Appendix G – SDSASP Priority Rating Model

G.1. Introduction to the SDSASP Priority Rating Model

This appendix details the functionality of the Priority Rating Model (PRM) developed as a part of the 2020 South Dakota State Aviation System Plan (SDSASP), including an overview of the purpose and intended use of the PRM. In addition, a detailed account of the factors incorporated into the PRM is provided, with a description of the criteria developed, components within each criterion that determine point allocation, and justification for the prioritization outlined in the model.

G.1.1. Purpose

The PRM was developed as a tool to assist the South Dakota Department of Transportation Office of Aeronautics Services (SDDOT) during project prioritization and funding allocation processes for airport capital projects. Using the PRM allows for consistent evaluation of capital projects in the greater context of the system's collective needs and provides transparency to the aviation community on how and why projects are funded. The PRM is most useful when funding resources are limited and there is insufficient funding to allocate toward each project. In these instances, SDDOT can apply the model to each project and determine a quantitative value (or score) that can be compared to other projects. The PRM takes ambiguity out of prioritizing projects and provides a user-friendly tool that efficiently and effectively ranks projects based on selected criteria and a defined point system.

G.1.2. Using the PRM

The PRM was developed through an in-depth review of existing prioritization measures used by SDDOT and the South Dakota Aeronautics Commission, as well as priority models employed by other states with similar needs and aviation systems. The model that was developed considers six criteria, as shown in **Table G-1**. Each criteria category carries a certain weight from 2 to 5, establishing an initial prioritization based on the importance of each category. As shown, the Project Purpose and SDSASP Performance categories carry the most weight, with Funding Source and Airport Role categories having the least weight.

Within each category, projects are assigned a number of points based on the characteristics of the project. The maximum number of points within each criteria category varies, although for most the maximum is 4 points (more information on the number of points in each criteria category is provided in the following pages). Those points are then multiplied by the criteria category weight. When those points are totaled, the maximum possible score a project can receive is 84 points. Projects with the highest number of points should receive highest priority. The PRM criteria, weight, point range, and maximum points per category are shown in **Table G-1**.

Table G-1: SDSASP Priority Rating Model Summary

Criteria Category	Weight	Point Range	Max Points for Category	% of Total
Project Purpose	5	2-4	20	24%
SDSASP Performance	5	0-4	20	24%
Associated Facility	4	1-4	16	19%
Timing Considerations	3	1-4	12	14%
Airport Role	2	0-5	10	12%
Funding Source	2	0/3*	6	7%
		Highest Total Score	**84**	**100%**

Source: Kimley-Horn, 2020
**Note: The points allocated for Funding Source are not a range; a project will receive a score of either 0 or 3.*

G.2. Priority Rating Model Criteria and Point System

The following sections outline the criteria categories that are used in the model and provide information on how points are assigned within each category.

G.2.1. Project Purpose

As previously noted, the Project Purpose criterion is weighted at the highest end of the weight range at a 5. It carries a high weight because it identifies how the project will improve an airport and the aviation system. There are four types of projects within this category with different points assigned to each as follows:

- Safety and Security – 4 points
- Maintenance – 3 points
- Construction/Enhancement – 2 points
- Planning – 2 points

Projects identified with a **Safety and Security** purpose receive the highest points in this category. In general, these projects improve or enhance existing airside facilities, including infrastructure and equipment, that support daily functions of an airport, and provide safe operating environments for airport users and the nearby community. Examples of projects within this purpose include:

- Implementing airside fencing, lighting, signage, or pavement markings
- Clearing approaches
- Satisfying Federal Aviation Administration (FAA) design standards
- Satisfying state-specific Runway Safety Area (RSA) standards
- Preserving or rehabilitating pavement (when existing conditions are a safety concern)
- Enhancing Runway Protection Zone (RPZ) ownership (through fee simple or easements)
- Obtaining safety and/or security equipment

Projects identified with a **Maintenance** purpose receive 3 points in this category. Maintenance projects receive the second highest point value because maintenance projects contribute to an airport's ability to continue serving their users in a way that meets current activity levels. Maintenance projects can also prevent on-airport infrastructure from deteriorating to a point where the project becomes a safety concern or becomes more costly to address. Examples of projects with this purpose include:

- Acquiring airside maintenance equipment
- Maintaining or repairing buildings/facilities
- Maintaining/repairing/replacing/relocating NAVAIDs
- Preserving pavement (such as crack seal, joint seal, seal coat, and other preservation strategies)
- Rehabilitating pavement (not currently causing safety concerns)

Projects identified with a **Construction/Enhancement** purpose receive 2 points and are ranked as such because these projects do not address immediate safety concerns, nor are they implemented to help preserve existing airport facilities or infrastructure. In some cases, projects in this category increase an airport's capacity, so that the airport may serve more or new types of users. Examples of construction or enhancement projects include:

