Evolution of the Alaska Aviation System: Classifications and Performance Measures

A COMPONENT OF THE

ALASKA Aviation System Plan

September 2015

Prepared for

Alaska Department of Transportation and Public Facilities

With a Grant from

Federal Aviation Administration

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A message from the Desk of John R. Binder III, C.M., Deputy Commissioner

Thank you for your interest in the Alaska State Aviation System Plan, and this particular component, the Alaska Aviation System Plan Performance Update.

This report provides a valuable look at the dynamic changes of airports within Alaska over the last 30 years. The information herein can be used as a powerful tool for all the stakeholders of Alaska airports, from those involved with air commerce, individual communities' representatives, pilots and our own DOT&PF. Cataloging, classifying, and determining performance over time of public use airports in a state with our enormous size and diversity is no easy task; however, it is essential to do so in order to properly understand the dynamics of our air transportation system and to help us effectively manage it. Although there are many different types of metrics to measure the dynamics of airports within the Alaska aviation system, it all begins with the proper classification of each airport.

With over 700 registered airports in Alaska, the amount of diversity between them can be huge. Alaska's airports range in size from small backcountry airstrips, with virtually no infrastructure, to large, international airports with millions of dollars of structural investments. Airports on both ends of the spectrum can have many attributes in common, like being the primary lifeline for individual communities for goods, services, and medical care.

Measuring performance of the airport system in Alaska can be challenging because the scale of development and services between airport classifications and different regions can be quite significant. It is important to look at airport relevant metrics, both within their classification and as a whole, to get a clear picture of how the airports in this state are responding to the needs of our air transportation system.

Although this report shows changes over the last 30 years, it is only just a piece of an overall, living document known as the Alaska Aviation System Plan that will continue to measure and assist us with managing aviation in the State of Alaska for many years to come.

I encourage you to visit our web site (www.AlaskaASP.com) and review other Alaska Aviation System Plan reports in order to gain a better understanding of the largest state-sponsored aviation system in the United States.

Sincerely,

John R. Binder III, C.M.
Deputy Commissioner

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LIST OF ACRONYMS

AASP ..... Alaska Aviation System Plan
ALP ..... Airport Layout Plan
ASOS ..... Automated Surface Observing System
AWSS ..... Automated Weather Sensor System
DOT&PF ..... State of Alaska Department of Transportation and Public Facilities
FAA ..... Federal Aviation Administration
FSS ..... Flight Service Stations
HIRL ..... High Intensity Runway Lighting
IAP ..... Instrument Approach Procedure
M&O ..... Maintenance and Operations
MIRL ..... Medium Intensity Runway Lighting
NA ..... Not Applicable
NOTAMS ..... Notice to Airmen
NPIAS ..... National Plan of Integrated Airport Systems
PAPI ..... Precision Approach Path Indicators
PCI ..... Pavement Condition Index
OFZ ..... Obstacle Free Zone
RCO ..... Remote Communications Outlets
RDC ..... Runway Design Code
RPZ ..... Runway Protection Zones
RSA ..... Runway Safety Area
RVZ ..... Runway Visibility Zone
SAWRS ..... Supplementary Aviation Weather Reporting System
TSS ..... Threshold Siting Surface
USPS ..... United States Postal Service
VASI ..... Visual Approach Slope Indicators
VGSI ..... Visual Glide Slope Indicators

1.0 INTRODUCTION AND BACKGROUND

The purposes of this report are to:

- Document the airport classification definitions and assignment of airports within the Alaska Aviation System Plan (AASP) into those airport classes.
- Measure the evolution and performance of airports within the aviation system to establish a baseline for measuring future improvement and to help assess the effectiveness of the aviation system.

This report was developed incrementally as individual chapters between fall 2014 and spring 2015. State of Alaska Department of Transportation and Public Facilities (DOT&PF) planners, designers, and maintenance and operations (M&O) personnel, along with representatives of the Federal Aviation Administration (FAA), were integrally involved in the development of this report. The report builds upon work accomplished in a previous phase of the AASP, *AASP Mission, Goals, Measures, & Classification*, published in 2011.

1.1 Airport Classification

With over 700 airports registered in the State of Alaska, an efficient way to classify them is critical. The airports within Alaska are extremely diverse, ranging from large, commercial service international airports, to the most remote and rugged examples of backcountry airstrips. The vast majority of Alaskan airports lie somewhere in between these two extremes, serving small communities and fulfilling an important and specified role within the Alaska transportation system. Although the FAA also classifies airports in a manner to suit federal needs, Alaska utilizes its own unique airport classification system, more complimentary to serving the needs of Alaska.

The reason airports must be classified goes far beyond the obvious obligatory need for simple, administrative organization. Other reasons include:

- Better understanding of the role aviation plays in the Alaska transportation system
- Investment and funding prioritization
- A useful tool in airport planning, design, construction, maintenance, and operations
- Multi-modal and interregional planning assistance for neighboring communities
- Overall measurement of the entire airport system's performance

1.2 How Alaskan Airports Are Classified

In 2011, the previous AASP reevaluated and classified airports, documented in *AASP Mission, Goals, Measures, and Classifications,* based on the 1996 AASP Update alongside 1986 AASP definitions. There were many different criteria considered during the establishment of the AASP airport classification system. Notable factors included the most obvious issues of an airport's size, and operations of course, but other, perhaps not so obvious criteria, more poignant to Alaska aviation, were also considered. Some of these other considerations made during the establishment of the Alaskan AASP airport classification system include:

- Primary and secondary community access roles
- Constituent populations, such as major urban areas, regional population centers, rural communities, seasonal operations or other specialized populations

- The role of supported air services, such as types of scheduled passenger services, air taxi charters, and recreational or emergency use
- Statewide or regional support, economic development drivers, and operational bases for interstate commerce with air taxis and cargo carriers
- Utilization by United States Coast Guard services
- Health care facilities served intra-regionally and within the local community
- Educational establishments within the local communities
- Service as a hub for air carrier or postal operations
- Numbers of passengers, tonnage of cargo, number of based aircraft and total operations
- Scheduled passenger services
- Holders of an FAA Part 139 commercial operating certificate for airports
- Location and accessibility of facility and airparks
- General characteristics of airport users, such as public versus private, military, recreation or seasonal traffic
- General characteristics and ability to serve various types of aircraft, such as fixed-wing turbojets, turboprops, piston aircraft, or floatplanes and helicopters
- Types and condition of current existing facilities at the airport itself, such as runway lengths, paved or unpaved airfield surfaces, lighting, and other infrastructure
- Geographic and demographic region served by the airport
- Distance from other airports and attenuate drive-times from surrounding communities
- Existing on-field aviation related services, such as Fixed Based Operators
- Ability or feasibility of the airport to expand or meet applicable design standards
- Prior investments already made at the facility

1.3 The Different Types of Alaska Airport Classifications

This section defines and describes the actual types of classifications enumerated within the AASP, and used by the State of Alaska to classify the entire range of airports within Alaska. Airports are conveniently segregated by the hierarchy below.

- International
- Regional
- Community
  - Off-Road
  - On-Road
- Local
  - National Plan of Integrated Airport Systems (NPIAS) High-Activity
  - NPIAS Low-Activity
  - Non-NPIAS

1.3.1 International Class Airports

International airports fall within the FAA's definition of small and medium hub category airports. A medium hub airport has at least 0.25 percent, but less than 1 percent, of the total annual passenger boardings in the US. A small hub airport has at least 0.05 percent, but less than 0.25 percent, of the total annual passenger boardings in the US. The three largest airports in Alaska meet this definition.

1.3.2 Regional Class Airports

Regional airports serve as the transportation and economic hub for more than one community. Regional airports usually need to accommodate larger aircraft, have instrument approaches with low minimums, and have more landside facilities, infrastructure and services than other smaller public use airports. These airports, heliports and seaplane bases must meet at least three of the following:

- Are designated primary airports, as defined by the FAA, with at least 10,000 annual passenger boardings
- Are air carrier hubs, as defined by the FAA
- Are United States Postal Service (USPS) hubs, or handle more than 2 million pounds of cargo, (freight and mail, enplaned and deplaned), annually
- Have Federal Aviation Regulation Part 139 commercial operating certificates
- Serve communities with health facilities that serve two or more communities
- Are Department of Natural Resources designated primary or secondary fire tanker bases
- Serve communities with US Coast Guard facilities

Airports that meet fewer than three of these characteristics may be considered "Regional Airports" if other justification for their regional role can be documented and supported by the Alaska DOT&PF. There are 28 Regional Class airports in Alaska.

1.3.3 Community Class Airports

Community airports generally fulfill the role of serving as a small community's primary airport when no larger regional or international airport serves the function. They usually serve basic needs of the community regarding hospital airlift, local aviation related business, and emergency needs. When two or more communities are in close geographic proximity and accessible to each other year round (within one hour driving time), a community airport may serve its primary airport role for more than one community. Community airports are further subdivided into Off-Road or On-Road categories, depending on whether or not they have year-round road access to the intrastate road system.

Community airports are defined as public airports, heliports, or seaplane bases that serve as the main air transportation facility for communities that:

- Have a permanent population of at least 25
- Have a public school, and

- Are located more than one hour by road that is accessible year-round from an International, Regional, or other Community airport

Airports that do not meet all these criteria can be designated as Community airports if justification supported by DOT&PF is provided. There are 146 Community Off-Road airports in Alaska, and there are 18 Community On-Road airports.

1.3.4 Local Class Airports

Local airports are usually thought of as general aviation airports. They can either stand alone, or supplement other busier airports within the nearby region by providing additional capacity. Size, scope, and dimensions of these types of facilities range widely, depending upon the type and numbers of aircraft and operations present. Local airports are further subdivided into NPIAS High-Activity, NPIAS Low-Activity, and Non-NPIAS classes, with the following definitions:

Local NPIAS High-Activity – Public use airports, heliports, or seaplane bases that:

- Do not qualify for the International, Regional, or Community classes,
- Are in the NPIAS, and
- Have at least 20 based aircraft

Local NPIAS Low-Activity - Public use airports, heliports, or seaplane bases that:

- Do not qualify for the International, Regional, or Community classes,
- Are in the NPIAS, and
- Have fewer than 20 based aircraft

Local Non-NPIAS - Public use airports, heliports, or seaplane bases that are not in the previously defined classes.

There are 11 Local NPIAS High-Activity, 56 Local NPIAS Low-Activity, and 469 Local Non-NPIAS airports in Alaska.

2.0 EVOLUTION OF THE ALASKA AVIATION SYSTEM

2.1 Introduction

This chapter documents how Alaska's aviation system has progressed since the completion of the first Aviation System Plan in the early 1980's. Over the last 35 years the DOT&PF, other airport sponsors, and the FAA have made great strides in developing and improving the airport system. During that same time, state population has grown, enplanements have increased and airport maintenance and operations costs continue to rise. This report provides a perspective about the evolution and progress made in developing the Alaska aviation system by documenting changes to key components of the aviation system over the last 35 years. Specifically, this report documents changes to several key indicators where data was available to make comparisons:

- Average Runway Lengths
- Types of Runway Surfaces
- Weather Stations and Weather Observers
- Flight Service Stations
- Population
- Top 15 Airports by Number of Enplanements
- Airport Maintenance and Operations Costs

The majority of the baseline data within this report originates from the 1986 Alaska Aviation System Plan and inventory data collected in 2014 for the current Alaska Aviation System Plan. In order to ensure continuity, runway data by region is based on the Alaska DOT&PF regional boundaries for airports that existed in 1985 through 2014, and does not reflect the most recent revisions. Data sources include:

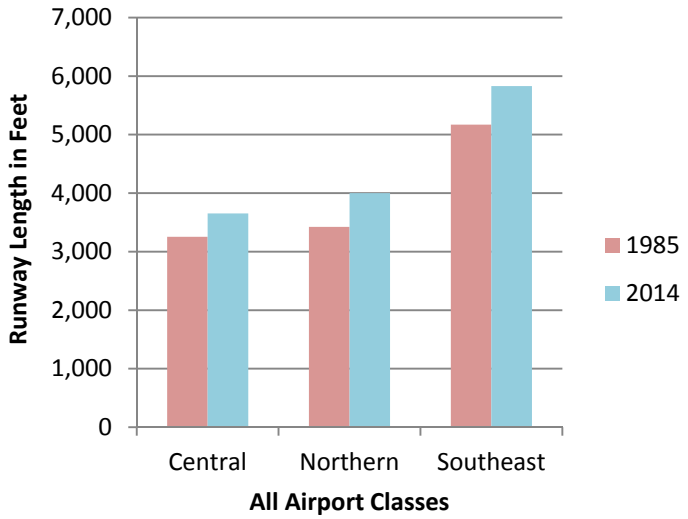
- Air Service in Alaska (1982)
- Alaska Aviation System Plan Final Report—Policy and Program Guidelines (1986)
- Alaska Aviation System Plan Phase I Report Appendices (1986)
- Alaska Aviation System Plan Inventory (2014)

- DOT&PF M & O Revenue/Expense Records (2013)
- Department of Commerce, Community and Economic Development website (2014)
- National Weather Service Alaska Region Headquarters (http://www.arh.noaa.gov/obs.php) (2015)
- FAA (https://www.faa.gov/air_traffic/weather/asos/) (2015)

2.2 Average Runway Lengths

Average runway length is an important indicator of progress made in developing Alaska's aviation system. Many airport runways were initially built with shorter lengths than currently exist due to initial funding limitations or because the aircraft serving the airport did not require additional length. Over the last 35 years, aircraft fleet changes, economic and population changes, needs for life saving medivac service, and federal and state guidelines have driven the need for longer runways at many airports. Aviation is the most frequent mode of transportation for daily movement of passengers and freight all over Alaska and runway lengths are important to the sustainability of Alaska's communities.

All Airport Classes. As shown in Figure 1, average runway length increased significantly in all regions. In both 1985 and 2014, the Southeast Region averaged the longest runway length of the three regions. Southeast Region also had the largest average gain in length of runways, with an average increase of 660 feet per airport. Statewide, average runway lengths increased by 492 feet per airport from 1985 to 2014.

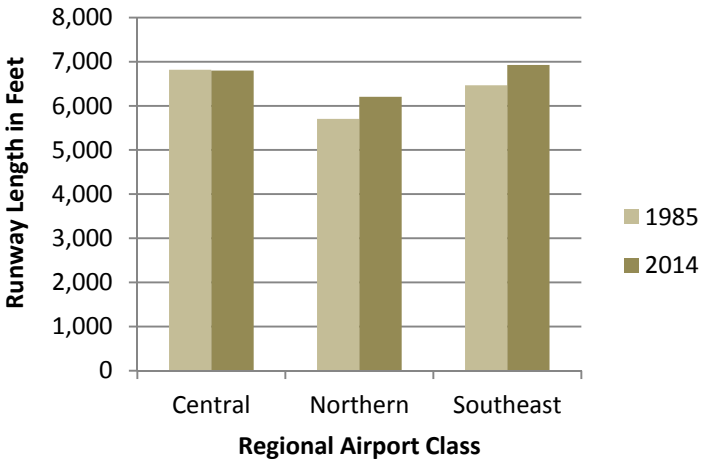


Region	1985	2014	Change
Central	3,253	3,652	399
Northern	3,424	3,999	575
Southeast	5,171	5,831	660
Statewide Average	3,434	3,926	492

- 230 airports, statewide; seaplane bases not included. There were three more airports in 2014 than in 1985.

Figure 1: Average Runway Length – All Airport Classes

Regional Airports. Regional airports by definition are transportation and economic hubs for more than one community. As shown in Figure 2, average runway lengths at Regional airports in the Central Region declined slightly, while lengths increased significantly in both Northern and Southeast Regions. Southeast Region has the longest average length in the Regional airport category. Statewide, runway lengths at Regional airports increased an average of 289 feet per airport from 1985 to 2014.

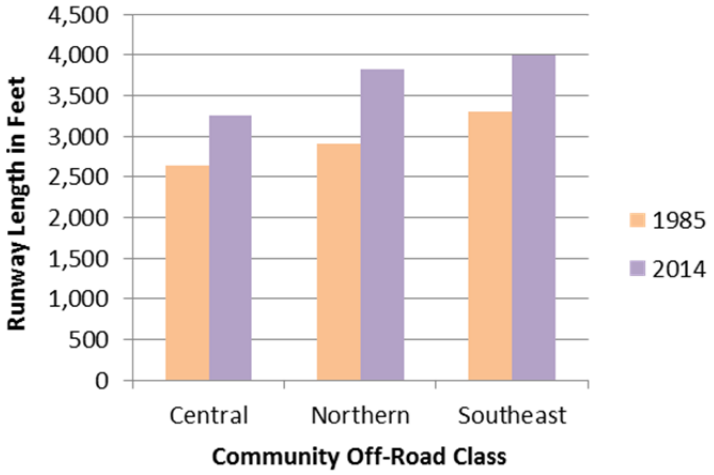


Region	1985	2014	Change
Central	6,817	6,800	-17
Northern	5,705	6,205	500
Southeast	6,468	6,928	460
Statewide Average	6,305	6,594	289

- 28 Regional airports, statewide

Figure 2: Average Runway Length at Regional Airports

Community Off-Road. Community Off-Road airports serve communities that are not on the intrastate road system, and have over 25 people and a public school. Extending runway lengths within this category has been a priority of the State and FAA over the last 30 years, as evidenced by the large increases shown in Figure 3. Northern Region Community Off-Road airports increased average runway lengths by 919 feet while Southeast Region gained an average of 699 feet and Central Region an average of 611 feet. Statewide, runway lengths at Community Off-Road airports increased an average of 740 feet per airport from 1985 to 2014.

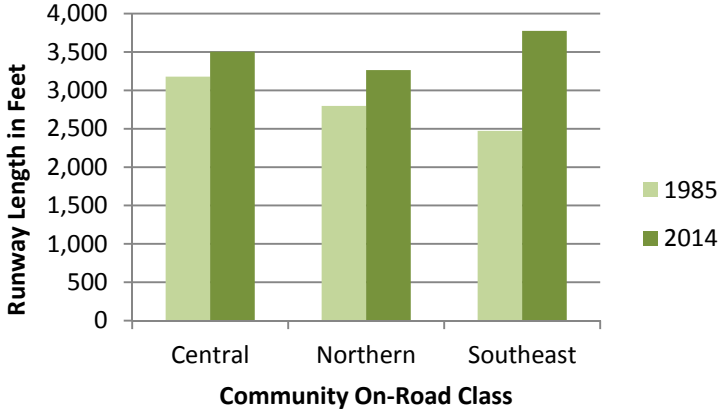


Region	1985	2014	Change
Central	2,643	3,254	611
Northern	2,901	3,820	919
Southeast	3,300	3,999	699
Statewide Average	2,769	3,509	740

- 132 Community Off-Road Airports, statewide

Figure 3: Average Runway Length at Community Off-Road Road Airports Statewide

Community On-Road. Community On-Road airports serve communities with access to the intrastate road system. As depicted in Figure 4, Southeast Region's two on-road airports, Haines and Skagway, increased average runway length by 1,302 feet, Northern Region runway lengths increased an average of 466 feet, and Central Region averaged 326 feet of increased length. Statewide, runway lengths at Community On–Road airports increased an average of 523 feet per airport from 1985 to 2014.

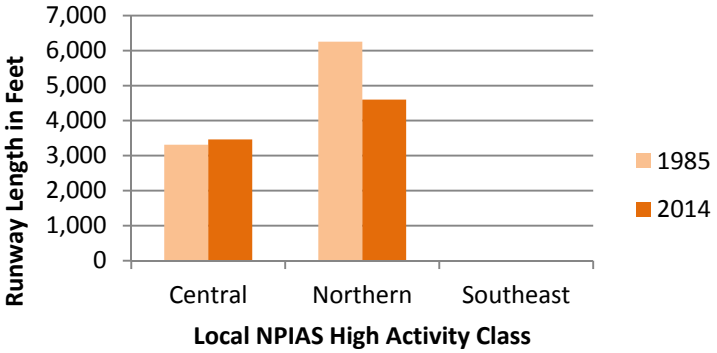


Region	1985	2014	Change
Central	3,178	3,504	326
Northern	2,798	3,264	466
Southeast	2,473	3,775	1,302
Statewide Average	2,872	3,395	523

- 17 Community On-Road airports, statewide

Figure 4: Average Runway Length at Community–On Road Airports Statewide

Local NPIAS High Activity. Local NPIAS High-Activity Airports are those facilities not fitting into other airport classifications and that have a minimum of 20 based aircraft. This category accommodates mostly general aviation airports. As shown in Figure 5, Central Region Local NPIAS High-Activity Airports increased average runway lengths by 150 feet. Nenana, the only Northern Region airport in this category, lost 1,656 feet of runway length. Nenana's runway was shortened due to proximity to Fairbanks International Airport and the cost to maintain the pavement. Statewide, runway lengths at Local NPIAS High-Activity Airports decreased an average of 51 feet per airport from 1985 to 2014. In general, runway lengths decreased at Local NPIAS High-Activity and Local NPIAS Low-Activity Airports because of compliance issues with FAA design standards.

