
Attachment 5. Crosswind Runway Guidance Statement

To guide the prioritization of state investment into airports, Minnesota Department of Transportation, Office of Aeronautics (MnDOT Aeronautics) shall limit state support for crosswind runways to those airports that are both eligible for such support and justified in their requested need. Eligibility and justification are determined as follows:

- To be eligible for state funding, an airport must receive a score greater than or equal to 1.5 using the Minnesota Crosswind Runway Eligibility Model (MCREM). Airports not meeting this eligibility threshold may submit an Exception Request to waive this requirement.
- To be justified to receive to state funding, an airport must demonstrate that the presence of a crosswind runway meaningfully enhances the airport's ability to safely and efficiently accommodate the type and frequency of aviation activities typically occurring there or provides significant public benefit. MnDOT Aeronautics will evaluate if an airport's funding request is justified based on the documentation provided in the Crosswind Runway Justification Report (CRJR), the contents of which are specified in this Guidance Statement.

The allocation of state funding for crosswind runways is ultimately at the discretion of the Commissioner of Transportation (Commissioner). The Commissioner has the responsibility of determining if the maintenance or development of a crosswind runway is in the best interest of the state aviation system and the various constituencies that rely upon it.

All airports must submit a CRJR to justify state investment regardless of their MCREM scores (i.e., above or below the 1.5 funding eligibility threshold). Airports that score below the 1.5 threshold can develop an Exception Request for submission to the Commission to meet the eligibility criteria. Pending Commissioner approval, the airport must then develop a CRJR. **Figure 1** on page 7 of this Guidance Statement details the crosswind runway eligibility and justification process.

Reason for Guidance

MnDOT Aeronautics is responsible for allocating the State Airports Fund through various grant and loan programs. Most state dollars are awarded through the Airport Development Grant Program, which distributes funding through a competitive process aimed at optimally benefitting the air-traveling public. Between fiscal years (FY) 2016 – 2019, MnDOT Aeronautics annually distributed an average of \$12.3 million to support capital improvement projects at Minnesota's system airports. Because airport capital improvement needs nearly always exceed available funding, MnDOT Aeronautics must prioritize funding requests in a manner that aligns with the goals and objectives of the agency as well as the needs of Minnesota's airports and air-traveling public.

MnDOT Aeronautics established the Crosswind Funding Guidance Statement (or Guidance) to provide standard and uniform selection procedures in the allocation of state funding for the maintenance of existing and development of new crosswind runways. The need for this Guidance has been precipitated by several related trends. Demand for many types of air transportation is on the rise. To meet these new

demands, airports must expand airside and landside facilities to support additional aircraft and the pilots/passengers that they serve. While investment needs are increasing, fund appropriations have been relatively flat for the previous 20 FYs. The *Aviation Tax Report for State FYs 2016 - 2019* (released June 30, 2020) reports that the buying power of fund appropriations has decreased over time when inflation is considered.

The Federal Aviation Administration (FAA) is experiencing a similar gap between investment need and available funding. As a result, the FAA generally limits federal support to primary runways only. According to the Airport Improvement Program (AIP) Handbook, Change 1 (February 26, 2019),

Per FAA policy, the Airport District Office (ADO) can only fund a single runway at an airport unless the ADO has made a specific determination that one or more crosswind or secondary runways are justified. (Appendix G-2. Secondary, Crosswind, and Additional Runways)

Table G-1 in the AIP Handbook identifies specific criteria for when a crosswind runway may be eligible for federal support. In general, airports are eligible to receive AIP funding if the orientation of the primary runway provides less than 95 percent wind coverage for the critical aircraft. The FAA's guidance on the assembly and analysis of wind data is provided in Appendix C of FAA Advisory Circular (AC) 150/5300-13A (Consolidated Change 1), *Airport Design*. Wind analyses are typically conducted using weather data for the previous 10-consecutive-year period to develop an accurate weather profile for the airport. Wind coverage can be evaluated based on the predominant use period of the airport, including evaluating coverage for less than a 24-hour day (e.g., daytime versus nighttime) and/or seasonal usage (e.g., winter versus summer). Wind data can also be assembled to reflect other factors that may affect wind coverage such as instrument weather conditions and regularly occurring gusts.

