5. System Performance

5.1. Introduction

As previously mentioned in **Chapter 1. Study Design and System Goals** of the 2020 SDSASP, this plan is an important tool used by the South Dakota Department of Transportation's Office of Aeronautics Services (SDDOT), the Federal Aviation Administration (FAA), airport sponsors, and other aviation stakeholders to: (1) maintain critical aviation infrastructure and services and (2) plan for future needs and response to anticipated industry changes. For that reason, it is important to assess the system's current performance so that informed decisions can be made moving forward about the future of South Dakota airports based on the system's existing conditions, needs, and gaps. This system performance chapter is rooted in the three goals of the 2020 SDSASP:

1. **Safety and Security.** To provide a safe and secure system of airports.
2. **Maintenance and Development of Infrastructure.** To provide an airport system that meets current and future user needs.
3. **Accessibility to Users.** To provide a system of airports that is accessible from the ground and the air.

Based on these goals, performance measures (PMs) and performance indicators (PIs) were developed that provide the framework for measuring the system's ability to achieve existing and future demands, while assessing the overall health and adequacy of the aviation system. PMs quantitively evaluate specific components of the system that can be directly affected by project funding, policies, and other external inputs. PIs are a new form of measurement tool introduced in the 2020 SDSASP and serve as reporting mechanisms on aspects of system performance that cannot be affected by project funding, policies, and inputs. PIs are informational only, however, some indicators may influence a policy decision and/or be related to a PM that has an action associated with enhancing the system's performance. The PMs and PIs selected to assess the system provide insight in three primary areas:

1. Facilities and services that can sufficiently serve existing and future needs
2. Specific airport or system deficiencies within the state
3. Areas of surplus or duplication of facilities and services within the system

The following three sections of this chapter present an analysis of the PMs and PIs associated with each goal, with analysis based on each airport role classification. The primary source of data for the evaluation is from the 2020 SDSASP Inventory Form. On occasion, other sources were used during the evaluation process as noted for each PM or PI.

In addition, a discussion of the major issues impacting aviation in South Dakota is provided. The issues included in this section were derived from airport manager feedback in the 2020 SDSASP Inventory Form, as well as other stakeholder outreach efforts. These issues are discussed in conjunction with system performance findings as they are related to the goals of the study and at times are directly impacted by PMs chosen for the 2020 SDSASP. Additionally, these issues are considered during the development of system recommendations.

5.2. Goal: Safety and Security

Safety and security are paramount to achieving an efficient and sustainable aviation system. The safety of pilots and passengers in the sky, as well as individuals and property on the ground, must remain at the forefront of all policies, projects, and procedures. Airport safety and security can be achieved and maintained in a variety of different ways, such as promotion of clear approaches to runways, control of land within critical safety areas at and around airports, and protection against outside elements such as incompatible land uses and wildlife. The following two subsections document current performance of the system in meeting the PMs and PIs related to the safety and security goal. Performance is presented at the statewide level and by airport classification.

5.2.1. Performance Measures

This section reviews results of the system-wide evaluation of the PMs associated with the safety and security goal. PMs evaluated include:

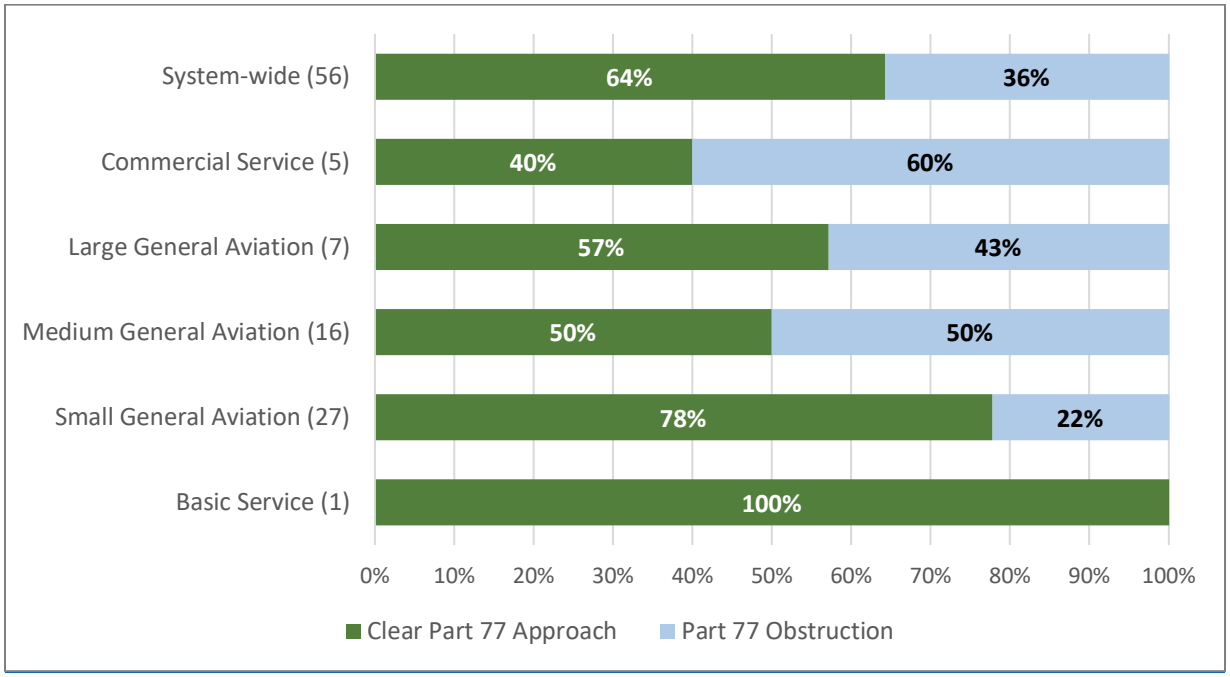
- Percentage of airports that have clear Part 77 approaches on their primary runway
- Percentage of airports that have clear Part 77 approaches on their nonprimary runway(s)
- Percentage of airports that control (through fee simple or easements) the land for the Runway Protection Zones (RPZs) of their primary runway
- Percentage of airports that control (through fee simple or easements) the land for the RPZs of their nonprimary runway(s)
- Percentage of airports meeting SDDOT annual inspection standards for Runway Safety Areas (RSAs)

5.2.1.1. *Percentage of Airports that have Clear Part 77 Approaches on their Primary Runway*

An airport is considered to have clear Part 77 approaches if there are no obstructions negatively impacting the approach, meaning there are no objects penetrating the approach resulting in raised approach minimums. Maintaining approaches clear of obstructions is critical for safe operations and maximum utility of the approach provided by the available instrumentation. When obstructions are present and approach minimums are raised, it impacts the ability for pilots to land in inclement weather or times of reduced visibility, and they may have to land at another airport. **Figure 5-1** shows the percentage of airports by classification with clear Part 77 approaches on their primary runway. Overall, 64 percent of system airports have a primary runway with clear Part 77 approaches on both ends. Forty percent of Commercial Service airports have clear Part 77 approaches on their primary runway. Around half of Large and Medium GA airports have primary runways with clear Part 77 approaches. Small GA airports perform well in this measure with 78 percent of those airports having runways clear of obstructions that negatively impact the approach.

Part 77 obstructions were determined by reviewing the 5010 Airport Master Record inspection form for each system airport. It is important to note that because 5010 inspections are completed once every three years, it is possible that some obstructions noted on the 5010 forms have already been cleared and will be reflected during the next inspection.

Figure 5-1: Percentage of Airports with Clear Part 77 Approaches on their Primary Runway

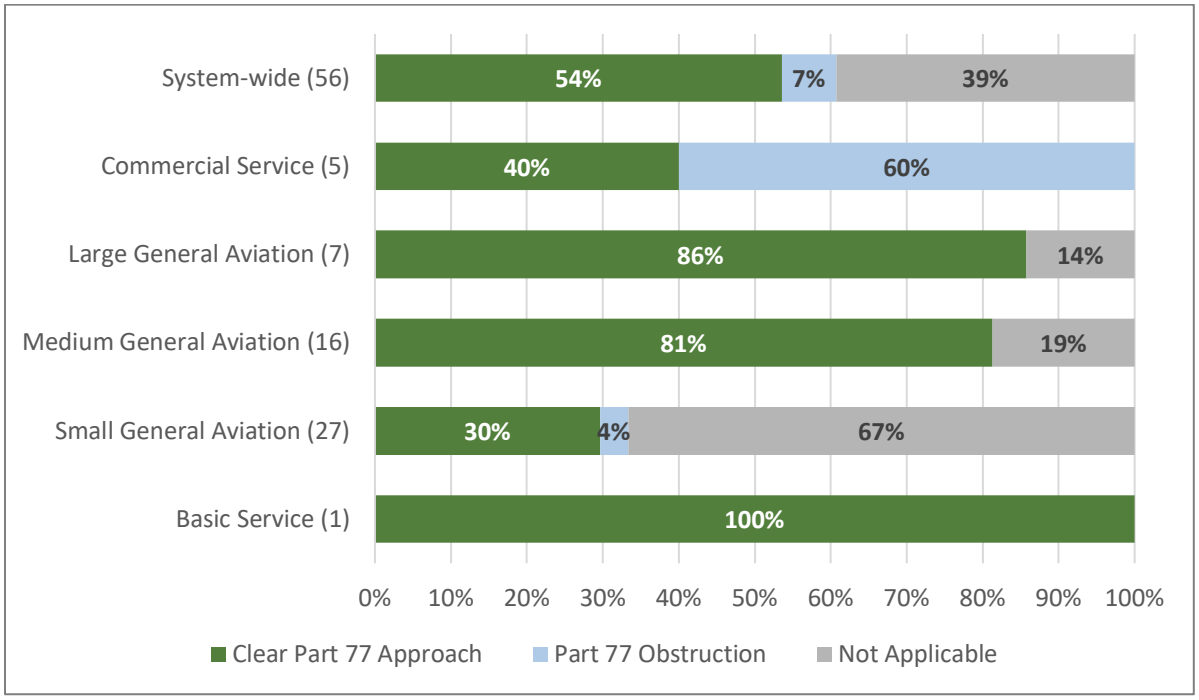


Sources: FAA 5010 Master Record; Kimley-Horn, 2020

5.2.1.2. *Percentage of Airports that have Clear Part 77 Approaches on their Nonprimary Runway(s)*

Many SDSASP airports have more than one runway, and it is important that the nonprimary runways are also evaluated for clear Part 77 approaches. The analysis performed to evaluate this PM is the same as the analysis used for primary runway Part 77 approach evaluation. **Figure 5-2** shows the percentage of airports by classification with clear Part 77 approaches on their nonprimary runway(s). Thirty-four airports have secondary runways and two of those also have a tertiary runway. For airports to be considered as meeting this PM, all nonprimary runways must be clear of obstructions. Of the 61 percent of airports with nonprimary runways, 54 percent of those nonprimary runways have clear Part 77 approaches. Overall, 54 percent of airports with nonprimary runways have clear Part 77 approaches, with all Large GA, Medium GA, and Basic Service airports having no obstructions negatively impacting the approaches on their nonprimary runway(s). Only 34 percent of Small GA airports have a nonprimary runway, and 30 percent of those airports have clear Part 77 approaches. Commercial Service airports performed the lowest in this measure, with 40 percent (two airports) having nonprimary runways clear of obstructions.

Figure 5-2: Percentage of Airports with Clear Part 77 Approaches on their Nonprimary Runway(s)

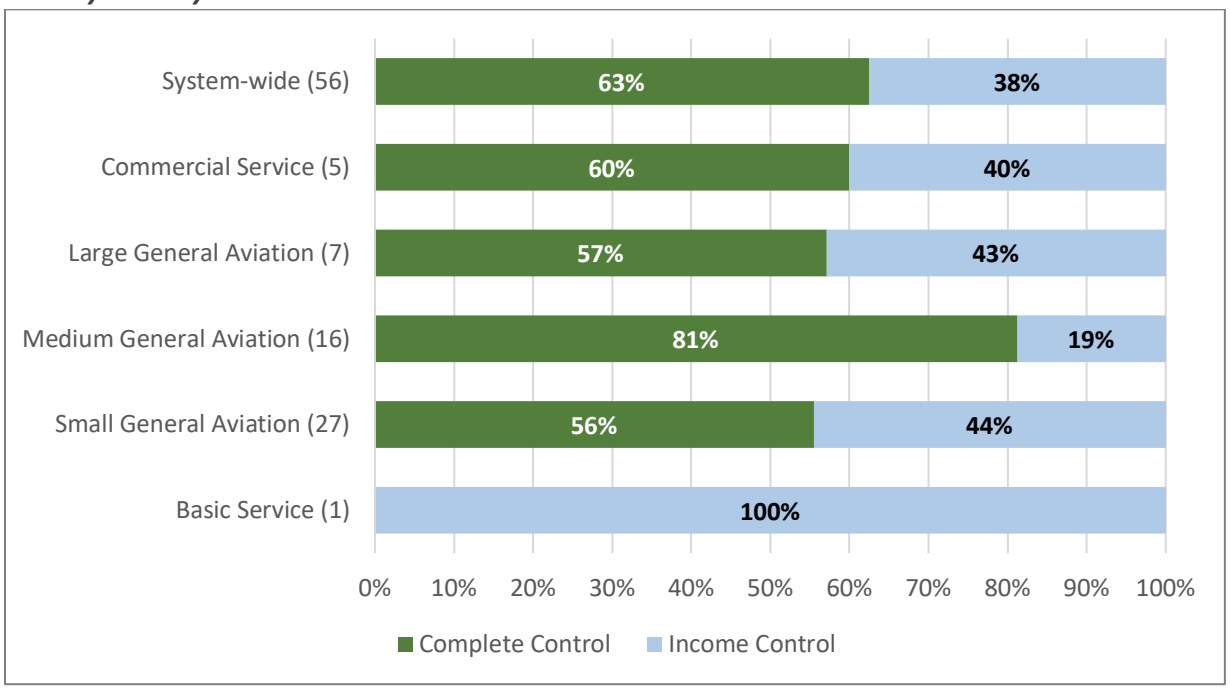


Sources: 2020 SDSASP Inventory Form; AirNav.com; ALPs; FAA 5010 Master Record; Kimley-Horn, 2020

5.2.1.3. *Percentage of Airports that Control (through Fee Simple or Easements) the Land for the RPZs of their Primary Runway*

It is important for future system development and the safety of aircraft operations that airports control the land off each end of their primary runway that form the RPZs. These zones are established by the FAA and are designed to protect aircraft and property in the event of an aircraft overrun or undershoot when departing or landing at an airport. Airports can control this land through fee simple ownership and/or easements. The FAA recommends that airports control the land associated with their RPZs. Managers were asked during the inventory effort to report the percentage of property they owned within their primary runway RPZs. To meet this PM, an airport must own 100% of the land within their primary runway RPZs. As shown in **Figure 5-3**, 63 percent of airports system-wide control 100 percent of the land within their primary runway RPZs. Medium GA airports had the highest performance in this category, with 81 percent (13 of 16 airports) controlling 100 percent of the land for their RPZ. There is only one airport in the Basic Service role, and it does not have complete control of its RPZs. Commercial Service, Large GA and Small GA airports have between 56 and 60 percent of airports meeting the PM.

Figure 5-3: Percentage of Airports with Complete Control (through Fee Simple or Easements) of their Primary Runway RPZs

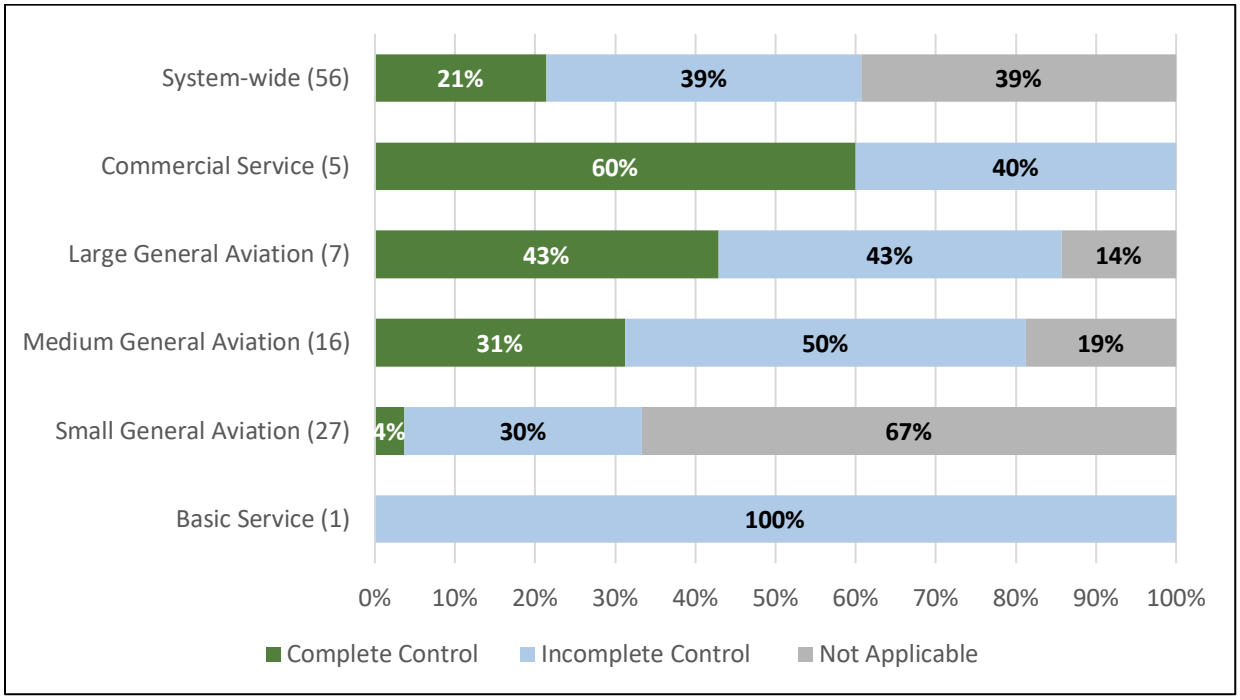


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.2.1.4. *Percentage of Airports that Control (through Fee Simple or Easements) the Land for the RPZs of their Nonprimary Runway(s)*

Airports were also measured for complete control of the land in the RPZs on nonprimary runways. As previously mentioned, 34 of the 56 system airports have nonprimary runways, with two airports having a tertiary runway. For an airport to meet this PM, they must control 100 percent of their RPZs on all nonprimary runways. **Figure 5-4** shows the percentage of airports by classification that have complete control of the land for the RPZs on their nonprimary runways. Of the 61 percent of airports with nonprimary runways twenty-one percent have complete control of the land for their RPZs. Commercial Service airports performed the highest in this measure with 60 percent (three of five airports) with complete control. Of the nine Small GA airports with a nonprimary runway, only one airport has complete control. Forty-three percent of Large GA airports and 31 percent of Medium GA with nonprimary runways have complete control of their RPZs.

Figure 5-4: Percentage of Airports with Complete Control of Land for RPZs on Nonprimary Runways



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020
Note: System-wide complete and incomplete control percentages do not add up to 61 percent due to rounding.

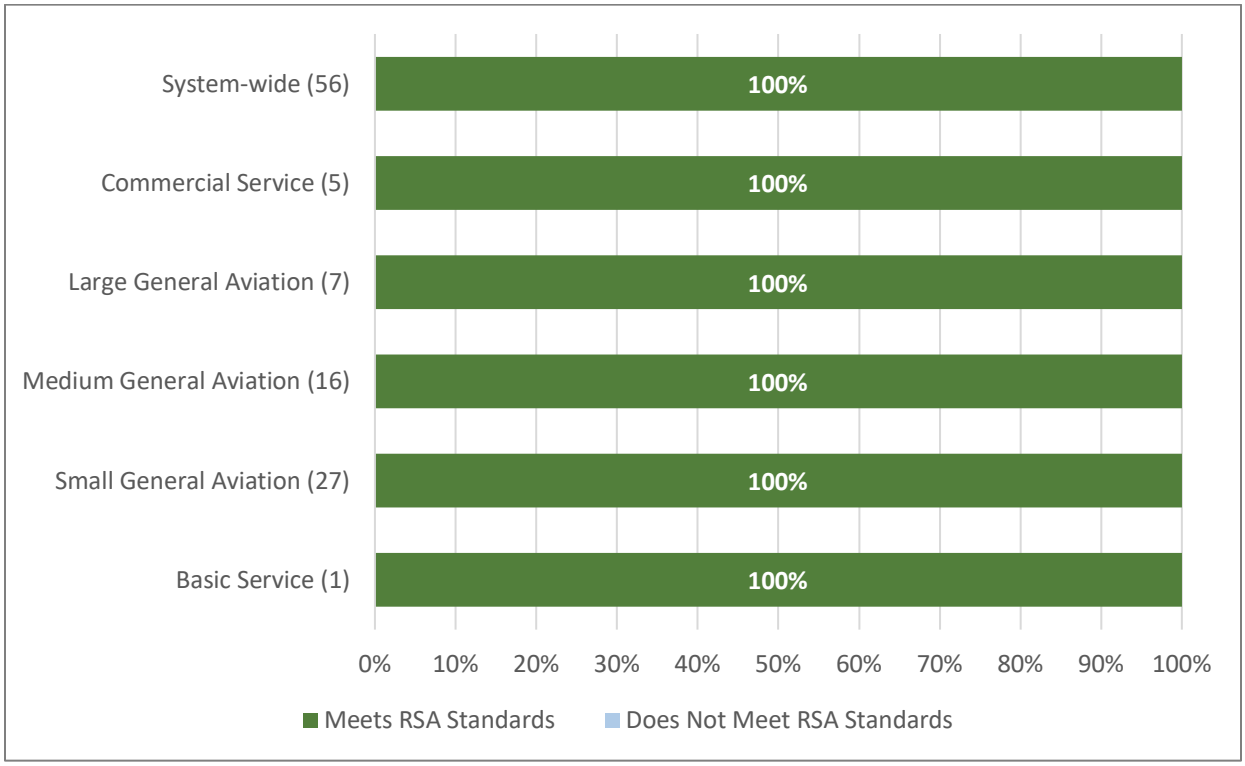
5.2.1.5. *Percentage of Airports Meeting SDDOT Annual Inspection Standards for RSAs*

Like RPZs, RSAs promote safer operations by reducing risk of damage or incident in the event of an aircraft undershoot, overshoot, or excursion from the runway. SDDOT has established standards for airport RSAs and they are inspected by SDDOT on a regular basis. The following criteria are evaluated by SDDOT during state inspections:

- RSA size compliant with FAA AC 150/5300-13A based on the Airport Reference Code (ARC).
- No hay bales, trees, bushes, buildings or any other obstructions present within the RSA.
- Area is graded with no potentially hazardous ruts, humps, depressions or other surface variations.
- Required objects in the RSA such as runway signs, runway lighting, approach aids, etc. are mounted on frangible couplings.

Figure 5-5 shows system performance by classification for airports meeting state RSA standards. All system airports are meeting RSA standards and therefore each classification is performing at 100 percent for this PM.