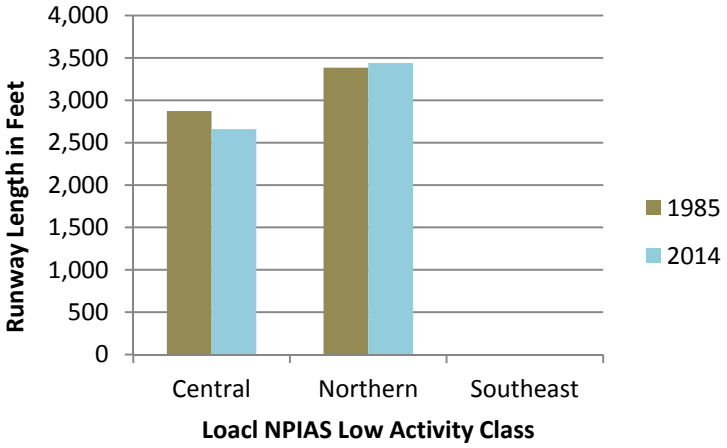


Region	1985	2014	Change
Central	3,312	3,462	150
Northern	6,256	4,600	-1,656
Southeast	NA	NA	NA
Statewide Average	3,639	3,588	-51

- 9 NPIAS High-Activity Airports statewide; 8 in Central Region, 1 in Northern Region, and none in the Southeast Region

Figure 5: Average Runway Length at Local NPIAS High Activity Airports Statewide 1985 vs. 2014

Local NPIAS Low Activity – Local NPIAS Low Activity Airports have less than 20 based aircraft and serve mostly general aviation activity. Figure 6 demonstrates that Northern Region airports increased average runway lengths by 56' while Central Region lost an average of 214'. Statewide, runway lengths at Local NPIAS Low Activity Airports decreased an average of 31' per airport from 1985 to 2014.

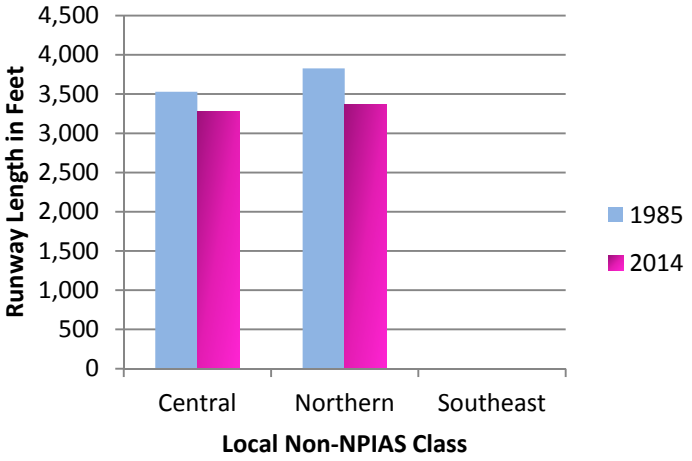


Region	1985	2014	Change
Central	2,874	2,660	-214
Northern	3,384	3,440	56
Southeast	NA	NA	NA
Statewide Average	3,219	3,188	-31

- 34 NPIAS Low-Activity Airports, statewide; none in Southeast

Figure 6: Average Runway Length at Local NPIAS Low Airports Statewide 1985 vs. 2014

Local Non-NPIAS Airports - Local Non-NPIAS Airports are airports not assigned to another class. As shown in Figure 7, Central Region Local Non-NPIAS Airports decreased average runway lengths by 247', while Northern Region lost an average of 455' Statewide, runway lengths at Local Non-NPIAS airports decreased an average of 386' per airport from 1985 to 2014.



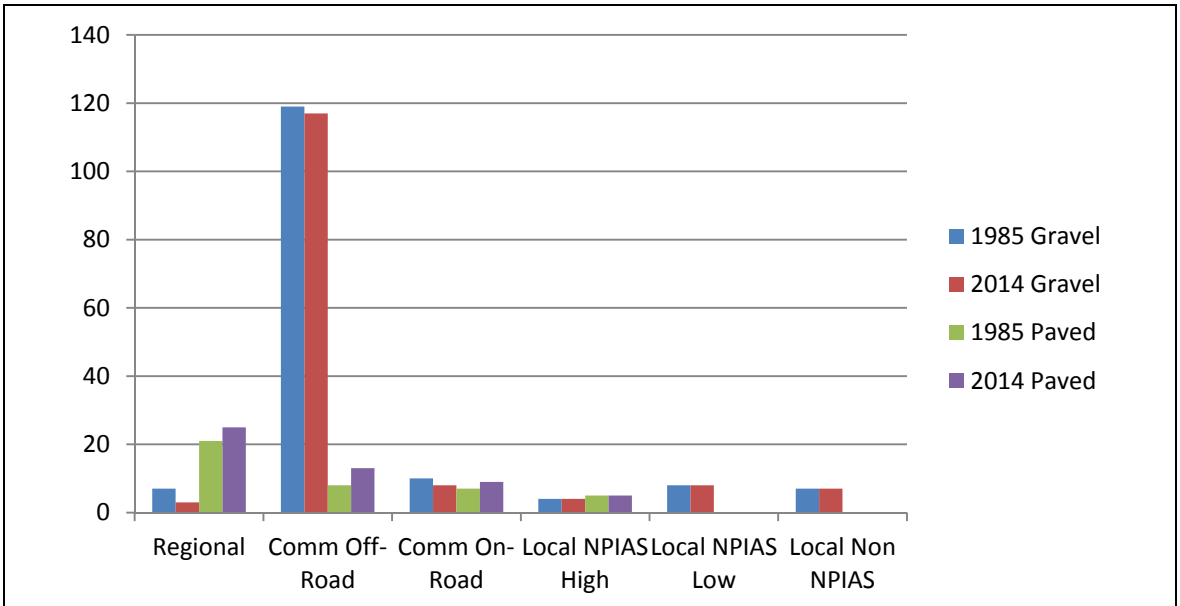
Region	1985	2014	Change
Central	3,530	3,283	-247
Northern	3,828	3,373	-455
Southeast	NA	NA	NA
Statewide Average	3,729	3,343	-386

- 6 Local Non-NPIAS Airports statewide, 2 in central Region, 4 in Northern Region and none in the Southeast

Figure 7: Average Runway Length at Local Non-NPIAS Airports Statewide 1985 vs. 2014

2.3 Types of Runway Surfaces

In general, most Alaskan airports use existing native surface materials such as gravel or turf for their runway surfaces, instead of costly cement or asphalt. This largely due to the operators utilizing those airports often preferring native surfaces to land on, as well as the associated costs of building and maintaining non-native surfaces such as Asphalt or Portland Cement in remote areas. Most paved airports are at regional hubs. As shown in Figure 8, Regional, Community Off-Road, and Community On-Road airports saw small upgrades from gravel to paved runways from 1985 to 2014. Statewide, 52 airports are paved today, compared to 41 paved airports in 1985, an increase of 11 paved airports.



Airport Class	1985 Gravel	2014 Gravel	1985 Paved	2014 Paved
Regional	7	3	21	25
*Comm Off-Road	119	117	8	13
Comm On-Road	10	8	7	9
Local NPIAS High	4	4	5	5
Local NPIAS Low	8	8	0	0
Local Non-NPIAS	7	7	0	0
Total	155	147	41	52

* Three new airports were built since 1985

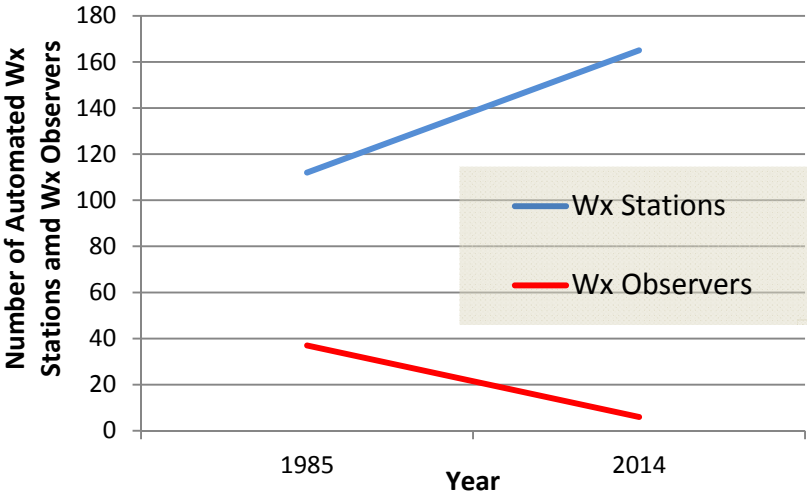
Figure 8: Runway Surface Type from 1985-2014

2.4 Weather Stations and Weather Observers

Weather is one of the most critical factors involved with any flight. Knowledge of the current and forecasted weather along the route of flight is of extreme importance to all types of flight operations, large and small. Without good information, a pilot may run into all kinds of adverse weather conditions such as fog, rain, thunderstorms, freezing rain, or snow showers. Unknown weather conditions have the potential to cause flight delays, force a pilot to divert of cancel a flight altogether, or create life threatening situations during a flight for the pilot and his passengers. For many years, pilots relied upon the visual observations of human weather observers, who would report their observations at specified times to the FAA, who would then relay that information, along with other forecasted information to the pilot through a rigid system. Although not without argument, automated weather sensing and reporting technology has progressed significantly, especially in the last 30 years, lessening the need for human

observers. Automated weather stations have been fully accepted by the FAA, become relatively easy to maintain, and have proved reliable, making it increasingly difficult to justify the cost of human observers.

Recently, the National Weather Service announced its plan to phase out human weather observers in Alaska, (known as the "A-Paid" program), and replace many of them with automated systems, however, the FAA has retained 6 human weather observers around the state. These human observers are in unique locations where weather conditions can vary significantly just a short distance from the localized airfield, which is beyond the limitations of current automated units. As shown in Figure 9, the number of weather stations in Alaska has increased by 53 units in the past 30 years, while weather observers have decreased from 37 in 1985 to 6 in 2014.



Year	Automated Weather Stations	Weather Observers
1985	112	37
2014	165	6

Figure 9: Automated Weather Stations and Weather Observers 1985-2014

2.5 Flight Service Stations

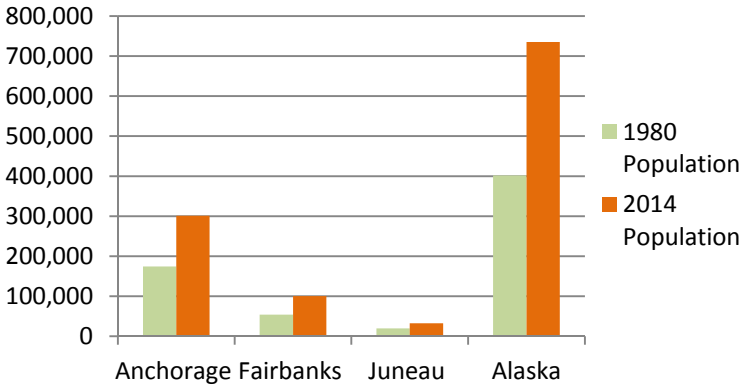
The number of FAA Flight Service Stations (FSS) in Alaska has been significantly reduced since 1981, somewhat mirroring the national trend. Because of the explosion in recent decades of personal electronic connectivity and remote access to information via cell phones, satellite linked receivers and a plethora of other similar devices, the once indispensable local FAA FSS at an airport has been increasingly become obsolete. Because of the unique and relatively remote airport operations still in existence in Alaska, the percentage decrease in the number of FSS operated by the FAA is much less than that of the lower 48. There were 27 FSS stations

operating in Alaska in 1981, while 17 stations and satellite stations still exist today. The FAA operates 3 FSS in Fairbanks, Juneau, and Kenai and 14 satellite FSS across the state. Satellite stations are usually staffed with one individual, and they primarily provide advisory information to pilots interested in that particular field or vicinity. Satellite stations still have the same ability to file and close flight plans, provide weather information and briefings, and provide Notice to Airmen (NOTAMS) information to pilots, just like any other FSS. The 3 larger FSS also respond to pilots using various Remote Communications Outlets (RCOs) from around the state. These RCOs allow pilots to remotely utilize the full services of an FSS facility from many different locations via radio throughout the state. FSS staff and operations in the continental United States were outsourced to Lockheed Martin in 2005, but due to Alaska's unique requirements, FSS functions in Alaska remain with the FAA, and not an independent contractor.

Palmer Flight Service Station (FSS)

2.6 Population

As shown in Figure 10, Alaska's population has nearly doubled from the 1980s to today. Statewide population increased by 83 percent from 1980 to 2014. The largest cities of Anchorage, Fairbanks, and Juneau made up approximately 55 percent of the statewide growth.



Hub Cities	1980 Population	2013 Population
Anchorage	174,431	301,134
Fairbanks	53,983	100,436
Juneau	19,528	32,167
Alaska	401,851	735,132

Figure 10: Population of Major Hub Cities and the State of Alaska from 1980

2.7 Ranking of Top 15 Airports by Enplanements

As shown in Table 1, enplanements at the busiest airports in Anchorage, Fairbanks, Juneau, and Bethel doubled or tripled from 1979 to 2013, while enplanements grew modestly or declined at most of the other top 15 airports. Other airports seeing growth over this period include Kenai, Ketchikan, Kodiak, Barrow, Deadhorse, and Homer. Bethel experienced the largest increase in rank from 11th in 1979 to 4th in 2013. Cold Bay and Galena fell off the list of top 15 enplanements in 2013. Enplanements in Bethel increased three fold. Bethel, the most populated of Alaska's rural off-road communities, is a major transportation hub and service center in the Yukon-Kushokwim region, serving 36 outlying communities. The top airports are Part 139 certificated airports that serve hub communities plus outlying villages and/or fisheries/resource development activity.

Table 1: Top 15 Airports – Ranked by Enplanements in 1979 & 2013

Top 15 Enplanements in 1979			
Rank		**Airport Name**	**1979 Enplanements**
1	Anchorage	Ted Stevens Anchorage International	682,700
2	Fairbanks	Fairbanks International	153,100
3	Juneau	Juneau International	149,500
4	Ketchikan	Ketchikan International	87,800
5	Nome	Nome	85,100
6	Kotzebue	Ralph Wien Memorial	72,500
7	Kodiak	Kodiak	58,900
8	Kenai	Kenai Municipal	62,300
9	Sitka	Sitka Rocky Gutierrez	62,400
10	St. Mary's	St. Mary's	50,300
11	Bethel	Bethel	47,400
12	King Salmon	King Salmon	47,200
13	Cold Bay	Cold Bay	43,600
14	Deadhorse	Deadhorse	32,000
15	Galena	Edward G. Pitka Sr	31,800

Top 15 Enplanements in 2013			
Rank		**Airport Name**	**2013 Enplanements**
1	Anchorage	Ted Stevens Anchorage International	2,325,030
2	Fairbanks	Fairbanks International	457,372
3	Juneau	Juneau International	359,291
4	Bethel	Bethel	152,084
5	Ketchikan	Ketchikan International	109,433
6	Kenai	Kenai Municipal	99,821
7	Kodiak	Kodiak	79,930
8	Sitka	Sitka Rocky Gutierrez	67,989
9	Kotzebue	Ralph Wien Memorial	61,274
10	Nome	Nome	58,020
11	Barrow	Wiley Post-Will Rogers Memorial	51,568
12	Deadhorse	Deadhorse	48,588
13	Ketchikan	Ketchikan Harbor	45,477
14	Homer	Homer	37,705
15	King Salmon	King Salmon	35,450

2.8 Airport Maintenance and Operations Costs

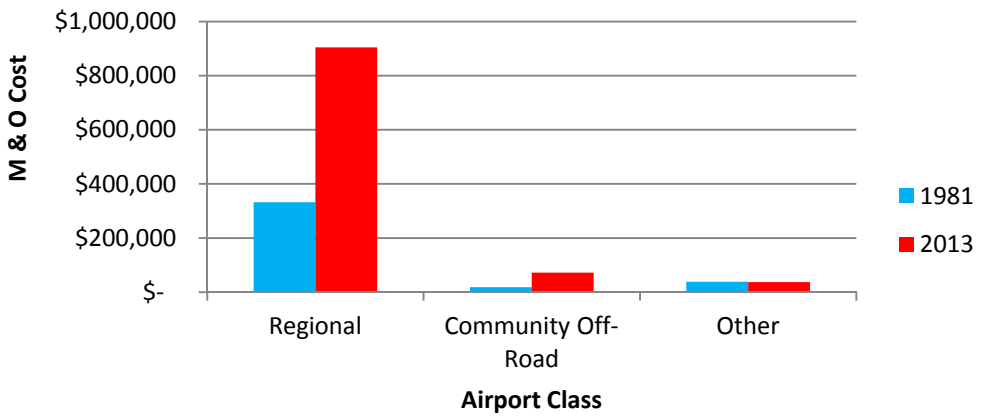
DOT&PF spends most of its airport M&O funding on Regional airports, which usually have large paved runways, large and sophisticated equipment and buildings, and require more staff resources to meet FAA requirements and carrier needs. Smaller Community airports require fewer DOT&PF resources and much of the day-to-day maintenance can be most efficiently handled by local contractors.

The cost of airport maintenance has grown dramatically from 1981 to 2013. As shown in Figures 11 and 12, Regional airports average and total M&O costs have both nearly tripled over that timeframe. Average costs grew from $332,000 per airport in 1981 to $905,000 per airport in 2013. Total annual costs have grown from approximately $8,000,000 in 1981 to $24,000,000 in

2013. This includes increased costs of personnel, commodities, building maintenance, snow and ice removal, utilities, and other costs. Regional Airport M&O costs in 2013 ranged from a low of $58,000 in Fort Yukon to a high of $2,969,000 in Bethel.

Average and total costs at Community Off-Road airports grew nearly four-fold from 1981 to 2013. Average costs at Community Off-Road airports have jumped from an average of $18,000 per airport in 1981 to an average of $72,000 per airport in 2013. 2013 averages are skewed slightly higher by some expensive airports like St. George, and St. Paul ($192,000, and $243,000 respectively). St Paul and St George were formerly certificated airports and both were maintained by the state. Today St. Paul and St. George are maintained by a private contractor and are classified as general aviation airports, therefore less M&O dollars are required to maintain those airports. Total Community Off-Road M&O costs have grown from $2,000,000 to $8,400,000 from 1981 to 2013.

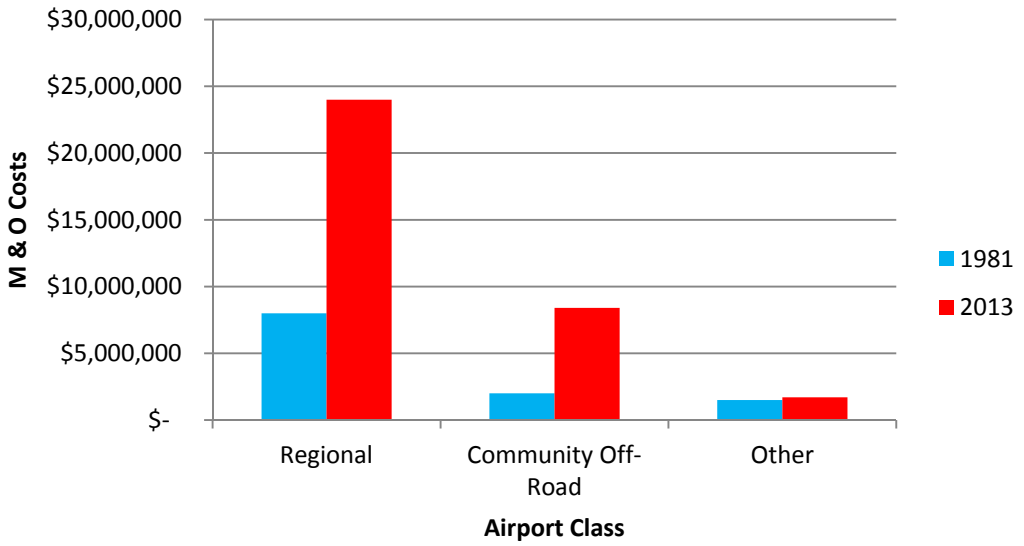
Community On-Road, Local NPIAS High, Local NPIAS Low and Local Non-NPIAS are grouped together in the Other Airport Class category. The average M&O costs declined slightly at those airports. Data is somewhat suspect in terms of airports immediately adjacent to a road because it is difficult to accurately split maintenance costs between the roads and airports. Data results can also skewed by unique airports like Umiat, which shows a cost $247,000 to maintain in 1981 and only $1,400 in 2013. Umiat's significant decline in M&O costs is a direct result of reduced oil and gas support.



