DEPARTMENT OF TRANSPORTATION

Agenda: SASP Technical Advisory Committee Meeting #3

Date: 05/09/18

Public Involvement Plan Update

Defining the System

Recommended Classifications Discussion

- Review current system
- Proposed changes
- Classification roles
- Outreach – what we heard from SAC

Airport Measures Discussion

- Proposed name change
  - From Minimum System Objectives to "Airport Measures", creation of "Airport Indicators"
- Define audience of the Plan & assign Small Group roles (note taker and spokesperson)
- Review 2012 Airport Measures*
  - Define and how they were used in 2012
  - What's important/not important?
  - Provide Feedback on Chart Parameters
  - Additional Airport Measure ideas
  - Requirements vs. Recommendations
  - Report-out

*Small Group Discussion – MnDOT Staff roaming around, answering questions

Break

System Measures Discussion
- Proposed name change
  - From Performance Measures to "System Measures" and "System Indicators"
- Review 2012 System Measures*
  - What's important/not important?
  - Tiered Measure or not?
  - Tweak Targets
  - Suggested Update Cycle
  - Additional System Measure ideas
  - Report-out

Indicators Discussion (Time Permitting)
- System Indicators Discussion
  - Are *System Indicators* valuable?
  - What to move forward, what to cut
  - Continuous tracking
- Airport Indicators Discussion (NEW)

What's coming

Minimum System Objectives

As noted above, the primary baseline used to determine airport facility requirements is a comprehensive list of minimum system objectives. These minimum objectives align with Federal Aviation Administration (FAA) airport requirements as well as Minnesota's statutes on airport development. Where neither state nor federal guidance is available, commonly accepted industry standards are used. The minimum systems objectives are not intended to promote unnecessary airport development; rather, they are developed to ensure Minnesota's airports have the necessary facilities to be safe and economically competitive, nationally and internationally.

Table 5-2: Minimum System Objectives by Airport Class

FACILITY	KEY AIRPORTS	INTERMEDIATE AIRPORTS	LANDING STRIPS
Primary Runway Length & Width	5,000 Feet 100 Feet	2,400 Feet 75 Feet	2,000 Feet 75 Feet
Parallel Taxiway Length	Full Parallel	Full Parallel if Airport Has More Than 20,000 Annual Ops	No Minimum
Primary Runway Approaches	Precision	Non-Precision	Visual
Navigation Systems	Wind Cone, Rotating Beacon, PAPIs, REILs & MALSR or Other Approach Lighting System	Wind Cone, Rotating Beacon, PAPIs, REILs or Greater Approach Lighting System	Wind Cone & Rotating Beacon if Airport is Lighted
Runway Lighting	HIRL for Airline Service and MIRL for All Other	LIRL or Greater	LIRL
Weather Reporting	AWOS/ASOS	AWOS/ASOS as Needed	No Minimum
Hangars (For Based Aircraft)	100 percent of Jets/TP 95 percent of SEP & MEP	100 percent of Jets/TP 95 percent of SEP & MEP	- 95 percent of SEP & MEP
Aprons (For Based & Transient Aircraft)	All Based Aircraft Not In Hangars + Peak Hour Itinerant Operations	All Based Aircraft Not In Hangars + Peak Hour Itinerant Operations	All Based Aircraft Not In Hangars + Peak Hour Itinerant Operations
Terminals & GA/Administration Buildings	Terminal at Airline Service Airports & GA/Administration Building at Non-Airline Service	GA/Administration Building	Restroom
Automobile Parking	1 Space for Each Based Aircraft & 50 percent Increase for Employee and Visitor Parking	1 Space for Each Based Aircraft and 25 percent Increase for Employee and Visitor Parking	1 Space for Each Based Aircraft
Perimeter Fencing	Entire Airport	Entire Airport Desirable	Separate Auto from Airside
Fuel Facilities	24 Hr. 100LL & Jet A	24 Hr. 100LL Desirable	100LL as Needed

Note: HIRL = High Intensity Runway Lights, MIRL = Medium Intensity Runway Lights, LIRL = Low Intensity Runway Lights, AWOS = Automated Weather Observation System, ASOS = Automated Surface Observation System, GA = General Aviation, SEP = Single Engine Piston, MEP = Multi-Engine Piston, TP = Turboprop, PAPI - Precision Approach Path Indicator, REIL - Runway End Indentifier Lights, MALSR - Medium Intensity Approach Lighting System
Source: MnDOT Office of Aeronautics

Airport Measures by Classification

Red Text: Required by Statute, Rule, etc.

