South Dakota
State Aviation System Plan 2010-2030
Executive Summary

South Dakota DOT
Connecting South Dakota and the Nation

AVIATION FORECASTS

Projection of aviation demand provides the basis for several key analyses, including:

- Determining the roles of the airports within the State's aviation system
- Evaluating the capacity of existing airport facilities and their ability to accommodate projected aviation demand
- Estimating the extent of airside and landside improvements required in future years to accommodate projected demand

This analysis uses the most recent aircraft activity available to project future levels of aviation demand through the year 2030. The forecast analysis includes methodologies based on historical aviation trends at the airports, as well as other socioeconomic trends occurring within the State. It is important that the infrastructure within the aviation system continue to be maintained so that it may support the projected increase in enplanements and based aircraft over the next 20 years.

Commercial Service Passenger Enplanement Projections

AIRPORT	FAA Identifier	2008	2015	2020	2030
Aberdeen	ABR	23,588	24,594	26,931	32,299
Huron	HON	2,570	2,615	2,648	2,715
Pierre	PIR	15,586	16,569	16,991	17,873
Rapid City	RAP	282,536	320,594	359,384	436,964
Sioux Falls	FSD	384,618	365,511	390,933	453,624
Watertown	ATY	4,860	5,058	5,058	5,058
	Total	713,758	734,941	801,945	948,533

Source: Airport Master Forecasts, FAA Terminal Area Forecast System, Mead & Hunt, Inc.

Based Aircraft Projections

		2008	2015	2020	2030
Air Carrier Airports					
	Based Aircraft	451	484	508	561
	Airports	6	6	6	6
	Avg. Based Aircraft/Airport	75	81	85	94
General Aviation Airports					
	Based Aircraft	840	900	947	1,046
	Airports	66	66	66	66
	Avg. Based Aircraft/Airport	13	14	14	16
Statewide Total					
	Based Aircraft	1,291	1,384	1,455	1,607
	Airports	72	72	72	72
	Avg. Based Aircraft/Airport	18	19	20	22

Source: Airport Master Forecasts, FAA Terminal Area Forecast System, Mead & Hunt, Inc.

ECONOMIC IMPACT

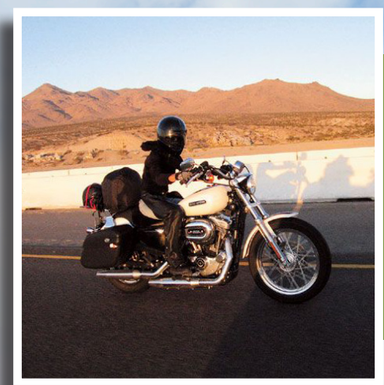
Multiple factors were considered to determine the overall impact of aviation within South Dakota, including the impact of aviation operations, visitor spending (including the Sturgis Motorcycle Rally and pheasant hunting season), agricultural spraying, and airport construction. In total, the system supports nearly $800 million in business sales, including over $250M in personal income and over 7,000 jobs. The impact from special activities in the State include:

Agricultural Spraying

One of the largest industries within South Dakota is agriculture. In order for this industry to survive, the application of pesticides and fertilizer to large crop areas is critical. The use of aircraft for aerial application impacts local and regional economies, as well as the statewide economy, through the provision of jobs, larger crop yields, and alternative fuels. The impact of agricultural spraying is nearly $32 million, which includes over $10 million in income, supporting more than 300 jobs.

Pheasant Hunting

Thousands of hunters travel to South Dakota annually to partake in the pheasant hunting opportunities during the fall, many by air. Their spending associated with lodging, travel, food, gear, and guides can be directly attributed to the aviation economy because of their use of air travel to reach South Dakota. Several hunting preserves also utilize private aircraft and nearby airports to reach hunting grounds across the State. The total impact of aviation use during the hunting season is nearly $83 million, of which $25 million is earned as personal income through the 1,198 jobs which are supported.