Figure 5-5: Percentage of Airports Meeting SDDOT Annual Inspection Standards for RSAs



Sources: SDDOT; Kimley-Horn, 2020

5.2.2. Performance Indicators

This section reviews results of the system-wide evaluation of the PIs associated with the safety and security goal. Analyses reported below utilize data from the 2020 SDSASP Inventory Form. PIs evaluated include:

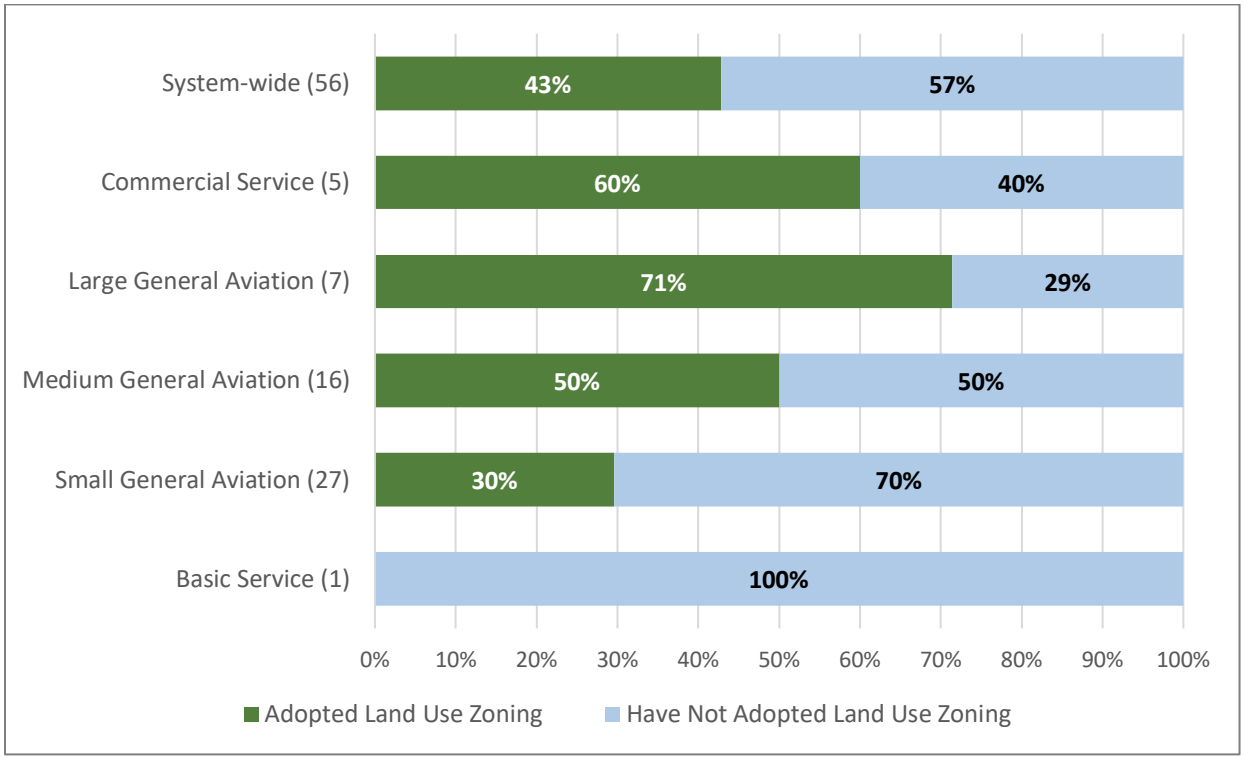
- Percentage of airports with compatible land use zoning (including height and noise) adopted and on file with SDDOT
- Percentage of airports with adopted wildlife plans in accordance with appropriate FAA regulations
- Percentage of airports with perimeter fencing appropriate to airport role
- Percentage of airports that report having Unmanned Aircraft System (UAS) activity at and/or around their airport
- Percentage of airports that have a UAS monitoring and tracking program in place

5.2.2.1. *Percentage of Airports with Compatible Land Use Zoning (including Height and Noise) Adopted and on File with SDDOT*

Protecting the land use and airspace around an airport is essential to an airport's long-term viability as it promotes the development of uses compatible with airport operations. This allows for development that does not negatively impact an airport's current operation or the ability to expand to meet future user needs (such as tall structures) and uses that are not negatively impacted by the operation of the airport (such as uses subject to noise sensitivity). In general, the primary responsibility for regulating development near an airport lies with local governments as municipalities are responsible for preparing comprehensive plans and reviewing and implementing zoning and land use policies that consider impacts to their local airport. SDDOT requests that local authorities file the zoning regulations with their

office in order to keep track of the regulations in place pertaining to system airports. Land use controls, including those for height and noise, aim to reduce incompatible land uses and activities in an airport's immediate environs. This PI reports the percent of airports that have adopted compatible land use zoning as reported by airport managers on their 2020 SDSASP Inventory Form. **Figure 5-6** shows airports by classification that have adopted compatible land use zoning. System-wide, 24 of the 56 system airports have adopted compatible land use zoning, equating to 43 percent of the system. Seventy-one percent of Large GA airports and 60 percent of Commercial Service airports reported compatible land use zoning in place. When asked about enforcement, 21 of the 24 airports in the system with compatible land use zoning indicated enforcement of that zoning.

Figure 5-6: Percentage of Airports with Compatible Land Use Zoning (including Height and Noise) Adopted and on File with SDDOT



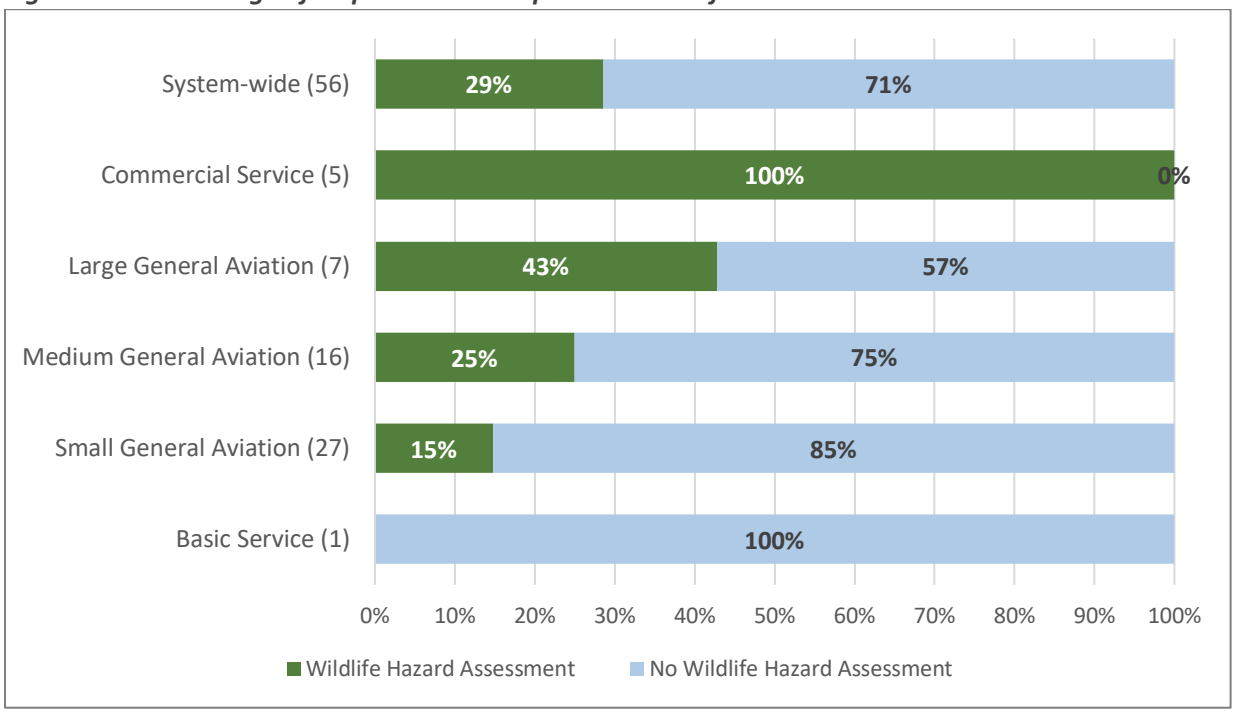
Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.2.2.2. *Percentage of Airports with Adopted Wildlife Plans in Accordance with Appropriate FAA Regulations*

Some airports are impacted by nearby wildlife on or near the facility. In order for airports to better understand the existing and potential wildlife hazards that exist, a Wildlife Hazard Assessment (WHA) can be conducted. The assessment identifies wildlife activity on and near airports that could be a potential hazard. If hazardous wildlife activity exists, the next step in mitigation should be undertaken and that is in the form of a Wildlife Management Plan (WMP). The WMP is designed to help airports mitigate the potential hazards that wildlife and wildlife attractants can cause by defining processes and procedures to be followed by airport staff in the event of wildlife presence. It should be noted that all airports with a Part 139 certification are required to have a WMP. **Figure 5-7** shows 29 percent of system airports have completed a WHA, and **Figure 5-8** shows all six of South Dakota's Part 139 airports have a WMP. While all six Part 139 airports have completed their WMPs, only five of those airports have a WMP that is less than ten years old. It is requirement for Part 139 airports to update their WMPs every

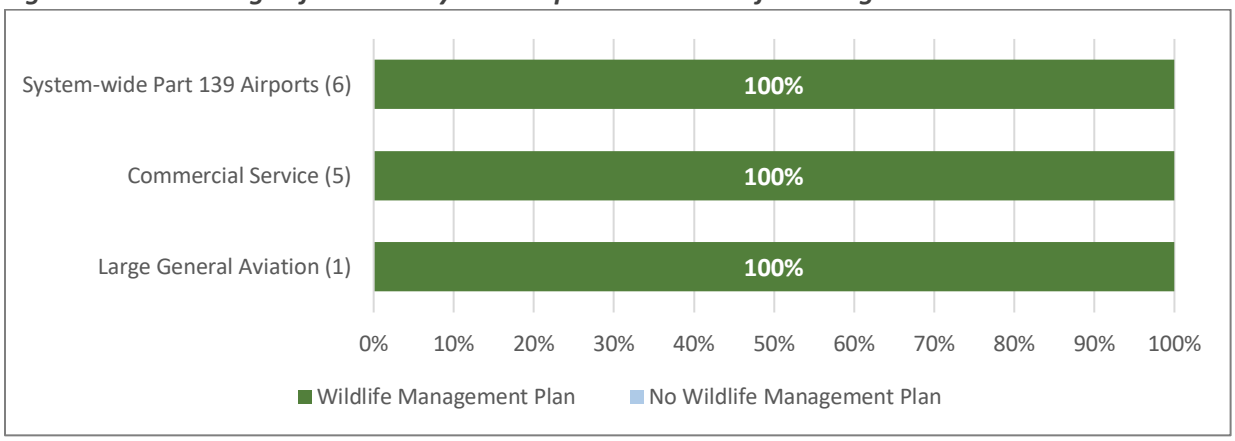
ten years. **Figure 5-9** shows the non-Part 139 airports in the system that have completed a WMP based on the completion of their WHA. As shown, only 10 non-Part 139 airports completed the assessment, and of those ten airports, six of them completed a plan. Those who have not completed a WPM may not need to complete one as the hazard assessment may have indicated there was no wildlife activity or attractants requiring mitigation.

Figure 5-7: Percentage of Airports that Completed a Wildlife Hazard Assessment



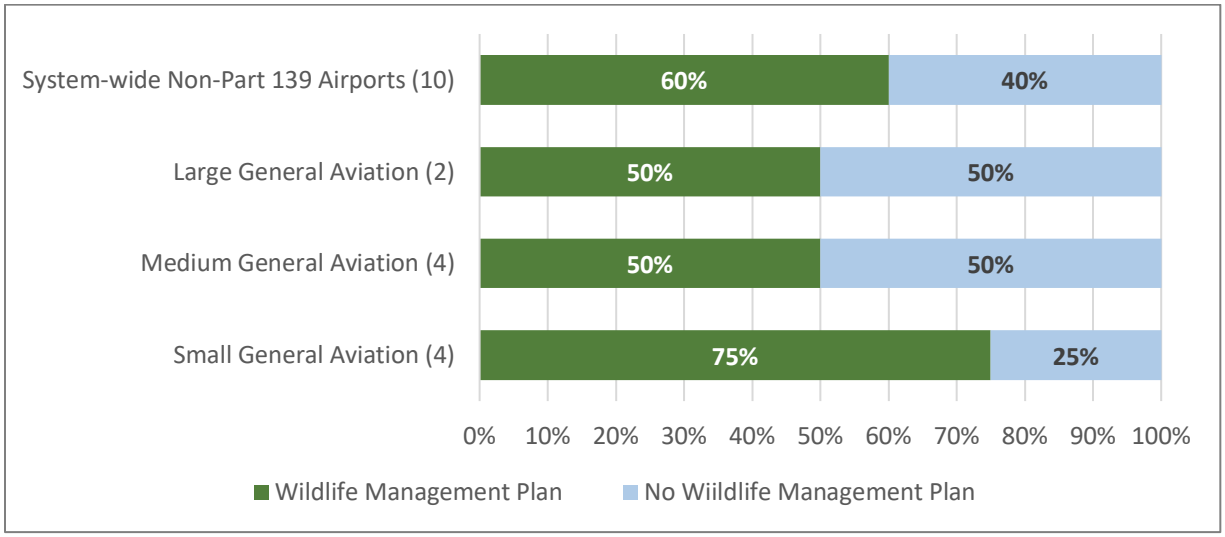
Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

Figure 5-8: Percentage of Part 139 System Airports with Wildlife Management Plans



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

Figure 5-9: Percentage of Non-Part 139 Airports with Completed Wildlife Management Plans



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

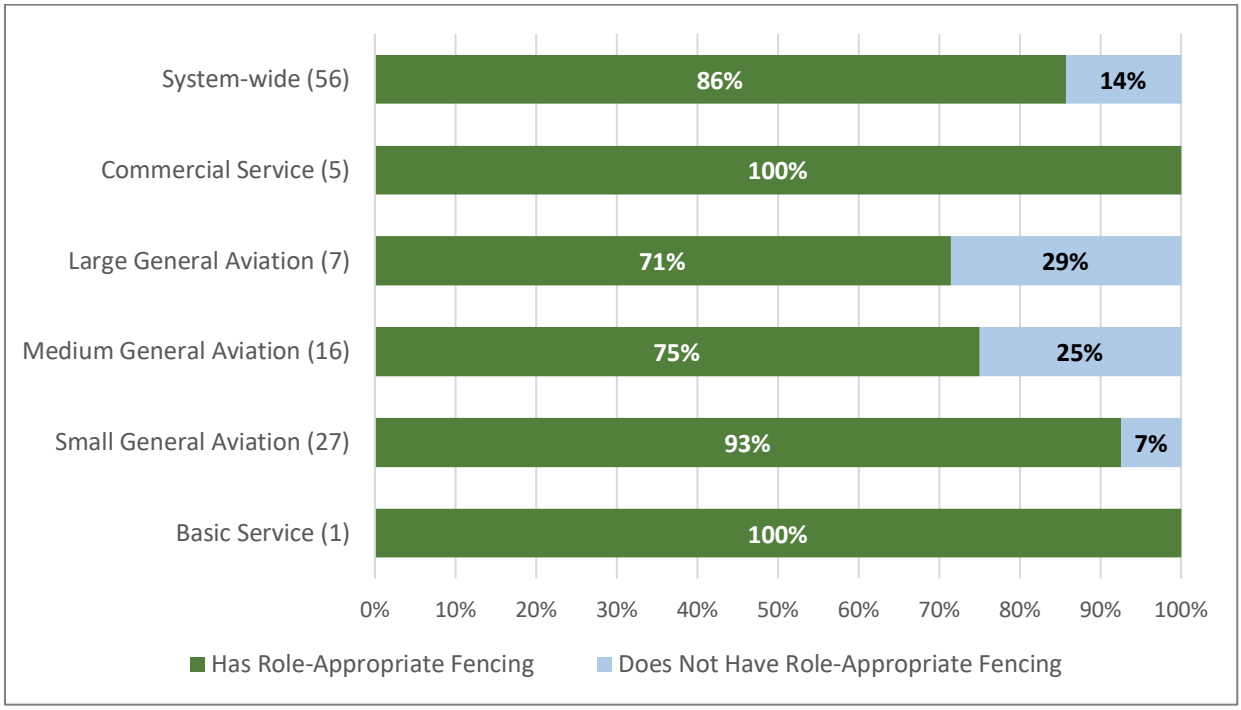
5.2.2.3. *Percentage of Airports with Perimeter Fencing Appropriate to Airport Role*

One of the minimum requirements for public airports in South Dakota pursuant to South Dakota Administrative Rile 70:02:04:15 is the provision of suitable area for parking automobiles that is fenced to prevent automobiles from crossing onto aircraft operating areas. In addition to requiring fencing around parking areas, it is recommended that all system airports have some form of fencing around airport property to protect against prohibited access and wildlife. The recommended type and extent of fencing varies based on airport role. Considering levels of activity and security needs, appropriate fencing for each airport role include:

- Commercial Service and Large GA: Full perimeter wildlife fencing
- Medium GA: Terminal area wildlife fencing or better
- Small GA: Full perimeter barbed fencing or better
- Basic Service: Terminal area barbed fencing or better

Figure 5-10 shows the percentage of airports by classification meeting their appropriate fencing level. Overall, the system performs well in this indicator with 86 percent of airports having adequate fencing. All Commercial Service airports report having full perimeter wildlife fencing. Ninety-three percent and 100 percent of Small GA Service and Basic Service airports, respectively, have appropriate fencing. Seventy one percent of Large GA airports and 75 percent of Medium GA airports report having fencing appropriate to their roles.

Figure 5-10: Percentage of Airports with Fencing Appropriate to Role

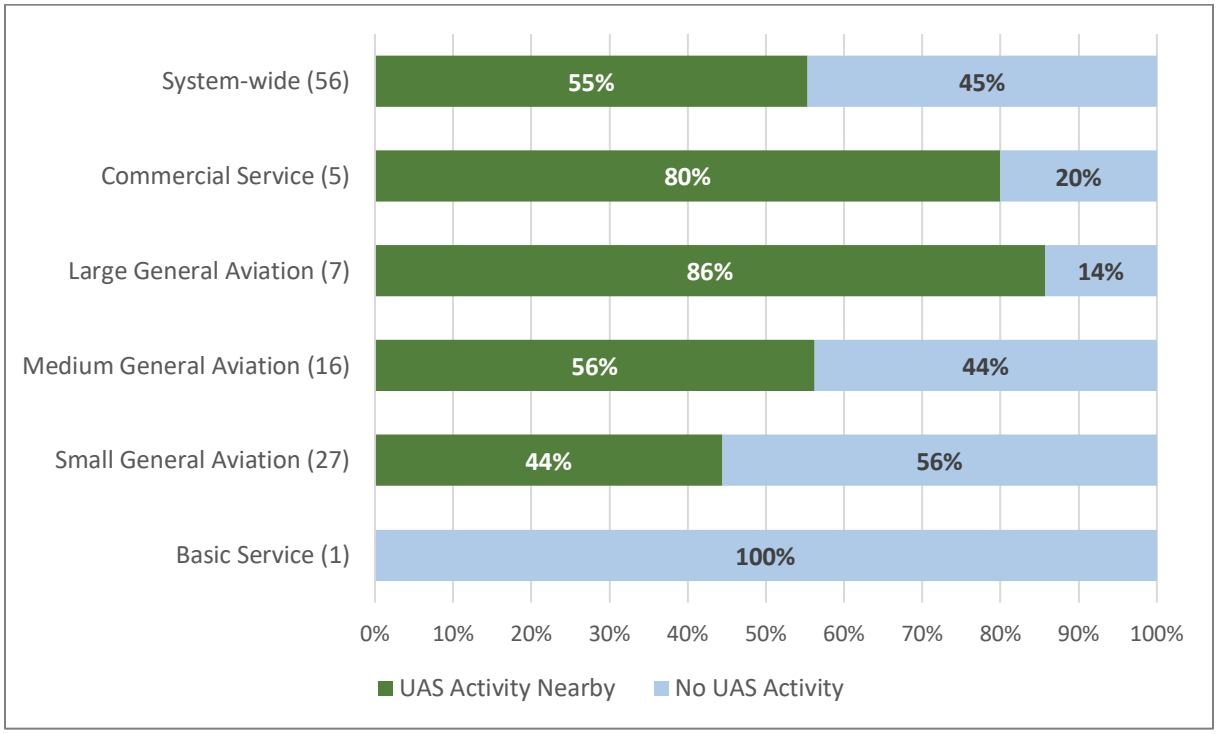


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.2.2.4. *Percentage of Airports that Report Having UAS Activity at and/or Around Their Airport*

UAS activity – or drone activity – is a growing trend impacting the aviation industry across the country. As these UAS continue to infiltrate the National Airspace System (NAS), they can pose a hazard to manned aircraft also operating in the NAS. Therefore, it is important to understand where in the state UAS activity is being reported near airports. **Figure 5-11** shows just over half of the system airports reported having UAS activity at and/or nearby their facility. Eighty percent of Commercial Service airports and 86 percent of Large GA airports reported UAS activity nearby, while Medium General and Small GA airports reported 56 percent and 44 percent with UAS activity, respectively.

Figure 5-11: Percentage of Airports with UAS Activity at and/or Around their Airport

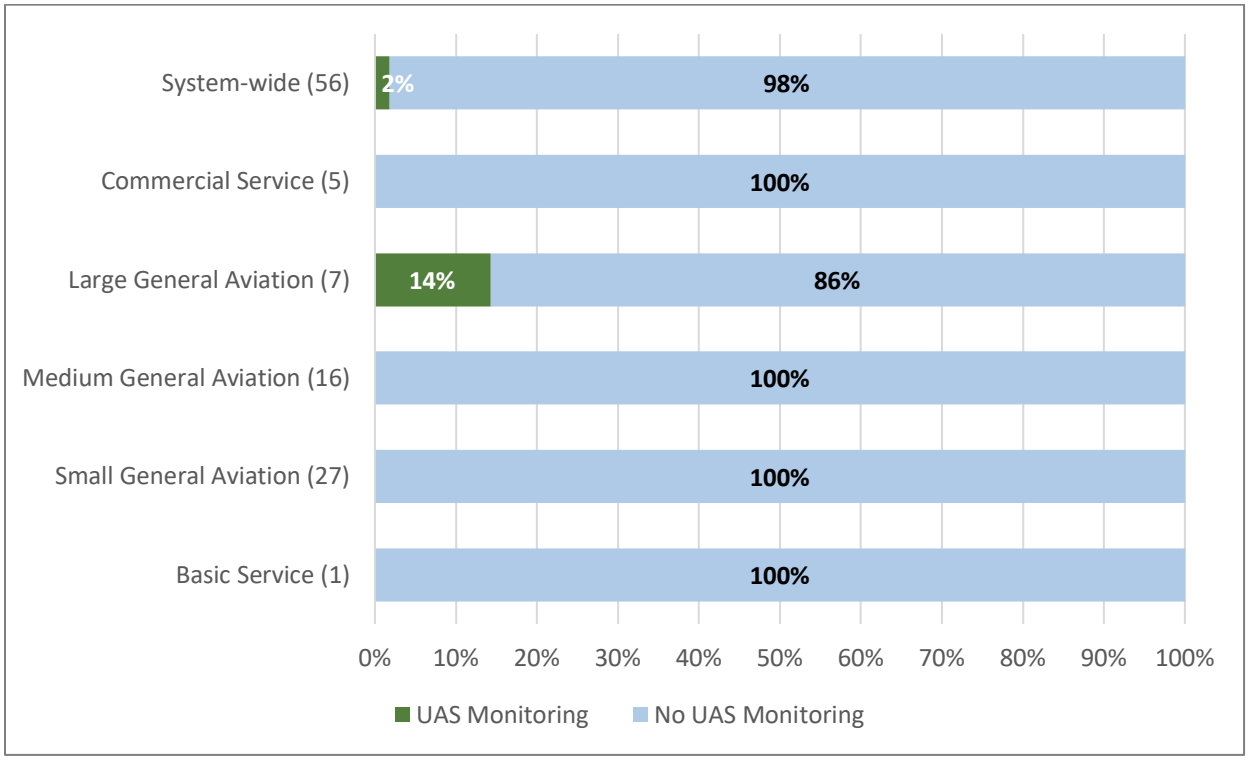


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.2.2.5. *Percentage of Airports that have a UAS Monitoring and Tracking Program in Place*

While only 55 percent of system airports reporting UAS activity it is still important to understand and monitor current UAS activity, or changes in UAS activity for those airports not currently experiencing any. **Figure 5-12** shows the percentage of airports by classification that reported having some form of monitoring or tracking of UAS activity at their airport. Only one airport in the system reported having a monitoring program in place, resulting in two percent of the system. It is anticipated this will increase as UAS technology continues to advance and more UAS enter the NAS. Monitoring programs help airports maintain awareness of nearby UAS activity and UAS operators understand their limitations operating around airports.

Figure 5-12: Percentage of Airports with UAS Monitoring Programs for Reported UAS Activity



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.3. Goal: Maintenance and Development of Infrastructure

An airport system's current and future performance is dependent upon the quality of the infrastructure that the airport relies on to operate. Significant investment has been made in South Dakota's airport system and maintaining these investments is critically important to the system's long-term viability. This section presents the analysis for the PMs and PIs pertaining to the maintenance and development of infrastructure goal.

