4. System Performance Evaluation

An important aspect of the 2020 Iowa Statewide Aviation System Plan Update (SASP 2020) is evaluating the state's airport system to determine its current performance. The evaluation is supported using several predetermined system measures. The performance measures are generally reflective of characteristics that define an airport system that functions at a high level, meeting the state's transportation and economic needs and objectives. For the SASP 2020, the following system performance measures were considered:

- 60-minute accessibility to Iowa system airports or public airports in nearby states with scheduled airline service
- 90-minute accessibility to Iowa system airports or public airports in nearby states with scheduled airline service
- 30-minute accessibility to public-use airports in Iowa airport system
- 30-minute accessibility to Iowa system airports or public airports in nearby states with precision-like approach including an Instrument Landing System (ILS) or localizer performance with vertical guidance (LPV)
- 30-minute accessibility to airports with Jet A fuel including airports in surrounding states
- 30-minute accessibility to airports with AvGAS fuel including airports in surrounding states
- 30-minute accessibility to airports with Jet A Fuel or airports with AvGAS including airports in surrounding states
- 30-minute accessibility to airports with Weather Reporting (AWOS/ASOS) including airports in surrounding states
- Airports with air ambulance operations
- Airports with aerial applicator operations
- FAA's National Plan of Integrated Airport Systems (NPAIS) and the associated ASSET classifications of system airports

Using these performance measures, a geographic information system (GIS) mapping program was used to determine current accessibility to airports exhibiting these factors. The drive time service areas consider posted speed limits and normal driving conditions/congestion. Iowa is the 26th largest state based on the total area but is 36th in population density, which means that it is an average-sized state with a lower than average population density. But because of its relatively flat geography, lack of major bodies of water, and robust road network, most Iowans are within a reasonable drivable distance to the state's larger population centers.

This type of analysis is useful to many community decision-makers and airport stakeholders. Many businesses in Iowa improve their efficiency by using aviation. Business efficiency is improved by using general aviation, commercial aviation, and air cargo/air freight. Companies in Iowa benefit when employees have reduced travel times to reach both domestic and international destinations. The commercial service airports offer non-stop and connecting flights to destinations throughout the country.

Through general aviation, employees can fly directly to locations not served by commercial airlines; general aviation enables employees to fly on their timetable, avoiding additional travel time for security and airline connections. For all employers who use general aviation as a business tool, their employees benefit from added efficiency. Many businesses have customers or suppliers who visit them using general aviation. It is also common for Iowa's businesses, manufacturers, and the state's tourism and agricultural industries to use general aviation.

It is important to note that the population coverage data by airport in the tables below do not represent cumulative coverage, but the percentage of Iowans within the corresponding drive time to that airport. However, the figures that represent statewide coverage for a certain performance measure do not double count when those airport drive times overlap.

4.1 60-Minute and 90-Minute Accessibility to an Iowa Airport with Scheduled Airline Service

There are eight airports in Iowa served by scheduled commercial airline service:

- Southeast Iowa Regional (Burlington)
- Des Moines International
- Dubuque Regional
- Eastern Iowa (Cedar Rapids)
- Fort Dodge Regional
- Mason City Municipal
- Sioux Gateway
- Waterloo Regional

For this system performance measure, a 60-minute drive time was used for all commercial airports. It is worth noting that depending on the level of service and comparative fares, travelers may be willing to drive more than 60 minutes to reach a commercial service airport. This is undoubtedly true in much of Iowa, where drive times of this length are relatively common.

Current accessibility to Iowa's commercial airports, as well as commercial service airports in neighboring states, are shown in **Figure 4-1**. When 60-minute drive time service areas are considered, 69.2 percent of Iowa's residents are within 60 minutes or less of one or more of Iowa's commercial service airports. Geographically, these drive times cover 51.5 percent of Iowa. **Table 4-1** displays the population coverage of each commercial service airport in Iowa. Eastern Iowa Airport and Des Moines International Airport provide coverage to 16.7 percent and 24.2 percent, respectively, of the state's population, due to the population centers of Des Moines and Cedar Rapids. Several out of state airports also provide relatively large population coverage to Iowans, especially Quad City International Airport in Moline, Illinois, which is within a 60-minute drive time to almost 10 percent of Iowans, and Eppley Airfield in Omaha, Nebraska, which is within a 60-minute drivetime to over 4% of Iowans.

Table 4-1: Commercial Service Airports with Scheduled Service in Iowa and In Neighboring States also displays the population coverage of these airports within a 90-minute drive time. Increasing the drive time by an additional 30 minutes, increases the overall population coverage from 69.2 percent to 94.7 percent and the geographic coverage from 51.5 percent to 81.8 percent. Eastern Iowa Airport and Des Moines International Airport still provide the largest pluralities of coverage, Combined, those airports are within a 90-minute drive time of more than two-thirds of all Iowans.

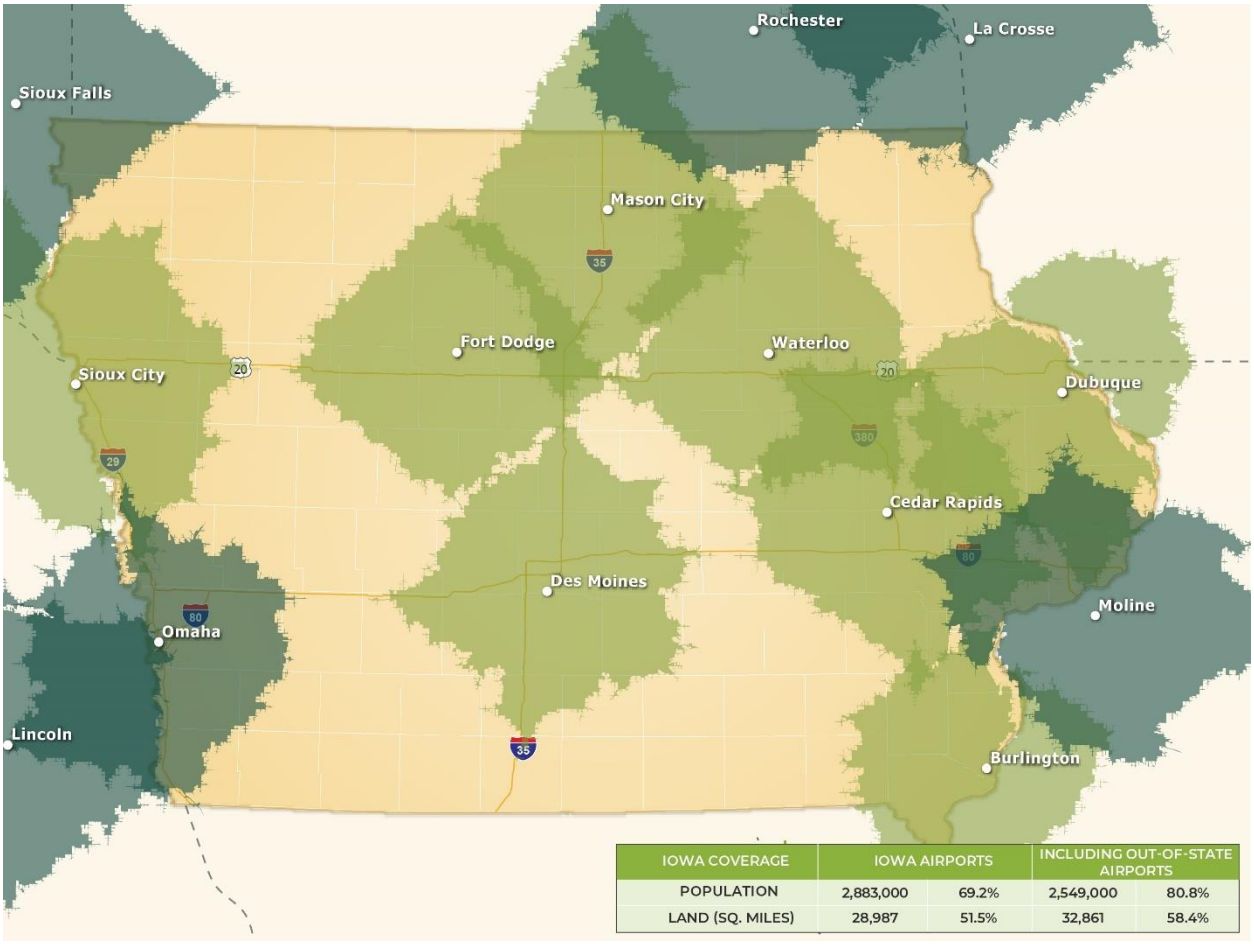
Table 4-1: Commercial Service Airports with Scheduled Service in Iowa and In Neighboring States

FAA ID	Associated City	Airport Name	State	60-Minute Population Coverage	90-Minute Population Coverage
BRL	Burlington	Southeast Iowa Regional	IA	3.8%	10.9%
CID	Cedar Rapids	Eastern Iowa	IA	16.7%	37.6%
DSM	Des Moines	Des Moines International	IA	24.2%	31.6%
DBQ	Dubuque	Dubuque Regional	IA	7.0%	25.0%
FOD	Fort Dodge	Fort Dodge Regional	IA	3.9%	13.3%
MCW	Mason City	Mason City Municipal	IA	4.3%	13.1%
SUX	Sioux City	Sioux Gateway	IA	5.3%	11.5%
ALO	Waterloo	Waterloo Municipal	IA	10.4%	27.6%
	Statewide Coverage Total			**69.2%**	**94.7**
RFD	Chicago/Rockford	Chicago/Rockford Intl	IL	<0.1%	0.1%
MLI	Moline	Quad City Intl	IL	9.5%	23.5%
PIA	Peoria	General Downing - Peoria Intl	IL	<0.1%	1.5%
RST	Rochester	Rochester International	MN	0.4%	3.7%
LNK	Lincoln	Lincoln	NE	1.4%	4.0%
OMA	Omaha	Eppley Airfield	NE	4.3%	7.0%
FSD	Sioux Falls	Joe Foss Field	SD	0.5%	5.0%
LSE	La Crosse	La Crosse Regional	WI	0.1%	1.4%
Including Out-of-State Total:				**80.8%**	**96.1%**

Source: Jviation
Note: Due to coverage overlap, percentages do not total to 100%.