Airport Class	1981	2013
Regional	$332,000	$905,000
Community Off- Road	$ 18,000	$ 72,000
Other	$ 38,000	$ 37,000

* Only DOT&PF-owned airports, excludes municipal and international airports.

Figure 11: Average M&O Costs at Regional, Community Off- Road and Other Airports 1981 and 2013



Airport Class	1981	2013
Regional	$8,000,000	$24,000,000
Community Off- Road	$2,000,000	$ 8,400,000
Other	$1,500,000	$ 1,700,000

* Only DOT&PF-owned airports, excludes municipal and international airports.

Figure 12: Total M & O Costs at Regional, Community Off- Road and Other Airports 1981 vs. 2013

3.0 PERFORMANCE MEASURES

With the establishment of airport classifications through the AASP, it is possible to use these classifications as a basis for measuring the performance and adequacy of the airport system. It is important to note that this analysis only pertains to land airports, and that seaplane bases are not included in the analysis. Performance measures are associated with several aspects of an airport's safety, design standards, and services. For this study, primary focus remained on two major criteria:

- **Airport Design Standards Index**: This Index measures the extent to which 232 Alaska airports are compliant with various FAA safety and design standards and regulations. The Index examines eight factors at each airport, including Runway Safety Areas (RSA) and Runway Protection Zones (RPZ).
- **Airport Service Index**: This Index examines the capabilities of the 176 airports in the Regional and Community (Off- and On-Road) classifications to serve their respective markets. This Index includes performances measures for such facilities as runway length and taxiway type in addition to services such as fuel sales and passenger shelters.
- In addition to these Indices, standalone performance measures were analyzed for several other factors, including weather reporting and observation, pavement condition, clear approach paths, visual glide slope indicators (VGSI), and seasonal airport closure.
- Performance measures serve several system planning functions. First, they provide a means to measure each airport's ability to serve the market associated with its classification, in addition to measuring the overall health of each airport classification and the system as a whole. Another product of the performance measure process is a list of potential projects that individual airports could undertake to address deficiencies and improve their regulatory compliance and level of service. This allows for the estimation of potential project costs both at individual airports and across the system.

The process allows for the tracking of progress over time, at the individual airport level, by classification, and system wide. Design Standards and Service Indices were included in the 2011 *Mission, Goals, Measures, and Classifications* plan. Additionally, 2011 system performance analysis was measured with incomplete data in some cases due to the lack of an airport layout

plan (ALP) or incomplete data on the existing ALP. Updating Indices and the data inventory provides an opportunity to improve the integrity of airport and system data for more accurate performance measures using additional data resources. By reviewing airport activity and demand for aviation services, two airports were recommended being moved to different categories. Cordova Municipal was elevated to the Local NPIAS High-Activity classification based on an increase in based aircraft while Red Devil airport was changed from Community Off-Road to Local NPIAS High-Activity classification due to a decrease in local population.

3.1 AASP Airport Design Standards Index

The Design Standards Index measures Alaska's level of compliance with FAA airport design standards. This Index applies to all airports in the following classifications:

- International
- Regional
- Community Off-Road
- Community On-Road
- Local NPIAS High-Activity
- Local NPIAS Low-Activity

Eight Local Non-NPIAS airports are included in this analysis. In total, the Design Standards Index applies to 233 airports in the AASP. All analysis is based on 2014 data and is captured from Alaska DOT&PF, the FAA 5010 Master Record, and analysis of satellite imagery from Google Earth and Terra Server.

The Index is based on various FAA airport design standards. Each of these standards was given a weighted percentage of the total, adding up to a possible 100 percent at each airport. The seven standards evaluated as part of this Index are:

- **Runway Safety Area (RSA):** The RSA is part of an airport's geometry and is a rectangular area centered on and surrounding the runway. The purpose of the RSA is to enhance the safety of aircraft in the event of an overshoot, undershoot, or excursion from the runway; as well as to provide greater access to firefighting and rescue equipment. A

compliant RSA must be cleared and graded to the dimensions required of the runway design code (RDC). RSA standards apply to the primary runways at all airports included in this Index.

- **Obstacle Free Zone (OFZ):** The OFZ is airspace centered on the runway centerline and extending 200 feet beyond each runway end. A compliant OFZ is free of objects other than frangible navigational aids. Airports with an approach lighting system are required to have an inner-approach OFZ. OFZ standards apply to the primary runways of all airports included in this Index.

- **Threshold Siting Surface (TSS):** The TSS is an imaginary surface sloping up from the runway threshold. A compliant TSS is free of objects and object penetration. The size and slope of the TSS depends on the type of approach to the runway. TSS standards apply to the primary runways of all airports included in this Index.

- **Runway Protection Zone (RPZ):** The RPZ is a trapezoidal area extending from the runway ends and designed to enhance the protection of people and property on the ground. Dimensions of the RPZ are determined by the RDC and approach type. A compliant RPZ is under complete control of the airport through fee simple ownership or an avigation easement and has only compatible land uses within its dimensions. Incompatible land uses include buildings or structures, recreational land uses, fuel and hazardous materials storage, and above ground utility infrastructure. All airports in this Index were evaluated for both control of their RPZs and for compatible land uses. RPZ standards apply only to primary runways.

- **Crosswind Coverage:** If wind coverage for a single runway is under 95 percent, the FAA recommends that the airport has a crosswind runway. All airports with a crosswind runway meet this standard. On scorecard charts and tables below, this standard is shown as “not applicable” (NA) for airports without a crosswind runway that have 95 percent or better wind coverage. Airports lacking 95 percent wind coverage and a crosswind runway do not meet this standard. Wind data is not available for 53 airports in the AASP. The total Index for these airports will be expressed as a range of scores, with the low assuming they do not have proper crosswind coverage and a high assuming that they do.

- **Runway Visibility Zone (RVZ):** The RVZ is an area between intersecting runways where an unobstructed line of sight between points five feet above each runway is required. This standard only applies to airports with intersecting runways, and is shown as NA at other airports.
- **Parallel Taxiway:** The standard in this Index is for airports with at least 20,000 annual operations to have a parallel taxiway, either full or partial. On scorecards charts and tables below, this standard is shown as NA at airports with fewer than 20,000 annual operations.

Table 2 summarizes the listed airport design standards, including their total portion of the 100 percent possible as part of the Design Standards Index. Each airport is analyzed to determine if standards are met. For example, an airport that complies with all RSA and RPZ standards would receive 40 percent based on these standards alone. An airport has the potential to receive 100 percent if it meets all design standards.

Table 2: Design Standards Index Standards

Design Standards Category	Objective	Percent
RSA	Cleared and graded with dimensions based on RDC	20%
OFZ	Free of objects other than frangible NAVAIDs	15%
TSS	No approach obstructions or object penetrations	15%
RPZ Control	100% control via fee simple or avigation easement	10%
RPZ Land Use	Only compatible land uses within RPZ	10%
Crosswind Coverage	Crosswind runway if crosswind coverage < 95%	10%
RVZ	Unobstructed line of sight between two or more runways	10%
Parallel Taxiway	Parallel taxiway for airports with at least 20,000 annual operations	10%
Total		**100%**

Source: CDM Smith, DOWL

Airports in Alaska often face unique challenges to obtain design standard compliance. Many airports are located in close proximity to natural features such as rivers, streams, and uneven terrain, all of which can affect certain design standards. Development patterns in small villages, with airports commonly located next to the community, often affects standards for RSA, RPZ, and TSS, among others. These constraints may prevent airports from constructing a crosswind runway, parallel taxiway, or runway extension.

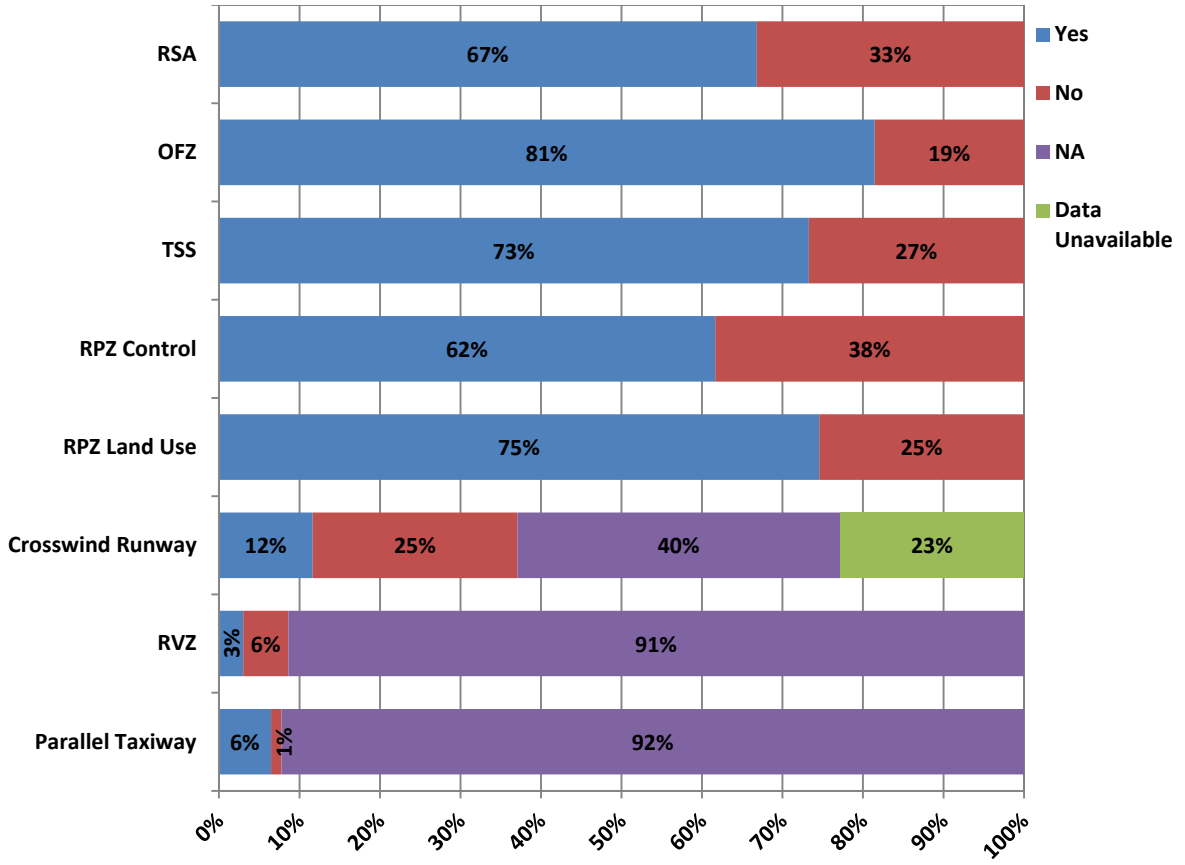
Total Design Standards Indices were calculated for each Alaska system airport as well as a scoring for overall airport classifications. Table 3 presents the Design Standards Index for all classifications included in this part of the AASP. This measurement displays how classes of airports are serving their markets statewide. The total calculated is an average of all airport Design Standards Index scores in that classification. If all airports in a classification achieve a 100 percent score then that class would meet 100 percent of the objectives. When one or more airports in a classification has a total Index expressed as a range due to a lack of wind coverage data, the classification Index is also expressed as a range from the average of all low possible scores to all high possible scores.

Figure 13 summarizes Design Standards Indices at all 233 airports. When reviewing standards that apply to all airports, OFZ standards and RPZ land use standards are the most frequently compliant. Very few airports are non-compliant with RVZ or parallel taxiway standards, but these categories do not apply to the vast majority of AASP airports.

Table 3: Average Design Standard Indices by Classification

AASP Classification	Design Standard Index
International	87%
Regional	78%
Community Off-Road	78% to 80%
Community On-Road	76% to 79%
Local NPIAS High-Activity	61% to 62%
Local NPIAS Low-Activity	67% to 72%
Local Non-NPIAS	58% to 64%
All AASP Airports	**75% to 77%**

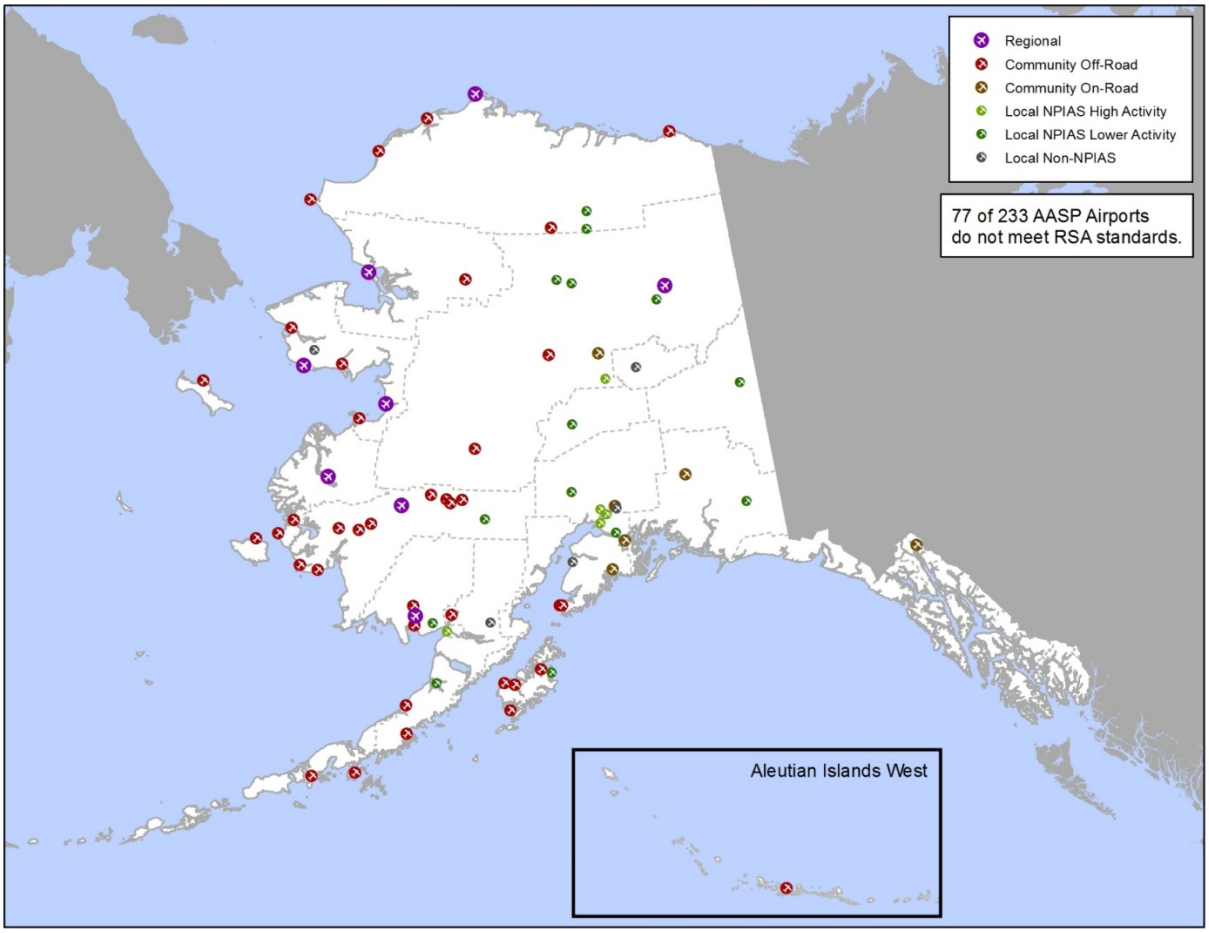
Source: CDM Smith, DOWL



Source: CDM Smith, DOWL

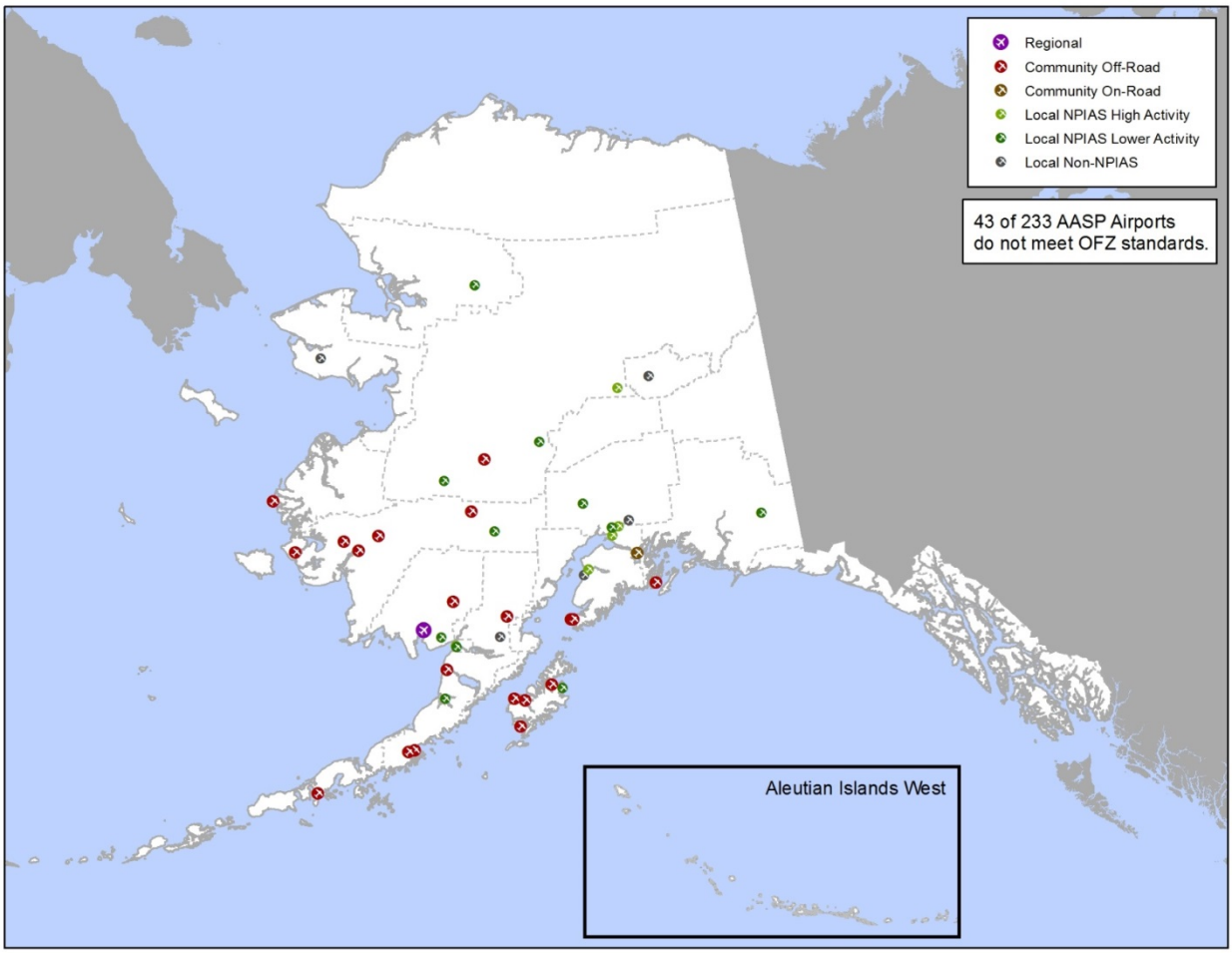
Figure 13: Summary of Design Standard Indices at all AASP Airports

Figures 14 through 20 reveal the locations of non-compliant airports throughout Alaska. Figure 14, which shows the locations of airports not meeting crosswind runway standards, also shows the locations of airports for which no wind data is available.