Green Text: Notes to consider

Blue Text: Proposed new Airport Measure

~~Strikethrough Text:~~ Proposed deletion of Airport Measure

FACILITY	KEY		INTERMEDIATE		LANDING STRIP	
	KEY COMMERCIAL SERVICE	KEY GENERAL AVIATION	INTERMEDIATE LARGE	INTERMEDIATE SMALL	LANDING STRIP TURF	LANDING STRIP SEAPLANE BASE
~~Primary Runway Length~~	Propose not including runway length as a Minimum System Objective as it is part of what defines classifications.					
Primary Runway Width	___ feet	100 feet (MN Rules require at least 75 feet)	75 feet (MN Rules require at least 60 feet)	__ feet (MN Rules require at least 60 feet)	**75 feet** (MN Rules require at least 75 feet)	**"Sufficient for safe operation"**
Runway Lighting						
Primary Runway Approaches						
Parallel Taxiway						
Taxiway Width						
Navigation Systems						
Weather Reporting						
Hangars (for based aircraft)	As needed or remove objective?					
Aprons (for based & transient aircraft)						
Terminals & GA/Administration Buildings						
Automobile Parking						
Perimeter Fencing						
Fuel Facilities						
Approach Surface	Clear of obstructions	Clear of obstructions	Clear of obstructions	Clear of obstructions	Clear of obstructions	
ADMINISTRATIVE	KEY COMMERCIAL SERVICE	KEY GENERAL AVIATION	INTERMEDIATE LARGE	INTERMEDIATE SMALL	LANDING STRIP TURF	LANDING STRIP SEAPLANE BASE
Airport Layout Plan						
Emergency Management Plan						
Minimum Standards						
Airport Zoning						

Airport Measures by Classification
NOTES

FACILITY	KEY		INTERMEDIATE		LANDING STRIP	
	KEY COMMERCIAL SERVICE	KEY GENERAL AVIATION	INTERMEDIATE LARGE	INTERMEDIATE SMALL	LANDING STRIP TURF	LANDING STRIP SEAPLANE BASE
Primary Runway Length						
Primary Runway Width						
Runway Lighting						
Primary Runway Approaches						
Parallel Taxiway						
Taxiway Width						
Navigation Systems						
Weather Reporting						
Hangars (for based aircraft)						
Aprons (for based & transient aircraft)						
Terminals & GA/Administration Buildings						
Automobile Parking						
Perimeter Fencing						
Fuel Facilities						
Approach Surface						
ADMINISTRATIVE	KEY COMMERCIAL SERVICE	KEY GENERAL AVIATION	INTERMEDIATE LARGE	INTERMEDIATE SMALL	LANDING STRIP TURF	LANDING STRIP SEAPLANE BASE
Airport Layout Plan						
Emergency Management Plan						
Minimum Standards						
Airport Zoning						

System Measures Worksheet

System Measures are developed for areas where MnDOT has the ability, through investment or other means, to directly impact system performance. System Measures have system targets which outline the desired performance outcome.