For the SASP 2020, the role that airports in bordering states play in meeting Iowa's aviation needs was also considered for all performance measures. These airports are listed in **Table 4-1**. When those airports are also considered, 60-minute drive time accessibility increases from 69.2 percent to 80.8 percent. Geographically, these drive times increase coverage from 51.5 percent to 58.4 percent of Iowa. When considering out-of-state airports with a 90-minute drive time that encompasses portions of Iowa, population coverage increases from 94.7 percent to 96.1 percent, and geographic coverage increases from 81.8 percent to 90.1 percent. This is displayed in **Figure 4-2.**

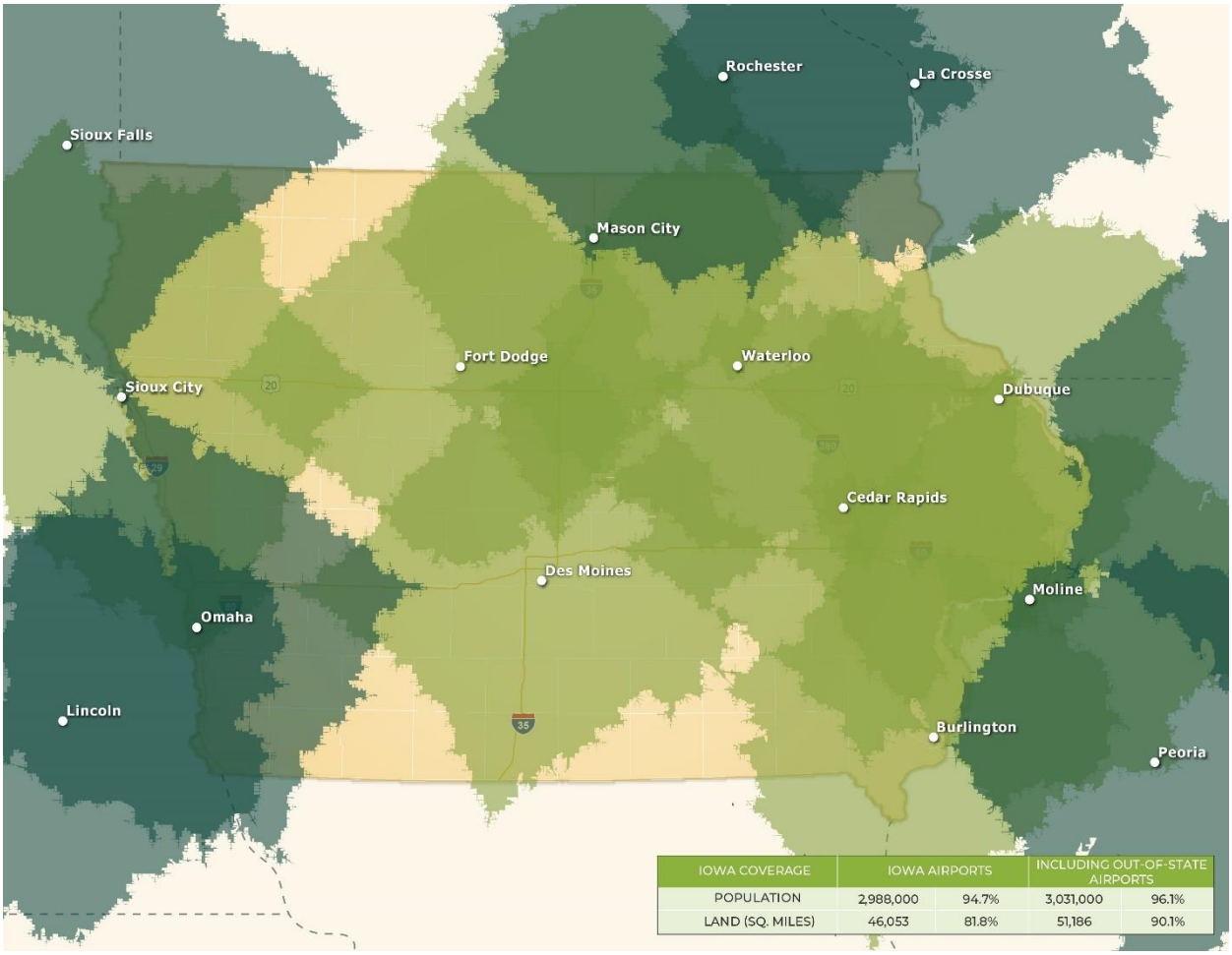
Figure 4-1: 60-Minute Accessibility to Commercial Service Airports in Iowa and Neighboring States



IOWA COVERAGE	IOWA AIRPORTS		INCLUDING OUT-OF-STATE AIRPORTS	
POPULATION	2,883,000	69.2%	2,549,000	80.8%
LAND (SQ. MILES)	28,987	51.5%	32,861	58.4%

Source: Jviation

Figure 4-2: 90-Minute Accessibility to Commercial Service Airports in Iowa and in Neighboring States



Source: Jviation

4.2 30-Minute Drive Time Accessibility to an Iowa System Airport

Another important performance measure considers accessibility to any Iowa system airport given a 30-minute drive time. This measure demonstrates the overall nature of Iowa's aviation system by measuring the ability of people to access a system airport within a relatively short time.

As illustrated in **Figure 4-3**, 97.4 percent of all Iowans are within a 30-minute drive time of an Iowa system airport. In terms of geographic coverage, the 30-minute drive time associated with these airports covers roughly 90.4 percent of Iowa's total land area. The results by airport are displayed in **Table 4-2.** These percentages are increased when out-of-state airports are considered.

The airports with the largest population coverage are in and around the Des Moines metropolitan area and the Cedar Rapids metropolitan area. While the airports in those regions provide coverage to the most Iowans, airports with low population coverage may provide crucial services to Iowans in remote parts of the state who otherwise lack access to aviation.

Table 4-2: Accessibility to an Iowa Public Airport – 30-Minute Drive Time

FAA ID	Associated City	Airport Name	Iowa Population Coverage
	Commercial Service Airports		
BRL	Burlington	Southeast Iowa Regional	1.9%
CID	Cedar Rapids	Eastern Iowa	10.4%
DSM	Des Moines	Des Moines International	15.7%
DBQ	Dubuque	Dubuque Regional	3.2%
FOD	Fort Dodge	Fort Dodge Regional	1.5%
MCW	Mason City	Mason City Municipal	1.7%
SUX	Sioux City	Sioux Gateway	3.4%
ALO	Waterloo	Waterloo Municipal	5.3%
	General Aviation Airports		
4C7	Ackley	Ackley Municipal	0.8%
4C8	Albia	Albia Municipal	1.3%
AXA	Algona	Algona Municipal	0.7%
K98	Allison	Allison Municipal	1.1%
C11	Amana	Amana Airport	4.1%
AMW	Ames	Ames Municipal	5.1%
Y43	Anita	Anita Municipal	0.7%
IKV	Ankeny	Ankeny Regional	17.6%
AIO	Atlantic	Atlantic Municipal	0.7%
ADU	Audubon	Audubon County	0.6%
Y46	Bedford	Bedford Municipal	0.2%
TZT	Belle Plaine	Belle Plaine Municipal	0.8%
Y48	Belmond	Belmond Municipal	0.5%
4K6	Bloomfield	Bloomfield Municipal	0.8%
BNW	Boone	Boone Municipal	3.7%
CIN	Carroll	Arthur N. Neu	0.8%
TVK	Centerville	Centerville Municipal	0.4%
CNC	Chariton	Chariton Municipal	0.7%
CCY	Charles City	Charles City Municipal	1.0%
CKP	Cherokee	Cherokee Municipal	0.8%
ICL	Clarinda	Schenck Field	0.7%
CAV	Clarion	Clarion Municipal	0.5%
CWI	Clinton	Clinton Municipal	2.2%
CRZ	Corning	Corning Municipal	0.4%
CBF	Council Bluffs	Council Bluffs Municipal	3.3%
CJJ	Cresco	Ellen Church Field	0.7%
CSQ	Creston	Creston Municipal	0.5%

FAA ID	Associated City	Airport Name	Iowa Population Coverage
DVN	Davenport	Davenport Municipal	5.9%
DEH	Decorah	Decorah Municipal	1.1%
DNS	Denison	Denison Municipal	0.7%
IA8	Dyersville	Dyersville Area	1.2%
EAG	Eagle Grove	Eagle Grove Municipal	0.9%
27P	Eldora	Eldora Airport	0.6%
I27	Elkader	Elkader Airport	0.7%
EGQ	Emmetsburg	Emmetsburg Municipal	0.4%
EST	Estherville	Estherville Municipal	0.6%
FFL	Fairfield	Fairfield Municipal	0.6%
FXY	Forest City	Forest City Municipal	1.0%
FSW	Fort Madison	Fort Madison Municipal	2.3%
GFZ	Greenfield	Greenfield Municipal	0.6%
GGI	Grinnell	Grinnell Regional	1.6%
6K7	Grundy Center	Grundy Center Municipal	1.3%
GCT	Guthrie Center	Guthrie County Regional	0.6%
HPT	Hampton	Hampton Municipal	0.7%
HNR	Harlan	Harlan Municipal	0.6%
0K7	Humboldt	Humboldt Municipal	1.5%
IDG	Ida Grove	Ida Grove Municipal	0.7%
IIB	Independence	Independence Municipal	2.1%
IOW	Iowa City	Iowa City Municipal	6.0%
IFA	Iowa Falls	Iowa Falls Municipal	0.9%
EFW	Jefferson	Jefferson Municipal	0.7%
EOK	Keokuk	Keokuk Municipal	1.1%
6K9	Keosauqua	Keosauqua Municipal	0.5%
OXV	Knoxville	Knoxville Municipal	2.0%
0Y6	Lake Mills	Lake Mills Municipal	0.6%
LWD	Lamoni	Lamoni Municipal	0.3%
2VA	Larchwood	Zanagger Vintage Airpark	0.3%
LRJ	Le Mars	Le Mars Municipal	3.0%
C27	Manchester	Manchester Municipal	1.3%
MEY	Mapleton	Mapleton Municipal	0.6%
OQW	Maquoketa	Maquoketa Municipal	0.9%
C17	Marion	Marion	7.7%
MIW	Marshalltown	Marshalltown Municipal	1.6%
SXK	Maurice	Sioux County Regional	1.4%
4D8	Milford	Fuller	1.1%