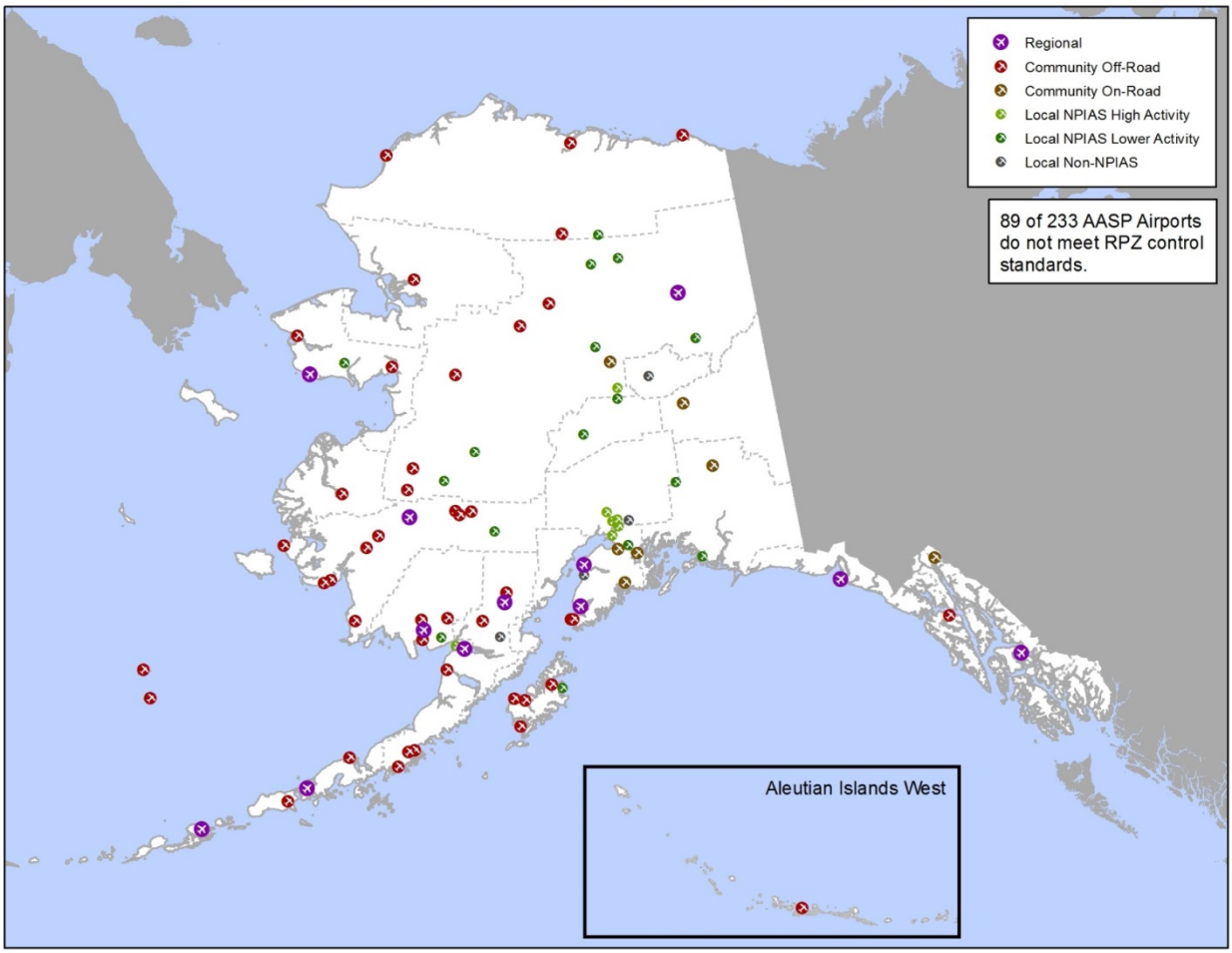
Source: CDM Smith, DOWL

Figure 14: Airports With a Non-Compliant Primary Runway Safety Area (RSA)



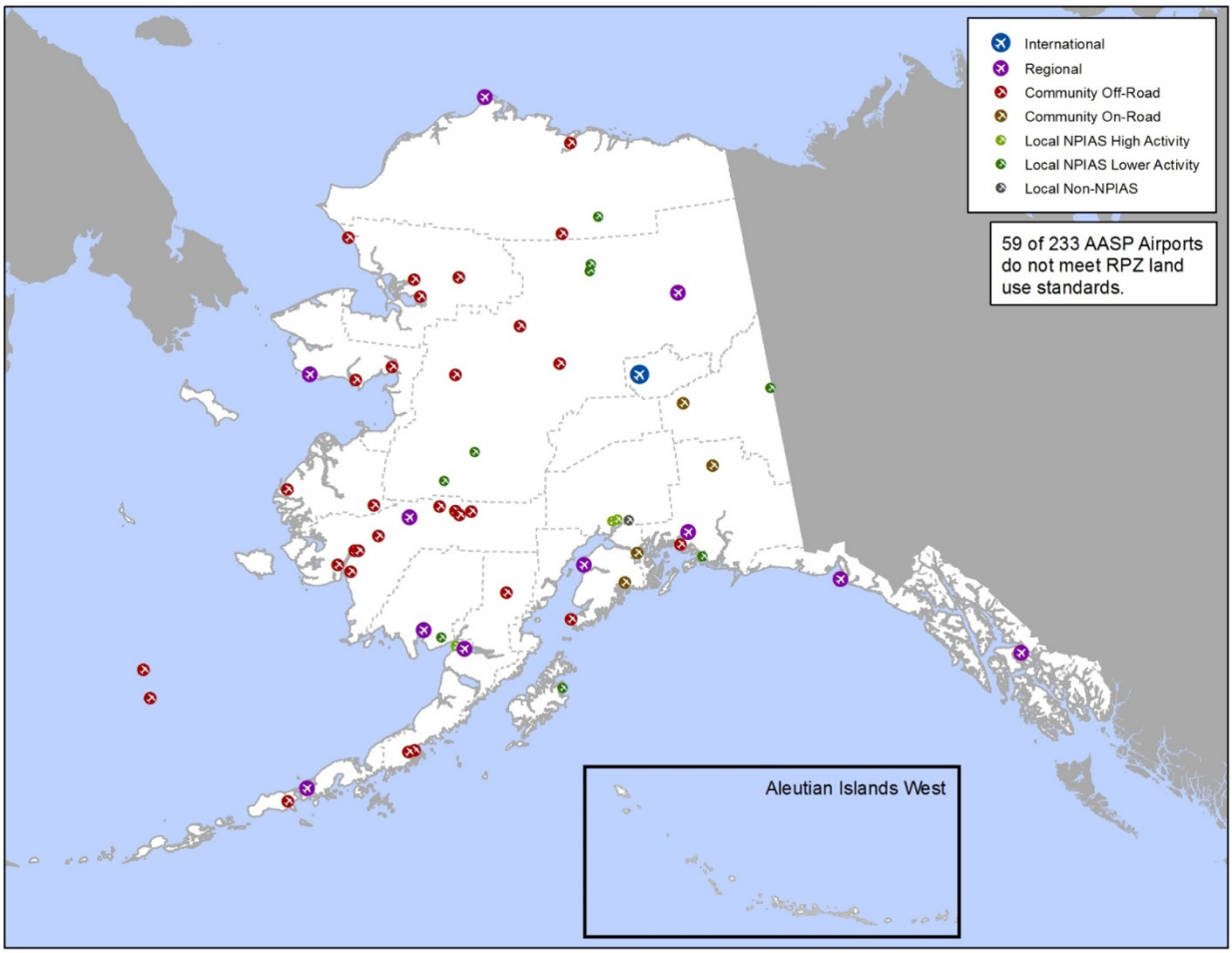
Source: CDM Smith, DOWL

Figure 15: Airports With a Non-Compliant Primary Obstacle Free Zone (OFZ)



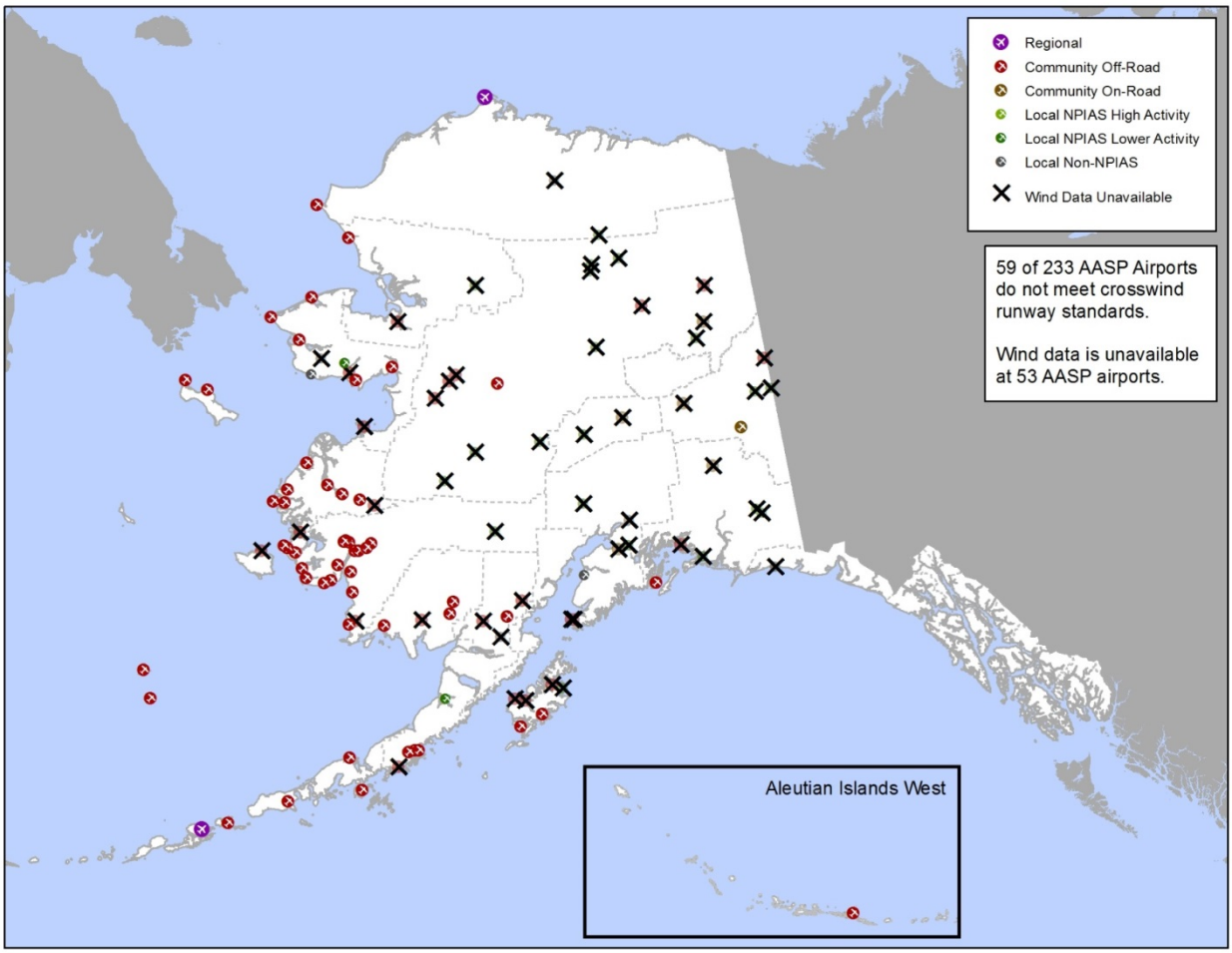
Source: CDM Smith, DOWL

Figure 16: Airports With Less Than 100 Percent Control of Primary Runway Protection Zone (RPZ)



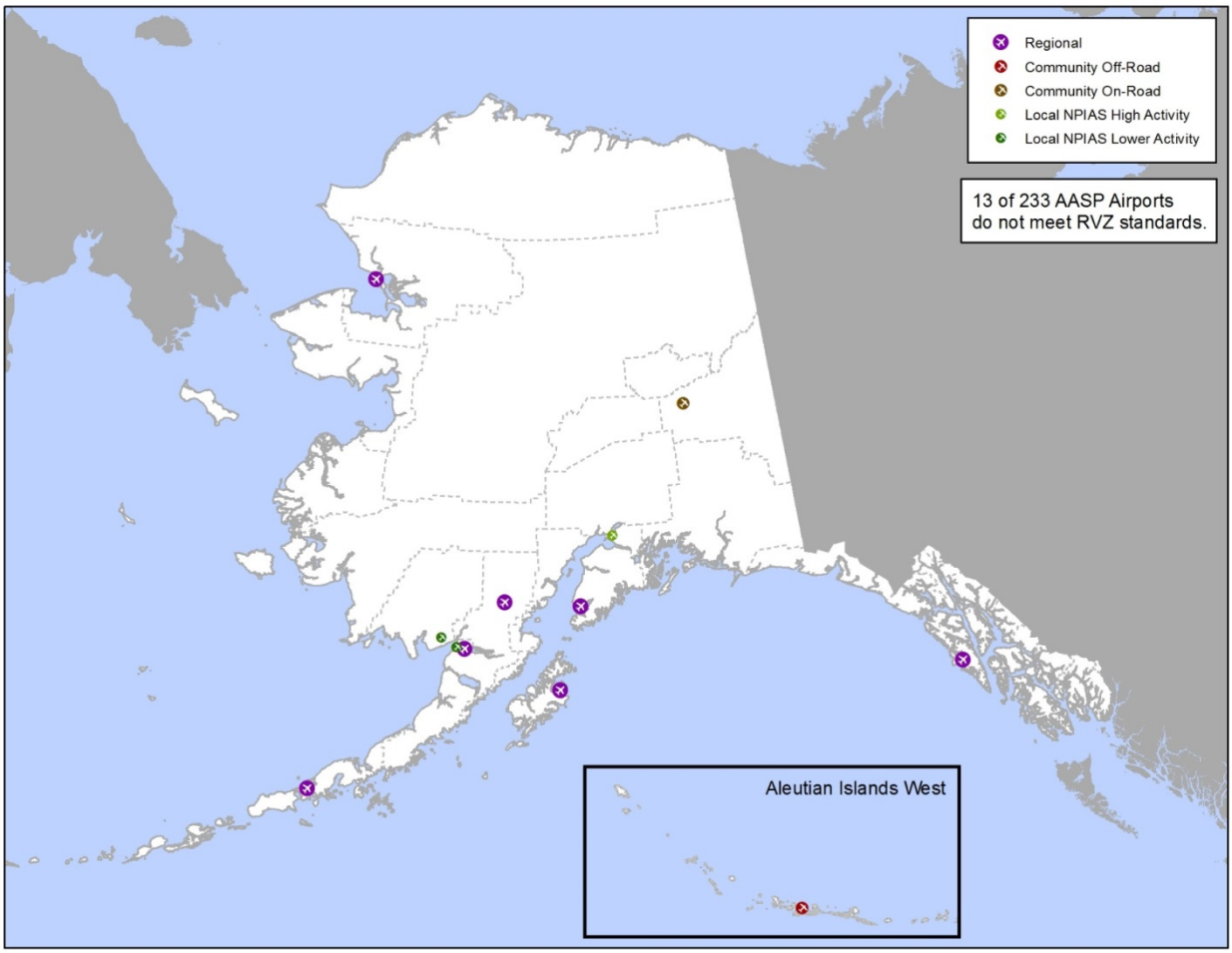
Source: CDM Smith, DOWL

Figure 17: Airports With Incompatible Land Use In The Primary Runway Protection Zone (RPZ)



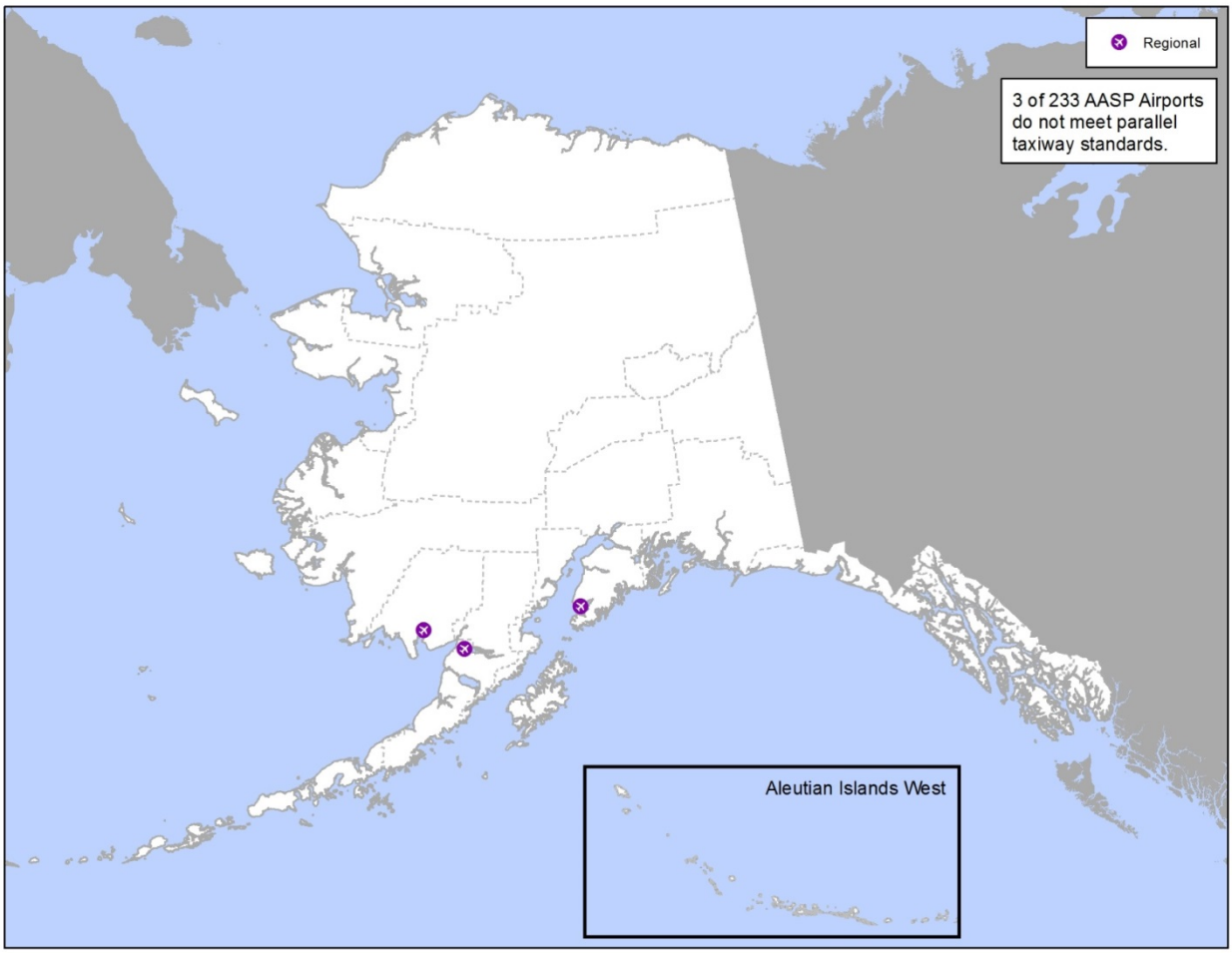
Source: CDM Smith, DOWL

Figure 18: Airports Not Meeting Crosswind Runway Standards



Source: CDM Smith, DOWL

Figure 19: Airports With a Non-Compliant Runway Visibility Zone (RVZ)



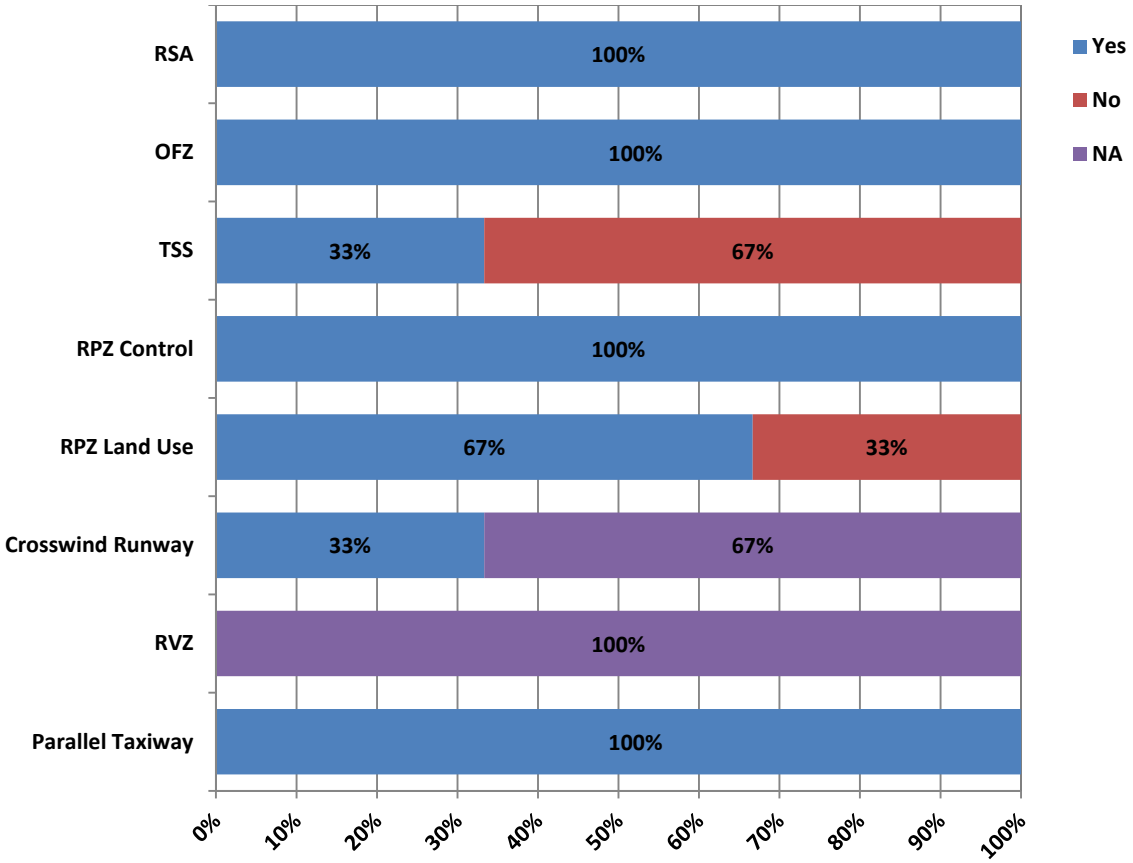
Source: CDM Smith, DOWL

Figure 20: Airports Not Meeting Parallel Taxiway Standards

The following sections detail Airport Design Standards Indices at each airport classification, including a comparison to 2011 data, where applicable.

