2025 North Dakota State Aviation System Plan

2025 North Dakota Aviation Economic Impact Study

Technical Report

September 2026

NORTH DAKOTA AERONAUTICS COMMISSION

2025 North Dakota State Aviation System Plan and Economic Impact Study

Prepared for:

North Dakota Aeronautics Commission (NDAC)
https://aero.nd.gov/
2301 University Drive, #22
Bismarck, ND 58504

Final Report
September 2026

Prepared by:

Kimley»Horn

www.kimley-horn.com
6200 S Syracuse Way, Suite 300
Greenwood Village, CO 80111

In cooperation with:
Marr Arnold Planning, LLC

The preparation of this document was financed in part through a planning grant from the Federal Aviation Administration (FAA) as approved under the Airport and Airway Improvement Act of 1982. The contents of this report reflect the views of NDAC, which is responsible for the facts and the accuracy of the data depicted herein, and do not necessarily reflect the official views or policy of the FAA. Acceptance of this report by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein, nor does it indicate that the proposed development is environmentally acceptable in accordance with applicable public laws.

Table of Contents

Chapter 1. Introduction 1–1
1.1. Introduction 1–1
1.2. Purpose of Aviation System Planning 1–8
1.3. Study Process 1–9
1.4. Study Airports 1–10
Chapter 2. Study Framework 2–1
2.1. Introduction 2–1
2.2. 2025 NDSASP Framework 2–1
2.3. 2025 NDSASP Goals 2–5
2.4. 2025 NDSASP Performance Measures and Performance Indicators 2–7
2.4.1. Goal: Maintain a Safe Aviation System 2–7
2.4.2. Goal: Promote Aviation System Coverage 2–8
2.4.3. Goal: Provide Air Access to Airports 2–9
2.4.4. Goal: Enhance Quality of Life 2–10
2.4.5. Goal: Preserve Airport Infrastructure 2–11
2.4.6. Goal: Support Aviation Education and Industry Advancement 2–11
2.5. Summary 2–12
Chapter 3. Airport Classifications 3–1
3.1. Introduction 3–1
3.2. National Plan of Integrated Airport Systems (NPIAS) 3–2
3.2.1. NPIAS Classification Process 3–2
3.3. 2025 NDSASP Classification 3–8
3.4. Recommendations for NPIAS Inclusion 3-15
3.5. Summary 3-19
Chapter 4. Inventory 4-1
4.1. Introduction 4-1
4.2. Inventory and Data Collection Process 4-1
4.3. 2025 NDSASP Data by Goal 4-3
4.3.1. Goal: Maintain a Safe Aviation System 4-3
4.3.2. Goal: Promote Aviation System Coverage 4-25
4.3.3. Goal: Provide Air Access to Airports 4-26
4.3.4. Goal: Enhance Quality of Life 4-39
4.3.5. Goal: Preserve Airport Infrastructure 4-51

4.3.6. Goal: Support Aviation Education and Industry Advancement 4-60
4.4. Summary 4-71
Chapter 5. Projections of Aviation Demand 5-1
5.1. Introduction 5-1
5.2. National Aviation Trends 5-1
5.2.1. Commercial Service 5-2
5.2.2. General Aviation 5-4
5.3. Socioeconomic Trends 5-9
5.4. Projections of Aviation Demand 5-12
5.4.1. Commercial Service Airport Enplanement and Commercial Operations Projections 5-12
5.4.2. Based Aircraft Projections 5-16
5.4.3. General Aviation Operations Projections 5-25
5.4.4. Military Operations 5-36
5.5. Projection Results Summary 5-36
5.6. Summary 5-38
Chapter 6. System Performance 6-1
6.1. Introduction 6-1
6.2. Existing System Performance Analysis 6-1
6.2.1. Goal: Maintain a Safe Aviation System 6-2
6.2.2. Goal: Promote Aviation System Coverage 6-9
6.2.3. Goal: Provide Air Access to Airports 6-15
6.2.4. Goal: Enhance Quality of Life 6-38
6.2.5. Goal: Preserve Airport Infrastructure 6-50
6.2.6. Goal: Support Aviation Education and Industry Advancement 6-56
6.3. Summary 6-61
Chapter 7. Issues and Industry Advancements 7-1
7.1. Introduction 7-1
7.2. Advanced Air Mobility 7-1
7.2.1. AAM Ecosystem Overview 7-1
7.2.2. Policy and Regulatory Development 7-2
7.2.3. AAM Activities in North Dakota 7-4
7.2.4. Ongoing Challenges 7-8
7.2.5. North Dakota Implementation Considerations 7-9
7.3. Emerging Aviation Fuel Sources 7-10
7.3.1. Types of Emerging Fuel Sources 7-10

7.3.2. Current Initiatives in North Dakota and Future Implications 7-12
7.4. Air Traffic Control Modernization 7-14
7.4.1. Modernization Efforts to Date 7-15
7.4.2. Current Modernization Activities 7-18
7.4.3. Implications and Opportunities for North Dakota 7-19
7.5. Aging Fleet and Pilot Population 7-20
7.5.1. Aging Pilot Population 7-20
7.5.2. Aging Aircraft Fleet 7-21
7.5.3. Supporting Aging Pilots and Fleets 7-23
7.6. Aviation Professional Shortage 7-24
7.6.1. Key Shortages 7-25
7.6.2. Aviation-Related Workforce Challenges in North Dakota 7-26
7.6.3. North Dakota Initiatives 7-29
7.6.4. Federal, Professional Organization, and Other State Initiatives 7-30
7.6.5. Addressing Workforce Challenges 7-33
7.7. Commercial Service Access 7-34
7.7.1. Challenges in Small Community Air Service 7-35
7.7.2. Federal Programs Supporting Small Communities 7-36
7.7.3. Addressing Air Service Challenges in Small Communities 7-38
7.8. Economic Conditions and Impacts on Buying Power 7-38
7.8.1. Post-Pandemic Inflation Rates and Construction Costs 7-39
7.8.2. Airport Construction and Buying Power 7-40
7.8.3. Capital Planning and Delivery Impacts 7-41
7.8.4. Implications for North Dakota 7-41
7.9. Revenue-Producing Projects 7-42
7.9.1. Revenue-Producing Facilities at Airports 7-43
7.9.2. Challenges Funding Revenue-Producing Projects 7-44
7.9.3. North Dakota Implications and Opportunities 7-45
7.10. Summary 7-48
Chapter 8. Cost Estimates and Recommendations 8-1
8.1. Introduction 8-1
8.2. Summary of Proposed Aviation Development Needs 8-2
8.2.1. NDAC's 10-Year NDAC CIP Needs 8-2
8.2.2. 2025 NDSASP Project Recommendations and Needs 8-9
8.2.3. Total 10-Year System Needs 8-22

8.3. Projected Funding 8-23
8.3.1. Projected Federal Funding 8-23
8.3.2. Projected State Funding 8-26
8.3.3. Projected Local Funding 8-27
8.3.4. Summary of Projected Funding from All Sources 8-28
8.4. Anticipated Shortfall 8-28
8.4.1. Years 1-5 Needs and Shortfall 8-28
8.4.2. Years 6-10 Needs and Shortfall 8-29
8.4.3. Years 1–10 Needs and Shortfall 8-30
8.5. System Plan Recommendations 8-32
8.5.1. Airport Classification Recommendations 8-33
8.5.2. Issues and Industry Advancement Recommendations 8-33
8.6. Conclusion 8-35
Chapter 9. North Dakota Aviation Economic Impact Study 9-1
9.1. Introduction 9-1
9.1.1. Prior Aviation Economic Impact Analyses 9-1
9.1.2. Study Airports 9-2
9.2. Economic Impact Methodology 9-2
9.2.1. Economic Impact Terms 9-3
9.2.2. Economic Impact Measures 9-3
9.2.3. Economic Impact Categories 9-4
9.3. Approach to Data Collection 9-5
9.3.1. Surveys and Data Collection Methods 9-6
9.3.2. Airport Site Visits 9-13
9.3.3. Data Validation 9-14
9.4. Applying IMPLAN and the Economic Modeling Process 9-15
9.4.1. Filling in Direct Data Inputs 9-15
9.4.2. Regional Calibration 9-16
9.4.3. Aggregating Industry Sectors 9-17
9.4.4. Estimating Multiplier Impacts 9-17
9.5. Core Airport Economic Impact Findings 9-18
9.5.1. Statewide Airport Economic Impact Findings 9-18
9.5.2. Individual Airport Impacts by Categories 9-23
9.6. Supplemental Off-Airport Impact Findings 9-37
9.6.1. Off-Airport University of North Dakota School of Aerospace Sciences Impacts 9-37

9.6.2. Off-Airport Aircraft/Aerospace Manufacturing Impacts 9-40
9.6.3. Off-Airport UAS Business Impacts 9-41
9.6.4. Grand Forks and Minot Air Force Base Impacts 9-42
9.6.5. Economic Impact Loss Due to Aviation Workforce Challenges 9-46
9.7. 2025 NDAEIS Total Impacts and Statewide Context 9-47
9.8. Study Comparison (2015 to 2025) 9-50
9.8.1. Core Airport Impact Comparison 9-50
9.8.2. Core Airport and Supplemental Impact Comparison 9-52
9.9. Tax Revenue Analysis 9-55
9.9.1. Methodology and Assumptions 9-55
9.9.2. Results 9-56
9.10. Conclusion 9-57
9.11. Additional Tables 9-59

List of Figures

Figure 1-1. Airline Passenger Boardings at ND Commercial Airports, 1990–2024 1–2
Figure 1-2. Air Cargo Annual Total Landed Aircraft Weight in North Dakota, 1990–2024 1–3
Figure 1-3. Operations at General Aviation (GA) Airports, 2015–2024 1–4
Figure 1-4. Historical Based Aircraft Counts in North Dakota, 1960–2024 1–5
Figure 1-5. Historical In-State Pilots in North Dakota 1–6
Figure 1-6. Historical Acres Treated by North Dakota Aerial Applicators 1–7
Figure 1-7. 2025 NDSASP Study Process 1–9
Figure 1-8. 2025 NDSASP Airports 1-16
Figure 2-1. 2014 NDSASP Framework 2–2
Figure 2-2. 2025 NDSASP Framework 2–4
Figure 3-1. Federal Classifications Hierarchy 3–4
Figure 3-2. NDSASP Airport Classification System 3–9
Figure 3-3. 2025 NDSASP Classifications Map 3–14
Figure 4-1. T-Hangar 4-30
Figure 4-2. Conventional/Box Hangar 4-30
Figure 4-3. North Dakota's PCI Thresholds 4-51
Figure 5-1. Four-Quarter Rolling Scheduled Service and Charter Passengers Enplaned (millions) on U.S. Airlines 5-2
Figure 5-2. National General Aviation Trends and Projections 5-6
Figure 5-3. Projected Population Growth Rates by County (2024-2044) 5-10
Figure 5-4. Projected Employment Growth Rates by County (2024-2044) 5-11
Figure 5-5. Historic and Projected Commercial Service Airport Enplanements (2004–2044). 5-14
Figure 5-6. Historical and Projected Based Aircraft (2000–2044) 5-25
Figure 6-1. PM: Percent of Primary Runway Ends with Clear Approaches 6-3
Figure 6-2. PM: Percent of Nonprimary Runway Ends with Clear Approaches 6-4
Figure 6-3. PM: Percent of Primary Runway Ends with RPZ Control 6-5
Figure 6-4. Percent of Nonprimary Runway Ends with RPZ Control 6-5
Figure 6-5. PM: Percent of Primary Runway Ends with Public Gathering in the RPZs 6-6
Figure 6-6. PM: Percent of Nonprimary Runway Ends with Public Gathering in the RPZs 6-7
Figure 6-7. PI: Percent of Primary Runway Ends with Roads, Railroads, or Structures Not Utilized for Public Gatherings in the RPZs 6-8
Figure 6-8. PI: Percent of Nonprimary Runway Ends with Roads, Railroads, or Structures Not Utilized for Public Gatherings in the RPZs 6-8
Figure 6-9. PI: Percent of Area and Population Within 90 Minutes of a Commercial Service Airport 6-10
Figure 6-10. PI: Percent of Area and Population within 30 Minutes from a NPIAS Airport 6-11

Figure 6-11. PI: Percent of Area and Population Within 30 Minutes of Paved Public-Use Airports (NPIAS and Non-NPIAS) 6-13
Figure 6-12. PI: Percent of Area and Population Within 30 Minutes of Public-Use Airports (NPIAS and Non-NPIAS) 6-14
Figure 6-13. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with On-Site Weather Reporting 6-16
Figure 6-14. PM: Percent of Airports with On-Site Weather Reporting 6-17
Figure 6-15. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Non-Precision Approach 6-18
Figure 6-16. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Vertically Guided Approach 6-20
Figure 6-17. PM: Percent of Airports with Vertically Guided, Non-Precision, and Visual Approaches 6-22
Figure 6-18. PM: Percent of Airports with Adequate GA Terminal Facilities to Support Passenger Demand 6-29
Figure 6-19. PM: Percent of Airports with Adequate Commercial Service Terminal Facilities to Support Passenger Demand 6-30
Figure 6-20. PM: Percent of Airports with Available Covered Aircraft Storage 6-31
Figure 6-21. PM: Covered Aircraft Storage Availability 6-32
Figure 6-22. PI: Percent of Airports with Standard Runway Lighting 6-33
Figure 6-23. PI: Percent of Area and Population Within 50 Nautical Miles of an Airport with Jet A Fuel 6-34
Figure 6-24. Percent of Airports with Jet A Fuel 6-35
Figure 6-25. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport with 100LL Fuel 6-36
Figure 6-26. PI: Percent of Airports with 100LL Fuel 6-37
Figure 6-27. PI: Percent of NPIAS Airports That Have at Least 95 percent Wind Coverage for All Runways 6-37
Figure 6-28. PI: Percent of Area and Population Within 60 Minutes of a 5,000 ft or Longer Runway 6-38
Figure 6-29. Percent of Airports with a 5,000 ft or Longer Runway 6-39
Figure 6-30. PI: Percent of Airports That Meet the Light Business Jet Capability Criteria 6-40
Figure 6-31. Percent of Airports Utilized by Air Cargo Operators 6-42
Figure 6-32. PI: Percent of Airports with Aviation Related Business Tenants on Airport Property 6-43
Figure 6-33. PI: Percent of Airports That Can Meet the Needs of the King Air Emergency Aircraft 6-44
Figure 6-34. PI: Percent of Area and Population Within 30 Minutes of an Airport That Can Meet the Needs of the King Air Emergency Aircraft 6-45

Figure 6-35. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport That Supports Based or Transient Aerial Applicator Operations 6-46
Figure 6-36. PI: Percent of Airports that Supports Based or Transient Aerial Applicator Operations 6-47
Figure 6-37. PI: Percent of Airports That Provide Access to Mechanic Services 6-48
Figure 6-38. Percent of Airports and Population with a Hospital and/or Clinic Served by an Airport 6-49
Figure 6-39. PI: Percent of Airports with a Hospital and/or Clinic Within its Service Area 6-50
Figure 6-40. PM: Percent of Airports Meeting State PCI Thresholds on Primary Runways ... 6-51
Figure 6-41. PM: Percent of NPIAS Airports with an Adequate ALP 6-51
Figure 6-42. Percent of Airports that Have Height Zoning Following Part 77 Guidelines Adopted by a Local Zoning Board 6-53
Figure 6-43. PI: Percent of Airports that Have Height Zoning Following Part 77 Guidelines Adopted by a Local Zoning Board 6-54
Figure 6-44. PI: Percent of Airports with a Local or County-Wide Mill Levy 6-55
Figure 6-45. PI: Percent of Airports with Non-Mill Levy Revenue 6-56
Figure 6-46. PI: Percent of Airports That Offer Flight Training 6-57
Figure 6-47. PI: Percent of Area and Population within 30 Nautical Miles of An Airport That Offers Flight Training 6-58
Figure 6-48. PI: Percent of Airports That Host Annual Fly-Ins or Other Community Engagement Events 6-59
Figure 6-49. PI: Percent of Airports That Participate in STEM Activities 6-60
Figure 6-50. PI: Percent of Area and Population That Have Educational Opportunities Available in the Community 6-61
Figure 7-1. Example AAM Use Cases 7-2
Figure 7-2. AAM Ecosystem 7-3
Figure 7-3. FAA EB 105A Guidance on Vertiport Dimensions and Approach Surfaces 7-4
Figure 7-4. Remote Pilots in North Dakota 7-7
Figure 7-5. Air Traffic Control Timeline of Modernization Efforts 7-15
Figure 7-6. Canceled Departures at U.S. Airports During the Government Shutdown (November 2025) 7-17
Figure 7-7. FAA Flight Plan 2026 Pillars 7-18
Figure 7-8. Active Pilots in North Dakota 7-21
Figure 7-9. North Dakota Airport Tenants That Identified Various Workforce Challenges 7-27
Figure 7-10. North Dakota Airport Tenants That Identified Workforce Challenges, by Business Type and by Job Type 7-27
Figure 7-11. North Dakota Non-Pilot Airmen Certificates by License Type 7-28
Figure 7-12. Historical U.S. Inflation Rates (2010–2025) 7-39
Figure 7-13. Economywide Prices vs Construction Materials Prices (Percent Change between 2016 and 2025) 7-40

Figure 7-14. Historical North Dakota Construction Cost Index Data (2005–2024) 7-41
Figure 8-1. Distribution of 1–5 Year NDAC CIP Project Costs by Category 8-4
Figure 8-2. Distribution of 6–10 Year NDAC CIP Project Costs by Category 8-6
Figure 8-3. Distribution of 1–10 Year NDAC CIP Project Costs by Category 8-8
Figure 9-1. NDSASP Airports 9-2
Figure 9-2. North Dakota Commercial Service Visitor Feedback Overview 9-10
Figure 9-3. Statewide Regional Map 9-13
Figure 9-4. Percentage of Total Economic Output by Aerospace Activity Type 9-49
Figure 9-5. Comparison of Direct, Multiplier, and Total Job Impacts for Core Airport Impacts 9-51
Figure 9-6. Comparison of Direct, Multiplier, and Total Payroll Impacts for Core Airport Impacts 9-51
Figure 9-7. Comparison of Direct, Multiplier, and Total Output Impacts for Core Airport Impacts 9-52

List of Tables

Table 1-1. 2025 NDSASP Airports 1–11
Table 2-1. Crosswalk of NDSASP and Transportation Connect Goals 2–5
Table 2-2. 2025 NDSASP Goals 2–6
Table 2-3: Goal: Maintain a Safe Aviation System 2–8
Table 2-4. Goal: Promote Aviation System Coverage 2–8
Table 2-5. Goal: Provide Air Access to Airports 2–9
Table 2-6. Goal: Enhance Quality of Life 2–10
Table 2-7. Goal: Preserve Airport Infrastructure 2–11
Table 2-8. Goal: Support Aviation Education and Industry Advancement 2–12
Table 3-1. Primary Airport Hub Sizes 3–4
Table 3-2. Nonprimary Airport Classifications 3–6
Table 3-3. 2025 NDSASP Facility Categories 3–9
Table 3-4. NPIAS Re-evaluation Results for Non-NPIAS Airports in the 2024 NDSASP 3-16
Table 4-1. 2025 NDSASP Airport Manager Survey Data Sections and Categories 4-2
Table 4-2. Goal 1: Maintain a Safe Aviation System – Data Table for Clear Approaches 4-6
Table 4-3. Goal 1: Maintain a Safe Aviation System – Data Table for Control of RPZs 4-12
Table 4-4. Goal 1: Maintain a Safe Aviation System – Data Table for Characteristics of RPZs . 4-18
Table 4-5. Goal 3: Provide Air Access to Airports – Data Table 4-33
Table 4-6. Light Business Jet Criteria and Corresponding Data Columns 4-40
Table 4-7. Emergency Aircraft Criteria and Corresponding Data Columns 4-42
Table 4-8. Goal 4: Enhance Quality of Life – Data Table 4-44
Table 4-9. Goal 5: Preserve Airport Infrastructure – Data Table 4-54
Table 4-10. Goal 6: Support Aviation Education and Industry Advancement – Data Table 4-62
Table 5-1. Commercial Service Airport Enplanement Projections 5-12
Table 5-2. Commercial Service Airport Commercial Operations (Air Carrier & Air Taxi) Projections 5-15
Table 5-3. Comparison of Based Aircraft Projection Methodologies 5-17
Table 5-4. North Dakota Based Aircraft Projections 5-19
Table 5-5. Comparison of General Aviation Operations Projection Methodologies 5-26
Table 5-6. North Dakota General Aviation Operations Projections 5-28
Table 5-7. North Dakota's Preferred Statewide Activity Projections 5-36
Table 5-8. North Dakota SASP Forecast Comparison to the FAA's Terminal Area Forecasts (TAF) - NPIAS Airports Only 5-37
Table 6-1. Change in Area and Population Within 30 Minutes of a NPIAS Airport: 2014 vs. 2025 6-12

Table 6-2. Change in Area and Population Within 30 Minutes from All Public-Use Airports (NPIAS and Non-NPIAS): 2014 vs. 2025 6-15
Table 6-3. Change in Area and Population Within 30 Nautical Miles of an Airport with On-Site Weather Reporting: 2014 vs. 2025 6-17
Table 6-4. Change in Area and Population Within 30 Nautical Miles of an Airport with a Non-Precision Approach: 2014 vs. 2025 6-19
Table 6-5. Change in Area and Population Within 30 Nautical Miles of an Airport with a Vertically Guided Approach: 2014 vs. 2025 6-21
Table 6-6. Airport Runway Approaches – Data Table 6-23
Table 6-7. NDSASP Airports that Meet the Light Business Jet Capability Criteria 6-41
Table 6-8. Percent of NPIAS Airports with an ALP: 2014 vs. 2025 6-52
Table 7-1. Timeline of Challenges to Implementing the AAM Ecosystem 7-8
Table 7-2. Small Community Air Service Grants Awarded in North Dakota (2020–2025) 7-37
Table 8-1. Commercial Service and GA NDAC CIP Totals (1–5 Year Period) 8-4
Table 8-2. NPIAS and Non-NPIAS NDAC CIP Totals (1–5 Year Period) 8-5
Table 8-3. Commercial Service and GA NDAC CIP Totals (6–10 Years) 8-6
Table 8-4. NPIAS and Non-NPIAS NDAC CIP Totals (6–10 Years) 8-7
Table 8-5. Commercial Service and General Aviation NDAC CIP Totals (1–10 Years) 8-9
Table 8-6. NPIAS and Non-NPIAS NDAC CIP Totals (1–10 Years) 8-9
Table 8-7. Existing Performance and Future Targets – Clear Approaches on Primary Runway Ends 8-10
Table 8-8. Costs Associated with Future Targets – Clear Approaches on Primary Runway Ends 8-11
Table 8-9. Existing Performance and Future Targets – Clear Approaches on Non-primary Runway Ends 8-11
Table 8-10. Cost Associated with Future Targets – Clear Approaches on Non-primary Runway Ends 8-12
Table 8-11. Existing Performance and Future Targets – Control of RPZs on Primary Runway Ends 8-12
Table 8-12. Existing Performance and Future Targets – Control of RPZs on Non-primary Runway Ends 8-13
Table 8-13. Cost Associated with Future Targets – Control of RPZs on Non-primary Runway Ends 8-13
Table 8-14. Existing Performance and Future Targets – Public Gatherings in the RPZs of Primary Runway Ends 8-14
Table 8-15. Existing Performance and Future Targets – Public Gatherings in the RPZs of Non-Primary Runway Ends 8-15
Table 8-16. Existing Performance and Future Targets – On-Site Weather Reporting 8-16
Table 8-17. Existing Performance and Future Targets – Non-Precision Approach 8-16

Table 8-18. Associated Costs with Future Targets – Non-Precision Approach 8-17
Table 8-19. Existing Performance and Future Targets – Vertically Guided Approach..... 8-17
Table 8-20. Existing Performance and Future Targets – Adequate GA Terminal Facilities.... 8-18
Table 8-21. Existing Performance and Future Targets – Adequate Terminal Facilities (CS Only) 8-18
Table 8-22. Associated Cost with Future Targets – Adequate Terminal Facilities (CS Only). 8-19
Table 8-23. Existing Performance and Future Targets – Covered Aircraft Storage..... 8-19
Table 8-24. Associated Costs with Future Targets – Covered Aircraft Storage 8-20
Table 8-25. Existing Performance and Future Targets – PCI for Primary Runways..... 8-20
Table 8-26. Associated Costs with Future Targets – PCI for Primary Runways..... 8-21
Table 8-27. Existing Performance and Future Targets – Adequate ALP..... 8-21
Table 8-28. Summary of Estimated NDSASP Needs 8-22
Table 8-29. Summary of Total 10-Year System Needs 8-22
Table 8-30. Commonly AIP Eligible and Ineligible Projects 8-24
Table 8-31. Methodology of Projecting FAA AIP Funding (2026-2035) 8-25
Table 8-32. Summary of Federal Funding Projections (2026–2035)..... 8-26
Table 8-33. Summary of Projected Funding Levels (2026–2035)..... 8-28
Table 8-34. Anticipated Years 1–5 Needs and Shortfall 8-29
Table 8-35. Anticipated Years 6–10 Needs and Shortfall 8-30
Table 8-36. Anticipated Years 1–10 Needs and Shortfall 8-31
Table 8-37. Recommendations from Chapter 7. Issues and Industry Advancements 8-34
Table 9-1. Economic Impact Term Definitions 9-3
Table 9-2. Economic Impact Measure Definitions 9-4
Table 9-3. Airport Manager Survey Data Categories 9-7
Table 9-4. Business Tenant Survey Data Categories 9-8
Table 9-5. Commercial Service Passenger Survey Data Categories 9-11
Table 9-6. CIP Adjusted Statewide GA Visitor Spending Averages 9-12
Table 9-7. Regional Spending Adjustments for GA Visitors 9-12
Table 9-8. Airport Administration Impacts..... 9-19
Table 9-9. On-Airport Business Tenant Impacts..... 9-19
Table 9-10. Capital Improvement Impacts..... 9-20
Table 9-11. Total On-Airport Impacts 9-20
Table 9-12. Visitor Spending per Trip by Commercial Service Airport 9-21
Table 9-13. Commercial Service Visitor Spending Impacts 9-22
Table 9-14. GA Visitor Spending Impacts..... 9-22
Table 9-15. Total Off-Airport Visitor Spending Impacts..... 9-23
Table 9-16. Total Statewide Core Airport Impacts 9-23
Table 9-17. Direct Impacts by Airport 9-24
Table 9-18. Multiplier Impacts by Airport 9-28
Table 9-19. Total Impacts by Airport 9-32

Table 9-20. Off-Airport Economic Impacts of the UND School of Aerospace Sciences 9-39
Table 9-21. Off-Airport Aircraft and Aerospace Manufacturing Economic Impacts 9-41
Table 9-22. Off-Airport UAS Business Economic Impacts 9-42
Table 9-23. Comparison of Economic Measure Definitions: 2025 NDAEIS and AFB Economic Impact Statements 9-43
Table 9-24. Comparison of Economic Impact Category Definitions: 2025 NDAEIS and AFB Economic Impact Statements 9-43
Table 9-25. Grand Forks AFB Economic Impact Summary 9-44
Table 9-26. Minot AFB Economic Impact Summary 9-45
Table 9-27. Grand Forks and Minot AFB Economic Impact Summary 9-46
Table 9-28. Economic Impact Loss Associated with Unfilled Aviation Positions 9-47
Table 9-29. Total Economic Impact of North Dakota's Aviation Industry 9-48
Table 9-30. Distribution of Aerospace Industry Jobs in North Dakota 9-48
Table 9-31. Percentage of Total Jobs and Payroll by Aerospace Activity Type 9-49
Table 9-32. North Dakota's Aerospace Industry's Contributions to the State Economy 9-50
Table 9-33. Core Airport Impacts 9-51
Table 9-34. Differences in Supplemental Impacts Assessed (2015 and 2025 NDAEIS) 9-52
Table 9-35. Core Airport and Supplemental Impacts 9-54
Table 9-36. Tax Categories 9-55
Table 9-37. IMPLAN Estimated Tax Revenues Generated from Aviation Activity 9-56
Table 9-38. Additional Tax Revenues Generated from Aviation Activity 9-57
Table 9-39. Direct, Multiplier, and Total Economic Impacts by Airport 9-59
Table 9-40. Comparison of Economic Impacts by Airport 9-63
Table 9-41. Tax Revenue Impacts by Airport 9-67

Chapter 1. Introduction

1.1. Introduction

Aviation is a cornerstone of North Dakota's economy and infrastructure. The state's 89 public-use airports are vital assets that fulfill a wide range of needs, including the transportation of essential goods and services, connecting residents and visitors to destinations across the state and nation, and supporting key industries such as agriculture and tourism. These airports also serve as significant economic drivers through airport administration, construction activity, visitor spending, and other contributions. To ensure the continued success and optimization of these assets, the North Dakota Aeronautics Commission (NDAC) engages in long-term planning efforts, such as the North Dakota State Aviation System Plan (NDSASP) and the North Dakota Aviation Economic Impact Study (NDAEIS). These efforts provide critical insight into the needs and benefits of the state's aviation system.

The 2025 NDSASP has been developed alongside the 2025 NDAEIS to provide a comprehensive understanding of the aviation system's requirements and impact. The methodology and findings of the NDAEIS are discussed in detail in **Chapter 9: 2025 North Dakota Aviation Economic Impact Study.**

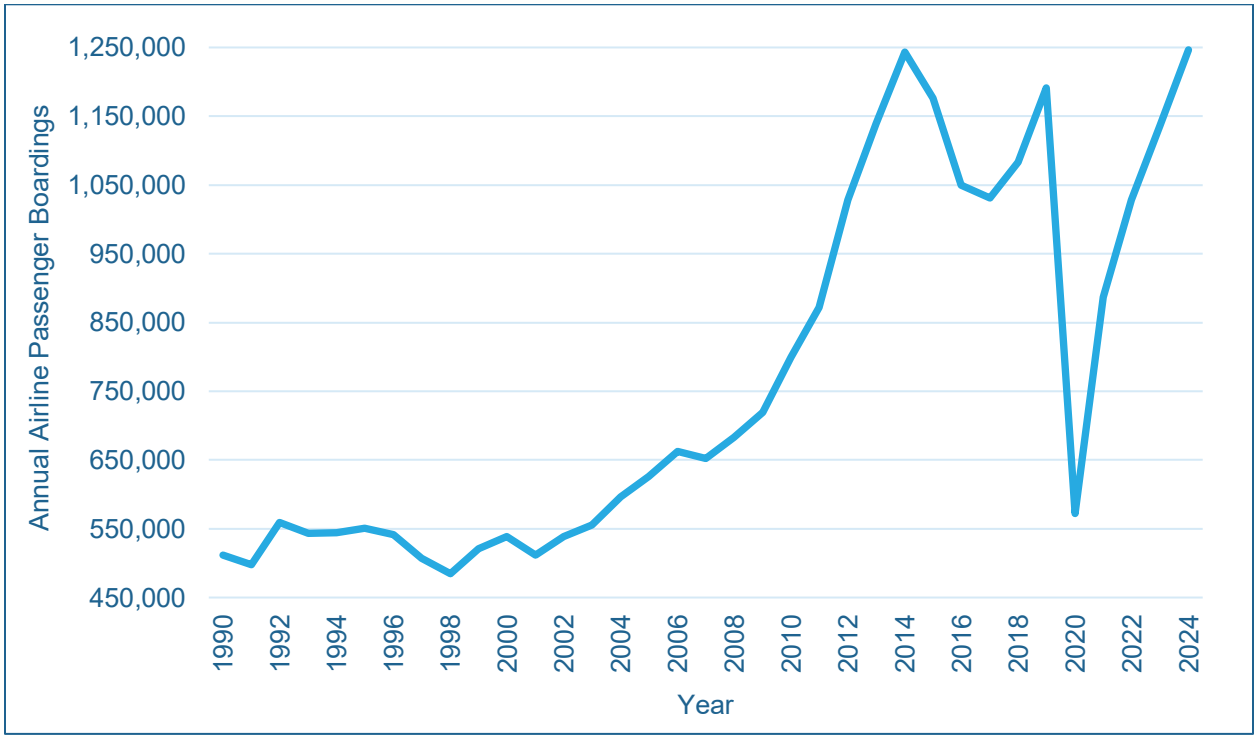
The 2025 NDSASP builds on the previous 2014 plan, reflecting the substantial changes in North Dakota's aviation landscape over the past decade. Following a period of rapid expansion driven by the oil boom that peaked in 2014, the state experienced a downturn between 2015 and 2017 due to declines in the energy sector. Growth resumed in 2018, only to face another significant challenge with the onset of the COVID-19 pandemic in 2020, which caused annual passenger boardings to drop by over 50%, falling below 600,000.

Airline Passenger Recovery

Despite these challenges, North Dakota's aviation industry has demonstrated remarkable resilience. Passenger enplanements at commercial service airports rebounded from pre-pandemic levels, setting a new record of 1.24 million boardings in 2024. This milestone not only surpasses the previous peak during the 2014 oil boom but also highlights the growing demand for air travel in the state.

As passenger demand continues to rise, the state has prioritized investments in airport infrastructure to meet evolving needs. These enhancements enable greater flight availability, expanded destinations, increased seat capacity, and more competitive ticket prices. Additionally, the growing aviation sector creates sustained demand for a skilled workforce, including pilots, aircraft mechanics, airport operators, and unmanned aircraft technicians, while also increasing opportunities for entry-level and non-specialized workers.

Figure 1-1. Airline Passenger Boardings at ND Commercial Airports, 1990–2024

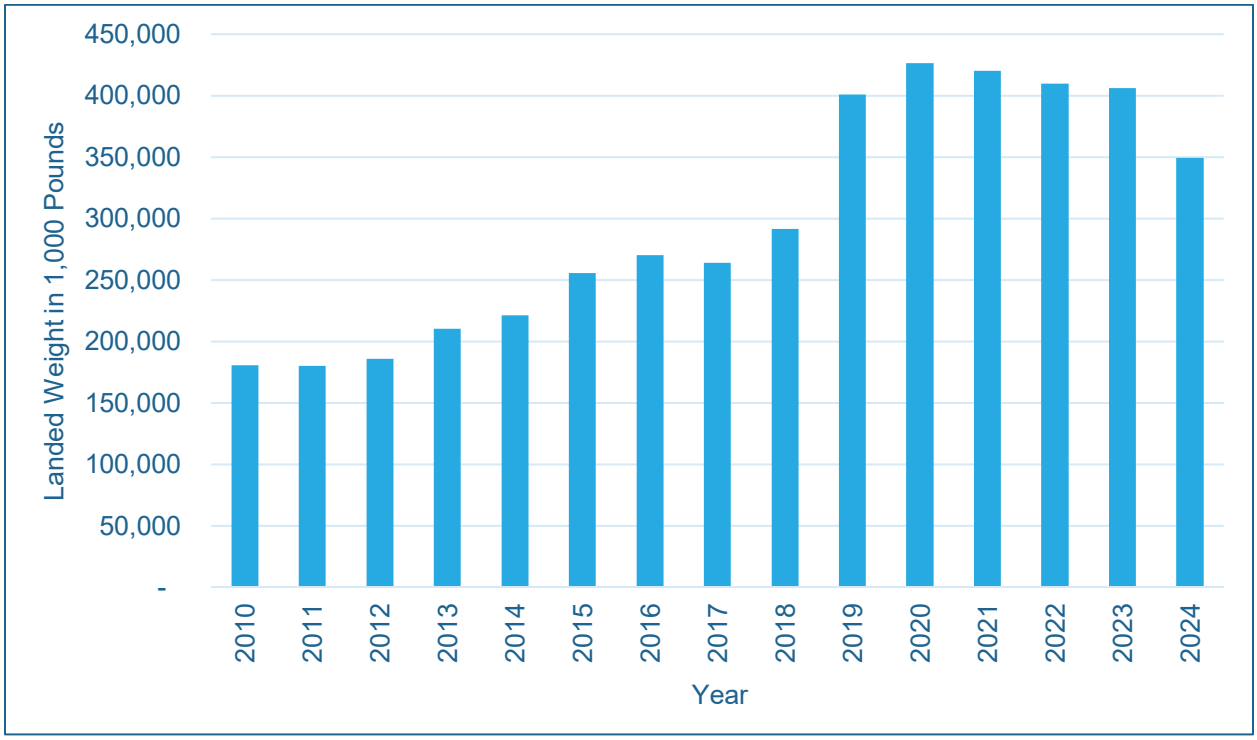


Sources: FAA Terminal Area Forecast (TAF), 2024; Kimley-Horn, 2025; NDAC, 2025.

Air Cargo Growth

The demand for air cargo services has also grown in North Dakota throughout the last decade, fueled by the rise of e-commerce and the need for expedited shipping. Fargo has emerged as a regional hub for FedEx and UPS, while other North Dakota airports serve as distribution spokes. **Figure 1-2** depicts the growth of air cargo landed aircraft weight across the state from 2010 to 2024.

Figure 1-2. Air Cargo Annual Total Landed Aircraft Weight in North Dakota, 1990–2024

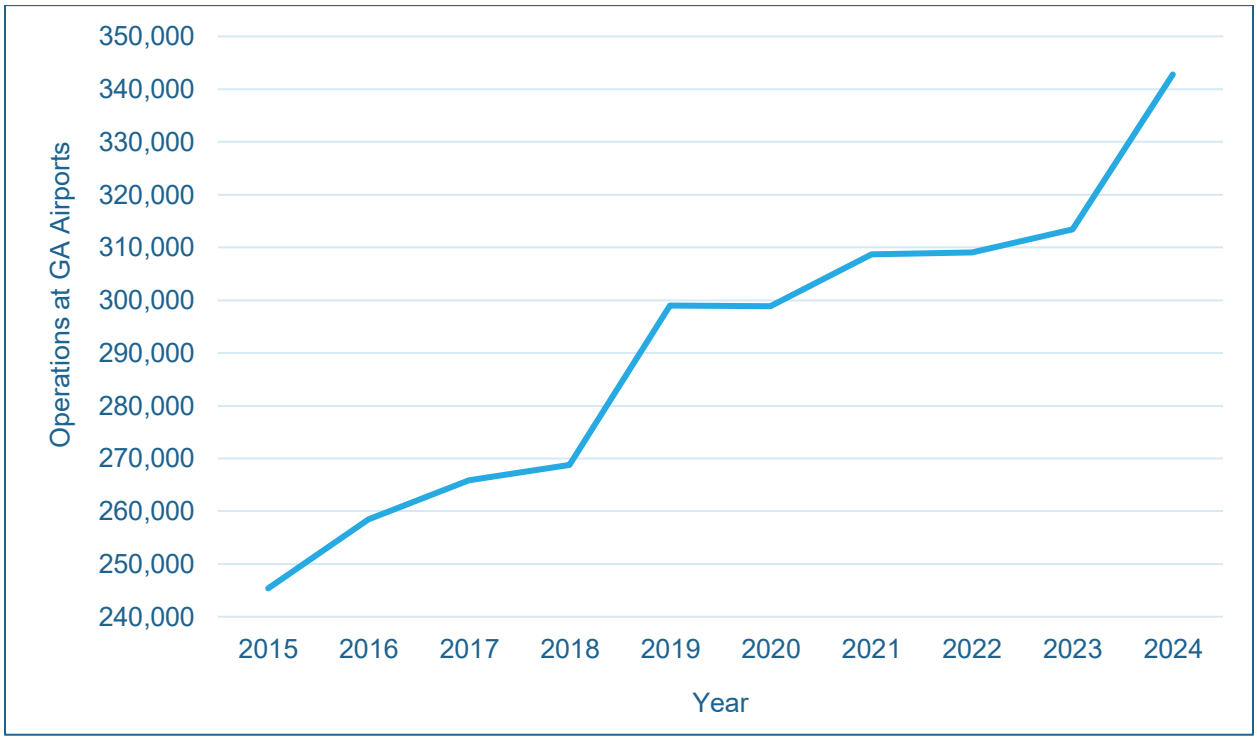


Sources: Kimley-Horn, 2025; NDAC, 2025.

General Aviation Resilience

General aviation (GA) has also been a pillar of strength within the aviation sector. According to the FAA's Terminal Area Forecast (TAF), GA operations at North Dakota's National Plan of Integrated Airport Systems (NPIAS) airports increased approximately 40% since 2015. During the COVID-19 pandemic, GA airports demonstrated resilience as industries and travelers relied on their flexibility when commercial aviation was restricted. **Figure 1-3** shows the total operations at NPIAS GA airports in North Dakota from 2015 to 2024, with a significant increase from 2018 to 2019 and a steady increase from 2019 to 2024.[3]

Figure 1-3. Operations at General Aviation (GA) Airports, 2015–2024

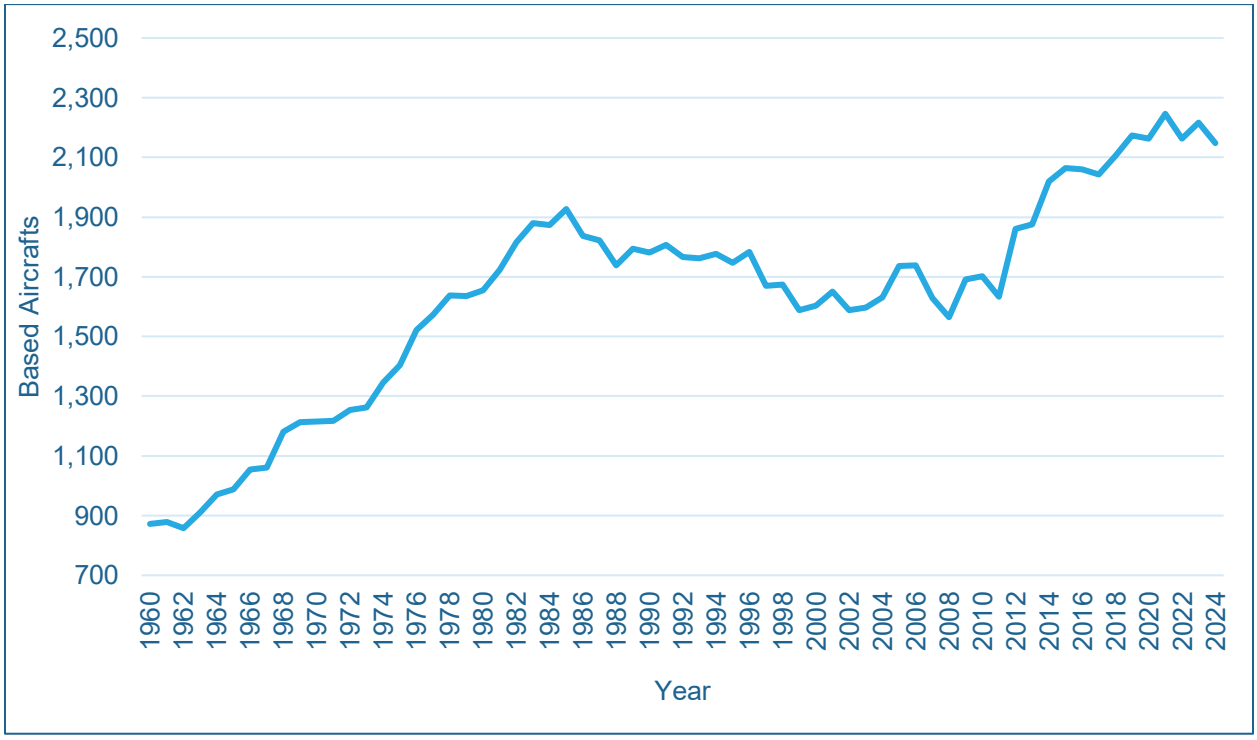


Sources: FAA TAF, 2024; Kimley-Horn, 2025; NDAC, 2025.

In addition to the operational growth, the number of based aircraft has increased significantly over the past decade, leading to substantial private investments in airport infrastructure. These investments include new hangars and business operation facilities, underscoring the growing demand for GA services. Many airports across the state are now reporting full hangar occupancy, with waiting lists for individuals eager to base their aircraft on-site.

Figure 1-4 depicts the historical based aircraft counts within the state, as tracked through annual aircraft registrations in North Dakota. These trends highlight the ongoing vitality of GA in supporting the state's economy and aviation ecosystem.

Figure 1-4. Historical Based Aircraft Counts in North Dakota, 1960–2024



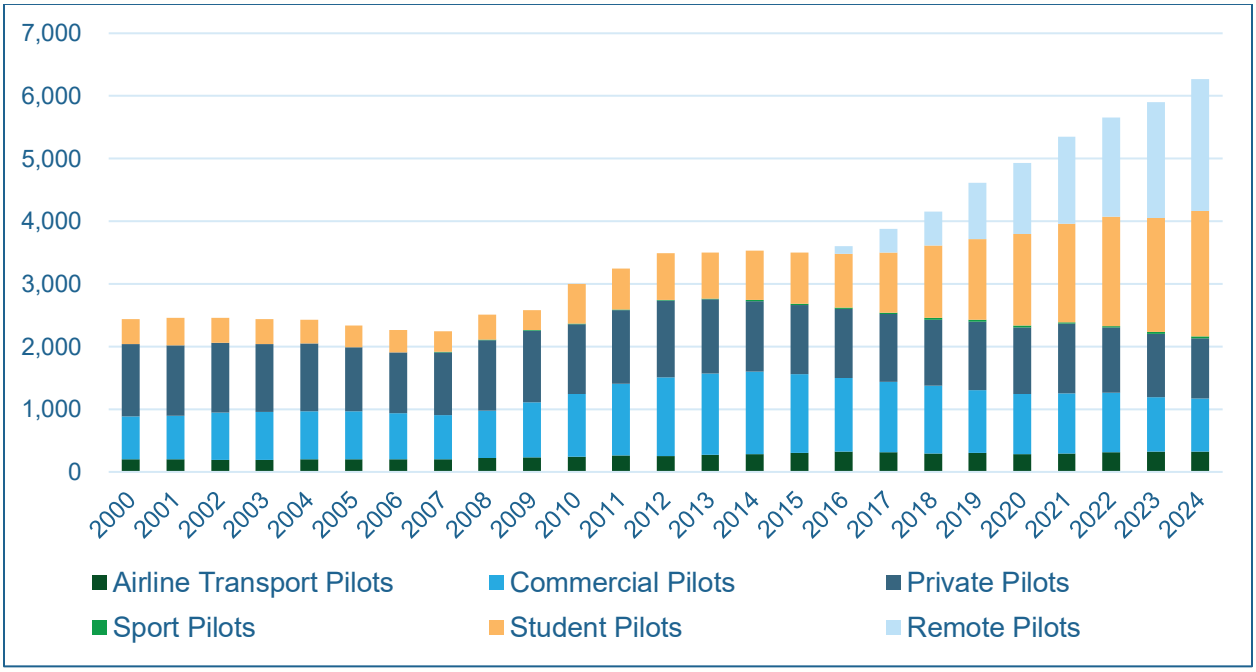
Sources: Kimley-Horn, 2025; NDAC, 2025.

