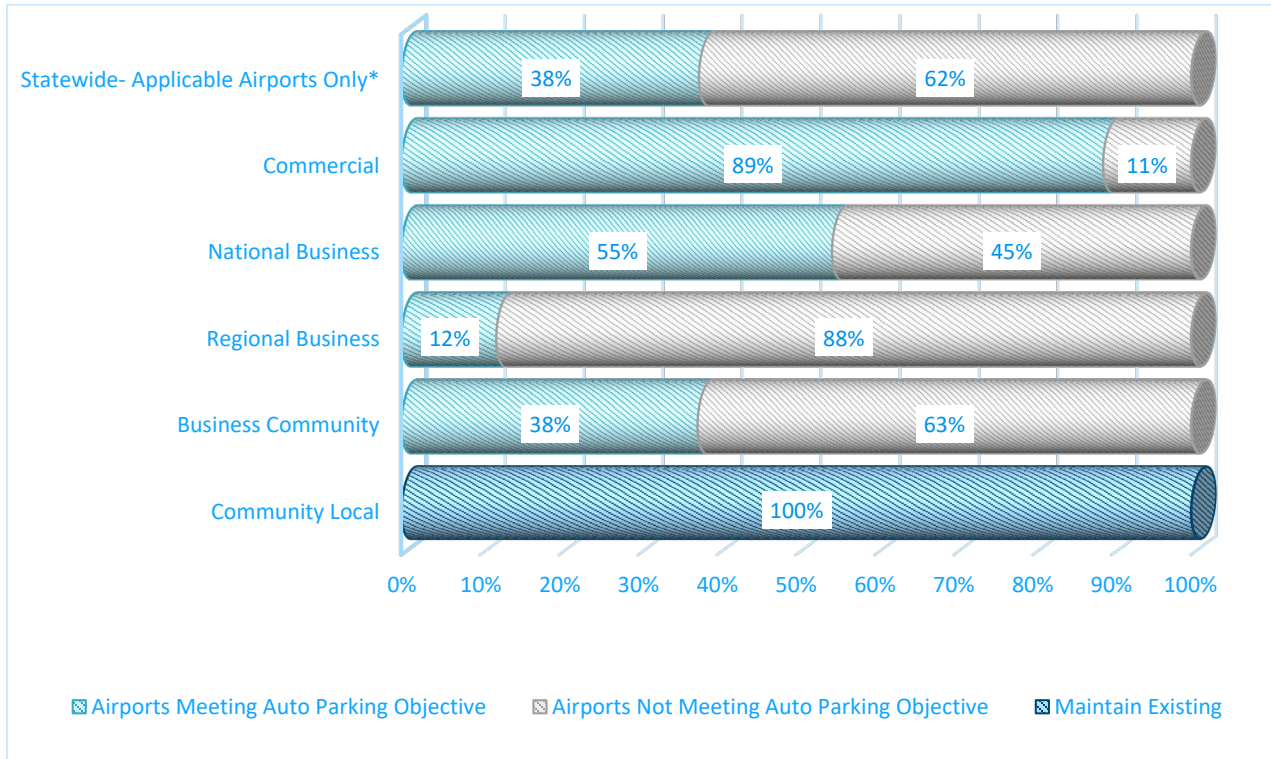
An analysis of general aviation auto parking at each airport is presented in **Appendix B, Table B-12**. As shown in **Figure 6-21**, 38 percent of the system airports currently meet the minimum auto parking objectives for their respective role. One reason the performance is low is because only marked and paved auto parking spaces





were counted towards meeting the objective. Often aircraft owners and others may park their cars in undesignated spaces and/or on unpaved spaces.

FIGURE 6-21: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR GENERAL AVIATION AUTO PARKING OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

The airports in **Table 6-20** need additional paved auto parking in order to meet their auto parking objective. The actual need to provide additional auto parking should be considered on an airport-by-airport basis.

TABLE 6-20: AIRPORTS BY ROLE THAT DO NOT MEET THEIR GENERAL AVIATION AUTO PARKING OBJECTIVE

Commercial	National Business	Regional Business	Business Community
<ul style="list-style-type: none"> <li>- Cape Girardeau Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Lee's Summit Municipal</li> <li>- Mexico Memorial</li> <li>- Midwest National Air Center*</li> <li>- Rolla National</li> <li>- Sedalia Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Bolivar Municipal</li> <li>- Jesse Viertel Memorial</li> <li>- Branson West Municipal-Emerson Field*</li> <li>- Camdenton Memorial-Lake Regional</li> <li>- Cameron Memorial</li> <li>- Chillicothe Municipal</li> <li>- Clinton Regional</li> <li>- Dexter Municipal</li> <li>- Farmington Regional</li> <li>- Hannibal Regional</li> <li>- Kennett Memorial</li> <li>- Floyd W. Jones Lebanon</li> <li>- Omar N Bradley</li> <li>- Neosho Hugh Robinson</li> <li>- Nevada Municipal</li> </ul>	<ul style="list-style-type: none"> <li>- Jerry Sumners Sr Aurora Municipal</li> <li>- Butler Memorial</li> <li>- Cassville Municipal*</li> <li>- Cuba Municipal</li> <li>- Eldon Model Airpark</li> <li>- A. Paul Vance Fredericktown Regional</li> <li>- Elton Hensley Memorial</li> <li>- Lawrence Smith Memorial</li> <li>- Higginsville Industrial Municipal</li> <li>- Lamar Municipal</li> <li>- Macon-Fower Memorial</li> <li>- Northwest Missouri Regional*</li> <li>- Mountain View</li> </ul>