- Constructing landside fencing
- Implementing landside lighting
- Acquiring new NAVAIDS
- Acquiring new or strengthening pavement (including reconstruction)
- Replacing, remodeling, expanding or constructing new buildings

Projects identified with a **Planning** purpose receive the same number of points as the Construction/ Enhancement category, with 2 points. In many cases, planning projects are instrumental in determining and justifying an airport's future needs. Planning projects are necessary to understand where the airport may need improvements to enhance safety and security and if capacity needs to be expanded to meet future demand. Examples of planning projects include:

- Developing or updating an Airport Layout Plan (ALP)
- Developing or updating master plans
- Conducting noise modelling or wind analysis
- Conducting other special studies
- Developing statewide planning
- Conducting wildlife assessments/management plans

Table G-2 provides a summary of point allocation within the Project Purpose category. It should be noted that in general, land acquisition, or National Environmental Policy Act (NEPA) documentation will be coded with the associated project, where applicable.

Table G-2: Summary of Points Awarded within the Project Purpose Category

Project Purpose	Point Allocation	Example Project
Safety or Security	4	Marking or lighting obstructions
Maintenance	3	Airside equipment maintenance
Construction/Enhancement	2	Landside signage
Planning	2	Wildlife Management Plan

Source: Kimley-Horn, 2020

G.2.2. SDSASP Performance

The SDSASP Performance criteria category receives the same weight as the Project Purpose criterion, with a weight of 5. The SDSASP Performance criterion uses the system goals and associated Performance Measures (PMs), Performance Indicators (PIs), and Facility and Service Targets (FSTs) established for the 2020 study to

assign points to a project. There are five types of projects within this category with different points assigned to each as follows:

- Project Meets Safety and Security Goal PM or PI – 4 points
- Project Meets Maintenance and Development of Infrastructure Goal PM or PI – 3 points
- Project Meets Accessibility to Users Goal PM or PI – 2 points
- Project Meets an FST – 1 point
- Project Does Not Impact SDSASP Performance – 0 points

For more information about SDSASP system goals or PMs and PIs, see **Chapter 1. Study Design and System Goals**, and for more information about FSTs, see **Chapter 3. Airport Roles**.

Projects that align with a PM or PI from the **Safety and Security** system goal receive the highest points in this category, with 4 points. Safety and Security is the most important goal of the state's aviation system and therefore projects that improve performance within this goal are prioritized over others. Example projects that receive 4 points in this category likely also receive high points in the Project Purpose category, and include:

- Enhancing RPZ ownership
- Clearing obstruction within approach
- Meeting RSA standards

Projects that align with a PM or PI from the **Maintenance and Development of Infrastructure** system goal receive 3 points in this category. Example projects that align with a PM or PI from the Maintenance and Development of Infrastructure goal may also receive similar points in the Project Purpose category, and include:

- Improving primary or nonprimary runway pavement conditions to meet a minimum of 70 Pavement Condition Index (PCI)
- Improving apron pavement conditions to meet a minimum of 50 PCI
- Expanding runway width to accommodate a more demanding critical aircraft

Projects that align with a PM or PI from the **Accessibility to Users** system goal receive 2 points in this category. Developing and enhancing an aviation system that is accessible to a wide variety of users can contribute to optimal system performance. Example projects that align with a PM or PI from the Accessibility to Users goal may also receive similar points in the Project Purpose category, and include:

- Installing new certified weather reporting systems
- Enhancing availability of hangar space to accommodate business jet aircraft (ex. King Air 250)
- Installing a credit card system to promote 24-hour service of Jet A fuel

Projects that align with one of the airport's **FSTs** are ranked lower than goal-related projects within the SDSASP Performance criterion, receiving 1 point. FSTs receive less priority because they are implemented into the SDSASP as recommendations and not requirements. FSTs can help airport sponsors understand the facilities or services recommended to achieve performance within their role and identify projects that may enhance their airport role in the future. Example projects that achieve FSTs may be awarded one point include:

- Lengthening primary runway to meet an airport role's minimum recommended length
- Purchasing a courtesy car for pilot and visitor use
- Enhancing apron space to accommodate more transient aircraft

Projects that **do not impact** any of the system performance metrics do not receive any points. **Table G-3** provides a summary of point allocation within the SDSASP Performance criteria category.