Aviation Workforce and Training

North Dakota's aviation workforce is expanding steadily, fueled by a growing interest in pilot training and the rapid development of the uncrewed aircraft system (UAS) industry. Institutions like the University of North Dakota's School of Aerospace Sciences and other flight training programs, as well as high school aviation education programs, are playing a pivotal role in addressing the national pilot shortage by training the next generation of aviators.

In parallel, the state's advancements in UAS technology have contributed to a significant increase in the number of certified remote pilots, further solidifying North Dakota's reputation as a leader in this innovative sector. **Figure 1-5** illustrates the historical growth of in-state pilots, reflecting the sustained momentum and diverse opportunities within the state's aviation workforce.

Figure 1-5. Historical In-State Pilots in North Dakota



Sources: Kimley-Horn, 2025; NDAC, 2025.

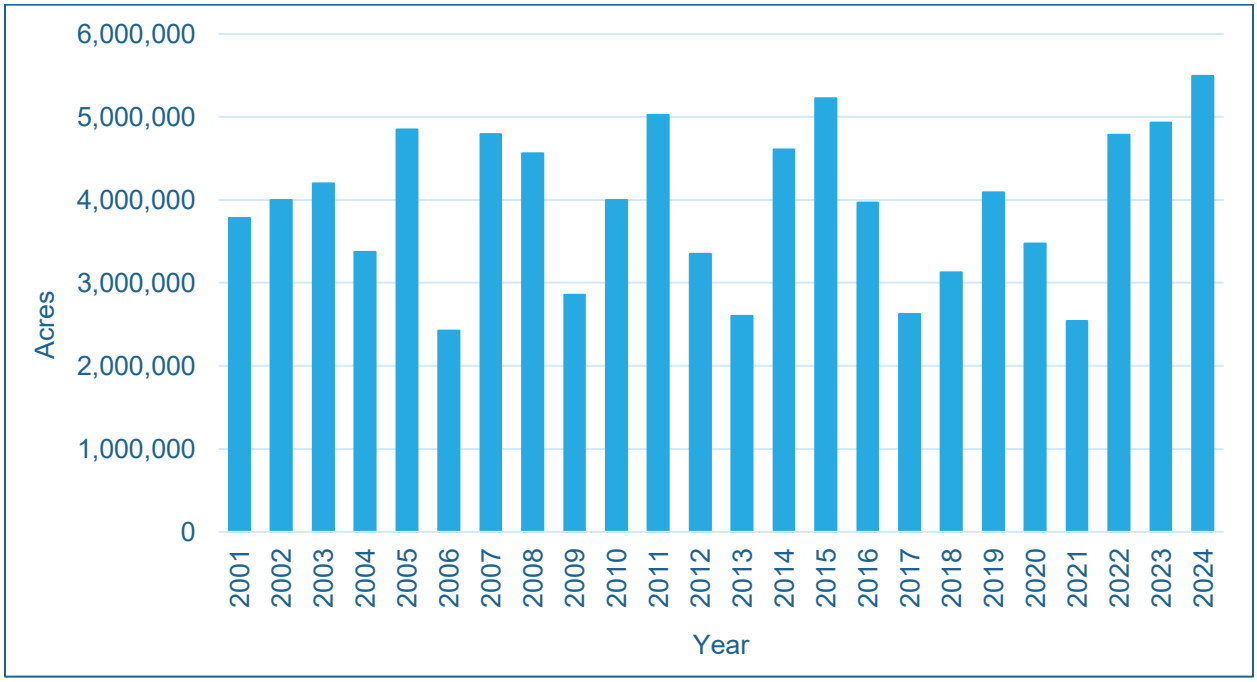
Agricultural Aviation

Aerial applicators remain integral to North Dakota's economic strength and agricultural success, significantly contributing to crop protection, yield enhancement, and the worldwide food supply. These skilled professionals deliver essential services that provide substantial economic benefits to the state and beyond.

During the 2024 growing season, aerial applicators achieved a historic milestone, treating a record-breaking 5.5 million acres of cropland—a testament to their vital role in supporting agricultural productivity. **Figure** 1-6 provides the historical acres treated by North Dakota Aerial Applicators from 2001 to 2024.

The sector has also embraced innovation with the licensing of unmanned aerial applicators, which has further diversified and strengthened agricultural aviation. In 2024, unmanned aerial applicators covered nearly 70,000 acres annually, showcasing the potential for continued growth and modernization in this critical industry.

Figure 1-6. Historical Acres Treated by North Dakota Aerial Applicators



Sources: Kimley-Horn, 2025; NDAC, 2025.

Aviation's Resilience and Vision

The economic and industry indicators that were briefly outlined in this chapter tell a compelling story of North Dakota's dynamic and evolving aviation industry. They highlight not only the impressive growth across various sectors but also the remarkable resilience demonstrated in the aftermath of the COVID-19 pandemic. Throughout that challenging period, public-use airports remained operational, serving as critical infrastructure that supported communities and sustained essential services when they were needed most.

As North Dakota enters a new era of growth and opportunity, the 2025 NDSASP emphasizes the state's unwavering commitment to fostering a diverse, resilient, and forward-thinking aviation system. Through strategic investments in infrastructure, air service expansion, and workforce development, the state is well-equipped to meet the demands of its thriving aviation industry while unlocking new possibilities for future generations.

1.2. Purpose of Aviation System Planning

The NDSASP is a key planning document that provides the NDAC with the information and analysis needed to make informed, data-driven decisions that support the aviation system over the long term. The objective of the 2025 NDSASP is to evaluate the system's existing conditions since the previous 2014 NDSASP, analyze its performance based on identified goals and performance metrics, understand the impacts of industry trends, and provide considerations or recommendations to guide future aviation development in North Dakota.

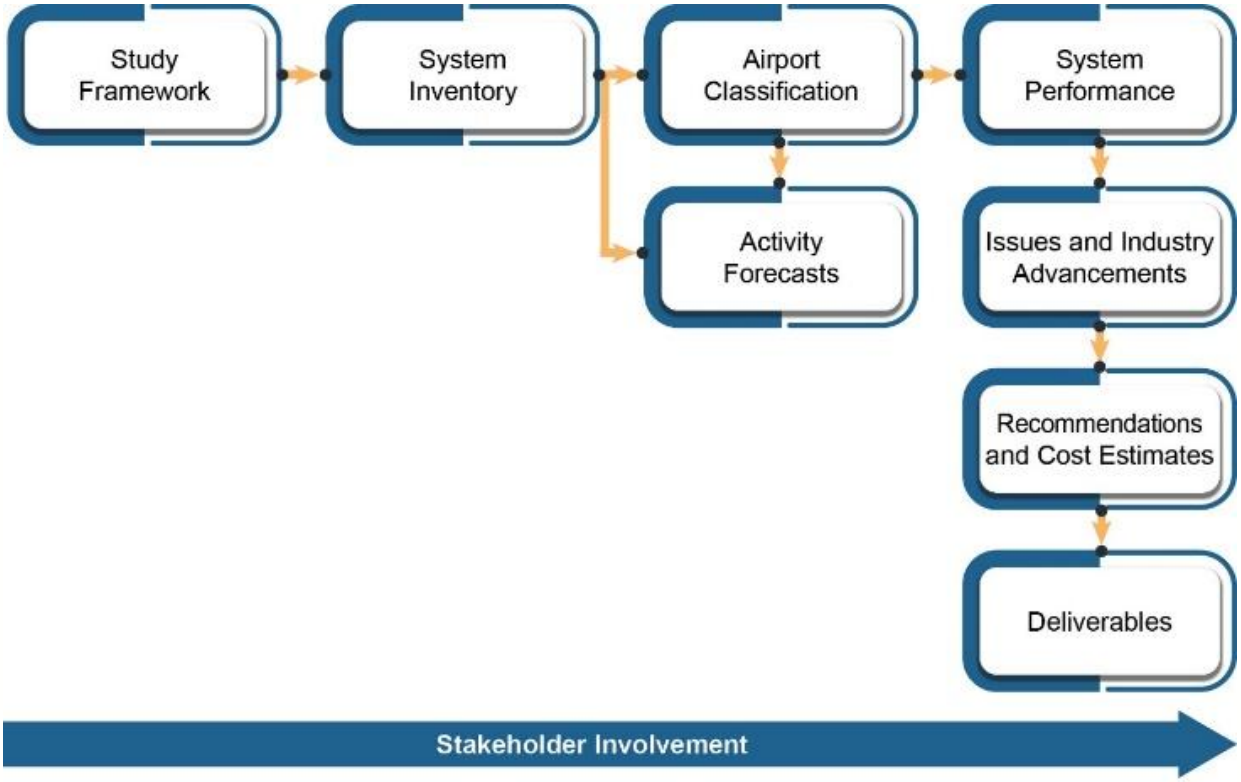
The FAA recommends that all states maintain an up-to-date state aviation system plan to address their statewide aviation needs and be eligible to receive federal dollars. FAA Advisory Circular (AC) 150/5070-7, *The Airport System Planning Process,* offers guidance on the development of a system plan and outlines its general content and requirements. This AC was used in the development of the 2025 NDSASP. The information documented in the system plan is used by the FAA to help inform funding schedules and better understand aviation needs at a national and individual state level. The FAA also uses state system plans and individual airport master plans to inform the NPIAS, which is published bi-annually by the FAA. The NPIAS identifies the airports deemed essential to the national system and the development costs "necessary to provide a safe, efficient, and integrated system of public-use airports."[1]

[1] FAA, National Plan of Integrated Airport Systems (NPIAS) for Fiscal Years (FY) 2025 to 2029.

1.3. Study Process

The 2025 NDSASP study process involves several distinct but interrelated tasks, as shown in **Figure 1-7**. The first task establishes the framework that guides the development of the study and includes identifying system plan goals and metrics, which are used to measure performance and inform recommendations. This is a critical component of the study as the framework serves as a roadmap that drives the study forward.

Figure 1-7. 2025 NDSASP Study Process



Sources: Kimley-Horn, 2025; NDAC, 2025.

The next task involves developing a detailed system inventory through the collection of comprehensive data from each airport. Data collected includes airport activity levels, navigational aids and equipment, facility conditions, and more. Following the inventory effort, airport classifications and estimated airport activity forecasts are developed. Together, the inventory, classification, and forecast data provide the foundation for evaluating system performance.

Following the evaluation of system performance, the next step is to assess emerging issues and industry advancements that could impact system airports in the future. The results of the system performance analyses and industry review help inform development of recommendations and

associated cost estimates. This effort represents the final phase of the study process before preparation of the final deliverables.

Stakeholder involvement and the 2025 NDAEIS occur throughout the 2025 NDSASP process. Stakeholder engagement efforts include establishing and consulting with a Technical Advisory Committee (TAC) that provides feedback on draft deliverables and maintaining a project website where project updates are posted and members of the public may submit comments or subscribe to project updates. As previously noted, the process and results of the 2025 NDAEIS can be found in **Chapter 9.**

1.4. Study Airports

There are 268 airstrips in North Dakota; however, 179 of these are privately owned airstrips reserved for private use only and are not recognized as part of North Dakota's state aviation system. The remaining 89 airports make up the state's aviation system and are all considered public-use airports. Of the 89 system airports, 53 are recognized as serving a critical role at the national level and are therefore included in the FAA's NPIAS. The remaining 36 system airports do not currently meet NPIAS eligibility requirements and are referred to as non-NPIAS airports. While these airports may not be recognized by the FAA as serving an essential role in the national aviation system, they are recognized by the NDAC as serving a critical role in the state's aviation system and therefore are included in the state's system. These non-NPIAS airports do not receive federal funding; however, they are eligible to receive state funding support in addition to local sources.

Of the 89 system airports, eight offer scheduled air passenger service and are referred to as commercial service airports. These commercial service airports connect the state's population of over 780,000 to destinations across the U.S. and international locations and play an important role in connecting the state to national and global markets. All the study airports, including commercial service airports, support a range of critical GA activity, which may include aerial application, flight training, air medical operations, aerial photography, business and corporate travel, and more. The activities that GA airports support are essential for the continued connectivity between North Dakota residents and the state's economy. For example, aerial agricultural application plays an important role in preventing crop losses due to pests, diseases, and trampled crops. This is of particular value to the state as approximately 25 percent of North Dakota's workforce is employed by agriculture-related businesses and 90 percent of the state's land is used to support the industry.[2]

Table 1-1 lists the 89 system airports included in the 2025 NDSASP and **Figure 1-8** depicts the location of these study airports.

[2] North Dakota Department of Agriculture, 2023 North Dakota Agriculture Brochure, August 2023, https://www.library.nd.gov/statedocs/AgDept/NDAg/2023.pdf

Table 1-1. 2025 NDSASP Airports

Associated City	Airport Name	FAA ID	NPIAS Status	Service Type
Arthur	Arthur Airport	1A2	Non-NPIAS	General Aviation
Ashley	Ashley Municipal Airport	ASY	NPIAS	General Aviation
Beach	Beach Airport	20U	NPIAS	General Aviation
Beulah	Beulah Municipal Airport	95D	Non-NPIAS	General Aviation
Bismarck	Bismarck Municipal Airport	BIS	NPIAS	Commercial Service
Bottineau	Bottineau Municipal Airport	D09	NPIAS	General Aviation
Bowbells	Bowbells Municipal Airport	5B4	Non-NPIAS	General Aviation
Bowman	Bowman Regional Airport	BWW	NPIAS	General Aviation
Cando	Cando Municipal Airport	9D7	NPIAS	General Aviation
Carrington	Carrington Municipal Airport	46D	NPIAS	General Aviation
Casselton	Casselton Robert Miller Regional Airport	5N8	NPIAS	General Aviation
Cavalier	Cavalier Municipal Airport	2C8	NPIAS	General Aviation
Columbus	Columbus Municipal Airport	D49	Non-NPIAS	General Aviation
Cooperstown	Cooperstown Municipal Airport	S32	NPIAS	General Aviation
Crosby	Crosby Municipal Airport	D50	NPIAS	General Aviation
Devils Lake	Devils Lake Regional Airport	DVL	NPIAS	Commercial Service
Dickinson	Dickinson - Theodore Roosevelt Regional Airport	DIK	NPIAS	Commercial Service
Drayton	Drayton Municipal Airport	D29	Non-NPIAS	General Aviation
Dunseith	International Peace Garden Airport	S28	NPIAS	General Aviation

Associated City	Airport Name	FAA ID	NPIAS Status	Service Type
Edgeley	Edgeley Municipal Airport	51D	NPIAS	General Aviation
Elgin	Elgin Municipal Airport	Y71	Non-NPIAS	General Aviation
Ellendale	Ellendale Municipal Airport	4E7	NPIAS	General Aviation
Enderlin	Sky Haven Airport	5N4	Non-NPIAS	General Aviation
Fargo	Hector International Airport	FAR	NPIAS	Commercial Service
Fessenden	Fessenden - Streibel Municipal Airport	D24	Non-NPIAS	General Aviation
Fort Yates	Standing Rock Airport	Y27	NPIAS	General Aviation
Gackle	Gackle Municipal Airport	9G9	Non-NPIAS	General Aviation
Garrison	Garrison Municipal Airport	D05	NPIAS	General Aviation
Glen Ullin	Glen Ullin Regional Airport	D57	NPIAS	General Aviation
Grafton	Hutson Field	GAF	NPIAS	General Aviation
Grand Forks	Grand Forks International Airport	GFK	NPIAS	Commercial Service
Gwinner	Gwinner - Roger Melroe Field	GWR	NPIAS	General Aviation
Harvey	Harvey Municipal Airport	5H4	NPIAS	General Aviation
Hazelton	Hazelton Municipal Airport	6H8	Non-NPIAS	General Aviation
Hazen	Mercer County Regional Airport	HZE	NPIAS	General Aviation
Hettinger	Hettinger - JB Lindquist Regional Airport	HEI	NPIAS	General Aviation
Hillsboro	Hillsboro Municipal Airport	3H4	NPIAS	General Aviation
Jamestown	Jamestown Regional Airport	JMS	NPIAS	Commercial Service
Kenmare	Kenmare Municipal Airport	7K5	NPIAS	General Aviation

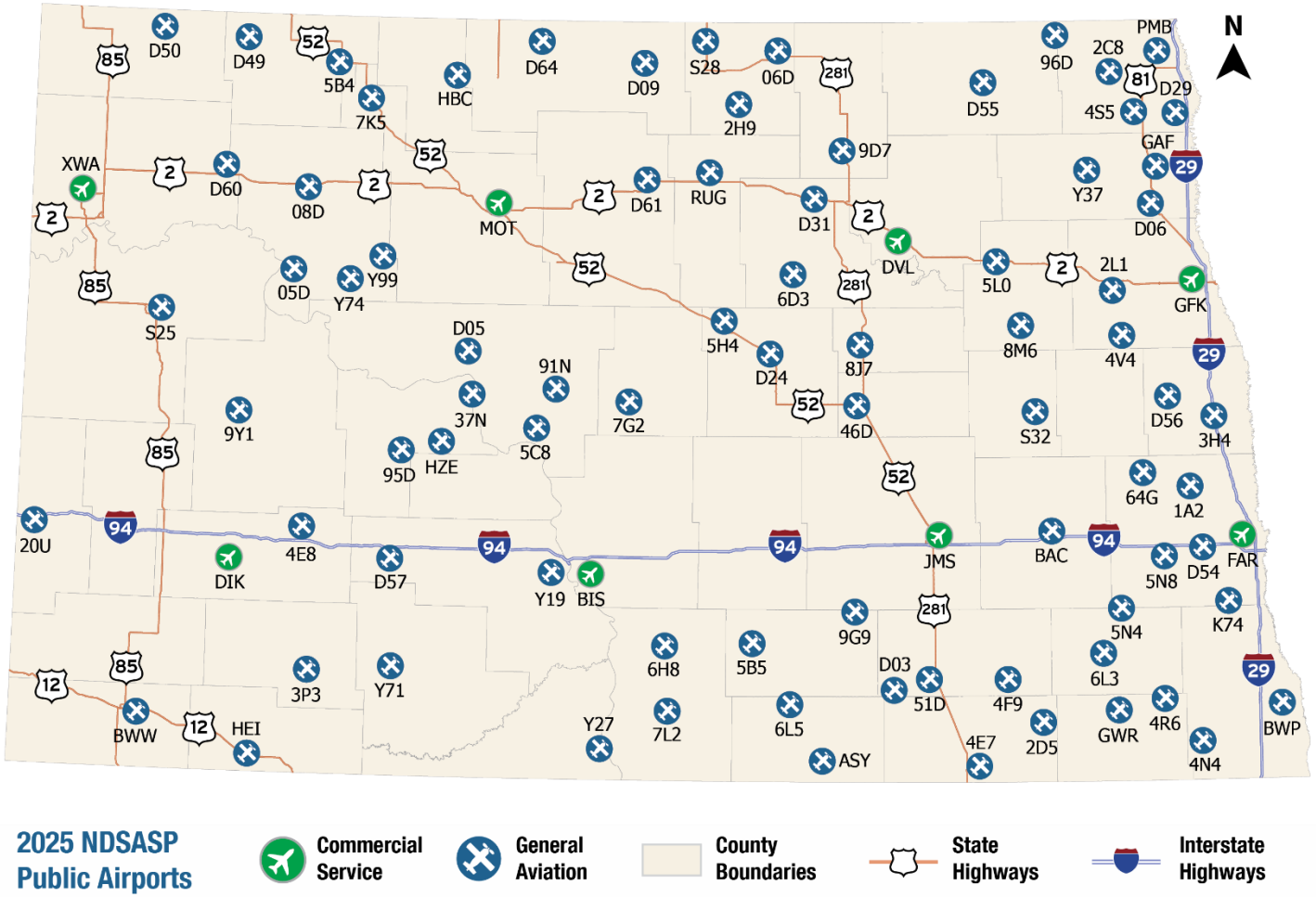
Associated City	Airport Name	FAA ID	NPIAS Status	Service Type
Killdeer	Dunn County - Weydahl Field	9Y1	Non-NPIAS	General Aviation
Kindred	Robert Odegaard Field	K74	NPIAS	General Aviation
Kulm	Kulm Municipal Airport	D03	Non-NPIAS	General Aviation
LaMoure	LaMoure Rott Municipal Airport	4F9	NPIAS	General Aviation
Lakota	Lakota Municipal Airport	5L0	NPIAS	General Aviation
Langdon	Robertson Field	D55	NPIAS	General Aviation
Larimore	Larimore Municipal Airport	2L1	Non-NPIAS	General Aviation
Leeds	Leeds Municipal Airport	D31	Non-NPIAS	General Aviation
Lidgerwood	Lidgerwood Municipal Airport	4N4	Non-NPIAS	General Aviation
Linton	Linton Municipal Airport	7L2	NPIAS	General Aviation
Lisbon	Lisbon Municipal Airport	6L3	NPIAS	General Aviation
Maddock	Maddock Municipal Airport	6D3	Non-NPIAS	General Aviation
Mandan	Mandan Regional - Lawler Field	Y19	NPIAS	General Aviation
Mayville	Mayville Municipal Airport	D56	Non-NPIAS	General Aviation
McClusky	McClusky Municipal Airport	7G2	Non-NPIAS	General Aviation
McVille	McVille Municipal Airport	8M6	Non-NPIAS	General Aviation
Milnor	Milnor Municipal Airport	4R6	Non-NPIAS	General Aviation
Minot	Minot International Airport	MOT	NPIAS	Commercial Service
Minto	Minto Municipal Airport	D06	Non-NPIAS	General Aviation
Mohall	Mohall Municipal Airport	HBC	NPIAS	General Aviation
Mott	Mott Municipal Airport	3P3	NPIAS	General Aviation

Associated City	Airport Name	FAA ID	NPIAS Status	Service Type
Napoleon	Napoleon Municipal Airport	5B5	Non-NPIAS	General Aviation
New Rockford	Tomlinson Field	8J7	Non-NPIAS	General Aviation
New Town	New Town Municipal Airport	05D	Non-NPIAS	General Aviation
Northwood	Northwood Municipal - Vince Field	4V4	NPIAS	General Aviation
Oakes	Oakes Municipal Airport	2D5	NPIAS	General Aviation
Page	Page Regional Airport	64G	Non-NPIAS	General Aviation
Park River	Park River - W C Skjerven Field	Y37	NPIAS	General Aviation
Parshall	Parshall - Hankins Airport	Y74	NPIAS	General Aviation
Pembina	Pembina Municipal Airport	PMB	NPIAS	General Aviation
Plaza	Trulson Field	Y99	Non-NPIAS	General Aviation
Richardton	Richardton Municipal Airport	4E8	Non-NPIAS	General Aviation
Riverdale	Garrison Dam Recreational Airpark	37N	Non-NPIAS	General Aviation
Rolette	Rolette Airport	2H9	Non-NPIAS	General Aviation
Rolla	Rolla Municipal Airport	06D	NPIAS	General Aviation
Rugby	Rugby Municipal Airport	RUG	NPIAS	General Aviation
St Thomas	St. Thomas Municipal Airport	4S5	Non-NPIAS	General Aviation
Stanley	Stanley Municipal Airport	08D	NPIAS	General Aviation
Tioga	Tioga Municipal Airport	D60	NPIAS	General Aviation
Towner	Towner Municipal Airport	D61	Non-NPIAS	General Aviation
Turtle Lake	Turtle Lake Municipal Airport	91N	Non-NPIAS	General Aviation

Associated City	Airport Name	FAA ID	NPIAS Status	Service Type
Valley City	Barnes County Municipal Airport	BAC	NPIAS	General Aviation
Wahpeton	Harry Stern Airport	BWP	NPIAS	General Aviation
Walhalla	Walhalla Municipal Airport	96D	NPIAS	General Aviation
Washburn	Washburn Municipal Airport	5C8	NPIAS	General Aviation
Watford City	Watford City Municipal Airport	S25	NPIAS	General Aviation
West Fargo	West Fargo Municipal Airport	D54	Non-NPIAS	General Aviation
Westhope	Westhope Municipal Airport	D64	Non-NPIAS	General Aviation
Williston	Williston Basin International Airport	XWA	NPIAS	Commercial Service
Wishek	Wishek Municipal Airport	6L5	Non-NPIAS	General Aviation

Sources: FAA, National Plan of Integrated Airport Systems (NPIAS) for Fiscal Years (FY) 2025 to 2029, Kimley-Horn, 2025.

Figure 1-8. 2025 NDSASP Airports



Sources: FAA, National Plan of Integrated Airport Systems (NPIAS) for Fiscal Years (FY) 2025 to 2029, Kimley-Horn, 2025.

Chapter 2. Study Framework

2.1. Introduction

Core to the success of the 2025 NDSASP is establishing a framework that is used to guide the study, from the early stages of data collection through evaluating existing system performance, and finally to identifying project and/or policy recommendations. The two main components of the study framework include the system plan goals and metrics. The goals can be thought of as overall objectives for the system, while the metrics within each goal help to define how the goal is measured and evaluated. The 2025 NDSASP goals and metrics evaluate key markers of success that have been recognized by the North Dakota Aeronautics Commission (NDAC) as essential for the safety of operations, future development, and the role the aviation system serves for communities within North Dakota.

The following subsections define the framework, identify the goals, and present the performance metrics for the 2025 NDSASP. The 2014 NDSASP was reviewed and considered in the development of the updated framework. As discussed in **Chapter 1: Introduction**, changes in the aviation industry, population, and economic activity at both the state and national levels underscore the need to update the plan to reflect current conditions and anticipated future needs of North Dakota's aviation system. Changes to elements of the 2014 NDSASP are noted in the appropriate sections.

2.2. 2025 NDSASP Framework

The framework used to guide the 2025 NDSASP follows a structure similar to the 2014 NDSASP. However, minor modifications were made to create a more linear process for developing future recommendations and to better distinguish between system elements that may require NDAC intervention and those that are evaluated for informational purposes only.

As shown in **Figure 2-1**, the 2014 NDSASP framework included three main terms: goals, performance measures, and benchmarks.

Figure 2-1. 2014 NDSASP Framework

Sources: 2014 NDSASP; Kimley-Horn, 2025.

The 2014 NDSASP goals offered broad objectives for the system to achieve such as “Strive to Attain Safety and Security.” Each goal was then linked to a set of performance measures, which indicated the element of the system that was being measured to evaluate the achievement of a certain goal. For this example, one of the performance measures associated with the “Strive to Attain Safety and Security” goal was to identify the percentage of airports with clear approaches to their primary runways. The benchmarks associated with each performance measure defined a future target of performance and were presented alongside the existing performance. The gap between the existing performance and benchmark was used to inform recommendations. It is

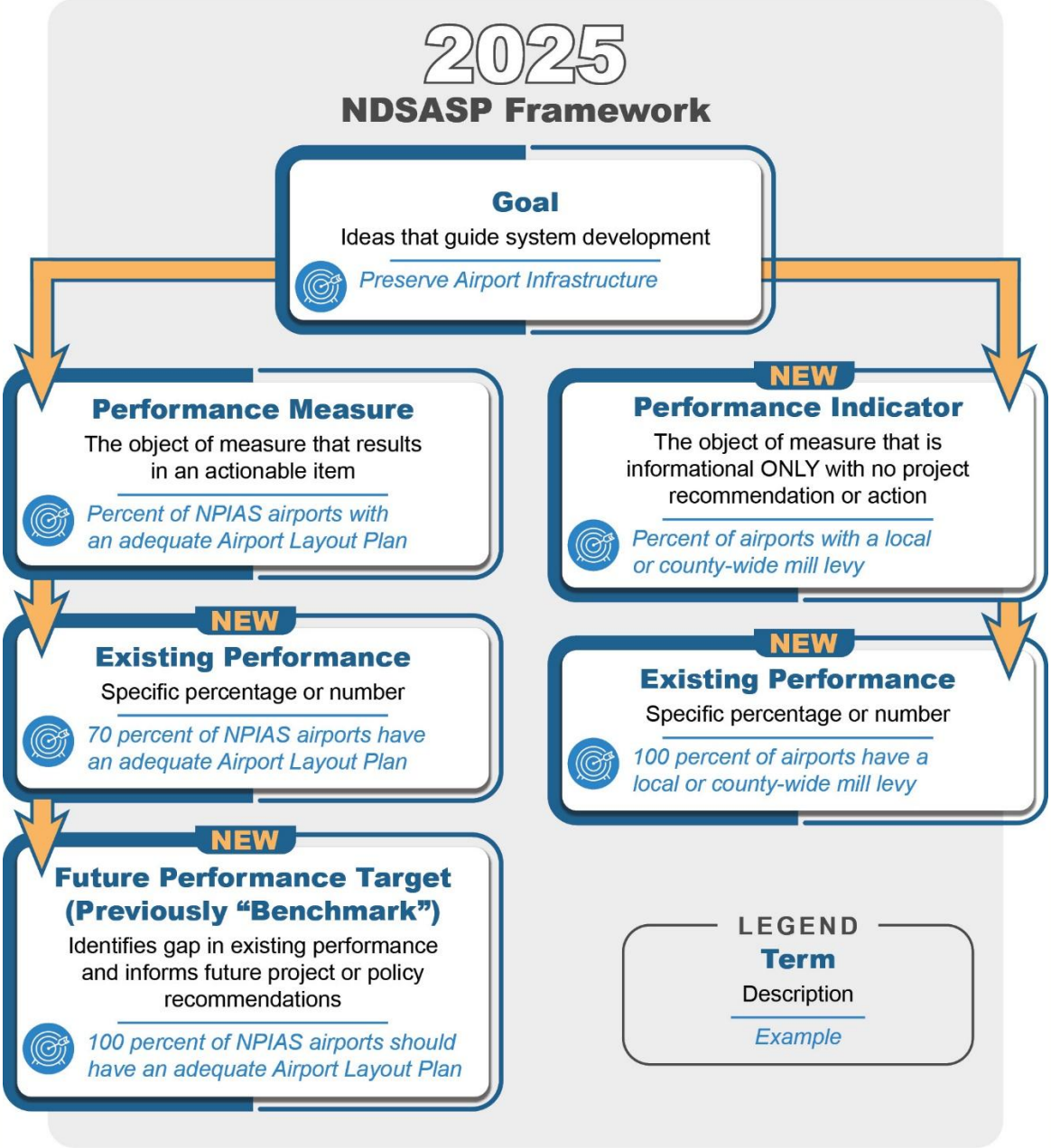
important to note, however, that many of the recommendations from the 2014 study were associated with actions that NDAC did not have direct control over. An example is the recommendations associated with establishing a local mill levy, which is based on local factors and not influenced or funded by NDAC. Therefore, for the 2025 study, some minor adjustments were made to the framework to enhance clarity and transparency about how eventual project or policy recommendations are identified, with an enhanced focus on identifying recommendations that NDAC has direct influence over implementing.

Figure 2-2 (on the next page) shows the 2025 NDSASP framework and highlights the new terms introduced in this study. One of the new terms introduced in the 2025 NDSASP is "performance indicator (PI)," which is used in addition to "performance measure (PM)." Both terms are considered performance metrics and are used to evaluate system performance; however, the distinction is that PIs are used for informational purposes only, whereas PMs measure elements of the system that are considered actionable. An example of a PI is the "percent of airports with a local or county-wide mill levy." This is a PI as NDAC has no direct control over which airports do or do not have a local mill levy. PIs result in an existing performance value (i.e., 80 percent of airports have a local or county-wide mill levy), but no further action is taken due to NDAC's limited influence or control over changing mill levy conditions.

A PM, such as the "percent of NPIAS airports with an adequate Airport Layout Plan (ALP)," also results in an existing performance value (i.e., 70 percent of NPIAS airports have an adequate ALP), like a PI, but it differs because a PM describes a condition or characteristic that can be changed or influenced by NDAC over time. For this reason, all the PMs in the 2025 NDSASP will have an associated future performance target (e.g., 100 percent of NPIAS airports should have an adequate ALP). The gap between existing performance and the future performance target is used to inform project or policy recommendations. The concept of a future performance target is not new to the 2025 NDSASP as it functions similarly to the term "benchmark" used in the 2014 study. The term was changed from "benchmark" to "future performance target" to more clearly describe the function that it serves within the 2025 study's framework.

The enhanced 2025 NDSASP framework follows the general process of the previous study, but by introducing the distinction between PMs and PIs the study can more clearly demonstrate areas where improvement can and will be sought and areas where information is gathered for contextual purposes only.

Figure 2-2. 2025 NDSASP Framework



Source: Kimley-Horn, 2025.

2.3. 2025 NDSASP Goals

The goals established for the NDSASP play an important role in identifying the long-term vision for the state's aviation system. In 2014, the NDSASP identified six goals:

- Strive to Attain Safety and Security
- Accommodate Accessibility Needs
- Enhance Air Access to Airports
- Support North Dakota's Economy
- Enhance Quality of Life
- Preserve North Dakota Airport Assets

When developing the 2025 NDSASP goals, these goals were reviewed for continued relevancy and applicability. In general, it was determined that these goals continue to serve the purpose of the 2025 NDSASP; however, slight modifications were made to remove redundancies across goals, so that each goal in the 2025 NDSASP is clear and distinct from one another. Additionally, a new goal related to aviation education and industry advancement was included to ensure that long-term aviation planning for the state system considers future advancements in the industry.

During consideration of the 2025 NDSASP goals, North Dakota's most recent long-range transportation plan, 2021 *Transportation Connect*[3], which provides a long-term vision for guiding and integrating all modes of transportation in the state, including aviation, was also reviewed. It can be beneficial for a statewide aviation system plan to have alignment with a state's long-range transportation plan, providing continuity between the goals and allowing for analysis of the entire transportation system using similar processes. In some states, the aviation system plan may directly adopt the goals of a long-range transportation plan. North Dakota's *Transportation Connect* and the goals established for the 2025 NDSASP already have clear alignment, with the NDSASP goals clarified for aviation purposes.

Table 2-1 presents the final goals of the 2025 NDSASP to demonstrate how these goals relate to the 2014 NDSASP goals and align with the *Transportation Connect* goals.

Table 2-1. Crosswalk of NDSASP and Transportation Connect Goals

2025 NDSASP Goals	2014 NDSASP Goals	Transportation Connect Goals
Maintain a Safe Aviation System	Strive to Attain Safety and Security	Keeping You Safe
Promote Aviation System Coverage	Accommodate Accessibility Needs	Connecting North Dakota

[3] https://www.dot.nd.gov/sites/www/files/documents/ExecutiveSummary_July2021.pdf

2025 NDSASP Goals	2014 NDSASP Goals	Transportation Connect Goals
Provide Air Access to Airports	Enhance Air Access to Airports	Helping You Get There
Enhance Quality of Life	Support North Dakota's Economy	Connecting North Dakota
	Enhance Quality of Life	
Preserve Airport Infrastructure	Preserve North Dakota's Airport Assets	Caring for What We Have
Support Aviation Education and Industry Advancement	Not Applicable	Investing for the Future

Sources: 2014 NDSASP; Transportation Connect, 2021; Kimley-Horn, 2025.

The final goals of the 2025 NDSASP are described in **Table 2-2**, which includes a brief statement about each goal and its intent in achieving North Dakota's long-term aviation vision. As discussed in **Section 2.2**, there are relevant PMs and PIs associated with each of these goals, which are presented in the next section.

Table 2-2. 2025 NDSASP Goals

Goal	Description
Maintain a Safe Aviation System	Maintain a safe aviation system by promoting land use compatibility to protect both aircraft and the communities they serve.
Promote Aviation System Coverage	Evaluate commercial and general aviation system coverage to better understand system accessibility across the state.
Provide Air Access to Airports	Provide air access and help airports meet the needs of aeronautical users, such as on-site weather reporting, navigational aids, fuel, and more.
Enhance Quality of Life	Leverage the state's aviation system to enhance quality of life by promoting both economic and social benefits.
Preserve Airport Infrastructure	Preserve current infrastructure by identifying airport facility and planning needs, funding, and current land use compatibility measures in place to allow both airports and communities the ability to grow and flourish.
Support Aviation Education and Industry Advancement	Support aviation education and industry advancement such as flight training at airports, airport community involvement, and other programs that continue the state's aviation workforce development.

Source: Kimley-Horn, 2025.

2.4. 2025 NDSASP Performance Measures and Performance Indicators

The following subsections present the PMs and PIs that are used to measure existing performance within each of the six system goals. PMs or PIs that are new to the 2025 NDSASP are presented in **bold** text.[4] The results of the PM and PI existing system performance analyses are presented in **Chapter 6: System Performance.**

2.4.1. Goal: Maintain a Safe Aviation System

The PMs and PIs associated with the Maintain a Safe System goal evaluate a few key areas within an airport's environment to determine if these areas are clear of obstructions and controlled by the airport. The key areas evaluated within this goal include an airport's Part 77 approach surfaces and the runway protection zones (RPZs), as shown in **Table 2-3.** All of these PMs and PIs were analyzed in the 2014 NDSASP.

Obstructions within approach surfaces can create hazards for aircraft during take-off and landing procedures and can limit the operations of an airport due to restrictive approach procedures. RPZs are trapezoidal boundaries that exist off all runway ends and are designed to enhance safety by protecting the public and large gatherings of people on the ground from potential aircraft incidents. It is recommended that RPZs remain clear of obstructions, such as stadiums, parks, large public commercial buildings, parking lots, and other similar uses, to prevent public gatherings from existing within such close proximity to runway ends. RPZ dimensions are determined by a number of factors, such as an airport's critical design aircraft, approach types, and runway length. In addition to measuring whether the approach surfaces and RPZs are free of obstructions, other metrics evaluate the percent of airports that have complete control over their RPZ. In many cases an RPZ may extend beyond an airport's property boundary, so it's important the airports seek to acquire control over the complete RPZ to ensure that the area remains clear of obstructions. An airport may acquire control of their RPZ through fee simple ownership via purchase of the land, or via an avigation easement controlling development and limiting heights of structures.

[4] PMs or PIs that were slightly rephrased or moved to different goals are not considered new and are not shown in **bold** text. Only PMs and PIs that are entirely new to the study are shown in **bold.**

Table 2-3: Goal: Maintain a Safe Aviation System

Metric	Metric Type
Percent of airports with clear approaches to all runway ends	Performance Measure
Percent of airports with public gatherings in the RPZs (stadiums, parks, large public or commercial buildings, parking lots, or other similar spaces) for all runway ends	
Percent of airports that control RPZs through fee simple ownership or easements for all runways	
Percent of airports with roads, railroads, or structures not utilized for public gatherings in the RPZs for all runway ends	Performance Indicator

Source: Kimley-Horn, 2025.

2.4.2. Goal: Promote Aviation System Coverage

The PIs relating to the goal to Promote Aviation System Coverage assess the percentage of area and population that have sufficient access to North Dakota's aviation system, as shown in **Table 2-4.** A 90-minute drive-time is used to evaluate sufficient access to a commercial service airport, whereas a 30-minute drive-time is used to evaluate the system's overall coverage, including all NPIAS airports, all paved airports, and all public-use airports. There are only PIs associated with this goal, as the results of this analysis are not expected to lead to the addition of a commercial service or general aviation (GA) facility within the system. Decisions on additional airports typically arise at the local level and could be supported by the results of these PIs. Three of the four PIs were analyzed in the 2014 NDSASP, while the PI related to coverage from all paved public-use airports is new to this study.

Table 2-4. Goal: Promote Aviation System Coverage

Metrics	Metric Type
Percent of area and population within 90 minutes from a Commercial Service airport	Performance Indicator
Percent of area and population within 30 minutes from a NPIAS airport	
Percent of area and population within 30 minutes from a paved public-use airport (NPIAS and Non-NPIAS)	
Percent of area and population within 30 minutes from a public-use airport (NPIAS and Non-NPIAS)	

Source: Kimley-Horn, 2025.

2.4.3. Goal: Provide Air Access to Airports

The PM and PIs corresponding to the Provide Air Access to Airports goal evaluate the percent of area and population that have access to airports with certain facilities or services, including navigational aids (NAVAIDs), adequate passenger buildings and aircraft storage, and more, as shown in **Table 2-5.** The facilities and services included in this goal were selected because they are often associated with the type or frequency of operations that an airport can support. Evaluating the population and area served by system facilities with these attributes helps identify regions where such facilities and services may be lacking or highly concentrated. The PM related to available covered aircraft storage and the PI related to standard runway lighting are new to the 2025 NDSASP; the remaining PMs and PIs were analyzed in the 2014 plan.

Table 2-5. Goal: Provide Air Access to Airports

Metrics	Metric Type
Percent of area and population within 30 nautical miles of an airport with on-site weather reporting (Automated Weather Observing System [AWOS]/Automated Surface Observing System [ASOS])	Performance Measure
Percent of area and population within 30 nautical miles of an airport with a non-precision approach	
Percent of area and population within 30 nautical miles of an airport with a vertically guided approach	
Percent of airports with adequate terminal facilities to support passenger demand	
Percent of airports with available covered aircraft storage	
Percent of airports with standard runway lighting	Performance Indicator
Percent of area and population within 50 nautical miles of an airport with Jet A fuel	
Percent of area and population within 30 nautical miles of an airport with 100LL fuel	
Percent of NPIAS airports that have at least 95% wind coverage for all runways	

Source: Kimley-Horn, 2025.

2.4.4. Goal: Enhance Quality of Life

The PIs associated with the goal to Enhance Quality of Life are related to business aviation, cargo operators, businesses located on airports, and medical operations as shown in **Table 2-6**. Airports that can support the needs of corporate or cargo operations play a significant role in their local, regional, and statewide economies. Moreover, offering mechanic services and supporting the agricultural industry through aerial application are important economic drivers for airports, especially in North Dakota given this critical sector in the state. In addition to supporting a variety of economic activities, airports also play a key role in providing emergency medical transport, which is vital to enhancing quality of life for rural communities. For this reason, PIs included in this goal also evaluate the percent of airports that can support medical transport operations and have hospitals or clinics within their service areas.

This goal only has PIs as this assessment is intended to provide information on the system's ability to support business aviation, cargo operations, aviation business related tenants, aerial application, and medical operations. No recommendations for NDAC actions pertaining to adding these services are anticipated. Four of the nine PIs are new to the 2025 NDSASP, while the remaining five were also analyzed in the 2014 NDSASP.

Table 2-6. Goal: Enhance Quality of Life

Metrics	Metric Type
Percent of area and population within 60 minutes of a 5,000 ft or longer runway	Performance Indicator
Percent of airports that meet the Light Business Jet Capability criteria	
Percent of airports utilized by air cargo operators	
Percent of airports with aviation-related business tenants on airport property	
Percent of airports that can meet the needs of the King Air emergency aircraft	
Percent of area and population within 30 minutes of an airport that can meet the needs of the King Air emergency aircraft (3,800 ft runway, ARC B-II Small +, lighted runway, certified weather reporting)	
Percent of area and population within 30 nautical miles of an airport that supports based or transient aerial applicator operations	
Percent of airports that provide access to mechanic services: - **On site and available to the public** - **On-site private operation only** - **On-call only** - **None**	
Percent of airports with a hospital and/or clinic within its service area	

Source: Kimley-Horn, 2025.

2.4.5. Goal: Preserve Airport Infrastructure

The PMs and PIs related to the Preserve Airport Infrastructure goal evaluate elements of airport preservation and airport revenues streams, as shown in **Table 2-7**. Many airports in the system have significant pavement assets (e.g., runways, taxiways, and aprons) and it is important to understand what percentage of the system is meeting established Pavement Condition Index (PCI) thresholds to proactively plan for future pavement needs and effectively preserve these assets. Airports can also support their preservation through planning efforts, such as by maintaining an adequate ALP or working with their local land use authority to protect against development that may create obstructions to an airport's Part 77 approaches. Local revenue streams, such as through mill levy or non-mill levy revenues, can also play an important role in preserving the airport, as these local funds may be used to support future airport maintenance and preservation projects. All of these PMs and PIs were previously analyzed in the 2014 plan.

Table 2-7. Goal: Preserve Airport Infrastructure

Metrics	Metric Type
Percent of airports meeting state PCI thresholds on primary runways	Performance Measure
Percent of NPIAS airports with an adequate Airport Layout Plan	
Percent of airports that have height zoning following Part 77 guidelines adopted by a local zoning board	Performance Indicator
Percent of airports with a local or county-wide mill levy	
Percent of airports with non-mill levy revenue	

Source: Kimley-Horn, 2025.

2.4.6. Goal: Support Aviation Education and Industry Advancement

The PIs associated with the Support Aviation Education and Industry Advancement goal evaluate how many airports offer flight training, host community events, and offer educational programs as shown in **Table 2-8.** This is a new goal not previously included in the 2014 NDSASP so all the PIs identified are new to this study. This goal includes PIs only as this evaluation is intended to provide information about how many airports support flight training, offer educational programs, and other opportunities for aviation education and industry advancement/workforce development.

In 2024 the FAA reports that there were 4,161 manned pilots and 2,104 remote pilots in North Dakota.[5] Evaluating the percent of airports and the population/area with access to flight training

[5] FAA, 2024 Active Civil Airmen Statistics, https://www.faa.gov/data_research/aviation_data_statistics/civil_airmen_statistics, December 31, 2024.

is critical to GA and the future workforce of aviation in the state and beyond. It is also important to evaluate the additional benefits that airports provide their communities, such as hosting community events and offering programs to support aviation and other Science, Technology, Engineering, and Mathematics (STEM) educational programs. Engaging with the public allows airports to positively influence the communities they serve.