Sturgis Motorcycle Rally

Many of the people who attend the Sturgis Motorcycle Rally annually reach Sturgis by air from within the United States, and overseas. Millions are spent on lodging, airfare, transportation, food, and retail purchases. Based on a survey conducted in 2010 of air passengers who were flying into and out of the Rally, it is estimated that the total statewide impact of the Rally is $3,729,000, which includes over $1 million earned in personal income, supporting 47 jobs.

Associated City	System Airports
Commercial Service	
Aberdeen	Aberdeen Regional Airport
Huron	Huron Regional Airport
Pierre	Pierre Regional Airport
Rapid City	Rapid City Regional Airport
Sioux Falls	Joe Foss Field
Watertown	Watertown Regional Airport
Large General Aviation	
Brookings	Brookings Regional Airport
Madison	Madison Municipal Airport
Mitchell	Mitchell Municipal Airport
Spearfish	Black Hills/Clyde Ice Field Airport
Tea	Marv-Skie Lincoln County Airport
Yankton	Chan Gurney Municipal Airport
Medium General Aviation	
Belle Fourche	Belle Fourche Municipal Airport
Britton	Britton Municipal Airport
Chamberlain	Chamberlain Municipal Airport
Custer	Custer County Airport
Gettysburg	Gettysburg Municipal Airport
Gregory	Gregory Municipal, Flynn Field Airport
Hot Springs	Hot Springs Municipal Airport
Lemmon	Lemmon Municipal Airport
Milbank	Milbank Municipal Airport
Miller	Miller Municipal Airport
Mobridge	Mobridge Municipal Airport
Philip	Philip Airport
Redfield	Redfield Municipal Airport
Sturgis	Sturgis Municipal Airport
Vermillion	Harold Davidson Field Airport
Wagner	Wagner Municipal Airport
Winner	Winner Regional Airport
Small General Aviation	
Bison	Bison Municipal Airport
Buffalo	Harding County Airport
Canton	Canton Municipal Airport
Clark	Clark County Airport
De Smet	Wilder Airport
Eagle Butte	Cheyenne Eagle Butte Airport
Edgemont	Edgemont Municipal Airport
Eureka	Eureka Municipal Airport
Faith	Faith Municipal Airport
Faulkton	Faulkton Municipal Airport
Flandreau	Flandreau Municipal Airport
Highmore	Highmore Municipal Airport
Hoven	Hoven Municipal Airport
Martin	Martin Municipal Airport
McLaughlin	McLaughlin Municipal Airport
Murdo	Murdo Municipal Airport
Onida	Onida Municipal Airport
Parkston	Parkston Municipal Airport
Pine Ridge	Pine Ridge Airport
Platte	Platte Municipal Airport
Rosebud	Rosebud Airport
Sisseton	Sisseton Municipal Airport
Springfield	Springfield Municipal Airport
Wall	Wall Municipal Airport
Webster	The Sigurd Andersen Airport
Wessington Springs	Wessington Springs Airport
Basic Service	
Arlington	Arlington Municipal Airport
Bowdle	Bowdle Municipal Airport
Clear Lake	Clear Lake Municipal Airport
Corsica	Corsica Municipal Airport
Fairburn	Custer State Park Airport
Herreid	Herreid Municipal Airport
Howard	Howard Municipal Airport
Isabel	Isabel Municipal Airport
Kadoka	Kadoka Municipal Airport
Kimball	Kimball Municipal Airport
Lake Andes	Lake Andes Municipal Airport
Lake Preston	Lake Preston Municipal Airport
McIntosh	McIntosh Municipal Airport
North Sioux City	Graham Field Airport
Presho	Presho Municipal Airport
Timber Lake	Timber Lake Municipal Airport
White River	White River Municipal Airport