5.3.1. Performance Measures

This section reviews results of the system-wide evaluation of the PMs associated with the maintenance and development of infrastructure goal. Analyses utilize data from the 2020 SDSASP Inventory Form, SDDOT, and the FAA. PMs evaluated include:

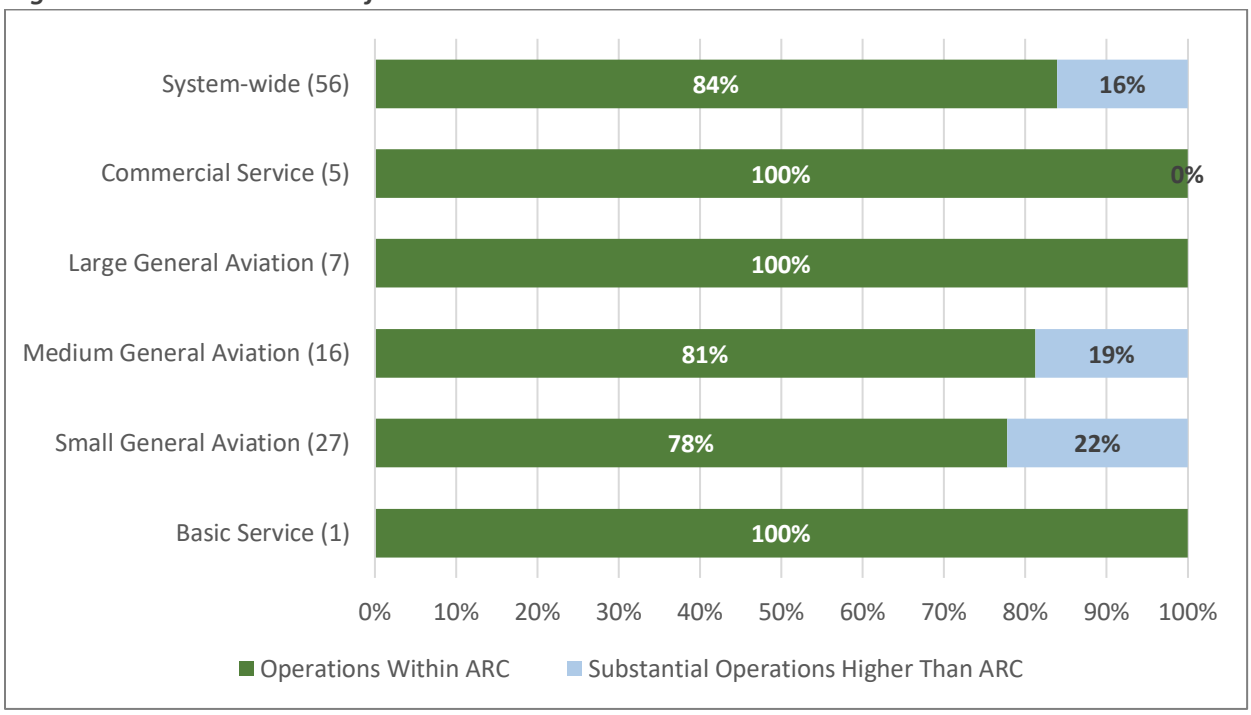
- Percentage of airports that do not have substantial operations by aircraft with an ARC higher than the critical aircraft
- Percentage of airports that have a primary runway Pavement Condition Index (PCI) of 70 or greater
- Percentage of airports that have a nonprimary runway PCI of 70 or greater
- Percentage of airports that have taxiways with a PCI of 60 or greater
- Percentage of airports that have aprons with a PCI of 50 or greater

5.3.1.1. *Percentage of Airports that do not have Substantial Operations by Aircraft with an ARC Higher than the Critical Aircraft*

An ARC defines the design characteristics of an airport based on the most demanding type of aircraft that most frequently use the airport (referred to as the "design" or "critical" aircraft). Ideally, an airport

should not have substantial operations (500 or more) by aircraft with an ARC higher than the design or critical aircraft. To determine which airports are experiencing significant operations by a more demanding aircraft than the airport is designed for, data from FAA's Traffic Flow Management System Counts (TFMSC) system was extracted and evaluated. TFMSC data includes the number of operations by aircraft by ARC at each airport that have filed a flight plan. This data was compared to the ARC for each airport based on Airport Layout Plans (ALPs) for each facility. When data from TFMSC is looked at exclusively, none of the 56 airports appear to have significant operations by an aircraft more demanding than the airport is designed to accommodate. However, there are several operations occurring at system airports that are not reflected in the TFMSC data. Any aircraft operating without a filed flight plan (such as agricultural spraying operations) are not accounted for in the TFMSC. To supplement the data from TFMSC, airport managers were asked to indicate the most demanding aircraft accounting for 500 or more annual operations at their airport. Nine airports reported substantial operations by aircraft of a higher ARC – all of which are various models of the Air Tractor. Five of the 10 airports are designed to accommodate A/B-I aircraft and are currently accommodating the Air Tractor 402, 502, and/or 602 which are all A-II aircraft. The other four airports are designed to accommodate A/B-I and report operations by the Air Tractor 802 which is a B-II aircraft. Group II aircraft have a longer wingspan than Group I. **Figure 5-13** shows the findings of this analysis. As shown, the airports reporting substantial operations by the Air Tractor are in the Medium GA and Small GA roles. System-wide, 84 percent of airports are meeting this PM. See **Chapter 6. System Recommendations, Section 6.2.2.1** for additional information on the changes in airport design and challenges associated with aircraft of a higher ARC.

Figure 5-13: Percentage of Airports that do not have Substantial Operations by Aircraft with an ARC Higher than the Critical Aircraft



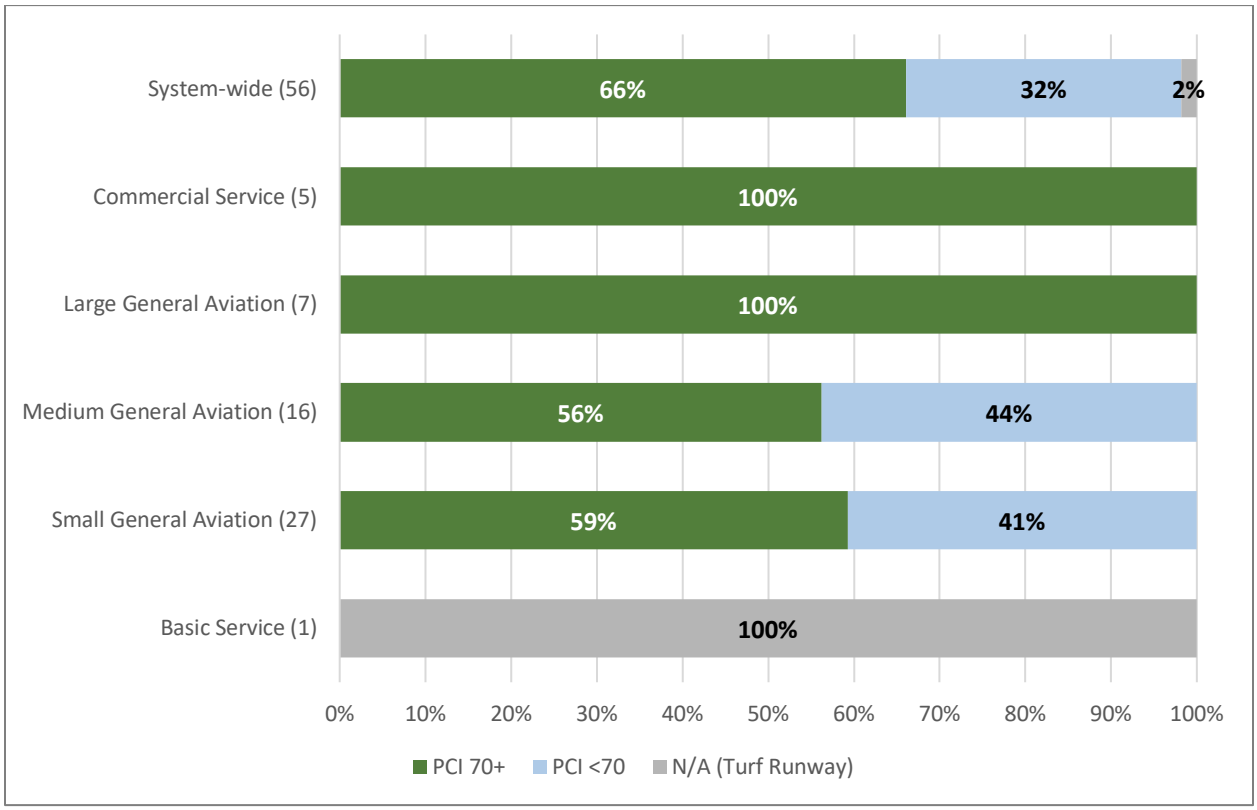
Sources: FAA TFMSC; 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.3.1.2. *Percentage of Airports that have a Primary Runway PCI of 70 or Greater*

One of the largest investments at South Dakota airports is the maintenance of pavement areas, which include primary runways, nonprimary runways, taxiways, and apron areas. The condition of pavements

(PCI) is scored on a scale of 1-100 with 100 being perfect condition. Runway pavement is generally considered to be in good condition if it has a PCI of 70 or greater. To meet this PM, airports must have an average PCI of 70 or greater on their primary runway. **Figure 5-14** shows the percentage of airports by classification meeting this PM. Overall, 66 percent of system airports have primary runways with an average PCI of 70 or greater. All Commercial Service and Large GA airports have primary runways with average PCIs of 70+. Approximately 60 percent of Medium GA and Small GA airports have primary runways with average PCIs of 70+. This PM is not applicable to the Basic Service classification as the single Basic Service airport does not have a paved primary runway.

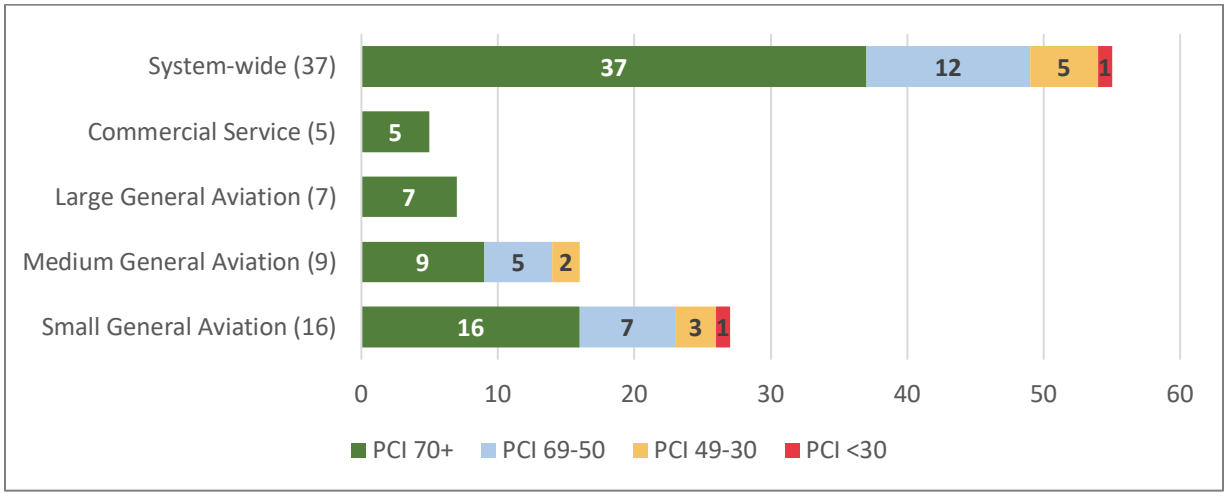
Figure 5-14: Percentage of Airports with a Primary Runway PCI of 70 or Greater



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020; SDDOT

Figure 5-15 looks more closely at the range of PCI values of applicable primary runways in the system. As shown, most primary runways have an average PCI of 70 or greater, and only 12 airports system-wide have an average primary runway PCI between 69 and 50. There are only five airports with an average primary runway PCI between 49 and 30, and those five airports are in the Medium GA and Small GA classification. There is only one airport system-wide with a primary runway PCI below 30, and that is a Small GA airport.

Figure 5-15: Range of PCI Values for Primary Runway at System Airports

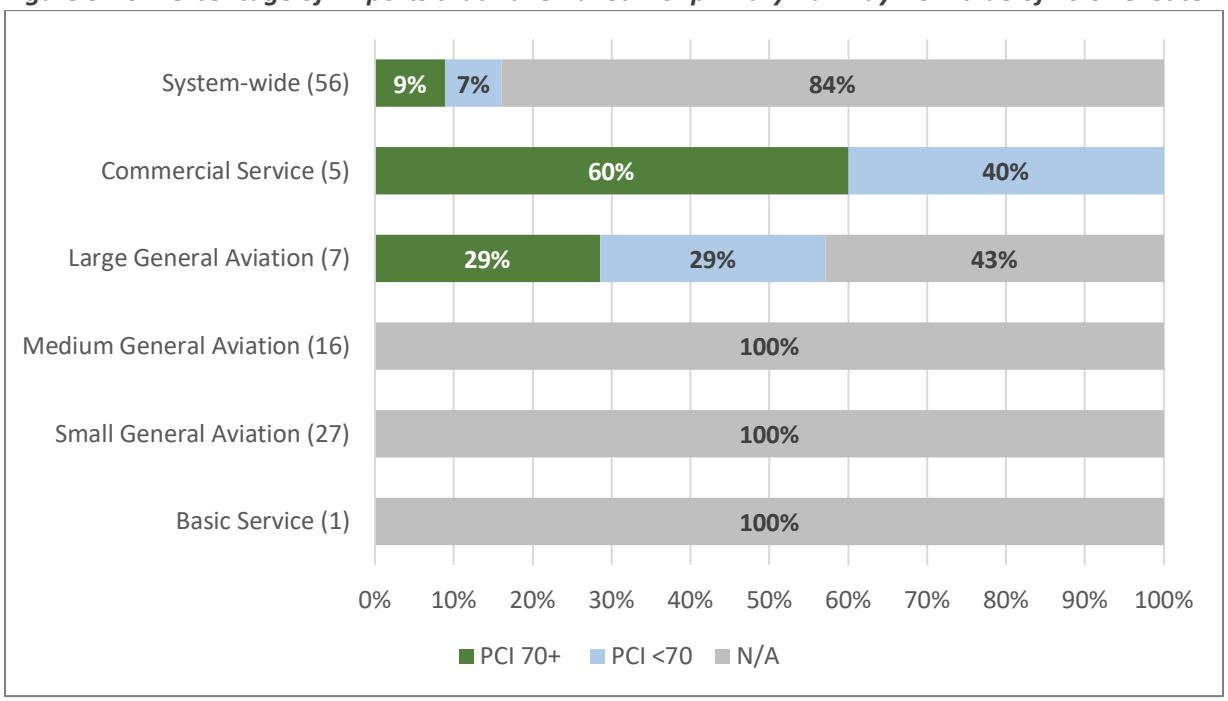


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020; SDDOT

5.3.1.3. *Percentage of Airports that have a Nonprimary Runway PCI of 70 or Greater*

Not all airports in the system have secondary or tertiary runways, and even fewer have paved nonprimary runways. Many of the nonprimary runways in the system are not paved and therefore are counted as not applicable for this measure. However, those airports that do have paved nonprimary runways are measured in the same fashion as paved primary runways. There are nine airports system-wide with paved nonprimary runways, and **Figure 5-16** shows the percentage of those with an average PCI of 70 or greater (nine percent, five airports). All five of the Commercial Service airports in the system have paved nonprimary runways, and 60 percent of them have an average PCI value of 70 or greater. There are four Large GA airports with paved nonprimary runways and two of those runways have an average PCI of 70 or greater.

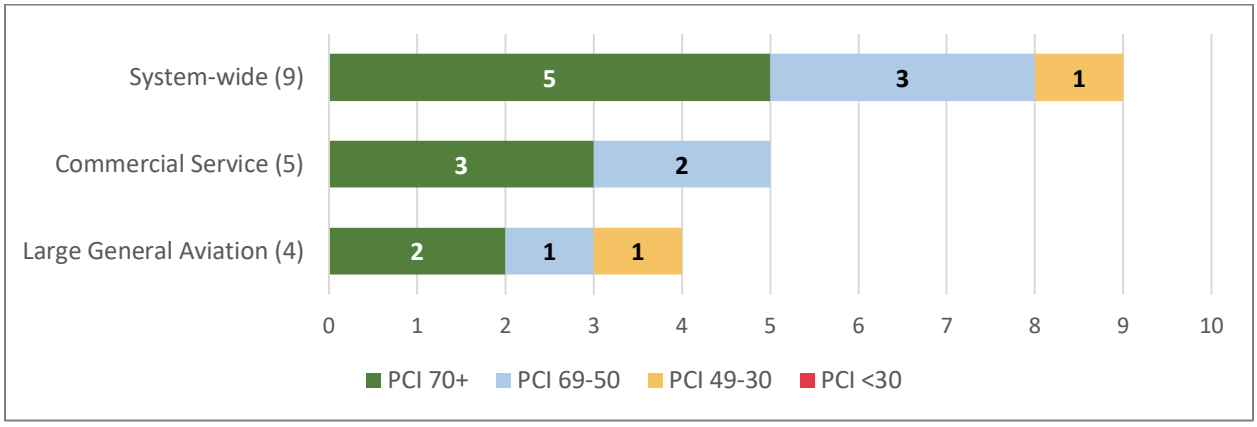
Figure 5-16: Percentage of Airports that have Paved Nonprimary Runway PCI Value of 70 or Greater



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020; SDDOT

Figure 5-17 provides additional context and shows the breakdown of PCI values across the nine paved nonprimary runways in the system. While most paved nonprimary runways have an average PCI above 70, there are three airports with paved nonprimary runway PCI averages between 50 and 60, and one with an average PCI value between 30 and 49. There are no nonprimary runways with a PCI below 30.

Figure 5-17: Range of PCI Values for Paved Nonprimary Runways

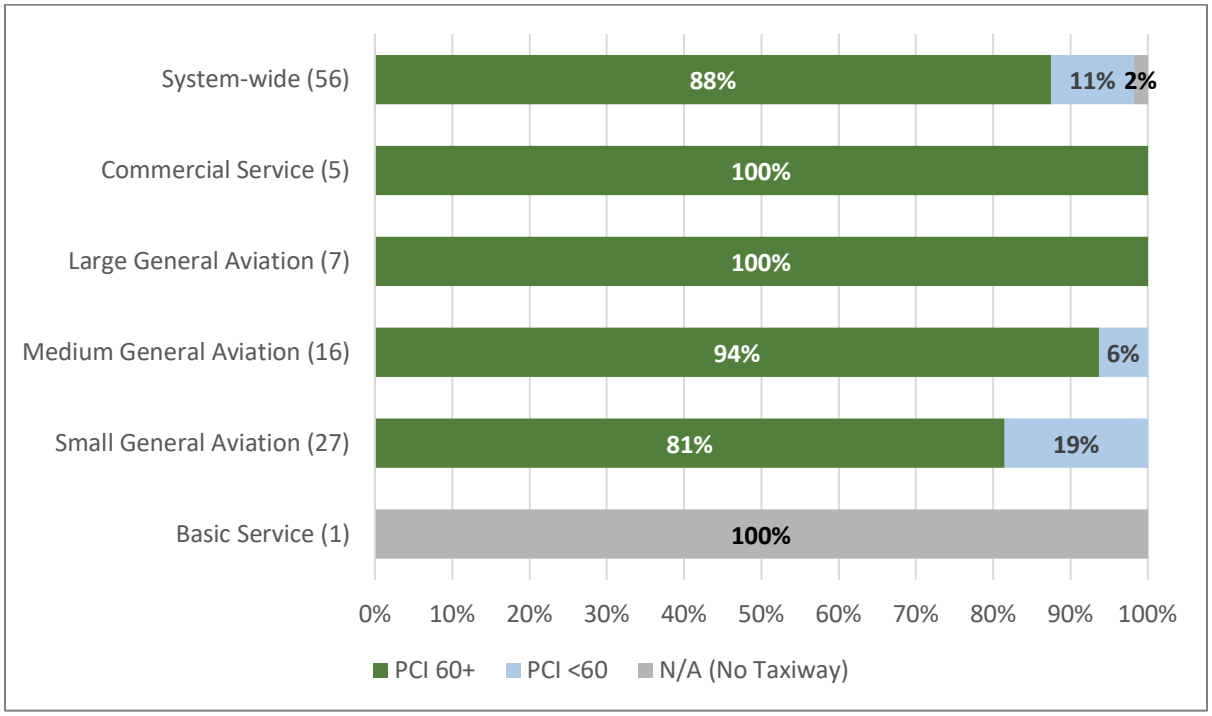


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020; SDDOT

5.3.1.4. *Percentage of Airports that have Taxiways with a PCI of 60 or Greater*

It is important to maintain taxiway pavement, as taxiways are heavily used by aircraft accessing the primary and nonprimary runways. The recommended average PCI value for taxiways at system airports is 60 or greater, which is 10 points lower than the average PCI recommended for primary and nonprimary runways. This is a result of the different type of demand on taxiway pavements versus runway pavements. **Figure 5-18** shows the percentage of airports by classification with taxiway PCI averages of 60 or greater. Overall, the system performs very well in this measure, with 88 percent of all system airports having an average taxiway PCI value of 60 or greater. All Commercial Service and Large GA airports have an average taxiway value of 60+. Ninety four percent of Medium GA and 81 percent of Small GA airports have average taxiway PCIs of 60 or greater. This PM is not applicable to the single Basic Service airport as the single airport in this classification does not have paved taxiways.

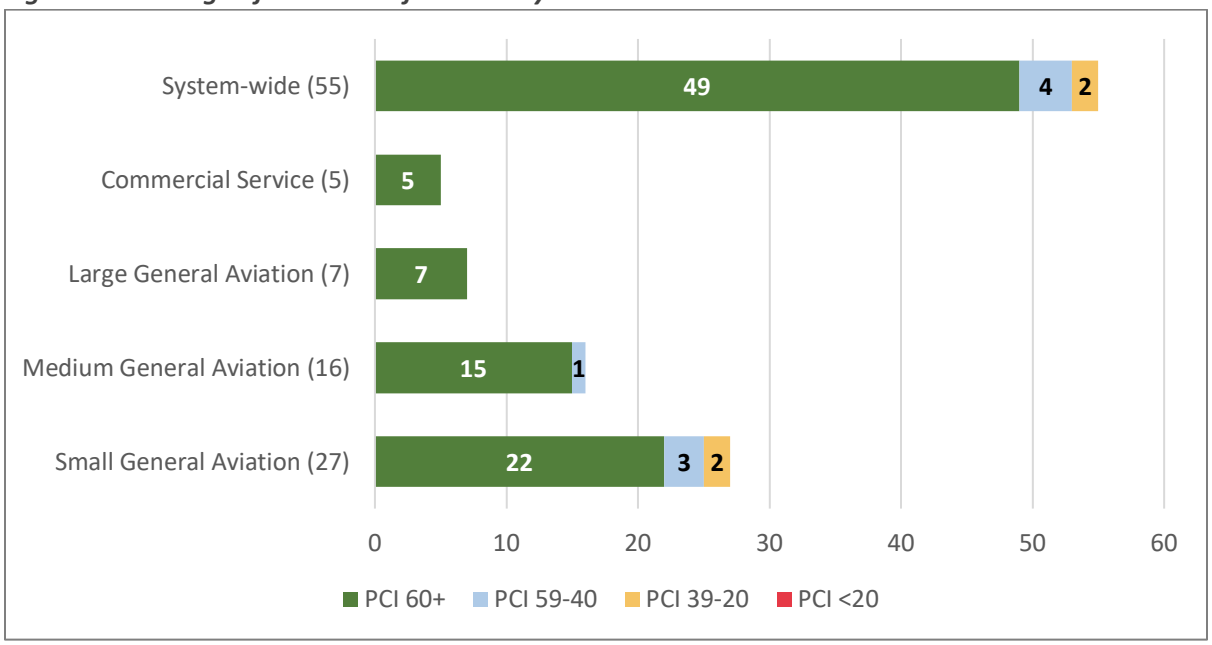
Figure 5-18: Percentage of Airports with Taxiway PCI Values of 60 or Greater



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020; SDDOT

Figure 5-19 shows the range of PCI values for taxiways at applicable system airports. As shown in the chart, most taxiway PCI averages are at or above 60, with only four taxiways having an average PCI between 40 and 59 (one of these airports is Medium GA and the other three are Small GA airports). Only two Small GA airports have an average taxiway PCI between 20 and 39, and there are no taxiways in the system with a PCI below 20.