Table 2-8. Goal: Support Aviation Education and Industry Advancement

Metrics	Metric Type
Percent of airports that offer flight training	Performance Indicator
Percent of area and population within 30 nautical miles of an airport that offers flight training	
Percent of airports that host annual fly-ins or other community engagement events	
Percent of airports that participate in STEM activities (tours, classroom visits, etc.)	
Percent of area and population that have educational opportunities available in the community	

Source: Kimley-Horn, 2025.

2.5. Summary

This chapter establishes the 2025 NDSASP framework, which includes the goals, PMs, and PIs that are used to drive the study forward and inform all subsequent tasks. Particularly, these goals, PMS, and PIs are used to establish the system's existing conditions, calculate current system performance, and inform future project and policy recommendations.

Chapter 3. Airport Classifications

3.1. Introduction

North Dakota's aviation system comprises 89 public-use airports, including both commercial service and general aviation (GA) airports. While commercial service airports are widely recognized for their role in supporting passenger air travel, GA airports play an equally vital role in the state's transportation network. Together, these airports form an integrated system, each serving a distinct purpose to ensure efficient and accessible air transportation across the state.

While together these airports operate as a system, it is also important to recognize that no two airports in North Dakota are the same, making it important to classify airports according to the role they serve within the system. Numerous factors influence the role an airport serves within the system, including physical attributes like runway length, aircraft storage availability, and navigational aids (NAVAIDs), as well as external elements such as geographic location, nearby population density, and access to local markets.

The diversity of North Dakota's airports is a key factor in system planning as every airport does not require the same level of infrastructure. Passenger terminals, large parking facilities, and other amenities would be unnecessary at a GA airport primarily supporting flight training, air cargo operations, recreational flying, agricultural spraying, or corporate aviation. Airports of different sizes, ownership structures, service offerings, and operational capabilities work together to meet a wide range of aviation needs. Some GA airports provide critical services that may not be feasible at larger commercial airports, such as aerial firefighting, pipeline patrol, or agricultural spraying. Others help to reduce congestion at busy commercial service airports by accommodating private and corporate aircraft. Similarly, airports with extensive flight training programs, like Grand Forks International Airport (GFK), support the development of new pilots, ensuring a strong future workforce for the aviation industry. Categorizing airports based on their functions ensures a well-balanced network that continues to support the state's economy, rural and urban connectivity, and critical services, where each airport effectively supports key aviation activities without unnecessary overlap or redundancy.

This chapter provides an overview of the Federal Aviation Administration's (FAA's) National Plan of Integrated Airport Systems (NPIAS) classification process, defines the airport classifications for the 2025 North Dakota State Aviation System Plan (NDSASP), and evaluates non-NPIAS airports to determine eligibility for potential future NPIAS inclusion.

3.2. National Plan of Integrated Airport Systems (NPIAS)

As mentioned in **Chapter 1: Introduction**, the FAA oversees aviation facility planning at the national level, which includes the development of the NPIAS. Published biennially in accordance with *Title 49 United States Code (U.S.C.), Section 47103*, the NPIAS identifies aviation facilities across the United States (U.S.) that are considered essential to the National Airspace System (NAS). The latest edition (2025-2029 NPIAS), released in September 2024, classifies these facilities by the role they serve at the federal level, indicating the level of service they provide and the types of infrastructure they support. The NPIAS is updated biennially to reflect the latest available information.

The NPIAS also highlights the infrastructure funding needs associated with Airport Improvement Program (AIP) eligible projects at NPIAS airports for that funding period. AIP funding is federally allocated and restricted to NPIAS facilities. For the 2025-2029 funding period, the NPIAS identifies 3,287 nationwide public-use aviation facilities as essential to the NAS and estimates approximately $67.5 billion in AIP-eligible development needs between 2025 and 2029.

The NPIAS includes landing sites for fixed-wing aircraft, helicopters, and sea plane bases, with 68% of the nationwide public-use facilities airports included in the NPIAS. Within North Dakota's aviation system, 54 of the 89 public use airports are recognized in the 2025-2029 NPIAS.

3.2.1. NPIAS Classification Process

Airports included in the NPIAS are evaluated and classified into distinct roles based on criteria established by the FAA Order 5090.5, *Formulation of the National Plan of Integrated Airport Systems (NPIAS) and the Airports Capital Improvement Plan (ACIP)* (issued September 2019). This revised order cancelled prior FAA Orders 5090.3C, *Field Formulation of the NPIAS* and 5100.39A, *Airports Capital Improvement Plan*, both issued in 2000.

Classifying facilities for the NPIAS involves multiple steps. First, facilities must meet eligibility criteria through preliminary screening. This evaluation determines whether existing or proposed aviation facilities not currently part of the NPIAS meet the eligibility requirements for inclusion. Facilities in the NPIAS have previously passed this screening. The following sections outline the criteria and process for NPIAS eligibility, provided here[6]:

Existing commercial service airports must meet all the following criteria:

- Publicly owned, publicly accessible airport
- Receive scheduled air carrier service
- Annually enplane 2,500 or more passengers

[6] Initial screening requirements sourced from Table 3-3 of FAA Order 5090.5, *Formulation of the NPIAS and ACIP*, 2019.

Existing GA airports must meet all the following criteria:

- Operated by a sponsor eligible to receive federal funds and meet FAA grant obligations
- Used by at least 10 operational and airworthy aircraft based at the airport validated against the FAA Aircraft Registry (i.e., basedaircraft.com)
- Located at least 30 miles from the nearest NPIAS airport (including airports located in adjacent states)
- Demonstrates an identifiable role in the national system (such as Basic, Local, Regional, or National[7])
- Included in a state or territory aviation system plan with a role similar to the federal role and recommended by the airport's state or territory aviation authority to be a part of the NPIAS
- No significant airfield design standard deficiencies, compliance violations, or wetland or wildlife issues based on a review by the FAA

Proposed commercial service or GA airports must meet the applicable eligibility criteria listed above (for existing airports) and meet the following additional requirements:

- Demonstrates how it will meet the operational activity required (for its proposed role) within the first five years of operation through a forecast validated by the FAA
- Provides enhanced facilities that will accommodate the current aviation activity and improve the functionality, as well as provide room for future development based on imminent justified demand
- Shows a benefit-cost analysis rating of 1.0 or more (FAA Order 5100.38, *Airport Improvement Program Handbook* provides information on when and how to conduct a benefit-cost analysis)
- Presents a detailed financial plan for the proposed airport to accomplish its construction and ongoing maintenance
- Level of local support/consensus is adequate to achieve the development of the new airport

"Special justification" may be given to an existing or proposed airport that does not meet all criteria listed above in the following cases:

- Operated by or serving needs of a Native American Community
- Identified and used by the U.S. Forest Service, U.S. Marshals, U.S. Customs and Border Patrol, U.S. Postal Service, or has Essential Air Service

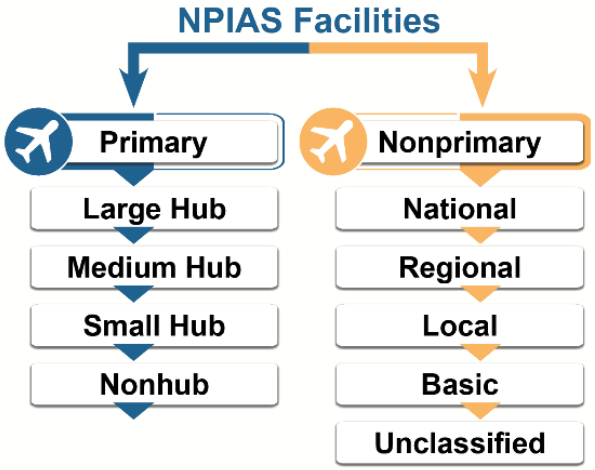
Airports that fulfill the initial screening criteria are subsequently categorized as either a Primary or Nonprimary airport. Primary airports are then further classified into a hub size (Large, Medium, Small, and Nonhub), whereas Nonprimary airports are further classified into one of the following roles: National, Regional, Local, Basic, and Unclassified. It's important to note that these categories, and associated criteria, were initially established by the 2012 and 2014 FAA ASSET studies to better classify GA airports into distinct roles. As of 2017, the ASSET

[7] If an existing NPIAS airport does not meet the criteria for at least a Basic role, it is identified as Unclassified, which is not considered an official FAA "role." An airport will be considered Unclassified until it can meet criteria for a role presented in **Table 3-2**.

categories and criteria were integrated into the NPIAS classification process. Therefore, the roles initially identified in the ASSET studies (National, Regional, Local, Basic, and Unclassified) are now reflected in the NPIAS classifications. The Unclassified category is unique because airports in this category do not meet the minimum criteria of a Basic airport and have limited access to federal funding compared to airports in other categories. LaMoure Rott Municipal is the only system airport to be categorized as Unclassified in the 2025-2029 NPIAS.

Figure 3-1 illustrates the federal classification structure, showing the different classifications under the Primary and Nonprimary hierarchy.

Figure 3-1. Federal Classifications Hierarchy



Sources: FAA Order 5090.5; Kimley-Horn, 2025.

Primary airports are those that provide scheduled commercial airline service and support a minimum of 10,000 passenger enplanements annually. These airports are further segmented into various hub classifications based on the proportion of total annual enplanements they contribute to the overall U.S. passenger traffic. **Table 3-1** offers an overview of each primary airport hub classification, including its defining characteristics and criteria.

Table 3-1. Primary Airport Hub Sizes

Hub Size	Hub Description	Hub Criteria
Large Hub	These airports primarily focus on commercial airline and freight operations, with minimal GA activity.	Receives 1.0 percent or more of the annual U.S. commercial enplanements
Medium Hub	These airports typically have ample capacity to handle air carrier operations and a significant amount of GA activity.	Receives 0.25 to 1.0 percent of the annual U.S. commercial enplanements

Hub Size	Hub Description	Hub Criteria
Small Hub	These airports are generally uncongested, free of major air traffic delays, and may experience considerable GA activity.	Receives 0.05 to 0.25 percent of the annual U.S. commercial service enplanements
Nonhub	These airports form the largest group of primary airports and represent nearly 15 percent of development needs.	Receives less than 0.05 percent but more than 10,000 annual U.S. commercial enplanements

Sources: FAA Order 5090.5; Kimley-Horn, 2025.

If an airport does not provide scheduled air service or provides scheduled air service with fewer than 10,000 annual enplanements, it is considered a Nonprimary facility. Nonprimary facilities are classified into five distinct roles that indicate the level of service they provide and the type of users they typically serve. The five roles and the criteria associated with each are presented in **Table 3-2.**

It is essential to highlight that the criteria outlined in **Table 3-2** are applied alongside a thorough evaluation of additional factors and consideration by the FAA during its biennial review process. Furthermore, no facilities can be added to or removed from the NPIAS without close collaboration between the facility, the FAA, and the North Dakota Aeronautics Commission (NDAC).

Table 3-2. Nonprimary Airport Classifications

Airport Classification	Classification Description	Classification Criteria (Must Meet at Least One Criterion)
National	High levels of activity that offer alternatives to Primary airports for GA operations, supports aviation on a national scale and is located in metropolitan areas near major business centers and accommodates many jet, multiengine, and propeller aircraft.	• 5,000 or more instrument operations, 11 or more validated based jets, and 20 or more international flights or 500 or more interstate departures • 10,000 or more enplanements and at least one carrier enplanement by a large, certificated air carrier • 500 million pounds or more of landed cargo weight
Regional	Serves large metropolitan areas and regional economies and has high levels of activity, accommodating jet, multiengine, and propeller aircraft.	• In a metropolitan or micropolitan statistical area, 10 or more domestic flights over 500 miles, 1,000 or more instrument operations, and 1 or more validated based jets or 100 or more validated based aircraft • Nonprimary commercial service airport (requiring scheduled service) within a metropolitan statistical area • Currently designated by the FAA as a reliever with 90 or more validated based aircraft
Local	Provides access for local communities to regional and local markets and is commonly located near larger population centers with moderate activity levels serving some multiengine or propeller aircraft.	• Publicly owned, 10 or more instrument operations, and 15 or more validated based aircraft • Publicly owned and 2,500 or more annual enplanements

Airport Classification	Classification Description	Classification Criteria (Must Meet at Least One Criterion)
Basic	Provides a link for a community to the national system; has moderate activity levels that support GA operations such as private flying, medical, or firefighting; and supports occasional to no activity for propeller driven and jet aircraft.	• Publicly owned with 10 or more validated based aircraft, or four or more validated based helicopters if a heliport • Publicly owned and located 30 or more miles from the nearest NPIAS airport • Owned by or serving a Native American Community • Identified and used by the U.S. Forest Service, U.S. Marshals, U.S. Customs and Border Protection, U.S. Postal Service, or has Essential Air Service • A new or replacement publicly owned airport that has opened within the last 10 years Unique circumstances related to special aeronautical use
Unclassified	Receives very limited activity with some having no based aircraft.	• Airports that do not meet one of the criteria in other nonprimary roles are considered Unclassified. These facilities are evaluated with the normal biennial NPIAS review cycle and reclassified accordingly.

Sources: FAA Order 5090.5; Kimley-Horn, 2025.

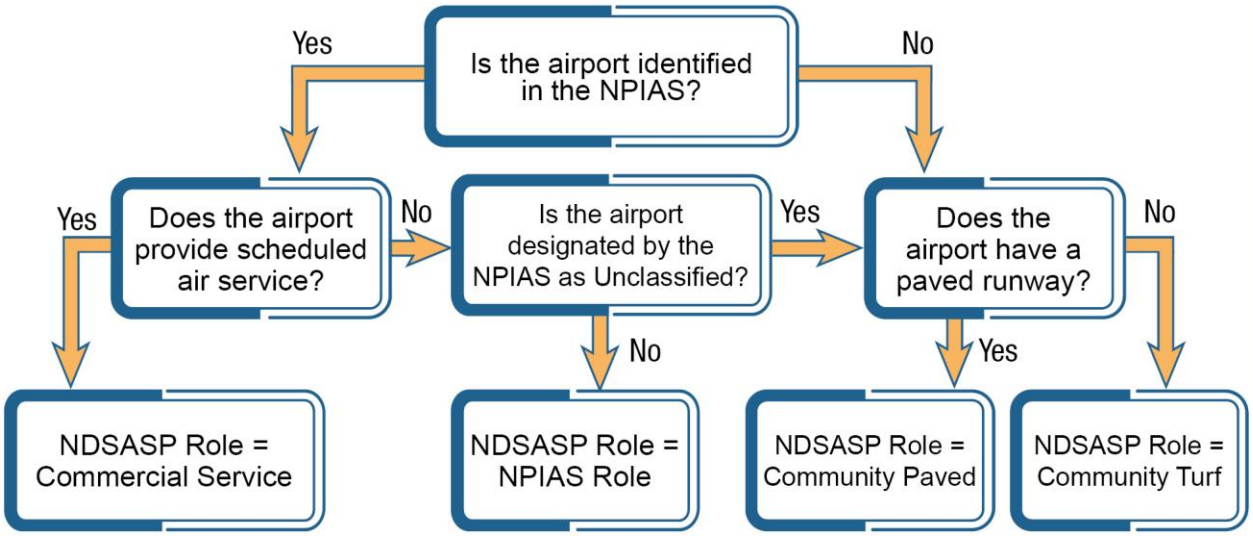
3.3. 2025 NDSASP Classification

As mentioned in **Section 3.1**, the 89 airports included in North Dakota's aviation system serve a variety of critical roles that support transportation, connectivity, quality of life, emergency response, and economic development across the state. Prior to the FAA ASSET study publication, and its ultimate integration into the NPIAS, many state system plans established a unique methodology to identify the roles that GA airports served in the state. With the NPIAS now offering criteria to better classify Nonprimary airports based on the unique roles they serve, many states are adopting the NPIAS classifications as their state classifications. The 2014 NDSASP was the first iteration of the state's system plan that used the same classifications and criteria used at the federal level to classify system airports, with a slight modification to airports that provided scheduled air service and to airports categorized as Unclassified. With North Dakota's aviation system also recognizing non-NPIAS airports, additional criteria were included to assign roles to those airports as well.

The methodology for assigning classifications at the state level remains consistent with the 2014 approach. This methodology classifies any airport offering scheduled air service as a commercial service role, regardless of its federal designation as Primary or Nonprimary. Other Nonprimary airports, excluding NPIAS Unclassified airports, that do not offer scheduled air service are identified as serving the same role as their NPIAS role. The Unclassified and non-NPIAS airports are then classified as either Community Paved or Community Turf based on their primary runway surface.

Figure 3-2 illustrates the 2025 NDSASP methodology, outlining how airports are categorized within the state's aviation system. The 2025 NDSASP classifications and associated 2025-2029 NPIAS classifications for the system airports are listed in **Table 3-3**. Airports are listed in alphabetical order by associated city. The hub size for Primary airports is also included in **Table 3-3** for additional context. A map figure presenting the 2025 NDSASP classifications is presented in **Figure 3-3**, following **Table 3-3**.

Figure 3-2. NDSASP Airport Classification System



Source: Kimley-Horn, 2025.

Table 3-3. 2025 NDSASP Facility Categories

Associated City	Airport Name	FAA ID	2025 NDSASP Role	2025-2029 NPIAS Role
Arthur	Arthur Airport	1A2	Community Turf	Non-NPIAS
Ashley	Ashley Municipal Airport	ASY	Local	Local
Beach	Beach Airport	20U	Basic	Basic
Beulah	Beulah Municipal Airport	95D	Community Paved	Non-NPIAS
Bismarck	Bismarck Municipal Airport	BIS	Commercial Service	Primary (Nonhub)
Bottineau	Bottineau Municipal Airport	D09	Local	Local
Bowbells	Bowbells Municipal Airport	5B4	Community Turf	Non-NPIAS
Bowman	Bowman Regional Airport	BWW	Local	Local
Cando	Cando Municipal Airport	9D7	Basic	Basic
Carrington	Carrington Municipal Airport	46D	Basic	Basic
Casselton	Casselton Robert Miller Regional Airport	5N8	Local	Local
Cavalier	Cavalier Municipal Airport	2C8	Local	Local

Associated City	Airport Name	FAA ID	2025 NDSASP Role	2025-2029 NPIAS Role
Columbus	Columbus Municipal Airport	D49	Community Turf	Non-NPIAS
Cooperstown	Cooperstown Municipal Airport	S32	Local	Local
Crosby	Crosby Municipal Airport	D50	Local	Local
Devils Lake	Devils Lake Regional Airport	DVL	Commercial Service	Local
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	Commercial Service	Primary (Nonhub)
Drayton	Drayton Municipal Airport	D29	Community Paved	Non-NPIAS
Dunseith	International Peace Garden Airport	S28	Basic	Basic
Edgeley	Edgeley Municipal Airport	51D	Basic	Basic
Elgin	Elgin Municipal Airport	Y71	Community Turf	Non-NPIAS
Ellendale	Ellendale Municipal Airport	4E7	Basic	Basic
Enderlin	Sky Haven Airport	5N4	Community Paved	Non-NPIAS
Fargo	Hector International Airport	FAR	Commercial Service	Primary (Small Hub)
Fessenden	Fessenden - Streibel Municipal Airport	D24	Community Turf	Non-NPIAS
Fort Yates	Standing Rock Airport	Y27	Basic	Basic
Gackle	Gackle Municipal Airport	9G9	Community Turf	Non-NPIAS
Garrison	Garrison Municipal Airport	D05	Local	Local
Glen Ullin	Glen Ullin Regional Airport	D57	Basic	Basic
Grafton	Hutson Field	GAF	Local	Local
Grand Forks	Grand Forks International Airport	GFK	Commercial Service	Primary (Nonhub)
Gwinner	Gwinner - Roger Melroe Field	GWR	Basic	Basic
Harvey	Harvey Municipal Airport	5H4	Basic	Basic

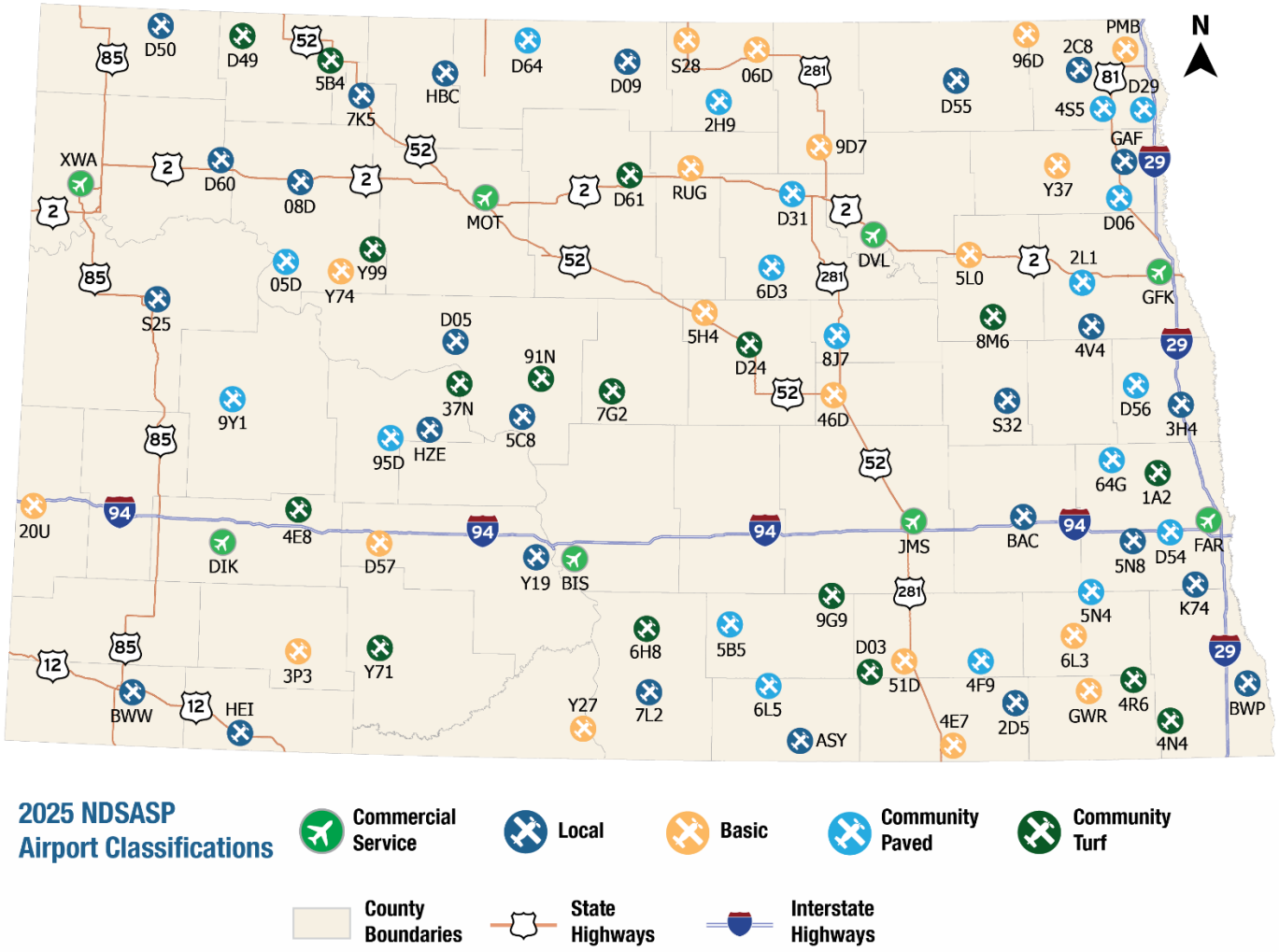
Associated City	Airport Name	FAA ID	2025 NDSASP Role	2025-2029 NPIAS Role
Hazelton	Hazelton Municipal Airport	6H8	Community Turf	Non-NPIAS
Hazen	Mercer County Regional Airport	HZE	Local	Local
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	Local	Local
Hillsboro	Hillsboro Municipal Airport	3H4	Local	Local
Jamestown	Jamestown Regional Airport	JMS	Commercial Service	Primary (NonHub)
Kenmare	Kenmare Municipal Airport	7K5	Local	Local
Killdeer	Dunn County - Weydahl Field	9Y1	Community Paved	Non-NPIAS
Kindred	Robert Odegaard Field	K74	Local	Local
Kulm	Kulm Municipal Airport	D03	Community Turf	Non-NPIAS
LaMoure	LaMoure Rott Municipal Airport	4F9	Community Paved*	Unclassified
Lakota	Lakota Municipal Airport	5L0	Basic	Basic
Langdon	Robertson Field Airport	D55	Local	Local
Larimore	Larimore Municipal Airport	2L1	Community Paved	Non-NPIAS
Leeds	Leeds Municipal Airport	D31	Community Paved	Non-NPIAS
Lidgerwood	Lidgerwood Municipal Airport	4N4	Community Turf	Non-NPIAS
Linton	Linton Municipal Airport	7L2	Local	Local
Lisbon	Lisbon Municipal Airport	6L3	Basic	Basic
Maddock	Maddock Municipal Airport	6D3	Community Paved	Non-NPIAS
Mandan	Mandan Regional - Lawler Field	Y19	Local	Local
Mayville	Mayville Municipal Airport	D56	Community Paved	Non-NPIAS
McClusky	McClusky Municipal Airport	7G2	Community Turf	Non-NPIAS

Associated City	Airport Name	FAA ID	2025 NDSASP Role	2025-2029 NPIAS Role
McVille	McVille Municipal Airport	8M6	Community Turf	Non-NPIAS
Milnor	Milnor Municipal Airport	4R6	Community Turf	Non-NPIAS
Minot	Minot International Airport	MOT	Commercial Service	Primary (Nonhub)
Minto	Minto Municipal Airport	D06	Community Paved	Non-NPIAS
Mohall	Mohall Municipal Airport	HBC	Local	Local
Mott	Mott Municipal Airport	3P3	Basic	Basic
Napoleon	Napoleon Municipal Airport	5B5	Community Paved	Non-NPIAS
New Rockford	Tomlinson Field Airport	8J7	Community Paved	Non-NPIAS
New Town	New Town Municipal Airport	05D	Community Paved	Non-NPIAS
Northwood	Northwood Municipal - Vince Field	4V4	Local	Local
Oakes	Oakes Municipal Airport	2D5	Local	Local
Page	Page Regional Airport	64G	Community Paved	Non-NPIAS
Park River	Park River - W C Skjerven Field	Y37	Basic	Basic
Parshall	Parshall - Hankins Airport	Y74	Basic	Basic
Pembina	Pembina Municipal Airport	PMB	Basic	Basic
Plaza	Trulson Field	Y99	Community Turf	Non-NPIAS
Richardton	Richardton Municipal Airport	4E8	Community Turf	Non-NPIAS
Riverdale	Garrison Dam Recreational Airpark	37N	Community Turf	Non-NPIAS
Rolette	Rolette Airport	2H9	Community Paved	Non-NPIAS
Rolla	Rolla Municipal Airport	06D	Basic	Basic

Associated City	Airport Name	FAA ID	2025 NDSASP Role	2025-2029 NPIAS Role
Rugby	Rugby Municipal Airport	RUG	Basic	Basic
St. Thomas	St. Thomas Municipal Airport	4S5	Community Paved	Non-NPIAS
Stanley	Stanley Municipal Airport	08D	Local	Local
Tioga	Tioga Municipal Airport	D60	Local	Local
Towner	Towner Municipal Airport	D61	Community Turf	Non-NPIAS
Turtle Lake	Turtle Lake Municipal Airport	91N	Community Turf	Non-NPIAS
Valley City	Barnes County Municipal Airport	BAC	Local	Local
Wahpeton	Harry Stern Airport	BWP	Local	Local
Walhalla	Walhalla Municipal Airport	96D	Basic	Basic
Washburn	Washburn Municipal Airport	5C8	Local	Local
Watford City	Watford City Municipal Airport	S25	Local	Local
West Fargo	West Fargo Municipal Airport	D54	Community Paved	Non-NPIAS
Westhope	Westhope Municipal Airport	D64	Community Paved	Non-NPIAS
Williston	Williston Basin International Airport	XWA	Commercial Service	Primary (Nonhub)
Wishek	Wishek Municipal Airport	6L5	Community Paved	Non-NPIAS

*Note: *LaMoure Rott Municipal Airport is part of the NPIAS, but due to its Unclassified designation its role in the NDSASP is effectively that of a Community Paved airport. Sources: 2025-2029 NPIAS; Marr Arnold Planning, 2025; Kimley-Horn, 2025.*

Figure 3-3. 2025 NDSASP Classifications Map



Sources: 2025-2029 NPIAS; Marr Arnold Planning, 2025; Kimley-Horn, 2025.

3.4. Recommendations for NPIAS Inclusion

Given that the NPIAS is updated every two years, it is important to evaluate changes in the system to determine if non-NPIAS airports have the potential to become eligible for inclusion in future iterations. The 35 non-NPIAS airports included in the 2025 NDSASP were evaluated using current data and the minimum entry criteria for GA airports outlined in **Section 3.2.1**. This analysis assumes that each airport has an eligible sponsor capable of receiving federal funds and can adhere to FAA grant assurances. Additionally, airports with at least eight based aircraft are presumed to meet the minimum requirements of 10 based aircraft by the next NPIAS planning cycle. The evaluation considers the inclusion in the NDSASP, proximity to meet the nearest NPIAS airport, number of based aircraft, and whether the airport met operational standards without known deficiencies or compliance violations.

As presented in **Table 3-4** only one non-NPIAS airport, Dunn County – Weydahl Field (9Y1), is potentially eligible for inclusion into a future NPIAS publication. Although the airport currently has eight based aircraft, it is anticipated they will exceed the minimum requirement of 10 based aircraft by the next NPIAS planning cycle. In addition to its role supporting North Dakota's oil industry, 9Y1 provides vital services, including air ambulance operations and aerial agricultural application, and contributes to regional commerce by supporting business activity, tourism, and recreation. 9Y1 has experienced significant public and private investment since 2014, highlighting its importance within the region and to the state's system. The FAA is aware of the growth and investment occurring at 9Y1 and has been coordinating with NDAC regarding the future of the airport. NDAC is actively monitoring this airport for future inclusion into the NPIAS for the next planning cycle and will continue to coordinate closely with the FAA to support this effort.

While only one of the non-NPIAS airports is considered eligible for NPIAS inclusion based on the initial screening requirements, the other non-NPIAS airports were evaluated to determine if they met the "special justification" considerations included in **Section 3.2.1**. Data sources listed in Appendix C of the *2025-2029 NPIAS* were reviewed for this evaluation but did not provide adequate data to make a recommendation. Some of these airports may meet one of the "special justification" criteria, such as serving or being operated by a Native American Community or otherwise serving specific needs that may be deemed a "special justification" upon FAA review; however, none of these non-NPIAS airports have expressed interest in obtaining NPIAS status at the time of this report. Ongoing evaluation of their operations, growth, and regional importance, and continued coordination with NDAC, will help determine if future inclusion may be warranted.

Although not included in the NPIAS analysis presented in **Table 3-4**, LaMoure Rott Municipal Airport warrants special attention because it has long been classified as Unclassified in the NPIAS due to low based aircraft counts and the airport authority leasing, rather than owning, the airport property. NDAC and the City of LaMoure are working together to acquire the airfield property and attract additional based aircraft to support the goal of achieving at least a Basic classification.

Table 3-4. NPIAS Re-evaluation Results for Non-NPIAS Airports in the 2024 NDSASP

Associated City	Airport Name	FAA ID	Part of NDSASP?	30+ Miles from Nearest NPIAS Airport?	10+ Based Aircraft?	Compliance Violations?	Eligible for NPIAS Inclusion?
Arthur	Arthur Airport	1A2	Yes	No	No	Yes	No
Beulah	Beulah Municipal Airport	95D	Yes	No	Yes	Yes	No
Bowbells	Bowbells Municipal Airport	5B4	Yes	No	No	Yes	No
Columbus	Columbus Municipal Airport	D49	Yes	No	No	Yes	No
Drayton	Drayton Municipal Airport	D29	Yes	No	No	Yes	No
Elgin	Elgin Municipal Airport	Y71	Yes	No	No	Yes	No
Enderlin	Sky Haven Airport	5N4	Yes	No	Yes	Yes	No
Fargo	West Fargo Municipal Airport	D54	Yes	No	Yes	Yes	No
Fessenden	Fessenden-Streibel Municipal	D24	Yes	No	No	Yes	No
Gackle	Gackle Municipal Airport	9G9	Yes	No	No	Yes	No
Hazelton	Hazelton Municipal Airport	6H8	Yes	No	No	Yes	No
Killdeer	Dunn County-Weydahl Field	9Y1	Yes	Yes	Yes	No	**Yes**
Kulm	Kulm Municipal Airport	D03	Yes	No	Yes	Yes	No

Associated City	Airport Name	FAA ID	Part of NDSASP?	30+ Miles from Nearest NPIAS Airport?	10+ Based Aircraft?	Compliance Violations?	Eligible for NPIAS Inclusion?
Larimore	Larimore Municipal Airport	2L1	Yes	No	Yes	Yes	No
Leeds	Leeds Municipal Airport	D31	Yes	No	No	Yes	No
Lidgerwood	Lidgerwood Municipal Airport	4N4	Yes	No	No	Yes	No
Maddock	Maddock Municipal Airport	6D3	Yes	No	Yes	Yes	No
Mayville	Mayville Municipal Airport	D56	Yes	No	Yes	Yes	No
McClusky	McClusky Municipal Airport	7G2	Yes	No	No	Yes	No
McVille	McVille Municipal Airport	8M6	Yes	No	No	Yes	No
Milnor	Milnor Municipal Airport	4R6	Yes	No	No	Yes	No
Minto	Minto Municipal Airport	D06	Yes	No	No	Yes	No
Napoleon	Napoleon Municipal Airport	5B5	Yes	Yes*	No	Yes	No
New Rockford	Tomlinson Field Airport	8J7	Yes	No	No	Yes	No
New Town	New Town Municipal Airport	05D	Yes	No	Yes	Yes	No
Page	Page Regional Airport	64G	Yes	No	Yes	Yes	No
Plaza	Trulson Field Airport	Y99	Yes	No	No	Yes	No

Associated City	Airport Name	FAA ID	Part of NDSASP?	30+ Miles from Nearest NPIAS Airport?	10+ Based Aircraft?	Compliance Violations?	Eligible for NPIAS Inclusion?
Richardton	Richardton Airport	4E8	Yes	No	No	Yes	No
Riverdale	Garrison Dam Recreational Airpark	37N	Yes	No	No	Yes	No
Rolette	Rolette Airport	2H9	Yes	No	No	Yes	No
St. Thomas	St. Thomas Municipal Airport	4S5	Yes	No	No	Yes	No
Towner	Towner Municipal Airport	D61	Yes	No	No	Yes	No
Turtle Lake	Turtle Lake Municipal Airport	91N	Yes	No	No	Yes	No
Westhope	Westhope Municipal Airport	D64	Yes	No	No	Yes	No
Wishek	Wishek Municipal Airport	6L5	Yes	No	No	Yes	No

*Notes: *A portion of Napoleon Municipal Airport is 30 nautical miles from the nearest NPIAS airport. Airports were considered as having design deficiencies and/or compliance violations if they have non-compliant Runway Safety Areas, if there are taxiway design standard deficiencies, or if the airport does not meet FAA runway to taxiway separation standards. Based aircraft counts are not validated by the FAA as these airports are not currently included in the NPIAS. Sources: FAA Form 5010; 2025-2029 NPIAS; BasedAircraft.com; FAA Order 5090.5; FAA Advisory Circular 150/5300-13B; Google Earth; Marr Arnold Planning, 2025; Kimley-Horn, 2025.*

3.5. Summary

A diverse range of aviation activities occurs throughout North Dakota's aviation system. This diversity encompasses a range of operations including commercial flights, agricultural aviation, air medical transport, flight training, and recreational flying. North Dakota's aviation sector plays a crucial role in the state's economy by providing essential services, generating employment, and supporting various industries. Establishing airport roles and categorizing system facilities is a vital component of the aviation system planning process, enabling the NDAC to make coordinated, data-informed decisions that guide projected development and policy recommendations. The airport classifications presented in this chapter serve as the foundation for evaluating performance measures and indicators in subsequent chapters, as well as for informing final recommendations and considerations.

Chapter 4. Inventory

4.1. Introduction

To gain a thorough understanding of the current state of airport facilities, services, and activities, an extensive data collection effort was conducted early in the development of the 2025 North Dakota State Aviation System Plan (2025 NDSASP). A comprehensive and accurate dataset is essential as it supports many subsequent elements of the NDSASP, including the existing and future system performance analysis. Beyond assessing current performance, this data serves as a foundational resource for the North Dakota Aeronautics Commission (NDAC) to monitor trends, guide policy, and make informed decisions about future system enhancements over time.

This chapter provides an overview of the inventory process and presents the data that is used to assess the Performance Measures (PMs) and Performance Indicators (PIs) presented in **Chapter 2: Study Framework** and presented in **Chapter 6: Existing System Performance**. The chapter is organized into the following sub-sections.

- 4.2. Inventory and Data Collection Process
- 4.3. 2025 NDSASP Data by Goal
- 4.4. Summary

4.2. Inventory and Data Collection Process

The primary source of inventory data for the 2025 NDSASP was airport representatives. Data was gathered from airport staff, managers, or other secondary contacts using a 19-page Airport Manager Survey (AMS). The AMS was organized into nine major sections and included questions that were required to evaluate the PMs and PIs, as well as additional data requests that were of particular interest to the NDAC. The AMS was customized into two survey versions: one tailored for the 81 general aviation (GA) airports and another for the eight commercial service airports. These versions included slight variations to address the specific needs of GA and commercial service airports. **Table 4-1** summarizes the types of information requested in the AMS, by section. It is important to note that the AMS also included questions related to the 2025 North Dakota Aviation Economic Impact Study (2025 NDAEIS). Further details on the data collection for the 2025 NDAEIS can be found in **Chapter 9: 2025 North Dakota Aviation Economic Impact Study.**

Table 4-1. 2025 NDSASP Airport Manager Survey Data Sections and Categories

2025 NDSASP Airport Manager Survey Section	Example Data Categories
General Airport Information	• Airport Contact Information
Facilities and Services	• Terminal or Fixed-Base Operator Information • Fuel

Aircraft Storage	• Based Aircraft Hangars
	  ◦ Private Hangars
	  ◦ Public T-Hangars
	  ◦ Public Conventional/Box Storage Hangars
	• Aircraft Tie-downs

Airport Activity	• Aerial Agriculture • Flight Training • Aerial Medical Operations • Aircraft Mechanic Operations • Uncrewed Aircraft Systems (UAS) • Aircraft Electrification Infrastructure
Planning and Airport Preservation	• Community Engagement • Land Use and Airport Planning • Public Funding and Insurance • Airport Self-Inspection • Snow Removal
Runway Protection Zones	• Percent Control of Runway Protection Zones (RPZs) • Control Method for RPZs

Sources: 2025 NDSASP Airport Manager Survey; Kimley-Horn, 2025.

Before distribution, the surveys were pre-populated with the airport's name and aerial images of the RPZ boundaries provided by the NDAC. Once pre-populated, the surveys were mailed and emailed to the primary and secondary airport representatives. Recipients of the AMS were asked to review and complete the surveys to the best of their ability and were informed that a member of the project team would schedule an in-person or virtual site visit.

Of North Dakota's 89 public-use airports, all eight commercial service airports received in-person site visits, while virtual (over-the-phone) site visits were conducted at the 81 GA airports. These site visits were essential to support the extensive data collection effort, allowing the project team to address survey-related questions and assist with completion.

The project team and NDAC followed up with airports as needed to collect any missing data items. Up to three attempts were made to contact any airports that had missing data. Data that airports were unable to provide and was unknown by NDAC is presented as "Not Provided" in the subsequent sections and subsections.

4.3. 2025 NDSASP Data by Goal

The following subsections introduce each goal and its associated PMs and PIs as well as present all related data in tabular format. This information is used to assess the 2025 NDSASP PMs and PIs, which are introduced in **Chapter 2**. This data was collected via the AMS and publicly available data sources. The data that is presented throughout this chapter is used to analyze existing system performance. The results of the existing system performance analyses are presented in **Chapter 6.** This chapter only presents the data in tabular format associated with the PMs and PIs for each goal.

4.3.1. Goal: Maintain a Safe Aviation System

The following provides the inventory information for the PMs and PIs associated with the Maintain a Safe Aviation System goal and is presented in the following order:

PMs:

- Percent of airports with clear approaches to all runway ends
- Percent of airports that control RPZs through fee simple ownership or easements for all runways ends
- Percent of airports with public gatherings in the RPZs (stadiums, parks, large public or commercial buildings, parking lots, or other similar spaces) for all runway ends

PIs:

- Percent of airports with roads, railroads, or structures not utilized for public gatherings in the RPZs for all runway ends

The data tables associated with the PMs and PIs of Goal 1 are presented at the conclusion of the text for this goal.

4.3.1.1. PM: Percent of Airports with Clear Approaches to all Runway Ends

Obstructions within approach surfaces can pose a hazard to aircraft operations, particularly during critical phases of flight such as takeoff and landing. The Federal Aviation Administration (FAA), through Federal Aviation Regulation (FAR) Part 77, established standards for determining obstructions to navigable airspace. These regulations define imaginary surfaces around airports, such as approach surfaces, transitional surfaces, horizontal surfaces, and

conical surfaces, that must be identified and mitigated to ensure the safe and efficient movement of aircraft. Maintaining clear approach surfaces is essential for preserving airport safety, minimizing the risk of accidents, and supporting future airport development.

The airport's most recent Airport Master Record (AMR), available from the FAA's Airport Data Information Portal (ADIP), was used to identify obstructions within the approach surfaces for all runway ends. This information is presented by runway, with a "/" to separate runway ends, and is in Columns 2, 4, 6, and 8 of **Table 4-2**.

4.3.1.2. PM: Percent of Airports that Control RPZs through Fee Simple Ownership or Easement for all Runway Ends

According to FAA Advisory Circular (AC) 150/5300-13B, *Airport Design,* an RPZ is an imaginary trapezoidal area at ground level located prior to the threshold or beyond the runway end designed to enhance the safety and protection of people and property on the ground. RPZs play a critical role in safeguarding aircraft during takeoff and landing, which are the riskiest phases of flight due to the low altitude and transitional nature of these operations.

Controlling the land within an airport's RPZ is crucial for protecting the airport from future encroaching development and allowing for continued safe aircraft operations. The FAA emphasizes that airports should completely control the land within their RPZ to prevent incompatible development. Airports may control the land within their RPZ through avigation easements or fee simple ownership. Fee simple ownership is the best method of control as it gives the airport complete ownership and rights to control the land and airspace within an RPZ, however, an avigation easement may also be helpful in giving the airport some control over the land to restrict certain types of uses and prevent airspace obstructions.

As part of the data collection process, airport representatives were asked to report the percentage of land they control within their RPZs, regardless of the specific type of ownership or control mechanism. This information is presented in Columns 2, 4, 6, and 8 of **Table 4-3**. Data is presented by runway with a "/" to separate the runway ends.

4.3.1.3. PM: Percent of Airports with Public Gatherings in the RPZs For All Runway Ends

Ensuring that an airport operates at the highest level of safety requires diligent management of the airfield and its designated safety areas, including the RPZ. The FAA strongly discourages land uses within the RPZ that facilitate public gatherings. Certain land uses are classified as "public gathering" due to the potential for large numbers of people in a concentrated area. These include schools, churches, stadiums, parks, outdoor event venues, parking lots, commercial establishments such as restaurants or shopping centers, and other similar uses. Uses that facilitate public gatherings are considered incompatible with the RPZ due to the increased potential for injury in the event of an aircraft undershoot, overshoot, or other emergency. Maintaining RPZs that are clear of public gatherings is a fundamental component of safe airport operations and land use planning.

Each GA airport's most recent inspection report, provided by NDAC, was reviewed to identify the characteristics present within its RPZs. Since NDAC inspection reports are unavailable for commercial service airports, recent Airport Layout Plans (ALPs) and aerial imagery were reviewed to identify RPZ characteristics. This information is presented by runway with a "/" to separate runway ends and is in in Columns 2, 4, 6, and 8 of **Table 4-4.**

4.3.1.4. PI: Percent of Airports with Roads, Railroads, or Structures Not Utilized for Public Gatherings in the RPZs for all Runway Ends

As mentioned in **Section 6.2.1.2,** the FAA recommends keeping RPZs clear of obstructions, including public right-of-way (ROW) infrastructure such as roads and railroads, and limiting structures to those that do not attract crowds or public gatherings, such as storage sheds. In many instances, it is not reasonable or feasible to remove and reroute existing ROW infrastructure or uses that do not pose a significant threat. It is still important to understand how many airports in the system have roads, railroads, or structures not utilized for public gatherings in the RPZ even if loss of life or damage may not be as significant as the uses listed in **Section 6.2.1.2**.

The RPZ characteristics presented in **Table 4-4** Columns 2, 4, 6, and 8 show whether roads, railroads, or structures not utilized for public gatherings are present. Data is presented by runway with a "/" to separate the runway ends.