In addition to meeting the less than 95 percent wind coverage eligibility threshold, airports must also justify their need for federal support. This justification may be based on improving and maximizing operational flows, deconflicting different types of operators, and supporting military and other first responder operations. Due to these strict eligibility and justification requirements, airports are often challenged in obtaining FAA funding for any runway except the primary. FAA support for existing and new crosswind runways is uncommon, with most general aviation (GA) and many small commercial service airports unable to meet the standards established.

Because of the inability of most airports to access federal AIP support for crosswind runways, MnDOT Aeronautics developed the Crosswind Runway Guidance to determine when state support should be provided. This Guidance also applies to airports not included in the National Plan of Integrated Airport Systems (NPIAS), as these airports are never eligible to receive federal AIP funds. Similar in format to the FAA methodology, MnDOT Aeronautics established state-specific eligibility and justification requirements for state crosswind runway support. As such, this Guidance Statement formally adopts the following key elements of the State Crosswind Runway Guidance, each of which is described in more detail in the sections that follow:

- MnDOT Aeronautics shall determine an airport's eligibility to receive state support for the maintenance of an existing or development of a new crosswind runway using the MCREM. Eligibility is defined as receiving a score of 1.5 points or above.

- Airports not meeting the 1.5-point threshold can submit an Exception Request to document how the MCREM does not adequately reflect current or forecasted future conditions affecting the need for an existing or new crosswind runway. The Exception Request must be submitted to the Commissioner for review, and their approval is required to be deemed eligible for state support.
- Once an airport is deemed eligible (either through the MCREM or Commissioner-approved Exception Request), the airport shall develop a CRJR to justify its request for state funding. This report documents the type and frequency of aviation activities occurring at the airport and explains why a crosswind runway is important in terms of safety, security, access, mobility, or other public benefit. The CRJR must be approved by the Commissioner to receive state funding.

This Guidance Statement also establishes key responsibilities for MnDOT in maintaining the MCREM, developing and evaluating the Exception Request and CRJR, and recommending state funding based on the outcome of these processes.

Note that state grant funding is neither guaranteed nor approved once eligibility and justification are confirmed. Proposed projects must be depicted on the airport’s MnDOT Aeronautics-approved Airport Layout Plan (ALP) and included in MnDOT Aeronautics’ statewide Capital Improvement Program (CIP). Airport Development Grants are awarded based on the state funding prioritization model, which evaluates all project requests in terms of alignment with the priorities of MnDOT Aeronautics. Further, available state investment varies from year to year, project participant rates/funding limits apply, and State Airport Funds are not committed until a grant is fully executed.

Applicability

Key stakeholders affected by the Guidance Statement include:

- Commissioner
- Aviation Planning Director, MnDOT Aeronautics
- Airport sponsors operating a publicly owned, public-use airport in Minnesota recognized as part of the state aviation system
- MnDOT Aeronautics Airport Planning staff

Definitions

Airport sponsor – An airport sponsor is a public agency or tax-supported organization such as an airport authority or local government authorized to own and operate an airport; obtain property interests; obtain funds; and otherwise be responsible for meeting all applicable legal and financial requirements of current laws, regulations, and other obligations associated with that airport.

Allowable crosswind component – The allowable crosswind component is the wind speed at which wind coverage is analyzed based on the airport’s Runway Design Code (RDC). The FAA’s 95 percent wind coverage threshold is computed on the basis of the crosswind component not exceeding the allowable value per RDC, as provided in **Table 1**. The table also provides example aircraft within each RDC.

Table 1. Allowable Crosswind Component per RDC

| Runway Design Code | Example Aircraft | Allowable Crosswind Component |
|---|--|-------------------------------|
| A-I and B-I, including A-I and B-I small aircraft | Beech Bonanza, Cessna 172, Beech King Air 100, Cessna 421, Piper Cheyanne | 10.5 knots |
| A-II and B-II | DHC Twin Otter, Super King Air 200, Cessna Citation II | 13 knots |
| A-III, B-III C-I through C-III D-I through D-III | DHC Dash 8, Beech 400, Learjet 25, Embraer ERJ-170, Gulfstream 500, Bombardier Q-400 | 16 knots |
| A-IV and B-IV C-IV through C-VI D-IV through D-VI | Boeing 757, Boeing 767, Boeing 777, Lockheed C-130 Hercules | 20 knots |
| E-I through E-VI | Special military use only | 20 knots |

Source: FAA AC 150/5300-13A (Consolidated Change 1), Airport Design (Table 3-1)

Crosswind Runway Justification Report (CRJR) – The CRJR documents an airport sponsor’s justification for receiving state support for the maintenance of an existing or development of a new crosswind runway, the specific components of which are outlined in the Crosswind Runway Guidance Statement (see page 9).