Figure 5-19: Range of PCI Values for Taxiways

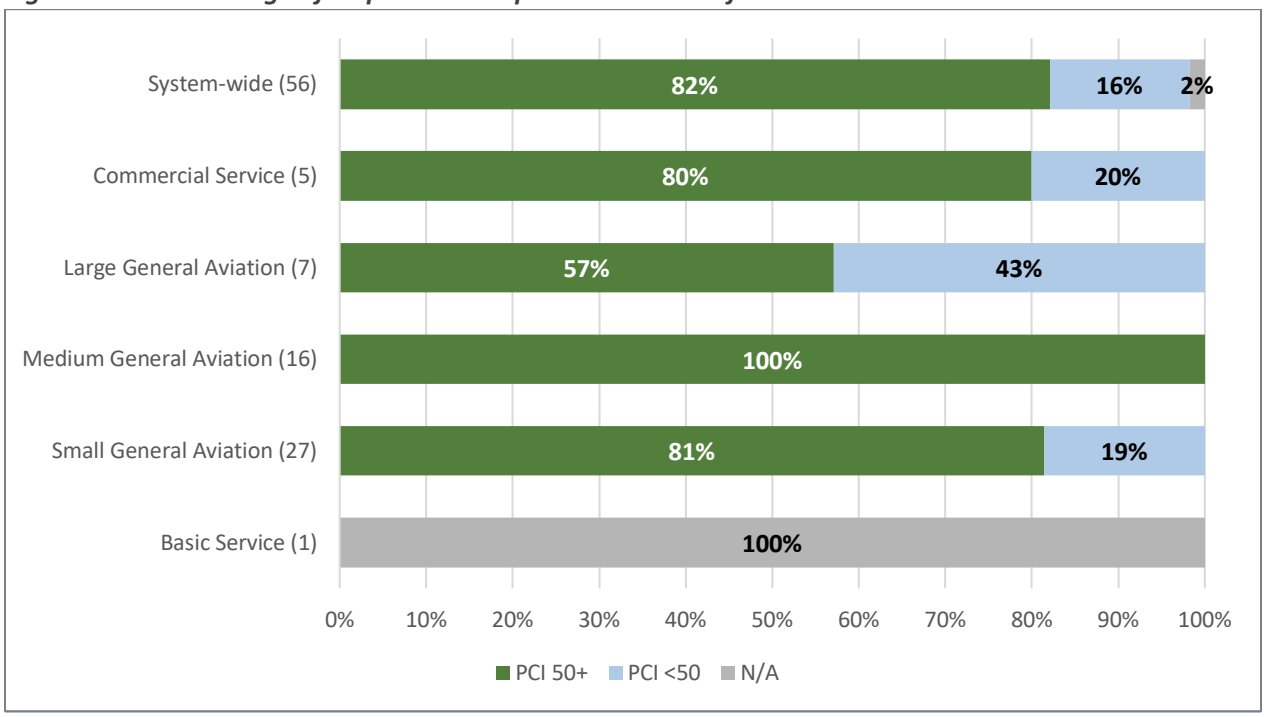


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020; SDDOT

5.3.1.5. *Percentage of Airports that have Aprons with a PCI of 50 or Greater*

The final pavement area being measured in the 2020 SDSASP is the condition of the apron space. The recommended average PCI value for apron space is 50 or greater. As with the previous PCI PMs, it does not apply to the Basic Service airport. **Figure 5-20** shows the percentage of airports by classification with average apron PCI values of 50 of greater.

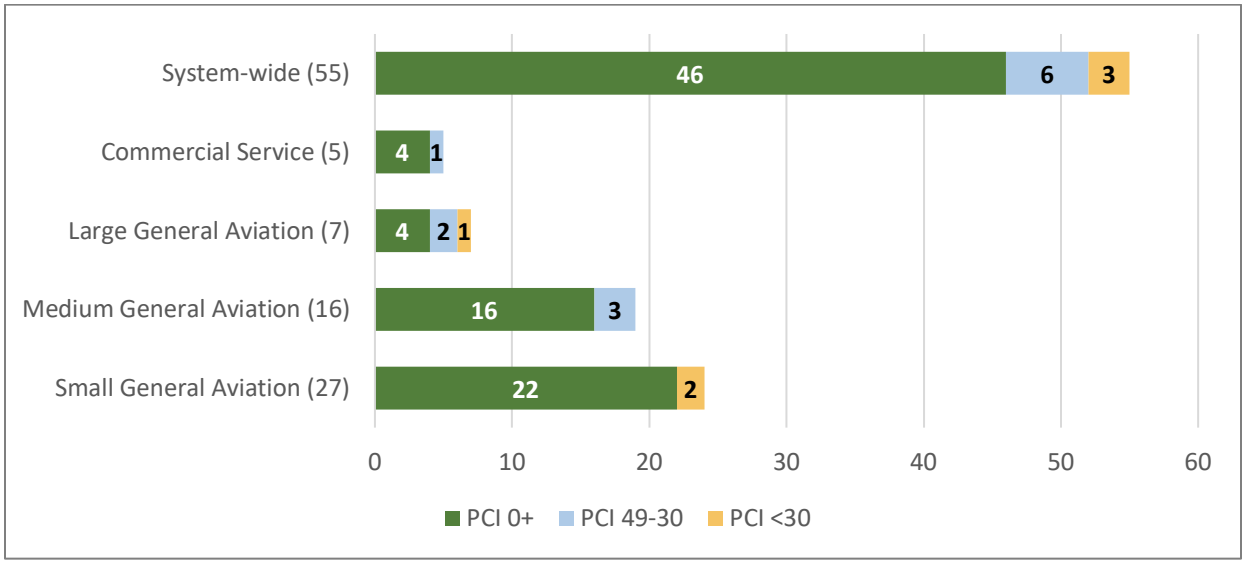
Figure 5-20: Percentage of Airports with Apron PCI Values of 50 or Greater



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020; SDDOT

Figure 5-21 shows the range of PCI values for apron space across system airports. Most of the apron space in the system has an average PCI of 50 or greater. There are six airports with apron space condition between 30 and 49 PCI. Of those six airports, one is Commercial Service, two are Large GA airports, and three are Medium GA airports. Three airports have an average apron PCI below 30, one of those airports is a Large GA airport, while the other two are Small GA airports.

Figure 5-21: Range of PCI Values for Apron Space



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020; SDDOT

5.3.2. Performance Indicators

This section reviews results of the system-wide evaluation of the PIs associated with the maintenance and development infrastructure system goal. Analyses use data from the 2020 SDSASP Inventory Form and from SDDOT. PIs evaluated include:

- Percentage of airports meeting their facility targets
- Percentage of airports meeting their service targets
- Percentage of airports reporting adequate apron space for season fluctuations in operations
- Percentage of airports with a recent master plan
- Percentage of airports reporting having at least one cultural resource at their airport
- Percentage of airports that have completed a full airport cultural survey

5.3.2.1. *Percentage of Airports Meeting their Facility Targets*

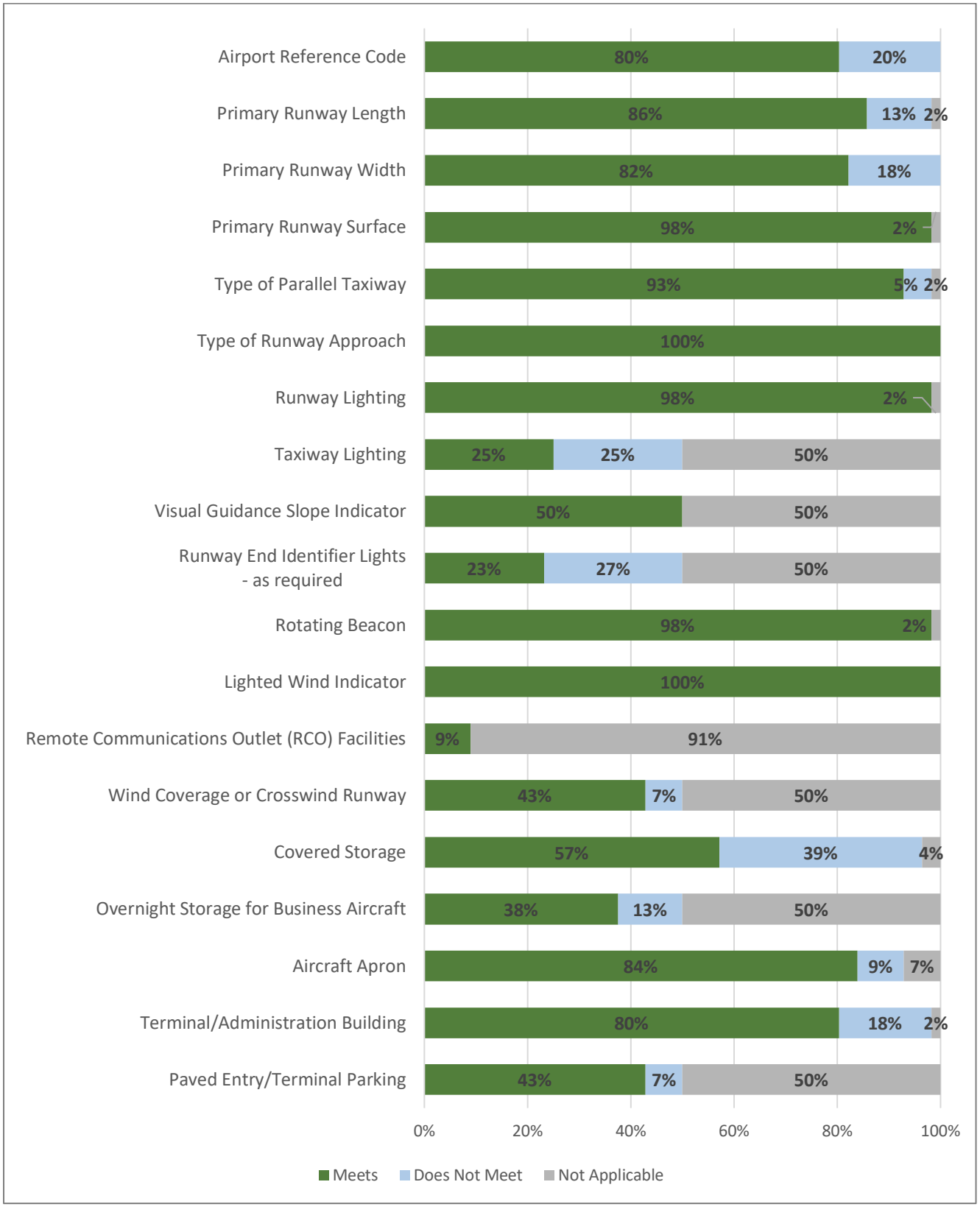
The 2020 SDSASP facility targets were introduced in **Chapter 3. Airport Roles** to provide recommended facilities and services appropriate to each airport role. These targets are not requirements for airports but are encouraged and support the type of activity occurring at airports in each role. This PI is an extension of that discussion and evaluates system-wide performance on facility targets. **Figure 5-22** shows the system-wide performance of airports meeting facility targets defined for their airport role. In some cases, targets are not defined for smaller airport roles. Those are noted as "N/A" in the chart.

The system as a whole is achieving several facility targets, including:

- Remote Communications Outlet (RCO)
- Lighted wind indicator
- Rotating beacon
- Visual Guidance Slope Indicator (VGSI)
- Runway lighting
- Approach
- Primary runway surface

The system performed the lowest in terms of runway end identifier lights (REILS) on runway ends, with 23 percent of applicable airports meeting this facility target. Only 50 percent of the system airports have REILs as a facility target.

Figure 5-22: System-wide Performance of Facility Targets



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

Note: Targets vary based on airport classification. See Chapter 3. Airport Roles for targets by airport role.

5.3.2.2. *Percentage of Airports Meeting their Service Targets*

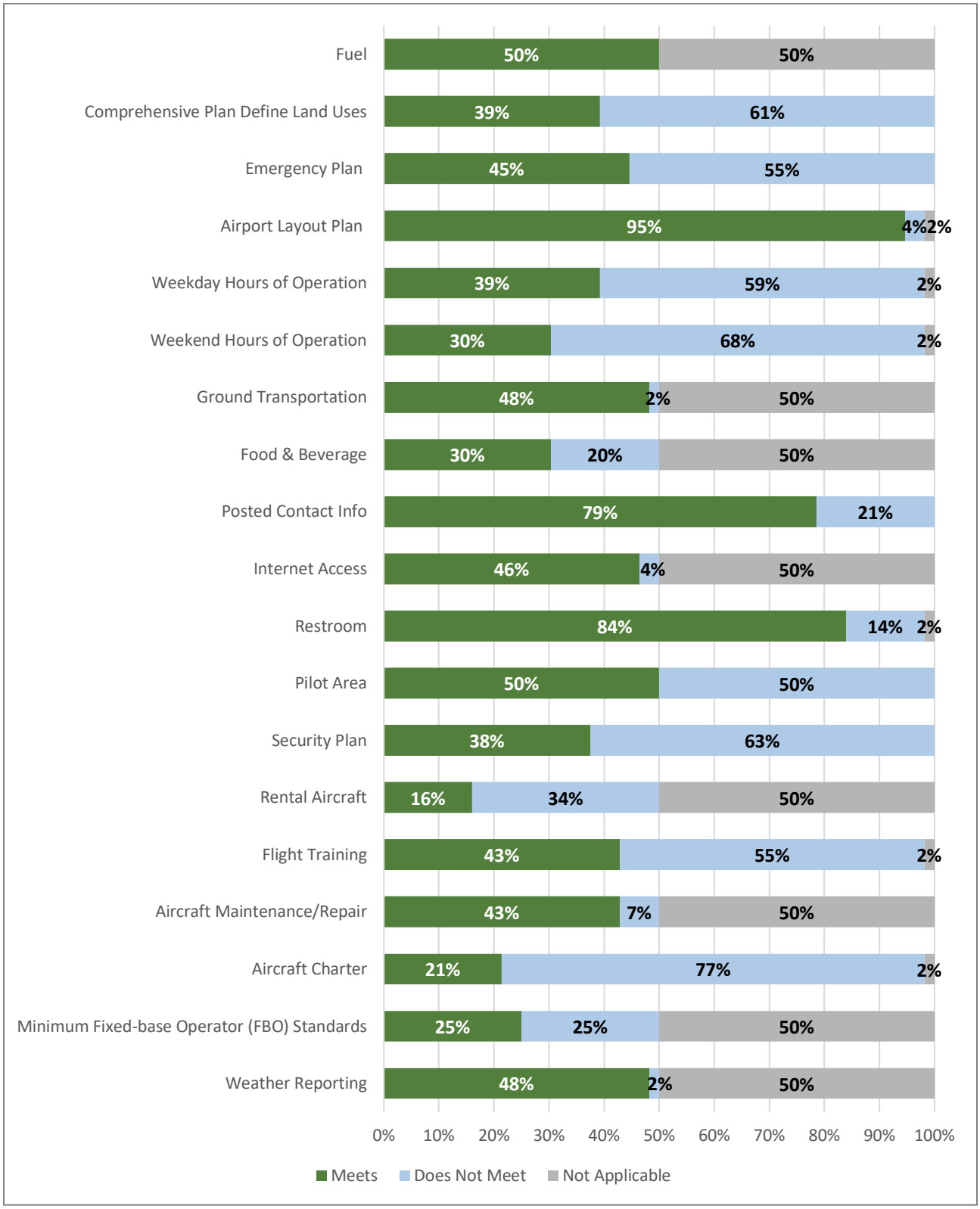
Similar to the previous section, the 2020 SDSASP service targets were introduced in **Chapter 3. Airport Roles** to demonstrate the recommended services each airport role should strive for. These are not requirements for airports but are encouraged and support the type of activity occurring at airports in each role. This PI is an extension of that discussion and analyzes system-wide performance of service targets. **Figure 5-23** shows the system-wide performance of airports meeting their service targets. In some cases, targets are not defined for smaller airport roles. Those are noted as "N/A" in the chart.

The system as a whole is achieving two service targets, including:

- Aircraft maintenance/repair
- Fuel

Overall the system performed the lowest on the rental aircraft service target with 16 percent of airports meeting this target.

Figure 5-23: System-wide Performance of Service Targets

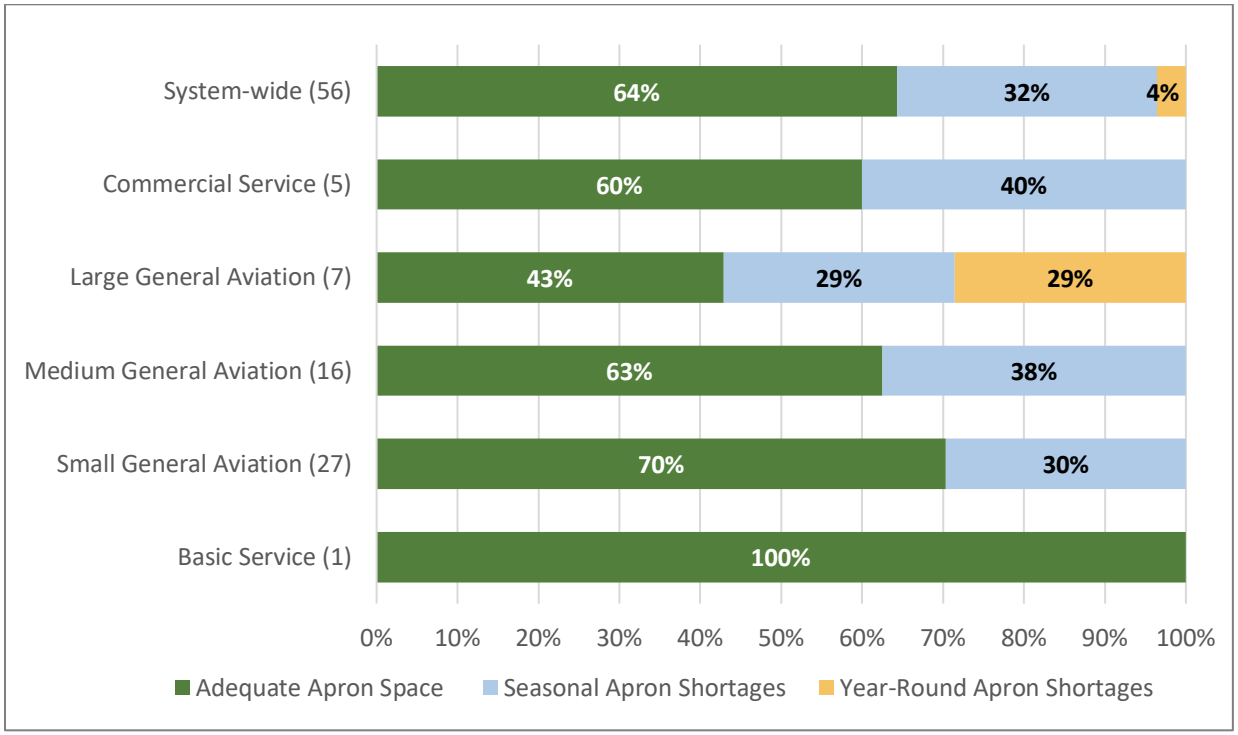


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020
Note: Targets vary based on airport classification. See ***Chapter 3. Airport Roles.***

5.3.2.3. *Percentage of Airports Reporting Adequate Apron Space for Seasonal Fluctuations in Operations*

Several of South Dakota's airports are impacted by special events and/or seasonal activity fluctuations that cause increased air traffic. During peak seasons for pheasant hunting, aerial agricultural application (agricultural spraying), wildfire season, the Sturgis Motorcycle Rally, and other special events, airports can experience a shortage in apron space for visiting aircraft. While apron capacity may not be a concern throughout most of the year, these seasonal activities can create shortages that impact based and transient aircraft. **Figure 5-24** shows the percentage of airports by classification who reported experiencing apron space shortages due to season fluctuations in activity. Overall, most of the system airports (64 percent) reported not experiencing apron capacity shortages. A total of 32 percent of system airports (18 airports) reported seasonal apron capacity shortages and four percent (two airports) reported year-round apron shortages. Commercial Service airports had the highest percentage of airports impacted by seasonal fluctuations at 40 percent.

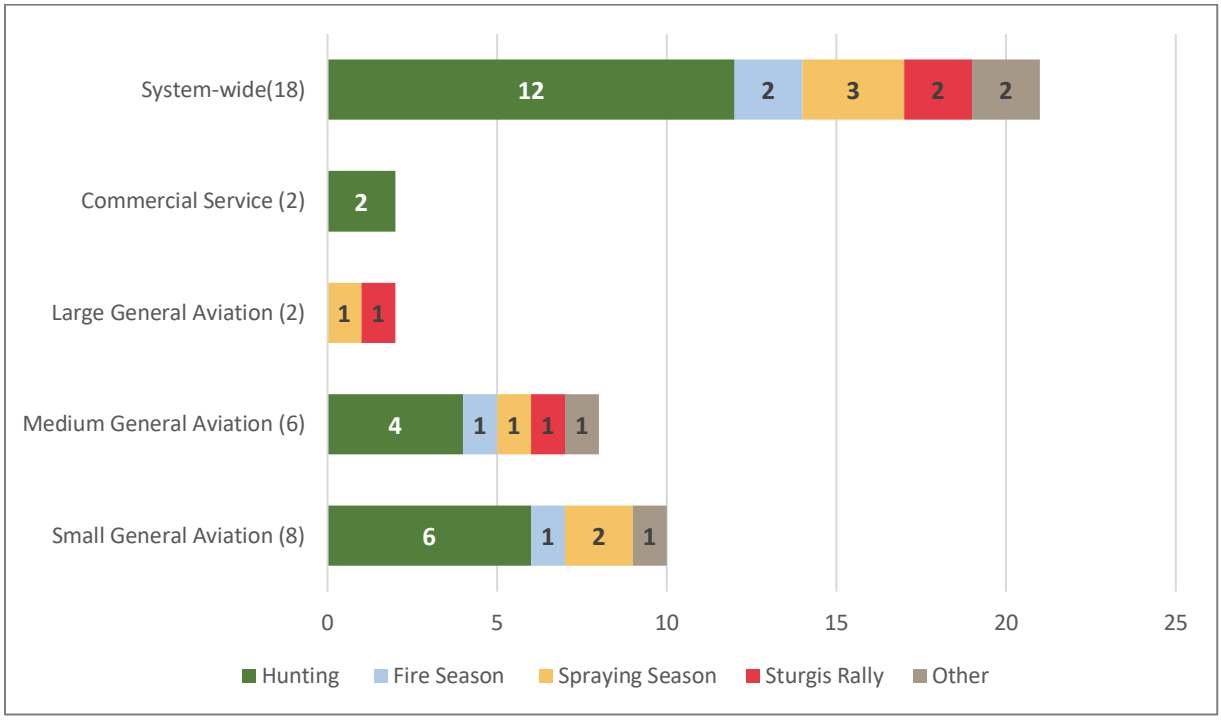
Figure 5-24: Percentage of Airports Reporting Adequate Apron Space for Seasonal Fluctuations in Operations



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

Figure 5-25 shows the type of seasonal activities system airports cited as causing capacity issues. Eighteen airports in the system reported capacity concerns due to seasonal activities. However, some airports cited being impacted by multiple seasonal activities, therefore the numbers in **Figure 5-25** sum to more than 18. As shown, the pheasant hunting season causes the most apron capacity shortages. The hunting season impacting these airports occurs in the Fall between October and November. Two airports reported shortages during wildfire season, occurring during the late summer months. Additionally, agricultural spraying season impacts three airports in the Small and Medium GA classifications. The Sturgis Motorcycle Rally and other special events impact four airports in the system from Small GA to Large GA airports.