Table 4-2. Goal 1: Maintain a Safe Aviation System – Data Table for Clear Approaches

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Clear Approaches Rwy 1	Rwy 2 Orientation	Clear Approaches Rwy 2	Rwy 3 Orientation	Clear Approaches Rwy 3	Rwy 4 Orientation	Clear Approaches Rwy 4
Commercial Service										
Bismarck	Bismarck Municipal Airport	BIS	13/31	Pole / Clear	03/21	Clear / Clear	N/A	N/A	N/A	N/A
Devils Lake	Devils Lake Regional Airport	DVL	13/31	Clear / Building	03/21	Road / Trees	N/A	N/A	N/A	N/A
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	14/32	Pole / Road	07/25	Clear / Road	N/A	N/A	N/A	N/A
Fargo	Hector International Airport	FAR	18/36	Clear / Clear	09/27	Clear / Pole	13/31	Road / Road	N/A	N/A
Grand Forks	Grand Forks International Airport	GFK	17R/35L	Clear / Clear	09L/27R	Clear / Clear	17L/35R	Clear / Clear	09R/27L	Clear / Clear
Jamestown	Jamestown Regional Airport	JMS	13/31	Tree / Clear	04/22	Clear / Clear	N/A	N/A	N/A	N/A
Minot	Minot International Airport	MOT	13/31	Clear / Clear	08/26	Trees / Clear	N/A	N/A	N/A	N/A
Williston	Williston Basin International Airport	XWA	14/32	Clear / Clear	04/22	Clear / Clear	N/A	N/A	N/A	N/A
General Aviation										
Arthur	Arthur Airport	1A2	17/35	Clear / Road	N/A	N/A	N/A	N/A	N/A	N/A
Ashley	Ashley Municipal Airport	ASY	15/33	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Beach	Beach Airport	20U	12/30	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Beulah	Beulah Municipal Airport	95D	10/28	Fence / Road	N/A	N/A	N/A	N/A	N/A	N/A
Bottineau	Bottineau Municipal Airport	D09	13/31	Road / Clear	03/21	Clear / Road	N/A	N/A	N/A	N/A
Bowbells	Bowbells Municipal Airport	5B4	08/26	Trees / Railroad	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-2. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Clear Approaches

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Clear Approaches Rwy 1	Rwy 2 Orientation	Clear Approaches Rwy 2	Rwy 3 Orientation	Clear Approaches Rwy 3	Rwy 4 Orientation	Clear Approaches Rwy 4
General Aviation										
Bowman	Bowman Regional Airport	BWW	13/31	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Cando	Cando Municipal Airport	9D7	16/34	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Carrington	Carrington Municipal Airport	46D	13/31	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Casselton	Casselton Robert Miller Regional Airport	5N8	13/31	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Cavalier	Cavalier Municipal Airport	2C8	16/34	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Columbus	Columbus Municipal Airport	D49	07/25	Clear / Road	N/A	N/A	N/A	N/A	N/A	N/A
Cooperstown	Cooperstown Municipal Airport	S32	13/31	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Crosby	Crosby Municipal Airport	D50	13/31	Clear / Clear	03/21	Clear / Clear	N/A	N/A	N/A	N/A
Drayton	Drayton Municipal Airport	D29	17/35	Clear / Clear**	N/A	N/A	N/A	N/A	N/A	N/A
Dunseith	International Peace Garden Airport	S28	11/29	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Edgeley	Edgeley Municipal Airport	51D	14/32	Clear / Clear	09/27	Clear / Clear	N/A	N/A	N/A	N/A
Elgin	Elgin Municipal Airport	Y71	12/30	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Ellendale	Ellendale Municipal Airport	4E7	13/31	Clear / Clear	17/35	Clear / Clear	N/A	N/A	N/A	N/A
Enderlin	Sky Haven Airport	5N4	12/30	Road / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Fessenden	Fessenden – Streibel Municipal Airport	D24	08/26	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-2. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Clear Approaches

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Clear Approaches Rwy 1	Rwy 2 Orientation	Clear Approaches Rwy 2	Rwy 3 Orientation	Clear Approaches Rwy 3	Rwy 4 Orientation	Clear Approaches Rwy 4
General Aviation										
Fort Yates	Standing Rock Airport	Y27	14/32	Clear / Fence	N/A	N/A	N/A	N/A	N/A	N/A
Gackle	Gackle Municipal Airport	9G9	08/26	Clear / Clear	17/35	Clear / Clear	N/A	N/A	N/A	N/A
Garrison	Garrison Municipal Airport	D05	13/31	Clear / Clear	03/21	Clear / Clear	N/A	N/A	N/A	N/A
Glen Ullin	Glen Ullin Regional Airport	D57	11/29	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Grafton	Hutson Field	GAF	17/35	Clear / Clear	08/26	Clear / Clear	N/A	N/A	N/A	N/A
Gwinner	Gwinner – Roger Melroe Field	GWR	16/34	Clear / Clear	06/24	Clear / Clear	N/A	N/A	N/A	N/A
Harvey	Harvey Municipal Airport	5H4	11/29	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Hazelton	Hazelton Municipal Airport	6H8	17/35	Road / Pipeline	N/A	N/A	N/A	N/A	N/A	N/A
Hazen	Mercer County Regional Airport	HZE	15/33	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	12/30	Clear / Clear	17/35	Clear / Clear	N/A	N/A	N/A	N/A
Hillsboro	Hillsboro Municipal Airport	3H4	16/34	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Kenmare	Kenmare Municipal Airport	7K5	08/26	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Killdeer	Dunn County – Weydahl Field	9Y1	13/31	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Kindred	Robert Odegaard Field	K74	11/29	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Kulm	Kulm Municipal Airport	D03	12/30	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-2. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Clear Approaches

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Clear Approaches Rwy 1	Rwy 2 Orientation	Clear Approaches Rwy 2	Rwy 3 Orientation	Clear Approaches Rwy 3	Rwy 4 Orientation	Clear Approaches Rwy 4
General Aviation										
LaMoure	LaMoure Rott Municipal Airport	4F9	16/34	Other / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Lakota	Lakota Municipal Airport	5L0	15/33	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Langdon	Robertson Field	D55	14/32	Clear / Clear	08/26	Clear / Road	N/A	N/A	N/A	N/A
Larimore	Larimore Municipal Airport	2L1	12/30	Clear / Road	N/A	N/A	N/A	N/A	N/A	N/A
Leeds	Leeds Municipal Airport	D31	09/27	Clear / Road	N/A	N/A	N/A	N/A	N/A	N/A
Lidgerwood	Lidgerwood Municipal Airport	4N4	18/36	Clear / Brush	N/A	N/A	N/A	N/A	N/A	N/A
Linton	Linton Municipal Airport	7L2	09/27	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Lisbon	Lisbon Municipal Airport	6L3	14/32	Fence / Road	03/21	Clear / Clear	N/A	N/A	N/A	N/A
Maddock	Maddock Municipal Airport	6D3	12/30	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Mandan	Mandan Regional – Lawler Field	Y19	13/31	Clear / Clear	04/22	Clear / Clear	N/A	N/A	N/A	N/A
Mayville	Mayville Municipal Airport	D56	18/36	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
McClusky	McClusky Municipal Airport	7G2	13/31	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
McVille	McVille Municipal Airport	8M6	13/31	Road / Building	18/36	Road / Road	N/A	N/A	N/A	N/A
Milnor	Milnor Municipal Airport	4R6	08/26	Road / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Minto	Minto Municipal Airport	D06	17/35	Trees / Clear	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-2. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Clear Approaches

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Clear Approaches Rwy 1	Rwy 2 Orientation	Clear Approaches Rwy 2	Rwy 3 Orientation	Clear Approaches Rwy 3	Rwy 4 Orientation	Clear Approaches Rwy 4
General Aviation										
Mohall	Mohall Municipal Airport	HBC	13/31	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Mott	Mott Municipal Airport	3P3	10/28	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Napoleon	Napoleon Municipal Airport	5B5	12/30	Building / Clear	08/26	Clear / Clear	N/A	N/A	N/A	N/A
New Rockford	Tomlinson Field	8J7	13/31	Railroad / Road	N/A	N/A	N/A	N/A	N/A	N/A
New Town	New Town Municipal Airport	05D	12/30	Clear[1] / Road	N/A	N/A	N/A	N/A	N/A	N/A
Northwood	Northwood Municipal – Vince Field	4V4	08/26	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Oakes	Oakes Municipal Airport	2D5	12/30	Other / Clear	17/35	Clear / Clear	N/A	N/A	N/A	N/A
Page	Page Regional Airport	64G	17/35	Other / Clear**	N/A	N/A	N/A	N/A	N/A	N/A
Park River	Park River – W C Skjerven Field	Y37	13/31	Trees / Clear	04/22	Clear / Clear	N/A	N/A	N/A	N/A
Parshall	Parshall – Hankins Airport	Y74	12/30	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Pembina	Pembina Municipal Airport	PMB	15/33	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Plaza	Trulson Field	Y99	08/26	Road / Tree	N/A	N/A	N/A	N/A	N/A	N/A
Richardton	Richardton Municipal Airport	4E8	11/29	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Riverdale	Garrison Dam Recreational Airpark	37N	11/29	Trees / Trees	N/A	N/A	N/A	N/A	N/A	N/A
Rolette	Rolette Airport	2H9	15/33	Trees / Road	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-2. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Clear Approaches

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Clear Approaches Rwy 1	Rwy 2 Orientation	Clear Approaches Rwy 2	Rwy 3 Orientation	Clear Approaches Rwy 3	Rwy 4 Orientation	Clear Approaches Rwy 4
General Aviation										
Rolla	Rolla Municipal Airport	06D	14/32	Clear / Clear[2]	07/25	Clear / Clear	N/A	N/A	N/A	N/A
Rugby	Rugby Municipal Airport	RUG	12/30	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
St Thomas	St. Thomas Municipal Airport	4S5	17/35	Clear** / Clear**	N/A	N/A	N/A	N/A	N/A	N/A
Stanley	Stanley Municipal Airport	08D	10/28	Clear / Clear	02/22	No Data	N/A	N/A	N/A	N/A
Tioga	Tioga Municipal Airport	D60	12/30	Clear / Road	03/21	Clear / Clear	N/A	N/A	N/A	N/A
Towner	Towner Municipal Airport	D61	16/34	Road / Road	03/21	Road / Clear	N/A	N/A	N/A	N/A
Turtle Lake	Turtle Lake Municipal Airport	91N	08/26	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Valley City	Barnes County Municipal Airport	BAC	13/31	Clear / Clear	17/35	Clear / Clear	05/23	Clear / Clear	08/26	Clear / Clear
Wahpeton	Harry Stern Airport	BWP	15/33	Trees / Trees	03/21	Trees / Clear	N/A	N/A	N/A	N/A
Walhalla	Walhalla Municipal Airport	96D	15/33	Clear / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Washburn	Washburn Municipal Airport	5C8	08/26	Clear / Clear	17/35	Clear / Clear	N/A	N/A	N/A	N/A
Watford City	Watford City Municipal Airport	S25	12/30	Road / Road	N/A	N/A	N/A	N/A	N/A	N/A
West Fargo	West Fargo Municipal Airport	D54	18/36	Road / Clear	N/A	N/A	N/A	N/A	N/A	N/A
Westhope	Westhope Municipal Airport	D64	14/32	Clear/ Tree	N/A	N/A	N/A	N/A	N/A	N/A
Wishek	Wishek Municipal Airport	6L5	14/32	Clear / Road	N/A	N/A	N/A	N/A	N/A	N/A

*Note: "N/A" indicates that the airport does not have a second, third, or fourth runway. "Clear**" indicates cases where the FAA FAR Part 77 Approach Surface is clear of obstructions; however, a close-in obstruction exists in the airspace between the approach surface and the runway threshold. 06D conducted tree removal July 2025 on Runway 32 to remove existing obstructions. 05D is undergoing a 300-foot extension of Runway 12, which will remove the existing obstruction of the railroad. Sources: FAA ADIP, 2025; Google Earth, 2025; NDAC GA Inspection Reports, 2025; Kimley-Horn, 2025.*

Table 4-3. Goal 1: Maintain a Safe Aviation System – Data Table for Control of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Percent RPZ Control – Rwy 1	Rwy 2 Orientation	Percent RPZ Control – Rwy 2	Rwy 3 Orientation	Percent RPZ Control – Rwy 3	Rwy 4 Orientation	Percent RPZ Control – Rwy 4
Commercial Service										
Bismarck	Bismarck Municipal Airport	BIS	13/31	100% / > 50%	03/21	100% / 100%	N/A	N/A	N/A	N/A
Devils Lake	Devils Lake Regional Airport	DVL	13/31	> 50% / > 50%	03/21	> 50% / 100%	N/A	N/A	N/A	N/A
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	14/32	100% / 100%	07/25	100% / 100%	N/A	N/A	N/A	N/A
Fargo	Hector International Airport	FAR	18/36	100% / 100%	09/27	100% / 100%	13/31	> 50% / < 50%	N/A	N/A / N/A
Grand Forks	Grand Forks International Airport	GFK	17R/35L	100% / > 50%	09L/27R	100% / 100%	17L/35R	100% / 100%	09R/27L	100% / 100%
Jamestown	Jamestown Regional Airport	JMS	13/31	100% / 100%	04/22	100% / 100%	N/A	N/A	N/A	N/A
Minot	Minot International Airport	MOT	13/31	> 50% / > 50%	08/26	> 50% / 100%	N/A	N/A	N/A	N/A
Williston	Williston Basin International Airport	XWA	14/32	100% / 100%	04/22	100% / 100%	N/A	N/A	N/A	N/A
General Aviation										
Arthur	Arthur Airport	1A2	17/35	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Ashley	Ashley Municipal Airport	ASY	15/33	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Beach	Beach Airport	20U	12/30	100% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Beulah	Beulah Municipal Airport	95D	10/28	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Bottineau	Bottineau Municipal Airport	D09	13/31	100% / > 50%	03/21	100% / 100%	N/A	N/A	N/A	N/A
Bowbells	Bowbells Municipal Airport	5B4	08/26	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-3. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Control of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Percent RPZ Control – Rwy 1	Rwy 2 Orientation	Percent RPZ Control – Rwy 2	Rwy 3 Orientation	Percent RPZ Control – Rwy 3	Rwy 4 Orientation	Percent RPZ Control – Rwy 4
General Aviation										
Bowman	Bowman Regional Airport	BWW	13/31	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Cando	Cando Municipal Airport	9D7	16/34	< 50% / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Carrington	Carrington Municipal Airport	46D	13/31	> 50% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Casselton	Casselton Robert Miller Regional Airport	5N8	13/31	> 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Cavalier	Cavalier Municipal Airport	2C8	16/34	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Columbus	Columbus Municipal Airport	D49	07/25	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Cooperstown	Cooperstown Municipal Airport	S32	13/31	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Crosby	Crosby Municipal Airport	D50	13/31	< 50% / > 50%	03/21	< 50% / < 50%	N/A	N/A	N/A	N/A
Drayton	Drayton Municipal Airport	D29	17/35	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Dunseith	International Peace Garden Airport	S28	11/29	< 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Edgeley	Edgeley Municipal Airport	51D	14/32	100% / 100%	09/27	100% / 100%	N/A	N/A	N/A	N/A
Elgin	Elgin Municipal Airport	Y71	12/30	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Ellendale	Ellendale Municipal Airport	4E7	13/31	100% / < 50%	17/35	100% / > 50%	N/A	N/A	N/A	N/A
Enderlin	Sky Haven Airport	5N4	12/30	< 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Fessenden	Fessenden – Streibel Municipal Airport	D24	08/26	< 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-3. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Control of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Percent RPZ Control – Rwy 1	Rwy 2 Orientation	Percent RPZ Control – Rwy 2	Rwy 3 Orientation	Percent RPZ Control – Rwy 3	Rwy 4 Orientation	Percent RPZ Control – Rwy 4
General Aviation										
Fort Yates	Standing Rock Airport	Y27	14/32	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Gackle	Gackle Municipal Airport	9G9	08/26	< 50% / < 50%	17/35	< 50% / < 50%	N/A	N/A	N/A	N/A
Garrison	Garrison Municipal Airport	D05	13/31	< 50% / > 50%	03/21	< 50% / < 50%	N/A	N/A	N/A	N/A
Glen Ullin	Glen Ullin Regional Airport	D57	11/29	> 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Grafton	Hutson Field	GAF	17/35	100% / 100%	08/26	100% / 100%	N/A	N/A	N/A	N/A
Gwinner	Gwinner – Roger Melroe Field	GWR	16/34	> 50% / 100%	06/24	100% / 100%	N/A	N/A	N/A	N/A
Harvey	Harvey Municipal Airport	5H4	11/29	> 50% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Hazelton	Hazelton Municipal Airport	6H8	17/35	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Hazen	Mercer County Regional Airport	HZE	15/33	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	12/30	> 50% / 100%	17/35	> 50% / > 50%	N/A	N/A	N/A	N/A
Hillsboro	Hillsboro Municipal Airport	3H4	16/34	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Kenmare	Kenmare Municipal Airport	7K5	08/26	100% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Killdeer	Dunn County – Weydahl Field	9Y1	13/31	< 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Kindred	Robert Odegaard Field	K74	11/29	< 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Kulm	Kulm Municipal Airport	D03	12/30	No Control / > 50%	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-3. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Control of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Percent RPZ Control – Rwy 1	Rwy 2 Orientation	Percent RPZ Control – Rwy 2	Rwy 3 Orientation	Percent RPZ Control – Rwy 3	Rwy 4 Orientation	Percent RPZ Control – Rwy 4
General Aviation										
LaMoure	LaMoure Rott Municipal Airport	4F9	16/34	< 50% / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Lakota	Lakota Municipal Airport	5L0	15/33	> 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Langdon	Robertson Field	D55	14/32	< 50% / > 50%	08/26	< 50% / < 50%	N/A	N/A	N/A	N/A
Larimore	Larimore Municipal Airport	2L1	12/30	> 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Leeds	Leeds Municipal Airport	D31	09/27	< 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Lidgerwood	Lidgerwood Municipal Airport	4N4	18/36	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Linton	Linton Municipal Airport	7L2	09/27	100% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Lisbon	Lisbon Municipal Airport	6L3	14/32	100% / 100%	03/21	> 50% / > 50%	N/A	N/A	N/A	N/A
Maddock	Maddock Municipal Airport	6D3	12/30	< 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Mandan	Mandan Regional – Lawler Field	Y19	13/31	> 50% / > 50%	04/22	< 50% / > 50%	N/A	N/A	N/A	N/A
Mayville	Mayville Municipal Airport	D56	18/36	> 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
McClusky	McClusky Municipal Airport	7G2	13/31	> 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
McVille	McVille Municipal Airport	8M6	13/31	< 50% / < 50%	18/36	No Control / No Control	N/A	N/A	N/A	N/A
Milnor	Milnor Municipal Airport	4R6	08/26	< 50% / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Minto	Minto Municipal Airport	D06	17/35	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-3. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Control of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Percent RPZ Control – Rwy 1	Rwy 2 Orientation	Percent RPZ Control – Rwy 2	Rwy 3 Orientation	Percent RPZ Control – Rwy 3	Rwy 4 Orientation	Percent RPZ Control – Rwy 4
General Aviation										
Mohall	Mohall Municipal Airport	HBC	13/31	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Mott	Mott Municipal Airport	3P3	10/28	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Napoleon	Napoleon Municipal Airport	5B5	12/30	100% / < 50%	08/26	> 50% / < 50%	N/A	N/A	N/A	N/A
New Rockford	Tomlinson Field	8J7	13/31	> 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
New Town	New Town Municipal Airport	05D	12/30	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Northwood	Northwood Municipal – Vince Field	4V4	08/26	< 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Oakes	Oakes Municipal Airport	2D5	12/30	100% / 100%	17/35	< 50% / < 50%	N/A	N/A	N/A	N/A
Page	Page Regional Airport	64G	17/35	> 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Park River	Park River – W C Skjerven Field	Y37	13/31	> 50% / 100%	04/22	100% / > 50%	N/A	N/A	N/A	N/A
Parshall	Parshall – Hankins Airport	Y74	12/30	> 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Pembina	Pembina Municipal Airport	PMB	15/33	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
Plaza	Trulson Field Airport	Y99	08/26	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Richardton	Richardton Municipal Airport	4E8	11/29	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Riverdale	Garrison Dam Recreational Airpark	37N	11/29	< 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Rolette	Rolette Airport	2H9	15/33	No Control / < 50%	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-3. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Control of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	Percent RPZ Control – Rwy 1	Rwy 2 Orientation	Percent RPZ Control – Rwy 2	Rwy 3 Orientation	Percent RPZ Control – Rwy 3	Rwy 4 Orientation	Percent RPZ Control – Rwy 4
General Aviation										
Rolla	Rolla Municipal Airport	06D	14/32	> 50% / > 50%	07/25	No Control / < 50%	N/A	N/A	N/A	N/A
Rugby	Rugby Municipal Airport	RUG	12/30	100% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
St Thomas	St. Thomas Municipal Airport	4S5	17/35	No Control / No Control	N/A	N/A	N/A	N/A	N/A	N/A
Stanley	Stanley Municipal Airport	08D	10/28	> 50% / > 50%	02/22	100% / 100%	N/A	N/A	N/A	N/A
Tioga	Tioga Municipal Airport	D60	12/30	> 50% / > 50%	03/21	100% / 100%	N/A	N/A	N/A	N/A
Towner	Towner Municipal Airport	D61	16/34	> 50% / > 50%	03/21	< 50% / > 50%	N/A	N/A	N/A	N/A
Turtle Lake	Turtle Lake Municipal Airport	91N	08/26	> 50% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Valley City	Barnes County Municipal Airport	BAC	13/31	> 50% / > 50%	17/35	100% / < 50%	05/23	< 50% / > 50%	08/26	< 50% / 100%
Wahpeton	Harry Stern Airport	BWP	15/33	> 50% / 100%	03/21	< 50% / > 50%	N/A	N/A	N/A	N/A
Walhalla	Walhalla Municipal Airport	96D	15/33	100% / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Washburn	Washburn Municipal Airport	5C8	08/26	< 50% / > 50%	17/35	< 50% / < 50%	N/A	N/A	N/A	N/A
Watford City	Watford City Municipal Airport	S25	12/30	100% / 100%	N/A	N/A	N/A	N/A	N/A	N/A
West Fargo	West Fargo Municipal Airport	D54	18/36	100% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A
Westhope	Westhope Municipal Airport	D64	14/32	No Control / > 50%	N/A	N/A	N/A	N/A	N/A	N/A
Wishek	Wishek Municipal Airport	6L5	14/32	< 50% / < 50%	N/A	N/A	N/A	N/A	N/A	N/A

Note: "N/A" indicates that the airport does not have a second, third, or fourth runway. Sources: 2025 NDSASP Airport Manager Survey, 2025; FAA ADIP, 2025; Google Earth, 2025; NDAC GA Inspection Reports, 2025, Kimley-Horn, 2025.

Table 4-4. Goal 1: Maintain a Safe Aviation System – Data Table for Characteristics of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	RPZ Characteristics Rwy 1	Rwy 2 Orientation	RPZ Characteristics Rwy 2	Rwy 3 Orientation	RPZ Characteristics Rwy 3	Rwy 4 Orientation	RPZ Characteristics Rwy 4
Commercial Service										
Bismarck	Bismarck Municipal Airport	BIS	13/31	Road; Buildings / Road; Tree; Fence; Creek	03/21	Fence / None	N/A	N/A	N/A	N/A
Devils Lake	Devils Lake Regional Airport	DVL	13/31	Airport Service Road: Fence / Airport Service Road; Fence; Road; Building	03/21	Fence; Road / Fence	N/A	N/A	N/A	N/A
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	14/32	Fence; Road / Fence	07/25	Fence / Road	N/A	N/A	N/A	N/A
Fargo	Hector International Airport	FAR	18/36	Airport Perimeter Road; Fence; Road; Buildings / Airport Perimeter Road; Fence; Road; Crops	09/27	Airport Perimeter Road; Fence / Airport Perimeter Road; Road; Fence; Residential Homes	13/31	Airport Perimeter Road; Road; Fence; Airport Terminal Parking Lot / Airport Perimeter Road; Road; Fence; Parking Lot; Buildings	N/A	N/A
Grand Forks	Grand Forks International Airport	GFK	17R/35L	Road: Fence / Airport Service Road; Fence; Road	09L/27R	Airport Service Road / Airport Service Road	17L/35R	None / Runway; Taxiway	09R/27L	Fence / Road; Fence; Vehicle Junkyard
Jamestown	Jamestown Regional Airport	JMS	13/31	None / Road	04/22	None / None	N/A	N/A	N/A	N/A
Minot	Minot International Airport	MOT	13/31	Airport Perimeter Road / Airport Perimeter Road; Trees	08/26	Road; Commercial Buildings / None	N/A	N/A	N/A	N/A
Williston	Williston Basin International Airport	XWA	14/32	Road / Road	04/22	Airport Access Road / Road	N/A	N/A	N/A	N/A

Table 4-4. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Characteristics of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	RPZ Characteristics Rwy 1	Rwy 2 Orientation	RPZ Characteristics Rwy 2	Rwy 3 Orientation	RPZ Characteristics Rwy 3	Rwy 4 Orientation	RPZ Characteristics Rwy 4
General Aviation										
Arthur	Arthur Airport	1A2	17/35	Crops / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Ashley	Ashley Municipal Airport	ASY	15/33	Crops; Road / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Beach	Beach Airport	20U	12/30	None / Road	N/A	N/A	N/A	N/A	N/A	N/A
Beulah	Beulah Municipal Airport	95D	10/28	Fence; Tree / Road; Fence; Trees	N/A	N/A	N/A	N/A	N/A	N/A
Bottineau	Bottineau Municipal Airport	D09	13/31	Road / None	03/21	Road / Road	N/A	N/A	N/A	N/A
Bowbells	Bowbells Municipal Airport	5B4	08/26	Trees / Railroad; Road;	N/A	N/A	N/A	N/A	N/A	N/A
Bowman	Bowman Regional Airport	BWW	13/31	None / None	N/A	N/A	N/A	N/A	N/A	N/A
Cando	Cando Municipal Airport	9D7	16/34	Highway; Crops / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Carrington	Carrington Municipal Airport	46D	13/31	Crops; Roads / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Casselton	Casselton Robert Miller Regional Airport	5N8	13/31	Crops; Road / Road; Crops	N/A	N/A	N/A	N/A	N/A	N/A
Cavalier	Cavalier Municipal Airport	2C8	16/34	Crops / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Columbus	Columbus Municipal Airport	D49	07/25	None / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Cooperstown	Cooperstown Municipal Airport	S32	13/31	Crops; Roads / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Crosby	Crosby Municipal Airport	D50	13/31	Crops / Crops; Roads	03/21	Road / Road	N/A	N/A	N/A	N/A

Table 4-4. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Characteristics of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	RPZ Characteristics Rwy 1	Rwy 2 Orientation	RPZ Characteristics Rwy 2	Rwy 3 Orientation	RPZ Characteristics Rwy 3	Rwy 4 Orientation	RPZ Characteristics Rwy 4
General Aviation										
Drayton	Drayton Municipal Airport	D29	17/35	Crops / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Dunseith	International Peace Garden Airport	S28	11/29	Trees; Road / None	N/A	N/A	N/A	N/A	N/A	N/A
Edgeley	Edgeley Municipal Airport	51D	14/32	Road; Crops / None	09/27	None / None	N/A	N/A	N/A	N/A
Elgin	Elgin Municipal Airport	Y71	12/30	Road; Sign; Tree / Road	N/A	N/A	N/A	N/A	N/A	N/A
Ellendale	Ellendale Municipal Airport	4E7	13/31	Crops / Crops	17/35	Crops / Road; Buildings	N/A	N/A	N/A	N/A
Enderlin	Sky Haven Airport	5N4	12/30	Crops; Road / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Fessenden	Fessenden – Streibel Municipal Airport	D24	08/26	Road / Road; Trees	N/A	N/A	N/A	N/A	N/A	N/A
Fort Yates	Standing Rock Airport	Y27	14/32	Fence / Fence; Road	N/A	N/A	N/A	N/A	N/A	N/A
Gackle	Gackle Municipal Airport	9G9	08/26	Lake; Crops / Pond	17/35	Access Road; Pond; Lake / Crops; Lake	N/A	N/A	N/A	N/A
Garrison	Garrison Municipal Airport	D05	13/31	Road / Road	03/21	Road / Road; Trees	N/A	N/A	N/A	N/A
Glen Ullin	Glen Ullin Regional Airport	D57	11/29	Crops / Trees	N/A	N/A	N/A	N/A	N/A	N/A
Grafton	Hutson Field	GAF	17/35	Crops; Road / Crops; Road	08/26	Crops / Crops; Road	N/A	N/A	N/A	N/A
Gwinner	Gwinner – Roger Melroe Field	GWR	16/34	Crops; Road / Crops	06/24	Crops; Road / Crops	N/A	N/A	N/A	N/A
Harvey	Harvey Municipal Airport	5H4	11/29	Road / None	N/A	N/A	N/A	N/A	N/A	N/A
Hazelton	Hazelton Municipal Airport	6H8	17/35	Trees; Road / Powerline	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-4. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Characteristics of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	RPZ Characteristics Rwy 1	Rwy 2 Orientation	RPZ Characteristics Rwy 2	Rwy 3 Orientation	RPZ Characteristics Rwy 3	Rwy 4 Orientation	RPZ Characteristics Rwy 4
General Aviation										
Hazen	Mercer County Regional Airport	HZE	15/33	Road / Ground (Elevation)	N/A	N/A	N/A	N/A	N/A	N/A
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	12/30	None / Crops	17/35	Runway; Taxiway; Trees / None	N/A	N/A	N/A	N/A
Hillsboro	Hillsboro Municipal Airport	3H4	16/34	Crops / Crops; Road	N/A	N/A	N/A	N/A	N/A	N/A
Kenmare	Kenmare Municipal Airport	7K5	08/26	None / Road	N/A	N/A	N/A	N/A	N/A	N/A
Killdeer	Dunn County – Weydahl Field	9Y1	13/31	None / None	N/A	N/A	N/A	N/A	N/A	N/A
Kindred	Robert Odegaard Field	K74	11/29	Crops / Crops; Road	N/A	N/A	N/A	N/A	N/A	N/A
Kulm	Kulm Municipal Airport	D03	12/30	Crops / Crops; Railroad	N/A	N/A	N/A	N/A	N/A	N/A
LaMoure	LaMoure Rott Municipal Airport	4F9	16/34	Public & Private Structures; Crops / Road; Crops	N/A	N/A	N/A	N/A	N/A	N/A
Lakota	Lakota Municipal Airport	5L0	15/33	Hayfield; Road; Trees; Parked Trailers / Crops; Trees; Road	N/A	N/A	N/A	N/A	N/A	N/A
Langdon	Robertson Field	D55	14/32	Crops / Crops; Road	08/26	Crops / Crops; Road	N/A	N/A	N/A	N/A
Larimore	Larimore Municipal Airport	2L1	12/30	Crops / Apron; Crops; Road	N/A	N/A	N/A	N/A	N/A	N/A
Leeds	Leeds Municipal Airport	D31	09/27	Crops / Road; Hayfield	N/A	N/A	N/A	N/A	N/A	N/A
Lidgerwood	Lidgerwood Municipal Airport	4N4	18/36	Crops; Road / Crops	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-4. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Characteristics of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	RPZ Characteristics Rwy 1	Rwy 2 Orientation	RPZ Characteristics Rwy 2	Rwy 3 Orientation	RPZ Characteristics Rwy 3	Rwy 4 Orientation	RPZ Characteristics Rwy 4
General Aviation										
Linton	Linton Municipal Airport	7L2	09/27	Trees / Trees	N/A	N/A	N/A	N/A	N/A	N/A
Lisbon	Lisbon Municipal Airport	6L3	14/32	Crops / Crops; Road	03/21	Crops; Road / Crops	N/A	N/A	N/A	N/A
Maddock	Maddock Municipal Airport	6D3	12/30	Road / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Mandan	Mandan Regional – Lawler Field	Y19	13/31	Road / Road	04/22	Road / None	N/A	N/A	N/A	N/A
Mayville	Mayville Municipal Airport	D56	18/36	Crops; Road / Crops; Road	N/A	N/A	N/A	N/A	N/A	N/A
McClusky	McClusky Municipal Airport	7G2	13/31	Runway Cones / Road	N/A	N/A	N/A	N/A	N/A	N/A
McVille	McVille Municipal Airport	8M6	13/31	Crops; Road; Shed / Roads; Building; Ballpark	18/36	Road; Crops / Building; Road; Fuel Tanks	N/A	N/A	N/A	N/A
Milnor	Milnor Municipal Airport	4R6	08/26	Road; Buildings; Crops / Creek	N/A	N/A	N/A	N/A	N/A	N/A
Minto	Minto Municipal Airport	D06	17/35	Crops; Irrigation Pipe; Electrical Meter; Trees / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Mohall	Mohall Municipal Airport	HBC	13/31	None / Road	N/A	N/A	N/A	N/A	N/A	N/A
Mott	Mott Municipal Airport	3P3	10/28	Dirt Road; Hay Bales / Dirt Road; Hay Bales	N/A	N/A	N/A	N/A	N/A	N/A
Napoleon	Napoleon Municipal Airport	5B5	12/30	Creek; Hayfield / Crops	08/26	Buildings; Trees; Crops / Railroad; Crops	N/A	N/A	N/A	N/A
New Rockford	Tomlinson Field	8J7	13/31	Railroad; Road; Crops / Road; Crops	N/A	N/A	N/A	N/A	N/A	N/A
New Town	New Town Municipal Airport	05D	12/30	Road; Drainage Lake / Road; Storage Bins	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-4. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Characteristics of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	RPZ Characteristics Rwy 1	Rwy 2 Orientation	RPZ Characteristics Rwy 2	Rwy 3 Orientation	RPZ Characteristics Rwy 3	Rwy 4 Orientation	RPZ Characteristics Rwy 4
General Aviation										
Northwood	Northwood Municipal – Vince Field	4V4	08/26	Crops / Crops; Road	N/A	N/A	N/A	N/A	N/A	N/A
Oakes	Oakes Municipal Airport	2D5	12/30	Crops; Mobile Irrigator / Crops	17/35	Crops; Mobile Irrigator / Road; Crops; Mobile Irrigator	N/A	N/A	N/A	N/A
Page	Page Regional Airport	64G	17/35	Crops; Mobile Irrigator / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Park River	Park River – W C Skjerven Field	Y37	13/31	Crops; Road / Crops	04/22	Crops; Trees / Trees; Road	N/A	N/A	N/A	N/A
Parshall	Parshall – Hankins Airport	Y74	12/30	Road / None	N/A	N/A	N/A	N/A	N/A	N/A
Pembina	Pembina Municipal Airport	PMB	15/33	Crops; Dirt Road / Crops; Road	N/A	N/A	N/A	N/A	N/A	N/A
Plaza	Trulson Field	Y99	08/26	Road; Dumpsite; Trees / Road	N/A	N/A	N/A	N/A	N/A	N/A
Richardton	Richardton Municipal Airport	4E8	11/29	None / Road	N/A	N/A	N/A	N/A	N/A	N/A
Riverdale	Garrison Dam Recreational Airpark	37N	11/29	Road; Trees / Road; Trees	N/A	N/A	N/A	N/A	N/A	N/A
Rolette	Rolette Airport	2H9	15/33	None / Road	N/A	N/A	N/A	N/A	N/A	N/A
Rolla	Rolla Municipal Airport	06D	14/32	Road / None	07/25	None / Road	N/A	N/A	N/A	N/A
Rugby	Rugby Municipal Airport	RUG	12/30	None / Road; Crops	N/A	N/A	N/A	N/A	N/A	N/A

Table 4-4. (Continued) Goal 1: Maintain a Safe Aviation System – Data Table for Characteristics of RPZs

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Associated City	Airport Name	FAA ID	Rwy 1 Orientation	RPZ Characteristics Rwy 1	Rwy 2 Orientation	RPZ Characteristics Rwy 2	Rwy 3 Orientation	RPZ Characteristics Rwy 3	Rwy 4 Orientation	RPZ Characteristics Rwy 4
General Aviation										
St Thomas	St. Thomas Municipal Airport	4S5	17/35	Crops / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Stanley	Stanley Municipal Airport	08D	10/28	Road / Road	02/22	No Data / No Data	N/A	N/A	N/A	N/A
Tioga	Tioga Municipal Airport	D60	12/30	Road / Road	03/21	None / None	N/A	N/A	N/A	N/A
Towner	Towner Municipal Airport	D61	16/34	Road / Road; Crops	03/21	Buildings; Roads; Trees / Crops	N/A	N/A	N/A	N/A
Turtle Lake	Turtle Lake Municipal Airport	91N	08/26	Trees / Road	N/A	N/A	N/A	N/A	N/A	N/A
Valley City	Barnes County Municipal Airport	BAC	13/31	Trees; Rock pile / Road; Rail Storage Areas; Depot Building;	17/35	Clear / Road; Parking Lot; Railroad	05/23	Crops; Road; Trees / Clear	08/26	Crops / Clear
Wahpeton	Harry Stern Airport	BWP	15/33	Crops; Roads; Structures; Terminal; Apron; Fuel System / Crops; Road	03/21	Crops; Trees; Road / Road; River	N/A	N/A	N/A	N/A
Walhalla	Walhalla Municipal Airport	96D	15/33	Crops; Road / Crops; Road	N/A	N/A	N/A	N/A	N/A	N/A
Washburn	Washburn Municipal Airport	5C8	08/26	Road / Road	17/35	Road / None	N/A	N/A	N/A	N/A
Watford City	Watford City Municipal Airport	S25	12/30	None / None	N/A	N/A	N/A	N/A	N/A	N/A
West Fargo	West Fargo Municipal Airport	D54	18/36	Road; Crops / Pond; River Diversion Channel & Sluice Gate	N/A	N/A	N/A	N/A	N/A	N/A
St Thomas	St. Thomas Municipal Airport	4S5	17/35	Crops / Crops	N/A	N/A	N/A	N/A	N/A	N/A
Westhope	Westhope Municipal Airport	D64	14/32	None / Road	N/A	N/A	N/A	N/A	N/A	N/A
Wishek	Wishek Municipal Airport	6L5	14/32	Road; Crops / Road; Crops	N/A	N/A	N/A	N/A	N/A	N/A

Note: "N/A" indicates that the airport does not have a second, third, or fourth runway. Sources: FAA ADIP, 2025; Google Earth, 2025; NDAC GA Inspection Reports, 2025; Kimley-Horn, 2025.

4.3.2. Goal: Promote Aviation System Coverage

The PIs associated with the Promote Aviation System Coverage goal evaluate the percentage of area and population within a specific drive time, either 90 or 30 minutes, from various airport categories, as outlined below. There are no PMs associated with this goal.

PIs:

- Percent of area and population within 90 minutes from a commercial service airport
- Percent of area and population within 30 minutes from a National Plan of Integrated Airport Systems (NPIAS) airport
- Percent of area and population within 30 minutes of any paved public-use airport (NPIAS and Non-NPIAS)
- Percent of area and population within 30 minutes of any public-use airport (NPIAS and Non-NPIAS)

Table 3-3 in **Chapter 3: Airport Classifications** presents the various airport categories, including Commercial Service airports; NPIAS airports and their associated role such as Primary, Local, Basic, or Unclassified; and non-NPIAS airports being identified as either Community Paved or Community Turf. All airports included in North Dakota's aviation system are public-use airports.

4.3.2.1. PI: Percent of Area and Population Within 90 Minutes from a Commercial Service Airport

Access and proximity to a commercial service airport are important because these airports provide communities with convenient access to air travel, support regional economic development, and enhance connectivity to national and global markets. This accessibility not only supports business growth and tourism but also enhances quality of life by improving access to jobs, services, and opportunities beyond the local area. By understanding which communities fall within the 90-minute service area of commercial service airports, it is possible to evaluate transportation accessibility, identify underserved areas, and support more informed decisions around infrastructure and regional planning. A map and percentage of area and population within 90 minutes of a commercial service airport are presented in **Chapter 6.**

4.3.2.2. PI: Percent of Area and Population Within 30 Minutes of a National Plan of Integrated Airport Systems (NPIAS) Airport

NPIAS airports play a vital role in the national air transportation system by supporting both commercial service and GA, facilitating economic growth, and serving as critical infrastructure for emergency response and public service. Airports included in the NPIAS are eligible for FAA funding, helping these airports maintain and improve their facilities. These airports help connect communities to broader markets and enable the efficient movement of people and goods. Understanding which communities are located within a 30-minute drive of a NPIAS airport is important for evaluating all these benefits. A map and percentage of area and population within a 30-minute drive of a NPIAS airport are presented in **Chapter 6.**

4.3.2.3. PI: Percent of Area and Population Within 30 Minutes of Any Paved Public-Use Airport (NPIAS and Non-NPIAS)

Understanding the percentage of area and population within a 30-minute drive from all paved public-use airports, including both NPIAS and non-NPIAS, are essential for evaluating the accessibility of the aviation system across North Dakota. This provides insight into how well communities are connected to the air transportation network, regardless of airport classification. Paved public-use airports serve a wide range of aviation needs, from business and recreational flying to emergency services and air cargo transport. A map and percentage of area and population within a 30-minute drive of all paved public-use airports are presented in **Chapter 6.**

4.3.2.4. PI: Percent of Area and Population Within 30 Minutes of any Public-Use Airports (NPIAS And Non-NPIAS)

As previously noted, all airports included in the NDSASP are public use. Public-use airports play a crucial role in accessing the national airspace system. They support a diverse array of aviation activities, including business travel, emergency response, flight training, agricultural spraying, and more. These airports significantly contribute to local economies, enhance regional mobility, and provide essential infrastructure for both regular and emergency operations. A map and percentage of area and population within a 30-minute drive of all public-use airports are presented in **Chapter 6.**

4.3.3. Goal: Provide Air Access to Airports

The following provides the inventory information for the PMs and PIs associated with the Provide Air Access to Airports goal. The inventory information is presented in the following order.

PMs:

- Percent of area and population within 30 nautical miles[8] of an airport with on-site weather reporting
- Percent of area and population within 30 nautical miles of an airport with a non-precision approach
- Percent of area and population within 30 nautical miles of an airport with a vertically guided approach
- Percent of airports with adequate terminal facilities to support passenger demand
- Percent of airports with available covered aircraft storage

[8] Nautical miles are more relevant to pilot operations and airspace service areas, while drive times reflect accessibility for individuals traveling to airports by road.

PIs:

- Percent of airports with standard runway lighting
- Percent of area and population within 50 nautical miles of an airport with Jet A fuel
- Percent of area and population within 30 nautical miles of an airport with 100LL fuel
- Percent of NPIAS airports that have at least 95% wind coverage for all runways

The data tables associated with the PMs and PIs of Goal 3 are presented at the conclusion of the text for this goal.

4.3.3.1. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with On-Site Weather Reporting

Weather reporting systems, such as Automated Weather Observation Stations (AWOS) and Automated Surface Observation Systems (ASOS), play a critical role in ensuring safe and efficient airport operations, particularly during inclement weather. These systems provide real-time data on key meteorological conditions including wind speed and direction, visibility, temperature, dew point, and altimeter settings, providing essential information for pilots to make informed decisions during all phases of flight. For example, under FAR 135, operators conducting instrument flight rules (IFR) operations, such as air ambulances or medevac flights, are required to have certified weather reporting sources like AWOS/ASOS at the destination airport. This requirement highlights the operational necessity of such systems for certain aviation activities.

The FAA's Surface Weather Observation Stations website was used to identify which system airports in North Dakota are equipped with certified on-site weather reporting systems. The information is presented in Column 1 of **Table 4-5.** Information pertaining to the percentage of area and population within 30 nautical miles of airports with on-site weather reporting is presented in **Chapter 6.**

4.3.3.2. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Non-Precision Approach

Non-precision approaches play an important role in supporting a safe and accessible aviation environment, particularly when precision landing systems, such as an Instrument Landing System (ILS), are unavailable or impractical. Non-precision approaches provide lateral guidance, ensuring pilots can safely approach the runway, even in challenging environments or reduced visibility. Non-precision approaches have lower installation and maintenance costs (compared to precision approaches) and are helpful in remote locations where airports may have limited technological resources or precision approaches cannot be achieved. There are three common types of non-precision approaches:

- **VOR Approach** – Uses Very-High-Frequency Omnidirectional Range (VOR) signals to provide directional guidance
- **NDB Approach** – Relies on Non-Directional Beacons (NDB) for basic navigational assistance

- **RNAV Approach** – Utilizes Area Navigation (RNAV), a GPS-based navigation system for improved accuracy

While non-precision approaches require greater situational awareness and precise altitude management compared to vertically guided approaches, they significantly enhance an airport's operational capabilities. Airports equipped with non-precision approaches can accommodate a wider range of operations, including critical services such as medical evacuation and disaster response. These capabilities enhance regional accessibility, strengthen economic connectivity, and provide essential support to communities that rely on air transport.

Column 2 of **Table 4-5** presents the most demanding approach type available at system airports, and may include: Vertically Guided, Non-Precision, or Visual approach to reference the type of approach. Airport approach plates, as available on the FAA's Instrument Flight Procedures Information Gateway, were reviewed to determine if an airport is equipped with a non-precision approach and the specific type. Information on the percentage of area and population within 30 nautical miles of airports with non-precision approaches is presented in **Chapter 6.**

4.3.3.3. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Vertically Guided Approach

A vertically guided approach is an instrument procedure that provides pilots with both lateral (side-to-side) and vertical guidance, ensuring a smooth and stabilized descent onto the runway. This type of approach is particularly beneficial in inclement weather and low-visibility conditions, as it enhances landing accuracy and minimizes risks associated with altitude misjudgment. Common examples of vertically guided approach systems include:

- **ILS** – An Instrument Landing System (ILS) is a ground-based precision approach that provides highly accurate lateral and vertical guidance
- **LPV** – Localizer Performance with Vertical Guidance (LPV) is a GPS-based approach that offers precision comparable to ILS but without the need for ground-based infrastructure
- **LNAV/VNAV** – Lateral Navigation and Vertical Navigation (LNAV/NVAC) are a type of RNAV approach that incorporates both lateral and vertical guidance for enhanced descent control

Despite their advantages, vertically guided approaches are not feasible or necessary for all airports. Airports with lower traffic volumes may not benefit from such systems, while factors such as installation costs, environmental restrictions, and airspace obstructions can make implementation impractical.

Column 2 of **Table 4-5** presents the most demanding approach type available at system airports, and may include: Vertically Guided, Non-Precision, or Visual to reference the type of approach. Airport approach plates, as available on the FAA's Instrument Flight Procedures Information Gateway, were reviewed to determine if an airport is equipped with a vertically guided approach. Information on airport runway approach by runway ends and the percentage

of area and population within 30 nautical miles of airports with vertically guided approaches is presented in **Chapter 6.**

4.3.3.4. PM: Percent of Airports with Adequate Terminal Facilities to Support Passenger Demand

Adequate terminal facilities at commercial service and GA airports are essential for airports to effectively accommodate passengers' demands and ensure smooth operations. These facilities are specific to different airport needs, with commercial service airports requiring robust terminal facilities, ticketing counters, baggage claim areas, and security checkpoints, whereas GA airports typically have smaller terminals or fixed-base operators (FBOs) offering pilot lounges, fueling stations, and basic passenger amenities. Airports with sufficient airport terminal infrastructure can better manage the overall airports' operation. Conversely, commercial service airports with undersized or outdated terminals may experience congestion in queuing areas, or operational inefficiencies, while GA airports with inadequate terminal spaces may have limited amenities to meet passenger needs or face closures during severe weather events.