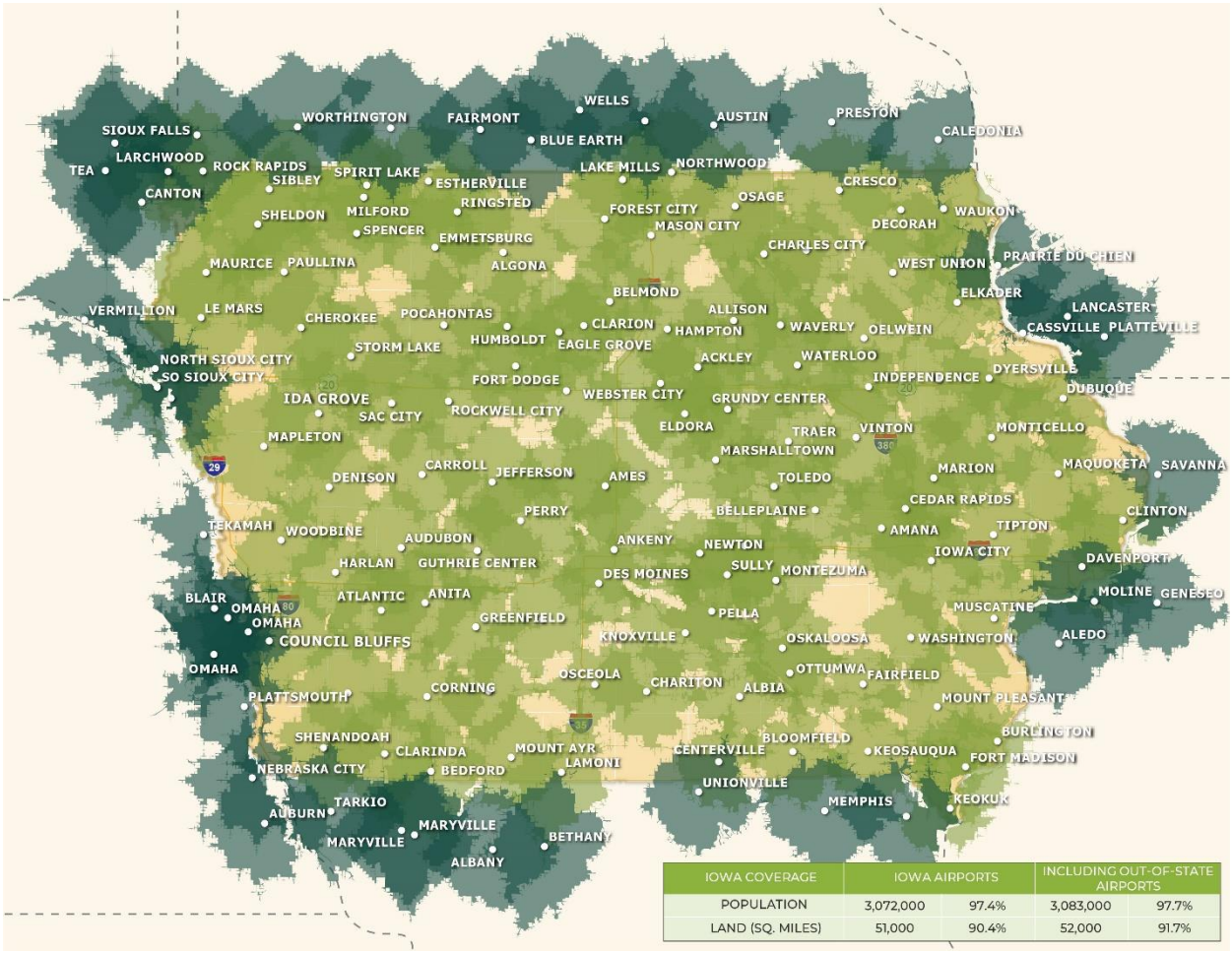
FAA ID	Associated City	Airport Name	Iowa Population Coverage
7C3	Monona	Monona Municipal	0.5%
7C5	Montezuma	Sig Field Airport	1.1%
MXO	Monticello	Monticello Municipal	1.7%
1Y3	Mount Ayr	Judge Lewis Field Mount Ayr Municipal	0.3%
MPZ	Mount Pleasant	Mount Pleasant Municipal	1.2%
MUT	Muscatine	Muscatine Municipal	1.8%
1Y5	New Hampton	New Hampton Municipal	0.8%
TNU	Newton	Newton Municipal	1.6%
5D2	Northwood	Northwood Municipal	0.8%
OLZ	Oelwein	Oelwein Municipal	1.2%
D02	Osage	Osage Municipal	0.9%
I75	Osceola	Osceola Municipal	0.5%
OOA	Oskaloosa	Oskaloosa Municipal	1.8%
OTM	Ottumwa	Ottumwa Industrial	1.8%
1Y9	Paullina	Paullina Municipal	1.0%
PEA	Pella	Pella Municipal	1.8%
PRO	Perry	Perry Municipal	1.6%
POH	Pocahontas	Pocahontas Municipal	0.6%
RDK	Red Oak	Red Oak Municipal	0.7%
8Y8	Ringsted	Peltz Field	0.4%
RRQ	Rock Rapids	Rock Rapids Municipal	0.5%
2Y4	Rockwell City	Rockwell City Municipal	0.5%
SKI	Sac City	Sac City Municipal	0.6%
SHL	Sheldon	Sheldon Municipal	1.1%
SDA	Shenandoah	Shenandoah Municipal	0.6%
ISB	Sibley	Sibley Municipal	0.7%
SPW	Spencer	Spencer Municipal	1.0%
0F3	Spirit Lake	Spirit Lake Municipal	1.1%
SLB	Storm Lake	Storm Lake Municipal	1.1%
8C2	Sully	Sully Municipal	1.8%
8C4	Tipton	Mathews Memorial	1.8%
8C5	Toledo	Toledo Municipal	1.4%
8C6	Traer	Traer Municipal	1.3%
VTI	Vinton	Vinton Veterans Memorial Airpark	1.9%
AWG	Washington	Washington Municipal	0.9%
Y01	Waukon	Waukon Municipal	0.7%
C25	Waverly	Waverly Municipal	4.1%
EBS	Webster City	Webster City Municipal	1.6%

FAA ID	Associated City	Airport Name	Iowa Population Coverage
3Y2	West Union	George L Scott Municipal	0.7%
3Y3	Winterset	Winterset-Madison County	2.2%
3Y4	Woodbine	Woodbine Municipal	0.5%
	Statewide Coverage Total		**97.4%**

Source: Jviation
Note: Due to coverage overlap, percentages do not total to 100%.

Below, **Figure 4-3** displays 30-minute accessibility to these airports. Together, they provide 30-minute drive time accessibility to 97.4% of Iowans and cover 90.4% of the state's area, and when out of state airports are included, those figures increase to 97.7% and 91.7%, respectively.

Figure 4-3: 30-Minute Accessibility to Any Iowa System Airport and in Nearby States



Source: Jviation

4.3 30-Minute Accessibility to an Airport with Approach Procedures

During periods of reduced visibility and nighttime operating conditions, airports with a published approach have increased operational flexibility. Data gathered to support this SASP 2020 shows that system performance for this measure is relatively robust. **Table 4-3** shows all system airports that currently have a published approach.

Table 4-3: Iowa Airports with a Published Approach

FAA ID	City	Airport Name	Population Coverage
	Commercial Service Airports		
BRL	Burlington	Southeast Iowa Regional	1.9%
CID	Cedar Rapids	Eastern Iowa	10.4%
DSM	Des Moines	Des Moines International	15.7%
DBQ	Dubuque	Dubuque Regional	3.2%
FOD	Fort Dodge	Fort Dodge Regional	1.5%
MCW	Mason City	Mason City Municipal	1.7%
SUX	Sioux City	Sioux Gateway	3.4%
ALO	Waterloo	Waterloo Municipal	5.3%
	General Aviation Airports		
4C8	Albia	Albia Municipal	1.3%
AXA	Algona	Algona Municipal	0.7%
AMW	Ames	Ames Municipal	5.1%
IKV	Ankeny	Ankeny Regional	17.6%
AIO	Atlantic	Atlantic Municipal	0.7%
ADU	Audubon	Audubon County	0.6%
TZT	Belle Plaine	Belle Plaine Municipal	0.8%
4K6	Bloomfield	Bloomfield Municipal	0.8%
BNW	Boone	Boone Municipal	3.7%
CIN	Carroll	Arthur N. Neu	0.8%
TVK	Centerville	Centerville Municipal	0.4%
CNC	Chariton	Chariton Municipal	0.7%
CCY	Charles City	Charles City Municipal	1.0%
CKP	Cherokee	Cherokee Municipal	0.8%
ICL	Clarinda	Schenck Field	0.7%
CAV	Clarion	Clarion Municipal	0.5%
CWI	Clinton	Clinton Municipal	2.2%
CRZ	Corning	Corning Municipal	0.4%
CBF	Council Bluffs	Council Bluffs Municipal	3.3%
CJJ	Cresco	Ellen Church Field	0.7%
CSQ	Creston	Creston Municipal	0.5%
DVN	Davenport	Davenport Municipal	5.9%