Table G-3: Summary of Points Awarded within the SDSASP Performance Category

SDSASP Performance	Point Allocation	Example Project
Project Meets Safety and Security Goal PM or PI	4	Obstruction clearance
Project Meets Maintenance and Development of Infrastructure Goal PM or PI	3	Taxiway rehabilitation
Project Meets Accessibility Goal PM or PI	2	Installation of credit card reader for fuel system
Project Meets a Facility or Service Target	1	Hangar expansion
Project Does Not Impact SDSASP Performance	0	Installation of parking lot lighting

Source: Kimley-Horn, 2020

G.2.3. Associated Facility

Determining the type of airport facility that is being impacted by a given project is the next criteria category to be considered and receives a weight of 4. The Associated Facility category is divided into four components, three of which are dedicated to airside facilities, and one related to landside facilities. Airside facilities include infrastructure at the airport that support aircraft operations, including runways, taxiways, aprons, aircraft parking, and the facilities required to maintain these areas. Landside facilities include the infrastructure at the airport not directly related to aircraft operations, such as terminal parking or entrance roads. There are four types of projects within this category with different points assigned to each as follows:

- Airside – Primary Runway or Taxiway – 4 points
- Airside – Secondary (or nonprimary) Runway or Taxiway – 3 points
- Airside – Aprons, Facilities, Equipment (including NAVAIDS), Airport (for planning projects) – 2 points
- Landside – Structures, Equipment, Other – 1 point

Many of the example projects previously listed may apply to the following components. To avoid repetition a lists of example projects have not been included in this section; however, **Table G-4** includes one example project for each component.

A project that impacts **primary runway or taxiway** facilities receives 4 points – the highest point value possible. Primary runways and taxiways receive top priority in this category as they are the most essential infrastructure at an airport. Without them, the airport would cease to exist.

A project that impacts **secondary (or nonprimary) runways or taxiways** receives 3 points in this category and is prioritized just below primary runway/taxiway facilities. Nonprimary runways and taxiways increase capacity and can increase safety (by providing crosswind coverage) and accessibility.

Following primary and nonprimary runway/taxiway facilities in order of priority are **other airside facility** projects that include apron surfaces, airside equipment (including NAVAIDs), and planning projects associated with airside facilities. These projects receive 2 points in the Associated Facility category.

Finally, projects that are associated with any **landside facility** receive 1 point and are prioritized last in this category. Landside facilities can increase airport usability but are generally not directly impactful to aircraft operations, and therefore receive a lower priority. Landside facilities typically consist of public areas, such as passenger terminals prior to security checks or customs control, automobile parking areas, and other ground

transportation facilities, including access roadway improvements, or rental car facilities. **Table G-4** provides a summary of point allocation within the Associated Facility criteria category.

Table G-4: Summary of Points for Associated Facility Category

Associated Facility	Point Allocation	Example Project
Airside - Primary Runway or Taxiway	4	Upgraded runway lighting
Airside - Secondary Runway or Taxiway	3	Taxiway design improvements
Airside - Other	2	Snow removal equipment (SRE)
Landside - Structures, Equipment, Other	1	Terminal improvements

Source: Kimley-Horn, 2020

G.2.4. Timing Considerations

Points within the Timing Consideration criteria category are assigned based on the urgency identified for the proposed project. Determining project timing in terms of funding cycles is an important component of capital project planning and prioritization. If there is a project that is identified as urgent due to pressing safety or capacity concerns then it may be important to prioritize that project over another, and the project with less urgency may get postponed until the following funding cycle. Projects that are to be completed in phases over multiple years will generally be evaluated as one project. There are four types of projects within this category with different points assigned to each as follows:

- High Urgency – 4 points
- Medium Urgency – 3 points
- Project Carried Forward from Previous Year – 2 points
- Low Urgency – 1 point

Projects identified as having **high urgency**, either because of an immediate safety or security concern or because they support state programs, receive 4 points in this category. Projects that are considered **medium urgency** will receive 3 points. Medium urgency projects are those that have timing restrictions such as permit or NEPA documentation expiration dates or pavement deterioration (that may potentially become urgent if not properly addressed). Following airports that receive high and medium urgency point allocation are projects that have been **carried over from the previous funding or planning cycle,** and they receive 2 points in this category. There may be projects that did not receive funding during the last funding cycle due to a low priority score so it important that these projects are prioritized above newly identified low urgency projects. **Low urgency** projects receive 1 point in this criterion and are projects that do not have any pressing time considerations that would impact priority. **Table G-5** provides a summary of point allocation within the Timing Considerations criteria category.