3.1.1 International Airports Design Standards Index

Figure 21 summarizes the Design Standards Index at Alaska's three International airports. All International airports meet standards for OFZ, RPZ control, and parallel taxiway. The crosswind runway standard is not applicable to either Fairbanks International or Juneau International because both have adequate wind coverage of at least 95 percent. Ted Stevens Anchorage International Airport has a crosswind runway. Similarly, RVZ standards do not apply as no International airports in Alaska have an intersecting runway.



Source: CDM Smith, DOWL

Figure 21: Design Standards Index Summary for International Airports

Table 4 details all Design Standard Index compliance at International airports. Because this classification was not analyzed under this Index in 2011, no comparative data is available. Ted Stevens Anchorage International Airport meets all standards within this Index, where applicable.

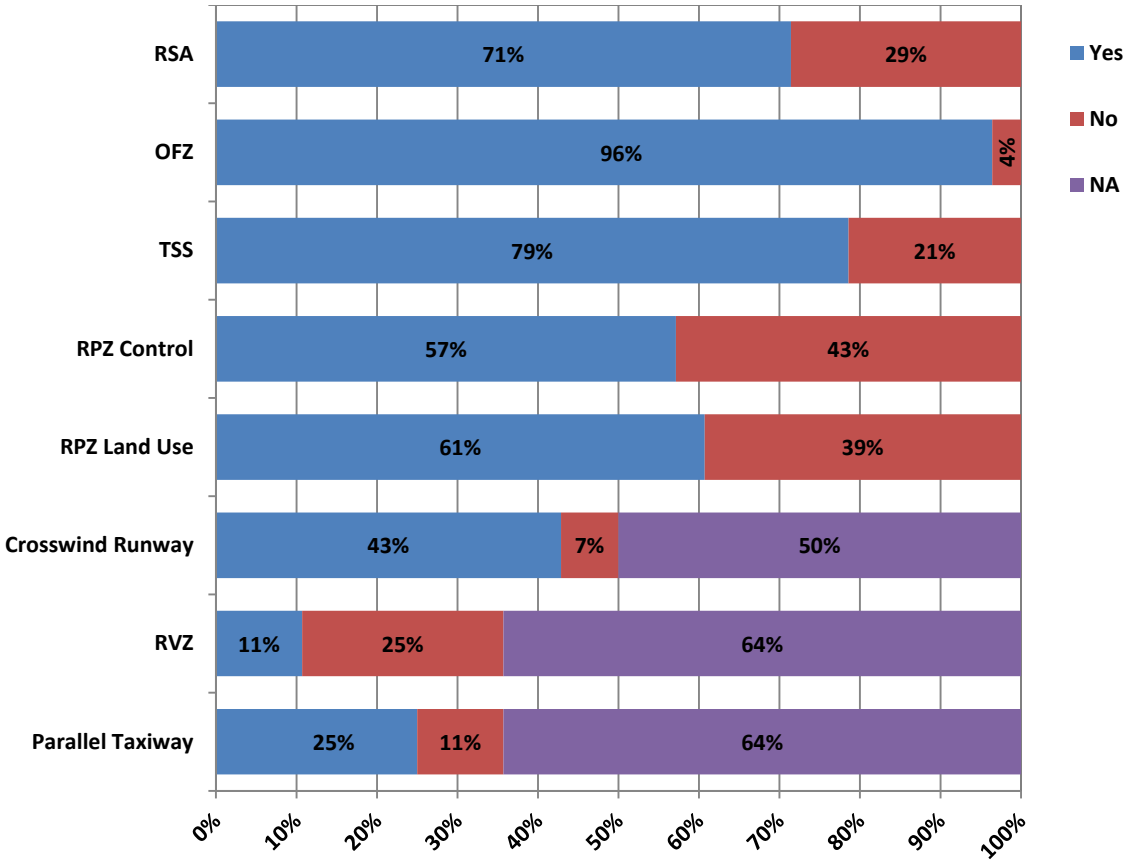
Table 4: Details of Design Standard Indices at International Airports

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index
ANC	Anchorage	Ted Stevens Anchorage International	Yes	Yes	Yes	Yes	Yes	Yes	NA	Yes	100%
FAI	Fairbanks	Fairbanks International	Yes	Yes	No	Yes	No	NA	NA	Yes	75%
JNU	Juneau	Juneau International	Yes	Yes	No	Yes	Yes	NA	NA	Yes	85%
International Airports Average											**87%**

Source: CDM Smith, DOWL

3.1.2 Regional Airports Design Standards Index

Figure 22 summarizes the Design Standards Index at Alaska's 28 Regional classification airports. Two airports (Wiley Post-Will Rogers Memorial and Unalaska) do not currently meet crosswind runway standards. All other airports in the classification have a crosswind runway or single runway wind coverage of 95 percent or greater. At a compliance rate of 96 percent, the OFZ standard is the highest performing category among those that apply to all Regional airports.



Source: CDM Smith, DOWL

Figure 22: Design Standards Index Summary for Regional Airports

Table 5 details all Design Standard Index compliance at Regional airports, including the change from 2011 to the current AASP. Nine of 28 Regional airports meet all standards within this Index and many airports have improved since 2011.

Table 5: Details of Design Standard Indices at Regional Airports

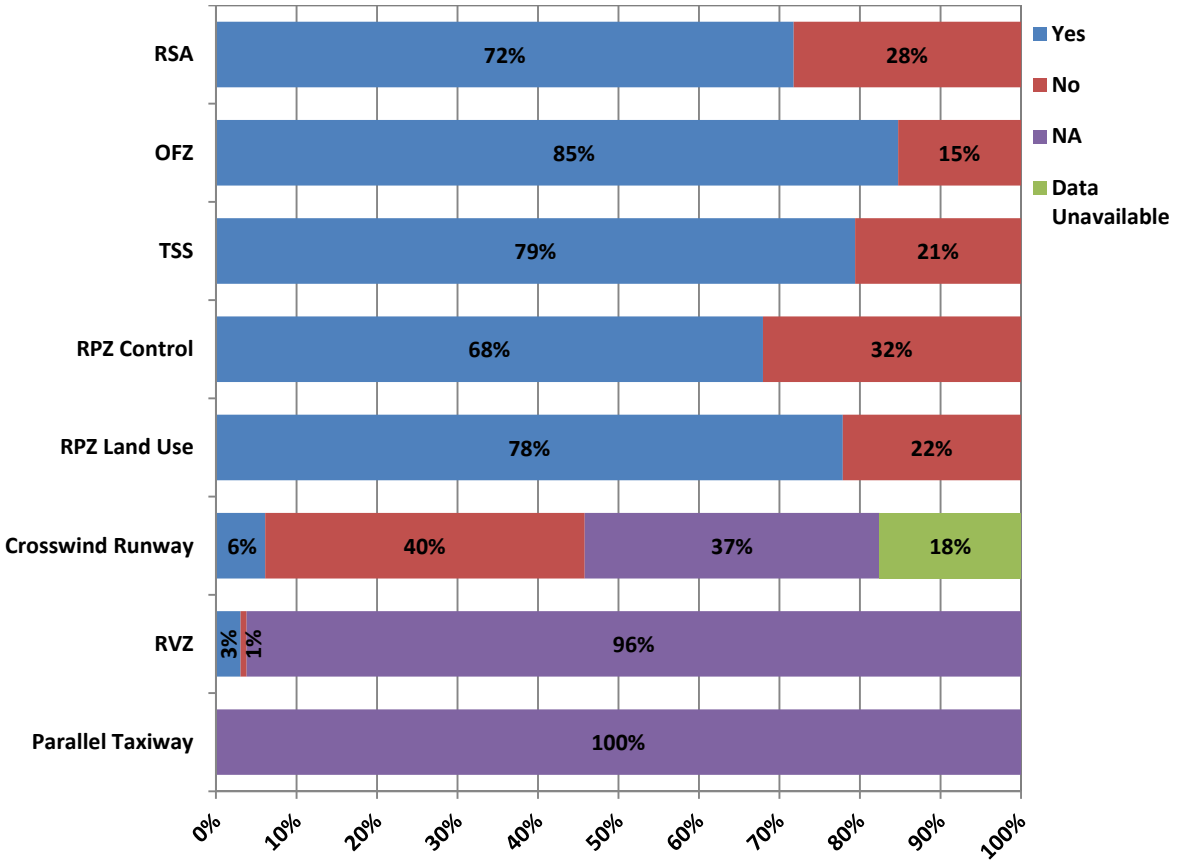
FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
ANI	Aniak	Aniak	No	Yes	No	No	No	NA	NA	NA	45%	35%	10%
BRW	Barrow	Wiley Post-Will Rogers Memorial	No	Yes	Yes	Yes	No	No	NA	NA	60%	60%	0%
BET	Bethel	Bethel	Yes	Yes	Yes	Yes	Yes	NA	NA	Yes	100%	100%	0%
CDB	Cold Bay	Cold Bay	Yes	Yes	Yes	No	No	Yes	No	NA	70%	60%	10%
CDV	Cordova	Merle K (Mudhole) Smith	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	100%	100%	0%
SCC	Deadhorse	Deadhorse	Yes	Yes	Yes	Yes	Yes	NA	NA	Yes	100%	100%	0%
DLG	Dillingham	Dillingham	No	No	No	No	No	NA	NA	No	20%	50%	-30%
ENM	Emmonak	Emmonak	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	90%	10%
FYU	Fort Yukon	Fort Yukon	No	Yes	Yes	No	No	NA	NA	NA	60%	60%	0%
GAL	Galena	Edward G. Pitka Sr.	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	20% to 100%	0% to 80%
GST	Gustavus	Gustavus	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	100%	70%	30%
HOM	Homer	Homer	Yes	Yes	No	No	Yes	NA	No	No	55%	65%	-10%
ILI	Iliamna	Iliamna	Yes	Yes	Yes	No	Yes	Yes	No	NA	80%	90%	-10%
ENA	Kenai	Kenai Municipal	Yes	Yes	No	No	No	NA	NA	Yes	65%	60%	5%
KTN	Ketchikan	Ketchikan International	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
AKN	King Salmon	King Salmon	Yes	Yes	Yes	No	No	Yes	No	No	60%	70%	-10%
ADQ	Kodiak	Kodiak	Yes	Yes	No	Yes	Yes	Yes	No	Yes	75%	35%	40%
OTZ	Kotzebue	Ralph Wien Memorial	No	Yes	Yes	Yes	Yes	Yes	No	Yes	70%	35%	35%
MCG	McGrath	McGrath	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	100%	70%	30%
OME	Nome	Nome	No	Yes	No	No	No	Yes	Yes	Yes	45%	25%	20%
PSG	Petersburg	Petersburg James A Johnson	Yes	Yes	Yes	No	No	NA	NA	NA	80%	55%	25%
SIT	Sitka	Sitka Rocky Gutierrez	Yes	Yes	Yes	Yes	Yes	NA	No	Yes	90%	70%	20%
KSM	St Mary's	St Mary's	No	Yes	Yes	Yes	Yes	Yes	NA	NA	80%	65% to 80%	0% to 15%
UNK	Unalakleet	Unalakleet	No	Yes	Yes	Yes	Yes	Yes	Yes	NA	80%	80%	0%
DUT	Unalaska	Unalaska	Yes	Yes	Yes	No	Yes	No	NA	NA	80%	30% to 40%	40% to 50%
VDZ	Valdez	Valdez Pioneer Field	Yes	Yes	Yes	Yes	No	NA	NA	NA	90%	100%	-10%
WRG	Wrangell	Wrangell	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	75%	25%

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
YAK	Yakutat	Yakutat	Yes	Yes	Yes	No	No	Yes	Yes	NA	80%	80%	0%
Regional Airports Average											**78%**	**66% to 69%**	**9% to 12%**

Source: CDM Smith, DOWL

3.1.3 Community Off-Road Airports Design Standards Index

Figure 23 summarizes the Design Standards Index at Alaska's 131 Community Off-Road classification airports. With 85 percent of Community Off-Road airports meeting standards, OFZ is the most compliant standard in this Index. Because no airports in this classification have 20,000 or more annual operations, none are held to the standard of having a parallel taxiway. Ten airports (six percent) in this classification have a crosswind runway, while an additional 40 percent of these airports have single runway wind coverage of at least 95 percent. Wind data is not available for 18 percent of the airports in the Community Off-Road class.



Source: CDM Smith, DOWL

Figure 23: Design Standards Index Summary for Community Off-Road Airports

Table 6 details all Design Standard Index compliance at Community Off-Road airports, including the change from 2011 to the current AASP. Of the 131 airports in this classification, 23 meet all standards within this Index. The score of many Community Off-Road airports has increased since the 2011 AASP. For airports with incomplete data in either 2011 or the current AASP, the change in performance is expressed as a range of possible variations.

Table 6: Details of Design Standard Indices at Community Off-Road Airports

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
ADK	Adak Island	Adak	No	Yes	No	No	Yes	Yes	No	NA	45%	45%	0%
AKK	Akhiok	Akhiok	No	No	No	No	Yes	No	NA	NA	30%	30% to 70%	-40% to 0%
Z13	Akiachak	Akiachak	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	70%	10%
AKI	Akiak	Akiak	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
7AK	Akutan	Akutan	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	0%	90%
AUK	Alakanuk	Alakanuk	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	90%	10%
5A8	Aleknagik	Aleknagik New	No	Yes	Yes	No	Yes	Data Unavailable	NA	NA	60% to 70%	30% to 40%	20% to 40%
6A8	Allakaket	Allakaket	Yes	Yes	Yes	No	Yes	NA	NA	NA	90%	90%	0%
AFM	Ambler	Ambler	Yes	Yes	Yes	Yes	No	Yes	Yes	NA	90%	100%	-10%
AKP	Anaktuvuk Pass	Anaktuvuk Pass	No	Yes	No	No	No	NA	NA	NA	45%	30% to 60%	-15% to 15%
ANV	Anvik	Anvik	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
ARC	Arctic Village	Arctic Village	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
AKA	Atka	Atka	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	70%	20%
4A2	Atmautluak	Atmautluak	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
ATK	Atqasuk	Atqasuk Edward Burnell Sr. Memorial	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	70% to 100%	0% to 30%
BTI	Barter Island	Barter Island LRRS	No	Yes	Yes	No	Yes	NA	NA	NA	70%	45% to 55%	15% to 25%
WBQ	Beaver	Beaver	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	60% to 100%	-10% to 40%
KTS	Brevig Mission	Brevig Mission	No	Yes	No	No	Yes	Yes	Yes	NA	55%	45% to 55%	0% to 10%
BVK	Buckland	Buckland	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	90% to 100%	-10% to 10%

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
CIK	Chalkyitsik	Chalkyitsik	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	90% to 100%	-10% to 10%
CFK	Chefornak	Chefornak	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	65% to 75%	15% to 25%
C05	Chenega Bay	Chenega Bay	Yes	No	No	Yes	Yes	No	NA	NA	60%	65% to 75%	-15% to -5%
VAK	Chevak	Chevak	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
AJC	Chignik	Chignik	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
KCL	Chignik Lagoon	Chignik Lagoon	No	No	No	No	No	No	NA	NA	20%	20%	0%
A79	Chignik Lake	Chignik Lake	Yes	No	No	No	No	No	NA	NA	40%	40%	0%
9A3	Chuathbaluk	Chuathbaluk	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
CLP	Clarks Point	Clarks Point	No	Yes	Yes	No	Yes	NA	NA	NA	70%	60%	10%
CJX	Crooked Creek	Crooked Creek	No	Yes	No	Yes	No	NA	NA	NA	55%	50% to 80%	-25% to 5%
DEE	Deering	Deering	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	100%	90%	10%
EAA	Eagle	Eagle	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	90% to 100%	-10% to 10%
EEK	Eek	Eek	Yes	Yes	Yes	Yes	No	No	NA	NA	80%	80%	0%
EII	Egegik	Egegik	Yes	No	Yes	No	Yes	Yes	Yes	NA	75%	75% to 90%	-15% to 0%
KEK	Ekwok	Ekwok	Yes	Yes	Yes	No	Yes	NA	NA	NA	90%	80%	10%
ELI	Elim	Elim	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
KFP	False Pass	False Pass	Yes	Yes	Yes	No	No	No	NA	NA	70%	55%	15%
GAM	Gambell	Gambell	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
GLV	Golovin	Golovin	Yes	Yes	Yes	Yes	No	No	NA	NA	80%	80%	0%
GNU	Goodnews	Goodnews	Yes	Yes	Yes	No	Yes	Data Unavailable	NA	NA	80% to 90%	60% to 80%	0% to 30%
KGX	Grayling	Grayling	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	80% to 100%	0% to 20%

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
HCA	Holy Cross	Holy Cross	Yes	Yes	No	No	Yes	NA	NA	NA	75%	65% to 75%	0% to 10%
HNH	Hoonah	Hoonah	Yes	Yes	No	No	Yes	NA	NA	NA	75%	75%	0%
HPB	Hooper Bay	Hooper Bay	Yes	No	No	Yes	Yes	No	NA	NA	60%	60% to 90%	-30% to 0%
HUS	Hughes	Hughes	Yes	Yes	Yes	No	No	NA	NA	NA	80%	80% to 100%	-20% to 0%
HLA	Huslia	Huslia	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	90% to 100%	0% to 10%
IGG	Igiugig	Igiugig	Yes	Yes	Yes	No	Yes	Data Unavailable	NA	NA	80% to 90%	80% to 90%	-10% to 10%
AFE	Kake	Kake	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
KLG	Kalskag	Kalskag	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
KAL	Kaltag	Kaltag	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	90% to 100%	-10% to 10%
KYK	Karluk	Karluk	No	No	Yes	No	Yes	Data Unavailable	NA	NA	45% to 55%	45% to 55%	-10% to 10%
Z09	Kasigluk	Kasigluk	Yes	No	Yes	Yes	Yes	No	NA	NA	75%	50% to 80%	-5% to 25%
IAN	Kiana	Bob Baker Memorial	Yes	Yes	Yes	No	No	NA	NA	NA	80%	70% to 80%	0% to 10%
KVC	King Cove	King Cove	No	No	Yes	Yes	Yes	NA	NA	NA	65%	55%	10%
IIK	Kipnuk	Kipnuk	No	Yes	Yes	Yes	Yes	No	NA	NA	70%	70%	0%
KVL	Kivalina	Kivalina	Yes	Yes	Yes	Yes	No	No	NA	NA	80%	80% to 90%	-10% to 0%
AKW	Klawock	Klawock	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	85%	15%
OBU	Kobuk	Kobuk	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	80%	0%
9K2	Kokhanok	Kokhanok	Yes	No	Yes	Yes	Yes	No	NA	NA	75%	75%	0%
JZZ	Koliganek	Koliganek	Yes	No	No	Yes	Yes	No	NA	NA	60%	75% to 90%	-30% to -15%