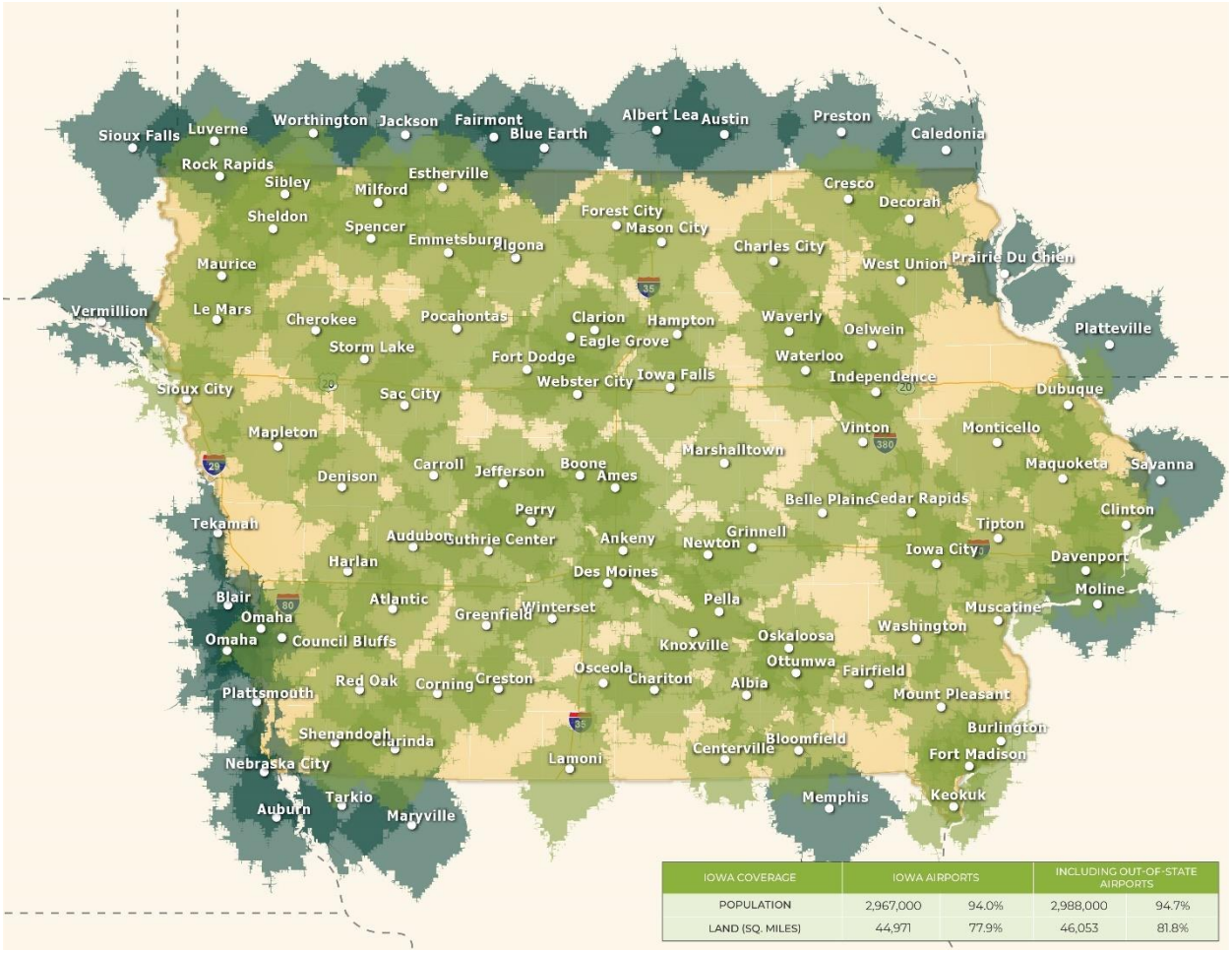
FAA ID	City	Airport Name	Population Coverage
DEH	Decorah	Decorah Municipal	1.1%
DNS	Denison	Denison Municipal	0.7%
EAG	Eagle Grove	Eagle Grove Municipal	0.9%
EGQ	Emmetsburg	Emmetsburg Municipal	0.4%
EST	Estherville	Estherville Municipal	0.6%
FFL	Fairfield	Fairfield Municipal	0.6%
FXY	Forest City	Forest City Municipal	1.0%
FSW	Fort Madison	Fort Madison Municipal	2.3%
GFZ	Greenfield	Greenfield Municipal	0.6%
GGI	Grinnell	Grinnell Regional	1.6%
GCT	Guthrie Center	Guthrie County Regional	0.6%
HPT	Hampton	Hampton Municipal	0.7%
HNR	Harlan	Harlan Municipal	0.6%
IIB	Independence	Independence Municipal	2.1%
IOW	Iowa City	Iowa City Municipal	6.0%
IFA	Iowa Falls	Iowa Falls Municipal	0.9%
EFW	Jefferson	Jefferson Municipal	0.7%
EOK	Keokuk	Keokuk Municipal	1.1%
OXV	Knoxville	Knoxville Municipal	2.0%
LWD	Lamoni	Lamoni Municipal	0.3%
LRJ	Le Mars	Le Mars Municipal	3.0%
MEY	Mapleton	Mapleton Municipal	0.6%
OQW	Maquoketa	Maquoketa Municipal	0.9%
MIW	Marshalltown	Marshalltown Municipal	1.6%
SXK	Maurice	Sioux County Regional	1.4%
4D8	Milford	Fuller	1.1%
MXO	Monticello	Monticello Municipal	1.7%
MPZ	Mount Pleasant	Mount Pleasant Municipal	1.2%
MUT	Muscatine	Muscatine Municipal	1.8%
TNU	Newton	Newton Municipal	1.6%
OLZ	Oelwein	Oelwein Municipal	1.2%
I75	Osceola	Osceola Municipal	0.5%
OOA	Oskaloosa	Oskaloosa Municipal	1.8%
OTM	Ottumwa	Ottumwa Industrial	1.8%
PEA	Pella	Pella Municipal	1.8%
PRO	Perry	Perry Municipal	1.6%
POH	Pocahontas	Pocahontas Municipal	0.6%
RDK	Red Oak	Red Oak Municipal	0.7%

FAA ID	City	Airport Name	Population Coverage
RRQ	Rock Rapids	Rock Rapids Municipal	0.5%
SKI	Sac City	Sac City Municipal	0.6%
SHL	Sheldon	Sheldon Municipal	1.1%
SDA	Shenandoah	Shenandoah Municipal	0.6%
ISB	Sibley	Sibley Municipal	0.7%
SPW	Spencer	Spencer Municipal	1.0%
SLB	Storm Lake	Storm Lake Municipal	1.1%
8C4	Tipton	Mathews Memorial	1.8%
VTI	Vinton	Vinton Veterans Memorial Airpark	1.9%
AWG	Washington	Washington Municipal	0.9%
C25	Waverly	Waverly Municipal	4.1%
EBS	Webster City	Webster City Municipal	1.6%
3Y2	West Union	George L Scott Municipal	0.7%
3Y3	Winterset	Winterset-Madison County	2.2%
	Total Statewide Coverage		**94.0%**

Source: IADOT, FAA NFDC, Jviation
Note: Due to coverage overlap, percentages do not total to 100%.

Figure 4-4 graphically depicts current system-wide 30-minute accessibility to an airport with at least one published approach. As shown, 94 percent of the state's population is within a 30-minute service area of one or more airports with a published approach. **Figure 4-4** also shows that when these out-of-state airports are considered, current accessibility increases slightly from 94 percent to 94.7 percent. While there are many out-of-state airports within a 30-minute drive time to Iowans, because of Iowa's robust system, coverage from airports in neighboring states adds minimal additional coverage in Iowa.

Figure 4-4: 30-Minute Current Accessibility to an Iowa or Nearby Airport with a Published Approach



Source: Jviation, FAA NFDC

4.4 30-Minute Accessibility to an Airport with Precision-Like Approach

Since the last system plan, new technology has been implemented that enables airports to have precision-like approaches that provide *both* lateral and vertical guidance without the ground-based equipment that was previously needed to support a precision approach. These new approaches are commonly referred to as an LPV approach. New technology has enabled the Iowa airports to make gains as they relate to performance for this measure.

Table 4-4 lists the airports that currently have facilities to meet this measured.

Table 4-4: Iowa Airports with a Precision-like Approach

FAA ID	City	Airport Name	Population Coverage
	Commercial Service Airports		
BRL	Burlington	Southeast Iowa Regional	1.9%
CID	Cedar Rapids	Eastern Iowa	10.4%
DSM	Des Moines	Des Moines International	15.7%
DBQ	Dubuque	Dubuque Regional	3.2%
FOD	Fort Dodge	Fort Dodge Regional	1.5%
MCW	Mason City	Mason City Municipal	1.7%
SUX	Sioux City	Sioux Gateway	3.4%
	General Aviation Airports		
4C8	Albia	Albia Municipal	1.3%
AMW	Ames	Ames Municipal	5.1%
IKV	Ankeny	Ankeny Regional	17.6%
AIO	Atlantic	Atlantic Municipal	0.7%
TZT	Belle Plaine	Belle Plaine Municipal	0.8%
BNW	Boone	Boone Municipal	3.7%
CIN	Carroll	Arthur N. Neu	0.8%
TVK	Centerville	Centerville Municipal	0.4%
CCY	Charles City	Charles City Municipal	1.0%
CKP	Cherokee	Cherokee Municipal	0.8%
ICL	Clarinda	Schenck Field	0.7%
CAV	Clarion	Clarion Municipal	0.5%
CWI	Clinton	Clinton Municipal	2.2%
CBF	Council Bluffs	Council Bluffs Municipal	3.3%
CSQ	Creston	Creston Municipal	0.5%
DVN	Davenport	Davenport Municipal	5.9%
DEH	Decorah	Decorah Municipal	1.1%
DNS	Denison	Denison Municipal	0.7%
EAG	Eagle Grove	Eagle Grove Municipal	0.9%
EST	Estherville	Estherville Municipal	0.6%
FFL	Fairfield	Fairfield Municipal	0.6%
FXY	Forest City	Forest City Municipal	1.0%
FSW	Fort Madison	Fort Madison Municipal	2.3%
GFZ	Greenfield	Greenfield Municipal	0.6%
GGI	Grinnell	Grinnell Regional	1.6%
GCT	Guthrie Center	Guthrie County Regional	0.6%
HPT	Hampton	Hampton Municipal	0.7%

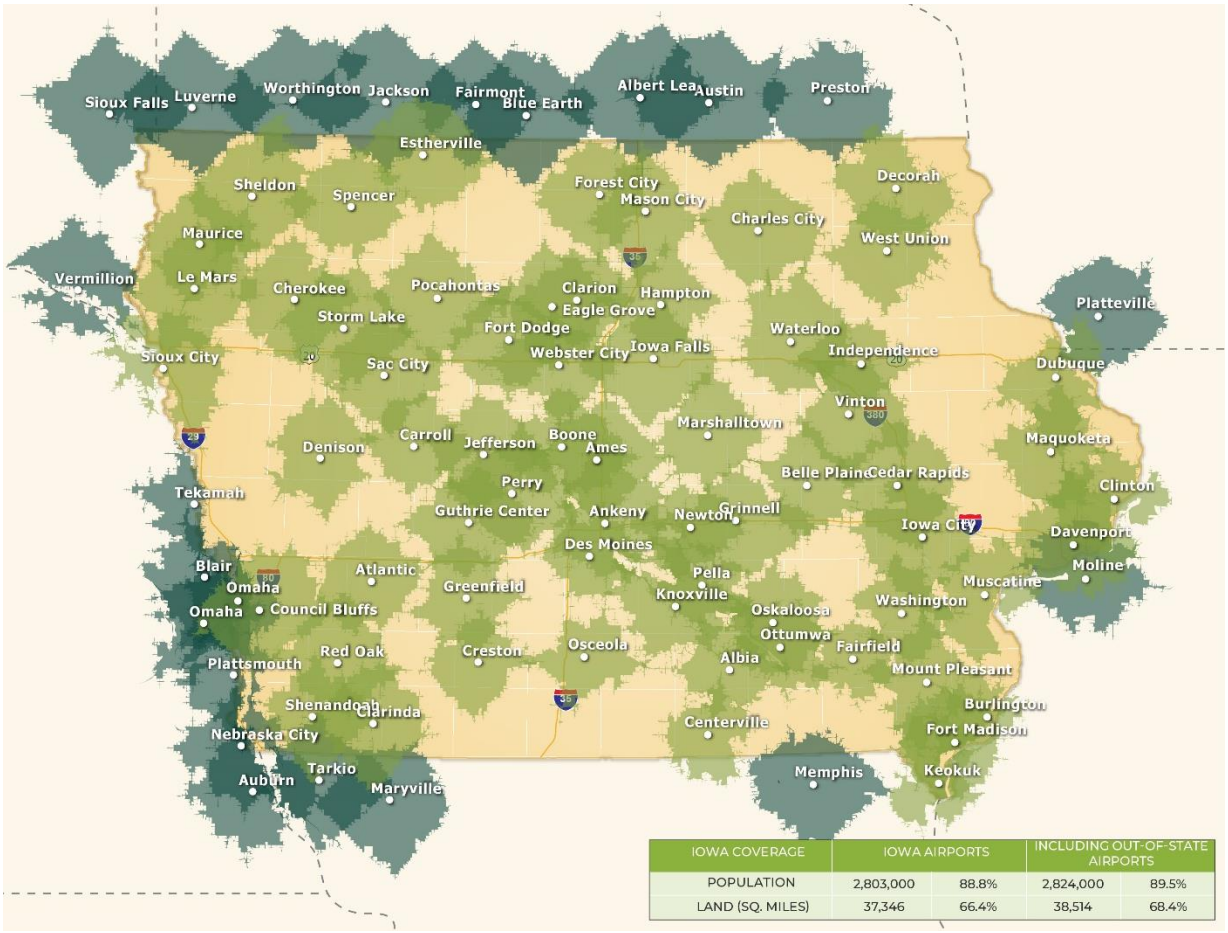
FAA ID	City	Airport Name	Population Coverage
IIB	Independence	Independence Municipal	2.1%
IOW	Iowa City	Iowa City Municipal	6.0%
IFA	Iowa Falls	Iowa Falls Municipal	0.9%
EFW	Jefferson	Jefferson Municipal	0.7%
EOK	Keokuk	Keokuk Municipal	1.1%
OXV	Knoxville	Knoxville Municipal	2.0%
LRJ	Le Mars	Le Mars Municipal	3.0%
OQW	Maquoketa	Maquoketa Municipal	0.9%
MIW	Marshalltown	Marshalltown Municipal	1.6%
SXK	Maurice	Sioux County Regional	1.4%
MPZ	Mount Pleasant	Mount Pleasant Municipal	1.2%
MUT	Muscatine	Muscatine Municipal	1.8%
TNU	Newton	Newton Municipal	1.6%
I75	Osceola	Osceola Municipal	0.5%
OOA	Oskaloosa	Oskaloosa Municipal	1.8%
OTM	Ottumwa	Ottumwa Industrial	1.8%
PEA	Pella	Pella Municipal	1.8%
PRO	Perry	Perry Municipal	1.6%
POH	Pocahontas	Pocahontas Municipal	0.6%
RDK	Red Oak	Red Oak Municipal	0.7%
SKI	Sac City	Sac City Municipal	0.6%
SHL	Sheldon	Sheldon Municipal	1.1%
SDA	Shenandoah	Shenandoah Municipal	0.6%
SPW	Spencer	Spencer Municipal	1.0%
SLB	Storm Lake	Storm Lake Municipal	1.1%
VTI	Vinton	Vinton Veterans Memorial Airpark	1.9%
AWG	Washington	Washington Municipal	0.9%
ALO	Waterloo	Waterloo Municipal	5.3%
EBS	Webster City	Webster City Municipal	1.6%
3Y2	West Union	George L Scott Municipal	0.7%
	Total Statewide Coverage		**88.8%**