TABLE 6-20: AIRPORTS BY ROLE THAT DO NOT MEET THEIR GENERAL AVIATION AUTO PARKING OBJECTIVE

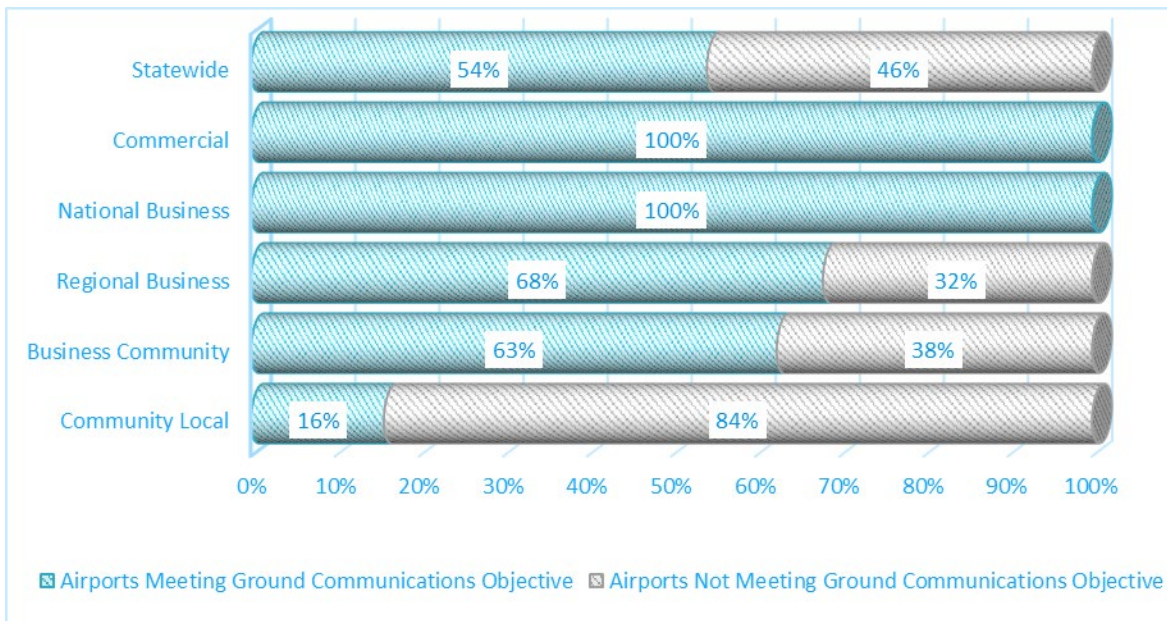
Commercial	National Business	Regional Business	Business Community
		<ul style="list-style-type: none"> <li>- Perryville Regional</li> <li>- Poplar Bluff Municipal</li> <li>- St. Charles County Smart Field</li> <li>- Creve Coeur</li> <li>- Sullivan Regional</li> <li>- Washington Regional</li> <li>- West Plains Regional</li> </ul>	<ul style="list-style-type: none"> <li>- County Memorial (New Madrid)</li> <li>- Trenton Municipal</li> </ul>

Note: \* The deficiency was minimal (one to three auto parking spaces needed) and additional parking may not be warranted.

### 6.2.5 Ground Communication/Public Phone

It is a System Plan objective for all airports to have a public telephone available. **Table 6-21** shows that 54 percent of all system airports meet the ground communication objective. **Appendix B, Table B-13** presents which airports reported having a public phone available. **Table 6-21** identifies the airports that are currently lacking a public telephone.

FIGURE 6-22: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR GROUND COMMUNICATION OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey



TABLE 6-21: AIRPORTS BY ROLE THAT DO NOT MEET THEIR GROUND COMMUNICATION OBJECTIVE

Regional Business	Business Community	Community Local
<ul style="list-style-type: none"> <li>- Clinton Regional</li> <li>- Farmington Regional</li> <li>- Omar N Bradley</li> <li>- Perryville Regional</li> <li>- St. Charles County Smartt Field</li> <li>- Creve Coeur</li> <li>- Sullivan Regional</li> <li>- UCM Skyhaven</li> </ul>	<ul style="list-style-type: none"> <li>- Jerry Sumners Sr Aurora Municipal</li> <li>- Ava Bill Martin Memorial</li> <li>- Caruthersville Memorial</li> <li>- Eldon Modal Airpark</li> <li>- Elton Hensley Memorial</li> <li>- Lawrence Smith Memorial</li> <li>- Lamar Municipal</li> <li>- Marshall Memorial Municipal</li> <li>- County Memorial (New Madrid)</li> </ul>	<ul style="list-style-type: none"> <li>- Albany Municipal</li> <li>- Bethany Memorial</li> <li>- Bismarck Memorial</li> <li>- Bonne Terre Municipal</li> <li>- Bowling Green Municipal</li> <li>- Cabool Memorial</li> <li>- Campbell Municipal</li> <li>- Carrollton Memorial</li> <li>- Mississippi County</li> <li>- Doniphan Municipal</li> <li>- El Dorado Springs Memorial</li> <li>- Gainesville Memorial</li> <li>- Gideon Memorial</li> <li>- Hermann Municipal</li> <li>- Hornersville Memorial</li> <li>- Houston Memorial</li> <li>- Kahoka Municipal</li> <li>- Lincoln Municipal</li> <li>- State Technical College of Missouri</li> <li>- Mansfield Municipal</li> <li>- Memphis Memorial</li> <li>- Lewis County Regional</li> <li>- Mount Vernon Municipal</li> <li>- Mountain Grove Memorial</li> <li>- Richland Municipal</li> <li>- Shelby County</li> <li>- Stockton Municipal</li> <li>- Gould Peterson Municipal</li> <li>- Thayer Memorial</li> <li>- Unionville Municipal</li> <li>- Bollinger-Crass Memorial</li> <li>- Roy Otten Memorial Airfield</li> </ul>

### 6.3 Services

The availability of services contributes to the attractiveness of an airport and its ability to effectively serve both based and transient users. Objectives for the following services were established as part of this System Plan:

- Fuel
- Rental Car
- Fixed Base Operators
- Aircraft Maintenance
- Ground Transportation

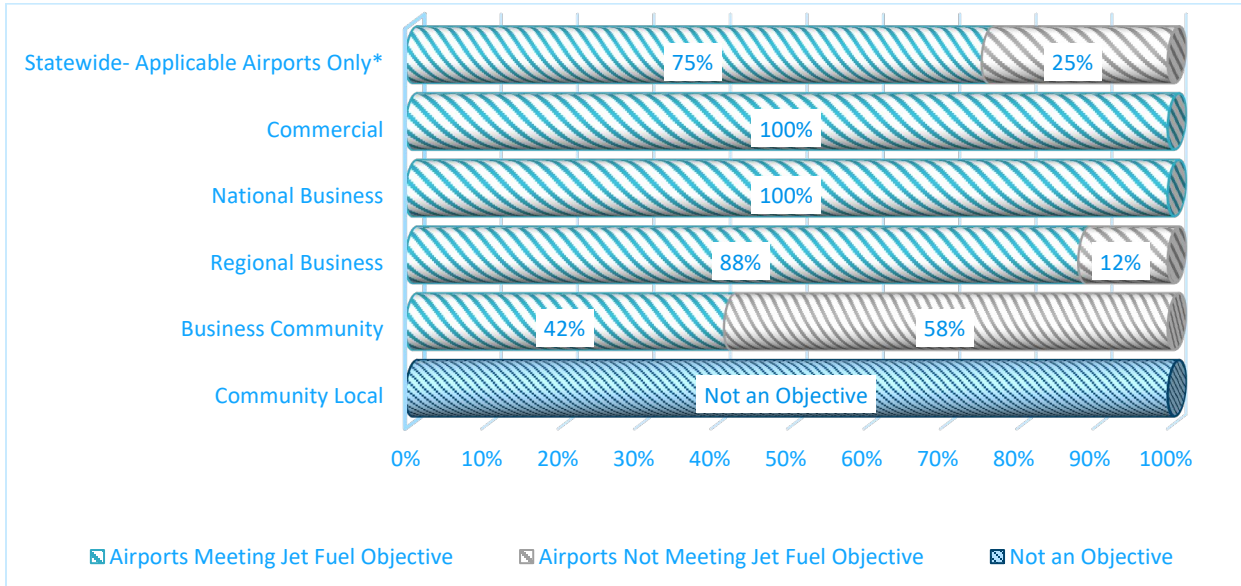
#### 6.3.1 Fuel

Fuel and fueling services are important for airports in Missouri. Piston-engine aircraft use 100LL high-octane fuel (AvGas), while jet aircraft and turboprops use kerosene-based Jet A fuel. **Appendix B, Table B-14** summarizes the type of fuel available at each system airport. The objective for Commercial, National Business, Regional Business, and Business Community airports is to have Jet A and AvGas, while Community Local airports should provide AvGas.