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
DUY	Kongiganak	Kongiganak	Yes	Yes	Yes	No	Yes	No	NA	NA	80%	60%	20%
2A9	Kotlik	Kotlik	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	90%	10%
KKA	Koyuk	Koyuk Alfred Adams	Yes	Yes	Yes	No	No	No	NA	NA	70%	55% to 70%	0% to 15%
KYU	Koyukuk	Koyukuk	Yes	Yes	Yes	No	No	Data Unavailable	NA	NA	70% to 80%	70% to 90%	-20% to 10%
KWT	Kwethluk	Kwethluk	Yes	Yes	Yes	No	Yes	No	NA	NA	80%	80%	0%
GGV	Kwigillingok	Kwigillingok	No	Yes	Yes	No	Yes	No	NA	NA	60%	60%	0%
2A3	Larsen Bay	Larsen Bay	No	No	No	No	Yes	Data Unavailable	NA	NA	30% to 40%	50% to 60%	-30% to -10%
9Z8	Levelock	Levelock	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	100%	-20%
MBA	Manokotak	Manokotak	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	90%	10%
MDM	Marshall	Marshall Don Hunter Sr	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
MYU	Mekoryuk	Mekoryuk	No	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	70% to 80%	40% to 80%	-10% to 40%
MOU	Mountain Village	Mountain Village	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
KEB	Nanwalek	Nanwalek	No	No	No	No	No	Data Unavailable	NA	NA	20% to 30%	20% to 30%	-10% to 10%
WNA	Napakiak	Napakiak	Yes	Yes	Yes	Yes	No	No	NA	NA	80%	80%	0%
PKA	Napaskiak	Napaskiak	Yes	No	No	Yes	No	No	NA	NA	50%	65% to 90%	-40% to -15%
OUL	Nelson Lagoon	Nelson Lagoon	Yes	Yes	No	No	Yes	No	NA	NA	65%	65%	0%
KNW	New Stuyahok	New Stuyahok	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
EWU	Newtok	Newtok	No	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	70% to 80%	70% to 80%	-10% to 10%
IGT	Nightmute	Nightmute	Yes	No	No	Yes	Yes	No	NA	NA	60%	40%	20%
FSP	Nikolai	Nikolai	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
WTK	Noatak	Noatak	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	70% to 100%	0% to 30%

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
5NN	Nondalton	Nondalton	Yes	Yes	Yes	No	No	NA	NA	NA	80%	90%	-10%
D76	Noorvik	Robert (Bob) Curtis Memorial	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	90%	10%
AQT	Nuiqsut	Nuiqsut	Yes	Yes	No	No	No	NA	NA	NA	65%	40% to 70%	-5% to 25%
NUL	Nulato	Nulato	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	80% to 90%	0% to 20%
SXP	Nunam Iqua	Sheldon Point	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90% to 100%	-10% to 0%
16A	Nunapitchuk	Nunapitchuk	No	Yes	Yes	Yes	Yes	No	NA	NA	70%	70%	0%
6R7	Old Harbor	Old Harbor	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
4K5	Ouzinkie	Ouzinkie	Yes	Yes	No	Yes	Yes	NA	NA	NA	85%	60% to 70%	15% to 20%
4K0	Pedro Bay	Pedro Bay	Yes	Yes	No	Yes	Yes	Data Unavailable	NA	NA	75% to 85%	75% to 85%	-10% to 10%
PEV	Perryville	Perryville	Yes	Yes	Yes	No	Yes	Data Unavailable	NA	NA	80% to 90%	80% to 90%	-10% to 10%
PNP	Pilot Point	Pilot Point	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	90%	10%
0AK	Pilot Station	Pilot Station	Yes	Yes	Yes	No	Yes	No	NA	NA	80%	80%	0%
PTU	Platinum	Platinum	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	100%	-10%
PHO	Point Hope	Point Hope	No	Yes	Yes	Yes	Yes	No	NA	NA	70%	70%	0%
PIZ	Point Lay	Point Lay LRRS	No	Yes	Yes	No	Yes	NA	NA	NA	70%	65%	5%
PGM	Port Graham	Port Graham	No	No	No	No	Yes	Data Unavailable	NA	NA	30% to 40%	30% to 40%	-10% to 10%
PTH	Port Heiden	Port Heiden	No	Yes	Yes	Yes	Yes	Yes	NA	NA	80%	70% to 80%	0% to 10%
ORI	Port Lions	Port Lions	No	No	No	No	Yes	Data Unavailable	NA	NA	30% to 40%	30% to 70%	-40% to 10%
AQH	Quinhagak	Quinhagak	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%

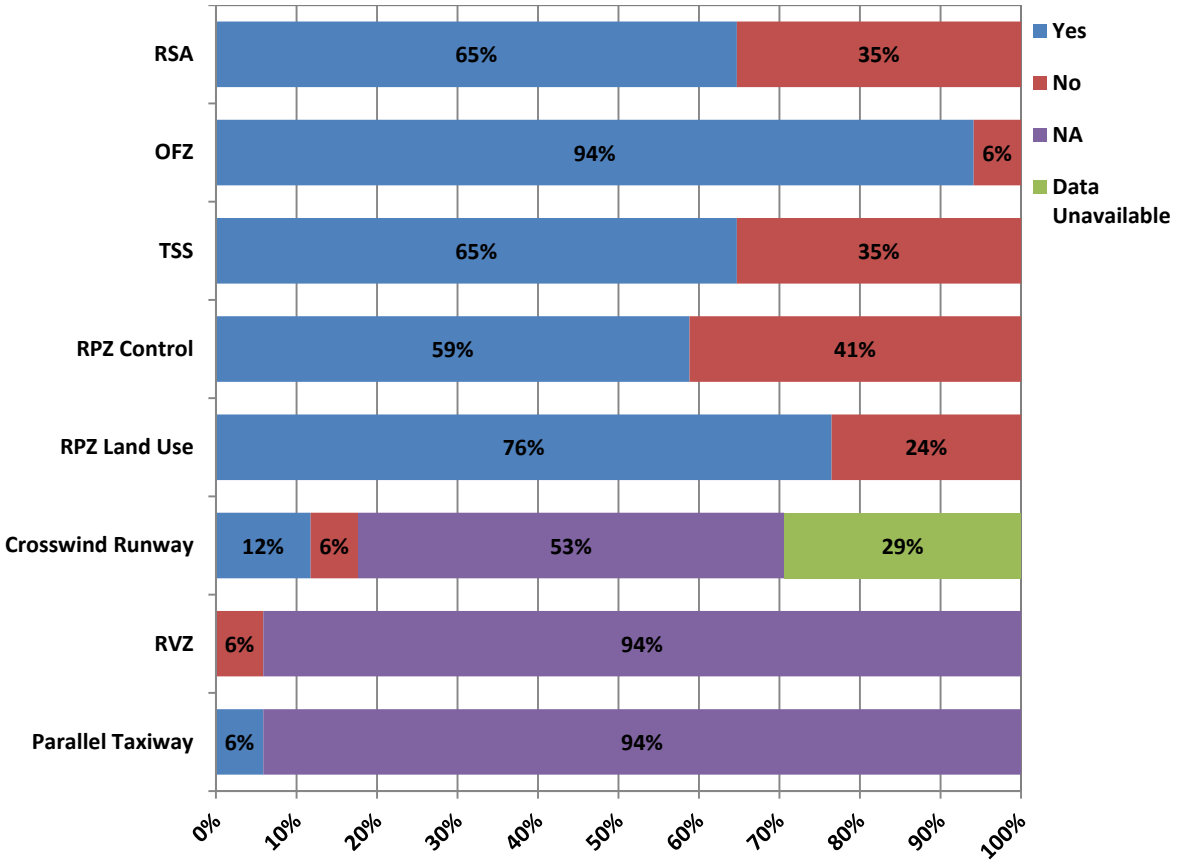
FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
RBY	Ruby	Ruby	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	80% to 90%	0% to 10%
RSH	Russian Mission	Russian Mission	Yes	Yes	Yes	Yes	No	Data Unavailable	NA	NA	80% to 90%	80% to 90%	-10% to 10%
SDP	Sand Point	Sand Point	No	Yes	Yes	Yes	Yes	No	NA	NA	70%	70%	0%
SVA	Savoonga	Savoonga	No	Yes	Yes	Yes	Yes	No	Yes	NA	70%	70%	0%
SCM	Scammon Bay	Scammon Bay	Yes	Yes	Yes	Yes	No	No	NA	NA	80%	90%	-10%
WLK	Selawik	Selawik	Yes	Yes	Yes	Yes	No	Yes	NA	NA	90%	90%	0%
SOV	Seldovia	Seldovia	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	80%	20%
SHX	Shageluk	Shageluk	Yes	Yes	Yes	No	Yes	NA	NA	NA	90%	80% to 90%	0% to 10%
2C7	Shaktoolik	Shaktoolik	Yes	Yes	No	Yes	Yes	NA	NA	NA	85%	75%	10%
SHH	Shishmaref	Shishmaref	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90% to 100%	-10% to 0%
SHG	Shungnak	Shungnak	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	90% to 100%	0% to 10%
SLQ	Sleetmute	Sleetmute	No	Yes	Yes	No	No	NA	NA	NA	60%	60%	0%
PBV	St George	St George	Yes	Yes	No	No	No	No	NA	NA	55%	55%	0%
SMK	St Michael	St Michael	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	70%	10%
SNP	St Paul Island	St Paul Island	Yes	Yes	Yes	No	No	No	NA	NA	70%	80%	-10%
WBB	Stebbins	Stebbins	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	90% to 100%	-10% to 10%
SVS	Stevens Village	Stevens Village	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
SRV	Stony River	Stony River 2	No	No	No	No	No	NA	NA	NA	30%	30%	0%
TCT	Takotna	Takotna	No	No	No	Yes	Yes	NA	NA	NA	50%	50%	0%
TAL	Tanana	Ralph M Calhoun Memorial	No	Yes	Yes	Yes	No	NA	NA	NA	70%	75%	-5%
7KA	Tatitlek	Tatitlek	Yes	Yes	Yes	Yes	No	Data Unavailable	NA	NA	80% to 90%	70% to 90%	-10% to 20%

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
TER	Teller	Teller	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
TOG	Togiak Village	Togiak	Yes	Yes	Yes	Yes	Yes	Yes	NA	NA	100%	100%	0%
OOK	Toksook Bay	Toksook Bay	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
TLT	Tuluksak	Tuluksak	No	No	Yes	No	No	NA	NA	NA	45%	45%	0%
A61	Tuntutuliak	Tuntutuliak	Yes	Yes	Yes	Yes	No	No	NA	NA	80%	80%	0%
4KA	Tununak	Tununak	No	Yes	No	No	Yes	No	NA	NA	45%	20% to 90%	-45% to 25%
A63	Twin Hills	Twin Hills	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
VEE	Venetie	Venetie	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
AWI	Wainwright	Wainwright	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	70% to 100%	-20% to 10%
IWK	Wales	Wales	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	70%	20%
WMO	White Mountain	White Mountain	No	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	70% to 80%	40% to 80%	-10% to 40%
Community Off-Road Airports Average											**78% to 80%**	**72% to 79%**	**-1% to 8%**

Source: CDM Smith, DOWL

3.1.4 Community On-Road Airports Design Standards Index

Figure 24 reviews the Design Standards Index at Alaska's 17 Community On-Road classification airports. With 94 percent of Community On-Road airports meeting standards, OFZ is the most compliant standard in this Index. RVZ and parallel taxiway standards only apply to one airport each within the classification. Two airports in this class (12 percent) have a crosswind runway, while an additional 53 percent have single runway wind coverage of at least 95 percent. Wind data is currently unavailable at five Community On-Road airports.



Source: CDM Smith, DOWL

Figure 24: Design Standards Index Summary for Community On-Road Airports

Table 7 details all Design Standard Index compliance at Community On-Road airports, including the change from 2011 to the current AASP. Of the 17 airports in this classification, 4 meet all standards within this Index, while a total of 10 have a Design Standard Index score of at least 75 percent. For airports with incomplete data in either 2011 or the current AASP, the change in performance is expressed as a range of possible variations.

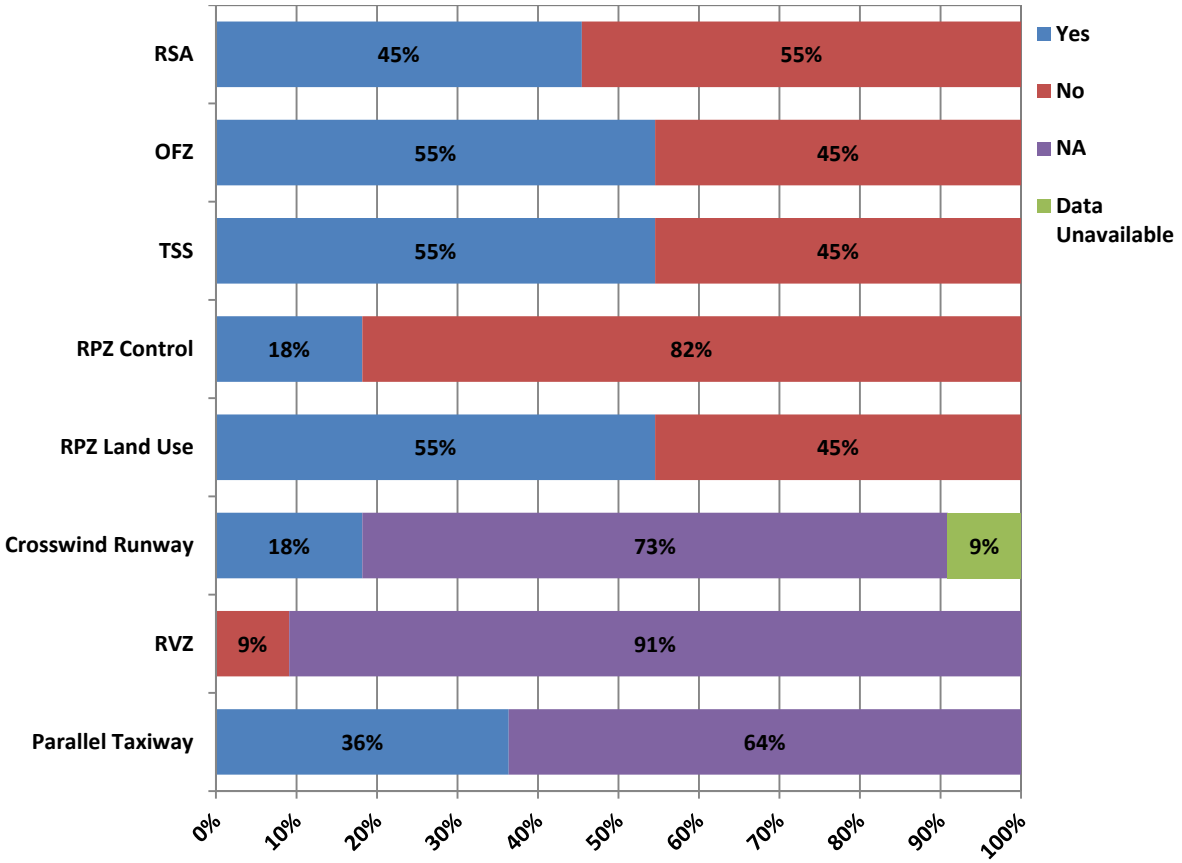
Table 7: Details of Design Standard Indices at Community On-Road Airports

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
CEM	Central	Central	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
CZO	Chistochina	Chistochina	Yes	Yes	No	No	No	Data Unavailable	NA	NA	55% to 65%	20% to 100%	-45% to 45%
CRC	Circle	Circle City	Yes	Yes	No	Yes	Yes	Data Unavailable	NA	NA	75% to 85%	40% to 85%	-10% to 45%
D66	Delta Junction	Delta Junction	Yes	Yes	No	No	No	Data Unavailable	No	NA	45% to 55%	10% to 75%	-30% to 45%
GKN	Gulkana	Gulkana	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	80%	0%
HNS	Haines	Haines	Yes	Yes	No	Yes	Yes	NA	NA	NA	85%	85%	0%
HRR	Healy	Healy River	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	90% to 100%	-10% to 10%
5HO	Hope	Hope	Yes	Yes	No	No	Yes	Data Unavailable	NA	NA	65% to 75%	50% to 60%	5% to 25%
MLY	Manley Hot Springs	Manley Hot Springs	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
51Z	Minto	Minto Al Wright	No	Yes	Yes	No	Yes	NA	NA	NA	70%	70%	0%
ORT	Northway	Northway	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
PAQ	Palmer	Palmer Municipal	No	Yes	Yes	Yes	Yes	Yes	NA	NA	80%	45%	35%
SWD	Seward	Seward	No	Yes	Yes	No	No	Yes	NA	NA	60%	60%	0%
SGY	Skagway	Skagway	No	Yes	Yes	No	Yes	NA	NA	NA	70%	70%	0%
TKA	Talkeetna	Talkeetna	Yes	Yes	Yes	Yes	Yes	NA	NA	Yes	100%	100%	0%
6K8	Tok	Tok Junction	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%	90%	0%
IEM	Whittier	Whittier	No	No	No	No	No	NA	NA	NA	30%	30%	0%
Community On-Road Airports Average											**76% to 79%**	**67% to 79%**	**-3% to 13%**

Source: CDM Smith, DOWL

3.1.5 Local NPIAS High Activity Airports Design Standards Index

Figure 25 summarizes the Design Standards Index at Alaska's 11 Local NPIAS High Activity classification airports. Two airports in this classification have a crosswind runway, eight have current wind coverage of at least 95 percent, with wind crosswind data only missing for one airport (Cordova Municipal) in the Local NPIAS High Activity Classification. With compliance rates of 55 percent, standards for OFZ, TSS, and RPZ land use were the highest performing categories among those that apply to all Local NPIAS High Activity airports.



Source: CDM Smith, DOWL

Figure 25: Design Standards Index Summary for Local NPIAS High Activity Airports

Table 8 details all Design Standard Index compliance at Local NPIAS High-Activity airports, including the change from 2011 to the current AASP. Of the 11 airports in this classification, four have a Design Standard Index score of at least 75 percent. For airports with incomplete data in either 2011 or the current AASP, the change in performance is expressed as a range of possible variations.