Source: IADOT, FAA NFDC, Jviation
Note: Due to coverage overlap, percentages do not total to 100%.

Using a 30-minute drive time service area for each airport, **Figure 4-5** shows current 30-minute accessibility to an airport with an approach supported by vertical guidance. 88.8 percent of Iowa has accessibility to one or more airports with an approach supported by vertical guidance. **Figure 4-5** also shows additional coverage for this measure when 30-minute service areas for these out-of-state airports are included. As shown, accessibility increases slightly to 89.5 percent. While there are many qualifying airports within a 30-minute drive time to

Iowa, because of Iowa's robust system, coverage from airports in neighboring states adds minimal additional coverage in Iowa.

Figure 4-5: 30-Minute Current Accessibility to an Iowa or Nearby Airport with a Vertical Guidance Approach



Source: Jviation, FAA NFDC

4.5 30-Minute Accessibility to an Airport with Surface Weather Observations Stations

Similar to airports that have published approaches, airports that have weather reporting capabilities have a greater capacity to serve aircraft during periods of inclement weather and reduced visibility. The two primary types of on-site weather reporting equipment are Automated Weather Observing Systems (AWOS) and Automated Surface Observing System (ASOS). Currently, 57 of 114 airports in the Iowa airport system have one of these systems.

Table 4-5 displays the population coverage of 30-minute drive times for those airports.

Table 4-5: Iowa Airports with Surface Weather Observation Stations

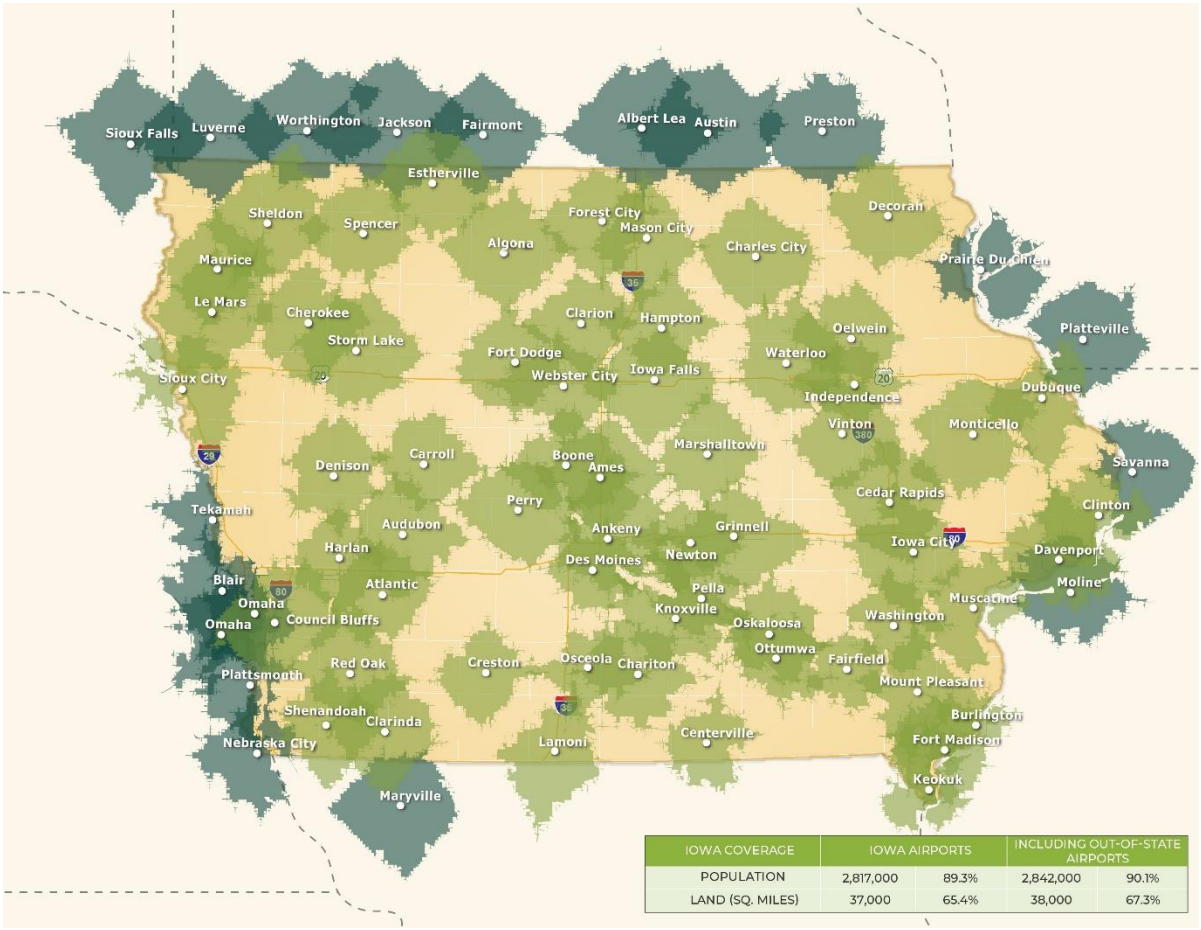
FAA ID	City	Airport Name	Population Coverage
	Commercial Service Airports		
BRL	Burlington	Southeast Iowa Regional	1.9%
CID	Cedar Rapids	Eastern Iowa	10.4%
DSM	Des Moines	Des Moines International	15.7%
DBQ	Dubuque	Dubuque Regional	3.2%
FOD	Fort Dodge	Fort Dodge Regional	1.5%
MCW	Mason City	Mason City Municipal	1.7%
SUX	Sioux City	Sioux Gateway	3.4%
ALO	Waterloo	Waterloo Municipal	5.3%
	General Aviation Airports		
AXA	Algona	Algona Municipal	0.7%
AMW	Ames	Ames Municipal	5.1%
IKV	Ankeny	Ankeny Regional	17.6%
AIO	Atlantic	Atlantic Municipal	0.7%
ADU	Audubon	Audubon County	0.6%
BNW	Boone	Boone Municipal	3.7%
CIN	Carroll	Arthur N. Neu	0.8%
TVK	Centerville	Centerville Municipal	0.4%
CNC	Chariton	Chariton Municipal	0.7%
CCY	Charles City	Charles City Municipal	1.0%
CKP	Cherokee	Cherokee Municipal	0.8%
ICL	Clarinda	Schenck Field	0.7%
CAV	Clarion	Clarion Municipal	0.5%
CWI	Clinton	Clinton Municipal	2.2%
CBF	Council Bluffs	Council Bluffs Municipal	3.3%
CSQ	Creston	Creston Municipal	0.5%
DVN	Davenport	Davenport Municipal	5.9%
DEH	Decorah	Decorah Municipal	1.1%
DNS	Denison	Denison Municipal	0.7%
EST	Estherville	Estherville Municipal	0.6%
FFL	Fairfield	Fairfield Municipal	0.6%
FXY	Forest City	Forest City Municipal	1.0%

FAA ID	City	Airport Name	Population Coverage
FSW	Fort Madison	Fort Madison Municipal	2.3%
GGI	Grinnell	Grinnell Regional	1.6%
HPT	Hampton	Hampton Municipal	0.7%
HNR	Harlan	Harlan Municipal	0.6%
IIB	Independence	Independence Municipal	2.1%
IOW	Iowa City	Iowa City Municipal	6.0%
IFA	Iowa Falls	Iowa Falls Municipal	0.9%
EOK	Keokuk	Keokuk Municipal	1.1%
OXV	Knoxville	Knoxville Municipal	2.0%
LWD	Lamoni	Lamoni Municipal	0.3%
LRJ	Le Mars	Le Mars Municipal	3.0%
MIW	Marshalltown	Marshalltown Municipal	1.6%
SXK	Maurice	Sioux County Regional	1.4%
MXO	Monticello	Monticello Municipal	1.7%
MPZ	Mount Pleasant	Mount Pleasant Municipal	1.2%
MUT	Muscatine	Muscatine Municipal	1.8%
TNU	Newton	Newton Municipal	1.6%
OLZ	Oelwein	Oelwein Municipal	1.2%
I75	Osceola	Osceola Municipal	0.5%
OOA	Oskaloosa	Oskaloosa Municipal	1.8%
OTM	Ottumwa	Ottumwa Industrial	1.8%
PEA	Pella	Pella Municipal	1.8%
PRO	Perry	Perry Municipal	1.6%
RDK	Red Oak	Red Oak Municipal	0.7%
SHL	Sheldon	Sheldon Municipal	1.1%
SDA	Shenandoah	Shenandoah Municipal	0.6%
SPW	Spencer	Spencer Municipal	1.0%
SLB	Storm Lake	Storm Lake Municipal	1.1%
VTI	Vinton	Vinton Veterans Memorial Airpark	1.9%
AWG	Washington	Washington Municipal	0.9%
EBS	Webster City	Webster City Municipal	1.6%
Total Statewide Coverage			**89.3%**

Source: Jviation

Figure 4-6: 30-Minute Current Accessibility to an Iowa or Nearby Airport with a Surface Weather Observation System shows that 89.3 percent of Iowa's population is covered by these drive times and this increases slightly to 90.1 percent when airports in neighboring states are considered.