Minnesota Crosswind Runway Eligibility Model (MCREM) – The MCREM is an Excel-based model that quantitatively evaluates the importance of an existing or proposed new crosswind runway within its community and the state aviation system. The MCREM is used to determine eligibility to receive state funding.

Runway Design Code (RDC) – A code signifying the design standards to which the runway is to be built. The RDC is based on the most demanding aircraft forecasted to use the airport on a regular basis (at least 500 operations per year excluding touch-and-go operations).

State aviation system – The state aviation system encompasses all publicly owned, public-use airports in the state of Minnesota eligible to receive funding through the State Airports Fund in accordance with Minnesota Statutes Chapter 360.305.

Exemption Request – The Exception Request documents how the eligibility threshold established by the MCREM inadequately reflects the current or anticipated future conditions affecting an airport’s need for an existing or new crosswind runway. The specific components of the Exception Request are outlined in the Crosswind Runway Guidance Statement (see page 9). The Commissioner is responsible for approving or denying an Exception Request. Airports that have received an approved Exception Request are also required to prepare and submit a CRJR to justify funding.

Responsibilities

Commissioner

- Review Exception Requests to determine if the request clearly documents how the MCREM inadequately categorizes an airport's need for an existing or new crosswind runway
 - If approved, issue a written statement of approval to the Aviation Planning Director indicating the funding eligibility requirement established by the Crosswind Runway Guidance has been waived, as applicable
 - If denied, issue a written statement of denial to the airport sponsor indicating that the eligibility threshold identified by the MCREM (i.e., score below 1.5 points) will be maintained. This indicates that the airport is not eligible to receive state support for a crosswind runway.
- Evaluate the CRJR submitted by the airport/airport sponsor. Additional details regarding the content and form of the CRJR are provide within the Crosswind Runway Guidance Statement (see page 9)
- Determine if the CRJR demonstrates that the maintenance or development of a crosswind runway meaningfully enhance safety, security, access, or mobility within Minnesota or provides another public benefit
- Issue a written recommendation to the Aviation Planning Director for state funding support. Note the Commissioner's recommendation does not guarantee that funding will be available or approved.

Aviation Planning Director

- Update the MCREM on a two-year cycle
- Maintain a list of airports eligible for state crosswind runway support
- Communicate Guidance requirements to airports, airport sponsors, and other stakeholders

Airport Planning Staff

- Distribute MnDOT Aeronautics' State Crosswind Runway Guidance Statement to all airports within the Minnesota state aviation system
- Respond to airport inquiries regarding crosswind runway funding policies, including but not limited to the purpose and application of the MCREM; preparation of an Exception Request; purpose, process, and contents of the CRJR; and steps to obtain state funding once eligibility and justification has been confirmed via the Commission's recommendation
- Inform airports of their crosswind runway eligibility based on their MCREM scores
- Evaluate all proposed projects (including but not limited to crosswind runways) on the statewide CIP using the state funding prioritization model