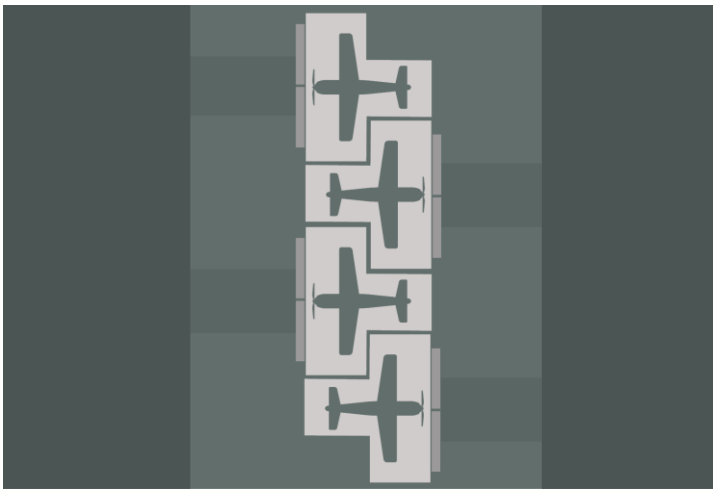
Airports were asked to report whether their terminal facilities were adequate to support passenger demand on the 2025 NDSASP AMS. Airport responses to this question are presented in Column 3 of **Table 4-5.**

4.3.3.5. PM: Percent of Airports with Available Covered Aircraft Storage

Covered and enclosed storage is preferred by most aircraft owners as it preserves aircraft condition and is especially important in severe weather climates, like North Dakota. Many airports across the state face covered aircraft storage shortages due to funding limitations or lack of available land to develop new hangars. Hangars may be publicly owned by the airport sponsor or privately owned by the FBO or other private entities. The two most common types of covered aircraft storage facilities are T-hangars or conventional/box hangars, both of which are briefly described below.

- **T-Hangars** – Specialized T-shaped enclosed structures designed primarily to house small piston and turboprop aircraft. T-hangars may be nested or individual (stand-alone). A nested T-hangar consists of multiple interconnected units within a single larger building, with each aircraft space arranged in a way that maximizes the use of space, similar to fitting puzzle pieces together (see **Figure 4-1**). In contrast, a stand-alone T-hangar is a single, independent structure built to house one aircraft. Both configurations provide secure, weather-protected storage and are a staple at GA airports across the state.

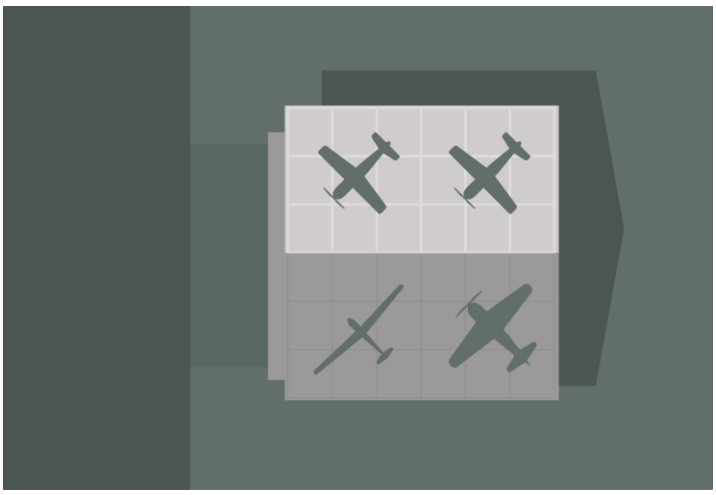
Figure 4-1. T-Hangar



Source: Kimley-Horn, 2025.

- **Conventional/Box Hangars** – Large, open-space structures designed to accommodate either a single large aircraft or multiple smaller aircraft, as shown in **Figure 4-2**. These hangars are commonly used for housing corporate or business aviation aircraft and often feature additional amenities such as climate-controlled office areas, restrooms, and storage space. Box hangars are also favored for agriculture sprayers and are often selected by airports over T-hangars to better accommodate diverse community and operational needs. The number of aircraft that can be housed within a box hangar is an estimate, as it depends heavily on the size and configuration of the aircraft being stored. For this study, airport representatives were asked to provide a response based on their "common" aircraft size.

Figure 4-2. Conventional/Box Hangar



Source: Kimley-Horn, 2025.

The number of total covered aircraft spaces as well as the number of vacant covered aircraft spaces, as reported by airport representatives on the AMS, are presented in Columns 4 and 5 of **Table 4-5**.

4.3.3.6. PI: Percent of Airports with Standard Runway Lighting

The FAA recognizes three types of standard runway lighting: High, Medium, and Low Intensity Runway Lights, which are often referred to as HIRL, MIRL, and LIRL, respectively. It is important for airports to be equipped with one of these standard runway lighting systems to support nighttime operations and operations that occur during times of reduced visibility. In some cases, airports may be equipped with non-standard lighting, such as reflectors.

The primary runway lighting type for each of the system's airports is presented in Column 5 of **Table 4-5.** This information was sourced from the AMR, made available through FAA's ADIP.

4.3.3.7. PI: Percent of Area and Population Within 50 Nautical Miles of an Airport with Jet A Fuel

Jet A is a critical aviation fuel primarily used by turbine-engine aircraft, including jets, turboprops, and helicopters. Its availability is essential not only for commercial and business aviation but also for time-sensitive and life-saving operations such as emergency medical services (EMS), aerial firefighting, and search and rescue missions, all of which may occur without warning and require immediate access to fueling infrastructure. The percentage of area and population within 50 nautical miles of an airport with Jet A fuel serves as an important indicator of how well communities are supported by critical air access for commercial, corporate, and other jet traffic. Access to Jet A fuel strengthens aviation resilience, enabling swift responses to critical missions while bolstering the reliability of the air transportation network. In remote or underserved regions, this accessibility is essential for maintaining operational continuity and ensuring vital regional connectivity.

Column 6 of **Table 4-5** presents which airports in the state have Jet A fuel available. This information was provided by airports in the 2025 NDSASP AMS. Information on the percentage of area and population within 50 nautical miles of airports with Jet A fuel is presented in **Chapter 6.**

4.3.3.8. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport with 100LL Fuel

100-octane low-lead or 100LL is the primary fuel for piston-powered GA aircraft, which comprise a substantial share of the state's total GA fleet. These aircraft play a crucial role in flight training, recreational flying, agricultural operations, and short-range business travel. Assessing geographic and population coverage within a 30-nautical-mile radius of North Dakota airports offering 100LL fuel provides valuable insight into the accessibility and reach of the aviation system.

Airports were asked to provide information regarding 100LL availability on the 2025 NDSASP AMS, with responses to this question presented in Column 7 of **Table 4-5**. Information on the percentage of area and population within 30 nautical miles of airports with 100LL is presented in **Chapter 6.**

4.3.3.9. PI: Percent of NPIAS Airports That Have at Least 95% Wind Coverage for All Runways

Wind coverage refers to the alignment of airport runways with prevailing wind conditions, ensuring aircraft can safely take off and land within acceptable crosswind limits. The FAA recommends that runways at public-use NPIAS airports provide at least 95 percent wind coverage, meaning aircraft should be able to operate safely under the given wind conditions 95 percent of the time. NPIAS airports that do not meet this threshold may face increased weather-related delays, safety concerns, and operational restrictions. Airports that do not meet 95 percent coverage with a single runway may be eligible for FAA funding for a crosswind runway.

The most recent available Airport Layout Plans (ALPs) for all NPIAS airports were reviewed to assess wind coverage across all runways. Results are summarized in **Table 4-5**, with Column 9 indicating whether each airport meets the 95 percent wind coverage threshold based on available data. A “Yes” denotes that all runways at the airport achieve at least 95% wind coverage, while a “No” indicates they do not. Non-NPIAS airports are identified as such and are excluded from this assessment.

Table 4-5. Goal 3: Provide Air Access to Airports – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Associated City	Airport Name	FAA ID	On-Site Weather	Approach Type	Adequate Terminal Facilities	Total Aircraft Spaces	Vacant Covered Aircraft Spaces	Runway Lighting Type	Jet A Fuel	100LL Fuel	Wind Coverage
Commercial Service											
Bismarck	Bismarck Municipal Airport	BIS	ASOS	Vertical Guidance	No	114	9	HIRL	Yes	Yes	Yes
Devils Lake	Devils Lake Regional Airport	DVL	AWOS-3PT	Vertical Guidance	Yes	39	0	HIRL	Yes	Yes	Yes
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	ASOS	Vertical Guidance	Yes*	42	7	HIRL	Yes	Yes	Yes
Fargo	Hector International Airport	FAR	ASOS	Vertical Guidance	Yes*	226	9	HIRL	Yes	Yes	Yes
Grand Forks	Grand Forks International Airport	GFK	ASOS	Vertical Guidance	Yes	160	17	HIRL	Yes	Yes	Yes
Jamestown	Jamestown Regional Airport	JMS	ASOS	Vertical Guidance	Yes	36	0	HIRL	Yes	Yes	Yes
Minot	Minot International Airport	MOT	ASOS	Vertical Guidance	Yes	143	10	HIRL	Yes	Yes	Yes
Williston	Williston Basin International Airport	XWA	ASOS	Vertical Guidance	Yes	32	0	HIRL	Yes	Yes	Yes
General Aviation											
Arthur	Arthur Airport	1A2	None	Visual	No Terminal / FBO Bldg	2	0	None	No	No	Non-NPIAS
Ashley	Ashley Municipal Airport	ASY	None	Vertical Guidance	Yes	15	0	MIRL	No	Yes	Yes
Beach	Beach Airport	20U	AWOS-3	Vertical Guidance	Yes	15	4	MIRL	Yes	Yes	Yes
Beulah	Beulah Municipal Airport	95D	None	Visual	Yes	24	3	Non-standard	No	Yes	Non-NPIAS
Bottineau	Bottineau Municipal Airport	D09	AWOS-3PT	Vertical Guidance	Yes	21	0	MIRL	No	Yes	Yes
Bowbells	Bowbells Municipal Airport	5B4	None	Visual	No Terminal / FBO Bldg	2	0	None	No	No	Non-NPIAS

Table 4-5. (Continued) Goal 3: Provide Air Access to Airports – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Associated City	Airport Name	FAA ID	On-Site Weather	Approach Type	Adequate Terminal Facilities	Total Aircraft Spaces	Available Covered Aircraft Spaces	Runway Lighting Type	Jet A Fuel	100LL Fuel	Wind Coverage
General Aviation											
Bowman	Bowman Regional Airport	BWW	AWOS-3PT	Vertical Guidance	Yes	23	0	MIRL	Yes	Yes	Yes
Cando	Cando Municipal Airport	9D7	AWOS-3	Vertical Guidance	Yes	15	4	MIRL	No	No	Yes
Carrington	Carrington Municipal Airport	46D	AWOS-3	Vertical Guidance	Yes	12	0	MIRL	No	Yes	No
Casselton	Casselton Robert Miller Regional Airport	5N8	None	Non-Precision	Yes	52	0	MIRL	No	Yes	Yes
Cavalier	Cavalier Municipal Airport	2C8	AWOS-3	Vertical Guidance	Yes	22	5	MIRL	Yes	Yes	Yes
Columbus	Columbus Municipal Airport	D49	None	Visual	No Terminal / FBO Bldg	2	0	None	No	No	Non-NPIAS
Cooperstown	Cooperstown Municipal Airport	S32	AWOS-3	Non-Precision	Yes	17	0	MIRL	No	Yes	Yes
Crosby	Crosby Municipal Airport	D50	AWOS-3	Non-Precision	Yes	18	0	MIRL	No	Yes	Yes
Drayton	Drayton Municipal Airport	D29	None	Visual	No Terminal / FBO Bldg	5	0	LIRL	No	No	Non-NPIAS
Dunseith	International Peace Garden Airport	S28	None	Visual	No Terminal / FBO Bldg	0	0	None	No	No	No
Edgeley	Edgeley Municipal Airport	51D	None	Vertical Guidance	No Terminal / FBO Bldg	11	0	MIRL	Yes	Yes	Yes
Elgin	Elgin Municipal Airport	Y71	None	Visual	No Terminal / FBO Bldg	2	0	None	No	No	Non-NPIAS
Ellendale	Ellendale Municipal Airport	4E7	None	Vertical Guidance	Yes	11	0	MIRL	No	Yes	Yes
Enderlin	Sky Haven Airport	5N4	None	Visual	Yes	12	3	LIRL	No	Yes	Non-NPIAS
Fessenden	Fessenden – Streibel Municipal Airport	D24	None	Visual	No Terminal / FBO Bldg	2	2	LIRL	No	No	Non-NPIAS

Table 4-5. (Continued) Goal 3: Provide Air Access to Airports – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Associated City	Airport Name	FAA ID	On-Site Weather	Approach Type	Adequate Terminal Facilities	Total Aircraft Spaces	Available Covered Aircraft Spaces	Runway Lighting Type	Jet A Fuel	100LL Fuel	Wind Coverage
General Aviation											
Fort Yates	Standing Rock Airport	Y27	None	Visual	No Terminal / FBO Bldg	0	0	MIRL	No	No	Yes
Gackle	Gackle Municipal Airport	9G9	None	Visual	No Terminal / FBO Bldg	0	0	None	No	No	Non-NPIAS
Garrison	Garrison Municipal Airport	D05	None	Vertical Guidance	No	15	0	MIRL	No	Yes	Yes
Glen Ullin	Glen Ullin Regional Airport	D57	AWOS-3P	Vertical Guidance	Yes	12	1	MIRL	No	Yes	No
Grafton	Hutson Field	GAF	AWOS-3	Vertical Guidance	Yes	19	0	MIRL	Yes	Yes	Yes
Gwinner	Gwinner – Roger Melroe Field	GWR	AWOS-3	Vertical Guidance	No	17	6	MIRL	Yes	Yes	Yes
Harvey	Harvey Municipal Airport	5H4	AWOS-3	Non-Precision	Yes	10	0	MIRL	No	Yes	Yes
Hazelton	Hazelton Municipal Airport	6H8	None	Visual	No Terminal / FBO Bldg	1	0	None	No	No	Non-NPIAS
Hazen	Mercer County Regional Airport	HZE	AWOS-3PT	Vertical Guidance	Yes	18	0	MIRL	Yes	Yes	Yes
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	ASOS	Vertical Guidance	Yes	33	0	MIRL	Yes	Yes	Yes
Hillsboro	Hillsboro Municipal Airport	3H4	None	Vertical Guidance	Yes	36	0	MIRL	No	Yes	Yes
Kenmare	Kenmare Municipal Airport	7K5	None	Non-Precision	Yes	30	0	MIRL	No	Yes	No
Killdeer	Dunn County – Weydahl Field	9Y1	AWOS-3P	Non-Precision	Yes	12	0	MIRL	Yes	Yes	Non-NPIAS
Kindred	Robert Odegaard Field	K74	None	Non-Precision	Yes	28	0	MIRL	No	Yes	Yes
Kulm	Kulm Municipal Airport	D03	None	Visual	Yes	9	0	LIRL	No	No	Non-NPIAS

Table 4-5. (Continued) Goal 3: Provide Air Access to Airports – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Associated City	Airport Name	FAA ID	On-Site Weather	Approach Type	Adequate Terminal Facilities	Total Aircraft Spaces	Available Covered Aircraft Spaces	Runway Lighting Type	Jet A Fuel	100LL Fuel	Wind Coverage
General Aviation											
LaMoure	LaMoure Rott Municipal Airport	4F9	None	Visual	No Terminal / FBO Bldg	3	0	Non-standard	No	No	No
Lakota	Lakota Municipal Airport	5L0	None	Vertical Guidance	Yes	13	0	MIRL	No	Yes	No
Langdon	Robertson Field	D55	AWOS-3	Non-Precision	Yes	16	0	MIRL	No	Yes	Yes
Larimore	Larimore Municipal Airport	2L1	None	Visual	Yes	22	0	LIRL	No	No	Non-NPIAS
Leeds	Leeds Municipal Airport	D31	None	Visual	Yes	5	2	Non-standard	No	No	Non-NPIAS
Lidgerwood	Lidgerwood Municipal Airport	4N4	None	Visual	No Terminal / FBO Bldg	0	0	None	No	No	Non-NPIAS
Linton	Linton Municipal Airport	7L2	AWOS-3	Vertical Guidance	Yes	18	0	MIRL	Yes	Yes	Yes
Lisbon	Lisbon Municipal Airport	6L3	None	Non-Precision	Yes	12	0	MIRL	No	Yes	Yes
Maddock	Maddock Municipal Airport	6D3	None	Visual	Yes	12	1	MIRL	No	No	Non-NPIAS
Mandan	Mandan Regional – Lawler Field	Y19	AWOS-3	Vertical Guidance	Yes	101	0	MIRL	Yes	Yes	Yes
Mayville	Mayville Municipal Airport	D56	None	Visual	Yes	8	0	MIRL	No	No	Non-NPIAS
McClusky	McClusky Municipal Airport	7G2	None	Visual	No Terminal / FBO Bldg	0	0	None	No	No	Non-NPIAS
McVille	McVille Municipal Airport	8M6	None	Visual	No Terminal / FBO Bldg	4	1	LIRL	No	No	Non-NPIAS
Milnor	Milnor Municipal Airport	4R6	None	Visual	Yes	4	0	None	No	No	Non-NPIAS
Minto	Minto Municipal Airport	D06	None	Visual	No Terminal / FBO Bldg	2	0	None	No	No	Non-NPIAS

Table 4-5. (Continued) Goal 3: Provide Air Access to Airports – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Associated City	Airport Name	FAA ID	On-Site Weather	Approach Type	Adequate Terminal Facilities	Total Aircraft Spaces	Available Covered Aircraft Spaces	Runway Lighting Type	Jet A Fuel	100LL Fuel	Wind Coverage
General Aviation											
Mohall	Mohall Municipal Airport	HBC	None	Vertical Guidance	Yes	26	0	MIRL	No	Yes	No
Mott	Mott Municipal Airport	3P3	None	Vertical Guidance	Yes	17	4	MIRL	No	Yes	Yes
Napoleon	Napoleon Municipal Airport	5B5	None	Visual	No Terminal / FBO Bldg	5	1	LIRL	No	No	Non-NPIAS
New Rockford	Tomlinson Field	8J7	None	Visual	No Terminal / FBO Bldg	4	0	None	No	No	Non-NPIAS
New Town	New Town Municipal Airport	05D	None	Vertical Guidance	Yes	12	0	MIRL	No	No	Non-NPIAS
Northwood	Northwood Municipal – Vince Field	4V4	None	Non-Precision	Yes*	19	0	MIRL	No	Yes	No
Oakes	Oakes Municipal Airport	2D5	AWOS-3	Vertical Guidance	Yes	17	2	MIRL	No	No	Yes
Page	Page Regional Airport	64G	None	Visual	Yes	11	0	None	Yes	Yes	Non-NPIAS
Park River	Park River – W C Skjerven Field	Y37	None	Visual	Yes	12	3	MIRL	No	Yes	Yes
Parshall	Parshall – Hankins Airport	Y74	None	Visual	Yes	10	0	MIRL	No	Yes	Yes
Pembina	Pembina Municipal Airport	PMB	None	Non-Precision	Yes	14	0	MIRL	No	Yes	Yes
Plaza	Trulson Field Airport	Y99	None	Visual	No Terminal / FBO Bldg	0	0	None	No	No	Non-NPIAS
Richardton	Richardton Municipal Airport	4E8	None	Visual	No Terminal / FBO Bldg	0	0	None	No	No	Non-NPIAS
Riverdale	Garrison Dam Recreational Airpark	37N	None	Visual	No Terminal / FBO Bldg	0	0	None	No	No	Non-NPIAS
Rolette	Rolette Airport	2H9	None	Visual	No Terminal / FBO Bldg	2	0	Non-standard	No	No	Non-NPIAS

Table 4-5. (Continued) Goal 3: Provide Air Access to Airports – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
Associated City	Airport Name	FAA ID	On-Site Weather	Approach Type	Adequate Terminal Facilities	Total Aircraft Spaces	Available Covered Aircraft Spaces	Runway Lighting Type	Jet A Fuel	100LL Fuel	Wind Coverage
General Aviation											
Rolla	Rolla Municipal Airport	06D	AWOS-3	Vertical Guidance	Yes*	12	2	MIRL	Yes	Yes	Yes
Rugby	Rugby Municipal Airport	RUG	AWOS-3	Non-Precision	Yes	12	2	MIRL	Yes	Yes	Yes
St Thomas	St. Thomas Municipal Airport	4S5	None	Visual	No Terminal / FBO Bldg	7	4	Non-standard	No	No	Non-NPIAS
Stanley	Stanley Municipal Airport	08D	AWOS-3	Vertical Guidance	Yes	27	0	MIRL	Yes	Yes	Yes
Tioga	Tioga Municipal Airport	D60	AWOS-3	Vertical Guidance	Yes	42	0	MIRL	Yes	Yes	Yes
Towner	Towner Municipal Airport	D61	None	Visual	No Terminal / FBO Bldg	4	0	LIRL	No	No	Non-NPIAS
Turtle Lake	Turtle Lake Municipal Airport	91N	None	Visual	Yes	2	1	LIRL	No	No	Non-NPIAS
Valley City	Barnes County Municipal Airport	BAC	AWOS-3	Vertical Guidance	Yes	36	10	MIRL	Yes	Yes	Yes
Wahpeton	Harry Stern Airport	BWP	AWOS-3	Non-Precision	Yes	36	4	MIRL	Yes	Yes	Yes
Walhalla	Walhalla Municipal Airport	96D	AWOS-3PT	Non-Precision	Yes	14	3	MIRL	No	Yes	Yes
Washburn	Washburn Municipal Airport	5C8	None	Visual	Yes	18	0	MIRL	No	Yes	Yes
Watford City	Watford City Municipal Airport	S25	AWOS-3PT	Vertical Guidance	Yes	36	2	MIRL	Yes	Yes	Yes
West Fargo	West Fargo Municipal Airport	D54	None	Visual	Yes	41	0	LIRL	No	Yes	Non-NPIAS
Westhope	Westhope Municipal Airport	D64	None	Visual	No Terminal / FBO Bldg	7	1	None	No	No	Non-NPIAS
Wishek	Wishek Municipal Airport	6L5	None	Visual	Yes	9	5	LIRL	No	No	Non-NPIAS

*Notes: * = indicates a terminal expansion program is underway. Sources: 2025 NDSASP Airport Manager Survey, 2025; FAA Surface Weather Observation Stations, 2025; FAA.com; ALPs, 2025; Kimley-Horn, 2025.*

4.3.4. Goal: Enhance Quality of Life

The following provides the inventory information for the PIs associated with the Enhance Quality of Life goal. No PMs are associated with this goal. The inventory information is presented in the following order.

PIs:

- Percent of area and population within 60 minutes of a 5,000 feet (ft) or longer runway
- Percent of airports that meet the light business jet capability criteria
- Percent of airports utilized by air cargo operators
- Percent of airports with aviation-related business tenants on airport property
- Percent of airports that can meet the needs of the King Air emergency aircraft
- Percent of area and population within 30-minute drive of an airport that can meet the needs of the King Air emergency aircraft
- Percent of area and population within 30 nautical miles of an airport that supports based or transient aerial applicator operations
- Percent of airports that provide access to mechanic services:
  - On-site and available to the public
  - On-site private operation only
  - On-call only
  - None
- Percent of airports with a hospital and/or clinic within its service area

The data tables associated with the PMs and PIs of Goal 4 are presented at the conclusion of the text for this goal.

4.3.4.1. PI: Percent of Area and Population Within 60 Minutes of a 5,000 ft or Longer Runway

Runway length is a key factor in determining the types of aircraft an airport can accommodate. A runway length of 5,000 ft or longer can support a diverse range of aircraft, including larger GA planes, regional jets, and, in some cases, narrow-body commercial airliners. Runways of this length play a crucial role in enabling business aviation, air cargo operations, passenger service, and air medical transport, contributing to the airport's versatility. Analyzing the population and area within a 60-minute drive of an airport with a runway of this length helps assess Regional Airport connectivity, accessibility, and the airport's overall impact on economic development and quality of life.

The airports' primary runway lengths were sourced from the AMR via ADIP and are presented in Column 1 of **Table 4-8**. The percentage of area and population within 60 minutes of an airport with a runway of 5,000 ft or longer is presented in **Chapter 6**.

4.3.4.2. PI: Percent of Airports That Meet the Light Business Jet Capability Criteria

Facilitating business-related aviation is an essential role for both GA and commercial service airports. Business-related aviation not only helps sustain high-quality, well-compensated

employment opportunities, but also promotes economic development and Regional Airport connectivity. To effectively attract and serve business aviation, minimum levels of infrastructure and services are generally required. This PI aims to measure the percentage of airports that meet the light business jet capability, which includes:

- Runway dimensions of at least 4,000 ft by 75 ft
- Instrument approach (non-precision or vertically guided)
- Visual glideslope indicator (VGSI)
- Runway lighting
- On-site weather reporting
- FBO services
- Jet A fuel

These features enable an airport to accommodate most small business jet and turboprop operations of approximately 4-8 passengers. The light business jet category of aircraft is generally designed for short-haul travel and offers a more economical solution for businesses and individuals seeking private air transportation.

Some of the information required to analyze this PI is presented in other tables and is not presented again. **As mentioned** in **Chapter 4**, light business jets require a specific set of infrastructure and services to operate effectively, including a runway of at least 4,000 feet by 75 feet, instrument approach capability, visual glide slope indicators (VGSI), runway lighting, on-site weather reporting, FBO services, and access to Jet A fuel.

Systemwide, 19 percent of airports meet this criteria, as shown in **Figure 6-30**, which includes all Commercial Service airports, 31 percent of Local airports, and five percent of Basic airports. Community Paved and Community Turf airports do not meet all the criteria.

Figure 6-30 presents the corresponding column and table number for each of the criteria related to light business jet capability.

Table 4-6. Light Business Jet Criteria and Corresponding Data Columns

Criteria	Data Table Location
Runway Dimensions	Columns 1 and 2 of **Table 4-8** (Goal 4)
Instrument Approach	Column 2 of **Table 4-5** (Goal 3)
VGSI	Column 3 of **Table 4-8** (Goal 4)
Runway Lighting	Column 5 of **Table 4-5** (Goal 3)
On-Site Weather	Column 1 of **Table 4-5** (Goal 3)
FBO Services	Column 4 of **Table 4-8** (Goal 4)
Jet A Fuel	Column 6 of **Table 4-5 (**Goal 3)

Source: Kimley-Horn, 2025.

4.3.4.3. PI: Percent of Airports Utilized by Air Cargo Operators

Air cargo activity can occur at both commercial service and GA airports. Commercial service airports may be equipped with large cargo handling facilities that support frequent air cargo operations, whereas GA airports may accommodate smaller-scale cargo operations, including local and regional deliveries by carriers operating smaller aircraft, such as FedEx or UPS. Supporting air cargo operations contributes to increased connectivity and economic activity.

Column 5 of **Table 4-8** identifies system airports that reported being utilized by air cargo operators or noted that they support air cargo operations in their 2025 NDSASP AMS responses.

4.3.4.4. PI: Percent of Airports with Aviation-Related Business Tenants on Airport Property

Airports are key drivers of economic activity, serving as hubs for a variety of aviation-related business tenants that rely on airport infrastructure to operate effectively. Aviation-related business tenants may include flight schools, aircraft maintenance and repair facilities, air cargo operators, air charter and taxi services, aircraft manufacturing, and more.

During the data collection process, airports provided a list of their on-airport business tenants for the 2025 NDAEIS. These businesses were reviewed to identify which are aviation related. Column 6 of **Table 4-8** indicates whether airports reported having aviation-related business tenants on airport property.

4.3.4.5. PI: Percent of Airports That Can Meet the Needs of the King Air Emergency Aircraft

The King Air is one of the most used aircraft for medical emergency transport, offering rapid access to rural and remote communities during critical situations. Medical flights, often classified as air ambulance operations, require specific airport infrastructure to ensure safe and timely patient transport. FAA guidelines and general medevac operational standards suggest that airports supporting these missions should have the following:

- A minimum runway length of 3,800 ft
- Lighted runway for night operations
- Certified weather reporting
- Runway Design Code (RDC) of at least B-II

The RDC is a classification system used by the FAA to ensure airport design elements—such as runway length, taxiway width, and safety clearances—are compatible with the critical design aircraft for each airport.[9] An RDC is determined by two factors: the critical or design aircraft's approach speed and its physical size (primarily wingspan and tail height). For example, an RDC of B-II applies to moderately fast, mid-sized aircraft like the King Air.[10] These elements help ensure that aircraft, such as King Air, can operate safely under various conditions.

The information required to evaluate this PI is presented in other tables and is not shown again. **Table 4-7** presents the corresponding column and table number where the data associated with supporting a King Air is presented.

Table 4-7. Emergency Aircraft Criteria and Corresponding Data Columns

Criteria	Data Table Location
Runway Length	Column 1 of **Table 4-8** (Goal 4)
Runway Lighting	Column 5 of **Table 4-5** (Goal 3)
On-Site Weather	Column 1 of **Table 4-5** (Goal 3)
RDC	Column 7 of **Table 4-8** (Goal 4)

Source: Kimley-Horn, 2025.

This data was sourced from the AMR, the FAA's Surface Weather Observation Station website, and airport ALPs.

[9]The FAA introduced the RDC in AC 150/5300-13A to provide a more detailed and flexible framework for runway design compared to the previously used Airport Reference Code (ARC), which may still be used for planning purposes. The most demanding RDC is equivalent to an airport's ARC.

[10] Not all King Air models fall under the same RDC, but commonly used medevac variants such as the King Air C90 and King Air 200 are classified as RDC B-II, aligning with typical infrastructure requirements for air ambulance operations.

4.3.4.6. PI: Percent of Area and Population Within 30 Minutes of an Airport That Can Meet the Needs of the King Air Emergency Aircraft

Understanding the percentage of area and population within 30 minutes of an airport that meets the requirements for a King Air emergency aircraft is crucial for assessing regional accessibility and emergency response capabilities. The King Air is widely used for critical missions, including medical evacuations, disaster response, and organ transport, where time-sensitive flights are essential.

The percentage of area and population within 30 minutes of an airport that can meet the needs of King Air emergency aircraft is presented in **Chapter 6.**

4.3.4.7. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport That Supports Based or Transient Aerial Applicator Operations

The agricultural industry is a cornerstone of North Dakota's economy, and many public-use airports play a vital role in supporting it—particularly through aerial applicator operations. These operations can be categorized into based and transient aerial applicators.

- **Based aerial applicators** operate from the airport either year-round or seasonally, using its facilities for storage and operations
- **Transient aerial applicators** rely on the airport for refueling and replenishing spray materials but do not maintain a hangar on-site

Assessing the percentage of area and population within 30 nautical miles of airports that support aerial applicator operations helps determine the coverage and accessibility these airports provide to the agricultural sector.

Airports were asked to report whether they support based or transient aerial applicator operations in the 2025 NDSASP AMS and that information is presented in Column 8 of **Table 4-8.** The percentage of area and population within 30 nautical miles of an airport that supports based or transient aerial applicator operations is presented in **Chapter 6.**

4.3.4.8. PI: Percent of Airports that Provide Access to Mechanic Services

Mechanic services are an essential component of the aviation industry, supporting aircraft maintenance and operations across airports of various sizes and functions. These services include routine maintenance and inspections, engine repairs and overhauls, avionics maintenance, structural repairs, fuel system maintenance, hydraulic and pneumatic system repairs, and more.

Beyond their operational importance, mechanic services contribute to local economies by creating employment opportunities within the community. Public-use airports in North Dakota may access these services in the following ways:

- **On-site public services** – Mechanic services based at the airport and available to all airport users
- **On-site private services** – Mechanic services based at the airport for specific operators (e.g., a flight school mechanic servicing only the school's fleet)

- **On-call services** – Mechanic services are available to visit the airport as needed or upon request

Airports without on-site or on-call mechanic services may experience reduced traffic and provide fewer on-airport employment opportunities. As part of the AMS, airports were asked to report whether they support on-site public services, on-site private services, on-call services, or no mechanical support. This data is summarized in Column 9 of **Table 4-8**.

4.3.4.9. Percent of Airports with a Hospital and/or Clinic Within Its Service Area

Access to medical facilities within an airport's service area is a critical factor in supporting public health, emergency response, and community resilience. Airports that are located near hospitals or clinics are better positioned to support medical transport operations, including air ambulance services, and can serve as vital links during natural disasters or public health emergencies. Evaluating the percentage of airports with a hospital and/or clinic within their service area helps identify regions with adequate access to healthcare services and highlights areas—particularly more rural communities—where improved coordination between aviation and medical infrastructure could enhance emergency response and public health.

As part of this study, airports were asked to report whether their community had a hospital and/or clinic within their service area and this information is shown in Column 10 of **Table 4-8.**

Table 4-8. Goal 4: Enhance Quality of Life – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Associated City	Airport Name	FAA ID	Primary Runway Length (ft)	Primary Runway Width (ft)	VGSI	FBO Services	Utilized by Air Cargo Operators	Aviation Business Tenants	RDC	Aerial Applicator Operations	Access to Mechanic Services	Hospital and/or Clinic Within Service Area
Commercial Service												
Bismarck	Bismarck Municipal Airport	BIS	8,794	150	P4L / P4L	Yes	Yes	Yes	D-IV	No Aerial Application	On-Site Public	Yes
Devils Lake	Devils Lake Regional Airport	DVL	6,400	100	P4L / P4L	Yes	Yes	Yes	B-II	Yes-Based	On-Site Public	Yes
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	7,301	150	P4L / P4L	Yes	Yes	Yes	B-II	Yes-Transient	On-Site Public	Yes
Fargo	Hector International Airport	FAR	9,001	150	P4L / P4R	Yes	Yes	Yes	D-V	Yes-Transient	On-Site Public	Yes
Grand Forks	Grand Forks International Airport	GFK	7,351	150	P4L / P4L	Yes	Yes	Yes	C-IV	No Aerial Application	On-Site Public	Yes
Jamestown	Jamestown Regional Airport	JMS	6,502	100	P4L / P4L	Yes	Yes	Yes	C-III	Yes-Based & Transient	On-Site Public	Yes
Minot	Minot International Airport	MOT	7,700	150	P4L / None	Yes	Yes	Yes	C-III	Yes-Transient	On-Site Public	Yes
Williston	Williston Basin International Airport	XWA	7,503	150	P4L / P4L	Yes	Yes	Yes	D-VI	Yes-Based & Transient	On-Site Public	Yes
General Aviation												
Arthur	Arthur Airport	1A2	3,100	85	None / None	No	No	No	A-I Small	No Aerial Application	None	No
Ashley	Ashley Municipal Airport	ASY	4,364	60	P2L / P2L	No	No	Yes	A-II Small	Yes-Based	On Call	Yes
Beach	Beach Airport	20U	4,200	60	P2L / P2L	No	No	No	B-I Small	Yes-Transient	None	Yes
Beulah	Beulah Municipal Airport	95D	4,030	60	None / S2L	No	Yes	Yes	A/B-I Small	Yes-Based & Transient	On-Site Public	Yes
Bottineau	Bottineau Municipal Airport	D09	3,700	60	P2R / P2L	No	No	Yes	A/B-I Small	Yes-Based & Transient	On-Site Public	Yes

Table 4-8. (Continued) Goal 4: Enhance Quality of Life – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Associated City	Airport Name	FAA ID	Primary Runway Length (ft)	Primary Runway Width (ft)	VGSI	FBO Services	Utilized by Air Cargo Operators	Aviation Business Tenants	RDC	Aerial Applicator Operations	Access to Mechanic Services	Hospital and/or Clinic Within Service Area
General Aviation												
Bowbells	Bowbells Municipal Airport	5B4	2,900	200	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Bowman	Bowman Regional Airport	BWW	5,701	75	P4L / P4L	No*	No	Yes	B-II	Yes-Transient	On-Site Public	Yes
Cando	Cando Municipal Airport	9D7	3,500	60	P2L / P2L	No	No	No	A-I	Yes-Based & Transient	Only Basic Services w/in 30NM	Yes
Carrington	Carrington Municipal Airport	46D	4,198	75	P2L / P2L	No	Yes	No	B-II	Yes-Transient	None	Yes
Casselton	Casselton Robert Miller Regional Airport	5N8	3,901	75	P2R / P2L	No	Yes	Yes	B-II	Yes-Based	On-Site Public	Yes
Cavalier	Cavalier Municipal Airport	2C8	3,299	60	P2L / P2L	No	No	Yes	A/B-I Small	Yes-Based	None	Yes
Columbus	Columbus Municipal Airport	D49	2,560	100	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Cooperstown	Cooperstown Municipal Airport	S32	3,500	60	P2L / P2L	No	No	Yes	A-I	Yes-Transient	On-Site Private Only	Yes
Crosby	Crosby Municipal Airport	D50	3,800	60	P2L / P2L	No	Yes	No	A/B-I Small	Yes-Transient	None	Yes
Drayton	Drayton Municipal Airport	D29	2,596	60	None / None	No	No	Yes	A-I Small	Yes-Based	None	Yes
Dunseith	International Peace Garden Airport	S28	3,005	60	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Edgeley	Edgeley Municipal Airport	51D	3,600	60	None / P2L	No	No	Yes	B-I Small	Yes-Based	None	Yes
Elgin	Elgin Municipal Airport	Y71	2,842	120	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Ellendale	Ellendale Municipal Airport	4E7	3,499	60	P2L / P2L	No	No	No	A/B-I Small	Yes-Transient	Only Basic Services w/in 30NM	Yes

Table 4-8. (Continued) Goal 4: Enhance Quality of Life – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Associated City	Airport Name	FAA ID	Primary Runway Length (ft)	Primary Runway Width (ft)	VGSI	FBO Services	Utilized by Air Cargo Operators	Aviation Business Tenants	RDC	Aerial Applicator Operations	Access to Mechanic Services	Hospital and/or Clinic Within Service Area
General Aviation												
Enderlin	Sky Haven Airport	5N4	2,855	40	None / None	No	Yes	No	A-I Small	Yes-Transient	None	Yes
Fessenden	Fessenden – Streibel Municipal Airport	D24	2,940	120	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Fort Yates	Standing Rock Airport	Y27	3,699	60	P2L / P2L	No	No	No	A-I Small	Yes-Transient	None	Yes
Gackle	Gackle Municipal Airport	9G9	1,620	40	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Garrison	Garrison Municipal Airport	D05	3,699	60	P2L / P2L	No	No	Yes	A/B-I Small	Yes-Based & Transient	Only Basic Services w/in 30NM	Yes
Glen Ullin	Glen Ullin Regional Airport	D57	3,799	60	P2L / P2L	No	No	No	A/B-I Small	Yes-Transient	None	Yes
Grafton	Hutson Field	GAF	3,898	74	P2L / P2L	No	Yes	Yes	B-II Small	Yes-Based	Only Basic Services w/in 30NM	Yes
Gwinner	Gwinner – Roger Melroe Field	GWR	5,000	75	P2L / P2L	No*	Yes	Yes	B-I	Yes-Based	On Call	Yes
Harvey	Harvey Municipal Airport	5H4	3,600	60	P2L / P2L	No	No	Yes	A/B-I Small	Yes-Transient	Only Basic Services w/in 30NM	Yes
Hazelton	Hazelton Municipal Airport	6H8	3,800	100	None / None	No	No	No	A-I Small	Yes-Transient	None	Yes
Hazen	Mercer County Regional Airport	HZE	4,999	75	P2L / P2L	No*	No	Yes	B-II	Yes-Transient	None	Yes
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	4,652	75	P2L / P2L	Yes	Yes	Yes	B-II Small	Yes-Based	On-Site Public	Yes
Hillsboro	Hillsboro Municipal Airport	3H4	3,301	60	P2L / P2L	Yes	No	Yes	B-II	Yes-Based	On-Site Public	Yes
Kenmare	Kenmare Municipal Airport	7K5	3,700	60	P2L / P2L	No	No	Yes	B-I Small	Yes-Based	On-Site Public	Yes

Table 4-8. (Continued) Goal 4: Enhance Quality of Life – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Associated City	Airport Name	FAA ID	Primary Runway Length (ft)	Primary Runway Width (ft)	VGSI	FBO Services	Utilized by Air Cargo Operators	Aviation Business Tenants	RDC	Aerial Applicator Operations	Access to Mechanic Services	Hospital and/or Clinic Within Service Area
General Aviation												
Killdeer	Dunn County – Weydahl Field	9Y1	4,200	60	P2L / P2L	No	No	No	B-II	Yes-Transient	None	Yes
Kindred	Robert Odegaard Field	K74	3,300	60	P2L / P2L	Yes	No	Yes	A-I Small	Yes-Based & Transient	On-Site Public	No
Kulm	Kulm Municipal Airport	D03	2,800	120	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
LaMoure	LaMoure Rott Municipal Airport	4F9	3,400	50	None / None	No	Yes	Yes	A-I Small	Yes-Based	None	Yes
Lakota	Lakota Municipal Airport	5L0	3,500	60	P2L / P2L	No	Yes	No	B-I Small	Yes-Transient	Only Basic Services w/in 30NM	Yes
Langdon	Robertson Field	D55	3,600	60	P2L / P2L	No	Yes	Yes	A/B-I Small	Yes-Based	None	Yes
Larimore	Larimore Municipal Airport	2L1	2,914	50	None / None	Yes	Yes	Yes	A-I Small	Yes-Based	On-Site Public	Yes
Leeds	Leeds Municipal Airport	D31	3,000	50	None / None	No	No	No	A-I Small	Yes-Transient	Only Basic Services w/in 30NM	No
Lidgerwood	Lidgerwood Municipal Airport	4N4	2,100	60	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Linton	Linton Municipal Airport	7L2	3,700	60	P2L / P2L	Yes	Yes	Yes	B-I Small	Yes-Transient	None	Yes
Lisbon	Lisbon Municipal Airport	6L3	3,397	60	P2L / P2L	Yes	No	Yes	A/B-I Small	Yes-Based & Transient	On Call	Yes
Maddock	Maddock Municipal Airport	6D3	3,000	50	None / None	No	No	Yes	B-I	Yes-Based	Only Basic Services w/in 30NM	Yes
Mandan	Mandan Regional – Lawler Field	Y19	4,399	75	P2L / P2L	No*	Yes	Yes	B-II Small	Yes-Based	On-Site Public	Yes
Mayville	Mayville Municipal Airport	D56	3,300	60	None / None	No	No	Yes	A-I Small	Yes-Based	Only Basic Services w/in 30NM	Yes

Table 4-8. (Continued) Goal 4: Enhance Quality of Life – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Associated City	Airport Name	FAA ID	Primary Runway Length (ft)	Primary Runway Width (ft)	VGSI	FBO Services	Utilized by Air Cargo Operators	Aviation Business Tenants	RDC	Aerial Applicator Operations	Access to Mechanic Services	Hospital and/or Clinic Within Service Area
General Aviation												
McClusky	McClusky Municipal Airport	7G2	3,136	80	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
McVille	McVille Municipal Airport	8M6	2,277	100	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Milnor	Milnor Municipal Airport	4R6	2,210	90	None / None	No	No	No	A-I Small	Yes-Based	None	Yes
Minto	Minto Municipal Airport	D06	2,396	20	None / None	No	No	Yes	A-I Small	Yes-Based	None	No
Mohall	Mohall Municipal Airport	HBC	3,599	75	P2L / P2L	No	Yes	No	B-II Small	Yes-Based	None	Yes
Mott	Mott Municipal Airport	3P3	4,001	60	P2L / P2L	No	No	No	A/B-I Small	Yes-Transient	None	Yes
Napoleon	Napoleon Municipal Airport	5B5	3,220	50	None / None	No	No	Yes	A-II Small	Yes-Based	None	Yes
New Rockford	Tomlinson Field	8J7	3,600	60	None / None	No	No	Yes	B-I	Yes-Transient	Only Basic Services w/in 30NM	Yes
New Town	New Town Municipal Airport	05D	3,416	60	P2L / P2L	No	No	No	B-I Small	No Aerial Application	None	Yes
Northwood	Northwood Municipal – Vince Field	4V4	3,160	60	P2L / P2L	Yes	Yes	Yes	B-I Small	No Aerial Application	On-Site Public	Yes
Oakes	Oakes Municipal Airport	2D5	3,505	60	P2L / P2L	No	Yes	Yes	B-I	Yes-Based	On Call	Yes
Page	Page Regional Airport	64G	2,600	30	None / None	No	Yes	Yes	A-I Small	Yes-Based	On-Site Public	No
Park River	Park River – W C Skjerven Field	Y37	3,100	60	P2L / P2L	No	No	Yes	B-II Small	Yes-Based	Only Basic Services w/in 30NM	Yes
Parshall	Parshall – Hankins Airport	Y74	3,208	60	P2L / P2L	No	No	No	A/B-I Small	Yes-Transient	None	Yes

Table 4-8. (Continued) Goal 4: Enhance Quality of Life – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Associated City	Airport Name	FAA ID	Primary Runway Length (ft)	Primary Runway Width (ft)	VGSI	FBO Services	Utilized by Air Cargo Operators	Aviation Business Tenants	RDC	Aerial Applicator Operations	Access to Mechanic Services	Hospital and/or Clinic Within Service Area
General Aviation												
Pembina	Pembina Municipal Airport	PMB	3,798	75	P2L / P2L	Yes	Yes	Yes	B-I Small	Yes-Based & Transient	On-Site Public	No
Plaza	Trulson Field	Y99	3,200	60	None / None	No	No	No	A-I Small	No Aerial Application	None	No
Richardton	Richardton Municipal Airport	4E8	3,822	110	None / None	No	No	No	A-I Small	No Aerial Application	Only Basic Services w/in 30NM	No
Riverdale	Garrison Dam Recreational Airpark	37N	3,195	60	None / None	No	No	No	A-I Small	No Aerial Application	None	No
Rolette	Rolette Airport	2H9	3,400	40	None / None	No	No	No	A-I Small	Yes-Transient	None	Yes
Rolla	Rolla Municipal Airport	06D	4,300	75	P2L / P2L	No	No	Yes	B-II Small	Yes-Based	None	Yes
Rugby	Rugby Municipal Airport	RUG	3,600	60	P2L / P2L	No	No	Yes	A/B-I Small	Yes-Based	None	Yes
St Thomas	St. Thomas Municipal Airport	4S5	2,600	50	None / None	No	No	Yes	B-I	Yes-Based	None	No
Stanley	Stanley Municipal Airport	08D	3,900	60	P2L / P2L	No	Yes	Yes	B-I Small	Yes-Transient	None	Yes
Tioga	Tioga Municipal Airport	D60	5,102	75	P2L / P2L	No*	No	Yes	B-II	Yes-Based & Transient	On-Site Public	Yes
Towner	Towner Municipal Airport	D61	2,732	150	None / None	No	No	No	A-I Small	No Aerial Application	None	Yes
Turtle Lake	Turtle Lake Municipal Airport	91N	3,148	120	None / None	No	No	No	A-I Small	Yes-Based & Transient	None	Yes
Valley City	Barnes County Municipal Airport	BAC	4,201	75	P2L / P2L	No*	No	Yes	B-II Small	Yes-Based	On-Site Public	Yes
Wahpeton	Harry Stern Airport	BWP	5,100	75	P2L / P2L	No*	Yes	Yes	B-II	Yes-Based	On-Site Public	Yes

Table 4-8. (Continued) Goal 4: Enhance Quality of Life – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10
Associated City	Airport Name	FAA ID	Primary Runway Length (ft)	Primary Runway Width (ft)	VGSI	FBO Services	Utilized by Air Cargo Operators	Aviation Business Tenants	RDC	Aerial Applicator Operations	Access to Mechanic Services	Hospital and/or Clinic Within Service Area
General Aviation												
Walhalla	Walhalla Municipal Airport	96D	3,400	60	P2L / P2L	No	No	Yes	A-I	Yes-Based	None	Yes
Washburn	Washburn Municipal Airport	5C8	3,700	60	None / None	No	No	Yes	A-II Small	Yes-Based & Transient	None	Yes
Watford City	Watford City Municipal Airport	S25	6,550	75	P2L / P2L	No*	No	Yes	B-II	Yes-Based	On-Site Public	Yes
West Fargo	West Fargo Municipal Airport	D54	3,300	50	None / None	No	No	Yes	A-I Small	Yes-Based	On-Site Public	Yes
Westhope	Westhope Municipal Airport	D64	3,000	60	None / None	No	No	No	A-I Small	Yes-Based	Only Basic Services w/in 30NM	Yes
Wishek	Wishek Municipal Airport	6L5	3,460	60	None / None	Yes	No	No	B-I Small	Yes-Transient	Only Basic Services w/in 30NM	Yes

*Note: * = FBO services are not based at the airport, but on-call FBO services are available on an as-needed basis. "Only Basic Services w/in 30NM" indicates that full-service mechanic services are not available, but basic services (tires, batteries, and essential fluids) are available within 30 nautical miles on an on-call basis. Sources: 2025 NDSASP Airport Manager Survey, 2025; ADIP, 2025; ALPs, 2025; Kimley-Horn, 2025.*

4.3.5. Goal: Preserve Airport Infrastructure

The following provides the inventory information for the PMs and PIs associated with the Preserve Airport Infrastructure goal. The information is presented in the following order.