Figure 5-25: Seasonal Activities Causing Apron Shortages at System Airports

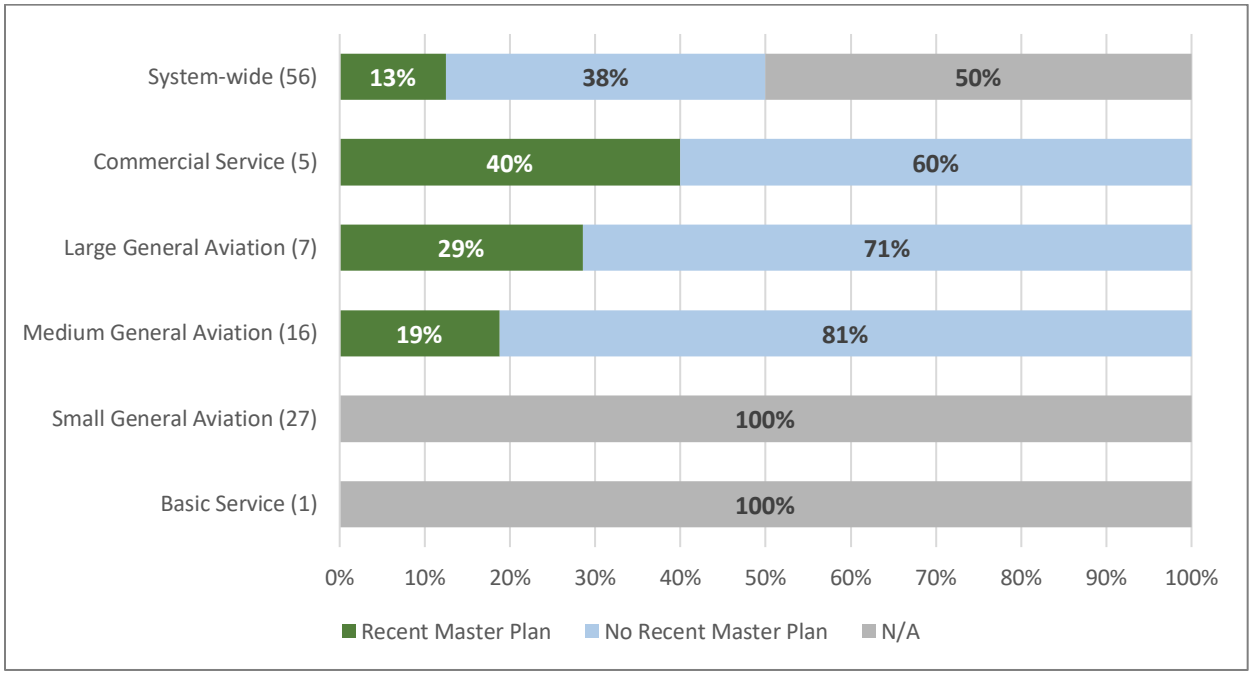


Source: 2020 SDSASP Inventory Form

5.3.2.4. *Percentage of Airports with a Recent Master Plan*

Airport master plans provide a comprehensive assessment of an airport's ability to accommodate existing and future demands and identify short-, medium-, and long-term development needs. An airport master plan can demonstrate an airport sponsor's commitment to responsible airport investment by ensuring resources are allocated in a manner that meets current and future needs. While master plans can be a requirement for National Plan of Integrated Airport Systems (NPIAS) airports to receive federal funding, an airport can opt to have an ALP with Narrative on file instead to meet that requirement. It is common for smaller airports to have an ALP instead of a master plan. Therefore, it was determined that Small GA and Basic Service airports in the SDSASP will not be evaluated under this PI. It is recommended that Commercial Service airports have a master plan on file published within the last eight years, and Large and Medium GA airports within the last 10 years. **Figure 5-26** shows the percentage of airports by classification with a recent master plan on file. Overall, system-wide performance on this measure was relatively low, with only 13 percent of airports having a recent master plan on file. However, it is important to note that many of these airports have a recent ALP as seen in the service targets in **Section 5.3.2.2.**

Figure 5-26: Percentage of Airports with a Recent Master Plan

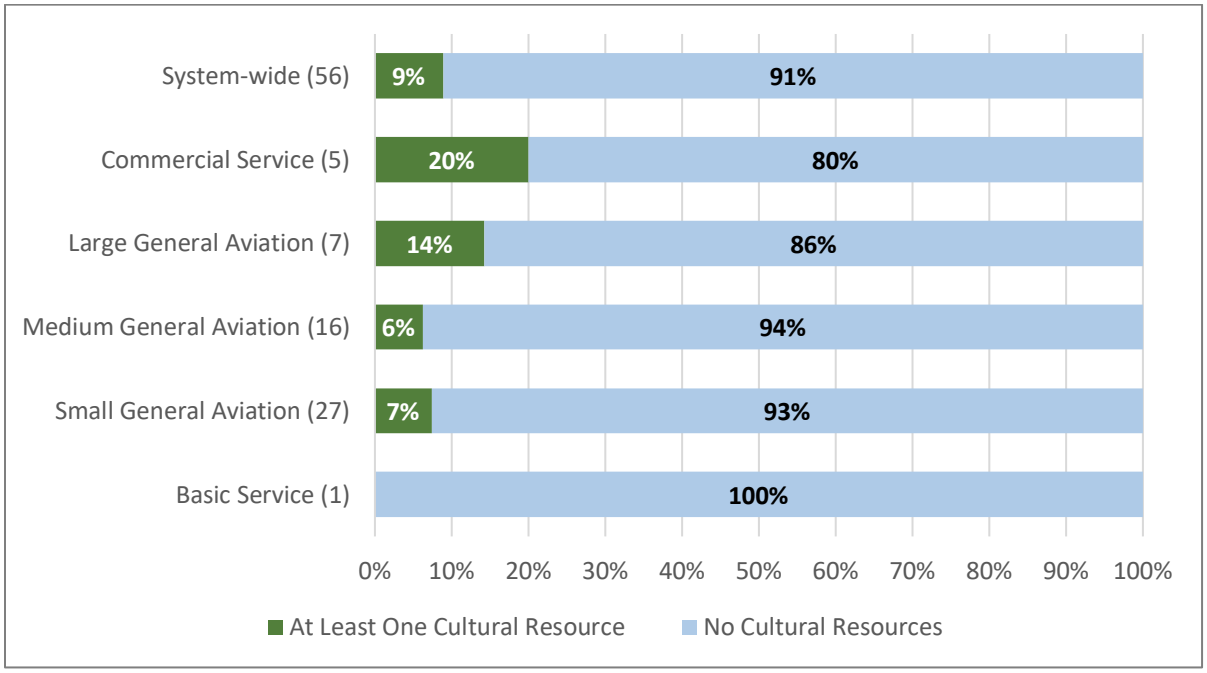


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.3.2.5. *Percentage of Airports Reporting Having at Least One Cultural Resource at their Airport*

Cultural resources encompass a range of historical, architectural, and/or archeological sites that relate to human activities, society, and cultural institutions. These resources can include past and present expressions of human culture as well as history in the physical environment, such as prehistoric and historic archaeological sites, structures, objects, and districts that are considered important to a culture or community. Cultural resources can also include natural features that are part of traditional ways of life and practices associated with community values and institutions. The presence of cultural resources at an airport can be challenging for future airport expansion as they limit the location and extent of allowable expansion. Airport managers were asked to report if there are any cultural resources at their airport for this PI. **Figure 5-27** shows the percentage of airports reporting having at least one cultural resource at their airport. Only five airports in the system reported having one or more cultural resources at their airport, equating to nine percent of the system. At least one airport within each classification, except the Basic Service airport, report having a cultural resource on site.

Figure 5-27: Percentage of Airports Reporting Having at Least One Cultural Resource at their Airport

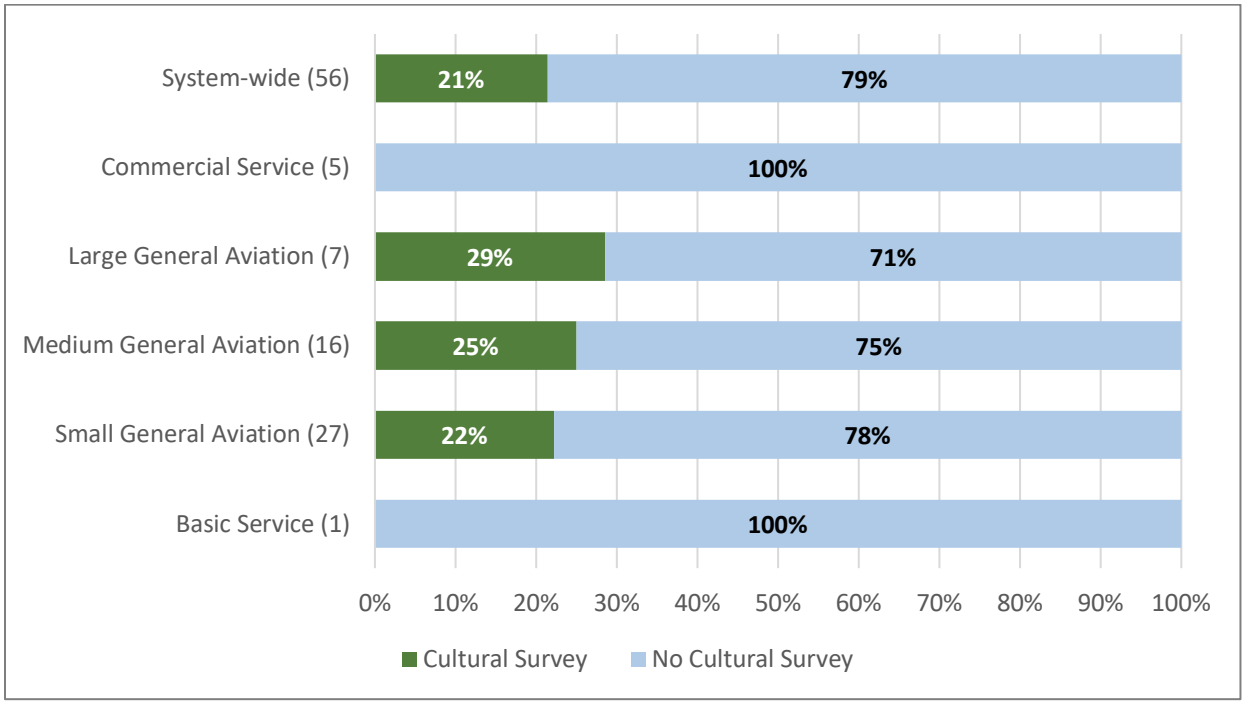


Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.3.2.6. *Percentage of Airports that have Completed a Full Airport Cultural Survey*

Certain FAA regulations require cultural surveys to be completed to determine if any cultural resources are located on airport property under the National Historical Preservation Act, Section 106. Having these surveys allows stakeholders to understand the limitations that may exist for future facility expansion or reconfiguration. Airport managers were asked to report on whether a complete airport cultural survey has been completed at their airport. **Figure 5-28** shows the results of this inquiry. System-wide, 21 percent of airports (12 of 56 airports) report having a completed airport cultural survey. Small GA airports had the highest number of airports with a cultural survey (six), followed by Medium GA airports (four), and Large GA airports (two). None of the Commercial Service or Basic Service airports reported having a cultural survey completed.

Figure 5-28: Percentage of Airports that have Completed a Full Airport Cultural Survey



Sources: 2020 SDSASP Inventory Form; Kimley-Horn, 2020

5.4. Goal: Accessibility to Users

Accessibility to users is paramount to optimizing system performance, as those who rely on system airports should have easy access to them. Several PMs and PIs are used to evaluate system performance of this goal. Most PMs and PIs in this section use geographic information systems (GIS) drive-time analyses to determine the percentage of population within a certain drive-time of an airport that provides particular facilities or services. The American Community Survey (ACS) 5-Year Estimate (2013-2017) was used to calculate population coverage within the appropriate drive-time buffers. **Appendix B – Intermodal Integration and Airport Access** further examines system accessibility by evaluating intermodal connectivity and airport access, including roadway connectivity, transit options, rail connectivity, and assessing future improvements to intermodal and system connectivity.

5.4.1. Performance Measures

This section reviews results of the system-wide evaluation of the PMs associated with the accessibility to users' goal. Analyses utilize data from the 2020 SDSASP Inventory Form, ACS 5-Year Estimates (2013-2017) and GIS. PMs evaluated include:

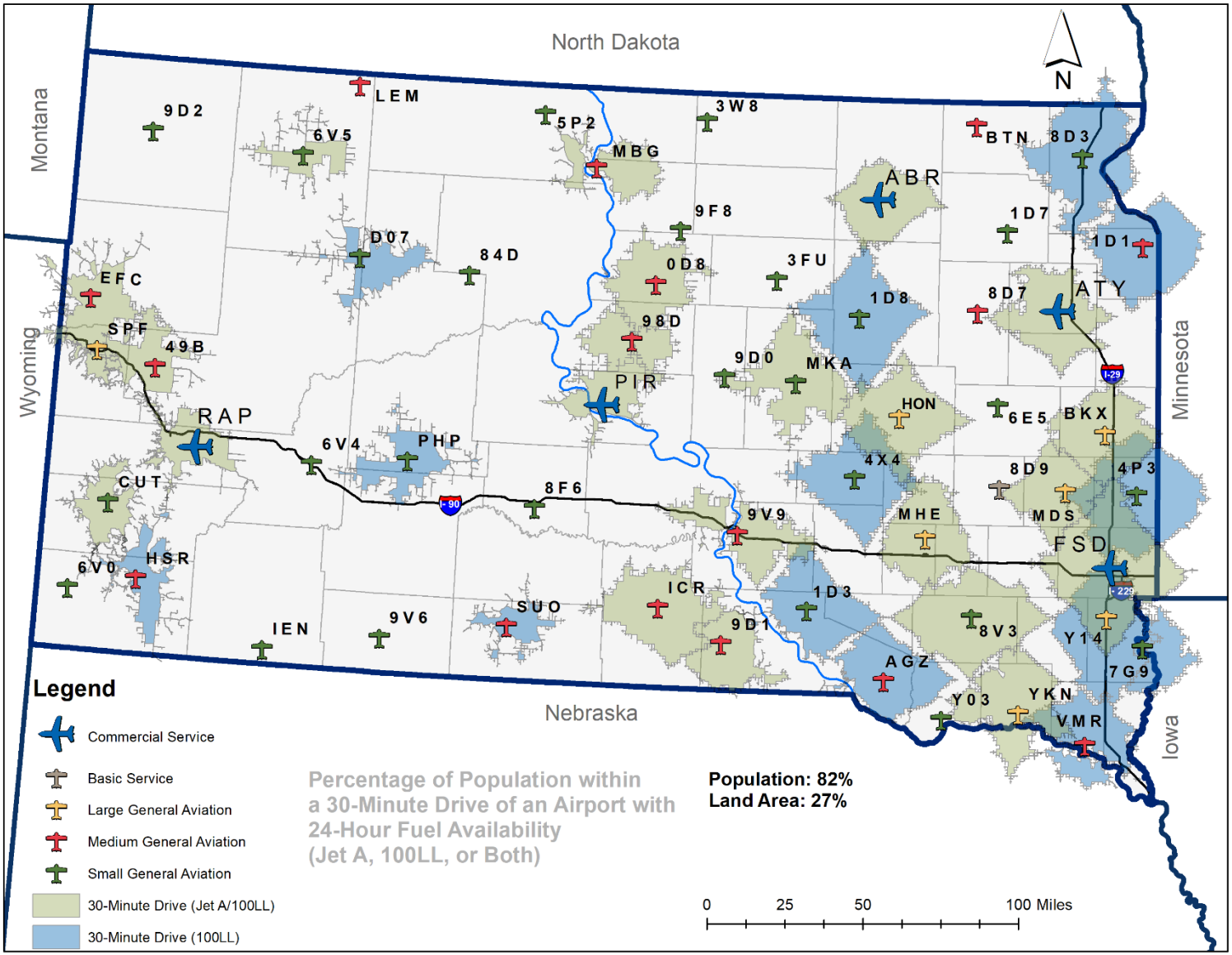
- Percentage of population within a 30-minute drive of an airport with 24-hour fuel availability (Jet A, 100LL, or both fuel types)
- Percentage of population within a 30-minute drive of an airport with an AWOS or ASOS

5.4.1.1. *Percentage of Population Within a 30-minute Drive of an Airport with 24-hour Fuel Availability (Jet A, 100LL, or Both Fuel Types)*

Access to an airport with 24-hour fuel availability, including 100LL and/or Jet A, is important for airport users in South Dakota as it allows pilots the convenience of fueling their aircraft outside of normal operating hours or when fixed-base operator (FBO) services are unavailable. Access to 24-hour fueling is

critical during emergency situations if an aircraft requires immediate re-fueling to transport people, goods, and services. Providing 24-hour access to fuel is just as beneficial to based aircraft users as it is to transient operators coming through. If a based aircraft owner/user cannot get fuel at the times needed, their access to South Dakota's air transportation system becomes limited. **Figure 5-29** shows the 30-minute drive-time buffers around airports with 24-hour fuel availability. Airports providing 24-hour access to both Jet A and 100LL fuel are shown with green drive-time buffers, while airports with 24-hour access to 100LL only are shown in blue. Eighty-two percent of South Dakota's population is within a 30-minute drive of a system airport with 24-hour fuel availability.

Figure 5-29: Percentage of Population within a 30-minute Drive of an Airport with 24-hour Fuel Availability

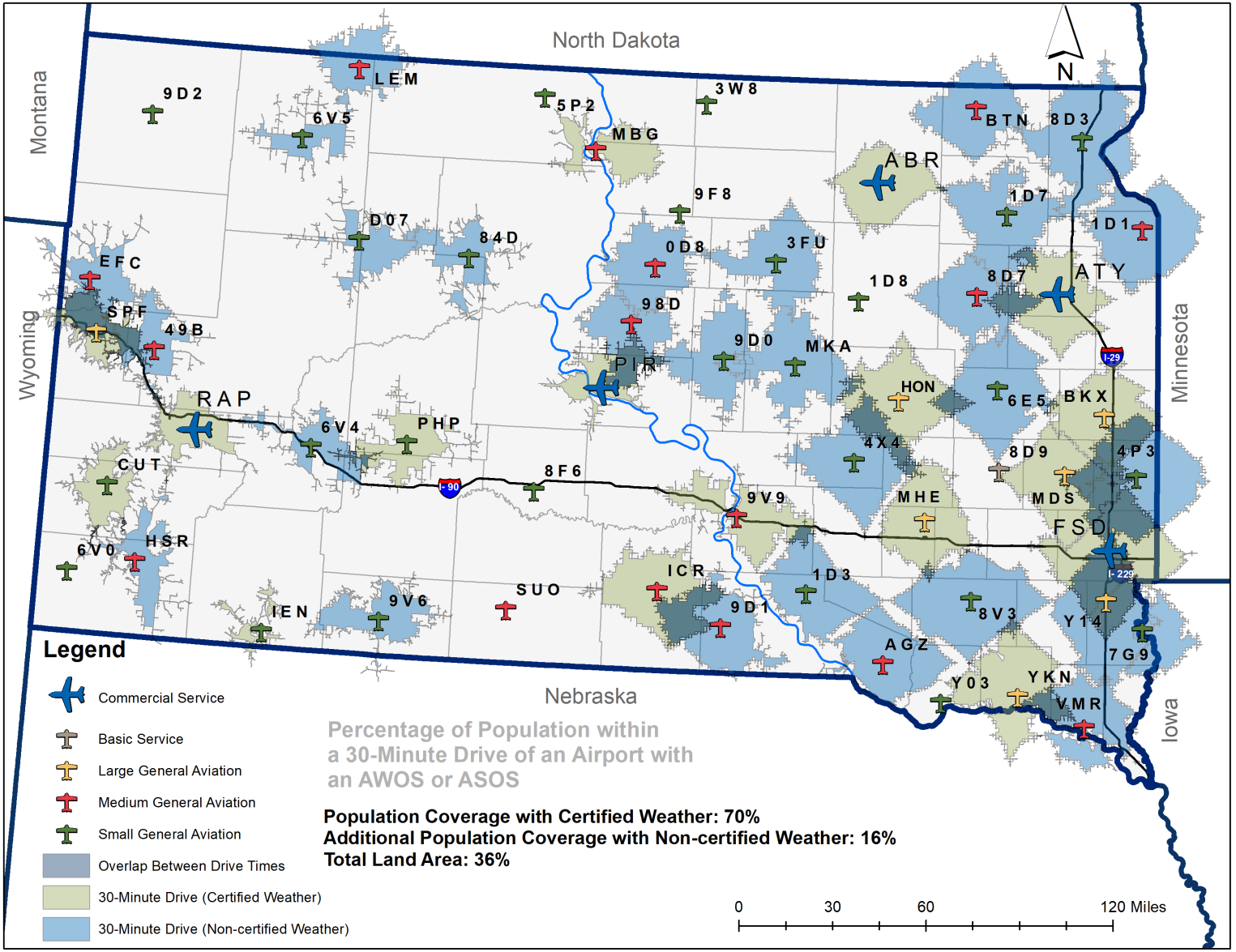


Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

5.4.1.2. *Percentage of Population Within a 30-minute Drive of an Airport with an AWOS or ASOS*

Automated weather observing systems (AWOS), automated surface observing systems (ASOS), and SuperAWOS systems communicate meteorological conditions to pilots to safely navigate aircraft to and from the airport and through nearby airspace. These systems report on a variety of weather conditions including all or some of the following: ceilings, visibility, precipitation, wind, barometric pressure and other elements that impact flight conditions. Not only is this information critical to pilots en-route, but it also provides based aircraft users with the information needed to determine if they can safely operate during times of mixed weather. While any form of weather reporting can be beneficial to the airport and airport users, there is a distinction between certified weather information and non-certified weather information. SuperAWOS systems produce non-certified weather information, which has limited utility for some operations. For example, Part 135 operators such as medical transportation pilots require certified weather reports for their operations. Since the distinction between certified and non-certified weather can impact utilization, it is important to show these weather systems separately. Therefore, **Figure 5-30** shows 30-minute drive-time buffers for system airports with certified weather equipment (shown in green) and non-certified weather equipment (shown in blue). Seventy percent of South Dakota's population is within a 30-minute drive of an airport with certified weather equipment, while an additional 16 percent of the population is within 30-minute drive of an airport with non-certified weather equipment. Looking at the weather equipment cumulatively, 86 percent of the population is within a 30-minute drive of one of these airports.

Figure 5-30: Percentage of Population within a 30-minute Drive of an Airport with an AWOS or ASOS



Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

5.4.2. Performance Indicators

This section reviews results of the system-wide evaluation of the PIs associated with the accessibility to users' goal. Analyses utilize data from the 2020 SDSASP Inventory Form, ACS 5-Year Estimates (2013-2017), and GIS. PIs evaluated include:

- Percentage of population within a two-hour drive of a commercial service airport
- Percentage of population within a 30-minute drive of a general aviation (GA) airport
- Percentage of land area in the state with Automatic Dependent Surveillance-Broadcast (ADS-B) coverage including Flight Information Services (FIS)
- Percentage of population within a 30-minute drive of an airport with a turf crosswind runway
- Percentage of population within a 30-minute drive of an airport with storage for large aircraft (King Air 250 – 60' x 80')
- Percentage of population within a 30-minute drive of an airport with at least a non-precision approach
- Percentage of airports reporting having service by a transit agency
- Percentage of population within a 30-minute drive-time of an airport that can support fixed-wing and rotorcraft medical flights (non-precision approach and certified weather)
- Percentage of population within a 30-minute drive-time of an airport without services needed for medical operations and is not within a 30-minue drive time of an airport that does
- Percentage of population within a 30-minute drive-time of an airport that can support business activity (5,000'+ runway, weather reporting, precision approach, Jet A fuel)

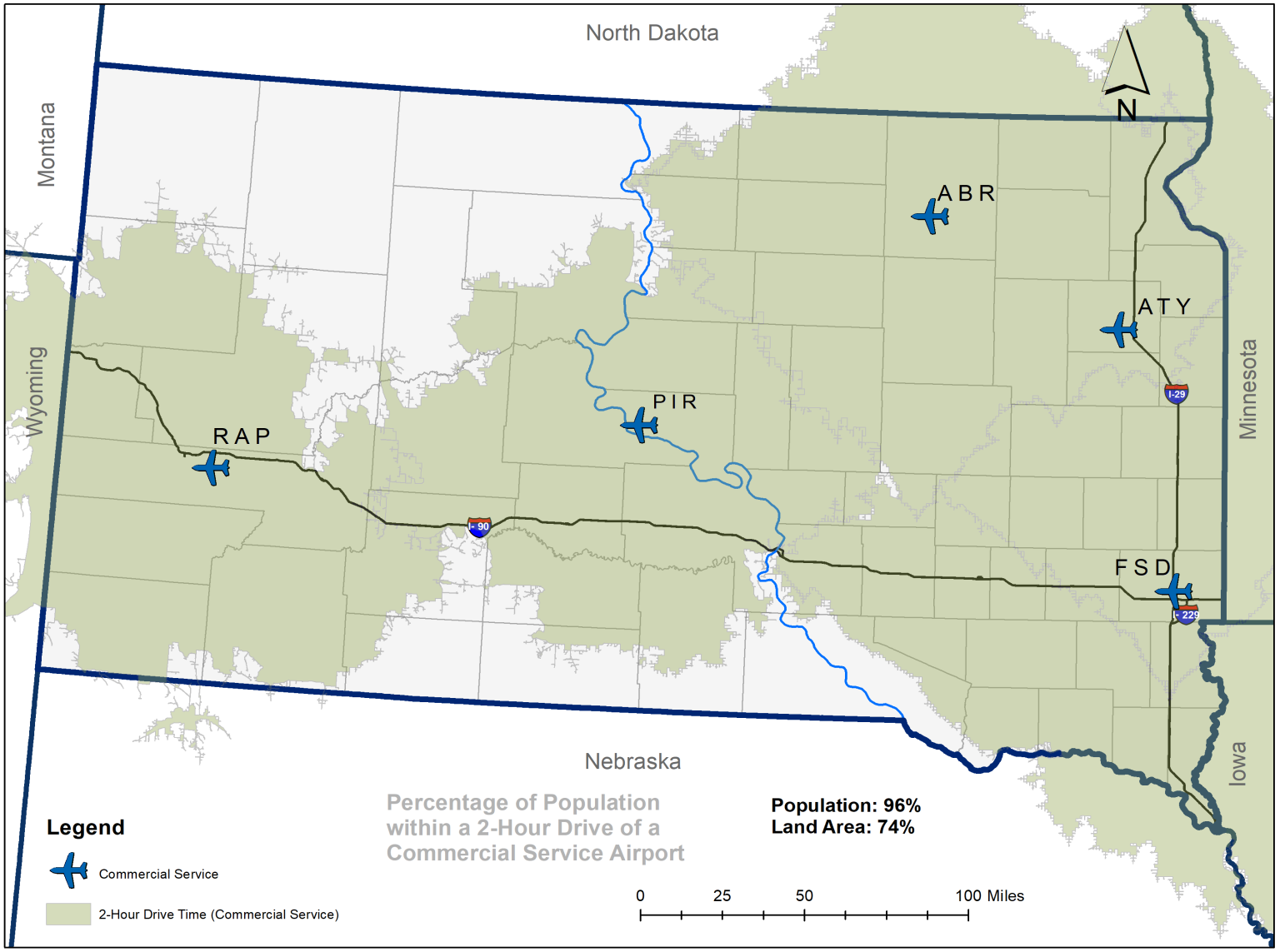
5.4.2.1. *Percentage of Population within a Two-hour Drive-time to Commercial Service Airports*

Access to an airport with commercial airline service is essential to South Dakota residents, visitors, and businesses alike. There are five commercial service airports in the South Dakota system, providing varying levels of service. For example, some airports provide service on a single airline to and from one airport, while others provide service on multiple airlines with several nonstop destinations. Due to some of the limited commercial service access in South Dakota, air travelers frequently travel a significant distance to find more options in airline service. For that reason, a two-hour drive-time service area was selected for this analysis. **Figure 5-31** shows the percent of population and land area covered by the two-hour service areas around the state's five commercial service airports. Nearly all the state's population and roughly three quarters of land area is covered within these service areas.