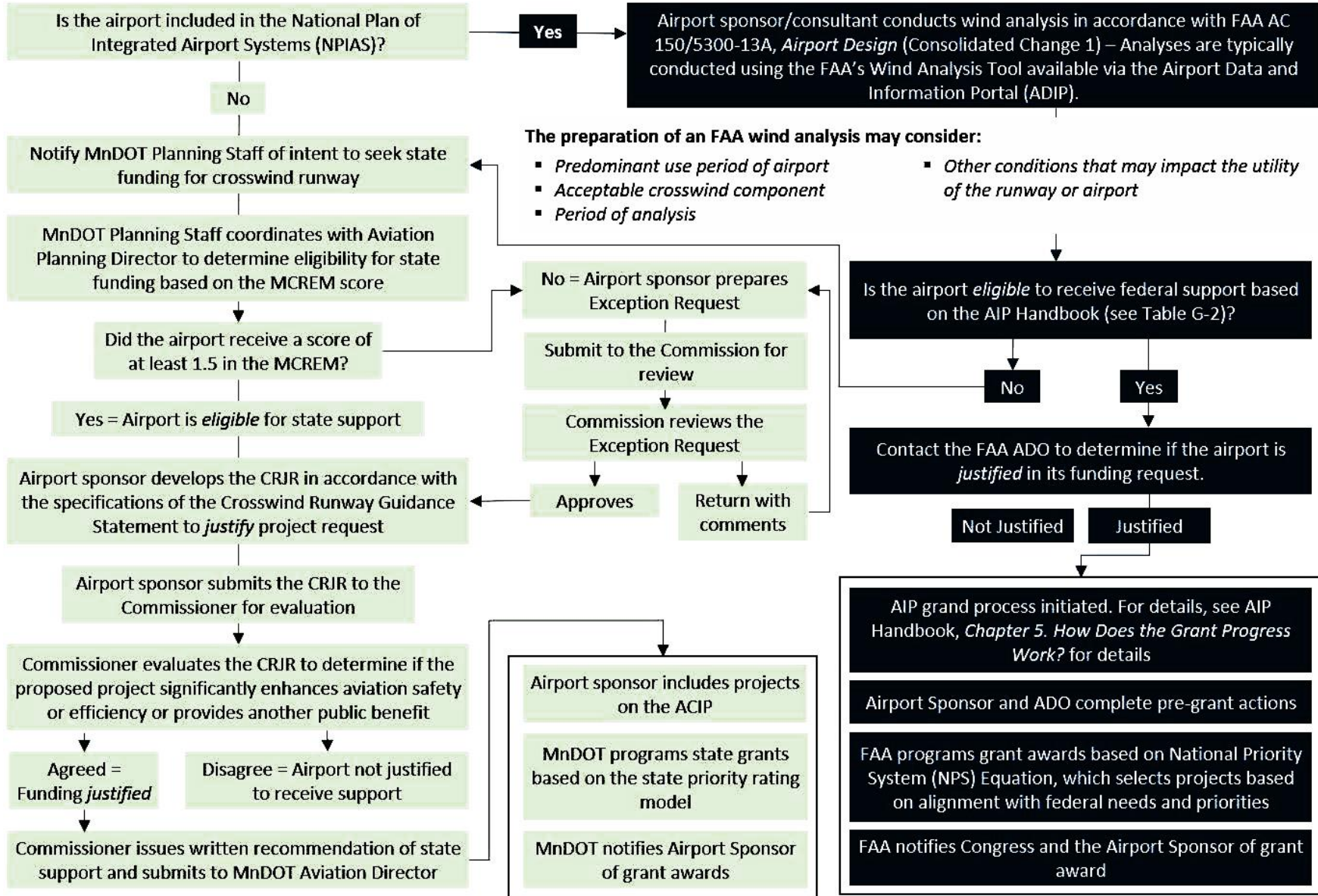
Airport Sponsor

- Work with the FAA ADO to determine if proposed crosswind runway project is eligible and justified for support through the AIP (NPIAS airports only)
- If the proposed project is ineligible for AIP funding due to FAA eligibility criteria or inclusion in the NPIAS, contact MnDOT Aeronautics to determine eligibility for state support (i.e., having received a MCREM score of 1.5 points or above)
- If the proposed project is ineligible for state support due to receiving a score of less than 1.5 points in the MCREM, prepare an Exception Request to document that the model inadequately reflect current or forecasted future conditions (see page 9 for the required contents of this document)
 - Submit the Exception Request to the Commission for review
 - Respond to the Commissioner’s requests for additional information, as applicable
- If the proposed project is eligible for state support, develop the CRJR in accordance with the specification provided within the Crosswind Runway Guidance Statement (see page 9)
 - Submit the CRJR to the Commissioner for review
 - Respond to the Commissioner’s requests for additional information, as applicable
 - If the Commissioner deems that the proposed project is justified for state support, the airport sponsor must:
 - Ensure the proposed project is included on the MnDOT Aeronautics-approved ALP
 - Incorporate the proposed project on the statewide CIP

Crosswind Runway Guidance Compliance Process

Figure 1 depicts the process by which airport sponsors, MnDOT Aeronautics, and the Commissioner determine if the state may support the maintenance of an existing or construction of a new crosswind runway. The mechanisms to evaluate eligibility and justification are described in the sections that follow.