PMs:

- Percent of airports meeting state Pavement Condition Index (PCI) thresholds on primary runways
- Percent of NPIAS airports with an adequate ALP

PIs:

- Percent of airports that have height zoning following Part 77 guidelines adopted by a local zoning board
- Percent of airports with a local or county-wide mill levy
- Percent of airports with non-mill levy revenue

The data tables associated with the PMs and PIs of Goal 5 are presented at the conclusion of the text for this goal.

4.3.5.1. PM: Percent of Airports Meeting State PCI Thresholds on Primary Runways

Maintaining airfield pavement is essential for ensuring safe and efficient airport operations. In North Dakota, pavement represents the state's largest investment in airport infrastructure.

The condition of airport pavement is evaluated using the PCI, a nationally recognized assessment standard that is required to be used by NPIAS airports that accept FAA Airport Improvement Program (AIP) funding. This index assigns a score from 0 to 100, where 0 indicates completely failed pavement and 100 represents pavement in brand-new condition. The PCI rating is based on a detailed inspection of surface distress and overall integrity.

The state's threshold for acceptable PCI standards is presented in **Figure 4-3**. To maintain an up-to-date assessment of statewide pavement conditions, the NDAC performs a Pavement Management System Update every three years, with the most recent study published in 2025 using 2024 data.

Figure 4-3. North Dakota's PCI Thresholds

Source: NDAC, 2025; Kimley-Horn, 2025.

PCI data for paved public-use airports was derived from the most recent Pavement Management System Update, which is presented through an online database. This information is presented in Column 1 of **Table 4-9.**

4.3.5.2. PM: Percent of NPIAS Airports with an Adequate ALP

ALPs serve as essential planning tools tailored for individual airports, capturing both current infrastructure and long-term development goals. These documents provide a comprehensive view of airports' facilities, property, and future expansion by detailing:

- The limits of airport-owned or sponsor-controlled land, including areas planned for acquisition
- The placement and characteristics of existing and planned aviation-related facilities and buildings
- The designation of current and future non-aviation land uses within airport property, along with associated improvements

Airports included in the NPIAS must keep a current ALP to remain eligible for funding through the FAA's AIP. It is advised that airports update their ALPs at least once every 10 years or on an as-needed basis. According to the FAA, an ALP may be considered outdated if it:

- Fails to address projected operational or development needs
- Does not comply with the latest FAA airport design criteria
- No longer accurately depicts existing airport facilities and layout
- Omits recent changes in airport use or surrounding land use that could impact airspace or future expansion

Non-NPIAS airports are not obligated to develop or maintain an ALP; however, it remains a beneficial planning tool for airports regardless of size or activity level.

Airports were asked to report whether their ALP is current and adequately serving their airport development needs. Adequacy is generally defined as having been updated within the past 10 years; however, airports may have ALPs older than 10 years that still serve their future development needs and may not require an update. The responses to this question are presented in Column 2 of **Table 4-9**.

4.3.5.3. PI: Percent of Airports That Have Height Zoning Following Part 77 Guidelines Adopted by a Local Zoning Board

Protecting the land and airspace surrounding an airport is critical to its long-term viability, ensuring that development remains compatible with airport operations. Proper planning helps prevent disruptions to current airport activities while preserving opportunities for future expansion, such as mitigating risks posed by tall structures. Land use controls, particularly those related to height restrictions in accordance with FAR Part 77 guidelines, are essential for minimizing incompatible development near airports. FAR Part 77 establishes criteria for determining obstructions to navigable airspace based on the height and location of structures in relation to airport runways. These guidelines help ensure safe aircraft operations and prevent hazards that could interfere with flight paths.

In North Dakota, the responsibility for regulating development near airports primarily lies with local governments. Municipal airport authorities oversee comprehensive planning, zoning, and land use policies to safeguard their airports.

Airports were asked to report whether height zoning that follows Part 77 guidelines has been adopted by their local zoning board or authority. Airport responses to this question are presented in Column 3 of **Table 4-9**.

4.3.5.4. PI: Percent of Airports with a Local or County-Wide Mill Levy

A mill levy may be established by various political subdivisions, including counties, cities, townships, school districts, or special districts, such as fire or ambulance service districts. In the context of airport funding, a local or county government may establish a mill levy to generate revenue for an airport, basing the levy on the total assessed property value within the designated area. These levies serve as an important funding mechanism for public-use airports, particularly those with limited on-site revenue-generating activities. By providing a dedicated source of local financial support, mill levies help airports maintain operations, infrastructure, and essential services.

As part of this study, airports were asked to report whether local and/or county-wide mill levies exist in their community. This information is presented in Columns 4 and 5 of **Table 4-9**.

4.3.5.5. PI: Percent of Airports with Non-Mill Levy Revenue

Airports may also generate revenue outside of a mill levy through activities at the airport such as hangar rental charges, fuel sales, landing fees, land leases, and more.

As part of this study, airports were asked to report whether they have non-mill levy revenue and the sources of that revenue. This information is presented in Column 6 of **Table 4-9**.

Table 4-9. Goal 5: Preserve Airport Infrastructure – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Associated City	Airport Name	FAA ID	Primary Runway PCI	Adequate ALP	Height Zoning Adopted by Local Zoning Board	Local Mill Levy	County-wide Mill Levy	Receives Non-Mill Levy Revenue
Commercial Service								
Bismarck	Bismarck Municipal Airport	BIS	96	Yes	Yes	No	No	Yes
Devils Lake	Devils Lake Regional Airport	DVL	73	Yes	Yes	Yes	Yes	Yes
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	98	Yes	Yes	Yes	Yes	Yes
Fargo	Hector International Airport	FAR	69	Yes	Yes	Yes	No	Yes
Grand Forks	Grand Forks International Airport	GFK	65	Yes	Yes	Yes	Yes	Yes
Jamestown	Jamestown Regional Airport	JMS	100	Yes	Yes	Yes	Yes	Yes
Minot	Minot International Airport	MOT	92	Yes	No	Yes	No	Yes
Williston	Williston Basin International Airport	XWA	98	Yes	Yes	No	Yes	Yes
General Aviation								
Arthur	Arthur Airport	1A2	Turf Runway	No**	No	Yes	No	Yes
Ashley	Ashley Municipal Airport	ASY	72	Yes	Yes	Yes	Yes	Yes
Beach	Beach Airport	20U	94	Yes	No	No	No	No
Beulah	Beulah Municipal Airport	95D	79	No**	No	Yes	No	Yes
Bottineau	Bottineau Municipal Airport	D09	83	Yes	No	No	Yes	Yes
Bowbells	Bowbells Municipal Airport	5B4	Turf Runway	No**	No	Yes	No	Yes
Bowman	Bowman Regional Airport	BWW	92	Yes	Yes	No	Yes	Yes
Cando	Cando Municipal Airport	9D7	87	Yes	Yes	No	Yes	Yes

Table 4-9. (Continued) Goal 5: Preserve Airport Infrastructure – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Associated City	Airport Name	FAA ID	Primary Runway PCI	Adequate ALP	Height Zoning Adopted by Local Zoning Board	Local Mill Levy	County-wide Mill Levy	Receives Non-Mill Levy Revenue
General Aviation								
Carrington	Carrington Municipal Airport	46D	94	Yes	No	Yes	No	Yes
Casselton	Casselton Robert Miller Regional Airport	5N8	52	Yes	Yes	Yes	No	Yes
Cavalier	Cavalier Municipal Airport	2C8	100*	Yes	Yes	Yes	Yes	Yes
Columbus	Columbus Municipal Airport	D49	Turf Runway	No**	No	No	No	No
Cooperstown	Cooperstown Municipal Airport	S32	100*	Yes	No	Yes	No	Yes
Crosby	Crosby Municipal Airport	D50	100	Yes	Yes	Yes	Yes	Yes
Drayton	Drayton Municipal Airport	D29	71	No**	No	Yes	Yes	No
Dunseith	International Peace Garden Airport	S28	100	Yes	No	No	No	No
Edgeley	Edgeley Municipal Airport	51D	81	Yes	No	Yes	Yes	Yes
Elgin	Elgin Municipal Airport	Y71	Turf Runway	No**	No	No	No	No
Ellendale	Ellendale Municipal Airport	4E7	88	Yes	Yes	Yes	Yes	Yes
Enderlin	Sky Haven Airport	5N4	78	No**	No	Yes	No	Yes
Fessenden	Fessenden – Streibel Municipal Airport	D24	Turf Runway	No**	No	Not Provided	Yes	No
Fort Yates	Standing Rock Airport	Y27	100*	Yes	No	No	No	Yes
Gackle	Gackle Municipal Airport	9G9	Turf Runway	No**	No	Yes	No	No

Table 4-9. (Continued) Goal 5: Preserve Airport Infrastructure – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Associated City	Airport Name	FAA ID	Primary Runway PCI	Adequate ALP	Height Zoning Adopted by Local Zoning Board	Local Mill Levy	County-wide Mill Levy	Receives Non-Mill Levy Revenue
General Aviation								
Garrison	Garrison Municipal Airport	D05	88	Yes	Yes	Yes	No	Yes
Glen Ullin	Glen Ullin Regional Airport	D57	98	Yes	Yes	Yes	No	Yes
Grafton	Hutson Field	GAF	63	Yes	Yes	Yes	No	Yes
Gwinner	Gwinner – Roger Melroe Field	GWR	79	Yes	Yes	Yes	Yes	Yes
Harvey	Harvey Municipal Airport	5H4	79	Yes	Yes	Yes	No	Yes
Hazelton	Hazelton Municipal Airport	6H8	Turf Runway	No**	No	No	No	Yes
Hazen	Mercer County Regional Airport	HZE	90	Yes	Yes	No	Yes	Yes
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	71	Yes	Yes	No	Yes	Yes
Hillsboro	Hillsboro Municipal Airport	3H4	93	Yes	Yes	Yes	No	Yes
Kenmare	Kenmare Municipal Airport	7K5	83	Yes	No	No	Yes	Yes
Killdeer	Dunn County – Weydahl Field	9Y1	80	Yes	Yes	No	Yes	Yes
Kindred	Robert Odegaard Field	K74	60	Yes	No	Yes	No	Yes
Kulm	Kulm Municipal Airport	D03	Turf Runway	No	No	No	Yes	Yes
LaMoure	LaMoure Rott Municipal Airport	4F9	78	Yes	No	Yes	Yes	Yes
Lakota	Lakota Municipal Airport	5L0	100	Yes	Yes	Yes	No	Yes

Table 4-9. (Continued) Goal: Preserve Airport Infrastructure – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Associated City	Airport Name	FAA ID	Primary Runway PCI	Adequate ALP	Height Zoning Adopted by Local Zoning Board	Local Mill Levy	County-wide Mill Levy	Receives Non-Mill Levy Revenue
General Aviation								
Langdon	Robertson Field	D55	73	Yes	Yes	No	Yes	Yes
Larimore	Larimore Municipal Airport	2L1	58	No	Yes	Yes	No	Yes
Leeds	Leeds Municipal Airport	D31	99	Yes	No	Yes	Yes	No
Lidgerwood	Lidgerwood Municipal Airport	4N4	Turf Runway	No**	No	Yes	No	No
Linton	Linton Municipal Airport	7L2	86	Yes	Yes	Yes	No	Yes
Lisbon	Lisbon Municipal Airport	6L3	59	Yes	Yes	Yes	No	Yes
Maddock	Maddock Municipal Airport	6D3	90	No	No	No	Yes	Yes
Mandan	Mandan Regional – Lawler Field	Y19	95	Yes	No	Yes	No	Yes
Mayville	Mayville Municipal Airport	D56	76	Yes	Yes	Yes	No	Yes
McClusky	McClusky Municipal Airport	7G2	Turf Runway	No**	No	No	No	Yes
McVille	McVille Municipal Airport	8M6	Turf Runway	No**	Yes	Yes	Yes	Yes
Milnor	Milnor Municipal Airport	4R6	Turf Runway	No**	No	Yes	Yes	No
Minto	Minto Municipal Airport	D06	72	No**	No	No	No	Yes
Mohall	Mohall Municipal Airport	HBC	83	Yes	Yes	Yes	Yes	Yes
Mott	Mott Municipal Airport	3P3	66	Yes	No	No	No	Yes

Table 4-9. (Continued) Goal 5: Preserve Airport Infrastructure – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Associated City	Airport Name	FAA ID	Primary Runway PCI	Adequate ALP	Height Zoning Adopted by Local Zoning Board	Local Mill Levy	County-wide Mill Levy	Receives Non-Mill Levy Revenue
General Aviation								
Napoleon	Napoleon Municipal Airport	5B5	80	Yes	No	No	Yes	Yes
New Rockford	Tomlinson Field	8J7	100*	No	No	Yes	Yes	No
New Town	New Town Municipal Airport	05D	78	Yes	No	Yes	Yes	Yes
Northwood	Northwood Municipal – Vince Field	4V4	75	Yes	No	Yes	Yes	Yes
Oakes	Oakes Municipal Airport	2D5	76	Yes	Yes	Yes	Yes	Yes
Page	Page Regional Airport	64G	49	No**	Yes	Yes	Yes	No
Park River	Park River – W C Skjerven Field	Y37	57	Yes	Yes	Yes	No	Yes
Parshall	Parshall – Hankins Airport	Y74	64	Yes	Yes	Yes	Yes	Yes
Pembina	Pembina Municipal Airport	PMB	82	Yes	Yes	No	Yes	Yes
Plaza	Trulson Field Airport	Y99	Turf Runway	No**	No	No	No	No
Richardton	Richardton Municipal Airport	4E8	Turf Runway	No**	No	Yes	No	No
Riverdale	Garrison Dam Recreational Airpark	37N	Turf Runway	No	No	No	No	No
Rolette	Rolette Airport	2H9	83	No**	No	Yes	Yes	No
Rolla	Rolla Municipal Airport	06D	66	Yes	Yes	Yes	Yes	Yes
Rugby	Rugby Municipal Airport	RUG	71	Yes	Yes	Yes	No	Yes

Table 4-9. (Continued) Goal 5: Preserve Airport Infrastructure – Data Table

Airport Information			Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Associated City	Airport Name	FAA ID	Primary Runway PCI	Adequate ALP	Height Zoning Adopted by Local Zoning Board	Local Mill Levy	County-wide Mill Levy	Receives Non-Mill Levy Revenue
General Aviation								
St Thomas	St. Thomas Municipal Airport	4S5	69	No**	No	No	Yes	Yes
Stanley	Stanley Municipal Airport	08D	69	Yes	Yes	Yes	Yes	Yes
Tioga	Tioga Municipal Airport	D60	63	Yes	Yes	Yes	Yes	Yes
Towner	Towner Municipal Airport	D61	Turf Runway	No**	No	No	No	Yes
Turtle Lake	Turtle Lake Municipal Airport	91N	Turf Runway	Yes	No	Yes	No	Yes
Valley City	Barnes County Municipal Airport	BAC	89	Yes	Yes	Not Provided	Yes	Yes
Wahpeton	Harry Stern Airport	BWP	75	Yes	Yes	Yes	No	No
Walhalla	Walhalla Municipal Airport	96D	34	Yes	No	Yes	Yes	Yes
Washburn	Washburn Municipal Airport	5C8	91	Yes	No	Yes	No	Yes
Watford City	Watford City Municipal Airport	S25	100	Yes	Yes	No	Yes	Yes
West Fargo	West Fargo Municipal Airport	D54	57	Yes	Yes	Yes	No	Yes
Westhope	Westhope Municipal Airport	D64	100	Yes	Yes	No	Yes	Yes
Wishek	Wishek Municipal Airport	6L5	73	Yes	No	Yes	Yes	No

*Notes: "Not Provided" indicates the airport did not provide data. For the purposes of this study, an ALP is considered adequate if it was reported as such by the airport, regardless of whether it is more than 10 years old. ** = indicates that an airport does not have an adequate ALP but the development of one is not recommended by NDAC. 2C8, S32, and Y27 are undergoing pavement rehabilitation projects in 2025, which are expected to improve their PCI ratings to 100. Sources: 2025 NDSASP Airport Manager Survey, 2025; ND Pavement Management System Update, 2025; Kimley-Horn, 2025.*

4.3.6. Goal: Support Aviation Education and Industry Advancement

The following provides the inventory information for the PIs associated with the Support Aviation Education and Industry Advancement goal. No PMs are associated with this goal. The inventory information for this goal is presented in the following order:

PIs:

- Percent of airports that offer flight training
- Percent of area and population within 30 nautical miles of an airport that offers flight training
- Percent of airports that host annual fly-ins or other community engagement events
- Percent of airports that participate in Science, Technology, Engineering, and Mathematics (STEM) activities (tours, classroom visits, etc.)
- Percent of area and population that have educational opportunities available in the community

The data tables associated with the PMs and PIs of Goal 6 are presented at the conclusion of the text for this goal.

4.3.6.1. PI: Percent of Airports That Offer Flight Training

Flight training is a pillar of North Dakota's aviation industry, with aviation education playing an important role in the state's culture. The state is not only home to the University of North Dakota's John D. Odegard School of Aerospace Sciences, one of the largest collegiate flight training operations in the country, but also offers training opportunities at airports of various sizes across the state. As a result, students from across the nation and around the world seek out North Dakota for top-tier flight training programs. Offering flight training throughout the state ensures a continuous pipeline of skilled pilots, strengthening the aviation workforce and supporting industry growth. Moreover, airports that offer flight training may benefit from increased activity, attracting more users and businesses, which in turn stimulates local economies through job creation and economic development. These programs also foster a strong community connection to aviation, building long-term support for airports and the industry as a whole.

Airports in North Dakota may offer flight training through a based flight school or a visiting flight instructor who may schedule flight training appointments with clients and operate out of airports across the state.

Airports were asked to report whether their airport has a based flight school or otherwise supports flight training through a transient instructor on the 2025 NDSASP AMS. The responses to this question are presented in Column 1 of **Table 4-10**.

4.3.6.2. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport That Offers Flight Training

Of the 89 airports in North Dakota, not all provide flight training services. Assessing the percentage of area and population within a 30-nautical-mile radius of an airport that offers flight training is crucial for understanding accessibility to this essential service.

The percent of area and population within 30 nautical miles of an airport that offers flight training is presented in **Chapter 6**.

4.3.6.3. PI: Percent of Airports That Host Annual Fly-Ins or Other Community Engagement Events

Airport fly-ins and community events are excellent ways for the community to connect with their local airport and understand its contributions. A fly-in event involves people flying in from surrounding areas to gather at an airport, showcasing the aviation sector in an exciting and approachable manner. These events are commonly organized by airports to foster better community engagement and relationships. Creating opportunities for community involvement through such events not only promotes awareness of aviation but can also increase appreciation or support of the airport.

Airports were asked to report whether they host fly-ins or other community events in the 2025 NDSASP AMS and this information is presented in Column 2 of **Table 4-10**.

4.3.6.4. PI: Percent of Airports That Participate in STEM Activities

Supporting STEM educational opportunities within North Dakota communities is vital to the success and growth of both individuals and communities, as there is a growing workforce shortage within the aviation industry. Access to quality educational opportunities, whether through schools or continuing education programs, helps attract and retain residents, strengthen local economies, and enhance overall quality of life. Airports that contribute to educational initiatives can play a key role in inspiring the next generation and fostering growth within the state's aviation industry. Airports can participate in STEM activities in a variety of ways, such as hosting field trips and airport tours, providing opportunities for job shadowing, visiting classrooms, and more.

Airports were asked whether they participate in STEM activities in the 2025 NDSASP AMS. Airport responses to this question are presented in Column 3 of **Table 4-10**.

4.3.6.5. PI: Percent of Area and Population That Have Educational Opportunities Available in the Community

Understanding the percentage of area and population within North Dakota with access to educational opportunities is important for evaluating coverage and access. This information is presented in **Chapter 6.**

Table 4-10. Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	Airport Name	FAA ID	Flight Training	Hosts Community Events	Participates in STEM Activities
Commercial Service					
Bismarck	Bismarck Municipal Airport	BIS	Based & Transient Flight Training	Yes	Yes
Devils Lake	Devils Lake Regional Airport	DVL	Transient Flight Training	Yes	Yes
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	Based Flight Training	No	No
Fargo	Hector International Airport	FAR	Based & Transient Flight Training	Yes	Yes
Grand Forks	Grand Forks International Airport	GFK	Based & Transient Flight Training	Yes	Yes
Jamestown	Jamestown Regional Airport	JMS	No Flight Training	Yes	Yes
Minot	Minot International Airport	MOT	Based & Transient Flight Training	Yes	Yes
Williston	Williston Basin International Airport	XWA	Based & Transient Flight Training	Yes	Yes

Table 4-10. (Continued) Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	Airport Name	FAA ID	Flight Training	Community Engagement Events	Participates in STEM Activities
General Aviation					
Arthur	Arthur Airport	1A2	No Flight Training	No	No
Ashley	Ashley Municipal Airport	ASY	Transient Flight Training	No	Yes
Beach	Beach Airport	20U	Transient Flight Training	No	Yes
Beulah	Beulah Municipal Airport	95D	Transient Flight Training	Yes	No
Bottineau	Bottineau Municipal Airport	D09	Transient Flight Training	Yes	Yes
Bowbells	Bowbells Municipal Airport	5B4	No Flight Training	No	No
Bowman	Bowman Regional Airport	BWW	No Flight Training	Yes	Yes
Cando	Cando Municipal Airport	9D7	No Flight Training	No	No
Carrington	Carrington Municipal Airport	46D	No Flight Training	No	No
Casselton	Casselton Robert Miller Regional Airport	5N8	Transient Flight Training	Yes	Yes

Table 4-10. (Continued) Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	**Airport Name**	**FAA ID**	**Flight Training**	**Community Engagement Events**	**Participates in STEM Activities**
General Aviation					
Cavalier	Cavalier Municipal Airport	2C8	Transient Flight Training	No	No
Columbus	Columbus Municipal Airport	D49	No Flight Training	No	No
Cooperstown	Cooperstown Municipal Airport	S32	No Flight Training	No	No
Crosby	Crosby Municipal Airport	D50	No Flight Training	Yes	No
Drayton	Drayton Municipal Airport	D29	No Flight Training	No	No
Dunseith	International Peace Garden Airport	S28	No Flight Training	No	No
Edgeley	Edgeley Municipal Airport	51D	No Flight Training	Yes	No
Elgin	Elgin Municipal Airport	Y71	No Flight Training	No	No
Ellendale	Ellendale Municipal Airport	4E7	No Flight Training	Yes	No
Enderlin	Sky Haven Airport	5N4	No Flight Training	Yes	Yes

Table 4-10. (Continued) Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	**Airport Name**	**FAA ID**	**Flight Training**	**Community Engagement Events**	**Participates in STEM Activities**
General Aviation					
Fessenden	Fessenden – Streibel Municipal Airport	D24	No Flight Training	No	No
Fort Yates	Standing Rock Airport	Y27	No Flight Training	No	No
Gackle	Gackle Municipal Airport	9G9	No Flight Training	No	No
Garrison	Garrison Municipal Airport	D05	No Flight Training	Yes	No
Glen Ullin	Glen Ullin Regional Airport	D57	No Flight Training	No	No
Grafton	Hutson Field	GAF	Transient Flight Training	Yes	No
Gwinner	Gwinner – Roger Melroe Field	GWR	Transient Flight Training	Yes	No
Harvey	Harvey Municipal Airport	5H4	Transient Flight Training	Yes	Yes
Hazelton	Hazelton Municipal Airport	6H8	No Flight Training	Yes	No
Hazen	Mercer County Regional Airport	HZE	No Flight Training	Yes	No

Table 4-10. (Continued) Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	Airport Name	FAA ID	Flight Training	Community Engagement Events	Participates in STEM Activities
General Aviation					
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	Transient Flight Training	Yes	Yes
Hillsboro	Hillsboro Municipal Airport	3H4	Transient Flight Training	Yes	No
Kenmare	Kenmare Municipal Airport	7K5	Transient Flight Training	No	No
Killdeer	Dunn County – Weydahl Field	9Y1	No Flight Training	Yes	No
Kindred	Robert Odegaard Field	K74	Transient Flight Training	Yes	Yes
Kulm	Kulm Municipal Airport	D03	Transient Flight Training	Yes	No
LaMoure	LaMoure Rott Municipal Airport	4F9	No Flight Training	No	No
Lakota	Lakota Municipal Airport	5L0	Transient Flight Training	No	No
Langdon	Robertson Field	D55	No Flight Training	No	No
Larimore	Larimore Municipal Airport	2L1	Transient Flight Training	Yes	Yes

Table 4-10. (Continued) Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	Airport Name	FAA ID	Flight Training	Community Engagement Events	Participates in STEM Activities
General Aviation					
Leeds	Leeds Municipal Airport	D31	No Flight Training	No	No
Lidgerwood	Lidgerwood Municipal Airport	4N4	No Flight Training	No	No
Linton	Linton Municipal Airport	7L2	Transient Flight Training	No	No
Lisbon	Lisbon Municipal Airport	6L3	No Flight Training	No	Yes
Maddock	Maddock Municipal Airport	6D3	Transient Flight Training	Yes	No
Mandan	Mandan Regional – Lawler Field	Y19	Based Flight Training	Yes	Yes
Mayville	Mayville Municipal Airport	D56	No Flight Training	Yes	No
McClusky	McClusky Municipal Airport	7G2	No Flight Training	No	No
McVille	McVille Municipal Airport	8M6	No Flight Training	No	No
Milnor	Milnor Municipal Airport	4R6	Transient Flight Training	Yes	No

Table 4-10. (Continued) Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	Airport Name	FAA ID	Flight Training	Community Engagement Events	Participates in STEM Activities
General Aviation					
Minto	Minto Municipal Airport	D06	No Flight Training	No	No
Mohall	Mohall Municipal Airport	HBC	No Flight Training	No	No
Mott	Mott Municipal Airport	3P3	Transient Flight Training	No	No
Napoleon	Napoleon Municipal Airport	5B5	No Flight Training	No	No
New Rockford	Tomlinson Field	8J7	No Flight Training	No	No
New Town	New Town Municipal Airport	05D	No Flight Training	Yes	No
Northwood	Northwood Municipal – Vince Field	4V4	Transient Flight Training	Yes	Yes
Oakes	Oakes Municipal Airport	2D5	No Flight Training	No	No
Page	Page Regional Airport	64G	Transient Flight Training	No	No
Park River	Park River – W C Skjerven Field	Y37	Transient Flight Training	No	Yes

Table 4-10. (Continued) Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	Airport Name	FAA ID	Flight Training	Community Engagement Events	Participates in STEM Activities
General Aviation					
Parshall	Parshall – Hankins Airport	Y74	No Flight Training	No	No
Pembina	Pembina Municipal Airport	PMB	Transient Flight Training	No	No
Plaza	Trulson Field	Y99	No Flight Training	No	No
Richardton	Richardton Municipal Airport	4E8	No Flight Training	No	No
Riverdale	Garrison Dam Recreational Airpark	37N	No Flight Training	No	No
Rolette	Rolette Airport	2H9	No Flight Training	No	No
Rolla	Rolla Municipal Airport	06D	No Flight Training	Yes	No
Rugby	Rugby Municipal Airport	RUG	No Flight Training	No	No
St Thomas	St. Thomas Municipal Airport	4S5	No Flight Training	No	No
Stanley	Stanley Municipal Airport	08D	Transient Flight Training	Yes	No

Table 4-10. (Continued) Goal 6: Support Aviation Education and Industry Advancement – Data Table

Airport Information			Column 1	Column 2	Column 3
Associated City	Airport Name	FAA ID	Flight Training	Community Engagement Events	Participates in STEM Activities
General Aviation					
Tioga	Tioga Municipal Airport	D60	Transient Flight Training	Yes	No
Towner	Towner Municipal Airport	D61	No Flight Training	No	No
Turtle Lake	Turtle Lake Municipal Airport	91N	No Flight Training	No	No
Valley City	Barnes County Municipal Airport	BAC	Transient Flight Training	Yes	Yes
Wahpeton	Harry Stern Airport	BWP	No Flight Training	No	Yes
Walhalla	Walhalla Municipal Airport	96D	No Flight Training	No	No
Washburn	Washburn Municipal Airport	5C8	No Flight Training	Yes	Yes
Watford City	Watford City Municipal Airport	S25	Based Flight Training	Yes	Yes
West Fargo	West Fargo Municipal Airport	D54	Transient Flight Training	Yes	Yes
Westhope	Westhope Municipal Airport	D64	No Flight Training	No	No
Wishek	Wishek Municipal Airport	6L5	Transient Flight Training	Yes	No

Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

4.4. Summary

Building a robust dataset at the outset of a system planning effort is essential for evaluating system performance, guiding well-informed policy decisions, and identifying appropriate project recommendations. The information detailed in this chapter was gathered through a combination of on-site airport visits, virtual meetings, phone calls, emails with airport managers, and a review of publicly available sources. Data for each facility in the system is categorized by specific goals, PMs, and PIs, to clearly identify the inputs for the upcoming system performance evaluation. This dataset provides a snapshot of current conditions within North Dakota's aviation system plan and serves as a baseline for future assessments.

Chapter 5. Projections of Aviation Demand

5.1. Introduction

Insight into aviation activity occurring in North Dakota since the 2014 North Dakota State Aviation System Plan (NDSASP) was provided in **Chapter 1: Introduction**. As noted, North Dakota aviation has evolved significantly over the past 10 or more years, with cycles of growth and challenges tied to energy markets, the COVID-19 pandemic, and broader economic shifts. Despite these disruptions, aviation in the state has demonstrated resilience and sustained growth across commercial service, air cargo, general aviation (GA), and agricultural aviation.

This chapter examines and projects several components of aviation in North Dakota over the next 20 years. Forecasts developed in the 2025 NDSASP provide a framework to guide analysis for future development. It should be recognized that there are always short- and long-term fluctuations in demand projections due to a variety of factors that cannot always be anticipated, but the forecasts provide a general indication of expected aviation demand in the state.

Projections of aviation demand developed for system airports are documented in the following sections:

- National Aviation Trends
- Socioeconomic Trends
- Projections of Aviation Demand
  - Commercial Service Activity
  - GA Activity
  - Military Activity
- Summary

Data for each aviation indicator are derived from Federal Aviation Administration (FAA) sources, the 2025 NDSASP Airport Manager Survey, and other industry reports that assess aviation activity. Projections of aviation activity for the state were prepared for the near-term (2029), mid-term (2034), and long-term (2044) timeframes, with a base year of 2024. These projections are unconstrained and assume system airports will be able to develop the various facilities necessary to accommodate future activity.

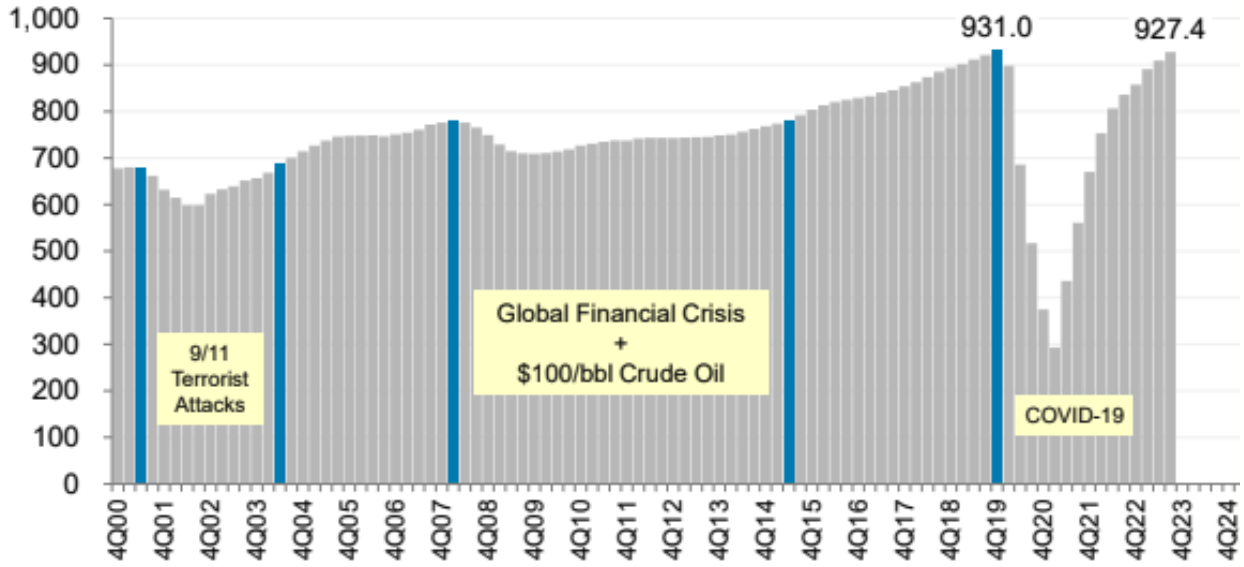
5.2. National Aviation Trends

Trends in national aviation activity are summarized for both commercial service and GA in the following sections. The two types of aviation activity are influenced by some similar factors, but also by others that are specific to each industry.

5.2.1. Commercial Service

The following commercial service trends are highlighted for their potential impact on commercial service indicators like enplanements and commercial service operations in North Dakota. **Figure 5-1** presents the changes in U.S. enplanements since 2000. There have been several disrupters that changed the airline industry over the last several decades including 9/11, the financial crisis of 2007–2009 and subsequent recession coupled with high jet fuel prices, and the COVID-19 pandemic. These events have shaped today's commercial service airline industry in various ways.

Figure 5-1. Four-Quarter Rolling Scheduled Service and Charter Passengers Enplaned (millions) on U.S. Airlines



Sources: Airlines for America, 2024; Bureau of Transportation Statistics (Form 41 Schedule T1); Marr Arnold Planning, 2025.

The entire airline industry underwent significant changes following the terrorist attacks of September 11, 2001. Enhanced security requirements, increased employee training, and widespread layoffs altered commercial airline operating models. The Great Recession of 2007–2009 further strained the industry, prompting network airlines to pursue mergers and prioritize hub operations to reduce costs and increase efficiency. Mergers involving Delta/Northwest, United/Continental, and American/US Airways reduced travel options for some passengers and communities. Airlines increasingly focused on high-demand routes and maximizing connections through major hubs, leaving some smaller communities with limited, less convenient, or more expensive service. In addition, airline load factors (the percentage of available seats occupied by paying passengers) increased, and airlines introduced ancillary fees for services such as checked baggage, seat selection, and onboard amenities to improve profitability.

The COVID-19 pandemic, which began in early 2020, had an even more dramatic impact on the aviation industry. Similar to the airlines' response to the recession of 2007-2009, air service trends shifted significantly during and after the pandemic in conjunction with airline management attempts to focus on recovery and profitability. According to Airlines for America (A4A), U.S. enplanements surpassed 2019 levels in the fourth quarter of 2023. A few key challenges airlines now face include:

- **Workforce Shortages:** Workforce shortages, especially for pilots and air traffic control (ATC), have not allowed airlines to meet demand, resulting in increased flight disruptions and cancellations. The FAA continues to face ATC staffing shortages as airline service has returned to pre-pandemic levels. ATC facilities remain understaffed, and the FAA has been unable to quickly address the shortages. This, along with the pilot shortage, has led airlines to reduce flight frequencies or upgauge aircraft in many markets.
- **Airline Capacity Discipline:** During the pandemic, airlines operated extremely reduced schedules to cut costs; as demand roared back, travelers were left with fewer options and limited air service in many markets. Airlines selectively restored routes, reduced redundant flights, and minimized the number of empty seats. This conservative approach to capacity planning continues today. While some carriers retained older aircraft to increase market share, rising operating and maintenance costs reinforced plans to retire aging fleets, contributing to the industry's continued emphasis on capacity discipline.
- **Fleet Simplification:** The pandemic led to the early retirement of several types of aircraft to reduce costs and simplify their fleets. Streamlined fleets improved pilot productivity, reduced training and maintenance costs, and increased fuel efficiency as newer aircraft entered service. Delta Air Lines and American Airlines announced some of the industry's most accelerated fleet retirement schedules. American Airlines retired its Airbus 330s, Boeing 757s, Boeing 767s, and Embraer E190s during the pandemic. Delta Air Lines retired its MD-88s, MD-90s, 737-300s, and 777-200s and phased out its Boeing 717s and 737-300s as well as all 50-seat CRJ-200 aircraft flown by regional partners by 2023. These retirements reduced operating costs while supporting airline sustainability goals through the adoption of newer, more fuel-efficient aircraft.
- **Shift to Narrowbody Aircraft:** U.S. airlines have shown a preference for narrowbody aircraft, especially for domestic and short-haul routes. Aircraft like the Boeing 737 and Airbus A320 families are popular choices due to their versatility and fuel efficiency. Average seats per domestic U.S. flight have grown from 97 in 2011 to 133 in 2023.[11] According to A4A, passenger airlines operated 402 fewer regional aircraft in 2025 compared to 2019. However, they operated 731 more single-aisle mainline aircraft by 2025.
- **Regional Airlines:** Several regional airlines ceased operations due to the pandemic. Compass Airlines and its sister carrier, Trans States Airlines, ended operations in April 2020. In addition, United Airlines terminated its contract with ExpressJet, whose entire business was operating United Express-branded flights, as part of an effort to consolidate regional operations.

[11] Airline Data Inc., Schedules database

- **Upgauging of Regional Aircraft:** With the departure of several regional airlines, coupled with pilot shortages and increased maintenance costs for aging fleets, many 50-seat regional jets have been parked. Regional carriers are shifting to 70- and 90-seat regional jets to serve smaller communities. For North Dakota's smallest communities, this trend will continue to make air service development efforts challenging, as greater passenger demand is needed to add service by new or existing carriers.
- **Rebound of Low-Cost Carriers**: Low-cost carriers (LCCs) led the recovery as domestic leisure travel rebounded following the lifting of pandemic-related travel restrictions. By 2022, LCC revenue had nearly returned to prepandemic levels while network carriers, which are more dependent on international and business travel, took longer to recover. LCCs have expanded into more secondary markets while simultaneously growing their international presence. However, inflation, fuel costs, new technologies, and labor shortages will continue to impact LCC profit margins.
- **Fuel Efficiency and Sustainability**: Airlines are increasingly focused on sustainability, particularly through investments in fuel-efficient and environmentally friendly aircraft. These efforts include the introduction of next-generation aircraft with advanced engines and materials, as well as the exploration of sustainable aviation fuels.

5.2.2. General Aviation

The FAA provides an annual analysis and projection of both commercial service and GA activity, with the *FAA Aerospace Forecasts Fiscal Years 2024-2044* being used for the 2025 NDSASP.[12] The FAA's 20-year projections of GA activity are typically conservative and consider the economic environment of the United States and the world.

Figure 5-2 highlights historic and projected national trends in GA aircraft orders, active aircraft fleet, and operations from the FAA and other national sources.

Like all aspects of aviation, the future of GA will also be influenced by the evolution of technology and sustainability best practices. The following trends will likely impact GA operations at airports in North Dakota over the next 20 years:

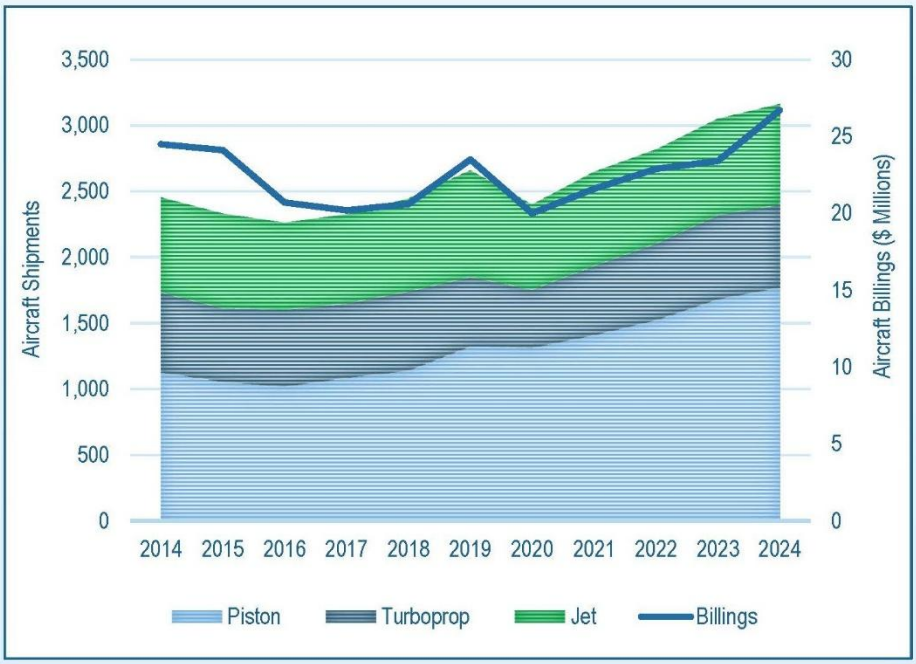
- **Electric and Hybrid Aircraft**: Electric and hybrid propulsion systems are becoming more popular in GA due to their improved efficiency and lower emissions compared to traditional combustion engines. With advances in battery technology, electric aircraft are becoming more viable, and many companies are investing in the development of electric aircraft.
- **Drones and Autonomy**: Drones (or uncrewed aircraft systems, UAS) are replacing and/or complementing the use of GA aircraft. These vehicles are being used more frequently in GA for a variety of applications, including aerial photography, aerial agricultural chemical application, surveying, and search and rescue operations. While fully autonomous large-scale aircraft may be some years away, the use of automation to assist pilots is becoming more common.

[12] The 2025-2045 FAA Aerospace Forecast was released in May 2025, but the 2024-2044 FAA Aerospace Forecast was used to align with the 2024 base year.

- **Advanced Air Mobility (AAM)**: The development of AAM, and specifically urban air mobility (UAM), which is the use of small, electric vertical takeoff and landing (eVTOL) aircraft to transport passengers and cargo in urban areas, is an emerging trend in GA. These aircraft have the potential to revolutionize transportation in urban areas by providing faster and more efficient transportation options, both in commercial and GA applications.
- **New Technologies**: GA is experiencing increased integration of new technologies that make flying safer and more efficient. Newer aircraft are being equipped with advanced avionics, including synthetic vision, automatic dependent surveillance-broadcast (ADS-B), and enhanced ground proximity warning systems (EGPWS). GA aircraft are also becoming increasingly connected through the use of Wi-Fi, Bluetooth, and other technologies.
- **Sustainability**: Many GA aircraft manufacturers and operators are focusing on sustainability by utilizing sustainable aviation fuels (SAF), reducing waste and emissions, and exploring new ways to reduce their carbon footprint. Many airports now offer SAF, and more aircraft are being designed to run on it. Another sustainability initiative specific to GA is the development of unleaded aviation fuels. While several low-leaded aviation fuels are available in smaller quantities, a widely compatible unleaded aviation fuel is still under development and testing.