As shown in **Figure 6-23**, 49 percent of system airports provide Jet A and AvGas and 51 percent provide AvGas only. Every airport in the system (100 percent) has AvGas. All Commercial and National Business airports have Jet A. The role with the largest fuel deficiency is Business Community. As shown in **Table 6-22** below, three Regional Business airports and 14 Business Community airports need Jet A to meet the fuel objective for fuel.

FIGURE 6-23: PERCENTAGE OF AIRPORTS BY ROLE THAT PROVIDE FUEL BY TYPE TO MEET THEIR OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

TABLE 6-22: AIRPORTS BY ROLE THAT DO NOT MEET THEIR FUEL OBJECTIVE

Regional Business	Business Community
– Cameron Memorial	– Jerry Sumners Sr Aurora Municipal
– Chillicothe Municipal	– Ava Bill Martin Memorial
– St. Charles County Smartt Field	– Butler Memorial
	– Caruthersville Memorial
	– Cassville Municipal
	– Cuba Municipal
	– Elton Hensley Memorial
	– Lawrence Smith Memorial
	– Higginsville Industrial Municipal
	– Mountain View
	– County Memorial (New Madrid)
	– Grand Glaize-Osage Beach
	– Salem Memorial
	– Warsaw Municipal

### 6.3.2 Fixed Base Operator Services

Fixed base operators (FBOs) provide a variety of aviation services to both based and transient users. There are various types of FBOs, with some providing full-service and others providing more basic/limited services. Services provided by FBOs in Missouri typically vary based on the volume of activity that the airport accommodates. Services offered by FBOs can include fuel, tie down or hangar storage, flight instruction,

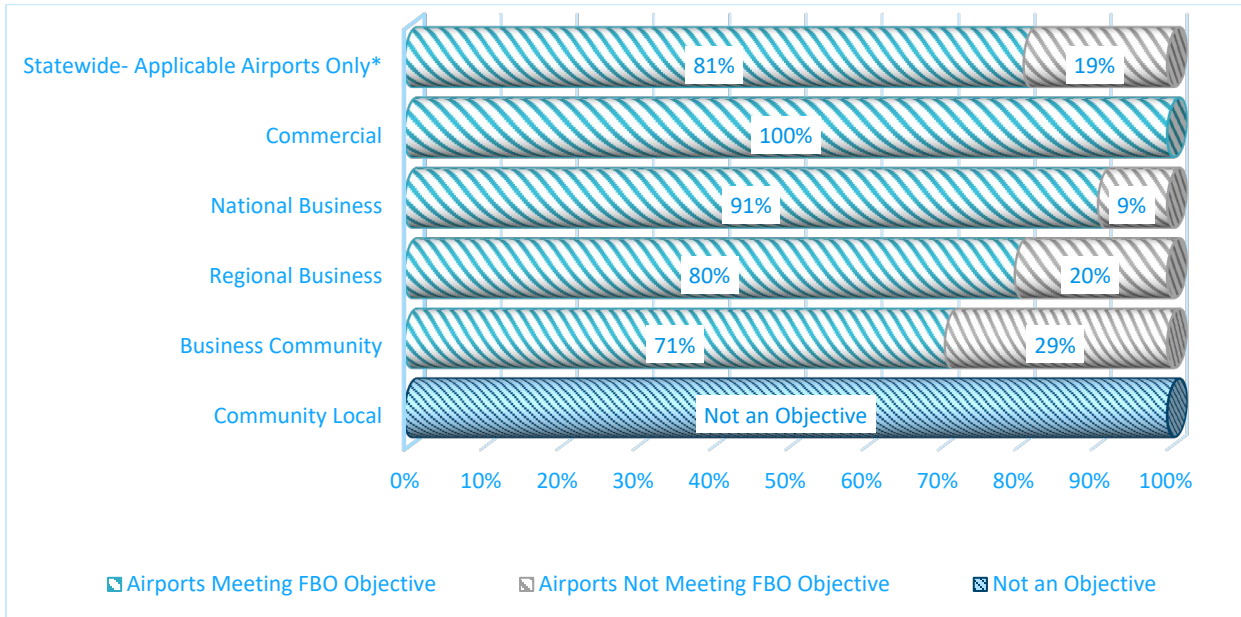


maintenance, charter service, ground transportation, aircraft towing, pilot’s lounge, and/or conference facilities.

It is an objective for all Commercial, National Business, and Regional Business airports to have FBO services. The objective for Business Community airports is to have an FBO or aircraft maintenance. No FBO objective has been established for Community Local airports. It is important to note that demand for FBO services is market driven, and an airport must typically have the operational levels to support a financially sustainable FBO business.

**Appendix B, Table B-16** summarizes which airports report having some type of FBO services. **Figure 6-24** shows that 81 percent of applicable system airports meet the FBO objective. 29 percent of Business Community airports have only an FBO, but 83 percent of Business Community airports have an FBO or maintenance, meeting the objective.

FIGURE 6-24: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR FBO OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

The airports in **Table 6-23** do not meet the FBO objectives.

TABLE 6-23: AIRPORTS BY ROLE THAT DO NOT MEET THEIR FBO OBJECTIVES

National Business	Regional Business	Business Community*
– Mexico Memorial	– North Central Missouri Regional – Dexter Municipal – Farmington Regional – Neosho Hugh Robinson – Sullivan Regional	– Cassville Municipal – Eldon Model Airpark – Northwest Missouri Regional – Salem Memorial

Note: \*Business Community airports must provide FBO or aircraft maintenance to meet their objective.





In addition, the following Community Local airports also have an FBO onsite:

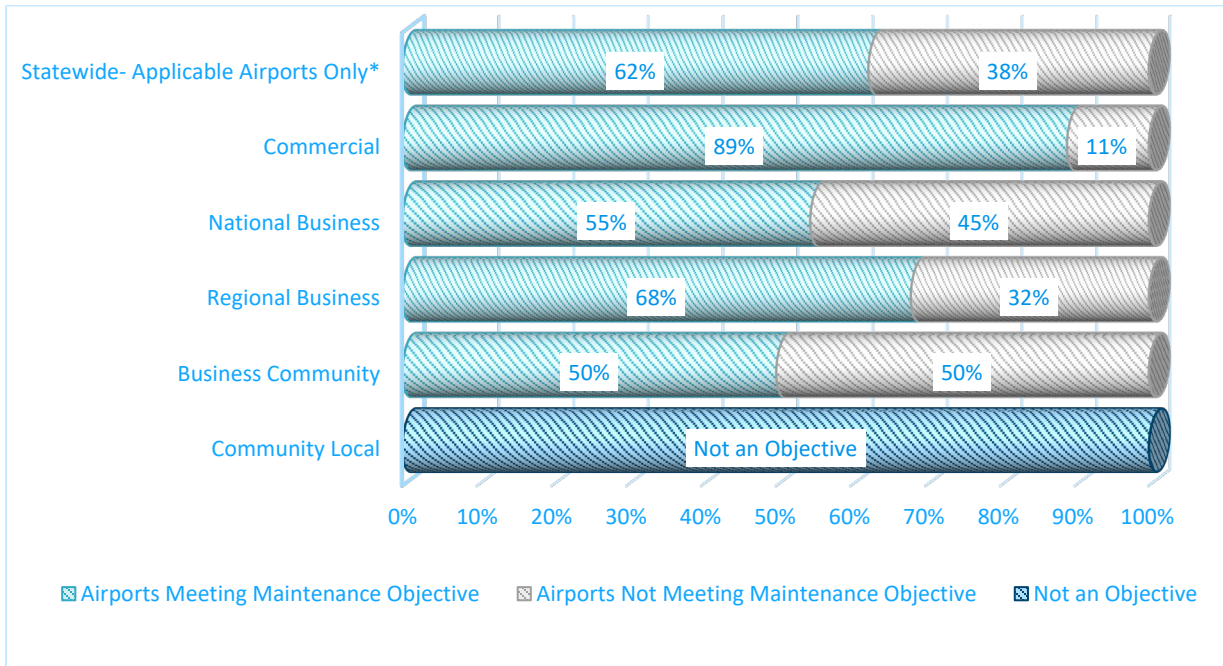
- Bonne Terre Municipal
- Bowling Green Municipal
- Campbell Municipal
- Memphis Memorial
- Captain Ben Smith Airfield
- Mountain Grove Memorial
- Steele Municipal
- Gould Peterson Municipal
- Thayer Memorial
- Roy Otten Memorial Airfield

### 6.3.3 Aircraft Maintenance

Whether it be a minor repair or a major overhaul of aircraft engines, maintenance and repair services at airports are important. A full-service maintenance operation is considered to offer major airframe and overhaul, as well as minor avionics repair services. Limited service is any type of aircraft maintenance.

The System Plan objective is for Commercial, National Business, and Regional Business airports to have aircraft maintenance onsite. As previously mentioned, Business Community airports should provide maintenance or an FBO. Community Local airports do not have an aircraft maintenance objective. As presented in **Figure 6-25**, 62 percent of applicable system airports meet their objective for providing aircraft maintenance. Aircraft maintenance offered at each airport is presented in **Appendix B, Table B-16**. Although only half of the Business Community airports provide aircraft maintenance, 83 percent have either an FBO or maintenance, which meets the aircraft maintenance objective.

FIGURE 6-25: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR AIRCRAFT MAINTENANCE OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

The airports in **Table 6-24** do not meet their aircraft maintenance objective.



TABLE 6-24: AIRPORTS BY ROLE THAT DO NOT MEET THEIR AIRCRAFT MAINTENANCE OBJECTIVE

Commercial	National Business	Regional Business	Business Community*
<ul style="list-style-type: none"> <li>- Waynesville-St. Robert Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Mexico Memorial</li> <li>- Midwest National Air Center</li> <li>- Rolla National</li> <li>- Sedalia Regional</li> <li>- Sikeston Memorial</li> </ul>	<ul style="list-style-type: none"> <li>- North Central Missouri Regional**</li> <li>- Chillicothe Municipal</li> <li>- Clinton Regional</li> <li>- Dexter Municipal</li> <li>- Lee C Fine Memorial</li> <li>- Neosho Hugh Robinson</li> <li>- Perryville Regional</li> <li>- West Plains Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Cassville Municipal</li> <li>- Eldon Model Airpark</li> <li>- Northwest Missouri Regional</li> <li>- Salem Memorial</li> </ul>

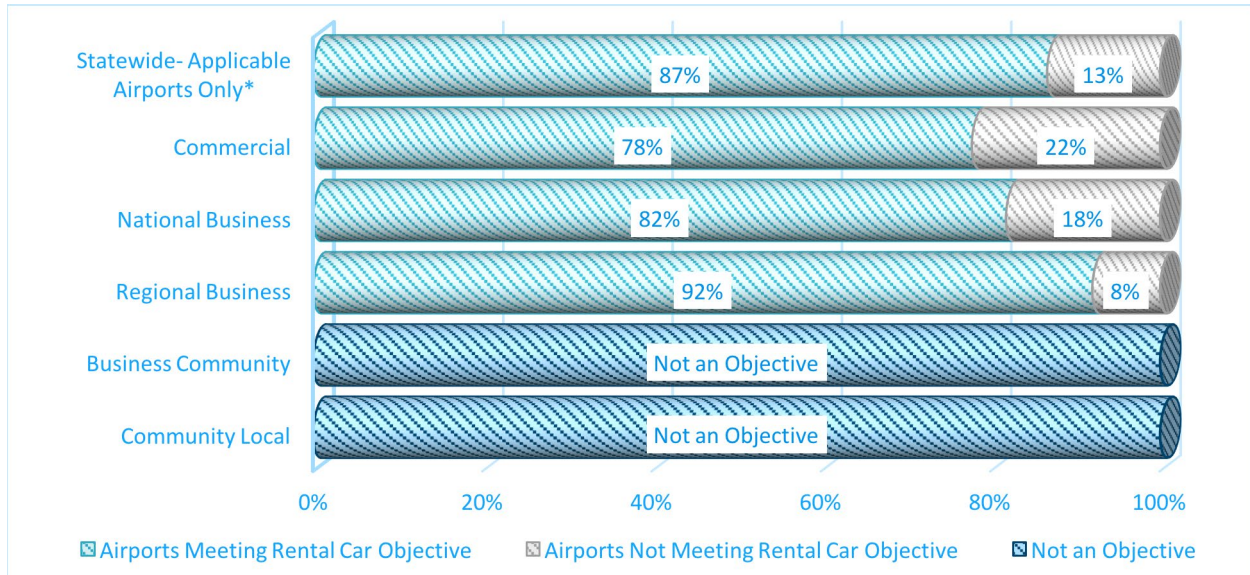
Notes: \*Business Community airports must provide FBO or aircraft maintenance to meet their objective.  
 \*\* While North Central Missouri Regional does not have a based tenant that provides maintenance, aircraft maintenance can be arranged.

Although an aircraft maintenance objective was not established for Community Local airports, Excelsior Springs Memorial and Roy Otten Memorial Airfield also have aircraft maintenance services.

### 6.3.4 Rental Car

Having rental cars and ground transportation services allows visitors to reach their final destination once they arrive at the airport. An objective was developed for Commercial airports to have onsite rental cars with a staffed desk. National Business and Regional Business airports should have onsite rental cars or access to off-site or pre-arranged rental car services. A rental car objective was not established for Business Community or Community Local airports. **Appendix B, Table B-15** presents which airports have onsite rental car services or access to off-site or pre-arranged rental car service. As shown in **Figure 6-26**, 87 percent of airports meet their applicable rental car service objective.

FIGURE 6-26: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR RENTAL CAR OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey  
 Note: \*The statewide total calculation does not include Business Community or Community Local airports.