Figure 1. Crosswind Runway Guidance Compliance Process



Notes: The proposed project must be depicted on the airport’s current ALP to receive federal and/or state investment. The Commissioner’s recommendation of project support does not guarantee grant funding. Source: Kimley-Horn, 2022

MCREM

Eligibility to receive state funding support is determined by the MCREM, an Excel-based model that quantitatively evaluates the importance an existing or proposed new crosswind runway within its community and the state aviation system. The model also helps align MnDOT Aeronautics’ funding decisions with the agency’s priorities. The four criteria, as well as the scoring methodology, relative weighting against one another, and relevancy are described in **Table 2**. Airports receive points based on their performance against each evaluation criteria, with 5, 3, or 1 point(s) awarded respectively for high, medium, and low. Scores are then weighted based on their relative importance within the model. Scores are totaled, and airports are ranked against one another. Airports receiving a total weighted score of 1.5 or above are deemed eligible to receive state funding support. All criteria, scores, and weights were vetted, validated, and approved through a Focus Area Working Group comprised of stakeholders from across the state convened specifically for this Guidance Statement.

Table 2. MCREM Criteria and Evaluation Methodology

| Criteria (Percent Weighting) | Scoring Methodology* | Relevancy |
|--|--|---|
| Least Favorable Percent Wind Coverage (41%) | High < 90% Med = 90 to 95% Low > 95% | Prioritizes state funding to airports with poor wind coverage. Wind coverage was evaluated by airport for the winter and summer seasons. Scoring was based on the season with the least percent wind coverage to increase the airport’s period of operability. |
| State Classification (23%) | High = Key Med = Intermediate Low = Landing Strip | Prioritizes state funding to airports generally capable of supporting a wider range of aircraft. These airports typically also offer more services such as fuel and maintenance to support aircraft and the pilots/passengers they serve. |
| Presence of an Existing Crosswind (18%) | High = Paved Med = Turf Low = None | Prioritizes state funding to airports that currently have a crosswind runway, as maintaining an existing facility is nearly always more cost-effective than new construction. Paved runways are also prioritized, as these facilitates support a broader range of aircraft, such as those used for corporate/business and safety- and security-related aviation activities. |
| Proximity to a Paved Crosswind (18%) | High > 50 nautical miles (nm) Med = 30 – 50 nm Low < 30 nm | Prioritizes state funding to airports that may fill a gap in the statewide aviation system. This provides for air access and mobility across Minnesota while minimizing the duplication of facilities. |

**Note: Airports receive the following scores for each criterion: High = 5, Medium = 3, Low = 1. Source: Kimley-Horn, 2021*

EXCEPTION REQUEST

Airports receiving a score of less than 1.5 in the MCREM can submit an Exception Request to MnDOT Aeronautics to document how the results of the model do not adequately reflect the current or forecasted future conditions. For example, the variance request could document:

- Wind coverage based on an alternative predominant-use period (note the model evaluates coverage based on the least favorable coverage provided by seasonal winter or summer daytime conditions)
- Application of a lower allowable crosswind component based on frequent operations conducted by aircraft less demanding than the airport's critical or design aircraft (see **Table 1** for the allowable crosswind component by RDC)
- Proposed crosswind runway project fills a gap within the state aviation system insufficiently identified using a geographical buffer (i.e., the proposed project is 25 nm from a paved crosswind runway. This may not address the need for a turf crosswind runway within the region, or ground transportation connectivity between the two facilities severely limits access for some Minnesota communities.)

Exception Requests must be submitted in writing to the Commissioner. The Commissioner will evaluate if the request demonstrates that the MCREM does not adequately reflect current or forecasted future conditions. If the Commissioner approves the Exception Request, the eligibility standard is waived. The airport sponsor then must develop and submit a CRJR to demonstrate justification in accordance with the standards and processes of the MnDOT Crosswind Runway Guidance Statement.