Figure 5-2. National General Aviation Trends and Projections

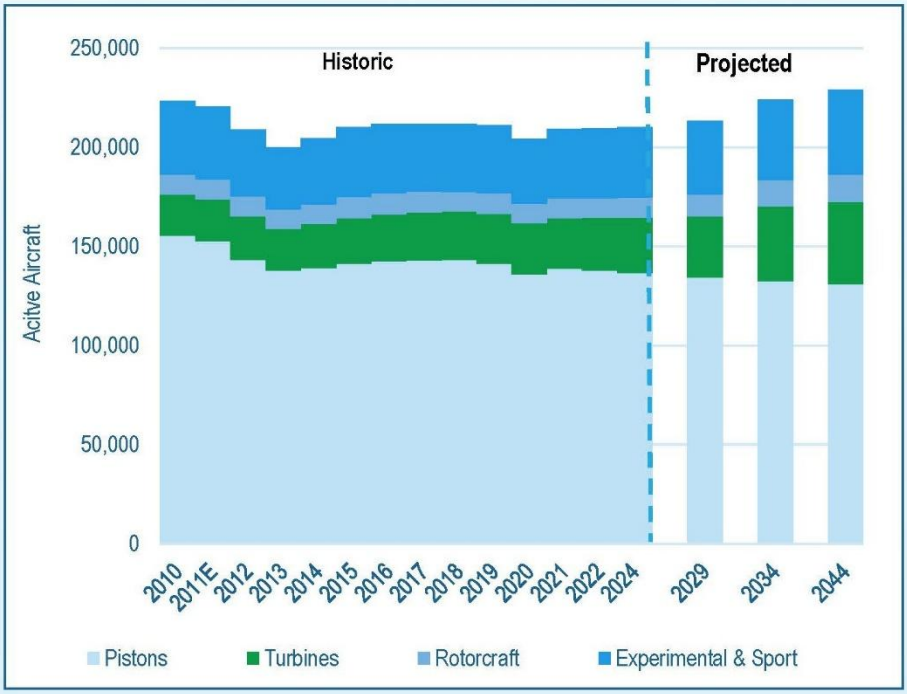
Ten-Year Upward Trend of Worldwide General Aviation Aircraft Shipments



Source: GAMA Quarterly Shipments and Billings, 2025.

- Between 2014 and 2024, aircraft production fluctuated slightly and has demonstrated an upward trend over the last 10 years.
- Over 3,000 aircraft shipments occurred in 2024. Piston deliveries reached a 10-year high in 2024, fueled by increased flight training.
- Although total shipments were down 10% in 2020 due to the COVID-19 pandemic, a full recovery had occurred in all segments by 2022.
- Aircraft billings returned fully to pre-COVID levels in 2023.

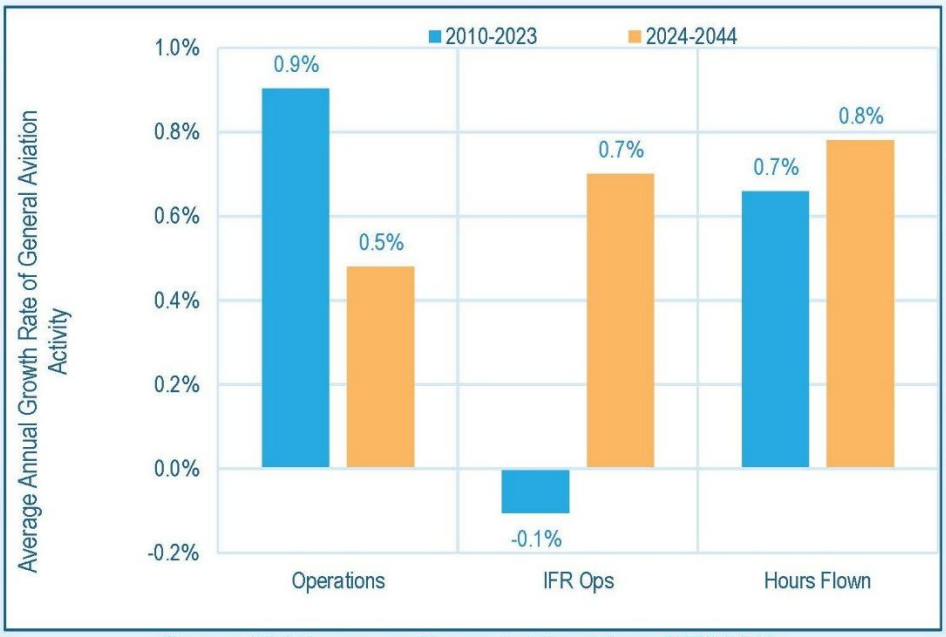
Limited Growth in U.S. Active Fleet over the Next 20 Years



Source: FAA Aerospace Forecasts Fiscal Years 2024-2044.

- Historic 2010-2023: -0.5 % average annual decline in total aircraft driven by declines in piston aircraft.
- Projected growth in jets and turboprops and rotorcraft offsets single-engine and multi-engine piston declines.
- Experimental and light sport aircraft are growing in popularity and becoming an increasingly larger part of the GA fleet.
- 2024-2044 average annual growth rates (AAGRs):
  - Total aircraft: 0.4%
  - Single engine: -0.2%
  - Multi-engine: -0.3%
  - Turboprop: 1.0%
  - Jet: 2.6%
  - Rotorcraft: 1.7%
  - Experimental: 0.7%
  - Sport: 3.0%

Slightly Higher Growth Projected for U.S. General Aviation Activity



Source: FAA Aerospace Forecasts Fiscal Years 2024-2044.

- 2020 and 2021 GA operations, IFR operations, and hours flown declined due to COVID-19 pandemic but returned to pre-pandemic levels by 2022.
- General aviation operations at towered airports are projected to grow 0.6% per year.
- General aviation instrument flight rule (IFR) operations are projected to increase 0.6% per year.
- Hours flown by GA aircraft are projected to increase 0.8% per year.
- 2024-2044 projected annual growth in turbine (2.1%), rotorcraft (2.1%) and experimental aircraft (1.2%) hours flown is expected to offset a decline in fixed wing piston hours flown (-0.6%).

Source: Marr Arnold Planning, 2025.

5.3. Socioeconomic Trends

Several factors may influence future aviation activity that are independent of historical airport activity and aviation industry trends. Reviewing socioeconomic and demographic trends is valuable for understanding how they may also impact future aviation growth. These characteristics are examined to better understand historical and projected growth patterns within the state, which are likely to influence aviation demand. As socioeconomic activity increases, commercial service and GA activity tend to increase as well.

North Dakota and its 53 counties promote healthy and growing economies. The following highlights the current business climate in the state:

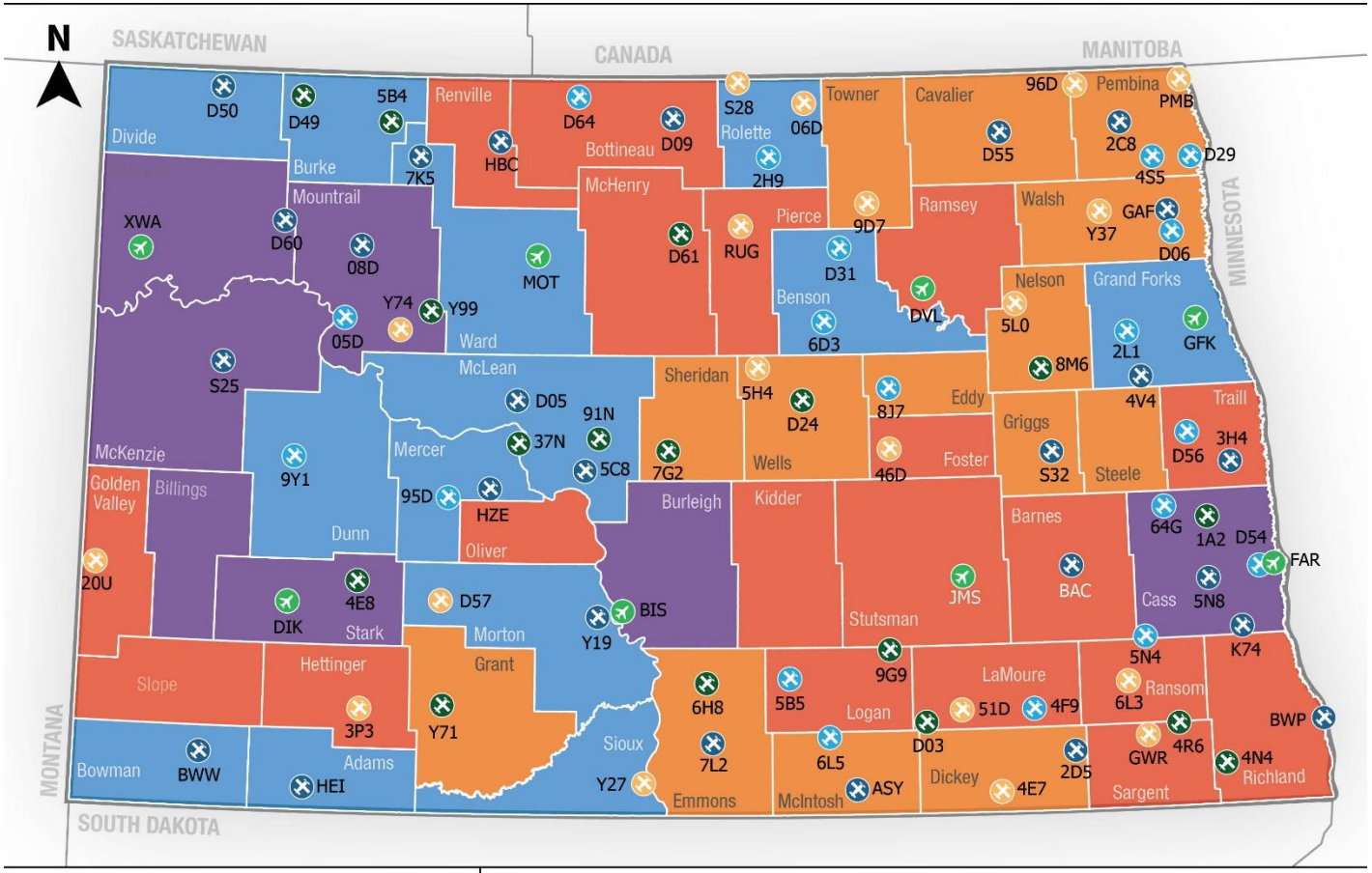
- The top industries in the state include energy and natural resources, food and agriculture, autonomous systems, information technology, tourism, and advanced manufacturing.
- North Dakota's UAS ecosystem is home to nearly 50 UAS companies and leads the nation in supporting the energy industry, public safety, and first responder missions, commercializing intellectual property, and operationalizing federal requirements.[13]
- The state offers financial packages and tax incentives to assist new and expanding businesses.
- The state's Job Service North Dakota program is a one-stop shop for workforce training programs and financial assistance.

North Dakota's statewide population and employment are expected to grow at a compound annual growth rate (CAGR) of 0.57 percent and 1.10 percent, respectively, over the next 20 years.[14] **Figure 5-3** and **Figure 5-4** depict projected population and employment growth by county. More than half of the state's counties are expected to experience population decreases, with CAGRs ranging between -0.06 percent and -1.10 percent for population, likely due to workforce migration within North Dakota. On the other hand, employment declines are projected in far fewer counties, only nine, with CAGRs between -0.02 percent and -0.51 percent.

Projections indicate that over the 20-year planning period, growth will be concentrated in specific geographic regions, primarily in urban centers and the western oil-producing counties. Bismarck and Fargo, two of the largest urban centers, are in Burleigh and Cass Counties and are expected to experience both population and employment growth rates of one percent CAGR or greater over the planning period. The Bakken oil fields located in western North Dakota continue to drive population and employment growth. Four counties (Dunn, McKenzie, Mountrail, and Williams) show similar patterns of growth between population and employment with CAGRs between 1.02 percent and 2.42 percent.

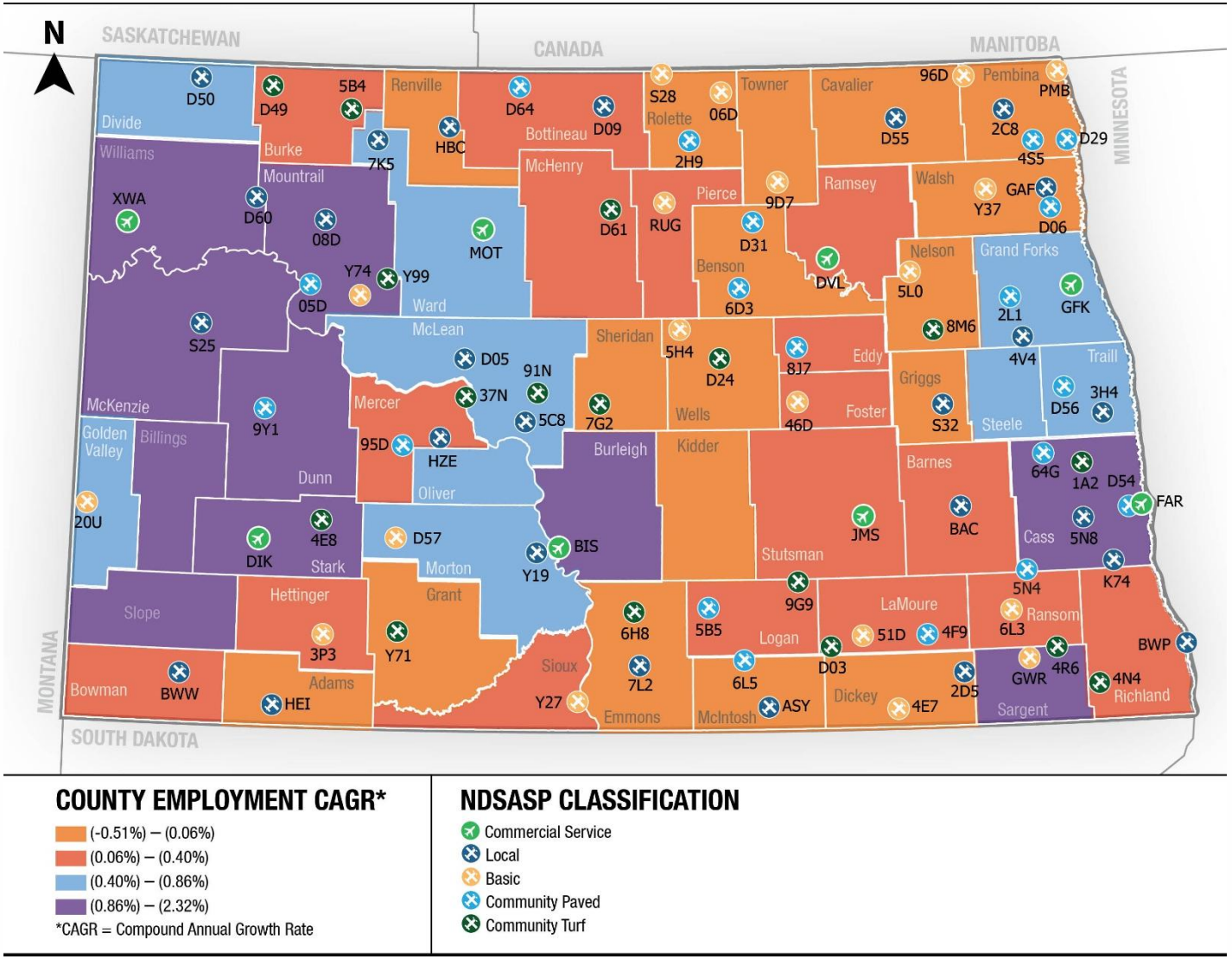
[13] www.nd.gov
[14] Woods and Poole Economics, Inc.

Figure 5-3. Projected Population Growth Rates by County (2024-2044)



Sources: Woods & Poole Economics, Inc., 2025; Kimley-Horn, 2025.

Figure 5-4. Projected Employment Growth Rates by County (2024-2044)



COUNTY EMPLOYMENT CAGR*

- (-0.51%) – (0.06%)
- (0.06%) – (0.40%)
- (0.40%) – (0.86%)
- (0.86%) – (2.32%)

*CAGR = Compound Annual Growth Rate

NDSASP CLASSIFICATION

- Commercial Service
- Local
- Basic
- Community Paved
- Community Turf

Sources: Woods & Poole Economics, Inc., 2025; Kimley-Horn, 2025.

5.4. Projections of Aviation Demand

5.4.1. Commercial Service Airport Enplanement and Commercial Operations Projections

North Dakota has eight commercial service airports that served 1.2 million enplanements in 2024. Most enplanements (68 percent) occurred at two airports: Hector International (FAR) and Bismarck Municipal (BIS). Three airports are part of the U.S. Department of Transportation's (DOT) Essential Air Service (EAS) program: Devils Lake Regional (DVL), Dickinson -Theodore Roosevelt Regional (DIK), and Jamestown Regional (JMS). The FAA Terminal Area Forecasts (TAF) published in January 2025 were adopted for enplanements and commercial service operations for these eight airports. FAA projections are developed using quarterly airline statistics modeling and regression analysis.

Table 5-1 presents the FAA TAF enplanement projections for North Dakota's commercial service airports. At JMS, 2024 enplanements were lower than 2023 (10,245) because their commercial service runway was closed for five weeks during a pavement construction project. Therefore, projections for JMS are based on 2023 enplanements.

Williston Basin International (XWA) is projected to see the highest rate of growth in enplanements, with a CAGR of 5.51 percent. Enplanements are forecast to exceed 283,000 by 2044, representing an increase of 186,000 enplanements over the forecast period. FAR is anticipated to see the largest numerical increase in enplanements at over 260,000 (1.98 percent CAGR), while BIS is anticipated to have over 170,000 additional enplanements (2.40 percent CAGR), and GFK is expected to add more than 66,000 additional enplanements (2.75 percent CAGR) by 2044. It is anticipated that DIK, FAR, and Minot International (MOT) will grow at 1.90 percent, 1.98 percent, and 1.93 percent, respectively. DVL and JMS will grow at CAGRs of 0.68 percent and 0.48 percent over the next 20 years. Statewide, North Dakota's enplanements are projected to increase from 1.2 million in 2024 to more than 2.0 million in 2044, representing a 2.53 percent CAGR.

Table 5-1. Commercial Service Airport Enplanement Projections

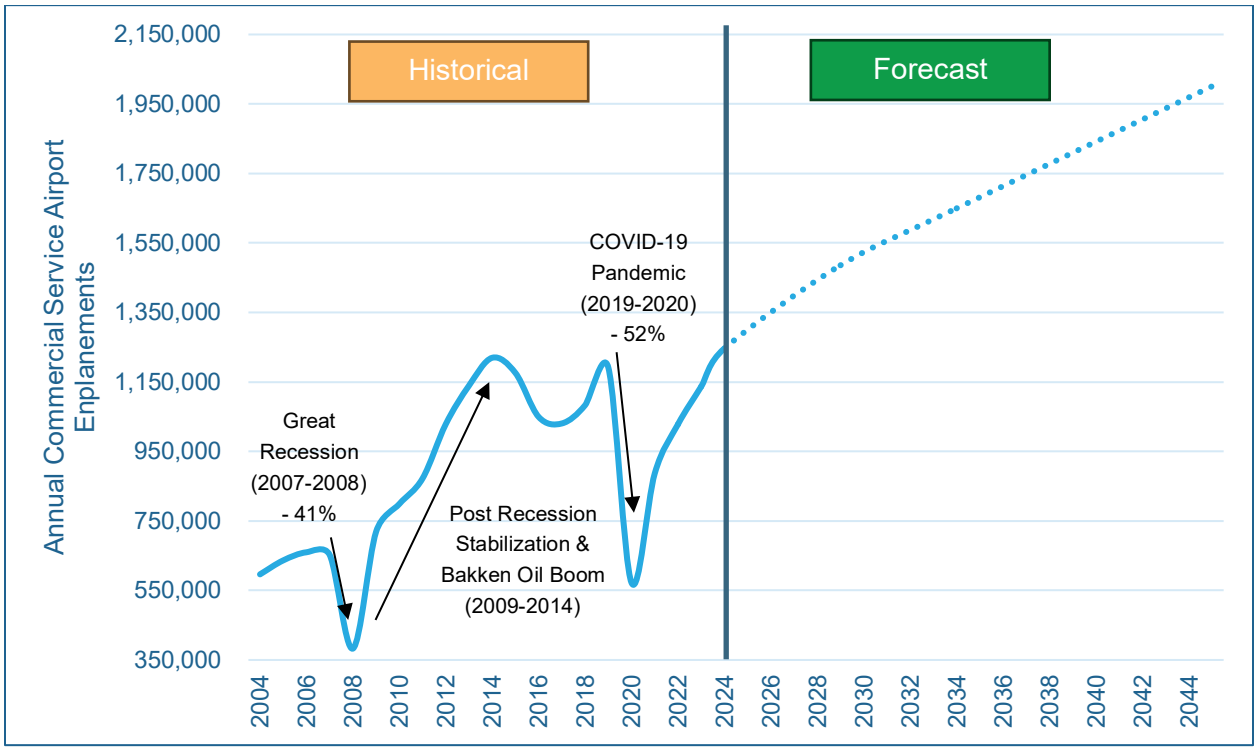
Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Bismarck	Bismarck Municipal Airport	BIS	284,553	354,110	386,450	456,920	2.40%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Devils Lake	Devils Lake Regional Airport	DVL	9,248	9,570	9,910	10,600	0.68%
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	25,783	28,330	31,130	37,570	1.90%
Fargo	Hector International Airport	FAR	540,783	636,870	686,520	800,900	1.98%
Grand Forks	Grand Forks International Airport	GFK	91,776	108,040	124,670	157,920	2.75%
Jamestown	Jamestown Regional Airport	JMS	9,491	10,500	10,750	11,280	0.48%
Minot	Minot International Airport	MOT	165,598	195,030	210,190	242,570	1.93%
Williston	Williston Basin International Airport	XWA	96,935	143,450	190,020	283,150	5.51%
		State Total	**1,224,167**	**1,485,900**	**1,649,640**	**2,000,910**	**2.53%**

Note: JMS base year data is 2023 because the runway was closed in 2024, resulting in lower enplanements. CAGR = Compound Annual Growth Rate. Sources: Marr Arnold Planning, 2025; FAA Terminal Area Forecasts - January 2025, 2025.

Figure 5-5 compares historical commercial service airport enplanements with TAF enplanement projections as shown in **Table 5-1**. Like trends seen at the national level, North Dakota continues to weather periods of uncertainty while experiencing sustained growth. Over the past 20 years, enplanements increased from 596,000 to a record high of 1.2 million, representing a CAGR of 3.76 percent. Enplanements fully recovered from the impacts of COVID in early 2024, mirroring the post-pandemic recovery observed nationwide.

Figure 5-5. Historic and Projected Commercial Service Airport Enplanements (2004–2044)



Sources: NDAC, 2025; FAA Terminal Area Forecasts - January 2025, 2025; Marr Arnold Planning, 2025.

Commercial operations include takeoffs and landings by scheduled air carriers (airlines) and air taxi activity occurring at the eight commercial service airports. Like enplanements, FAA's TAF projections were used for commercial operations. **Table 5-2** shows the forecasts for commercial operations for North Dakota's eight commercial service airports. Statewide total commercial operations (air carrier and air taxi) at these eight airports are projected to increase at a modest 0.60 percent CAGR over the 20 years, from 180,594 in 2024 to 203,520 in 2044. Commercial service operations at BIS, FAR, and MOT are expected to grow more than 1.0 percent per year on average over the next 20 years. It is important to note that enplanements can grow at a faster rate than operations, given changing trends in the aircraft fleets used by airlines. Currently, the Bombardier CRJ 200 is the smallest commercial passenger aircraft operating in North Dakota, while the Airbus A320 and Boeing 737-900 are the largest.

Table 5-2. Commercial Service Airport Commercial Operations (Air Carrier & Air Taxi) Projections

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Bismarck	Bismarck Municipal Airport	BIS	12,583	12,640	13,770	16,270	1.29%
Devils Lake	Devils Lake Regional Airport	DVL	3,680	3,680	3,680	3,680	0.00%
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	2,452	2,510	2,570	2,700	0.47%
Fargo	Hector International Airport	FAR	35,127	39,550	41,520	45,810	1.34%
Grand Forks*	Grand Forks International Airport	GFK	113,409	112,170	114,800	120,070	0.29%
Jamestown	Jamestown Regional Airport	JMS	2,856	2,860	2,860	2,860	0.00%
Minot	Minot International Airport	MOT	6,599	7,000	7,400	8,240	1.12%
Williston	Williston Basin International Airport	XWA	3,888	3,890	3,890	3,890	0.00%
		State Total	**180,594**	**184,300**	**190,490**	**203,520**	**0.60%**

*Note: *Commercial service operations at Grand Forks include a large percent of training-related operations associated with the University of North Dakota's flight school; CAGR = Compound Annual Growth Rate.*
Sources: Marr Arnold Planning, 2025; FAA Terminal Area Forecasts - January 2025, 2025.

5.4.2. Based Aircraft Projections

Historical GA activity data for airports provides a baseline from which future activity can be projected. While historical trends are not always reflective of future periods, historical data does provide insight into how aviation-related trends may be tied to future growth.

According to the FAA, a based aircraft is an aircraft that is operational and airworthy and typically based at an airport for most of the year. In 2024,1,858 aircraft were reported based at North Dakota's 89 system airports. The based aircraft counts were obtained from the FAA's National Based Aircraft Inventory (NBAI) database for airports included in the NPIAS and from the 2025 NDSASP Airport Manager Survey for non-NPIAS airports. Additionally, an estimated 295 additional aircraft are located at the 220 private-use airstrips when comparing the total number of registered aircraft (2,148) in the state[15] to the number of based aircraft at system airports. The aircraft based at the private-use airstrips are not considered in the based aircraft forecast for the 2025 NDSASP.

Several methodologies were developed to project based aircraft at North Dakota's airports, incorporating historical trends, socioeconomic growth, and national aviation projections. The three methodologies used to develop the projections are summarized below, and the resulting statewide based aircraft forecasts are shown in **Table 5-3**.

- **Historical Based Aircraft Growth and FAA Active General Aviation Fleet**. This methodology analyzes the growth in based aircraft at each system airport between 2013 and 2024, as well as the number of based jets in 2024. Each airport is then assigned a percentage of the FAA Aerospace Forecasts, Fiscal Years 2024–2044 projections of turbo jet aircraft, based on overall historical growth in based aircraft and the presence of a based jet. A growth rate was then applied if an airport had historical growth in based aircraft and/or a jet aircraft based at the airport in 2024. Thirty-four (34) airports have at least one based jet and 34 airports have a positive historical growth rate in their based aircraft. Based on this methodology, statewide based aircraft would increase from 1,858 to 2,100 at a CAGR of 0.64 percent.
- **County Population Growth.**[16] This methodology assumes that the growth in based aircraft at each system airport will be equal to the rate of projected population growth (2024–2044) for the county in which the airport is located. Using this methodology, statewide based aircraft are projected to grow at a CAGR of 0.51 percent.
- **Market Share – FAA's TAF Growth Rate.** The TAF projects North Dakota's total based aircraft at NPIAS airports to grow at a CAGR of 0.66 percent between 2024 and 2044. This top-down methodology assumes that all system airports will maintain their share of the total North Dakota fleet through the forecast period. Additionally, growth rates were applied only to NPIAS airports because the FAA does not forecast growth for non-NPIAS airports.

[15] North Dakota Aeronautics Commission.
[16] Based on population data from Woods & Poole Economics, Inc.

Table 5-3. Comparison of Based Aircraft Projection Methodologies

Methodology	Base Year	Forecast			Growth
	2024	2029	2034	2044	2024–44 CAGR
Historical/FAA Active GA Fleet Growth	1,858	1,920	1,980	2,110	0.64%
County Population Growth	1,858	1,900	1,950	2,060	0.51%
Market Share/TAF Growth Rate	1,858	1,920	1,980	2,120	0.66%

Note: CAGR = Compound Annual Growth Rate. Source: Marr Arnold Planning, 2025.

Preferred Forecast Methodology for Based Aircraft

Through discussions with NDAC and their intimate knowledge of the airports in the state, it was determined that no singular methodology appeared reasonable for all airports. As a result, a blended approach was developed that applied the market share methodology to NPIAS airports and the historical growth/FAA active GA fleet growth methodology to non-NPIAS airports. Additional analysis was then conducted to determine if the results seemed reasonable for each airport. The review considered airport location, socioeconomic/demographic growth rates by county, historical data, hangar waitlists, and current grants for hangars and other projects likely to result in additional based aircraft. Based on the additional review and consideration, projections at 10 airports were adjusted to produce a more realistic forecast. The airports that were adjusted and the reasoning include the following:

- **Dunn County Weydahl Field (9Y1)** – A recently completed large hangar will accommodate three aircraft currently on the hangar waitlist. Combined with ongoing regional growth driven by oil field activity, a new terminal, and expanded hangar capacity, these developments support a projected increase of five additional based aircraft over the next 20 years resulting in 17 based aircraft and a 1.76 percent CAGR.
- **Harvey Municipal (5H4)** – The airport has secured funding for a new hangar scheduled for construction in 2025, which will accommodate four additional aircraft. Following completion, based aircraft are expected to increase from 10 in 2024 to 14 in 2044, reflecting a 1.7 percent CAGR over the planning period.
- **Kulm Municipal (D03)** – The airport is well utilized with two fully occupied hangars. A recent grant will enable land acquisition and hangar expansion, including the addition of a private hangar to house multiple aircraft. Based aircraft are projected to increase from nine in 2024 to 12 by 2044, representing a 1.45 percent CAGR.
- **Leeds Municipal (D31)** – Recent years have seen airport leadership pursue a rededication of hangar space for aeronautical use. With this shift and the current available hangar capacity, the airport is anticipated to gain at least one additional based aircraft over the next 20 years.

- **Mandan Regional/Lawler Field (Y19)** – With a hangar waitlist exceeding 20 aircraft, the airport is advancing plans to develop a new hangar area. Wetland mitigation is underway to support forthcoming engineering and construction. Given historical growth, geographic location, and national GA trends, based aircraft are forecast to grow from 101 in 2024 to 124 by 2044, at a 1.01 percent CAGR.
- **Sky Haven (5N4)** – In the years since the last NDSASP, the airport has acquired and redeveloped a private hangar for public use, which provides additional capacity for based aircraft. As a result, based aircraft are expected to increase from nine to 10, reflecting a 0.53 percent CAGR over the 20-year forecast period.
- **Turtle Lake Municipal (91N)** – The airport's existing hangar can accommodate two aircraft. After losing one based aircraft in 2024, the vacant space is expected to be filled shortly, with based aircraft increasing from one to two before the end of the planning horizon.
- **Watford City Municipal (S25)** – As the largest GA airport in the heart of the Bakken oil fields, the airport continues to support business aviation demand. Socioeconomic growth in the region is expected to drive continued increases in based aircraft, which are forecast to rise from 34 in 2024 to 55 by 2044, equating to a 2.42 percent CAGR.
- **West Fargo Municipal (D54)** – Due to limited capacity for GA at Hector International (FAR), where activity is focused primarily on business jets, this airport is expected to absorb spillover demand. The airport has designated a significant area of its property for future hangar development, which is expected to fill steadily as the Fargo-Moorhead area's population continues to grow. Supported by location advantages and broader aviation trends, based aircraft are projected to increase from 41 in 2024 to 50 by 2044, equating to a 1.0 percent CAGR.
- **Williston Basin International (XWA)** – After opening in 2019 as a response to regional oil-related growth, the airport continues to benefit from expanding population and employment. Two large community hangars included in the airport's Capital Improvement Plan (CIP) will support additional based aircraft. Overall, based aircraft are expected to grow from 32 in 2024 to 43, representing a 1.44 percent CAGR.

The combination of the blended approach (market share for NPIAS and historical growth for non-NPIAS) with the adjustments noted above was applied to establish the preferred projection for North Dakota's based aircraft. This hybrid methodology results in an additional 321 aircraft based in North Dakota over the next 20 years, increasing from 1,858 aircraft to 2,179 at a 0.80 percent CAGR. The preferred based aircraft projections for individual airports are presented in **Table 5-4**.

Table 5-4. North Dakota Based Aircraft Projections

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Commercial Service							
Bismarck	Bismarck Municipal Airport	BIS	105	109	113	122	0.75%
Devils Lake	Devils Lake Regional Airport	DVL	39	40	42	45	0.72%
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	35	36	38	41	0.79%
Fargo	Hector International Airport	FAR	217	225	233	251	0.73%
Grand Forks	Grand Forks International Airport	GFK	143	148	154	166	0.75%
Jamestown	Jamestown Regional Airport	JMS	36	37	39	42	0.77%
Minot	Minot International Airport	MOT	133	138	143	154	0.74%
Williston	Williston Basin International Airport*	XWA	32	37	39	43	1.49%
General Aviation							
Arthur	Arthur Airport	1A2	2	2	2	2	0.00%
Ashley	Ashley Municipal Airport	ASY	15	16	16	17	0.63%
Beach	Beach Airport	20U	11	11	12	13	0.84%
Beulah	Beulah Municipal Airport	95D	21	21	21	21	0.00%
Bottineau	Bottineau Municipal Airport	D09	21	22	23	24	0.67%
Bowbells	Bowbells Municipal Airport	5B4	2	2	2	2	0.00%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Bowman	Bowman Regional Airport	BWW	23	24	25	27	0.80%
Cando	Cando Municipal Airport	9D7	11	11	12	13	0.84%
Carrington	Carrington Municipal Airport	46D	12	13	13	14	0.77%
Casselton	Casselton Robert Miller Regional Airport	5N8	52	54	56	60	0.72%
Cavalier	Cavalier Municipal Airport	2C8	17	18	18	20	0.82%
Columbus	Columbus Municipal Airport	D49	2	2	2	2	0.00%
Cooperstown	Cooperstown Municipal Airport	S32	17	18	18	20	0.82%
Crosby	Crosby Municipal Airport	D50	18	19	19	21	0.77%
Drayton	Drayton Municipal Airport	D29	5	5	5	5	0.00%
Dunseith	International Peace Garden Airport	S28	0	0	0	0	0.00%
Edgeley	Edgeley Municipal Airport	51D	11	11	12	13	0.84%
Elgin	Elgin Municipal Airport	Y71	2	2	2	2	0.00%
Ellendale	Ellendale Municipal Airport	4E7	11	11	12	13	0.84%
Enderlin	Sky Haven Airport*	5N4	9	9	10	10	0.53%
Fessenden	Fessenden – Streibel Municipal Airport	D24	0	0	0	0	0.00%
Fort Yates	Standing Rock Airport	Y27	0	0	0	0	0.00%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Gackle	Gackle Municipal Airport	9G9	0	0	0	0	0.00%
Garrison	Garrison Municipal Airport	D05	15	16	16	17	0.63%
Glen Ullin	Glen Ullin Regional Airport	D57	11	11	12	13	0.84%
Grafton	Hutson Field	GAF	19	20	21	22	0.74%
Gwinner	Gwinner – Roger Melroe Field	GWR	11	11	12	13	0.84%
Harvey	Harvey Municipal Airport*	5H4	10	10	11	12	0.92%
Hazelton	Hazelton Municipal Airport	6H8	1	1	1	1	0.00%
Hazen	Mercer County Regional Airport	HZE	18	19	19	21	0.77%
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	33	34	36	38	0.71%
Hillsboro	Hillsboro Municipal Airport	3H4	36	37	39	42	0.77%
Kenmare	Kenmare Municipal Airport	7K5	30	31	32	35	0.77%
Killdeer	Dunn County – Weydahl Field*	9Y1	12	15	15	17	1.76%
Kindred	Robert Odegaard Field	K74	28	29	30	33	0.82%
Kulm	Kulm Municipal Airport*	D03	9	10	11	12	1.45%
LaMoure	LaMoure Rott Municipal Airport	4F9	3	3	3	3	0.00%
Lakota	Lakota Municipal Airport	5L0	13	14	14	15	0.72%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Langdon	Robertson Field	D55	16	17	17	19	0.86%
Larimore	Larimore Municipal Airport	2L1	22	22	23	23	0.22%
Leeds	Leeds Municipal Airport*	D31	2	2	3	3	2.05%
Lidgerwood	Lidgerwood Municipal Airport	4N4	0	0	0	0	0.00%
Linton	Linton Municipal Airport	7L2	18	19	19	21	0.77%
Lisbon	Lisbon Municipal Airport	6L3	12	13	13	14	0.77%
Maddock	Maddock Municipal Airport	6D3	11	12	12	14	1.21%
Mandan	Mandan Regional – Lawler Field*	Y19	101	105	115	124	1.03%
Mayville	Mayville Municipal Airport	D56	8	8	8	8	0.00%
McClusky	McClusky Municipal Airport	7G2	0	0	0	0	0.00%
McVille	McVille Municipal Airport	8M6	3	3	3	3	0.00%
Milnor	Milnor Municipal Airport	4R6	4	4	4	4	0.00%
Minto	Minto Municipal Airport	D06	2	2	2	2	0.00%
Mohall	Mohall Municipal Airport	HBC	26	27	28	30	0.72%
Mott	Mott Municipal Airport	3P3	13	14	14	15	0.72%
Napoleon	Napoleon Municipal Airport	5B5	4	4	4	4	0.00%
New Rockford	Tomlinson Field	8J7	4	4	4	4	0.00%

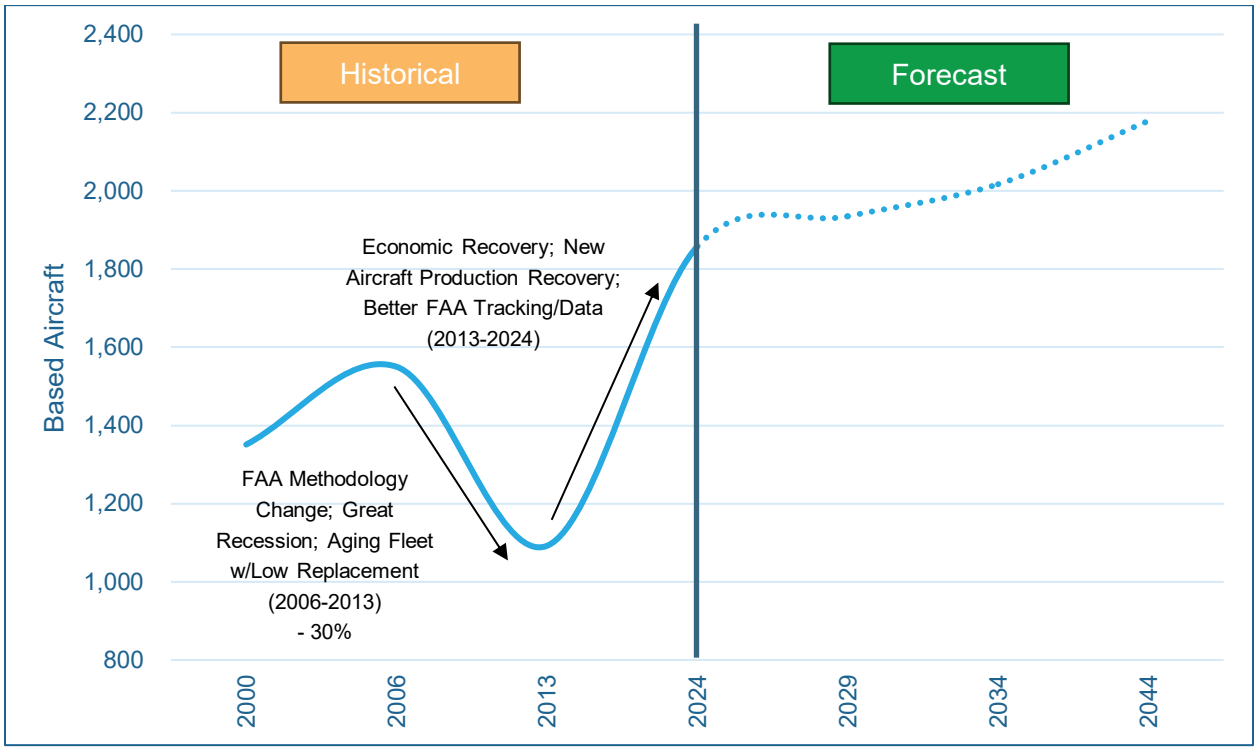
Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
New Town	New Town Municipal Airport	05D	12	12	12	13	0.40%
Northwood	Northwood Municipal – Vince Field	4V4	19	20	21	22	0.74%
Oakes	Oakes Municipal Airport	2D5	15	16	16	17	0.63%
Page	Page Regional Airport	64G	11	11	12	12	0.44%
Park River	Park River – W C Skjerven Field	Y37	9	9	10	11	1.01%
Parshall	Parshall – Hankins Airport	Y74	10	10	11	12	0.92%
Pembina	Pembina Municipal Airport	PMB	14	15	15	16	0.67%
Plaza	Trulson Field	Y99	0	0	0	0	0.00%
Richardton	Richardton Municipal Airport	4E8	0	0	0	0	0.00%
Riverdale	Garrison Dam Recreational Airpark	37N	0	0	0	0	0.00%
Rolette	Rolette Airport	2H9	2	2	2	2	0.00%
Rolla	Rolla Municipal Airport	06D	10	10	11	12	0.92%
Rugby	Rugby Municipal Airport	RUG	10	10	11	12	0.92%
St. Thomas	St. Thomas Municipal Airport	4S5	3	3	3	3	0.00%
Stanley	Stanley Municipal Airport	08D	27	28	29	31	0.69%
Tioga	Tioga Municipal Airport	D60	42	44	45	49	0.77%
Towner	Towner Municipal Airport	D61	4	4	4	4	0.00%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Turtle Lake	Turtle Lake Municipal Airport*	91N	1	2	2	2	3.53%
Valley City	Barnes County Municipal Airport	BAC	26	27	28	30	0.72%
Wahpeton	Harry Stern Airport	BWP	32	33	34	37	0.73%
Walhalla	Walhalla Municipal Airport	96D	11	11	12	13	0.84%
Washburn	Washburn Municipal Airport	5C8	18	19	19	21	0.77%
Watford City	Watford City Municipal Airport*	S25	34	38	43	55	2.43%
West Fargo	West Fargo Municipal Airport*	D54	41	43	45	50	1.00%
Westhope	Westhope Municipal Airport	D64	6	6	6	6	0.00%
Wishek	Wishek Municipal Airport	6L5	4	4	4	4	0.00%
		State Total	1,858	1,935	2,017	2,179	0.80%

*Note: *Airports with an adjusted forecast as discussed in Section 5.4.3. CAGR = Compound Annual Growth Rate. Source: Marr Arnold Planning, 2025.*

Figure 5-6 compares historical based aircraft to the based aircraft projections as shown above. The data source for historical based aircraft is the 2007 and 2014 NDSASPs. Since 2000, the number of based aircraft has steadily increased at a 1.40 percent CAGR, mirroring national trends influenced by changing economic conditions and improvements in aircraft data collection and tracking methods. Looking forward, North Dakota's projected growth in based aircraft is similar to what is anticipated nationally.

Figure 5-6. Historical and Projected Based Aircraft (2000–2044)



Sources: 2007 NDSASP, 2025; 2014 NDSASP, 2025; Marr Arnold Planning, 2025.

5.4.3. General Aviation Operations Projections

As noted previously, an operation is defined as either an aircraft landing or taking off. Current (2024) GA operations used in the 2025 NDSASP are estimates provided by NDAC based on FAA Master Record 5010 data. It is important to note that operational data are either estimated or derived from actual counts reported by an airport's air traffic control tower (ATCT). NDAC's operations data set was compared to FAA's Traffic Flow Management System Counts (TFMSC) data to gain a more comprehensive understanding of the operations activity in North Dakota. Annual GA operations at airports in North Dakota for 2024 are estimated to be 705,860. This total includes estimated operations as well as actual 2024 ATCT counts from the four airports with an ATCT (BIS, FAR, GFK, and MOT).

This analysis considers all GA operations at all airports, including commercial service airports. GA operations include local and itinerant, including air taxi. Different factors impact the number of GA aircraft operations occurring at an airport, whether it is a commercial service or GA airport. These factors include but are not limited to:

- Total based aircraft
- Area demographics
- National trends
- Airport location

Several methodologies were considered in the development of projections of annual GA operations for each system airport. Methodologies considered and their statewide results are summarized in **Table 5-5** and discussed below:

- **FAA Projected General Aviation Operations Growth and IFR Jets Operations**. This methodology analyzes FAA instrument flight rules (IFR) data recorded at each airport and assigns a rating of high, medium, low, limited, or none based on the number of jet operations captured by the FAA's TFMSC in 2024. Each airport is then assigned a percentage of the FAA Aerospace Forecasts, Fiscal Years 2024-2044 projections of GA operations based on the number of IFR jet operations they currently accommodate. Using this methodology, statewide GA operations are projected to increase at a CAGR of 0.72 percent.
- **County Employment Growth**.[17] This methodology assumes that the growth of GA operations at each system airport in North Dakota will be equal to the rate of projected employment growth for the county in which the airport is located. Airports that are in counties with declining growth are projected to show no growth. This methodology produces a statewide CAGR of 0.68 percent over the next 20 years.
- **FAA Hours Flown**. This methodology applies FAA's projected rate of growth for GA aircraft hours flown[18] to the 2024 total GA operations for the state. Each airport's share of the 2024 operations is maintained throughout the forecast period. The CAGR for total GA operations using this methodology is 0.78 percent.