AIRPORT ROLES

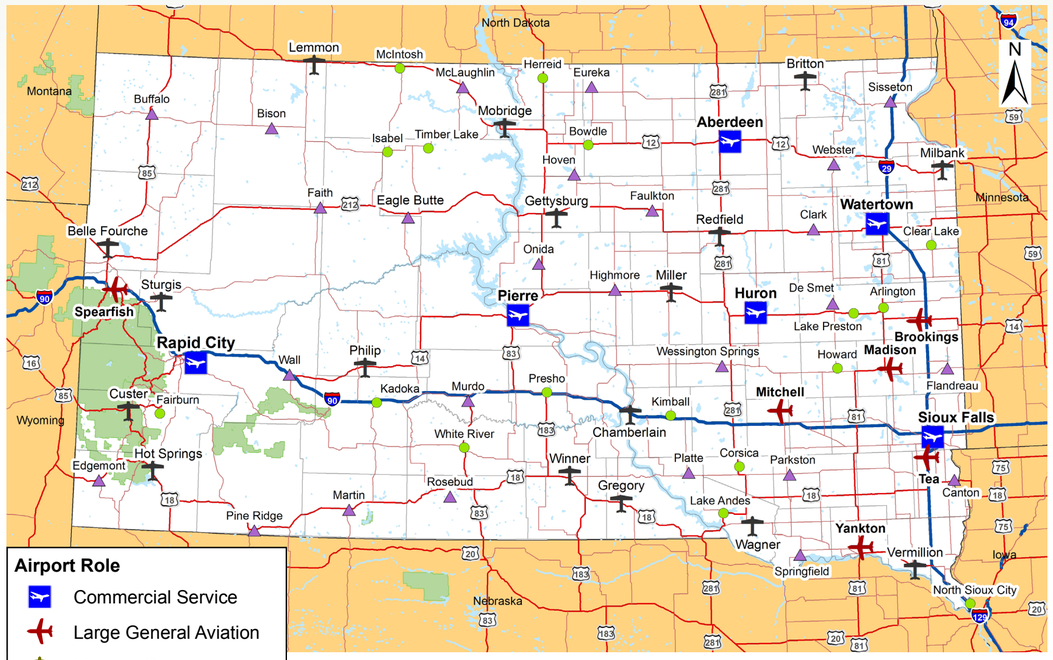
Commercial Service: These airports support some level of scheduled commercial airline service in addition to a full range of general aviation aircraft. This includes both domestic and international destinations. Airports in this category typically have a minimum runway length of 6,500 feet, with precision approaches, weather reporting equipment, major repair service, and Jet A/100 LL fuel available 24 hours. They typically have an ARC of C-II or greater.

Large General Aviation: These airports support all general aviation aircraft and accommodate corporate aviation activity, including business jets, helicopters, and other general aviation activity. These airports' primary users are business related and service a large geographic region or they experience high levels of general aviation activity. Airports in this category typically have a minimum runway length of 5,000 feet, with non precision approaches, weather reporting equipment, minor repair service, and JetA/100LL fuel available. These will typically have an ARC of C-II.

Medium General Aviation: These airports support most twin- and single-engine aircraft and may accommodate occasional business jets. These airports support a regional transportation need. Airports in this category typically have a runway length of at least 4,200 feet, with non-precision or GPS approaches, weather reporting equipment, on-call repair service, 100LL fuel available, and an ARC of B-II.

Small General Aviation: These airports support primarily single-engine, general aviation aircraft, but are capable of accommodating smaller twin-engine general aviation aircraft. These airports support local air transportation needs and special use aviation activities. Airports in this category typically have a minimum runway length of 3,000 feet, with visual approaches and an ARC of B-I.

Basic General Aviation: These airports support primarily single-engine, general aviation aircraft, special use aviation activities, and access to remote areas or provide emergency service access. Airports in this category are generally not included in the federal aviation system, have visual approaches, have an ARC of A-I and may have turf runways.