Table G-5: Summary of Points for Timing Considerations Category

Timing Considerations	Point Allocation	Example Project
High Urgency	4	Primary runway PCI of 50 or less
Medium Urgency	3	Runway extension with permits expiring soon
Project Carried Forward from Previous Year	2	Low priority project from previous year
Low Urgency	1	Hangar development for future need

Source: Kimley-Horn, 2020

G.2.5. Airport Role

As a part of the 2020 SDSASP, system airports were assigned a state classification based on their facility and service characteristics and the role they serve in the greater state system. A total of five roles are used, ranging from busy Commercial Service airports to smaller general aviation airports classified as "Basic Service" (see **Chapter 3. Airport Roles** for more information about the methodology involved in determining 2020 SDSASP roles). The Airport Roles criteria category has one of the lowest weights in the PRM, with a weight of 2, equaling that of the Funding Source criterion discussed in **Section G.2.6**. This lower weight indicates airport roles are important in prioritizing needs, but to a lesser degree than other criteria categories. Assigning a lower weight also helps to avoid consistent low priority ratings at airports serving smaller roles. However, the points allocated within the Airport Role criterion do favor larger and busier airports as those facilities typically have more demand and therefore are likely to require more improvements. There are six types of projects within this category with different points assigned to each as follows:

- Commercial Service – 5 points
- Large General Aviation – 4 points
- Medium General Aviation – 3 points
- Small General Aviation – 2 points
- Basic Service – 1 point
- Not included in the SDSASP (non-NPIAS) – 0 points

Airports not included in the 2020 SDSASP are those that are not recognized by the National Plan of Integrated Airports System (NPIAS) and are therefore not eligible for federal funding. **Table G-6** provides a summary of point allocation within the Airport Role criteria category.

Table G-6: Summary of Points for Airport Role Category

Airport Role	Point Allocation	Example Airport
Commercial Service	5	Rapid City Regional
Large General Aviation	4	Huron Regional
Medium General Aviation	3	Rosebud Sioux Tribal
Small General Aviation	2	Clark County
Basic Service	1	Howard Municipal
Not Included in the SDSASP (Non-NPIAS)	0	Arlington Municipal

Source: Kimley-Horn, 2020

G.2.6. Funding Source

The final criteria category considered in the PRM is the Funding Source, which allocates points to a proposed project based on whether the project is expected to receive federal discretionary funds from the FAA. Discretionary funds come from the FAA's Airport Improvement Program (AIP) after entitlement funds are dispersed. Discretionary funds are distributed to states or sponsors for NPIAS airports only and are distributed by the FAA based on a national priority rating system. There are two types of projects within this category with different points assigned to each as follows:

- Federal Discretionary Funding – 3 points
- Other Funding Sources – 0 points

Projects with **federal discretionary funding** receive the only points in this category because these funds are based on federal legislative requirements and must be used within a timely manner. **Other funding sources**, such as federal entitlement, state apportionment, or local match funds, do not impact prioritization and therefore receive 0 points in this category. **Table G-7** provides a summary of point allocation within the Funding Source criteria category.

Table G-7: Summary of Points for Funding Source Category

Funding Source	Point Allocation	Example Project
Federal Discretionary	3	FAA eligible project related to safety, security, reconstruction, capacity, and standards
Other Funding Sources	0	Non-NPIAS airport project

Source: Kimley-Horn, 2020

G.3. Conclusion

The SDSASP PRM was developed in conjunction with the 2020 SDSASP and will be used by SDDOT during project planning and prioritization. The PRM will improve SDDOT's ability to effectively plan for airport improvements based on objective decision making that aligns with their overall mission. The PRM can be used for projects of all sizes, providing clarity and transparency in the prioritization of some projects over others when resources are limited. **Table G-8** shows a complete summary of the criteria used in the PRM, including the weight assigned and possible points associated with each criteria category.

Table G-8: Summary of SDSASP Priority Rating Model Criteria, Weighting, and Point Allocation

Criteria Category	Criteria Weight	Criteria Components	Possible Points
Project Purpose	5	Safety or Security	4
		Maintenance	3
		Construction/Enhancement	2
		Planning	2
SDSASP Performance	5	Safety and Security Goal PM or PI	4
		Maintenance and Development of Infrastructure Goal PM or PI	3
		Accessibility Goal PM or PI	2
		Facility or Service Target	1
		Does Not Impact SDSASP Performance	0
Associated Facility	4	Airside - Primary Runway or Taxiway	4
		Airside - Secondary Runway or Taxiway	3
		Airside - Other	2
		Landside - Structures, Equipment, Other	1
Timing Considerations	3	High Urgency	4
		Medium Urgency	3
		Project Carried Forward from Previous Year	2
		Low Urgency	1

Criteria Category	Criteria Weight	Criteria Components	Possible Points
Airport Role	2	Commercial Service	5
		Large General Aviation	4
		Medium General Aviation	3
		Small General Aviation	2
		Basic Service	1
		Not Included in the SDSASP (Non-NPIAS)	0
Funding Source	2	Federal Discretionary	3
		Other Funding Sources	0

Source: Kimley-Horn, 2020