The airports in **Table 6-25** do not meet their rental car objective.



TABLE 6-25: AIRPORTS BY ROLE THAT DO NOT MEET THEIR RENTAL CAR OBJECTIVE

Commercial	National Business	Regional Business
<ul style="list-style-type: none"> <li>- Cape Girardeau Regional</li> <li>- Kirksville Regional</li> </ul>	<ul style="list-style-type: none"> <li>- Rolla National</li> <li>- Sikeston Memorial Municipal</li> </ul>	<ul style="list-style-type: none"> <li>- Kennett Memorial</li> <li>- Sullivan Regional</li> </ul>

Although a rental car objective was not established for Business Community and Community Local airports, 42 airports in these categories report they can provide access to off-site or pre-arranged rental cars. On a statewide basis, 82 system airports report having either onsite or access to off-site or pre-arranged rental car service. The following Business Community and Community Local airports report having access to rental car services:

- Jerry Sumners Sr Aurora Municipal
- M. Graham Clark – Downtown
- Cuba Municipal
- Lawrence Smith Memorial
- Higginsville Industrial Municipal
- Malden Regional
- Marshall Memorial Municipal
- Northwest Missouri Regional
- Mountain View
- County Memorial (New Madrid)
- Grand Glaize-Osage Beach
- Salem Memorial
- Albany Municipal
- Bismarck Memorial
- Bowling Green Municipal
- Buffalo Municipal
- Cabool Memorial
- Campbell Municipal
- Carrollton Memorial
- Mississippi County
- Doniphan Municipal
- Excelsior Springs Memorial
- Gainesville Memorial
- Gideon Memorial
- Hornersville Memorial
- Houston Memorial
- Kahoka Municipal
- Lincoln Municipal
- State Technical College of Missouri
- Captain Ben Smith Airfield
- Lewis County Regional
- Mount Vernon Municipal
- Mountain Grove Memorial
- Richland Municipal
- Shelby County
- Steele Municipal
- Gould Peterson Municipal
- Thayer Memorial
- Unionville Municipal
- Bollinger-Crass Memorial
- Willow Springs Memorial

### 6.3.5 Ground Transportation

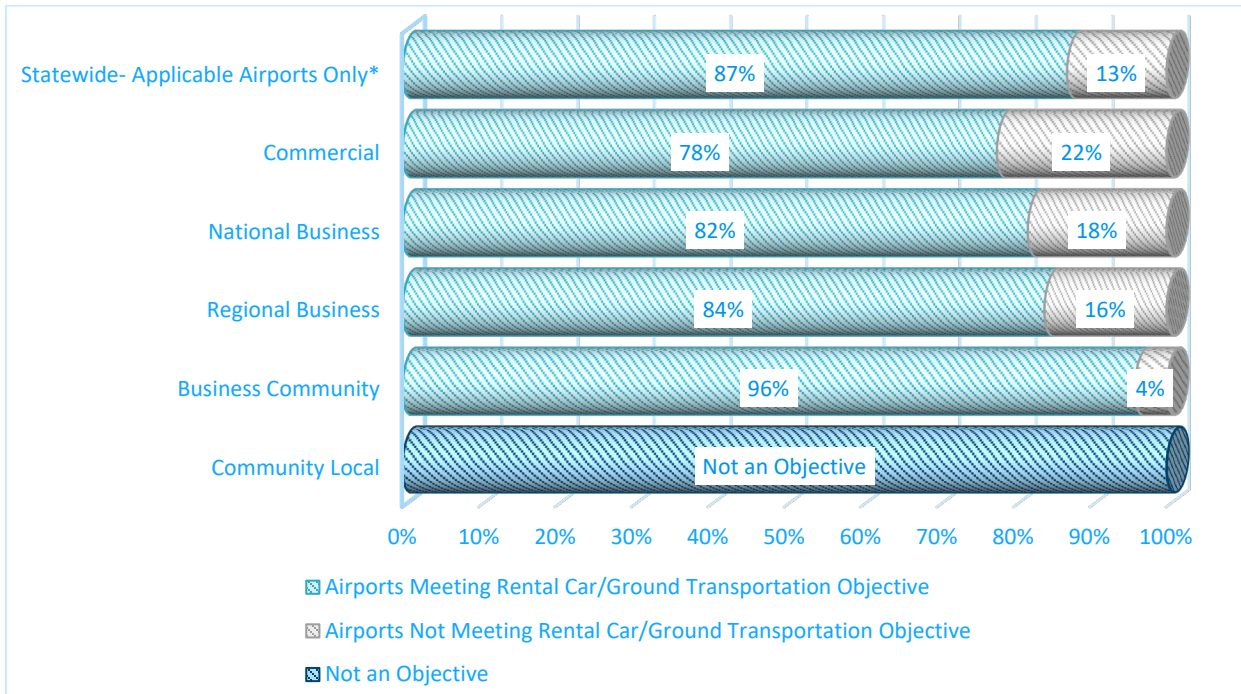
Airports that provide courtesy cars, crew cars, or a shuttle provide transient pilots with the ability to leave the airport to access restaurants, shopping, or local attractions. It is an objective for all Commercial, National Business, Regional Business, and Business Community airports to have a courtesy car or shuttle available. A ground transportation objective was not established for Community Local airports.

Appendix B, Table B-15 presents which airports offer ground transportation services. As shown in Figure 6-27, 87 percent of applicable airports offer ground transportation options to transient pilots/passengers. Two Regional Business airports, Clinton Regional and UCM-Skyhaven, and one Business Community airport, Cassville Municipal, do not meet the ground transportation objective.





FIGURE 6-27: PERCENTAGE OF AIRPORTS BY ROLE THAT MEET THEIR GROUND TRANSPORTATION OBJECTIVE



Source: MoDOT, Missouri Airport Manager Survey

Note: \*The statewide total calculation does not include Community Local airports.

### 6.4 Changes in Performance Since the 2002 Missouri State Airport System Plan

It is important to track Missouri’s compliance with facility and service objectives at regular intervals to understand how the system has changed and improved. Figure 6-28 presents a statewide comparison for system compliance by objective; this comparison considers performance as it was reported in the last plan versus performance reported in this 2018 update.

As shown in Figure 6-28, airport performance for nearly all the facilities and services has increased. This can largely be attributed to the commitment of MoDOT to improve the performance of the system. Other reasons for the differences include changes to airport roles and changes to the facility and service objectives to reflect the industry trends and regulatory changes that have occurred over the last 16 years.

The following statewide changes in system performance are noted:

- Statewide performance related to runway length objectives for all applicable airports increased by 30 percent, improving from 41 percent to 71 percent.
- Statewide, 27 percent more of all applicable airports meet their runway width objectives; system-wide performance increased from 60 percent to 87 percent.
- For all applicable airports, compliance with objectives for taxiway systems increased by 52 percent, improving from 34 percent to 86 percent.
- 26 percent more airports have on-site weather reporting equipment; performance for this objective for applicable airports increased from 65 percent to 91 percent.
- For the tie-down objective, 19 percent more applicable airports their meet their objective in this category, increasing from 56 percent to 75 percent.