Figure 4-6: 30-Minute Current Accessibility to an Iowa or Nearby Airport with a Surface Weather Observation System



Source: Jviation

4.6 30-Minute Accessibility to an Airport with Fuel

The ability to refuel aircraft at an airport is crucial to all aspects of aviation. Avgas is needed for piston engines, common in smaller aircraft, and Jet A fuel is needed for turbine engines, like business jets. When an airport has on-site fueling capabilities, it is a much more useful facility for both based and transient aircraft. Currently, 88 of 114 airports in the Iowa airport system have at least Avgas fueling capabilities and 60 airports have Jet A fuel. These airports and the population coverages associated with a 30-minute drive time are displayed in **Table 4-6.**

Table 4-6: Iowa Airports with Fueling Capabilities

FAA ID	City	Airport Name	Population Coverage	Avgas	Jet A
Commercial Service Airports					
BRL	Burlington	Southeast Iowa Regional	1.9%	X	X
CID	Cedar Rapids	Eastern Iowa	10.4%	X	X
DSM	Des Moines	Des Moines International	15.7%	X	X
DBQ	Dubuque	Dubuque Regional	3.2%	X	X
FOD	Fort Dodge	Fort Dodge Regional	1.5%	X	X
MCW	Mason City	Mason City Municipal	1.7%	X	X
SUX	Sioux City	Sioux Gateway	3.4%	X	X
ALO	Waterloo	Waterloo Municipal	5.3%	X	X
General Aviation Airports					
AXA	Algona	Algona Municipal	0.7%	X	X
AMW	Ames	Ames Municipal	5.1%	X	X
IKV	Ankeny	Ankeny Regional	17.6%	X	X
AIO	Atlantic	Atlantic Municipal	0.7%	X	X
ADU	Audubon	Audubon County	0.6%	X	X
TZT	Belle Plaine	Belle Plaine Municipal	0.8%	X	
4K6	Bloomfield	Bloomfield Municipal	0.8%	X	
BNW	Boone	Boone Municipal	3.7%	X	X
CIN	Carroll	Arthur N. Neu	0.8%	X	X
TVK	Centerville	Centerville Municipal	0.4%	X	X
CNC	Chariton	Chariton Municipal	0.7%	X	
CCY	Charles City	Charles City Municipal	1.0%	X	X
CKP	Cherokee	Cherokee Municipal	0.8%	X	X
ICL	Clarinda	Schenck Field	0.7%	X	X
CAV	Clarion	Clarion Municipal	0.5%	X	X
CWI	Clinton	Clinton Municipal	2.2%	X	X
CRZ	Corning	Corning Municipal	0.4%	X	

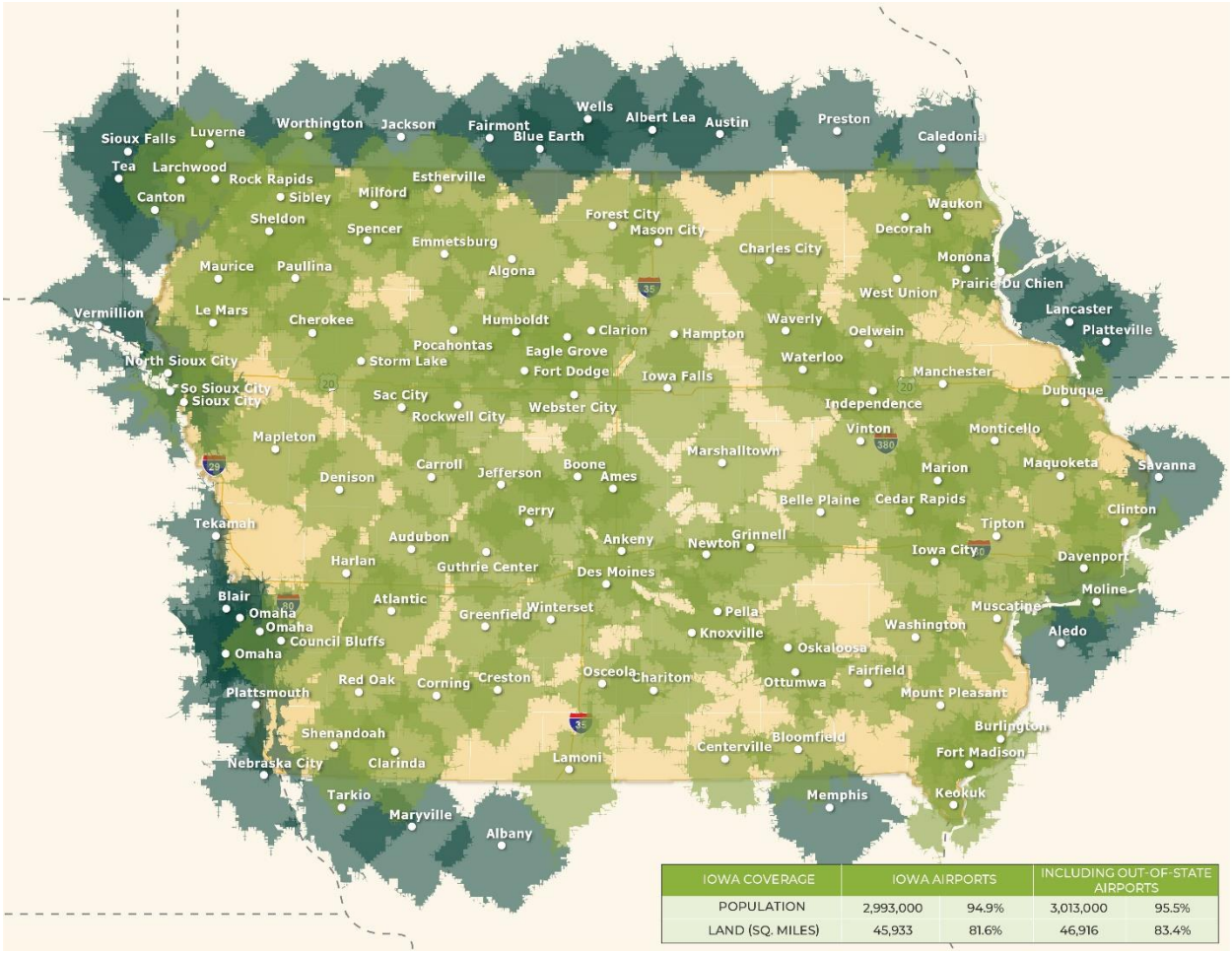
FAA ID	City	Airport Name	Population Coverage	Avgas	Jet A
CBF	Council Bluffs	Council Bluffs Municipal	3.3%	X	X
CSQ	Creston	Creston Municipal	0.5%	X	X
DVN	Davenport	Davenport Municipal	5.9%	X	X
DEH	Decorah	Decorah Municipal	1.1%	X	X
DNS	Denison	Denison Municipal	0.7%	X	X
EAG	Eagle Grove	Eagle Grove Municipal	0.9%	X	
EGQ	Emmetsburg	Emmetsburg Municipal	0.4%	X	
EST	Estherville	Estherville Municipal	0.6%	X	X
FFL	Fairfield	Fairfield Municipal	0.6%	X	X
FXY	Forest City	Forest City Municipal	1.0%	X	
FSW	Fort Madison	Fort Madison Municipal	2.3%	X	
GFZ	Greenfield	Greenfield Municipal	0.6%	X	
GGI	Grinnell	Grinnell Regional	1.6%	X	X
GCT	Guthrie Center	Guthrie County Regional	0.6%	X	
HPT	Hampton	Hampton Municipal	0.7%	X	X
HNR	Harlan	Harlan Municipal	0.6%	X	X
0K7	Humboldt	Humboldt Municipal	1.5%	X	
IIB	Independence	Independence Municipal	2.1%	X	X
IOW	Iowa City	Iowa City Municipal	6.0%	X	X
IFA	Iowa Falls	Iowa Falls Municipal	0.9%	X	X
EFW	Jefferson	Jefferson Municipal	0.7%	X	
EOK	Keokuk	Keokuk Municipal	1.1%	X	X
OXV	Knoxville	Knoxville Municipal	2.0%	X	X
LWD	Lamoni	Lamoni Municipal	0.3%	X	
2VA	Larchwood	Zanagger Vintage Airpark	0.3%	X	
LRJ	Le Mars	Le Mars Municipal	3.0%	X	X
C27	Manchester	Manchester Municipal	1.3%	X	
MEY	Mapleton	Mapleton Municipal	0.6%	X	
OQW	Maquoketa	Maquoketa Municipal	0.9%	X	
C17	Marion	Marion	7.7%	X	X
MIW	Marshalltown	Marshalltown Municipal	1.6%	X	X
SXK	Maurice	Sioux County Regional	1.4%	X	X
4D8	Milford	Fuller	1.1%	X	
7C3	Monona	Monona Municipal	0.5%	X	

FAA ID	City	Airport Name	Population Coverage	Avgas	Jet A
MXO	Monticello	Monticello Municipal	1.7%	X	X
MPZ	Mount Pleasant	Mount Pleasant Municipal	1.2%	X	X
MUT	Muscatine	Muscatine Municipal	1.8%	X	X
TNU	Newton	Newton Municipal	1.6%	X	X
OLZ	Oelwein	Oelwein Municipal	1.2%	X	X
I75	Osceola	Osceola Municipal	0.5%	X	X
OOA	Oskaloosa	Oskaloosa Municipal	1.8%	X	X
OTM	Ottumwa	Ottumwa Industrial	1.8%	X	X
1Y9	Paullina	Paullina Municipal	1.0%	X	
PEA	Pella	Pella Municipal	1.8%	X	X
PRO	Perry	Perry Municipal	1.6%	X	X
POH	Pocahontas	Pocahontas Municipal	0.6%	X	
RDK	Red Oak	Red Oak Municipal	0.7%	X	X
RRQ	Rock Rapids	Rock Rapids Municipal	0.5%	X	
2Y4	Rockwell City	Rockwell City Municipal	0.5%	X	
SKI	Sac City	Sac City Municipal	0.6%	X	
SHL	Sheldon	Sheldon Municipal	1.1%	X	X
SDA	Shenandoah	Shenandoah Municipal	0.6%	X	X
ISB	Sibley	Sibley Municipal	0.7%	X	
SPW	Spencer	Spencer Municipal	1.0%	X	X
SLB	Storm Lake	Storm Lake Municipal	1.1%	X	X
8C4	Tipton	Mathews Memorial	1.8%	X	
VTI	Vinton	Vinton Veterans Memorial Airpark	1.9%	X	X
AWG	Washington	Washington Municipal	0.9%	X	X
Y01	Waukon	Waukon Municipal	0.7%	X	
C25	Waverly	Waverly Municipal	4.1%	X	
EBS	Webster City	Webster City Municipal	1.6%	X	X
3Y2	West Union	George L Scott Municipal Airport	0.7%	X	X
3Y3	Winterset	Winterset-Madison County	2.2%	X	X
	Total Statewide Coverage AvGAS		**94.9%**		
	Total Statewide Coverage Jet A		**89.4%**		

Source: Jviation

As **Figure 4-7**: 30-Minute Current Accessibility to an Iowa or Nearby Airport with Avgas FuelError! Reference source not found. shows, 94.9 percent of Iowans are within a 30-minute drivetime to airports with Avgas fueling capabilities. When factoring in airports in nearby states, that rises to 95.5 percent.