Crosswind Runway Justification Report

The CRJR outlines the specific documentation to be provided to MnDOT Aeronautics to justify project support. Justification should be sought only when the following two conditions have been met:

- Airport sponsor cannot access AIP funding to maintain an existing or develop a new crosswind runway due to federal eligibility/justification thresholds or inclusion in the NPIAS
- Airport has been deemed eligible to receive state support for a crosswind runway based on receiving a score greater than or equal to 1.5 in the MCREM or having a Commissioner-approved Exception Request

The CRJR is designed to achieve the following objectives:

- Provide brief overview of proposed project
- Document wind coverage provided by existing runways
- Provide project justification clearly demonstrating that state support will meaningfully enhance the airport's ability to safely and efficiently accommodate the type and frequency of aviation activities typically occurring there or provide significant public benefit

In consideration of these objectives, the CRJR must provide the following information in the order presented below.

SECTION 1: DOCUMENTATION OF PROPOSED PROJECT

Complete the following table to provide a brief overview of the project request.

| Data | Response |
|---|----------|
| Briefly describe the support requested from MnDOT Aeronautics (e.g., Crack/seal coat of existing crosswind runway 09/27.) | |
| Runway orientation | |
| Surface type | |
| Maintenance or new construction? | |
| Is the proposed project shown on the MnDOT-approved ALP? | |
| Eligibility score as obtained from the MCREM | |

SECTION 2: DOCUMENTATION OF EXISTING WIND COVERAGE

This section should comprehensively document the wind coverage provided by the primary runway. This section must address:

- Provide coverage for aircraft flying under visual flight rules (VFR), instrument flight rules (IFR), and all-weather conditions
- The allowable crosswind component should be based on the RDC of the primary runway unless an Exception Request applying a lower allowable crosswind component was submitted and approved by the Commissioner
 - All airport sponsors may also analyze wind coverage using a smaller RDC if such aircraft are currently or forecasted to conduct at least 500 operations annually. The allowable crosswind component by RDC is provided in Table 1. In such cases, analyses must be provided for both the RDC of the primary runway and an alternative (i.e., lower) RDC.
- Airport sponsors may analyze coverage based on the predominant use period of the airport (seasonal, daytime vs. nighttime, etc.). Indicate the predominant use period of the airport, and if that period was used to analyze coverage. Note that if a seasonal period is used in this analysis, the airport sponsor must maintain airport operability during that season if funding is awarded (e.g., mowing in the summer or snow removal in the winter).
- Indicate the time period for which wind data was assembled (10 consecutive years of data recommended)
- Indicate if the weather reporting system from which data were obtained is physically located at the airport. If no, indicate where the system is located.

This section should also document the wind coverage provided by the existing crosswind runway and/or any other runway facilities to provide the cumulative total.

SECTION 3: DOCUMENTATION OF JUSTIFICATION

This section offers airport sponsors with the opportunity to explain specific benefits provided by the proposed crosswind runway project. Items of consideration may include (but are not limited to):

- Type and frequency of operations that currently or are forecasted to use the crosswind facility
- Aviation-related activities regularly occurring at the airport that may benefit from the presence of a crosswind runway including (but not limited to) commercial passenger service and air cargo
- Public benefit(s) associated with the proposed project, such a local employer that relies on the airport to conduct business activities, uninterrupted mail service, or access
- Proximity to the nearest alternative crosswind runway. The airport sponsor should consider if the proximate facility can support the same or similar aviation activities based on runway length, surface type, fuel availability, and other aviation support services.

Airport sponsors may also append letters of support from local aviation users, elected officials, and the community. This section should clearly explain how support will enhance the statewide aviation system in terms of advancing the vision of MnDOT Aeronautics, the goals of the 2022 Minnesota State Aviation System Plan (2022 MnSASP), or both.

Resources and Related Information

- FAA AC 150/5300-13A (Consolidated Change 1), *Airport Design*

History and Updates

Title: Crosswind Runway Guidance Statement

| Revision | Year | Comments |
|------------------|------|------------------|
| Initial adoption | 2022 | Guidance adopted |