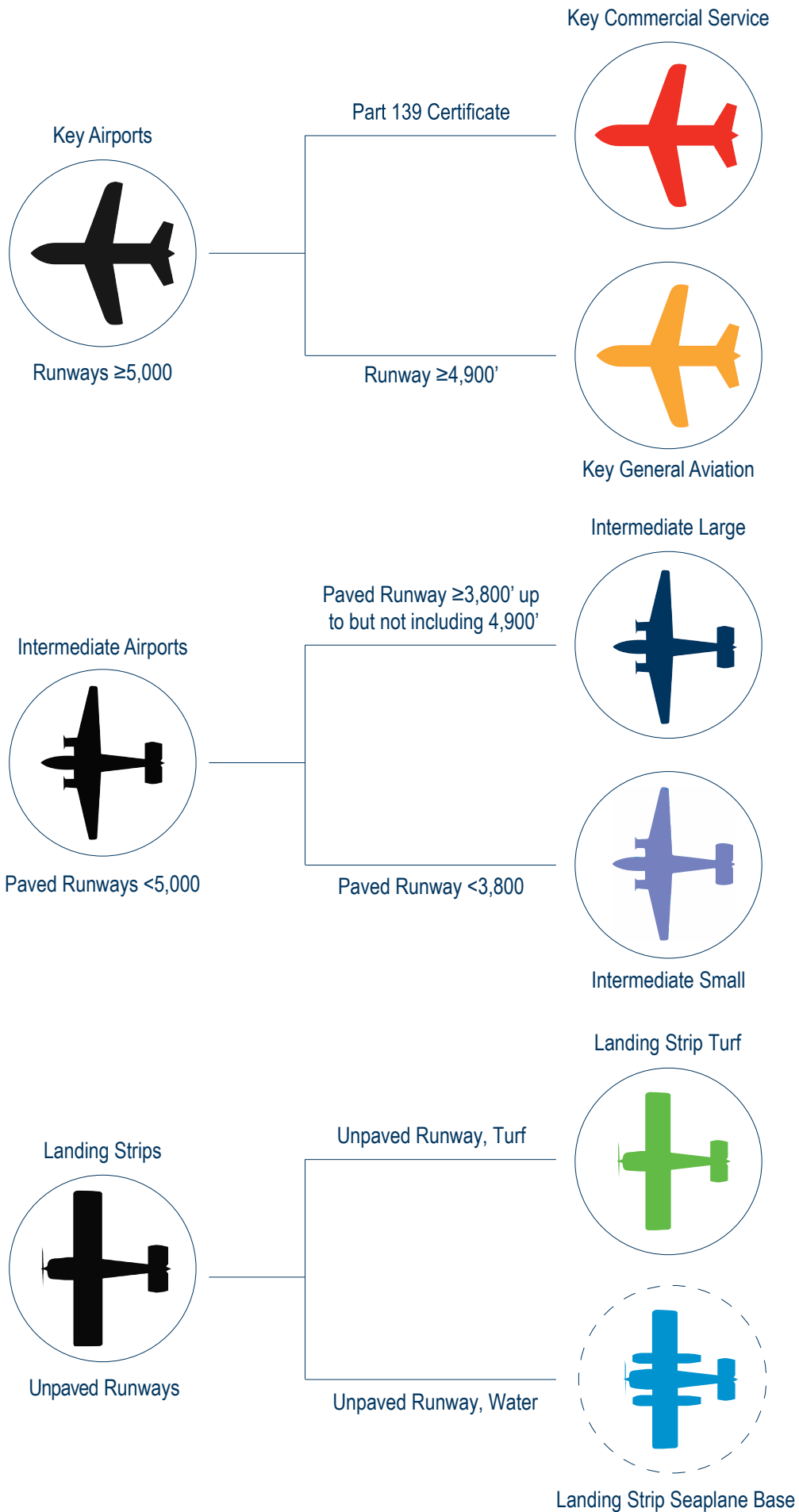| Continue Measuring in SASP Update?	System Measure	System Target	System Performance	Tiered Measure?	Update Cycle
Yes / No	Percent of system airports with an adequate Safety Zoning Ordinance	100% of system airports should have an adequate safety zoning ordinance adopted by a JAZB or equivalent authority.	81% meet the target		
Yes / No	Percent of airports that have no obstruction to protected airspace	100% of system airports should be clear of obstructions to FAA FAR Part 77 approach and primary airspace surfaces.	Data collection in progress		
Yes / No	Percent of system airports that have a weather reporting station on-site or within 30 nautical miles	100% of system airports should have weather reporting stations on-site or be within 30 nautical miles of an airport that has weather reporting on-site.	100% meet the target		
Yes / No	Percent of system airports with adequate approaches appropriate for their classification	100% of system airports should have appropriate approaches. _Key_ – At least one precision approach to the primary runway and a non-precision approach with vertical guidance to the opposite end. _Intermediate_ – At least one runway end with a non-precision approach with vertical guidance. _Landing Strip_ – Visual approaches are appropriate.	32% meet the target		
Yes / No	Percent of system airports within 50 nautical miles of an airport that serves as an alternate for an IFR flight plan	100% of system airports should have an IFR alternate airport within 50 nautical miles (airport with an ILS monitored at all times and weather reporting.	32% meet the target		
Yes / No	Percent of system airports with up-to-date planning documents	100% of system airports have up-to-date federal and state approved planning documents that exhibit existing and future development. _Key_ – ALP and Master Plan/LTCP updated or revisited at least every 7 years. _Intermediate_ – ALP and Master Plan/LTCP updated or revisited every 15 years. _Landing Strip_ – Should have an ALP	10% meet the target		
Yes / No	Percent of system airports with navigation systems that are up-to-date	100% of system airports should have up-to-date navigation aids appropriate for its classification.	Data collection in progress		
Yes / No	Runway and parallel taxiway pavement conditions within PCI targets	_Key_ – 85% percent of primary runway pavements should be in "very good" or "excellent" condition (PCI of 70 or greater) _All paved airports_ – 84%percent of all runway and parallel taxiway pavements should be in at least "good" condition (PCI of 55 or greater) and no more than 4% percent of all runway and parallel taxiway pavements should be in "poor condition" (PCI of 40 or less).	77% of Key Airports meet the target 87.8% of runways/taxiways have a PCI of 55 or greater. 5.8% of runways/taxiways rated at a PCI of 40 or less.		