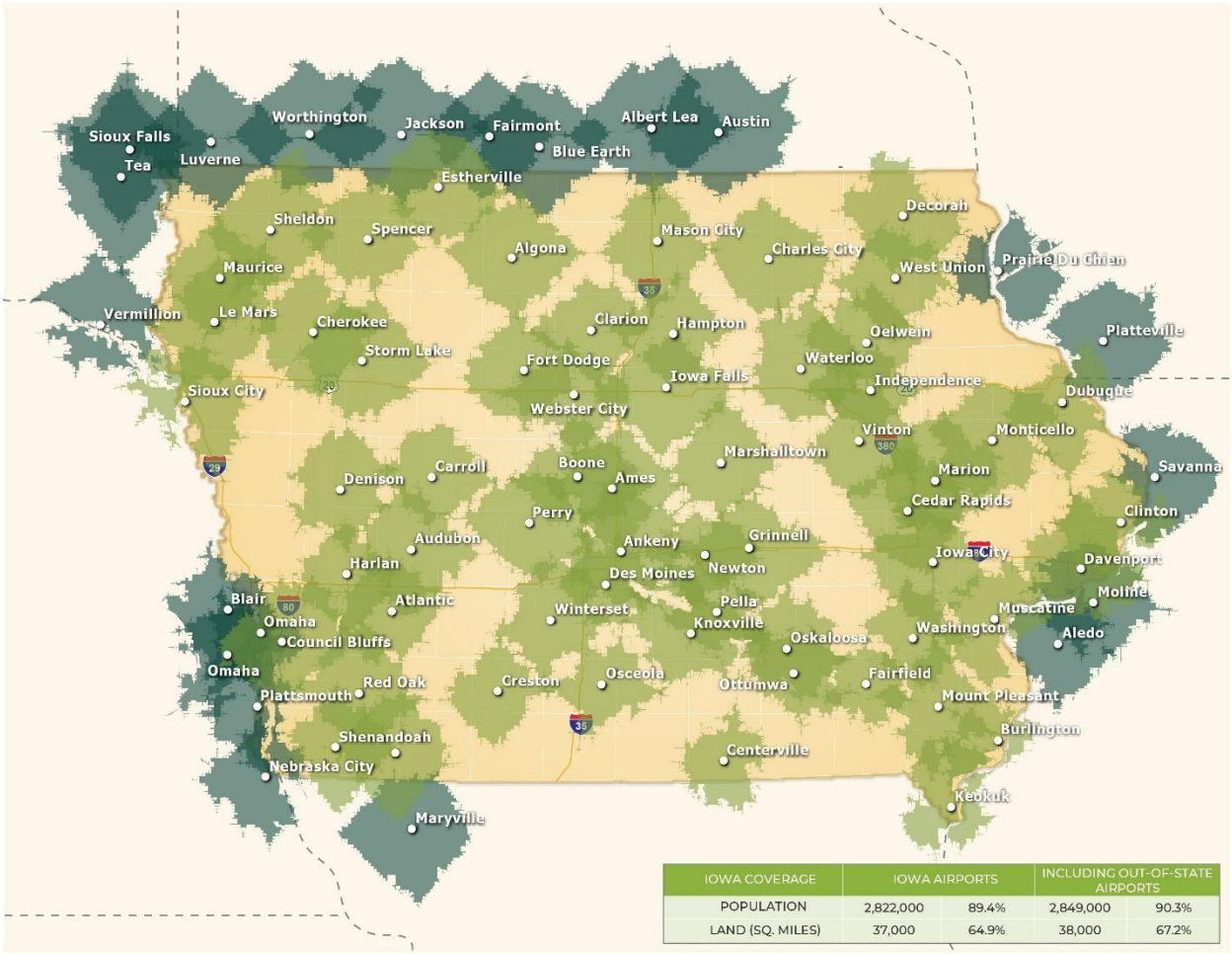
Figure 4-7: 30-Minute Current Accessibility to an Iowa or Nearby Airport with Avgas Fuel



Source: Jviation

Figure 4-8: 30-Minute Current Accessibility to an Iowa or Nearby Airport with Jet A FuelError! Reference source not found. displays airports with Jet A fuel. As the figure shows, 89.4 percent of Iowans are within a 30-minuite drive time to airports with Jet A fuel. When including airports in neighboring states, that number increases to 090.3 percent.

Figure 4-8: 30-Minute Current Accessibility to an Iowa or Nearby Airport with Jet A Fuel



Source: Jviation

4.7 Airports with Air Ambulance Activity

Airports serve as an essential piece of the healthcare system in Iowa. Aside from their role in transporting doctors to remote parts of the state, they also serve as bases for air ambulance companies to transport patients to robust hospitals during emergencies. Currently, 10 system airports serve as a base for an air ambulance. They are listed in **Table 4-7.** These 10 system airports with based air ambulances are spread across the state providing robust coverage to Iowans should an emergency occur. In addition, another 59 system airports reported having recent transient air ambulance operations when a situation warranted.

A rotor wing air ambulance aircraft

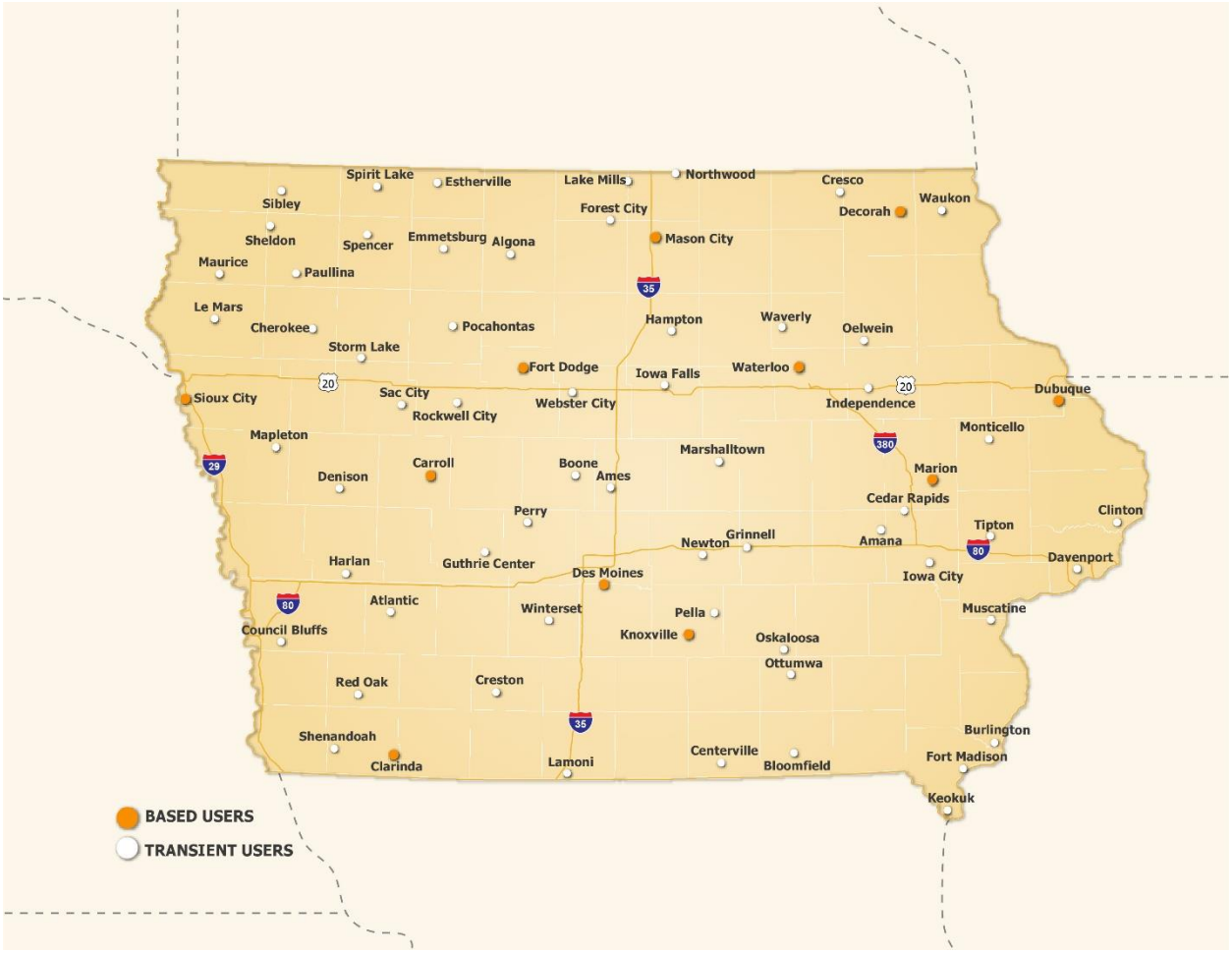
Table 4-7: Iowa Airports with Based Air Ambulance Operations

FAA ID	City	Airport Name
CIN	Carroll	Arthur N. Neu
ICL	Clarinda	Schenck Field
DEH	Decorah	Decorah Municipal
DSM	Des Moines	Des Moines International
DBQ	Dubuque	Dubuque Regional
FOD	Fort Dodge	Fort Dodge Regional
OXV	Knoxville	Knoxville Municipal
C17	Marion	Marion Airport
MCW	Mason City	Mason City Municipal
SUX	Sioux City	Sioux Gateway
ALO	Waterloo	Waterloo Municipal

Source: Jviation

As **Figure 4-9** shows, 10 airports in Iowa have based air ambulance operations and 59 airports reported recent activity by transient air ambulance aircraft operations. These air ambulance bases provide the state with quick emergency access to critical emergency medical service and transport.