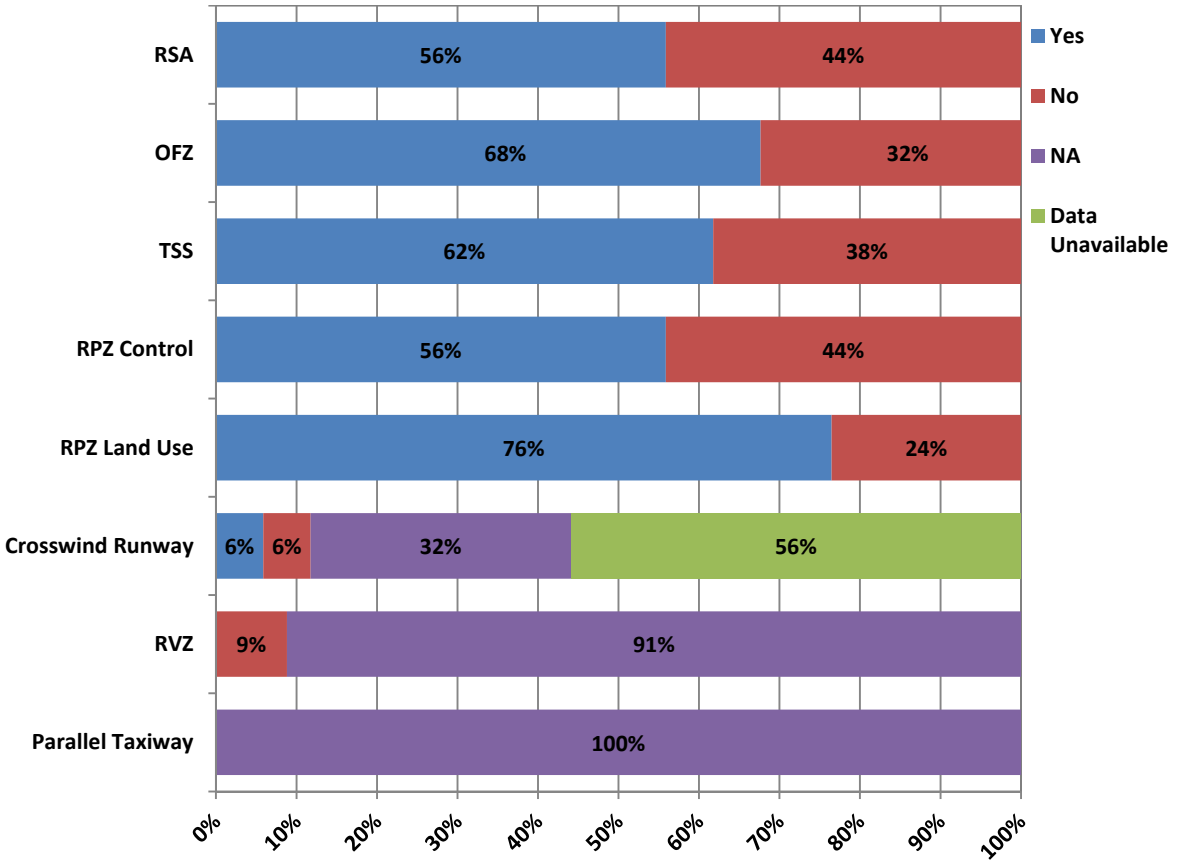
Table 8: Details of Design Standard Indices at Local NPIAS High Activity Airports

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
LHD	Anchorage	Lake Hood	Yes	Yes	Yes	Yes	Yes	NA	NA	Yes	100%	65%	35%
MRI	Anchorage	Merrill Field	No	No	Yes	No	Yes	Yes	No	Yes	45%	50%	-5%
BGQ	Big Lake	Big Lake	No	Yes	No	No	No	NA	NA	NA	45%	35%	10%
BCV	Birchwood	Birchwood	No	No	No	No	Yes	NA	NA	Yes	40%	55%	-15%
CKU	Cordova	Cordova Municipal	Yes	Yes	Yes	No	No	Data Unavailable	NA	NA	70% to 80%	70% to 100%	-30% to 10%
5NK	Naknek	Naknek	No	No	No	No	No	Yes	NA	NA	30%	30% to 80%	-50% to 0%
ENN	Nenana	Nenana Municipal	No	No	No	No	Yes	NA	NA	NA	40%	40%	0%
RDV	Red Devil	Red Devil	No	Yes	No	No	No	NA	NA	NA	45%	45%	0%
SXQ	Soldotna	Soldotna	Yes	No	Yes	Yes	Yes	NA	NA	NA	85%	75%	10%
IYS	Wasilla	Wasilla	Yes	Yes	Yes	No	No	NA	NA	Yes	80%	65% to 90%	-10% to 15%
UUO	Willow	Willow	Yes	Yes	Yes	No	Yes	NA	NA	NA	90%	90% to 100%	-10% to 0%
Local NPIAS High Activity Airports Average											**61% to 62%**	**56% to 66%**	**-5% to 6%**

Source: CDM Smith, DOWL

3.1.6 Local NPIAS Lower Activity Airports Design Standards Index

Figure 26 captures the Design Standards Index at Alaska's 34 Local NPIAS Low-Activity classification airports. With no airports in this class having at least 20,000 annual operations, none are held to the parallel taxiway standard. RVZ standards only apply to the three Local NPIAS Low-Activity airports with an intersecting runway. Of categories that apply to all airports in this classification, the most airports met standards for RPZ land use, with 76 percent of airports meeting compliance. Two airports in this classification (six percent) have a crosswind runway, while 32 percent of the classification already has wind coverage of at least 95 percent. Wind data was is available for 56 percent of the airports in the Local NPIAS Low-Activity class.



Source: CDM Smith, DOWL

Figure 26: Design Standards Index Summary for Local NPIAS Lower Activity Airports

Table 9 details all Design Standard Index compliance at Local NPIAS Lower Activity airports, including the change from 2011 to the current AASP. Of the 34 airports in this classification, three are compliant with all standards, while a total of 17 have a Design Standard Index score of

at least 75 percent. For airports with incomplete data in either 2011 or the current AASP, the change in performance is expressed as a range of possible variations.

Table 9: Details of Design Standard Indices at Local NPIAS Lower Activity Airports

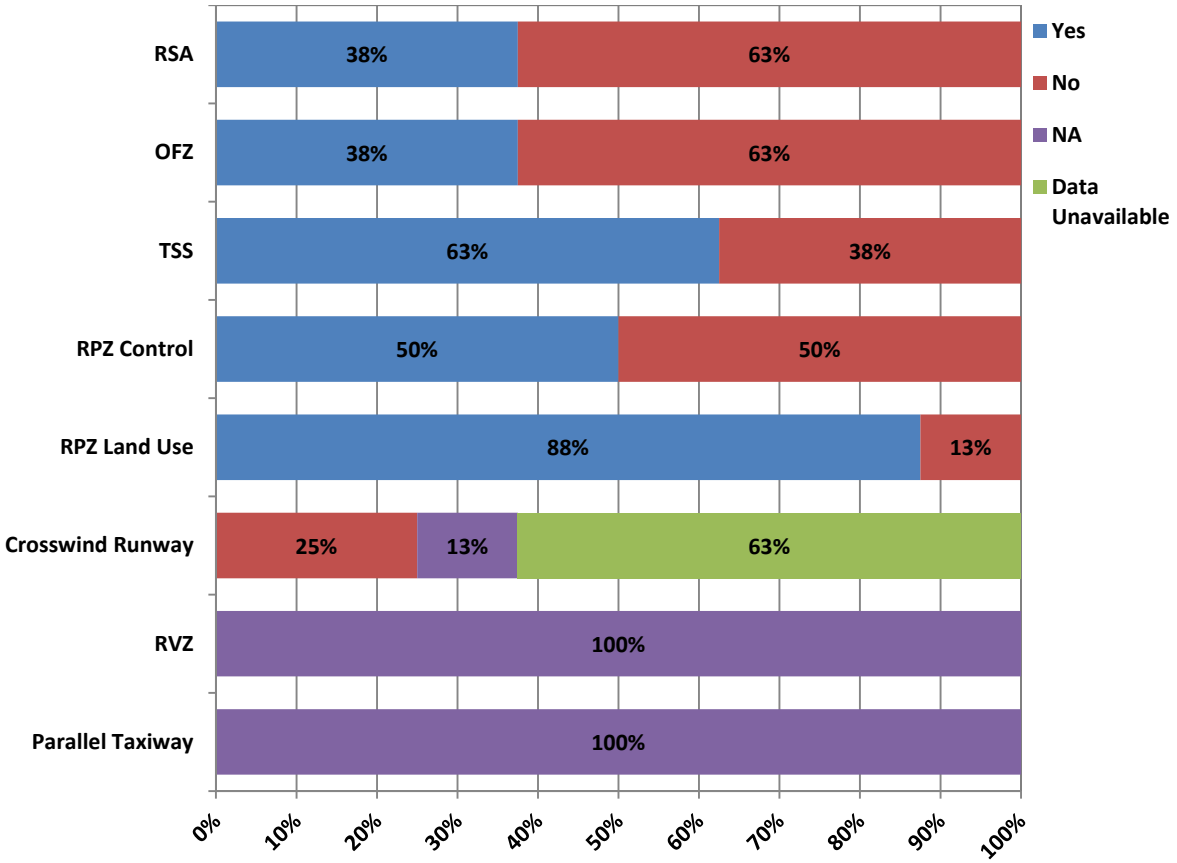
FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
BTT	Bettles	Bettles	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	80%	0%
Z91	Birch Creek	Birch Creek	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	80%	0%
BYA	Boundary	Boundary	Yes	Yes	Yes	Yes	No	Data Unavailable	NA	NA	80% to 90%	80% to 90%	-10% to 10%
5CD	Chandalar Camp	Chandalar Shelf	No	Yes	Yes	No	Yes	Data Unavailable	NA	NA	60% to 70%	60% to 70%	-10% to 10%
WCR	Chandalar Lake	Chandalar Lake	Yes	Yes	Yes	No	Yes	Data Unavailable	NA	NA	80% to 90%	80% to 90%	-10% to 10%
CKX	Chicken	Chicken	No	Yes	No	Yes	Yes	Data Unavailable	NA	NA	55% to 65%	40% to 65%	-10% to 25%
CZN	Chisana	Chisana	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	80% to 100%	0% to 20%
CXC	Chitina	Chitina	Yes	Yes	No	Yes	Yes	NA	NA	NA	85%	75%	10%
CHP	Circle Hot Springs	Circle Hot Springs	Yes	Yes	Yes	No	Yes	Data Unavailable	NA	NA	80% to 90%	80% to 90%	-10% to 10%
Z84	Clear	Clear	Yes	Yes	Yes	No	Yes	NA	NA	NA	90%	90%	0%
CXF	Coldfoot	Coldfoot	Yes	Yes	Yes	Yes	No	Data Unavailable	NA	NA	80% to 90%	80% to 90%	-10% to 10%
K29	Council	Council	Yes	Yes	No	No	Yes	No	NA	NA	65%	65%	0%
DCK	Dahl Creek	Dahl Creek	No	No	Yes	Yes	Yes	Data Unavailable	NA	NA	55% to 65%	55% to 80%	-25% to 10%
FLT	Flat	Flat	Yes	No	No	No	No	Data Unavailable	NA	NA	40% to 50%	20% to 100%	-60% to 30%
GBH	Galbraith Lake	Galbraith Lake	No	Yes	Yes	Yes	No	NA	NA	NA	70%	80%	-10%
AQY	Girdwood	Girdwood	No	Yes	Yes	No	Yes	Data Unavailable	NA	NA	60% to 70%	60% to 70%	-10% to 10%
Z40	Goose Bay	Goose Bay	Yes	No	Yes	Yes	Yes	NA	NA	NA	85%	75% to 85%	0% to 10%
5Z5	Kantishna	Kantishna	No	Yes	No	No	Yes	Data Unavailable	NA	NA	45% to 55%	30% to 55%	-10% to 25%

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index	2011 Design Index	Change
KDK	Kodiak	Kodiak Municipal	No	No	No	No	No	Data Unavailable	No	NA	10% to 20%	10% to 20%	-10% to 10%
Z55	Lake Louise	Lake Louise	Yes	Yes	Yes	No	Yes	NA	NA	NA	90%	90%	0%
2AK	Lime Village	Lime Village	No	No	No	No	Yes	Data Unavailable	NA	NA	30% to 40%	30% to 40%	-10% to 10%
MYK	May Creek	May Creek	No	No	No	Yes	Yes	Data Unavailable	NA	NA	40% to 50%	20% to 100%	-60% to 30%
15Z	McCarthy	McCarthy	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%	90% to 100%	-10% to 10%
MHM	Minchumina	Minchumina	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
Z17	Ophir	Ophir	Yes	Yes	No	No	No	Data Unavailable	NA	NA	55% to 65%	20% to 100%	-45% to 45%
A14	Portage Creek	Portage Creek	No	No	No	No	No	Yes	No	NA	20%	30% to 40%	-20% to -10%
PPC	Prospect Creek	Prospect Creek	No	Yes	Yes	Yes	Yes	NA	NA	NA	80%	70%	10%
RMP	Rampart	Rampart	Yes	Yes	Yes	No	Yes	Data Unavailable	NA	NA	80% to 90%	80% to 90%	-10% to 10%
SKW	Skwentna	Skwentna	No	No	No	Yes	Yes	Data Unavailable	NA	NA	40% to 50%	40% to 50%	-10% to 10%
WSN	South Naknek	South Naknek Nr 2	Yes	No	No	Yes	Yes	Yes	No	NA	60%	60% to 70%	-10% to 0%
2K5	Telida	Telida	Yes	No	Yes	Yes	Yes	Data Unavailable	NA	NA	75% to 85%	20% to 100%	-25% to 65%
3T4	Tetlin	Tetlin	Yes	Yes	Yes	Yes	Yes	NA	NA	NA	100%	100%	0%
9A8	Ugashik	Ugashik	No	No	Yes	Yes	Yes	No	NA	NA	55%	55%	0%
WSM	Wiseman	Wiseman	Yes	Yes	No	No	No	Data Unavailable	NA	NA	55% to 65%	20% to 100%	-45% to 45%
Local NPIAS Lower Activity Airports Average											**67% to 72%**	**60% to 79%**	**-12% to 12%**

Source: CDM Smith, DOWL

3.1.7 Local Non-NPIAS Airports Design Standards Index

Figure 27 depicts the Design Standards Index at the eight Local Non-NPIAS classification airports. With no airports in this class having at least 20,000 annual operations or intersecting runways, RVZ and parallel taxiway standards do not apply to this classification. Of categories that apply to all airports in this classification, the most airports met standards for RPZ land use, with 88 percent of airports meeting compliance. Wind data is not available for 63 percent of these airports.



Source: CDM Smith, DOWL

Figure 27: Design Standards Index Summary for Local Non-NPIAS Airports

Table 10 details all Design Standards Index compliance at Local Non-NPIAS airports. Three of these eight airports have a score of at least 75 percent. Because these airports were not included in the 2011 Design Standards Index, no change data is presented.

Table 10: Details of Design Standard Indices at Local Non-NPIAS Airports

FAA ID	Associated City	Airport Name	RSA	OFZ	TSS	RPZ Control	RPZ Land Use	Crosswind Runway	RVZ	Parallel Taxiway	Current Design Index
5KS	Kasilof	Kasilof	No	No	No	No	Yes	No	NA	NA	30%
LKK	Kulik Lake	Kulik Lake	No	No	No	No	Yes	Data Unavailable	NA	NA	30% to 40%
94Z	Nome	Nome City Field	Yes	Yes	Yes	Yes	Yes	No	NA	NA	90%
95Z	North Pole	Bradley Sky-Ranch	No	No	Yes	No	Yes	NA	NA	NA	55%
AK1	Palmer	Butte Municipal	No	No	No	No	No	Data Unavailable	NA	NA	20% to 30%
Z81	Salmon Lake	Salmon Lake	No	No	Yes	Yes	Yes	Data Unavailable	NA	NA	55% to 65%
UMT	Umiat	Umiat	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%
CYT	Yakataga	Yakataga	Yes	Yes	Yes	Yes	Yes	Data Unavailable	NA	NA	90% to 100%
Local Non-NPIAS Airports Average											**58% to 64%**

Source: CDM Smith, DOWL

3.2 Service Indices

Service Indices are a specific set of performance measures for the 176 Alaskan airports within the Regional and Community airport classifications. These Indices aim to measure each airport's effectiveness in providing the services and facilities needed for their respective markets. Facility and service performance measures were developed for these classifications based on typical user needs. The Service Index not only provides useful information about the current system, but allows for the tracking of improvements over time. The results will be compared to Service Indices established in the 2011 *Mission, Goals, Measures, and Classifications*. Regional and Community classifications analysis does not include seaplane bases.

The following facility and service categories are included in the Airport Service Index:

- **Runway**: an airport's required runway length, surface, and strength are largely determined by the type of aircraft utilizing the facility. Aircraft with higher speeds and larger payloads require longer runways, while turbine aircraft typically require pavement due to higher concern regarding foreign object damage on gravel runways. For Alaska's Regional airports, the minimum length (5,000 feet) and pavement strength (30,000 pounds single wheel load) are minimums for the type of mainline mail carriers that typically use these airports. Runway length recommendations at Community airports vary by airport and are dependent on a number of factors including elevation, design aircraft type, and haul/stage length. The runway length needed at each Community airports is determined by review of regional transportation plans and ALPs.
- **Runway Lighting**: runway lighting is an important facility for night operations, with higher intensity runway lighting suitable for both night and low visibility operations. Regional airports are recommended to have high intensity runway lighting (HIRL), and Community airports to have medium intensity runway lighting (MIRL).
- **Taxiway**: the type of taxiway at an airport can greatly enhance safety and efficiency of operations. Without a taxiway, aircraft must back taxi on the runway itself, increasing runway occupancy times. Because of their tendency to serve turbine aircraft, Regional airports are recommended to have a full parallel taxiway. No taxiway recommendation exists for Community airports.

- **Instrument Approach Procedure Minimum**: the type of instrument approach procedure (IAP) at an airport greatly affects the overall utility of an airport, particularly in times of inclement weather. Because they typically serve turbine aircraft requiring IAPs with lower minimums, Regional airports are recommended to have a published IAP with a visibility minimum of 3/4-mile or lower. Community airports are recommended to have a published IAP with a visibility minimum of 1-mile or lower.
- **Meets Demand for Lease Lots**: the ability of an airport to meet demand for lease lot space is a necessary characteristic of a growing airport. Both Regional and Community airports meet this service Index if they are found to have no current unmet demand for lease lots.
- **Meets Demand for Tie-Downs.**: the ability of an airport to meet demand for tie-down parking space is a necessary characteristic of a growing airport. Both Regional and Community airports meet this service Index if they are found to have no current unmet demand for tie-down spaces.
- **Fuel Sales**: the availability of aviation fuel is one of the most basic services that an airport can provide its users. DOT&PF does not directly offer this service to users, but provides permits allowing fuel services for airport tenants. No particular recommendation is made for Jet A fuel or 100LL AvGas (for piston aircraft) at Alaska airports, but all airports in the Regional and Community classifications are recommended to provide some form of aircraft fuel sales.
- **Passenger Shelter**: a passenger shelter is a minimum amenity that airports should provide their passengers. A shelter facility is recommended for all airports in both the Regional and Community classifications.
- **Public Toilet**: public toilet facilities are minimum amenities that airports should provide their passengers and are recommended for all airports in both the Regional and Community classifications.
- The Service Index is comprised of weighted scores for each of the above facility and service categories, with a total of 100 percent possible for airports meeting all categories for their classification. Table 11 summarizes minimum Service Index recommendations

at Regional and Community airports in Alaska, including the weighted score assigned to each category. These objectives and weighted scores are the same as those used in the 2011 *Mission, Goals, Measures, and Classifications*. This continuity allows for the tracking of airport improvements. Because taxiway is not an objective for Community airports, these points are split between runway and runway lighting standards, accounting for the higher percentages these categories have for Community airports than for Regional.

Table 11: Service Index Recommendations

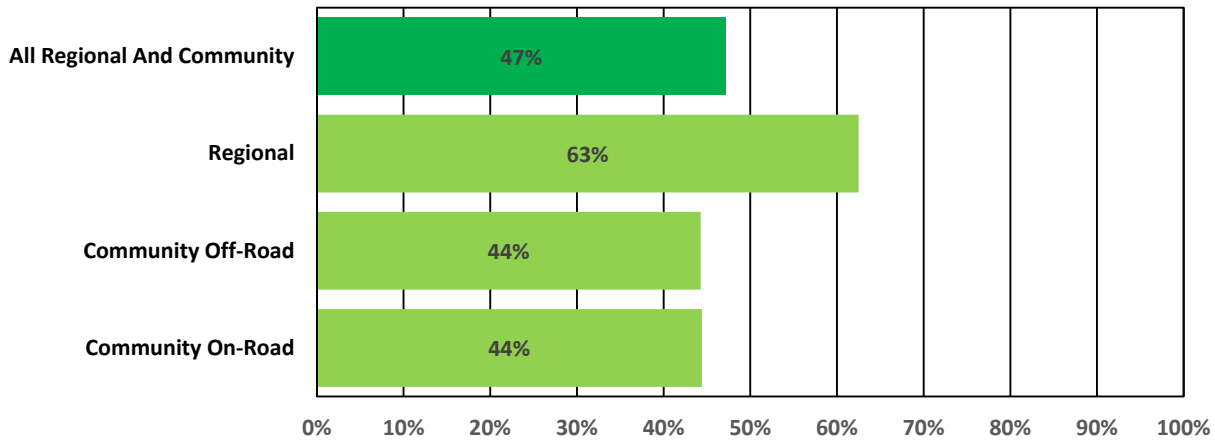
Facility and Service Category	Regional Airports		Community Airports	
	Objective	**Percent**	**Objective**	**Percent**
Runway	5,000' Length Paved SW 30,000 lb. Strength	25%	Minimum Length Needed Now	30%
Runway Lighting	High Intensity	10%	Medium Intensity	15%
Taxiway	Full Parallel	10%	Not an Objective	0%
Instrument Approach Minimum	3/4 Mile	15%	1 Mile	15%
Demand for Lease Lots	Meets Demand	10%	Meets Demand	10%
Demand for Tie-Downs	Meets Demand	10%	Meets Demand	10%
Fuel Sales	Yes	10%	Yes	10%
Passenger Shelter	Yes	5%	Yes	5%
Public Toilet	Yes	5%	Yes	5%
Total		**100%**		**100%**

Source: Mission, Goals, Measures, and Classifications

A total Service Index was calculated for the Regional, Community Off-Road, and Community On-Road classifications. This provides an opportunity to measure how specific aviation markets are being served across the entire state. The total Index was calculated as the average of all individual airport Service Index scores within each classification. If all airports in a classification have a service index score of 100 percent, the score for that classification is 100 percent. Figure 28 presents Service Indices for the Regional, Community Off-Road, and Community On-Road classifications. The 63 percent Service Index for Regional airports is a decrease from the 2011 Service Index of 69 percent to 71 percent.[1] In the 2011 study, Community Off-Road and On-Road airports were grouped under one Community classification. When combined, these classifications have a current Service Index of 44 percent, which is a decrease from the 2011 Service Index of 55 to 56 percent. The decrease in the Service Index is largely attributed to the

[1] Because some data was unknown in the 2011 *Mission, Goals, Measures, and Classifications*, results were expressed in a range of values for certain airports. The classification Service Index scores reflected these ranges.