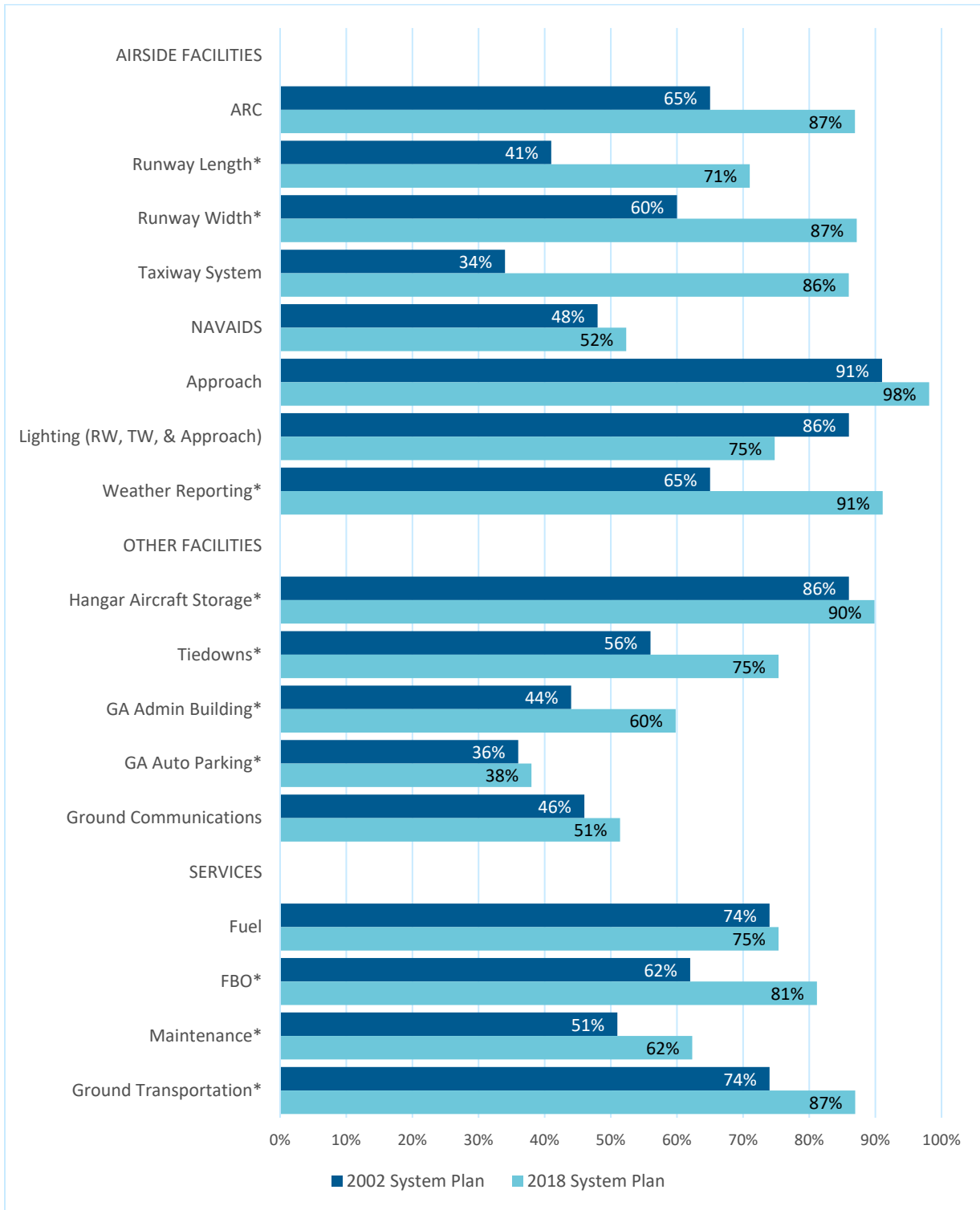




- 19 percent more applicable airports meet their objective for having an FBO and 11 percent more airports now have maintenance; compliance for these objectives increased from 62 percent to 81 percent (FBO) and 51 percent to 62 percent (aircraft maintenance), respectively.
- Statewide, 13 percent more applicable airports provide some type of access to ground transportation; this increased performance from 74 percent to 87 percent.



FIGURE 6-28: STATEWIDE COMPARISON OF FACILITY AND SERVICE OBJECTIVE PERFORMANCE



Source: MoDOT, Missouri Airport Manager Survey, 2002 Missouri State Airport System Plan

Note: \*The 2018 calculation include the applicable roles only. For example, there is no runway length objective at Local Community airports. Therefore, these airports are excluded from the 2018 calculation for meeting this objective.



## 6.5 Summary

**Figure 6-29, Figure 6-30, Figure 6-31, Figure 6-32, and Figure 6-33** provide a summary of compliance with the System Plan objectives by airport role. A summary of projects by airport that are needed to meet all established objectives are summarized in **Appendix D, Airport Report Cards**. It is possible that based on local need, airports in Missouri may exceed their System Plan objectives. Similarly, it is also possible that based on specific airport constraints, that some airports might not be able to meet all the objectives associated with their role.

Many of the airport-specific projects identified in this analysis must still be identified and supported by bottom-up planning as part of an airport master plan. As airports in Missouri update their individual airport master plans, projects identified in this analysis should be incorporated into those plans. Some projects identified in the System Plan, especially those that involve airfield improvement, will require justification and detailed environmental review prior to their implementation.