System Indicators Worksheet

System Indicators measure areas where MnDOT has little or no ability to influence the outcome but the expectations for transparency and information sharing still exist. Indicators can be driven by market demand, local community growth, or other difficult to influence factors. They are designed to show trends and help describe how well the overall system is functioning.

Continue Measuring in SASP Update?	System Indicator	System Performance	Tiered Measures?	Update Cycle
Yes / No	Percent of Hospitals with access to an instrument approach either on site or within a 15 minute drive time	77% of hospitals within 15 minutes		
Yes / No	Total number of aviation related accidents in Minnesota	26 accidents in 2011		
Yes / No	Total number of aviation related fatalities in Minnesota	2 fatalities in 2011		
Yes / No	Percent of time that pilots can use an airport is primarily dependent on weather conditions.	MnDOT D1 airports usable 363 days per year		
Yes / No	Percent of population that is within a 40, 60, and 90 minute surface travel time to a Key Airport	99% of population within 90 minutes		
Yes / No	Percent of the population that is within 30 minutes surface travel time to a paved and lighted runway	71% of population within 30 minutes		
Yes / No	Percent of Level 1 and 2 Regional Trade Centers that are within 30 minutes surface travel time to a Key Airport	100% of Level 1 & 67% of Level 2 within 30 minutes		
Yes / No	Percent of Level 3 Regional Trade Centers that are within 30 minutes surface travel time to at least one Key or Intermediate Airport	100% of Level within 30 minutes		
Yes / No	Percent of the population that is within 60 minutes surface travel time to an airport with scheduled airline service	72% of population within 60 minutes		
Yes / No	Total number of non-stop markets served from Minnesota	138 non-stop markets in 2011		
Yes / No	Total number of originating passengers departing from MSP	7.8 million passengers in 2010		
Yes / No	Annual delay at MSP	1720 flights delayed in 2011		
Yes / No	Percent of airports within 50 nautical miles of an airport with fueling available 24/7	100% of airports within 50 nautical miles		
Yes / No	Percent of airports that are within 50 nautical miles of an airport that has aircraft maintenance and repair facilities.	100% of airports within 50 nautical miles		
Yes / No	Percent of population that is within 60 minutes surface travel time to scheduled cargo service	75% of population within 60 minutes		