5.4.2.2. *Percentage of Population within a 30-minute Drive-time to GA Airports*

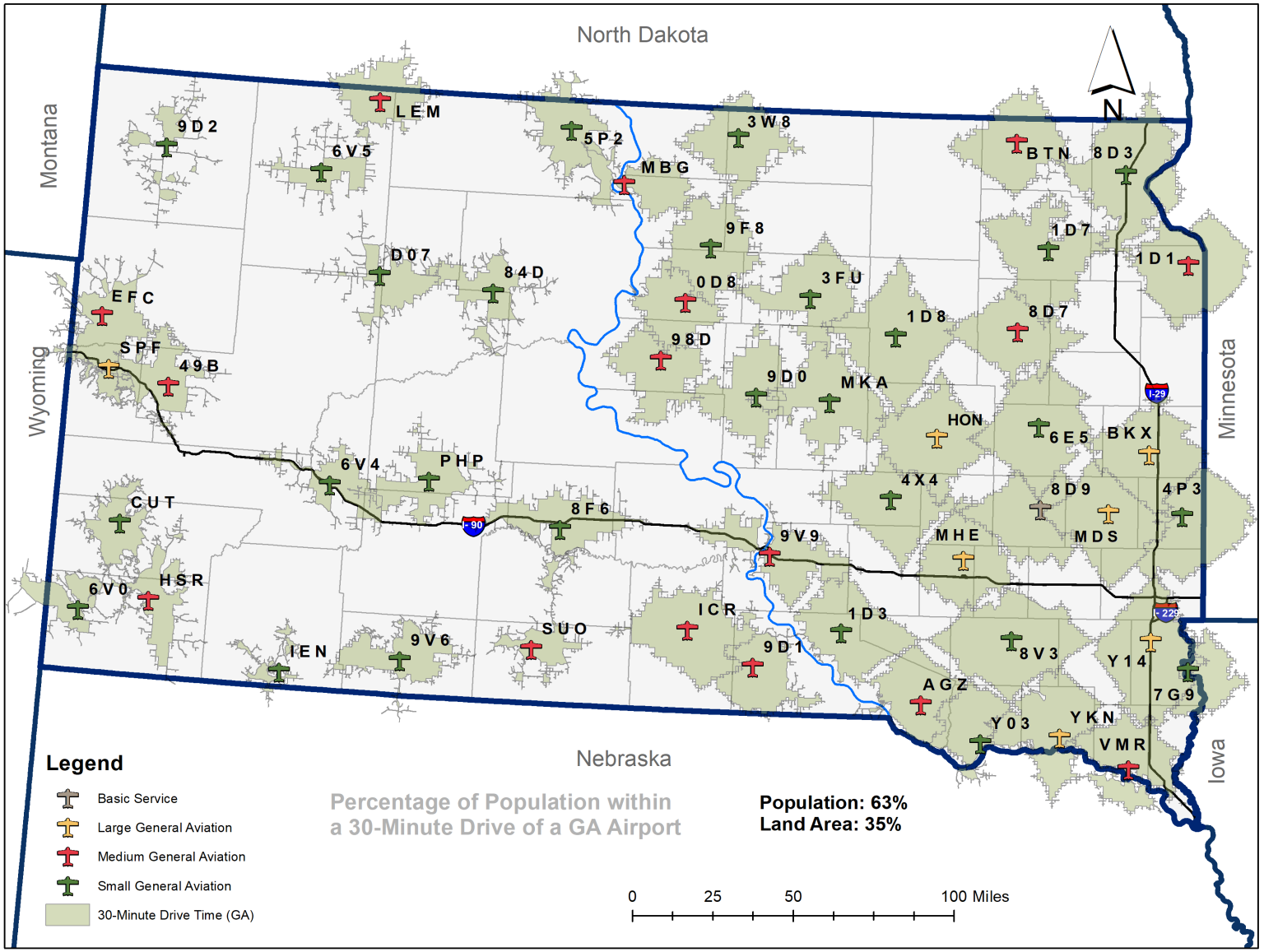
GA airports in South Dakota support various levels and types of aviation activity, from business and corporate operations to agricultural and aerial wildfire firefighting operations. No matter the type of activity, it is important that users and residents have reasonable access to these airports. GA airports support a smaller market area, typically defined as 30 minutes for purposes of serving population and economic activity. **Figure 5-32** shows the population and land area covered within a 30-minute drive-time to all GA airports in the system at 63 percent and 35 percent, respectively. When the service areas for commercial service airports and GA airports are combined, the coverage is significant. **Figure 5-33** shows the combined service area population coverage of 98 percent and land area coverage of 78 percent.

Figure 5-31: Percentage of Population within a Two-hour Drive of a Commercial Service Airport



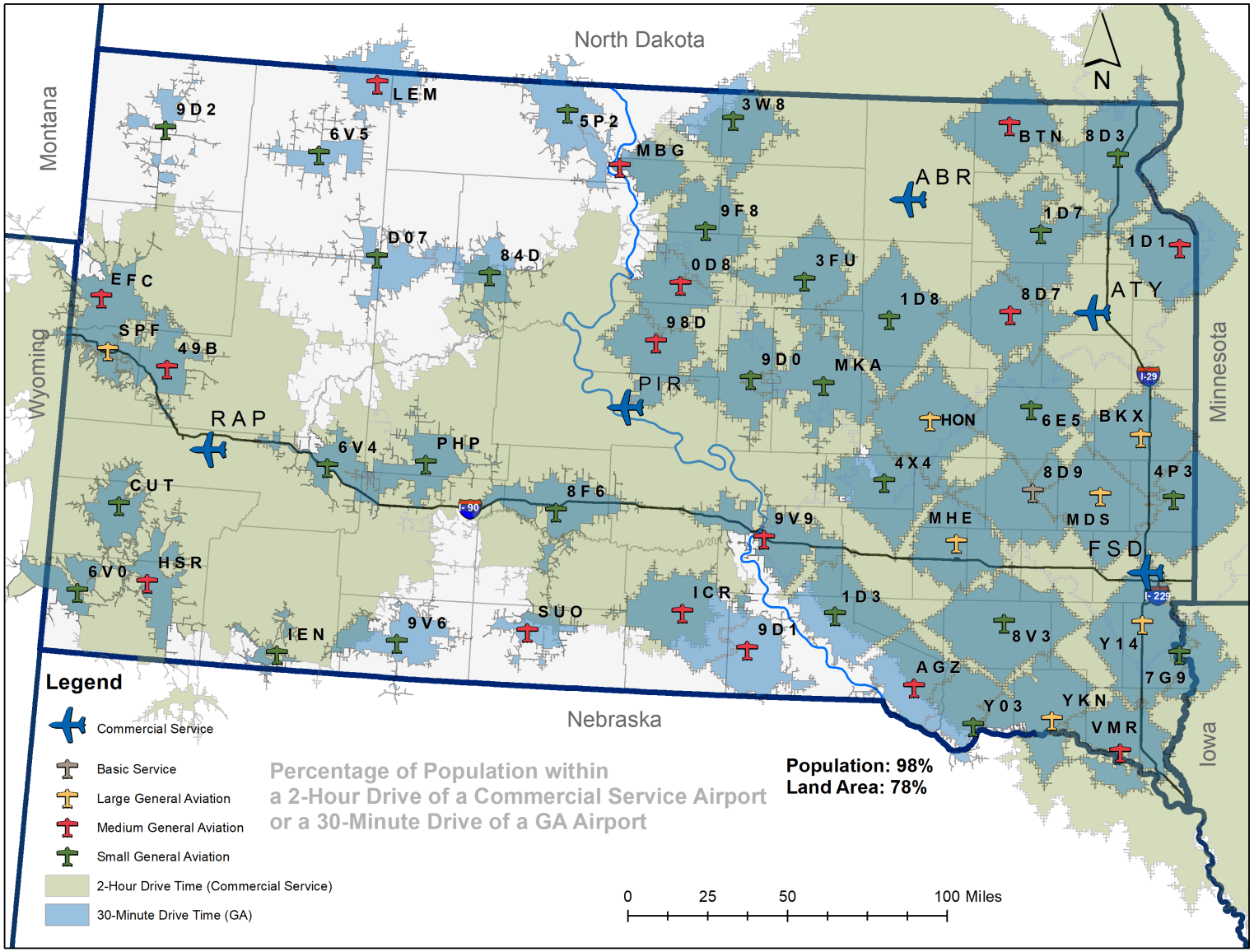
Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

Figure 5-32: Percentage of Population within a 30-minute Drive of a GA Airport



Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

Figure 5-33: Percent of Population within a Two-hour of a Commercial Service Airport or 30-minute Drive of a GA Airport



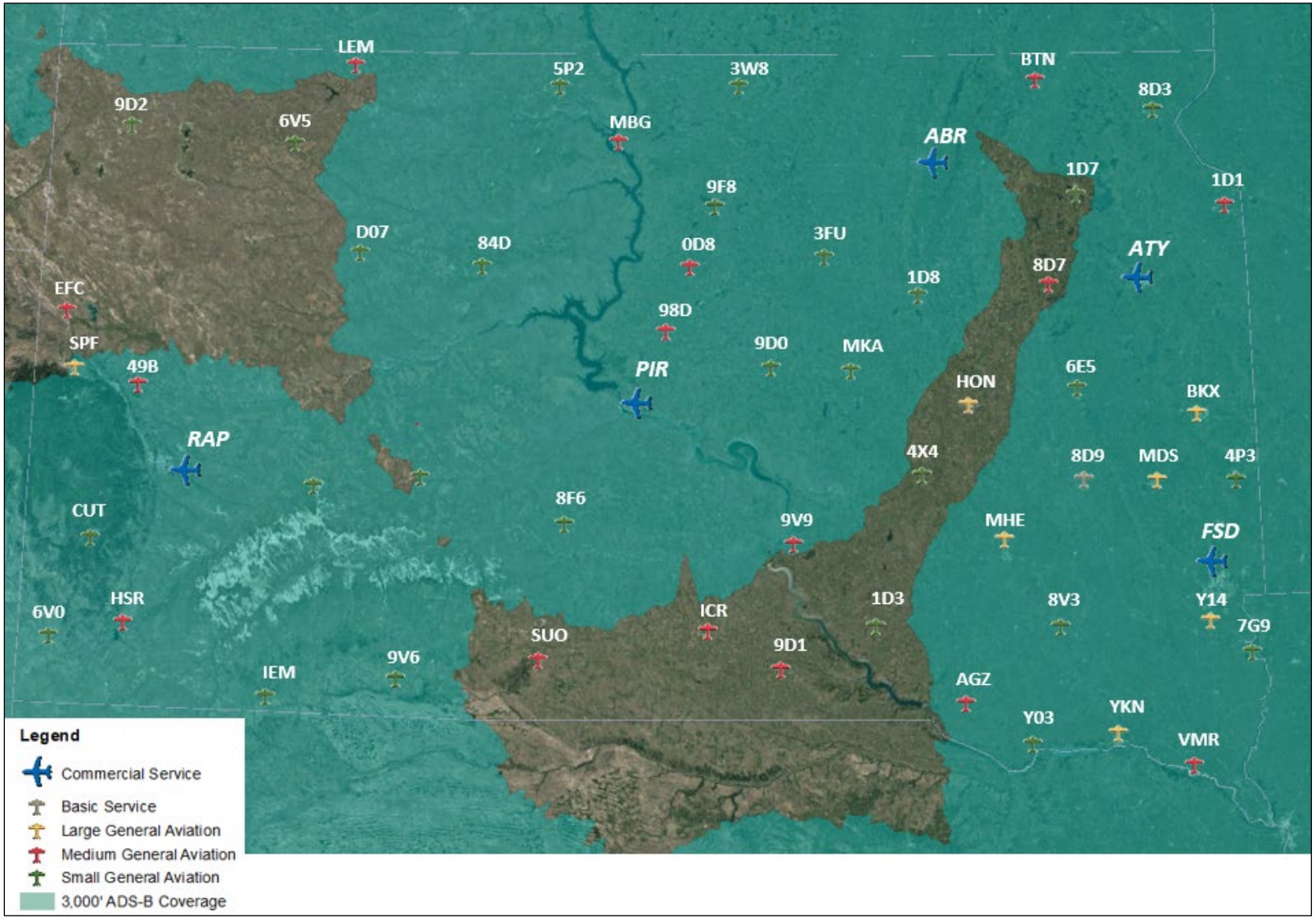
Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

5.4.2.3. *Percentage of Land Area in the State with ADS-B Coverage Including FIS*

There is a lack of ADS-B coverage at certain altitudes in parts of SD. One example of this gap in coverage can be seen in western SD, near Spearfish, where coverage begins around 7,000' AGL, which makes it impossible for air traffic control (ATC) to advise instrument flight rules (IFR) traffic in the airspace between 7,000' and the runway. The airspace is locked up until the IFR traffic is on the ground. Another example is near Winner, communication with ATC only can happen above 5,000' with the use of a ground communications outlet on the ground, creating another gap in coverage.

To determine the extent of the ADS-B coverage gaps, the land area covered by ADS-B at 3,000' was estimated using the FAA's ADS-B coverage map provided on the FAA website. Since the FAA's map does not include a land coverage feature, the Community Analyst program was used to calculate the land coverage based on the re-creation of the FAA's map. The assessment revealed that approximately 60,000 square miles of land in South Dakota is covered by ADS-B at 3,000' altitude, accounting for 79 percent of the state's land area.

Figure 5-34: Percentage of Land Area in the State with ADS-B Coverage Including FIS

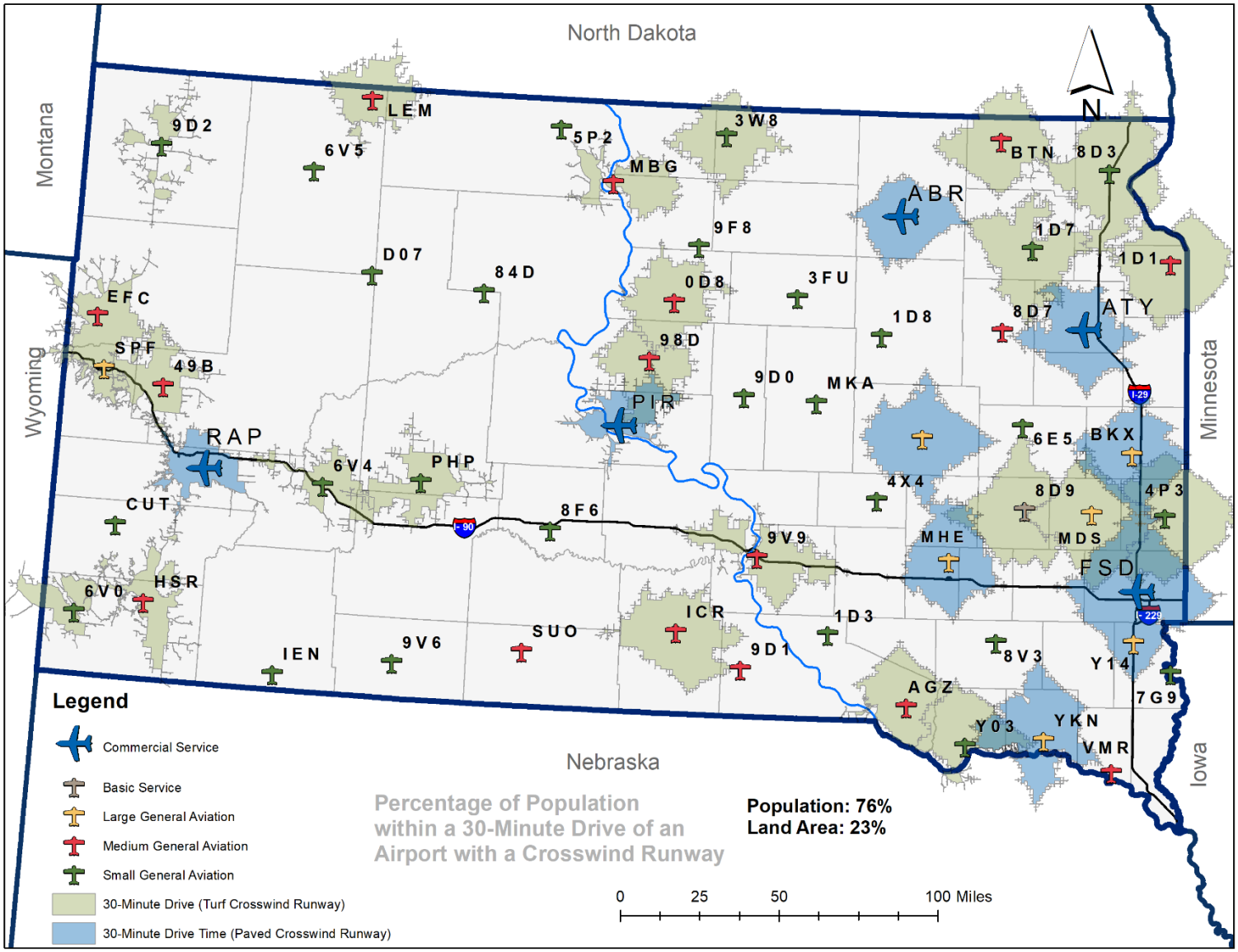


Sources: ESRI; FAA ADS-B Coverage; Google Earth; Kimley-Horn, 2020

5.4.2.4. *Percentage of Population within a 30-minute Drive of an Airport with a Crosswind Runway*

Airports with crosswind runways provide more flexibility for safe landings during times of high winds. Generally, the smaller the airplane the more it will be affected by wind, particularly crosswinds. When the primary runway orientation does not allow for at least 95 percent wind coverage for the aircraft forecasted to use the airport on a regular basis, an airport may opt to construct a crosswind runway that can provide additional coverage when needed. **Figure 5-35** shows 30-minute service areas around system airports with crosswind runways. As the map shows, 76 percent of the population is within a 30-minute drive of an airport with a crosswind runway.

Figure 5-35: Percentage of Population within a 30-minute Drive of an Airport with a Crosswind Runway

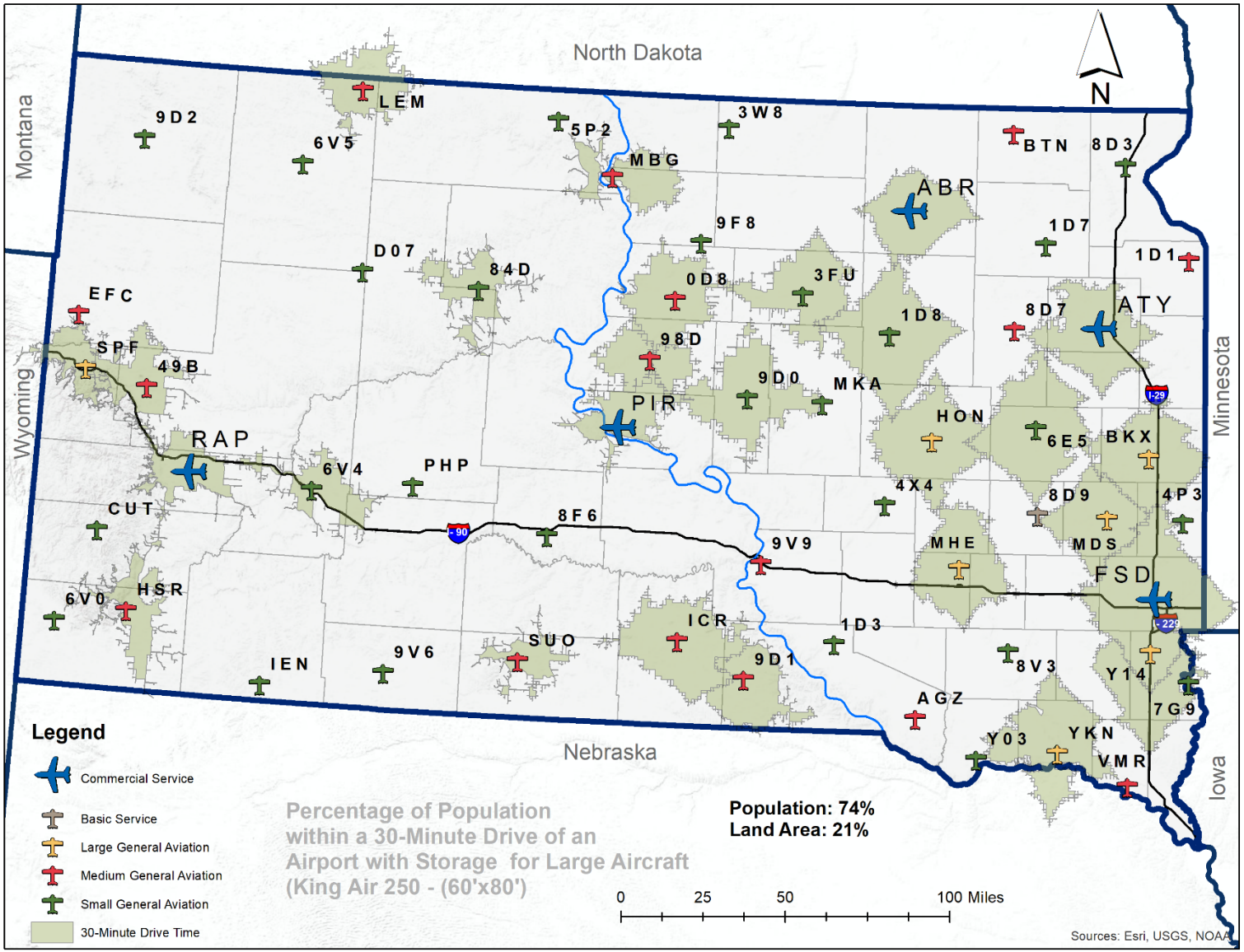


Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

5.4.2.5. *Percentage of Population within a 30-minute Drive of an Airport with Storage for Large Aircraft (King Air 250 – 60' x 80')*

Airports that have the facilities available to store large aircraft, such as the King Air 250, are better equipped to accommodate a wide range of aircraft that need covered storage at their facility. This serves transient aircraft passing through that need protection from outside elements (snow, ice, etc.) as well as larger based aircraft that need storage. Having overnight storage for business aircraft is also included as a facility target, in which 38 percent of system airports are meeting this target. It is important to note that this was not considered a target for half of the SDSASP airports. **Figure 5-36** shows the 30-minute drive-time service areas around airports that reported having storage for large aircraft. Seventy-four percent of the population in South Dakota is covered within a 30-minute drive to an airport with storage facilities for large aircraft.