FACILITY & SERVICE TARGETS

The table below outlines the facility (airside and landside) and service targets for each of the five airport roles. Fields highlighted in green indicate requirements for inclusion in the identified role.

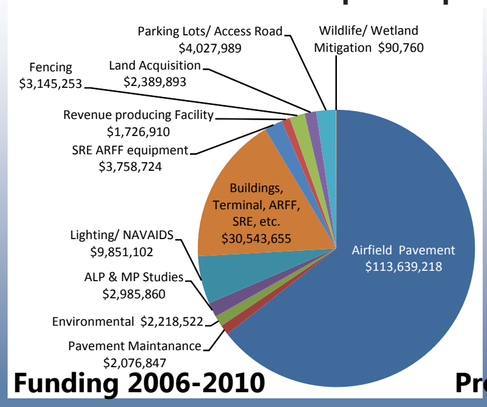
Description	Commercial Service	Large GA	Medium GA	Small GA	Basic Service
Airside Facilities					
ARC	C-II	C-I	B-II	B-I or below	A-I
Primary Runway Length	**Minimum 6,500'**	**Minimum 5,000'**	**Minimum 4,200'**	**Minimum 3,000'**	**Not a Target**
Primary Runway Width	Minimum 100'	Minimum 100'	Minimum 75'	Minimum 60'	Minimum 50'
Primary Runway Surface	**Paved**	**Paved**	**Paved**	**Paved**	**Not a Target**
Type of Parallel Taxiway	Full parallel	Full parallel	Turnarounds meet standards (both ends)	Exits as needed	Not a Target
Type of Runway Approach	**Precision**	**Non-precision**	**Non-precision**	**Visual**	**Visual**
Runway Lighting	MIRL	MIRL	MIRL	LIRL	Not a Target
Taxiway Lighting	MITL	MITL	MITL	Not a Target	Not a Target
Visual Guidance Slope Indicator	Both runway ends (or ILS)	Both runway ends	Both runway ends	Not a Target	Not a Target
Runway End Identifier Lights - as required	Both runway ends (or ILS)	Both runway ends	Both runway ends	Not a Target	Not a Target
Rotating Beacon	Yes	Yes	Yes	Yes	Not a Target
Lighted Wind Indicator	Yes - multiple as needed	Yes	Yes	If open for night	If open for night
RCO Facilities	Tower or RCO		Not a Target	Not a Target	Not a Target
Wind coverage or crosswind runway	Crosswind runway or 95% wind coverage for NPIAS facilities	Crosswind runway or 95% wind coverage for NPIAS facilities	Crosswind runway or 95% wind coverage for NPIAS facilities	Not a Target	Not a Target
Landside Facilities					
Covered storage	100% of based aircraft	100% of based aircraft	100% of based aircraft	100% of based aircraft	Not a Target
Overnight storage for business aircraft	Typical average aircraft/business user demand	Typical average aircraft/business user demand	Typical average aircraft/business user demand	Not a Target	Not a Target
Aircraft apron	100% of average daily transients	100% of average daily transients	100% of average daily transients	50% of average daily transients	Not a Target
Terminal/ administration building	Yes	Yes	Yes	Waiting area	Not a Target
Paved entry/terminal parking	Yes	Yes	Yes	Not a Target	Not a Target
Services					
Fuel	**100LL & Jet A**	**100 LL & Jet A**	**100LL**	**Not a Target**	**Not a Target**
Planning					
Height zoning	Yes	Yes	Yes	Yes	Yes
Comp plan define land uses	Yes	Yes	Yes	Yes	Yes
Emergency plan	Yes	Yes	Yes	Yes	Yes
Airport Layout Plan	ALP update within last 8 years	ALP update within last 10 years	ALP update within last 10 years	Yes	Not a Target
Attendance					
Weekday hours of operation	Standard business hours, after hours on-call	Standard business hours, after hours on-call	Standard business hours, after hours on-call	On-call	Not a Target
Weekend hours of operation	Standard business hours, after hours on-call	Standard business hours, after hours on-call	Standard business hours, after hours on-call	On-call	Not a Target
Ground transportation	Courtesy car/car rental available	Courtesy car/car rental available	Courtesy car/car rental available	Not a Target	Not a Target
Food & Beverage	Vending	Vending	Vending	Not a Target	Not a Target
Posted contact info	Yes	Yes	Yes	Yes	Yes
Internet access	Yes	Yes	Yes	Not a Target	Not a Target
Restroom	Yes	Yes	Yes	Yes	Not a Target
Pilot area	Yes	Yes	Yes	Not a Target	Not a Target
Security	Security plan	Security plan	Security plan	Security plan	Security plan
Rental aircraft	Based	Available	Available	Not a Target	Not a Target
Flight training	Available	Available	Available	Available	Not a Target
Aircraft maintenance/repair	**Major**	**Minor**	**On-Call**	**Not a Target**	**Not a Target**
Aircraft charter	Based	Available	Available	Available	Not a Target
Minimum FBO Standards	Yes	Yes	Yes	Not a Target	Not a Target
Weather reporting	**Yes**	**Yes**	**Yes**	**Not a Target**	**Not a Target**