2012 SASP Airport Classification

Proposed SASP Classification

Key Airports
Runways ≥5,000

Part 139 Certificate → Key Commercial Service

Runway ≥4,900' → Key General Aviation

Intermediate Airports
Paved Runways <5,000

Paved Runway ≥3,800' up to but not including 4,900' → Intermediate Large

Paved Runway <3,800 → Intermediate Small

Landing Strips
Unpaved Runways

Unpaved Runway, Turf → Landing Strip Turf

Unpaved Runway, Water → Landing Strip Seaplane Base

MnDOT SASP Phase 1
Classification Review

Outreach Summary

The following groups were consulted and outreach meetings held to gather input on the classification system:

- MnDOT Aeronautics Staff
- SASP Advisory Committee (SAC)
- Technical Advisory Committee (TAC)
- Aviation Consultant Community Workshop

What we learned

The following summarizes what was learned in the assessment of the existing classification system:

- The Key Airports may benefit from being split into two categories in order to separate general aviation from commercial service.
- The Intermediate classification includes a wide variety of airport sizes, roles, and uses. This classification may benefit from being divided further.
- Publicly owned public use seaplane bases are not adequately included in the existing classification system. Although none exist today, they may in the future and inclusion may be beneficial.
- The classification system should include reference to the airport's role in the aviation system.
- There are other potential ways MnDOT could utilize classification in the future.
- The FAA ASSET classification system classifies airports differently, but may not be applicable to the SASP classification system.
- The classification names should make their classification relative to other classifications understandable. For example, it is hard to conceptualize the difference between the classification name of 'Basic' and 'Local" in the ASSET classification.
- There may be benefits in classifying airports based on more than just runway length.

Proposed Classification Changes

Key Airports

The 2012 SASP defines Key Airports as airports with a paved and lighted primary runway at least 5,000 feet in length. The existing SASP Key Airport definition is: "Airports with runway lengths of 5,000 feet or more". Minnesota Administrative Rules Chapter 8800 currently requires runways 4,900 feet or longer to be considered an "Other Than Utility Runway" (requiring a 34:1 approach slope).   MnDOT proposes to revise the bottom limit of the Key Airport classification to 4,900 feet to correspond with the Minnesota Rules requirement for runways to be Other Than Utility once they reach a length of 4,900 feet. Currently, the longest non-Key Airport's primary runway is 4,794 feet long so this change is not expected to impact any airport's existing classification.

MnDOT recommends subdividing the Key classification into two groupings, those with commercial air service and those without through development of a Key Commercial

classification (Key Airports with a Part 139 Certificate) and a Key General Aviation classification. Key General Aviation airports would be defined as general aviation airports with a paved runway of at least 5,000 feet while Key Commercial Service Airports would be defined as Part 139 Airports with a paved runway of at least 5,000 feet.

Intermediate Airports

The 2012 SASP defines Intermediate Airports as airports with paved and lighted runways less than 5,000 feet. The existing Intermediate classification includes all airports with paved primary runways under 5,000 feet in length. Existing primary runway lengths for this classification range from 2,522 feet to 4,794 feet. This classification includes a wide range of airport sizes, roles, and activity levels. It was determined that subdividing this classification would better group similar airports within the Intermediate classification.

In order to better understand potential groupings of airports within this classification, MnDOT consulted the FAA runway length guidance contained in Advisory Circular (AC) 150/5325-4B. The length recommendations in **Table 1** were developed using the average mean maximum temperature for Minnesota, as well as the average airport elevation for the State.

Table 1 – FAA Recommended Runway Lengths
Minnesota Average Conditions

Aircraft Type	Runway Length
Small Airplanes with Approach Speeds <50 knots	893'
Small Airplanes with Approach Speeds >50 knots	
Small Airplanes with <10 Passenger Seats	
95% of these Small Airplanes	**3,300'**
100% of these Small Airplanes	**3,900'**
Small Airplanes with ≥10 Passenger Seats	**4,250'**
Large Airplanes ≤60,000 lbs.[1]	
75% of these Airplanes at 60% Useful Load	4,888'
75% of these Airplanes at 90% Useful Load	7,000'
100% of these Airplanes at 60% Useful Load	5,500'
100% of these Airplanes at 90% Useful Load	8,000'

Source: AC 150/5325-4B, Runway Length Requirement for Airport Design
Elevation: 1,168' MSL   Temperature: 81.18° F (Average of MN System Airports)
[1] Large Airplanes adjusted for wet and slippery conditions. Unadjusted for non-zero runway gradient.