Figure 5-36: Percentage of Population within a 30-minute Drive of an Airport with Storage for Large Aircraft

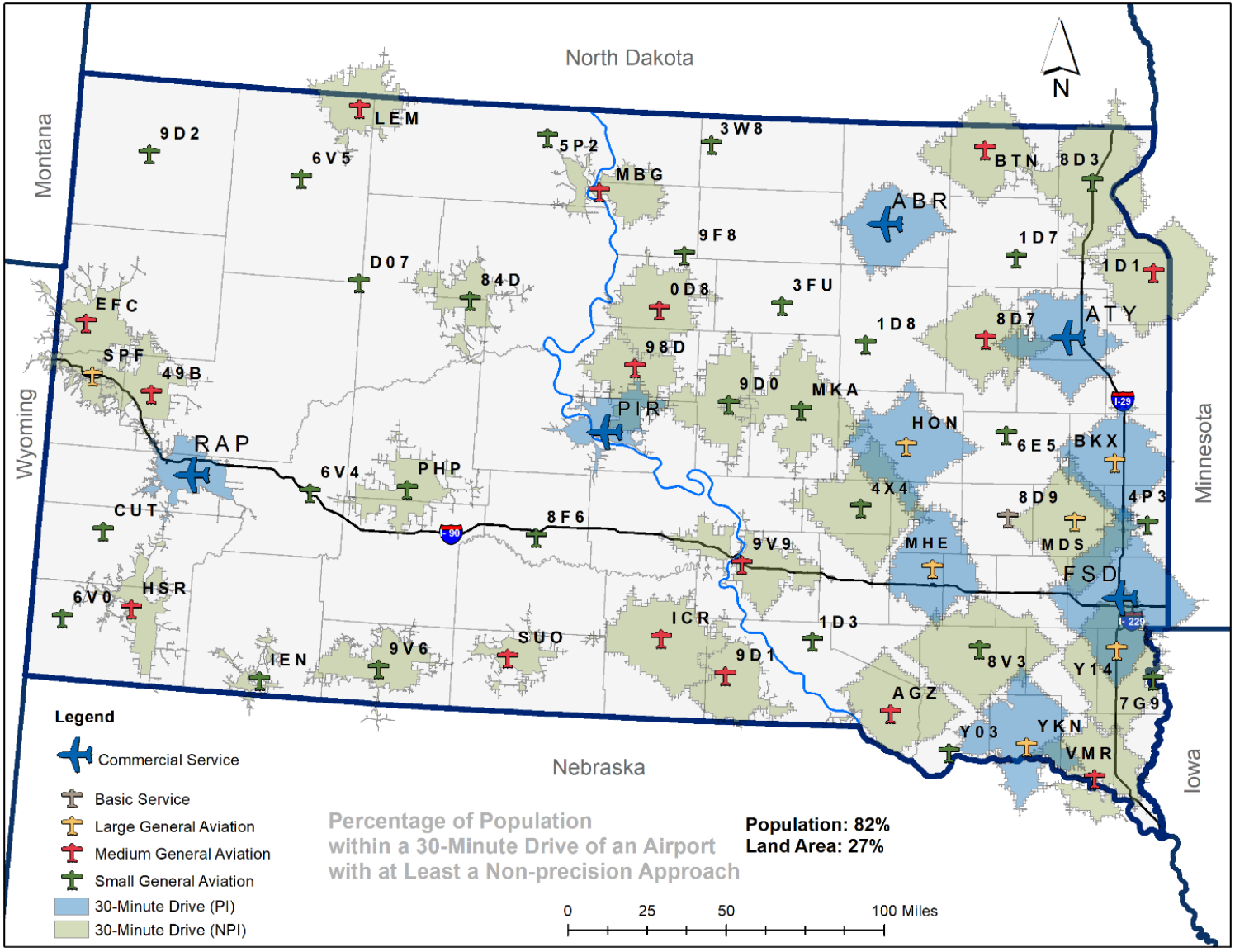


Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

5.4.2.6. *Percentage of Population within a 30-minute Drive of an Airport with at Least a Non-precision Approach*

An airport's available approach procedures indicate the type of activity that can occur at that airport. Approach procedures inform the route, direction, and rate of descent of an aircraft at a particular airport. Airports with at least a non-precision instrument approach (NPI) can accommodate operations during inclement weather or reduced visibility because of the use of certain navigational aid instruments (NAVAIDS). Thirty-minute drive-time service areas were generated around airports with at least an NPI to determine how accessible these airports are to airport users in South Dakota. **Figure 5-37** shows the percentage of population within these service areas, with green service areas indicating airports with an NPI, and blue areas showing airports with a precision instrument approach (PI). Eighty-two percent of the population in South Dakota is within a 30-minute drive-time to an airport with an NPI or better.

Figure 5-37: Percentage of Population within a 30-minute Drive of an Airport with at Least a Non-precision Approach

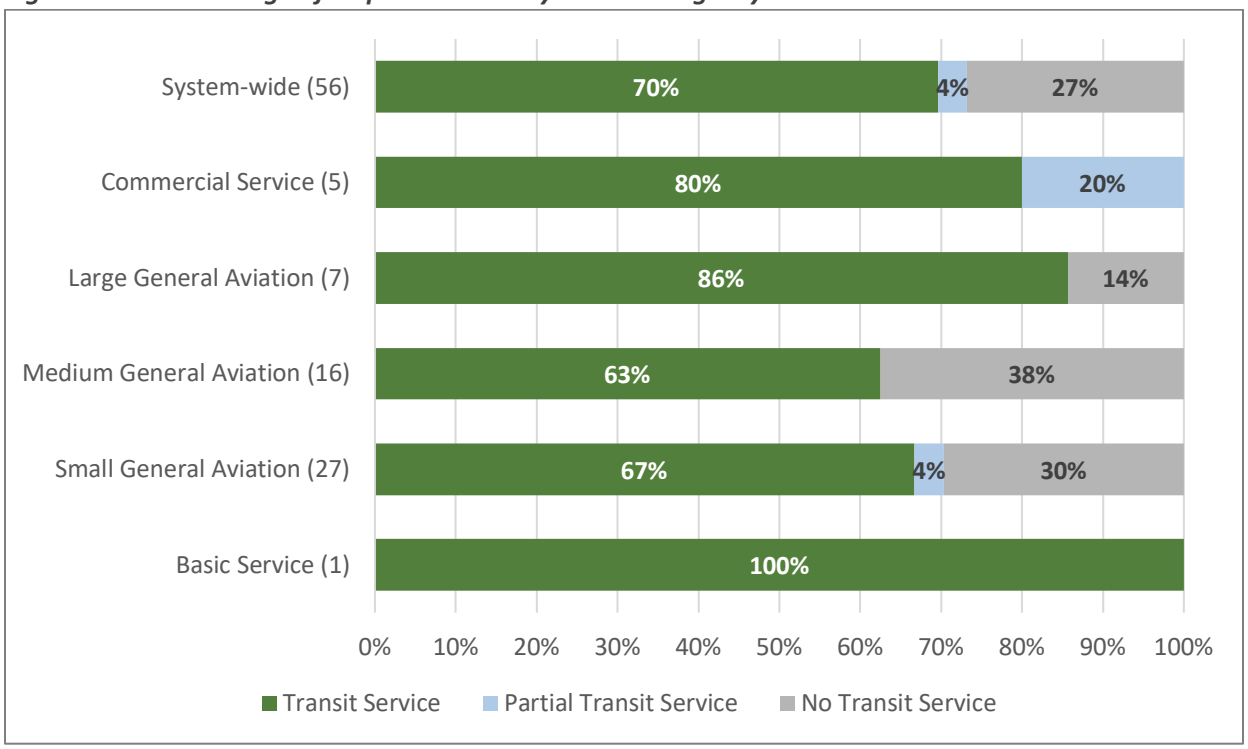


Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

5.4.2.7. *Percentage of Airports Reporting Having Service by a Transit Agency*

Transit service availability at system airports promotes intermodal connectivity and is a low-cost ground transportation option for airport users. Due to the largely rural nature of South Dakota, most transit service is considered "on-demand," requiring a passenger to call and request a ride with 24 hours' notice. **Figure 5-38** shows the percentage of airports by classification with on-demand transit services available. The system performs well on this indicator with 70 percent of airports (39) being served by their local transit provider. Two additional airports have partial service, one airport having paratransit options only, and the other only being available for a few days of the week. Eighty percent of Commercial Service airports and 86 percent of Large GA airports have transit services available to airport users. Roughly 65 percent of both Medium GA and Small GA airports have transit service availability. Howard Municipal airport has transit services available, accounting for 100 percent for this single Basic Service airport being served by local transit providers.

Figure 5-38: Percentage of Airports Served by a Transit Agency



Sources: 2020 SDSASP Inventory Form; All Municipal Transit Providers; Kimley-Horn, 2020

5.4.2.8. *Percentage of Population within a 30-minute Drive of an Airport that Can Support Fixed-wing and Rotorcraft Medical Flights (non-precision approach and certified weather)*

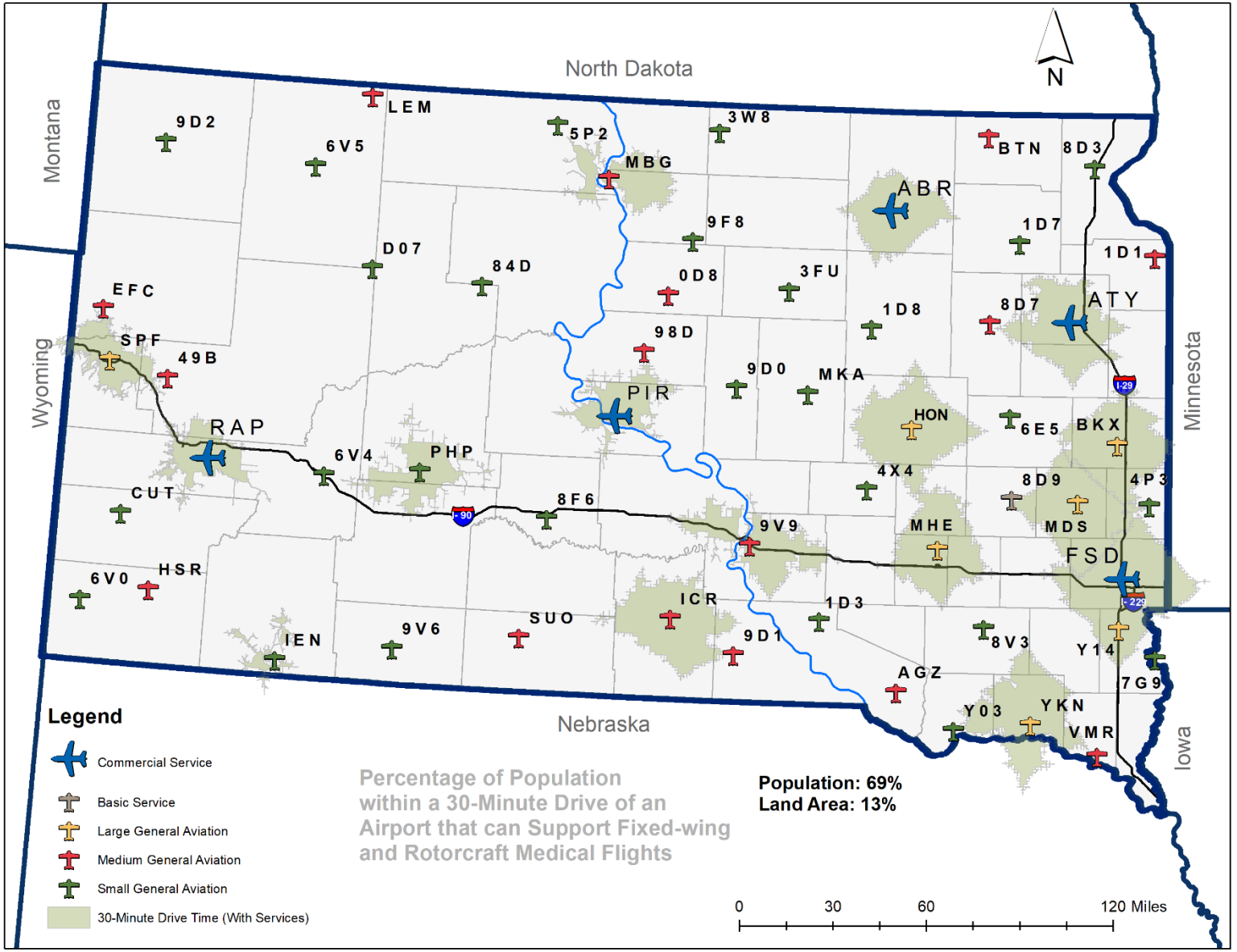
Medical flights provide access to specialized treatments or emergency medical services for patients in need, as well as provide transport for healthcare personnel who must travel to remote areas to provide care. These types of services are particularly impactful for South Dakota residents, as it is such a rural state, and those who live outside the larger metropolitan areas may have limited access to medical facilities. In speaking with the largest air medical operators in the state, airports need to have weather reporting and at least an NPI to optimally support medical operations. **Figure 5-39** shows 30-minute drive-time service areas around airports in the system meeting both criteria. It is important to note that

there may be some airports not shown on the map that experience air medical operations despite not having the desired airport facilities and services. For example, Rosebud Sioux Tribal Airport is not shown as supporting medical flights because Rosebud Sioux Tribal Airport relies on weather reporting from an airport in Nebraska and does not have a weather reporting system on-site. Seventy-nine percent of the population in South Dakota is within a 30-minute drive-time to an airport with services to support medical flights.

5.4.2.9. *Percentage of Population within a 30-minute Drive of an Airport without Services Needed for Medical Operations and is not within a 30-minute drive time of an airport that does*

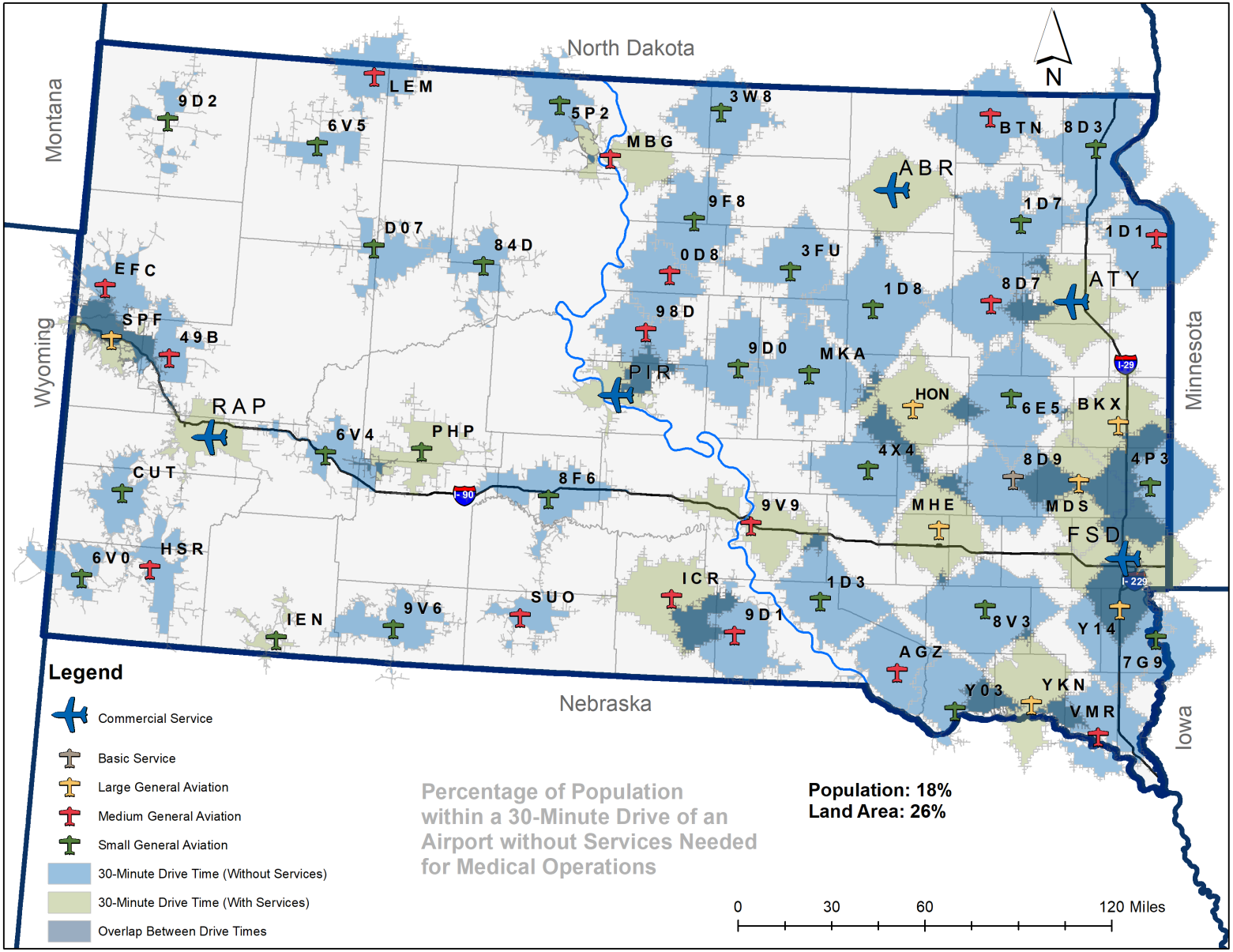
While it is important to understand what percent of the population has reasonable access to airports supporting medical flights, it is equally important to understand what percent of the population *could* be covered if their local airport had the facilities and services desired. Some airports are missing only the approach or weather reporting equipment, and some don't have either. Airports with the needed facilities and services can lessen the pressure on ground-based emergency response services which take longer to reach those in need of immediate care. **Figure 5-40** shows the percentage of population within a 30-minute drive-time of airports in the system that do not have the services required to support medical flights in light blue. To provide additional context, airports that do have these services are shown with the green service areas. Areas where the light blue and green service areas overlap, as indicated with a darker shade of blue, represent populations that are already covered by an airport capable of supporting medical operations. Only the population within the light blue service areas are assessed for this PI. As the map shows, an additional eight percent of the state's population *would* be covered if their local airport had the approach and weather reporting equipment needed to serve medical operators.

Figure 5-39: Percentage of Population within a 30-minute Drive of an Airport that Can Support Fixed-wing and Rotorcraft Medical Flights



Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

Figure 5-40: Percentage of Population within a 30-minute Drive of an Airport without Services Needed for Medical Operations

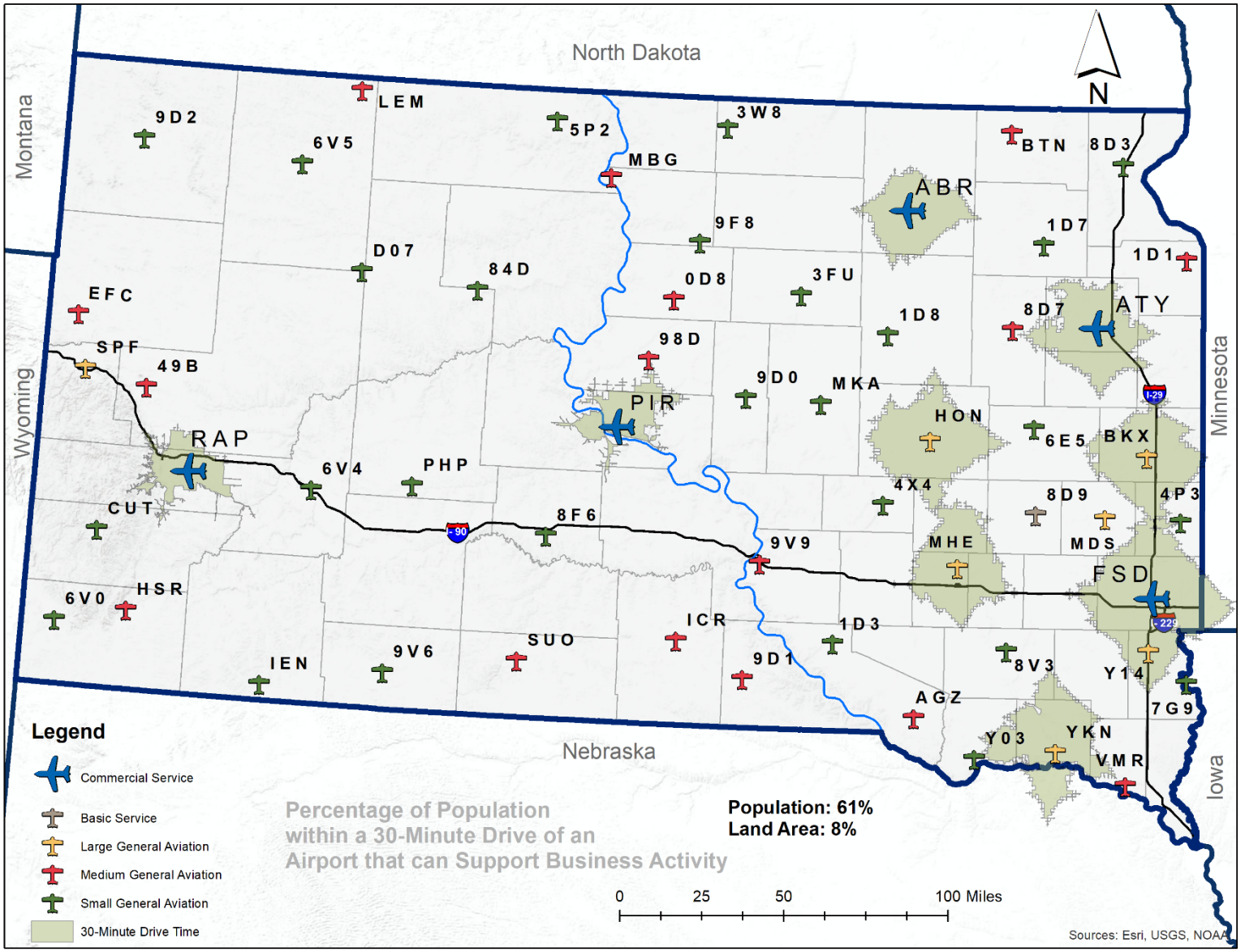


Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

5.4.2.10. *Percentage of Population within a 30-minute Drive-time of an Airport that Can Support Business Activity*

The ability to support business activity is an important component for both commercial service and GA airports. Not only does business aviation support good, well-paying jobs, but airports that serve this type of activity provide access to communities, many of which are not served by scheduled airlines. As a result, airports that support business/corporate aviation can have significant direct and indirect impacts on local economies. Facilities and services typically needed to support and attract business aviation users include at least a 5,000-foot runway, weather reporting equipment, a PI approach, and Jet A fuel. These four criteria allow for an airport to support most business jet and large turboprop aircraft operations. Like medical operations, it is important to note that there are airports in the state that support business activity that don't meet all four criteria. For example, Mobridge Municipal Airport has weather reporting and Jet A fuel but does not meet the runway length or approach requirement, yet this airport still supports UPS and other freight activity. Britton Municipal airport has Jet A fuel but does not meet the other three requirements, yet still supports activity from local industrial manufacturers. **Figure 5-41** shows the 30-minute drive-time service areas generated around only the system airports meeting the four criteria associated with business activity. Sixty-one percent of the population is within a 30-minute drive of a system airport that supports business activity.

Figure 5-41: Percentage of Population within a 30-minute Drive of an Airport that Can Support Business Activity



Sources: 2020 SDSASP Inventory Form; American Community Survey, 2013-2017; ESRI; Kimley-Horn, 2020

5.5. Aviation System Issues

The national aviation industry is facing a variety of challenges from technological advances to workforce development that will shape the future of the industry for years to come. Within South Dakota, these challenges, along with others unique to the state, are being felt by airport sponsors, pilots, user groups, the traveling public, and other stakeholders. Despite the variety of challenges, airport sponsors are tasked with providing safe and secure aviation facilities that promote mobility and equitable access for various types of airport users in a revenue-limited environment.