Figure 4-9: Iowa Airports with Based or Transient Air Ambulance Operations

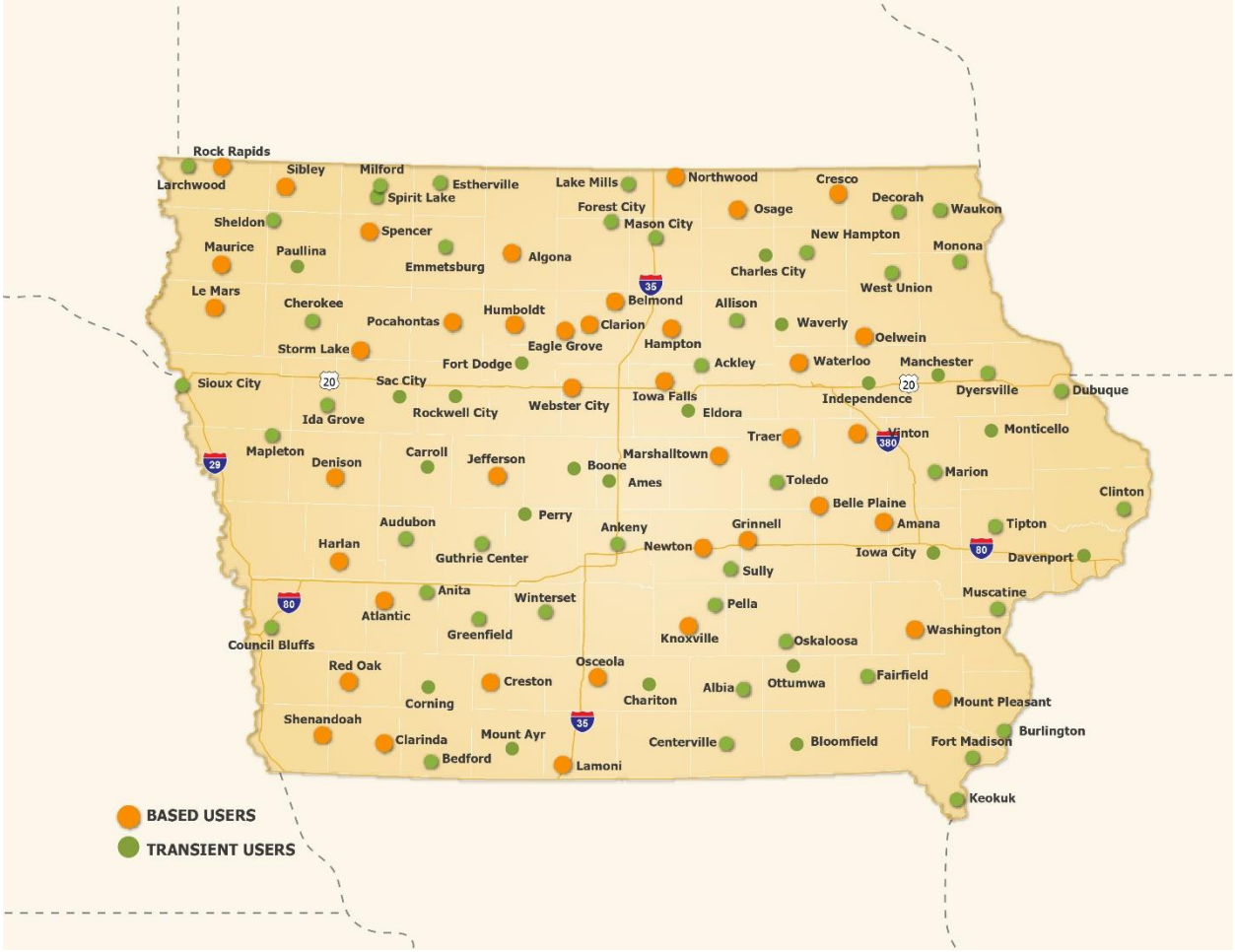


Source: Jviation, Airport Management

4.8 Aerial Applicators at Iowa Airports

Agriculture is a large part of Iowa's economy and airports play a large role in supporting that economy as they serve as the base for fixed-wing and some rotorcraft aerial applicators. Aerial applicators perform many vital tasks for agriculture, including crop seeding and fertilizing, mitigating weed growth, and protecting crops against diseases and pests. 105 of system 114 airports reported aerial applicator activity. Of those airports, 39 airports reported having based activity and 94 reported recent transient use. These airports are is displayed in **Figure 4-10**.

Figure 4-10: Iowa Airports with Aerial Applicator Operations



Source: Jviation

4.9 Iowa NPIAS Airports

The NPIAS is updated every two years in order to provide Congress with an updated outlook of 5-year Airport Improvement Program (AIP) projects at airports in the federal system. Inclusion in the NPIAS makes an airport eligible to receive AIP funds, that can then support anywhere from 75 percent to 95 percent of a project's eligible cost.

While there are specific criteria associated with being assigned certain roles in the NPIAS, there are several baseline requirements that must be met to be included:

- Inclusion in a current State Airport System Plan, approved by the FAA
- 10 based aircraft
- Location in a community typically within a 30-mile radius, from the nearest NPIAS airport

The FAA completed the ASSET report to further classify General Aviation airports in the NPIAS. Five sub-classifications were introduced: National, General, Local, Basic, and Unclassified. **Figure 4-11** displays ASSET classifications for the airports through Iowa. A more detailed review of NPIAS and ASSET characteristics and requirements will be presented in the Chapter 5: Airport Roles.

Figure 4-11: NPIAS Airports and ASSET Classifications

Source: Jviation

The above map indicates that Iowa is well served by a geographically dispersed and diverse system of NPAIS airports that are eligible to receive federal funds. For the 79 Iowa airports that are eligible to receive federal funds, there are grant assurances that require they remain open for a period of 20 years. Non-NPIAS airports generally have few based aircraft, and many are turf strips. While these airports provide value to the system for training and access, most of the state is proximate to a NPIAS facility.

4.10 Summary of System Performance

This chapter provides important information showing how the Iowa airport system currently meets established system performance measures. The system performance evaluation shows that Iowa's current accessibility for each of the established measures provides robust coverage for most of the state's residents and much of the state's geography. For the few areas and residents that are not directly served by an Iowa airport, airports in neighboring states also offer coverage.

Iowa's airport system has many benefits. As a highly developed system, nearly all performance measures have population coverages of greater than 90 percent. In the instances in which the performance measure is below 90 percent, additional coverage is provided by out-of-state airports in various degrees to increase that percentage. For example, the lowest performing performance measure is the 60-minute drive time to airports with scheduled airline service, but when out-of-state airports are accounted for, that rises to more than 80 percent of the population. Other performance measures see smaller increases with out-of-state airports included, but this is largely because Iowa airports already provide coverage for a vast majority of Iowans, including those along the state border.

Because of Iowa's size and road network, geographic coverage is less of a factor when determining system adequacy and is more representative of how many airports qualify for the various performance measures.

Key finding from the performance analysis include:

- The state's eight commercial service airports provide good coverage to Iowans. When out-of-state airports are considered, nearly all the state has access to an airport with scheduled airline service within a 90-minute drive.
- The system of general aviation airports is equally as well developed and provides the state's residents and businesses access to a general aviation facility with a 30-minute or less drive.
- The system has been well developed with facilities to assist in pilots landing in inclement weather. While there are some voids, most of the state is served by automated weather reporting and various types of navigational systems to aid pilots.
- As a major agricultural producer, it is no wonder that most of Iowa's airports support agricultural activities. There were 40 airports that reported having a based agricultural operator at their airport. Another 63 system airports indicated that ag sprayers recently operated out over their airport.
- Iowa is a large state. In an emergency, rapid medical transport to an appropriate medical facility can mean the difference between life and death. Their where 10 air ambulance bases identified at system airports during the inventory effort. These 10 sites are geographically dispersed around the state providing Iowans with quick response times when minutes may matter.
- Of Iowa's 114 system airports, 79 are in the NPIAS and are eligible for federal funds. These grant-obligated airports are located across the state and thus assure residents and businesses that airports will be available now, and into the future.
- While Iowa's airport system is robust and relatively well developed, the following chapters will identify ways to make this good system even better with various facility and service enhancements.

Table 4-8 provides a summary of current system performance for each of the measures. Recommended improvements may increase the system accessibility as it has been measured and reported in this chapter.

Table 4-8: Current System Performance Summary

Performance Measure	Iowa Residents in Service Area	Iowa Land Area Covered
60-minute accessibility to Iowa Commercial Service airports with scheduled airline service	69.2%	51.5%
60-minute accessibility to Iowa Commercial Service airports or airports in neighboring states with scheduled service	80.8%	58.4%
90-minute accessibility to Iowa Commercial Service airports with scheduled service	94.7%	81.8%
90-minute accessibility to Iowa Commercial Service airports or airports in neighboring states with scheduled service	96.1%	91.0%
30-minute accessibility to Iowa system airports	97.4%	90.4%
30-minute accessibility to Iowa airports with precision-like approach (ILS or LPV) or any Published Approach	94.0%	79.9%
30-minute accessibility to Iowa airports or airports in surrounding states with precision-like approach (ILS or LPV) or any Published Approach	94.7%	81.8%
30-minute accessibility to Iowa airports with precision-like approach (ILS or LPV)	88.8%	66.4%
30-minute accessibility to Iowa airports or airports in surrounding states with precision-like approach (ILS or LPV)	89.5%	68.4%
30-minute accessibility to airports with Jet A Fuel	89.4%	64.9%
30-minute accessibility to airports with Jet A Fuel including airports in surrounding states	90.3%	67.2%
30-minute accessibility to airports with AvGAS Fuel	94.9%	81.6%
30-minute accessibility to airports with AvGAS fuel including airports in surrounding states	95.5%	83.4%
30-minute accessibility to airports with Weather Reporting (AWOS/ASOS)	89.3%	65.4%
30-minute accessibility to airports with Weather Reporting (AWOS/ASOS) including airports in surrounding states	90.3%	67.3%

Source: Jviation

The next chapter identifies recommended state roles for all system airports. Following the identification of recommended airport roles, analysis identifies facility and service improvements that are needed to enable each airport to better fulfill its designated role in the state airport system. If airports are improved to meet their applicable facility and service objectives, the number of airports in Iowa with facilities and services to satisfy various performance measures would increase. The final recommendations chapter of the SASP 2020 may show additional accessibility that could be realized in the future, assuming all airports are able to meet their assigned facility/service objectives.