Intermediate airports serve primarily small aircraft with approach speeds of greater than 50 knots as their primary critical aircraft. Therefore, MnDOT focused on these lengths in determining potential break points within the Intermediate classification.

Typically, general aviation airports serving small aircraft in Minnesota are able to use the 95 percent of small aircraft recommended runway length. FAA guidance indicates that this recommendation is relevant to use for airports serving medium sized population communities

with diverse usage. This length recommendation also includes airports primarily intended to serve low-activity locations, small population communities and remote recreational areas.

The 100 percent of fleet curve is typically reserved for use in communities located on the fringe of a metropolitan area or relatively large population areas remote from a metropolitan area. Typically, this length curve is not applicable for general aviation airports serving small aircraft outside of the Twin Cities Metropolitan area.

The runway length recommendations for small aircraft with 10 or more passenger seats, such as a King Air 200, would be applicable for Intermediate airports serving these larger small aircraft.

The runway lengths of existing Intermediate airports are shown across the X axis on **Chart 1** below with the total number of airports having that runway length shown on the right Y axis. The normal distribution of runway lengths is shown in the blue bell curves and the left Y axis. As is depicted, the existing lengths of Intermediate airports cluster around the recommended lengths for 95 percent of small aircraft and small aircraft with ten or more passenger seats (3,300 feet and 4,250 feet, respectively).

Chart 1 - Intermediate Airports Runway Lengths and FAA Recommended Runway Lengths
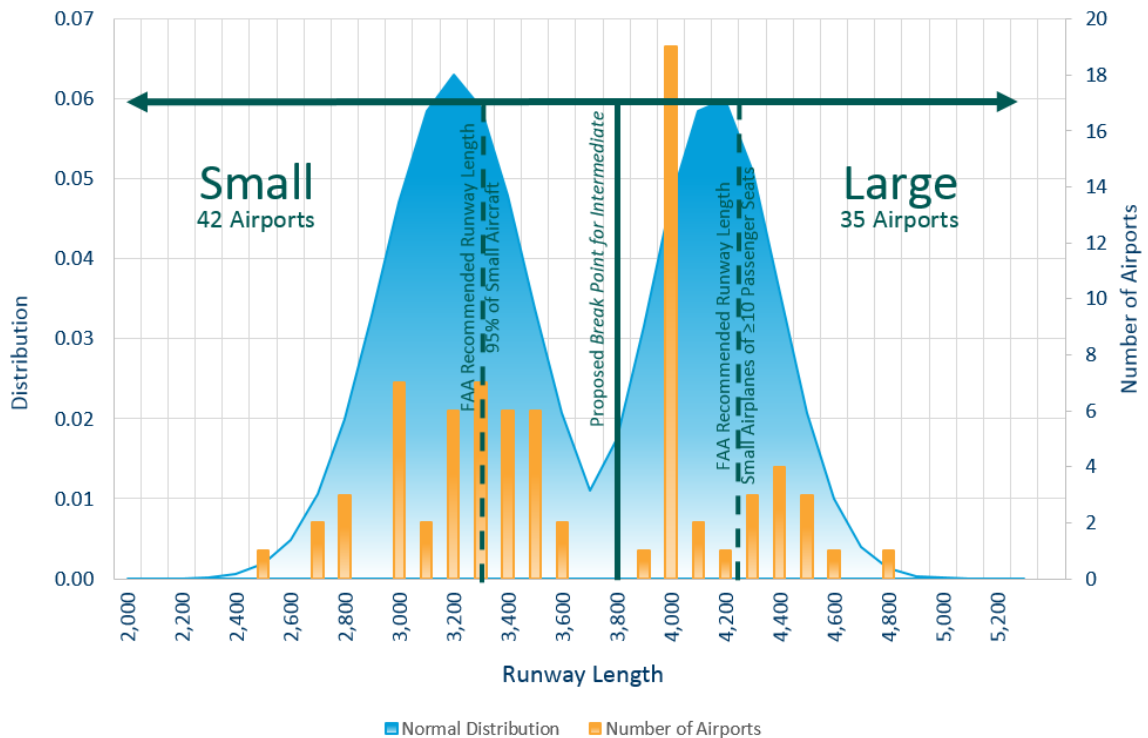
MnDOT recommends 3,800 feet as the break point for dividing the Intermediate classification into Small Intermediate and Large Intermediate. Runway lengths less than this typically clustering around the FAA recommended lengths for 95 percent of small aircraft, and runways more than this length clustering around the FAA recommended length for small aircraft with ten or more passenger seats.