FIGURE 6-29: COMMERCIAL AIRPORTS COMPLIANCE SUMMARY

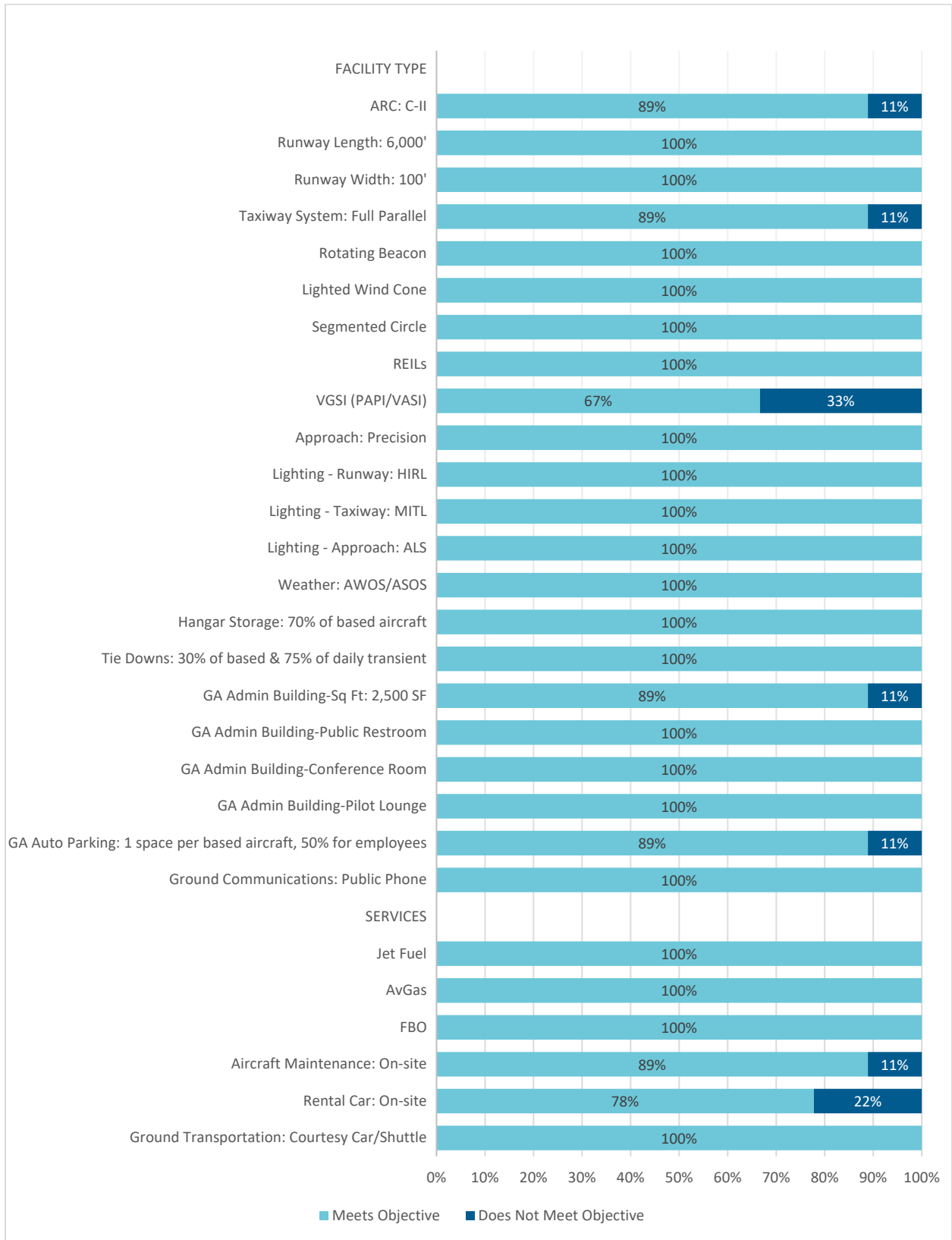






FIGURE 6-30: NATIONAL BUSINESS AIRPORTS COMPLIANCE SUMMARY

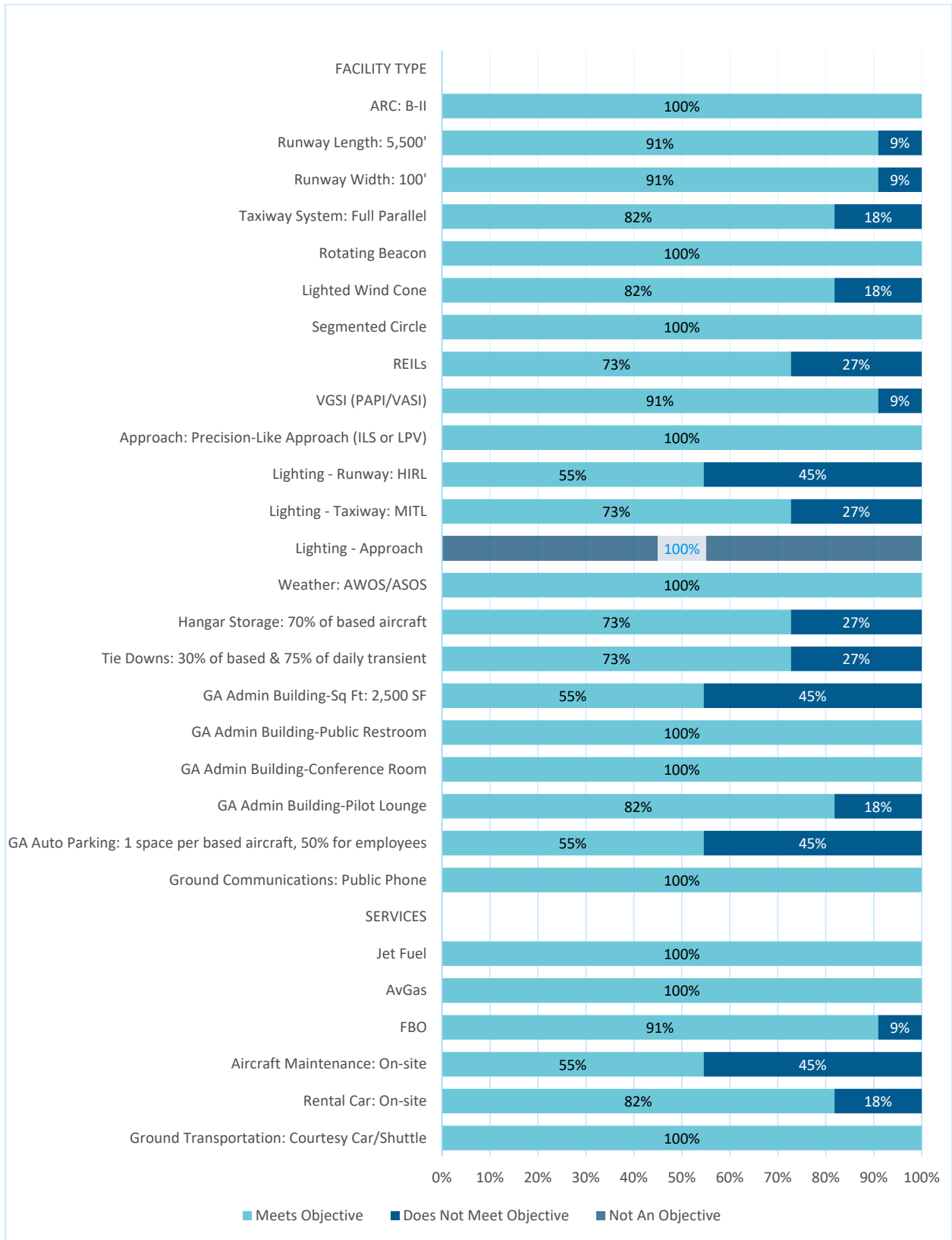




FIGURE 6-31: REGIONAL BUSINESS AIRPORTS COMPLIANCE SUMMARY