To better understand the top issues impacting South Dakota aviation, a robust outreach effort was conducted to a broad spectrum of aviation stakeholders in the state:

1. During the inventory data collection process for the SDSASP, airport managers were asked to provide a list of the top three issues their airport faces.
2. Members of the 2020 SDSASP Project Advisory Committee (PAC) who represent airport managers, the South Dakota Aeronautics Commission, medical transport and aerial firefighting pilots, agricultural spraying operators, the FAA, the SDDOT, economic development specialists, and more, were given an opportunity to share what they believe to be the top issues the system is facing, including those issues unique to their representative groups.

The results of these inquiries were aggregated to identify the most common issues cited by airport managers and PAC members. These issues were then evaluated for their potential to impact the system and the extent of that impact. **Table 5-1** summarizes the top issues with the highest potential to impact aviation in South Dakota. This table also presents connections between the issues voiced during public outreach and the goals of the 2020 SDSASP. The issues in **Table 5-1** represent high-level categories, with more detail about the specific components of these issues described in the corresponding subsections. Issues that only appeared once throughout this data outreach effort are not summarized in this document, as they were not repeatedly identified as issues throughout this process.

Table 5-1: South Dakota's Top Aviation Issues and System Goals

Issue Category	Goal 1: Safety and Security	Goal 2: Maintenance and Infrastructure Development	Goal 3: Accessibility to Users
Infrastructure Needs (Maintenance and Expansion)	✓	✓	✓
Aviation Workforce		✓	✓
Land Acquisition/Compatibility	✓	✓	
Compliance	✓	✓	
Revenue Generation		✓	✓
Technology	✓	✓	✓
Air Service			✓
Seasonal Capacity		✓	✓

Sources: 2020 SDSASP Inventory Form; PAC Meeting #1; SDDOT

5.5.1. *Infrastructure Needs (Maintenance and Expansion)*

Thirty one of the 56 system airports cited a need for some type of facility improvement or expansion to support airport activity and user levels. These infrastructure needs ranged from routine maintenance on runway, taxiway, and apron surfaces, as well as new construction of terminal buildings, fencing, crosswind runways, and more. The broad range of infrastructure needs demonstrate that system airports are not only facing challenges to meet changing needs, but to maintain the existing infrastructure they already have. Airport managers and aviation stakeholders most commonly cited the following factors as potentially hindering operational capabilities at SDSASP airports:

- Runway design and condition
- Taxiway design and condition
- Crosswind runways
- Approach capabilities and NAVAIDS

5.5.1.1. *Runway Design and Condition*

Runway design is directly related to the type of activity an airport can support, as certain aircraft need certain runway design requirements to operate. An example of this is jet aircraft, which generally require at least a 5,000-foot-long runway to safely accommodate take-offs, landings, and accelerate stop distances. As discussed in **Section 5.3.1.1**, there are 10 airports in the system experiencing substantial operations by aircraft of a higher ARC, all of which are from agricultural spraying aircraft. Airport managers noted runway expansions would make them better suited to support agricultural spraying operations with heavier loads, which would enable sprayers to more efficiently cover the region's extensive agricultural base. This same issue was echoed by members of the PAC.

A larger portion of the issues relating to system runways is about the condition of select runways (primary and crosswind). Runway pavement condition is particularly important due to the high speeds at which aircraft operate on these surfaces. Runways require routine maintenance to perform at an optimal level, and sometimes associated costs can be prohibitive. If a runway has poorly maintained pavement, it can damage aircraft and create potential safety hazards. It also becomes more expensive to repair the more the runway pavement deteriorates.

5.5.1.2. *Taxiway Design and Condition*

Like runways, taxiways are also designed to meet the needs of the most demanding aircraft performing substantial operations at an airport. Taxiways come in a variety of different designs, tiered to fit the needs of an airport. If demand increases at an airport, and/or if the type(s) of aircraft using the airport changes, the taxiway may no longer meet airport needs, causing airport congestion and other concerns. Similar to runway needs, airports report a need to expand existing taxiways to support changing activity at their airport. For example, Canton Municipal Airport advised they need a taxiway extension to the hangar area to create more access points to new and future hangars, and Sturgis Municipal Airport cited the need for larger taxiways to accommodate their activity levels and heavier aircraft. Other airports expressed a need for taxiway redesign (extensions/widening) to accommodate access to hangars and apron space.

Again, while some airports noted a need for taxiway redesign or extensions, the greater portion of airports cited concerns with the condition of their taxiway pavements. In some instances, the condition

of the taxiway has deteriorated to a point where the airports advise taxiway reconstruction may be necessary. If a taxiway has poorly maintained pavement it can damage aircraft, create potential safety hazards, and become costlier to fix the longer the pavement deteriorates.

5.5.1.3. *Crosswind Runways*

Crosswind runways allow for safe take-off and landing procedures when wind conditions shift and do not allow for the use of the primary runway. Generally, the smaller the aircraft, the more susceptible to crosswind conditions as they are lighter in weight. Having crosswind runways available for aircraft to land in variable weather increases access to South Dakota's aviation system, especially for those operating smaller aircraft that cannot sustain strong crosswind conditions.

Multiple airport managers and other stakeholders emphasized the importance of continued access to crosswind runways and the need for additional ones across the system. For example, Spearfish advised that due to the unique terrain surrounding the airfield there is an unusually high incidence of extreme wind perpendicular to the primary paved runway. Having a crosswind runway would be beneficial for the airport, so that safe take-off and landing procedures can occur during conditions of high perpendicular winds. Belle Fourche Municipal Airport reported a similar need and advised that an additional crosswind runway would help. Huron Regional Airport reported that additional length and an instrument approach to their crosswind runway would allow for the airport to accommodate the increase in jet traffic occurring at their airport with the addition of a new FBO.

Unfortunately, justifying the need for additional crosswind runways is challenging as federal and state resources are limited and often earmarked for maintenance projects versus adding additional infrastructure to the system. The burden of proof often lies with airport managers and their consultants to demonstrate a true need, and even then, can take years to develop if successful.

5.5.1.4. *Approach Capabilities and NAVAIDS*

Eight airports in the system reported issues with or expressed a need for improvements to their NAVAIDs and/or approach, including lighting, wind cones, weather reporting systems, and approach grading. While not every airport requires an NPI or PI approach, each airport should be equipped with the navigational aids required for their approach procedures. For example, Hoven Municipal Airport reports that they require replacements for much of their lighting, including their Medium Intensity Runway Lighting (MIRL) and Precision Approach Path Indicators (PAPIs), as well as replacements for their beacon and wind cone. Custer County reports that they need certain NAVAID improvements, particularly to their PAPIs, wind socks and beacons so that they are better equipped to support an increase in jet traffic, as much of the traffic is forced to use Rapid City Regional Airport at this time. Three airports, including Rosebud Sioux Tribal Airport, are requesting weather reporting systems (specifically AWOS III) to improve access to and from their facilities. To help offset some of the need, SDDOT has provided financial assistance to system airports recently to acquire SuperAWOS (AWOS III) equipment as traditional AWOS and ASOS systems are cost prohibitive for many airports; however, as noted, several airports are still seeking assistance in acquiring the equipment needed.

5.5.2. Aviation Workforce

Qualified aviation professionals including pilots, mechanics, air traffic controllers, flight instructors and others are an essential component to a sustainable airport system, and yet there are concerns about

aviation workforce shortages across all sectors. As documented in **Chapter 4. Forecast of Aviation Activity and System Demand**, a variety of factors are thought to cause this shortage, including fewer military personnel entering the civilian aviation industry, need for some college and/or specialized training or licensure, cost, mandatory retirement of older generations of aviators, and others.

Pilot shortages have been noted on a national scale, with the industry facing several challenges including new regulations that increased flight time requirements for commercial pilots and high educational costs coupled with low starting salaries for new pilots. It has been reported that by 2022, nearly 20,000 U.S. airline pilots will reach the FAA's mandatory retirement age of 65, causing ripple effects throughout the entire U.S. economy.[1] Concerns for pilot shortages were echoed by members of the PAC, particularly those closely associated to medical transport operations. They reported a notable decrease in the number of pilot applications for medical operators as only local candidates are interested. It has proven challenging to convince pilots and other aviation support staff to relocate to South Dakota. Furthermore, the small pool of candidates that are local, or are trained locally, are moving elsewhere to begin their careers.

Despite the shortages on a national level, and those reported by stakeholders in South Dakota, there are several promising opportunities for pilots in South Dakota. South Dakota State University (SDSU) and Lake Area Technical Institute (LATI) both have professional pilot programs. SDSU is a well-established program reporting 70 FAA check rides annually, and their enrollment has doubled to 150 students in the past three years. LATI is a relatively new program that will graduate its first professional pilots in 2021. LATI has already seen its number of applications double since the beginning of the program, with four students currently enrolled and an anticipated 12 or more students enrolling in the next semester. While both programs are promising in terms of producing newly trained professional pilots, SDSU noted a lack of certified flight instructors is limiting potential growth of the program.

In addition to pilot shortages, shortages for aviation technicians and maintenance staff was reported. In particular, a PAC member noted that there are very few technicians available to service ASOS and AWOS units in South Dakota and therefore airport staff are having to look outside the state and pay higher rates for technicians to travel to service the units. These weather reporting systems require routine maintenance to keep them in optimal condition, so a lack of properly trained staff to complete this service could have expensive and potentially hazardous repercussions. LATI has a well-established Airframe and Powerplant (A&P) program that trains students to become FAA certified aviation technicians, with a current class of 34 students. While graduates of the LATI program are not trained to work on AWOS systems, this program is an example of a local higher education program that is working to alleviate shortages of other aviation industry staff.

Finally, airport managers in South Dakota also reported experiencing a shortage in airport management and operational staff. For example, current staffing levels at Brookings Regional Airport and Hot Springs Municipal Airport were reported as not meeting operational needs.

[1] Aviation Week Network, *The Coming U.S. Pilot Shortage is Real,* 2015.

5.5.3. Land Acquisition and Compatibility

Protecting airports from the encroachment of incompatible land uses is of the upmost importance to support current and future operational needs of these facilities. An airport is not able to protect their approaches or develop and expand to meet demand if it is surrounded by incompatible development or it is unable to acquire the land necessary.

As population and industry continue to grow, so too does demand for land development. If not properly planned for, this development can sprawl outward and encroach upon airports. The result of this unplanned growth is often the presence of land uses that are negatively impacted by airport operations, such as residential development susceptible to aircraft noise. On the other hand, development can negatively impact airport operations, such as tall buildings being constructed that obstruct the flight paths into and out of an airport. Planning for compatible development is advantageous to both the airport and the surrounding community, and while the concept of defining the allowable types and location of land uses through municipal zoning is not new, zoning ordinances do not often consider the local airport and the consequences of incompatible development unless the local airport advocates for it. While some airports and host communities have worked together successfully to achieve compatibility, others are facing the challenges associated with incompatible development such as community opposition, operation restrictions, approach obstructions, and more. Airports can take an active role in land use planning by working with their local municipal entities to enact and enforce airport compatible land use zoning, as discussed in more detail in **Section 5.2.2.1**.

One specific type of development that is sweeping the state and has the potential to negatively impact airport operations is the construction of wind turbines. Wind turbine technology converts wind power into usable electricity. As advancements in alternative energy production continue to be made, wind turbines are being raised across the country in areas with desirable wind conditions. While there are benefits to alternative energy production, wind turbine installations can cause compatibility concerns close to airports due to their height. This concern was raised during PAC member engagement, as they identified the concerns of these obstructions for GA operations, particularly for aerial applicators, rotor wing operations, and recreational flying. Wind turbines are often placed in open plains or fields in areas that receive high winds, but these areas are also frequented by aerial applicators during spray season. The presence of wind turbines can impact the ability for aerial applicators to spray and can cause safety concerns for low flying operations. Related to the placement of wind turbines, is the deployment of anemometer towers that are used for wind energy testing purposes. The president of the South Dakota Aviation Association (SDAA) advised that unmarked anemometer towers are the most imminent threat to aerial applicators' safety. It is for this reason that stakeholders petitioned lawmakers to address this safety concern, resulting in a new South Dakota mandate that requires any meteorological testing tower over 50 feet located outside the boundaries of a municipality to be marked, painted, flagged, or otherwise constructed to be recognizable in clear conditions during daylight hours. These marking requirements apply to the tower, any guy wires, and associated accessory facilities.[2] Now that the law has been established it is up to the state and local municipalities to promote enforcement to enhance safety for aerial applicators and other GA users.

[2] National Agricultural Aviation Association, *Met Tower Marking Law Passes in South Dakota*, May 2010.

In addition to promoting development that is compatible with airport operations, acquiring additional land necessary to protect airport approaches and allow for future airport improvements or expansion is important for the continued viability of system airports. Several airports across South Dakota reported concerns of an inability to expand their airport to meet demand because of issues with land acquisition. For example, Sisseton Municipal Airport is interested in expanding their airport to support instrument approach capabilities, but the airport has been unsuccessful in making this improvement because neighboring landowners are not willing to sell a portion of their land for airport expansion. Milbank Municipal Airport noted having issues with acquiring a small amount of land needed to control 100 percent of the land within their RPZ. In some cases, land acquisition issues arise between an airport and other government agencies. For example, Custer County Airport is currently working on a land transfer from the United States Forest Service (USFS) and reported it as their number one issue on their 2020 SDSASP Inventory Form. More information on land use compatibility and ownership at South Dakota airports can be found in **Appendix C – Land Use Assessment.**

5.5.4. Compliance

Airports are held to strict federal and state standards to maintain safe operations and protect the integrity of the facilities. These standards dictate an airport's layout and design characteristics, operational procedures, and environmental requirements, among others. Maintaining compliance with these standards can be challenging as they can change at any time and often require financial resources to achieve. Airports that serve scheduled and unscheduled commercial service operations are subject to additional operational and safety standards set forth in 14 Code of Federal Regulations (CFR) Part 139 to provide for such things as advanced training, firefighting, and rescue equipment.

Multiple system airports reported challenges with maintaining compliance when costs to do so are rising and funding sources are not. For example, Pierre Regional Airport cited concerns that the amount of AIP funding allocated to the airport annually is no longer adequate given the changes made to compliance standards for cultural, historical, and other environmental factors. Other airports noted a feeling of discouragement for future airport development and expansion specifically as it relates to environmental compliance. While tools exist for airports to better understand their environmental context (cultural surveys, wetland surveys, etc.) prior to initiating design projects, the costs are prohibitive for some airports.

5.5.5. Revenue Generation

The ability to generate revenue helps an airport achieve self-sufficiency, reducing reliance on local or other funding to remain operational and complete capital projects. Many airports are working diligently to find innovative ways to generate revenue in support of their operations. Airports can generate revenue via on-airport activities, such as land leases for aeronautical and non-aeronautical purposes, as well as fuel flowage and landing fees. Revenue generation is particularly important for GA airports as they do not collect Passenger Facility Charges (PFCs) like commercial service airports do and therefore do not have this additional revenue source to use. While revenue generation is important for many airports, it can be difficult to implement as revenue generating projects are ineligible for federal funding, requiring local sponsors to make initial capital investments.

During the inventory process and stakeholder engagement, three key trends emerged closely associated with revenue generation: the ability to support larger aircraft, revenue generating hangars, and fuel availability. The desire for revenue producing hangars was the most prolific, with 10 airports citing this

as one of their top three issues. Six airports mentioned a need for either 24-hour credit card readers for their current fueling system, or the need for a fueling system in general. Other than the aviation-related activities mentioned, airports can also implement non-aviation-related strategies such as providing parking, ground transportation, or rental cars; offering concessions and retail opportunities; selling advertising space; leasing land for renewable energy production or compatible commercial development such as office buildings, business parks, and hotels. Aberdeen Regional Airport cited a need for parking lot rehabilitation, which is often the largest or one of the largest sources of revenue for commercial service airports. The viability of revenue generating strategies is dependent on an airport's characteristics; some strategies will work for certain airports and not others. Regardless of the revenue generation strategy, airports are often faced with fronting the funding needed to implement them, hoping for a relatively quick return on investment.

5.5.6. Technology

Advances in technology are made with the best intentions, generally to improve procedures by making them more efficient, cost effective, and/or environmentally friendly, and yet new advances in technology are often met with implementation challenges. The two technology issues noted most by stakeholders is the proliferation of UAS activity at and around airports and the FAA's continued effort to fully transition the NAS to NextGen.

UAS is relatively new to the NAS, but they have become immensely popular for recreational, commercial, and governmental use. As mentioned in **Section 5.2.2.4**, more than half of system airports report having UAS activity at or near their airport. In May 2019, the FAA implemented a new rule that requires recreational drone operators to obtain preauthorization before flying in uncontrolled airspace around airports. This new requirement replaces an old requirement that simply mandated drone operators to notify the airport operator and ATCT prior to flying within five miles. To fly in controlled airspace, the FAA developed the Low Altitude Authorization and Notification Capability (LANNC) program to directly support UAS integration into the airspace. LAANC is a data sharing tool that allows for almost immediate application and approval processes to authorize drone usage in controlled airspace. A drone user downloads a mobile or desktop application that allows the user to request authorization to operate in controlled airspace. The request goes through an FAA approved UAS Service Supplier (USS), and the USS coordinates with the multiple airspace data sources including in FAA UAS Data Exchange, such as UAS Facility Maps, Special Use Airspace data, Airports and Airspace Classes, as well as Temporary Flight Restrictions (TFR) and Notices to Airmen (NOTAMs). If the request passes through each of these data sources with no issues, then the request is approved, and the user is notified it is safe to operate their UAS in controlled airspace. LAANC is a relatively new technology and is currently in nationwide beta testing. LAANC is available at approximately 400 air traffic facilities that cover about 600 airports.[3] **Table 5-2** shows the SDSASP airports where LAANC is currently available.

[33] FAA, *UAS Data Exchange (LAANC)*, 2019.

Table 5-2: SDSASP Airports with LAANC Availability

Associated City	Airport Name	FAA ID	2020 State Role
Aberdeen	Aberdeen Regional	ABR	Commercial Service
Pierre	Pierre Regional	PIR	Commercial Service
Rapid City	Rapid City Regional	RAP	Commercial Service
Sioux Falls	Sioux Falls Regional/Joe Foss Field	FSD	Commercial Service
Watertown	Watertown Regional	ATY	Commercial Service
Huron	Huron Regional	HON	Large GA
Mitchell	Mitchell Municipal	MHE	Large GA
Yankton	Chan Gurney Municipal	YKN	Large GA

Source: FAA

NextGen air transportation system is another relatively new technological advancement impacting aviation across the country. NextGen is a long-term plan by the FAA to transform the way the NAS operates, by shifting air navigation from a ground-based to a satellite-based system through the modernization of aircraft tracking, communication, and weather-monitoring and forecasting systems. The benefits of this transformation include shorter flight routes, increased operational efficiencies, reduced fuel consumption, reduced congestion and delay, reduced environmental impacts, airport and airspace capacity maximization, and greater aircraft safety.

Despite the many positives associated with NextGen implementation, there are challenges with the roll-out of the new technology. Upgraded equipment is required at airports and in aircraft for NextGen to work properly. The most pressing issue associated with NextGen deployment is the upcoming ADS-B requirements. The FAA has mandated that all aircraft operating in airspace defined in 14 CFR Section 91.225 become ADS-B out equipped by January 1, 2020. This requires the installation of a specialized-out transmitter and a compatible global positioning system (GPS) position source in aircraft. To help offset some of the cost of the new equipment, the FAA established a rebate program that reimbursed $500 to a certain number of owners of fixed-wing, single-engine piston aircraft that met the installation requirements. All funds allocated for the rebate program have been expended and the FAA is no longer offering rebates on the equipment.

On the airport side, airports can seek AIP funding for the surveys, obstruction mitigation, and runway lighting that may be needed for new localizer performance with vertical guidance (LPV) approaches, or to achieve lower minimums with existing LPV approaches through airport design improvements. For larger commercial service airports with the necessary equipment, AIP funding has been used to deploy ADS-B squitters for airport vehicles. The FAA continues to work on increasing coverage from existing ADS-B transceivers and installing new ADS-B stations in non-radar areas.[4] See **Section 5.4.2.3** for a map of ADS-B coverage across South Dakota.

[4] https://www.faa.gov/nextgen/working_together/airports/faqs/.

5.5.7. Air Service

South Dakota's largely rural geography and limited population base play a role in the provision of commercial air service access across the state. While it is important that residents and visitors of South Dakota have access to the commercial air transportation network for their air travel needs, airlines are incentivized to operate where they can make the most profit and, in some cases, there is little to no profit to be made operating in smaller cities that can't support passenger operations at or near capacity. Concerns about the availability of airline services was noted during PAC engagement as airline service is limited in South Dakota.

In 1978 the Airline Deregulation Act (ADA) passed, which gave air carriers almost total freedom to determine which markets they wanted to service domestically and what fares to charge for that service. In response to this deregulation many communities across the country were at risk of losing, or did lose, access to airline service. To address the issue, the U.S. Department of Transportation created the Essential Air Service (EAS) program which subsidizes service on smaller community routes that would otherwise not be profitable for airlines. The EAS program was put in to place to guarantee that small communities previously served by certificated air carriers before deregulation would maintain a minimal level of scheduled air service, often to large- or medium-hub airports. EAS programs are currently in place at 115 communities across the lower 48 contiguous states, including Aberdeen, Pierre, and Watertown. Communities must meet certain requirements to be eligible for the program and must apply to participate.[5]

It is important to note that while South Dakota has three EAS-eligible communities, they cannot dictate which airline they want to operate, rather they are subject to the U.S. Department of Transportation choosing among airlines that express interest in serving the community. Sometimes, only one airline will submit a proposal and be selected by default. At times, South Dakota's EAS communities have been served by well-known regional carriers, such as SkyWest Airlines, operating under major U.S. carrier codeshares, such as Delta and United. Other times, these communities have had service by much smaller regional airlines not operating under a codeshare and reliability has been an issue. For example, until recently, California Pacific Airlines held the EAS contract for Pierre and Watertown. Service started to decline in November 2018 and by January 2019, the airline ceased operations at both airports, leaving their keys on the check-in counter. The U.S. Department of Transportation expedited the search for a replacement carrier and SkyWest was selected in February.

5.5.8. Seasonal Capacity

South Dakota is known for several national tourist attractions, such as Mt. Rushmore in the Black Hills, the Sturgis Motorcycle Rally, and renowned pheasant hunting experiences. During summer months, tourists flock to the Black Hills National Forest for recreational activities such as hiking, cycling and camping, and the main attraction of Mt. Rushmore attracts approximately three million tourists annually.[6] The annual Sturgis Motorcycle Rally creates a massive influx of visitors to the state in August, many of whom travel by air, to ride bikes, attend concerts, and meet friends. The pheasant hunting opportunities in the state attract visitors from all over the U.S. and even some international locations who travel to South Dakota to stay at hunting lodges and hire guides to enhance their hunting

[5] USDOT, *Essential Air Service*, 2019.
[6] National Park Service, *Mount Rushmore National Memorial*, 2019.

experience. This seasonal tourism puts strain on airports that are congested during these times and lack the hangars, tie-downs, and apron space needed to accommodate the influx of visitors arriving via commercial service and GA.

In addition to seasonal tourism, other activities put strain on airport facilities at times throughout the year, such as agricultural spraying and fire suppression. Airport managers cited seasonal capacity concerns as their facilities are not equipped to manage these influxes of activity and experience airfield congestion in addition to a lack of storage facilities. Seasonal capacity issues can be challenging to manage because of their temporary nature; however, it is important for system viability and optimization that seasonal demand does not negatively impact system performance. More detail pertaining to the time of year and the number of airports affected by seasonal capacity concerns can be found in **Section 5.3.2.3**.

5.6. Summary

Assessing system airports in terms of PMs, PIs, Facility and Service Targets (FSTs), and evaluating the major issues facing aviation today helps to identify areas in South Dakota that effectively serve existing aviation needs and identifies areas for potential improvement. Ninety-eight percent of the population is within either a 2-hour drive to a Commercial Service airport, or a 30-minute drive to a GA airport, which provides residents, visitors, and businesses with a great deal of access, mobility, and resiliency in emergency situations, however if not properly equipped, the utility of these facilities can be limited. As documented in this chapter, the system is performing well in achieving several of the PMs, and opportunities for improved performance exist for others. To determine the improvements needed, benchmarks are established for future system performance in **Chapter 6. System Recommendations.**