CAPITAL IMPROVEMENT PLAN FUNDING

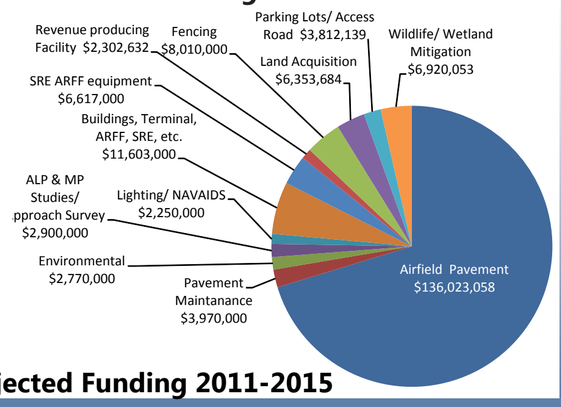
To determine where funding has been spent previously, and to get a better idea of the funding needed over the next 15 years, a review of airports Capital Improvement Plans (CIPs) was conducted. These plans identify particular projects that an airport is planning to carry out. In order to make a comparison between historical and predicted spending, funds were categorized by project type.

While the majority of the project categories remained similar in funding needs historically, and into the future, a couple of categories experienced significant changes. Most notably, the amount of funding needed for wildlife/wetland mitigation increasing from just under $100,000 to nearly $7M, and the amount needed for building development decreasing from $30.5M to $11.6M over the planning period. Resources required to fund airfield pavement projects has remained steady, with a relatively slight increase predicted into the future. Lighting/NAVAID projects experienced a decrease from $9.9M to $2.3M. This funding assessment will help officials allocate resources accordingly as they become available over the planning period.

Capital Improvement Plan Funding



Funding 2006-2010



Projected Funding 2011-2015

RECOMMENDATIONS

In an attempt to meet the goals and objectives of the SDSASP, recommendations have been made to improve specific facilities and services, as noted below, based upon individual airport roles. Many of the airports already meet the facility recommendations, while a much greater gap exists in meeting the service recommendations. Specific airport improvements in these two categories are outlined in the SDSASP and should be reviewed on an individual airport basis. Implementation should be considered as funding allows.

Facility Recommendations

- Primary Runway Width
- Primary Runway Pavement Condition Index (PCI)
- Taxiway Type
- Taxiway Lighting
- Visual Guidance Slope Indicator (VGSI)
- Runway End Identifier Lights (REILs)

Service Recommendations

- Ground Transportation
- Food and Beverage
- Internet Access
- Pilot Areas
- Fuel
- Land Use
- GPS Approaches

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