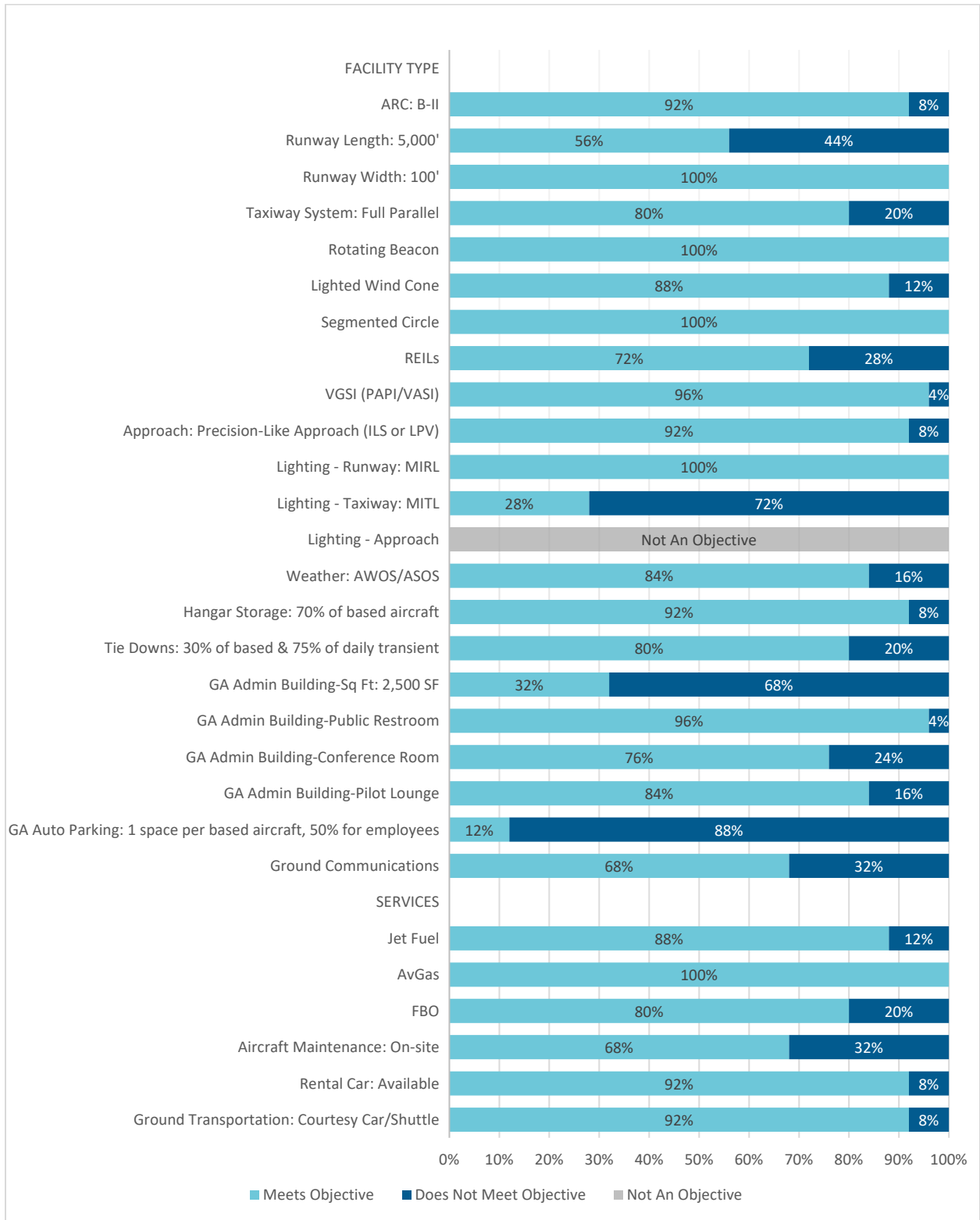




FIGURE 6-32: BUSINESS COMMUNITY AIRPORTS COMPLIANCE SUMMARY

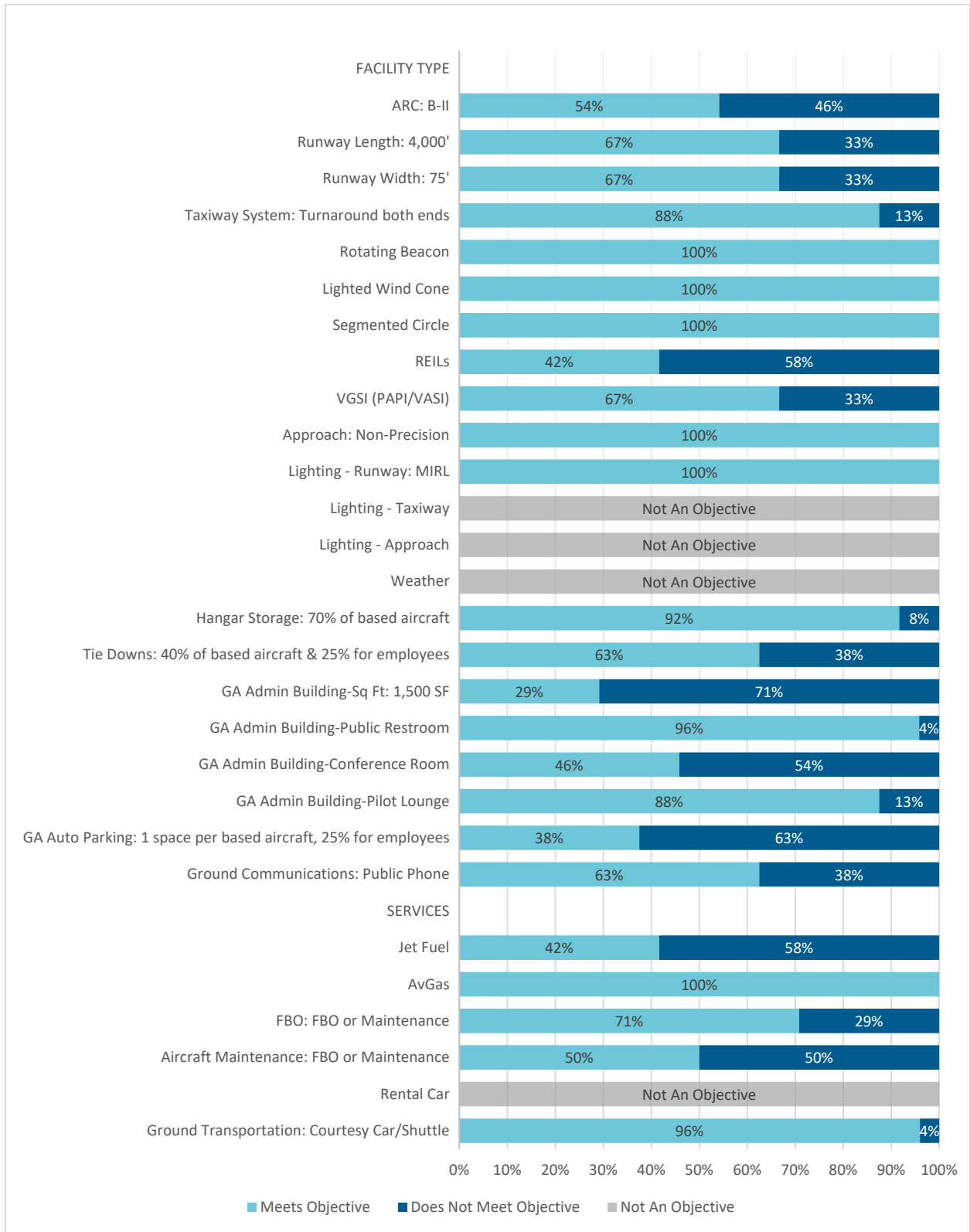




FIGURE 6-33: COMMUNITY LOCAL AIRPORTS COMPLIANCE SUMMARY