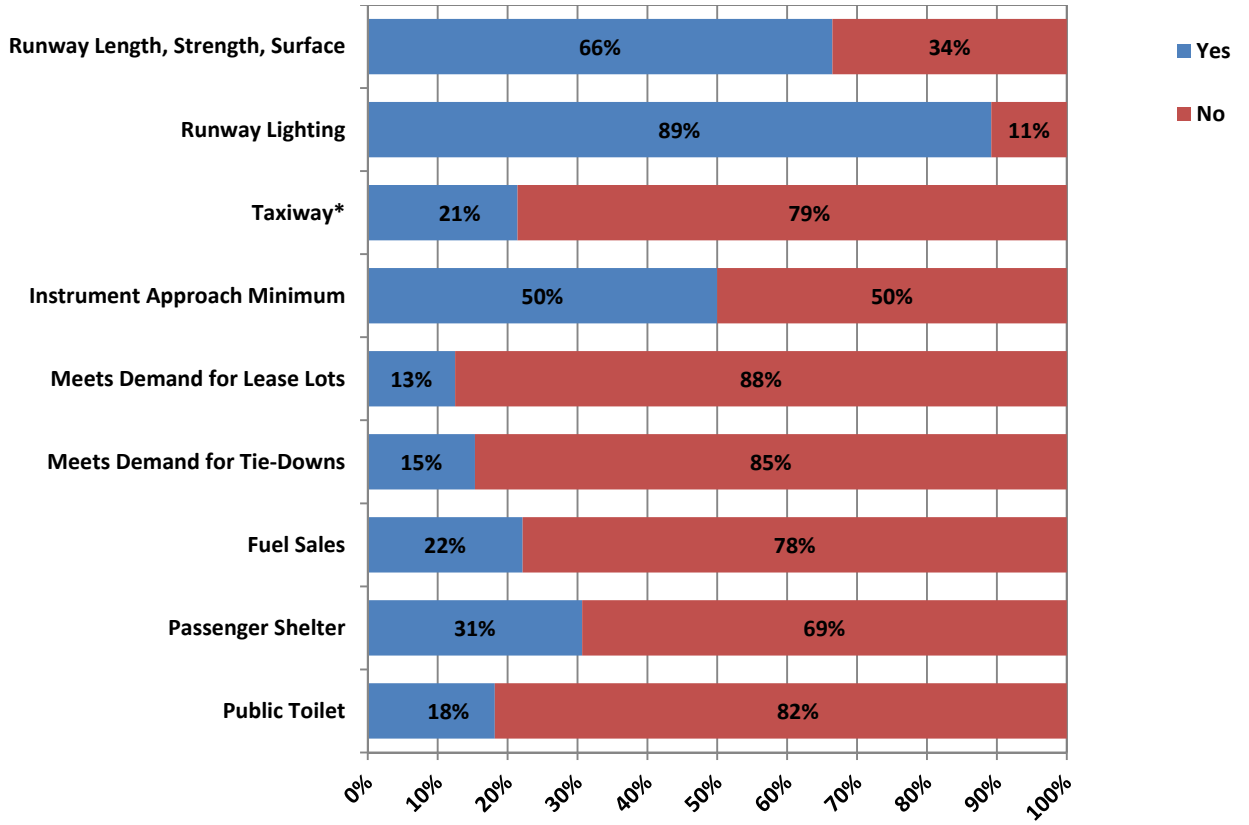
greater integrity of data used in this update in comparison to data used in 2011. The Service Index for all 177 Regional and Community airports in these categories is 47 percent.



Source: CDM Smith, DOWL

Figure 28: Airport Classification Service Indices

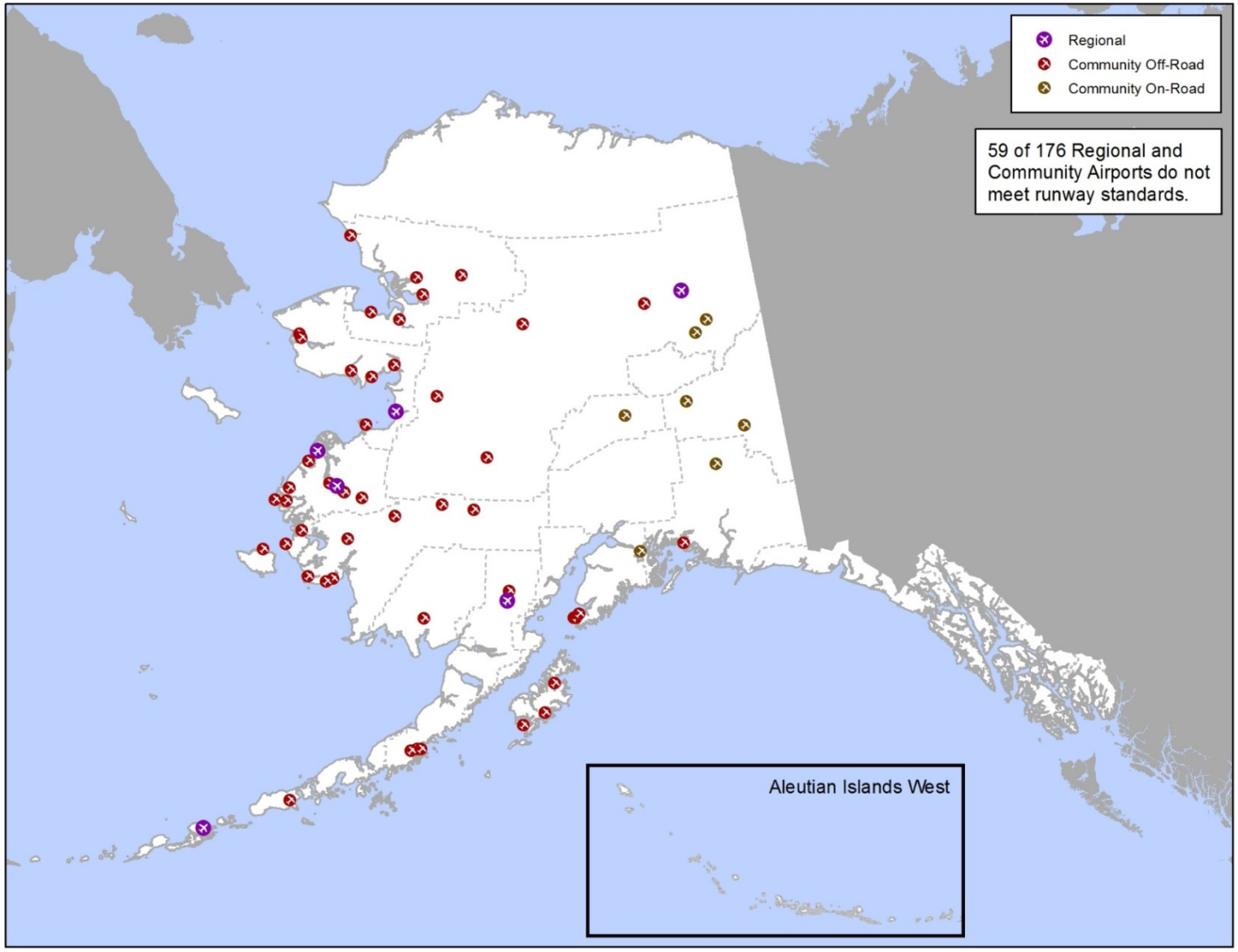
Figure 29 summarizes facility and service objectives included in the Service Indices for all airports in the Regional, Community Off-Road, and Community On-Road classifications. Overall, more airports meet objectives for runway and runway lighting than objectives for other facilities and services. Objectives for lease lot availability and tie-down availability achieved the least, with only 13 percent and 15 percent of airports meeting the objectives, respectfully.



*Only applies to Regional airports
Source: CDM Smith, DOWL

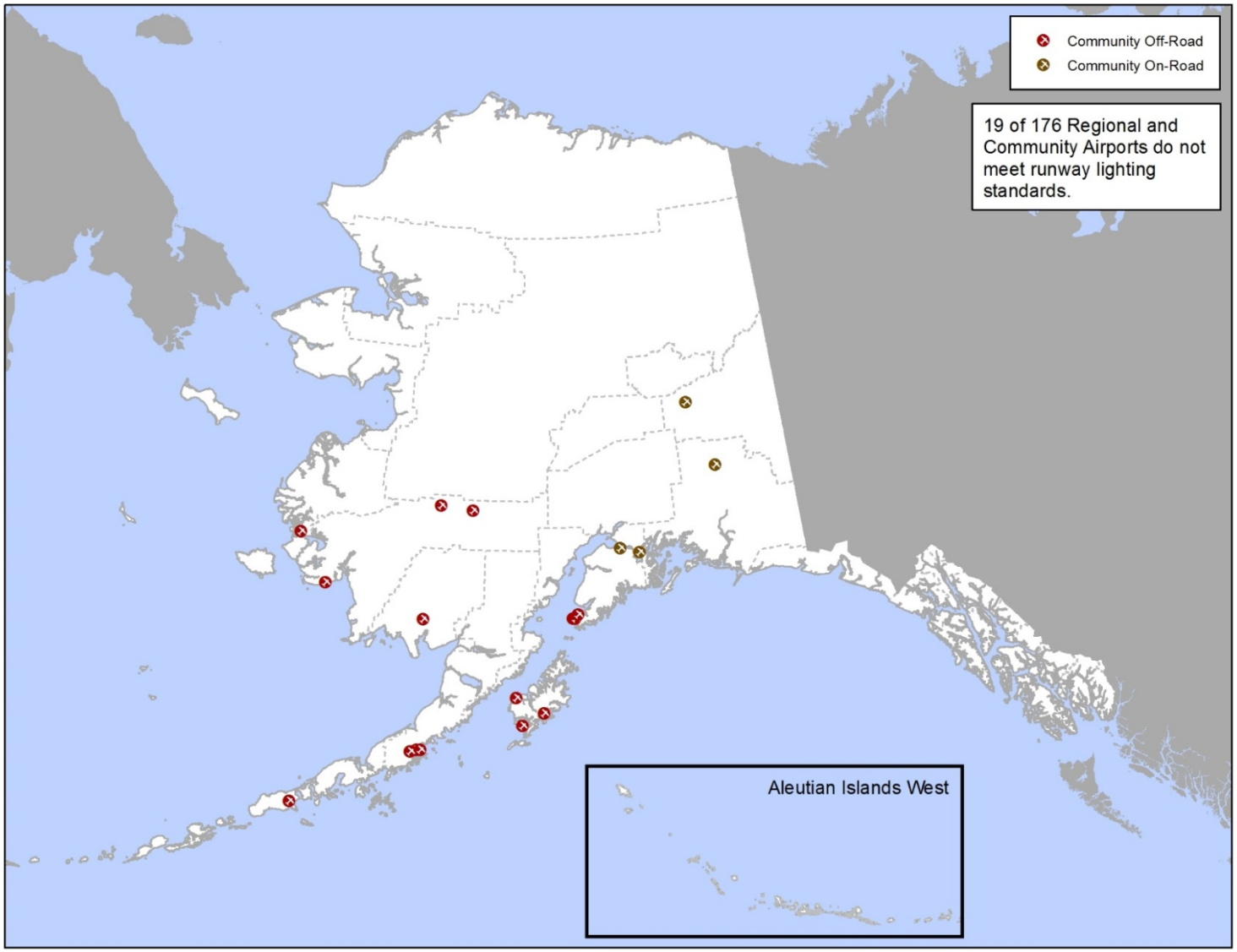
Figure 29: Summary of Service Index Objectives at All Regional and Community Airports

Figures 29 through 37 reveal the locations of airports not meeting Service Index standards.



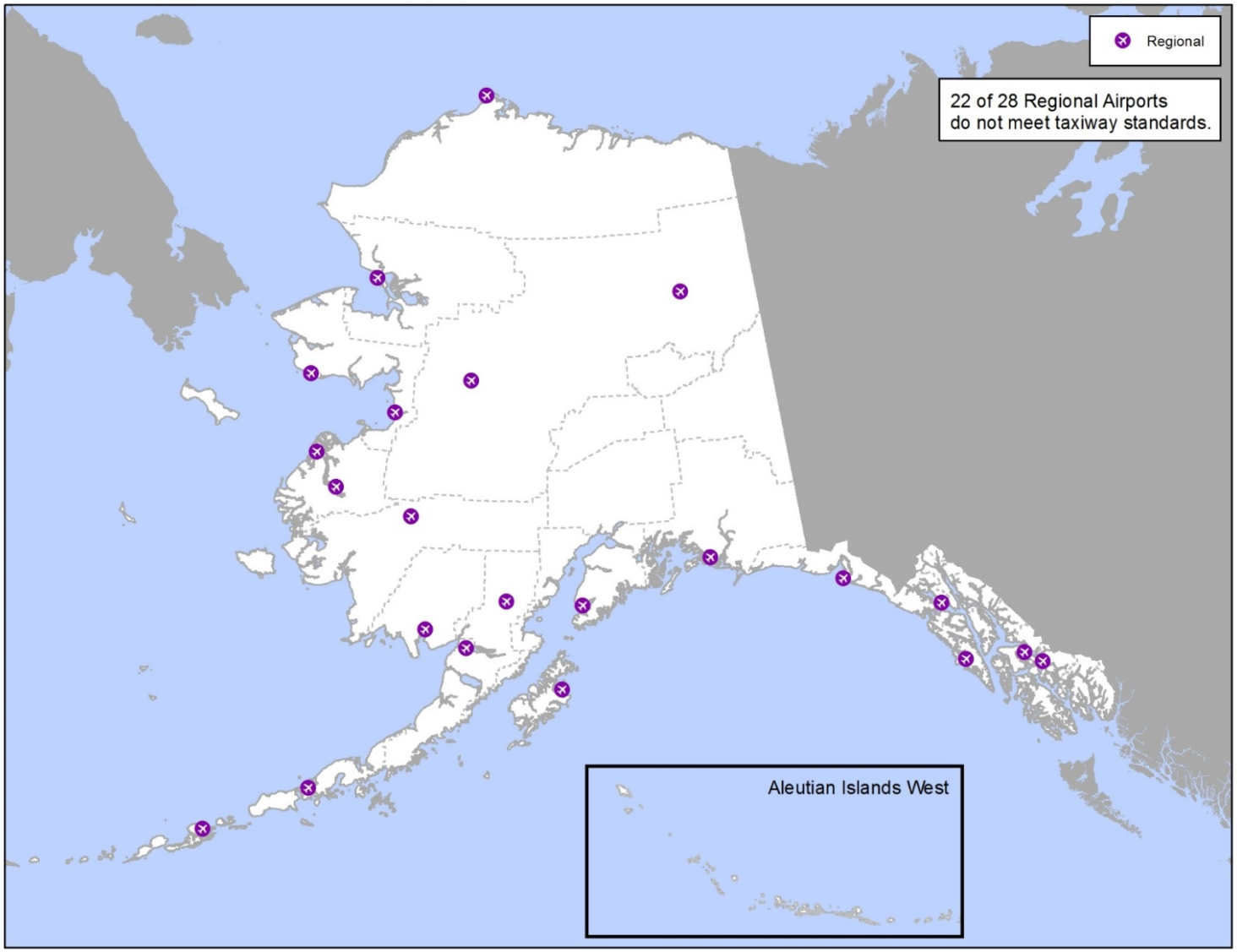
Source: CDM Smith, DOWL

Figure 30: Airports Not Meeting Runway Length, Strength, and Surface Standards



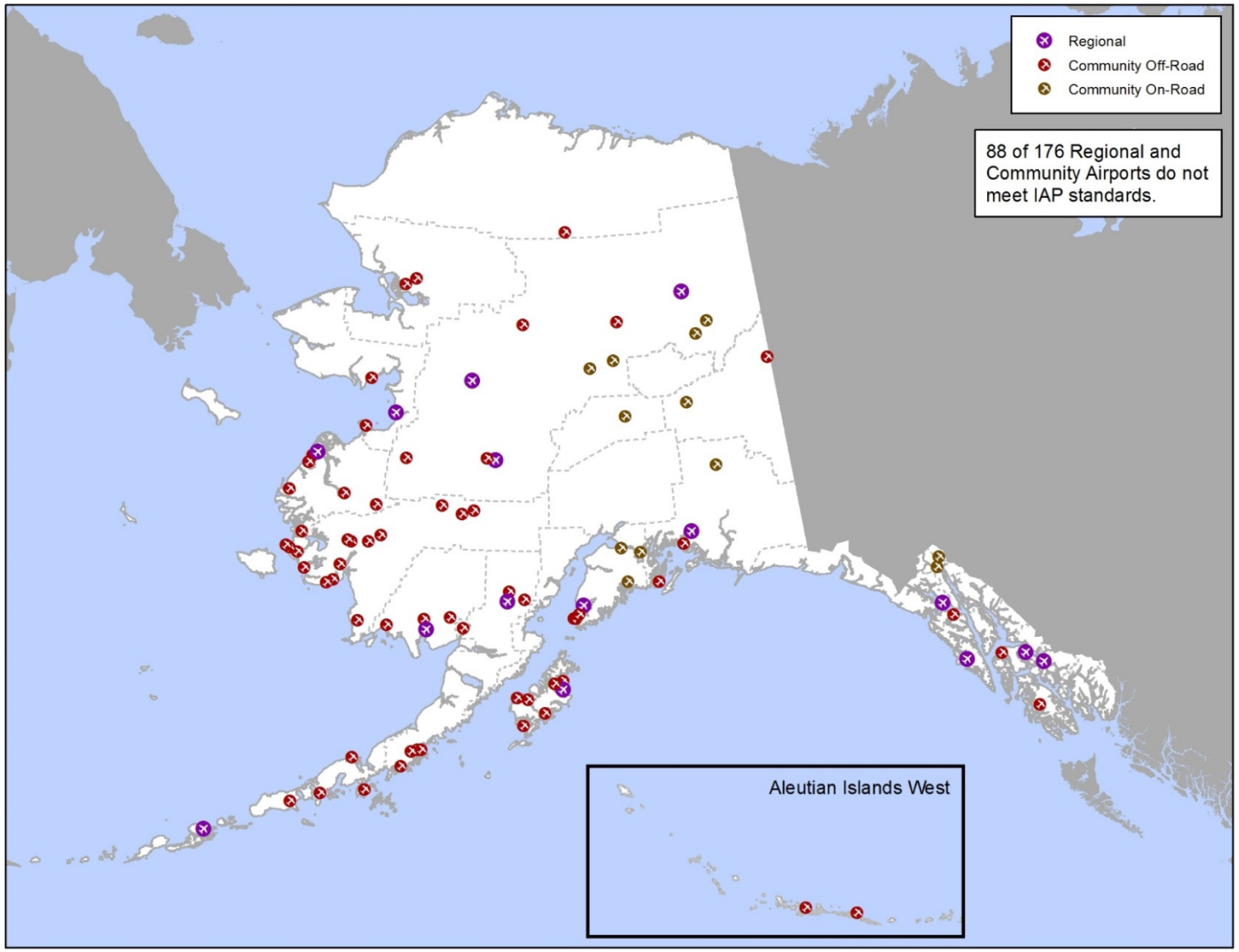
Source: CDM Smith, DOWL

Figure 31: Airports Not Meeting Runway Lighting Standards



Source: CDM Smith, DOWL

Figure 32: Airports Not Meeting Taxiway Standards



Source: CDM Smith, DOWL

Figure 33: Airports Not Meeting Instrument Approach Minimum Standards