MnDOT recommends that Intermediate Small airports be defined as airports with a paved runway less than 3,800 feet and Intermediate Large airports be defines as airports with paved runways of at least 3,800 feet up to but not including 4,900 feet.

Landing Strips

As defined in the 2012 SASP, Landing Strips have one or more turf runways. In response to stakeholder input, MnDOT recommends revising the landing strip classification to be defined as airports with an unpaved primary runway or seaplane bases.

Seaplane bases that are not part of an airport with a hard surface runway would be in this classification. Although there are no publicly owned public use seaplane bases (without a corresponding hard surface landing area) currently in the State, this revision will provide for classification of these facilities should they develop. Prior to a seaplane base being part of the system as a Landing Strip, Minnesota Statutes Chapter 360 would need to be revised to include water landing areas and/or sea lanes in the landing strip system defined in statute.

Proposed Classification Roles

The recommended classifications generally serve the following roles. Typically, each larger classification often also fills the roles of smaller classifications.

Landing Strip Turf

Turf Landing Strips include airports with an unpaved primary runway, usually turf.

Airports with unpaved primary runways primarily accommodate single-engine aircraft and some multi-engine aircraft. This type of airport may be unusable during certain conditions such as wet weather, winter months, and during the spring melt. A key function of these airports is supporting the agricultural industry with crop seeding and spraying services, as well as recreational aviation uses.

Landing Strip Seaplane Base

Seaplane bases accommodate both single-engine and multi-engine seaplane users. Key functions of seaplane bases include recreational use and providing access points from which to reach remote areas only accessible by seaplane.

Intermediate Small

Intermediate Small Airports primarily accommodate primarily small single- and multi-engine aircraft with less than 10 passenger seats. Airports in this classification may occasionally also be used by aircraft with more than 10 passenger seats.

Intermediate Small Airports often serve as landing facilities for recreational flights, flight training, emergency medical transports, business flights, agricultural flights, and other general aviation uses.

Intermediate Small Airports enable direct connections across Minnesota and the Central US region.

Intermediate Large

Intermediate Large Airports primarily accommodate small single and multi-engine aircraft including small aircraft with more than 10 passenger seats. Airports in this classification may occasionally also be used by small jets.

Intermediate Large Airports serve as landing facilities for recreational flights, flight training, emergency medical transports, business flights, agricultural flights, cargo distribution, and other general aviation uses.

Intermediate Large Airports enable direct connections across Minnesota and national markets.

Key General Aviation

Key General Aviation airports serve as the primary landing facilities for general aviation jets. They are capable of accommodating most business jets, all single-engine aircraft, and larger multi-engine aircraft.

These airports tend to be located near larger population and economic centers, and are often used for business and air freight activities. Key Airports enable direct connections to national and some global markets.

Key Commercial Service

Key Commercial Service airports serve the same role as Key General Aviation and also support regular airline service and the movement of commercial passengers.

Classification Role Icons

Agriculture	Medical	Recreational	Business	Airline Service
Military	Firefighting	Law Enforcement	Search & Rescue	Flight Training
Cargo	Single Engine	Twin Engine	Jet	Large Jet