Table 5-5. Comparison of General Aviation Operations Projection Methodologies

Methodology	2024	2029	2034	2044	2024–44 CAGR
FAA GA Ops/IFR Jet Ops	705,860	730,330	756,560	813,980	0.72%
County Employment Growth	705,860	729,370	754,240	808,350	0.68%
FAA Hours Flown	705,860	727,400	762,870	824,500	0.78%

Note: CAGR = Compound Annual Growth Rate. Source: Marr Arnold Planning, 2025

[17] Based on employment data from Woods & Poole Economics, Inc.
[18] *FAA Aerospace Forecasts 2024-2044.*

Preferred Forecast Methodology for General Aviation Operations

The results of GA operational demand can be viewed as a range for future statewide landings and takeoffs by this large sector of activity in the state. In the lowest of the three methodologies, total annual GA operations could increase from their 2024 estimated level of 705,860 to 808,350 at the end of the 20-year planning period. If mid-growth is achieved, annual operations for system airports could reach 813,980. The high-growth methodology presents a projection of GA demand that will reach 824,500 operations at the end of the forecast period in 2044. All results are generally consistent with CAGRs ranging from 0.68 percent to 0.78 percent.

Employment growth acts as both a driver and predictor of GA activity. As discussed in **Chapter 1** and noted previously, GA operations have remained resilient over the last decade during periods of economic uncertainty. This resilience has correlated with employment growth in North Dakota, underlining the close relationship between job creation and aviation demand. The low-growth employment scenario presents a conservative, yet realistic projection of GA operational demand and was selected as the preferred methodology for all airports. Preferred GA operations projections for individual airports are presented in **Table 5-6.**

.

Table 5-6. North Dakota General Aviation Operations Projections

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Commercial Service							
Bismarck	Bismarck Municipal Airport	BIS	17,130	18,200	19,340	21,830	1.22%
Devils Lake	Devils Lake Regional Airport	DVL	19,700	19,840	19,970	20,250	0.14%
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	2,030	2,180	2,340	2,710	1.47%
Fargo	Hector International Airport	FAR	51,680	55,500	59,610	68,760	1.44%
Grand Forks	Grand Forks International Airport	GFK	172,140	177,720	183,480	195,580	0.64%
Jamestown	Jamestown Regional Airport	JMS	9,000	9,150	9,290	9,590	0.32%
Minot	Minot International Airport	MOT	27,290	28,380	29,520	31,930	0.79%
Williston	Williston Basin International Airport	XWA	2,560	2,790	3,030	3,580	1.68%
General Aviation							
Arthur	Arthur Airport	1A2	1,000	1,070	1,150	1,330	1.44%
Ashley	Ashley Municipal Airport	ASY	4,700	4,700	4,700	4,700	0.00%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Beach	Beach Airport	20U	3,600	3,700	3,800	4,010	0.54%
Beulah	Beulah Municipal Airport	95D	2,960	3,000	3,050	3,130	0.28%
Bottineau	Bottineau Municipal Airport	D09	5,060	5,160	5,260	5,460	0.38%
Bowbells	Bowbells Municipal Airport	5B4	260	260	270	270	0.21%
Bowman	Bowman Regional Airport	BWW	5,800	5,890	5,990	6,190	0.32%
Cando	Cando Municipal Airport	9D7	5,110	5,120	5,120	5,140	0.03%
Carrington	Carrington Municipal Airport	46D	5,600	5,680	5,760	5,930	0.28%
Casselton	Casselton Robert Miller Regional Airport	5N8	15,200	16,330	17,530	20,220	1.44%
Cavalier	Cavalier Municipal Airport	2C8	6,200	6,200	6,200	6,200	0.00%
Columbus	Columbus Municipal Airport	D49	120	120	120	130	0.21%
Cooperstown	Cooperstown Municipal Airport	S32	3,300	3,300	3,300	3,310	0.01%
Crosby	Crosby Municipal Airport	D50	3,800	3,960	4,140	4,500	0.85%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Drayton	Drayton Municipal Airport	D29	3,010	3,010	3,010	3,010	0.00%
Dunseith	International Peace Garden Airport	S28	800	800	800	810	0.05%
Edgeley	Edgeley Municipal Airport	51D	4,600	4,660	4,720	4,840	0.25%
Elgin	Elgin Municipal Airport	Y71	190	190	190	190	0.00%
Ellendale	Ellendale Municipal Airport	4E7	4,600	4,610	4,630	4,660	0.06%
Enderlin	Sky Haven Airport	5N4	4,660	4,720	4,770	4,890	0.24%
Fessenden	Fessenden – Streibel Municipal Airport	D24	560	560	560	560	0.00%
Fort Yates	Standing Rock Airport	Y27	250	250	250	260	0.11%
Gackle	Gackle Municipal Airport	9G9	50	50	50	50	0.40%
Garrison	Garrison Municipal Airport	D05	4,050	4,220	4,400	4,770	0.82%
Glen Ullin	Glen Ullin Regional Airport	D57	950	990	1,030	1,130	0.86%
Grafton	Hutson Field	GAF	26,300	26,300	26,300	26,300	0.00%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Gwinner	Gwinner – Roger Melroe Field	GWR	5,600	6,020	6,470	7,460	1.45%
Harvey	Harvey Municipal Airport	5H4	1,700	1,700	1,700	1,700	0.00%
Hazelton	Hazelton Municipal Airport	6H8	1,010	1,010	1,010	1,010	0.00%
Hazen	Mercer County Regional Airport	HZE	1,500	1,520	1,540	1,590	0.28%
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	4,900	4,900	4,900	4,900	0.00%
Hillsboro	Hillsboro Municipal Airport	3H4	25,250	25,970	26,710	28,250	0.56%
Kenmare	Kenmare Municipal Airport	7K5	3,900	4,060	4,220	4,560	0.79%
Killdeer	Dunn County – Weydahl Field	9Y1	3,100	3,350	3,630	4,250	1.59%
Kindred	Robert Odegaard Field	K74	5,950	6,390	6,860	7,920	1.44%
Kulm	Kulm Municipal Airport	D03	2,500	2,530	2,560	2,630	0.25%
LaMoure	LaMoure Rott Municipal Airport	4F9	3,500	3,540	3,590	3,680	0.26%
Lakota	Lakota Municipal Airport	5L0	2,530	2,530	2,530	2,530	0.00%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Langdon	Robertson Field	D55	11,200	11,200	11,200	11,200	0.00%
Larimore	Larimore Municipal Airport	2L1	13,010	13,430	13,870	14,780	0.64%
Leeds	Leeds Municipal Airport	D31	2,610	2,610	2,610	2,610	0.00%
Lidgerwood	Lidgerwood Municipal Airport	4N4	310	310	320	330	0.32%
Linton	Linton Municipal Airport	7L2	6,250	6,250	6,250	6,250	0.00%
Lisbon	Lisbon Municipal Airport	6L3	6,100	6,170	6,250	6,390	0.24%
Maddock	Maddock Municipal Airport	6D3	6,510	6,510	6,510	6,510	0.00%
Mandan	Mandan Regional – Lawler Field	Y19	26,100	27,240	28,420	30,960	0.86%
Mayville	Mayville Municipal Airport	D56	9,600	9,870	10,160	10,740	0.56%
McClusky	McClusky Municipal Airport	7G2	100	100	100	100	0.00%
McVille	McVille Municipal Airport	8M6	810	810	810	810	0.00%
Milnor	Milnor Municipal Airport	4R6	950	1,020	1,100	1,270	1.45%
Minto	Minto Municipal Airport	D06	2,000	2,000	2,000	2,000	0.00%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Mohall	Mohall Municipal Airport	HBC	8,620	8,640	8,660	8,690	0.04%
Mott	Mott Municipal Airport	3P3	1,850	1,870	1,880	1,920	0.18%
Napoleon	Napoleon Municipal Airport	5B5	3,750	3,830	3,900	4,060	0.40%
New Rockford	Tomlinson Field	8J7	1,330	1,340	1,350	1,370	0.16%
New Town	New Town Municipal Airport	05D	1,350	1,510	1,690	2,120	2.28%
Northwood	Northwood Municipal – Vince Field	4V4	11,100	11,460	11,830	12,610	0.64%
Oakes	Oakes Municipal Airport	2D5	8,300	8,330	8,350	8,400	0.06%
Page	Page Regional Airport	64G	4,050	4,350	4,670	5,390	1.44%
Park River	Park River – W C Skjerven Field	Y37	8,700	8,700	8,700	8,700	0.00%
Parshall	Parshall – Hankins Airport	Y74	2,160	2,420	2,710	3,390	2.28%
Pembina	Pembina Municipal Airport	PMB	3,200	3,200	3,200	3,200	0.00%
Plaza	Trulson Field	Y99	100	110	130	160	2.28%
Richardton	Richardton Municipal Airport	4E8	60	60	70	80	1.47%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Riverdale	Garrison Dam Recreational Airpark	37N	200	210	220	240	0.82%
Rolette	Rolette Airport	2H9	1,230	1,230	1,240	1,240	0.05%
Rolla	Rolla Municipal Airport	06D	4,010	4,020	4,030	4,050	0.05%
Rugby	Rugby Municipal Airport	RUG	4,200	4,270	4,340	4,490	0.33%
St. Thomas	St. Thomas Municipal Airport	4S5	2,100	2,100	2,100	2,100	0.00%
Stanley	Stanley Municipal Airport	08D	5,900	6,610	7,390	9,270	2.28%
Tioga	Tioga Municipal Airport	D60	6,300	6,850	7,440	8,790	1.68%
Towner	Towner Municipal Airport	D61	920	930	950	980	0.30%
Turtle Lake	Turtle Lake Municipal Airport	91N	700	730	760	820	0.82%
Valley City	Barnes County Municipal Airport	BAC	11,750	11,820	11,900	12,050	0.13%
Wahpeton	Harry Stern Airport	BWP	17,800	18,080	18,370	18,960	0.32%
Walhalla	Walhalla Municipal Airport	96D	3,520	3,520	3,520	3,520	0.00%
Washburn	Washburn Municipal Airport	5C8	5,300	5,520	5,750	6,250	0.82%

Airport Information			Base Year	Forecast			Growth
Associated City	Airport Name	FAA ID	2024	2029	2034	2044	2024–2044 CAGR
Watford City	Watford City Municipal Airport	S25	7,250	8,130	9,120	11,470	2.32%
West Fargo	West Fargo Municipal Airport	D54	13,200	14,180	15,230	17,560	1.44%
Westhope	Westhope Municipal Airport	D64	2,060	2,100	2,140	2,220	0.38%
Wishek	Wishek Municipal Airport	6L5	3,600	3,600	3,600	3,600	0.00%
		State Total	**705,860**	**729,370**	**754,240**	**808,350**	**0.68%**

Note: CAGR = Compound Annual Growth Rate. Source: Marr Arnold Planning, 2025.

5.4.4. Military Operations

Military aircraft operations statewide are estimated to be 14,200 in 2024 as reported by NDAC. FAR, which is home to the North Dakota Air National Guard, accommodates the most military operations in the state, with nearly 3,000 operations in 2024. Together with BIS and MOT, these three airports accommodate 43.8 percent of statewide military operations. Military activity is assumed to be constant, since changes in this type of activity are not directly related to airports and aviation trends but to other national and state issues that cannot be predicted. Therefore, military operations projections were not developed and are not included in this forecasting effort.

5.5. Projection Results Summary

Table 5-7 summarizes activity demand projections developed for North Dakota's system airports at the statewide level. **Table 5-8** compares the forecasts developed for the 2025 NDSASP with the outlook prepared by the FAA in their TAF, most recently published in January 2025. Note that the TAF only includes those airports designated by the FAA for inclusion in the NPIAS. While all commercial service airports are included in the NPIAS, the 2025 NDSASP forecasts for based aircraft and GA operations have been adjusted to show only the results for NPIAS airports for an accurate comparison between the two forecast sources. As shown in **Table 5-8**, the 2025 NDSASP forecasts for based aircraft and GA operations at NPIAS airports are well within the FAA's acceptable planning-level forecast tolerances (within 10 percent at year 5 and 15 percent at year 10). The FAA TAF forecasts were used for both enplanements and commercial operations at the eight commercial service airports.

Table 5-7. North Dakota's Preferred Statewide Activity Projections

Activity Demand Component	2024	2029	2034	2044	2024–44 CAGR
Commercial Service Airport Enplanements	1,214,676	1,485,900	1,649,640	2,000,910	2.53%
Commercial Service Airport Commercial Operations	180,594	184,290	190,490	203,520	0.60%
Based Aircraft	1,858	1,935	2,017	2,179	0.80%
GA Operations	705,860	729,370	754,240	808,350	0.68%

Note: CAGR = Compound Annual Growth Rate. Source: Marr Arnold Planning, 2025.

Table 5-8. North Dakota SASP Forecast Comparison to the FAA's Terminal Area Forecasts (TAF) - *NPIAS Airports Only*

Activity Demand Element	Year	NDSASP Preferred Forecast	TAF	% Difference
Commercial Service Passenger Enplanements				
Base Year	2024	1,214,676	1,214,676	0.0%
Base Year + 5 Year	2029	1,485,900	1,485,900	0.0%
Base Year + 10 Year	2034	1,649,640	1,649,632	0.0%
Base Year + 20 Year	2044	2,000,910	2,000,920	0.0%
CAGR 2024–2044		2.53%	2.53%	
Commercial Service Commercial Operations				
Base Year	2024	180,594	180,594	0.0%
Base Year + 5 Year	2029	184,290	184,292	0.0%
Base Year + 10 Year	2034	190,490	190,482	0.0%
Base Year + 20 Year	2044	203,520	203,513	0.0%
CAGR 2024–2044		0.60%	0.60%	
Based Aircraft*				
Base Year	2024	1,646	1,627	1.17%
Base Year + 5 Year	2029	1,706	1,684	1.32%
Base Year + 10 Year	2034	1,771	1,768	0.19%
Base Year + 20 Year	2044	1,939	1,883	2.97%
CAGR 2024–2044		0.88%	0.73%	
General Aviation Operations*				
Base Year	2024	612,376	604,011	1.38%
Base Year + 5 Year	2029	632,990	630,464	0.40%

Activity Demand Element	Year	NDSASP Preferred Forecast	TAF	% Difference
Base Year + 10 Year	2034	654,770	644,106	1.66%
Base Year + 20 Year	2044	702,120	673,613	4.23%
CAGR 2024–2044		0.69%	0.55%	

Note: For comparison purposes, the 2025 NDSASP projections of based aircraft and operations included in this table are only for the airports included in the FAA's NPIAS and do not match the statewide totals presented in prior tables. Further, military operations are not included in the preferred forecasts or the TAF forecasts. CAGR = Compound Annual Growth Rate.
Sources: Marr Arnold Planning, 2025; FAA Terminal Area Forecasts - January 2025, 2025.

5.6. Summary

The 2025 NDSASP plan adopted a conservative, top-down approach to forecasting future aviation demand across North Dakota's system airports, consistent with broader national and socioeconomic trends. It is important to recognize that these projections are not as detailed as those developed during individual airport master planning efforts. While the overall outlook is conservative, the plan recognizes areas of growth, particularly in the western portion of the state where activity related to the Bakken oil fields has continued to drive increased aviation demand. The projections presented in this chapter will help assess the current and future capabilities of the airport system and inform future facility planning across all system airports.

Chapter 6. System Performance

6.1. Introduction

A foundational element of the statewide aviation planning process is evaluating how well aviation facilities meet the performance measures (PMs) and performance indicators (PIs) of the study. As detailed in **Chapter 2: Study Framework**, PMs reflect aspects of the aviation system that can be influenced through planning or investment, and PIs serve as contextual metrics that offer insight into broader trends and system activity, without being directly actionable. The PMs and PIs for the 2025 North Dakota State Aviation System Plan (NDSASP) were thoughtfully developed through a comprehensive review of the 2014 NDSASP, close collaboration with the North Dakota Aeronautics Commission (NDAC), and valuable input from the Technical Advisory Committee (TAC).

To align the results of the system performance analysis with the strategic direction of the 2025 NDSASP, PMs and PIs were developed for each of the six 2025 NDSASP goals. This framework enables the results of the system performance analysis to be tied directly to a specific goal and used to inform future policy and project recommendations. The data presented in **Chapter 4: Inventory** was used to evaluate the PMs and PIs.

6.2. Existing System Performance Analysis

This chapter presents the results of the system performance analysis by goal category, with PMs included where available and PIs provided for all goals as presented in **Chapter 2**. The same order of presentation is utilized for easy reference. Where available, comparisons between the results of the PMs that were used in both 2025 and 2014 studies are included to show the change in performance. There are 16 PMs and PIs in the 2025 study that were carried over from the 2014 NDSASP; however, slight modifications to the analysis for 10 of these PMs and PIs occurred in the study update and a direct comparison between the 2014 and 2025 study is not possible. An example is the current analysis uses a 90-minute drive time threshold for commercial service accessibility, whereas the 2014 study applied a 60-minute threshold. The remaining six PMs and PIs carried over from the 2014 study remain unchanged and a comparison of results is possible and presented alongside the 2025 performance throughout this chapter, as appropriate.

The analysis is presented by goal category as follows:

- 6.2.1. Goal: Maintain a Safe Aviation System
- 6.2.2. Goal: Promote Aviation System Coverage
- 6.2.3. Goal: Provide Air Access to Airports
- 6.2.4. Goal: Enhance Quality of Life
- 6.2.5. Goal: Preserve Airport Infrastructure
- 6.2.6. Goal: Support Aviation Education and Industry Advancement

6.2.1. Goal: Maintain a Safe Aviation System

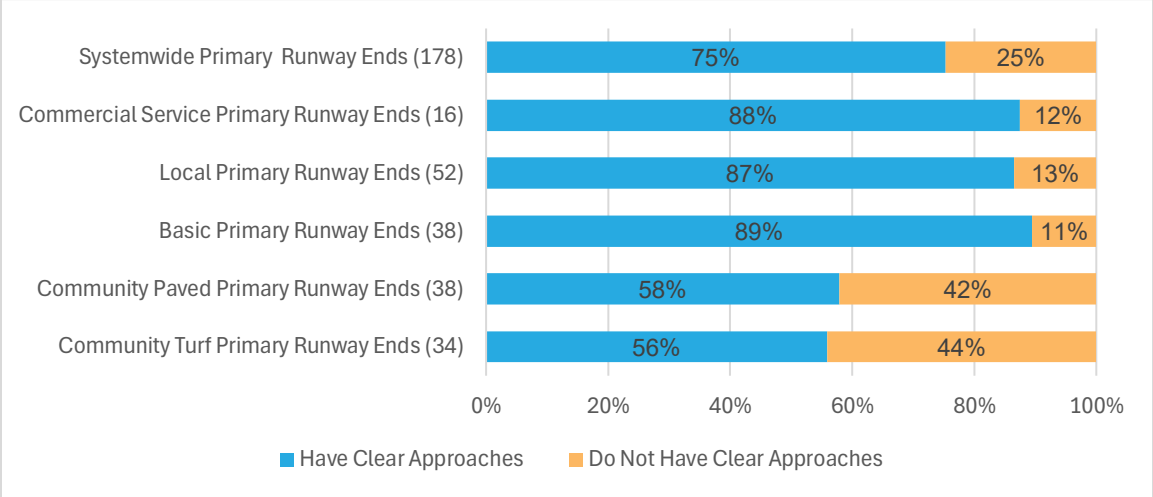
Maintaining a safe aviation system is a core priority for North Dakota's statewide aviation network. This goal centers on evaluating safety by assessing approach surfaces to all runway ends and identifying obstructions within Runway Protection Zones (RPZs). The initial focus of this metric is on primary runway ends at all airports, which typically serve as the most operationally significant and frequently used runways in the system. Across the 89 system airports, each with two primary runway ends, a total of 178 primary runway ends were evaluated. To provide a complete picture of system-wide safety performance, the analysis also incorporated a separate evaluation of the 70 nonprimary runway ends (35 runways), which include secondary, tertiary, and quaternary runways and associated ends. The following subsections present findings based on three PMs and one PI aligned with the **Maintain a Safe Aviation System** goal. This is the only goal for which runway ends are analyzed as opposed to total airport performance.

6.2.1.1. PM: Percent of Airports with Clear Approaches to All Runway Ends

A key element of maintaining a safe aviation system is ensuring that aircraft have unobstructed approach paths to all runway ends. The Federal Aviation Administration (FAA) outlines standards for these approach surfaces under Part 77 of the Code of Federal Regulations (CFR), which states that approach surfaces must remain free of obstacles to protect arriving and departing aircraft.

As shown in **Figure 6-1**, 75 percent of the primary runway ends across the system meet the performance metric for maintaining obstruction-free approach paths. Commercial Service, Local, and Basic airports demonstrate the highest levels of obstruction-free approach compliance for their primary runway ends, with 88 percent, 87 percent, and 89 percent respectively. Community Turf and Community Paved airports show lower compliance rates at 58 percent and 56 percent for their primary runway ends, respectively.

Figure 6-1. PM: Percent of Primary Runway Ends with Clear Approaches

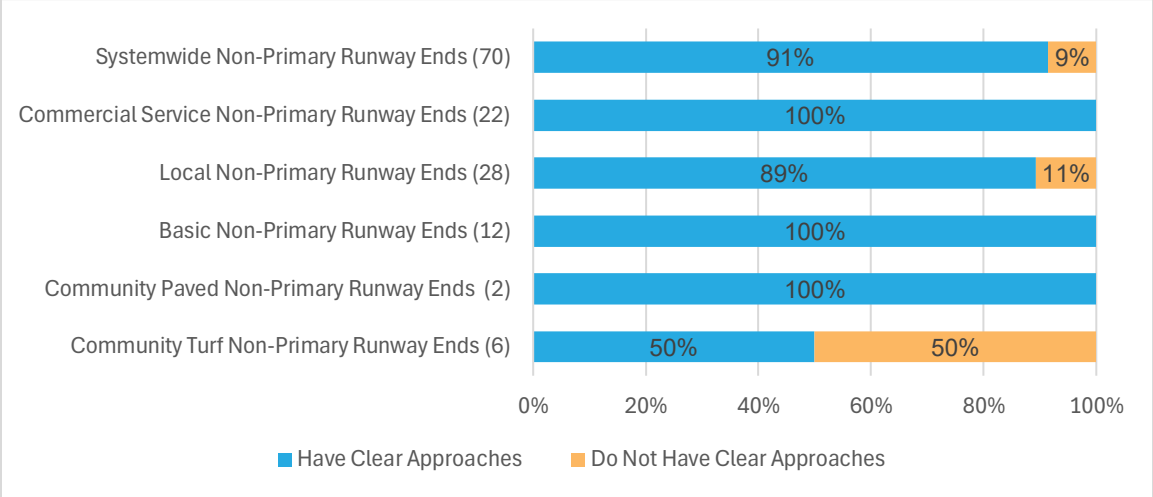


Sources: Federal Aviation Administration – Airport Data and Information Portal (FAA ADIP), 2025; Google Earth, 2025; NDAC General Aviation (GA) Inspection Reports, 2025; Airport Layout Plans (ALPs), 2025; Kimley-Horn, 2025.

While the previous study also included an assessment of clear approaches, it focused solely on a 20:1 slope to identify potential obstructions. The 2025 NDSASP analysis incorporates a broader range of slope ratios, including 20:1, 34:1, and 50:1, based on the FAA Part 77 category identified in the airport's master record. These slope ratios reflect the varying requirements of different runway approaches, with 20:1 generally applied to visual approaches and utility runways, 34:1 to non-precision instrument approaches, and 50:1 to precision instrument approaches requiring the highest level of obstacle clearance. Because the 2025 NDSASP methodology accounts for these distinctions, the results are not directly comparable to those of the previous study. However, a high-level comparison of performance between the two studies can be made. According to the 2014 NDSASP, 52 airports (58 percent) had clear 20:1 approaches at both primary runway ends. Even with the more demanding analysis in the 2025 NDSASP, there is a marked improvement, with 55 airports (62 percent) having clear runway approaches on both runway ends. Although a direct comparison is not possible, this increase demonstrates ongoing progress in addressing obstructions and improving compliance with FAA standards.

As shown in **Figure 6-2**, an analysis of the system's nonprimary runway ends reveals that approximately 91 percent of these runway ends have clear approach conditions. All nonprimary runway ends at Commercial Service, Basic, and Community Paved airports have clear approaches. Nonprimary runway ends at Local airports are not far behind, with 89 percent compliance. Community Turf airports demonstrate more moderate performance, with 50 percent of their nonprimary runway ends meeting the clear approach criteria. The 2014 NDSASP did not evaluate clear approaches for nonprimary runways so a comparison in performance is not available.

Figure 6-2. PM: Percent of Nonprimary Runway Ends with Clear Approaches



Sources: Federal Aviation Administration – Airport Data and Information Portal (FAA ADIP), 2025; Google Earth, 2025; NDAC General Aviation (GA) Inspection Reports, 2025; Airport Layout Plans (ALPs), 2025; Kimley-Horn, 2025.

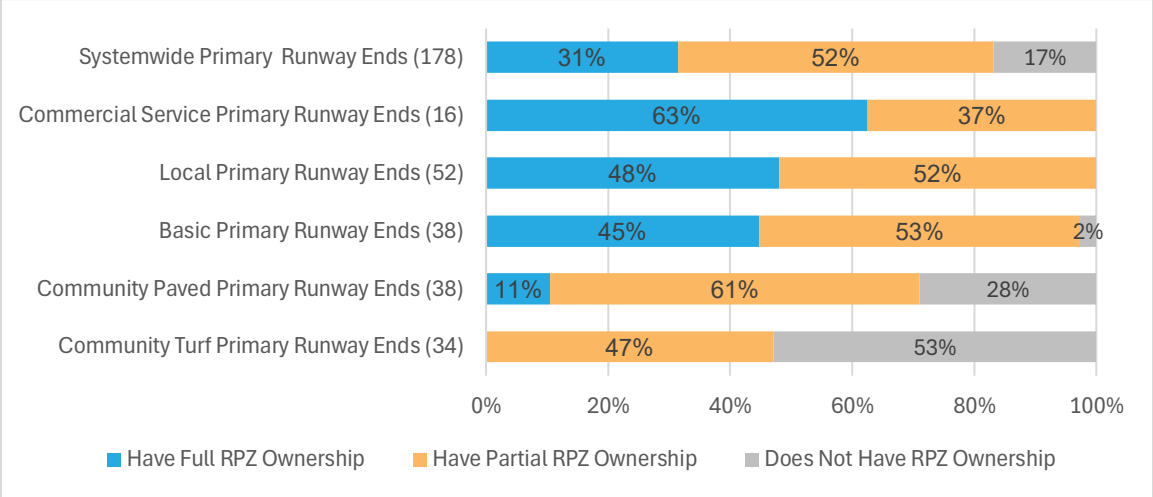
6.2.1.2. PM: Percent of Airports That Control RPZs Through Fee Simple Ownership or Easement for All Runway Ends

Controlling RPZs through fee simple ownership or easements is essential for ensuring airport safety and effective land use management, particularly for primary runways. Like the previous PM, this analysis is presented by primary and nonprimary runway ends rather than by the number of airports meeting this PM.

Figure 6-3 presents RPZ ownership data categorized into three levels: full ownership, partial ownership, and no control associated with each runway end. Across the system, 83 percent of RPZs on all primary runway ends are either full or partially controlled. One hundred percent of RPZs on primary runway ends at Commercial Service and Local airports are controlled either fully or partially. In contrast, Community Paved and Community Turf airports show the lowest levels of RPZ control.

It's important to note that non-NPIAS airports within the Community Paved and Community Turf classifications are not required to meet FAA RPZ standards, which contributes to the variation in control levels.

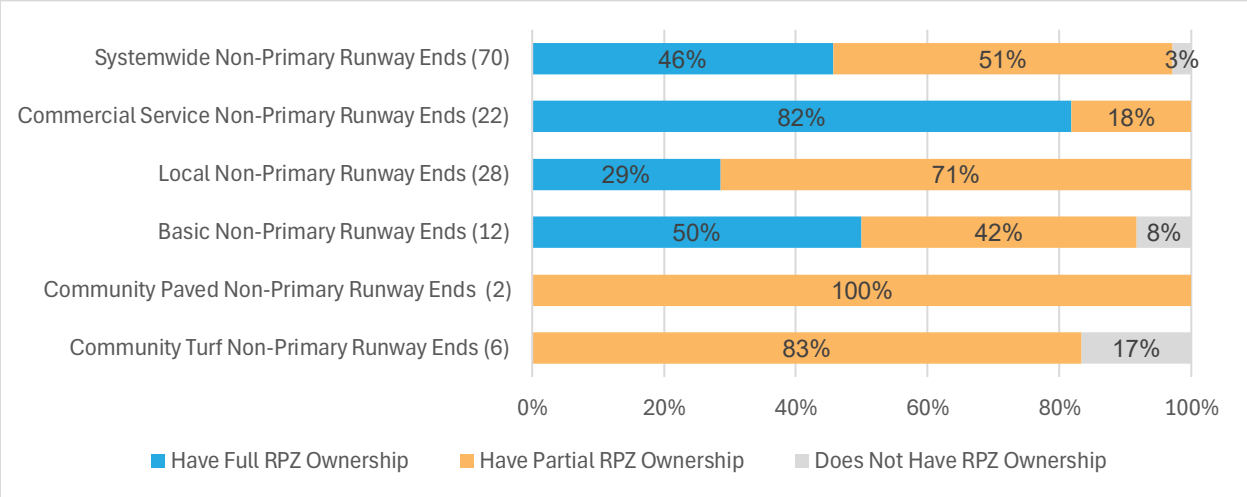
Figure 6-3. PM: Percent of Primary Runway Ends with RPZ Control



Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

Figure 6-4 illustrates the ownership status of nonprimary runway RPZs across the system. Overall, 46 percent of the nonprimary runway ends have full control of their associated RPZs, 51 percent have partial ownership, and three percent have no control. Broken down by classification, most nonprimary runway ends maintain either full or partial control of their RPZ land. Commercial Service airports demonstrate the highest level of ownership, with 82 percent of RPZs on nonprimary runway ends having full control and 18 percent having partial control.

Figure 6-4. Percent of Nonprimary Runway Ends with RPZ Control



Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

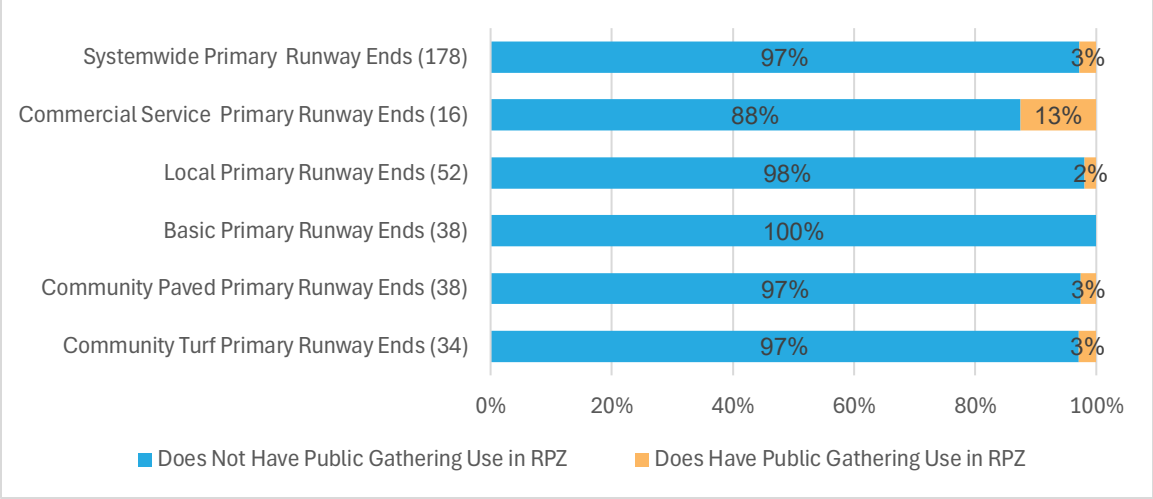
The previous study evaluated whether an airport controlled its RPZs through fee simple ownership or easements but did not evaluate the percentage of control achieved through either strategy. In contrast, the current study takes a more nuanced approach by focusing specifically on the percentage of control on primary and nonprimary runway ends achieved through fee simple ownership or easement. This breakdown provides a more realistic view of RPZ control across system airports. As a result, the methodology and assumptions used in the previous study were not directly comparable to those in the current analysis.

6.2.1.3. PM: Percent of Airports with Public Gathering in the RPZs

The presence of public gathering uses within RPZs was evaluated in this PM. Like the two prior PMs, each runway end was analyzed for primary and nonprimary runways. According to FAA Advisory Circular (AC) 15/5300-13B, RPZs are intended to enhance the safety of people and property on the ground by restricting incompatible land uses, particularly those that attract congregations of people. For this analysis, NDAC's GA inspection reports were reviewed to identify public gathering structures and land uses within RPZs at GA airports, while Airport Layout Plans (ALPs) and Google Earth imagery were analyzed to identify public use gathering in RPZs at Commercial Service airports.

As shown in **Figure 6-5**, 97 percent of primary runway ends across the system do not have public gathering uses within any RPZs. All airport classifications demonstrate high performance in this metric ranging from 88 percent to 100 percent of primary runway ends being clear of public gathering uses. Commercial Service airports show the lowest compliance at 88 percent. This is primarily because these airports typically have the largest RPZs, as they are designed to accommodate larger aircraft and support the most demanding approach types, which increases the size of the RPZs.

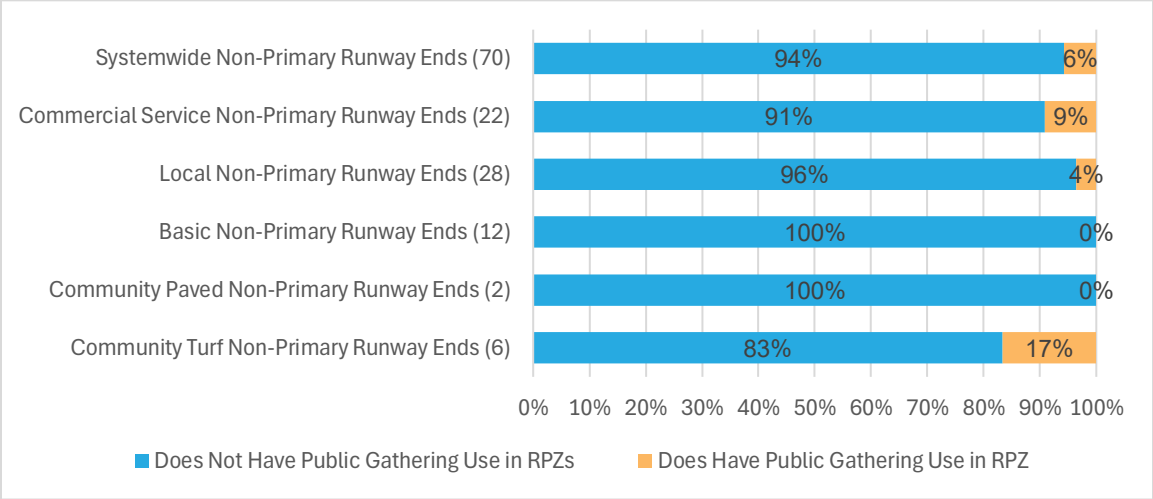
Figure 6-5. PM: Percent of Primary Runway Ends with Public Gathering in the RPZs



Sources: FAA ADIP, 2025; Google Earth, 2025; NDAC GA Inspection Reports, 2025, Commercial Service ALPs, 2025; Kimley-Horn, 2025.

Figure 6-6 shows the results of the RPZ analysis for all nonprimary runway ends, indicating that 94 percent of nonprimary runway ends across the system meet this metric. Basic and Community Paved airports' nonprimary runways fully meet the standard at 100 percent. Commercial Service airports also perform well, while Community Turf airports' nonprimary runway ends have a reduced compliance at 83 percent.

Figure 6-6. PM: Percent of Nonprimary Runway Ends with Public Gathering in the RPZs



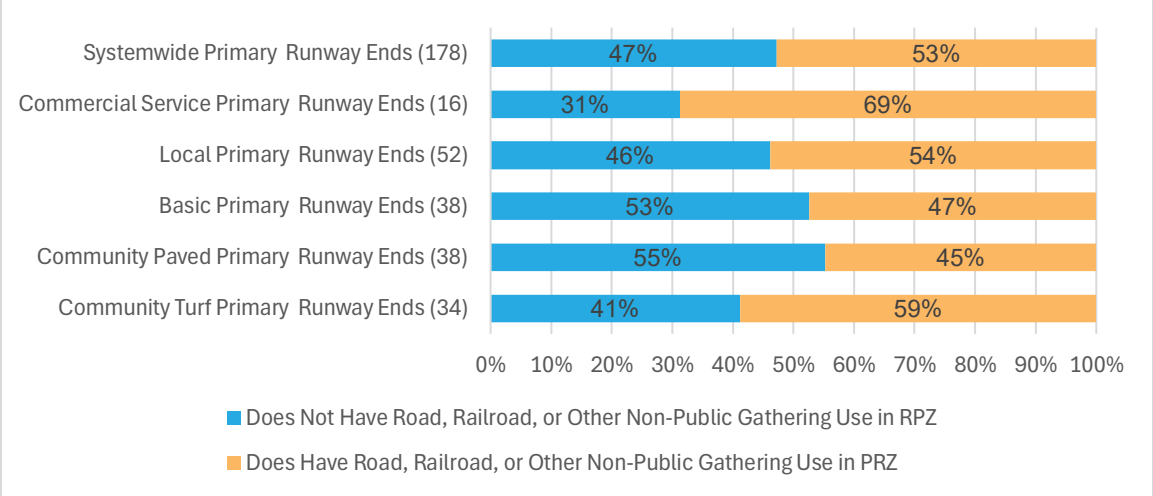
Sources: FAA ADIP, 2025; Google Earth, 2025; NDAC GA Inspection Reports, 2025, Commercial Service ALPs, 2025; Kimley-Horn, 2025.

6.2.1.4. PI: Percent of Airports with Roads, Railroads, or Structures Not Utilized for Public Gatherings in the RPZs for All Runway Ends

The presence of roads, railroads, and other structures not intended for public gatherings within runway end RPZs was also assessed. While these facilities and uses are not explicitly prohibited by the FAA, their presence within RPZs can still pose potential safety and operational concerns. To align with FAA AC 150/5300-13B, RPZs should ideally remain free of all fixed objects to the extent practicable.

As shown in **Figure 6-7**, 47 percent of primary runway ends at North Dakota airports have RPZs that are free of roads, railways, and other non-public structures. This rate of compliance varies by airport classification. Slightly more than half of the primary runway RPZs at Basic and Community Paved airports meet this standard, whereas less than half of the primary runway RPZs at Commercial Service, Local, and other Community Paved airports are similarly free of such encroachments.

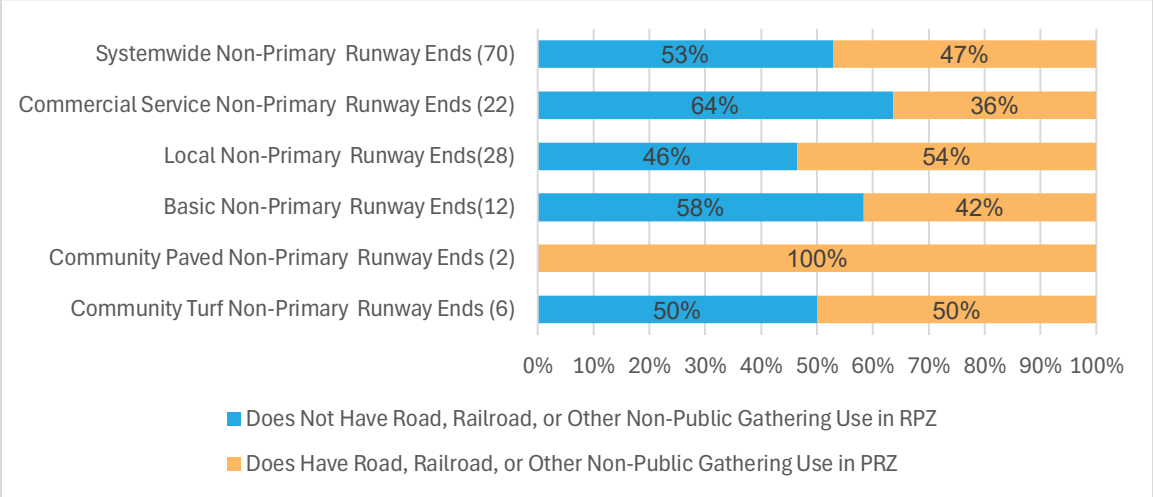
Figure 6-7. PI: Percent of Primary Runway Ends with Roads, Railroads, or Structures Not Utilized for Public Gatherings in the RPZs



Sources: FAA ADIP, 2025; Google Earth, 2025; NDAC GA Inspection Reports, 2025, Commercial Service ALPs, 2025; Kimley-Horn, 2025.

As illustrated in **Figure 6-8**, this analysis examines nonprimary runway ends within the system. Statewide in North Dakota, 53 percent of RPZs at nonprimary runway ends are free from roads, railways, and other non-public structures. Commercial Service airports exhibit the highest compliance at 64 percent, followed by Basic airports at 58 percent, Community Turf airports at 50 percent, and Local airports at 46 percent. Notably, there is only one Community Paved airport with a nonprimary runway, and both runway ends at this facility include a road, railroad, or other non-public gathering structure.

Figure 6-8. PI: Percent of Nonprimary Runway Ends with Roads, Railroads, or Structures Not Utilized for Public Gatherings in the RPZs



Sources: FAA ADIP, 2025; Google Earth, 2025; NDAC GA Inspection Reports, 2025, Commercial Service ALPs, 2025; Kimley-Horn, 2025.

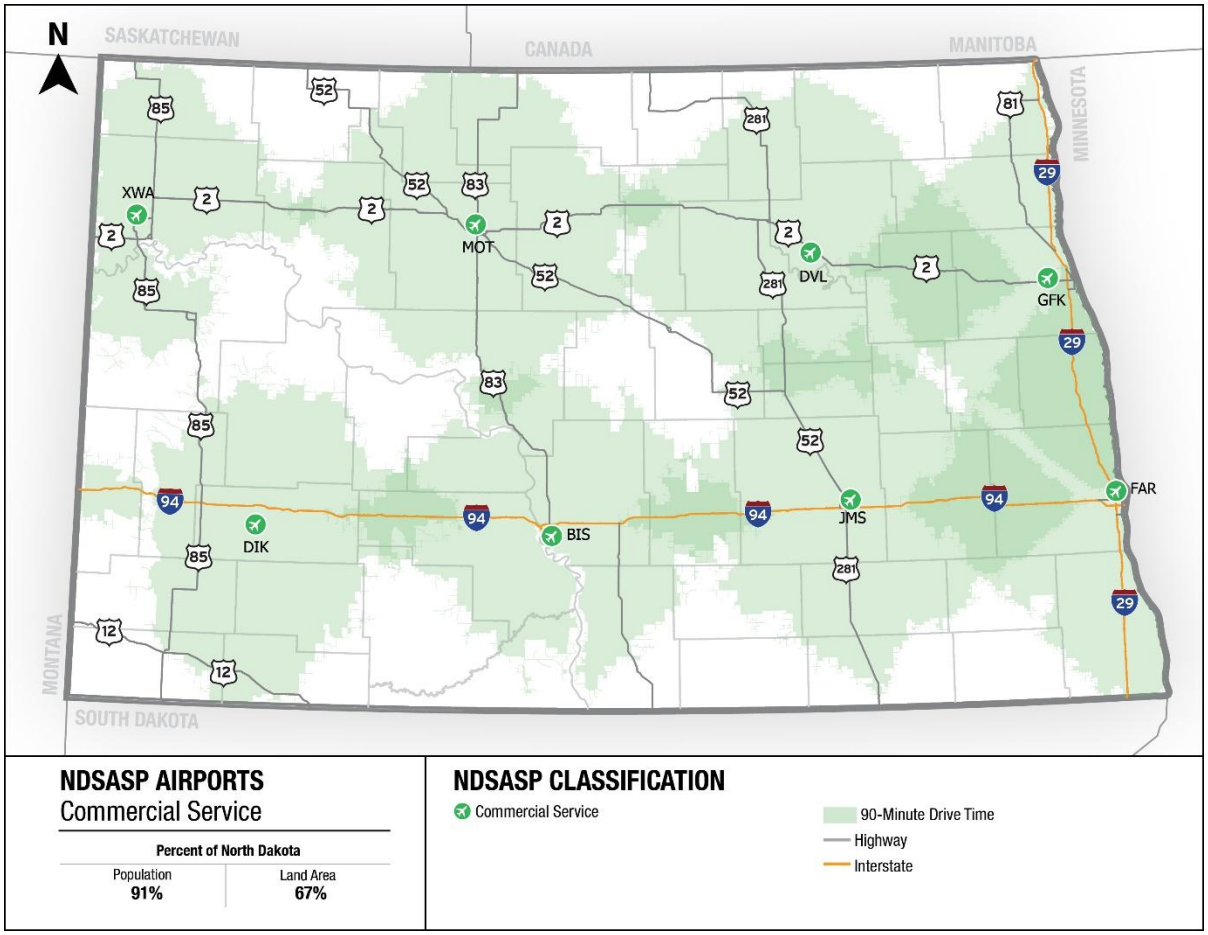
6.2.2. Goal: Promote Aviation System Coverage

This goal seeks to promote aviation system coverage in terms of accessibility within the state. This goal has four PIs (and no PMs) that seek to measure the population and land area coverage within specific drive-times of system facilities to evaluate overall system coverage. The system coverage performance offers insight into where aviation service may be lacking. The following four subsections detail the system performance for the four PIs used to evaluate the **Promote Aviation System Coverage** goal.

6.2.2.1. PI: Percent of Area and Population Within 90 Minutes of a Commercial Service Airport

Equitable access to commercial air service is a vital component of a well-connected aviation system. Commercial service airports in North Dakota serve as critical gateways for residents, businesses, and visitors, linking communities to national and global markets. To evaluate the reach of these facilities, a 90-minute drive-time analysis was conducted to determine the percentage of the state's population and land area with reasonable access to scheduled airline service. As shown in **Figure 6-9**, 91 percent of North Dakota's population and 67 percent of the land area are within a 90-minute drive of a commercial service airport.

Figure 6-9. PI: Percent of Area and Population Within 90 Minutes of a Commercial Service Airport



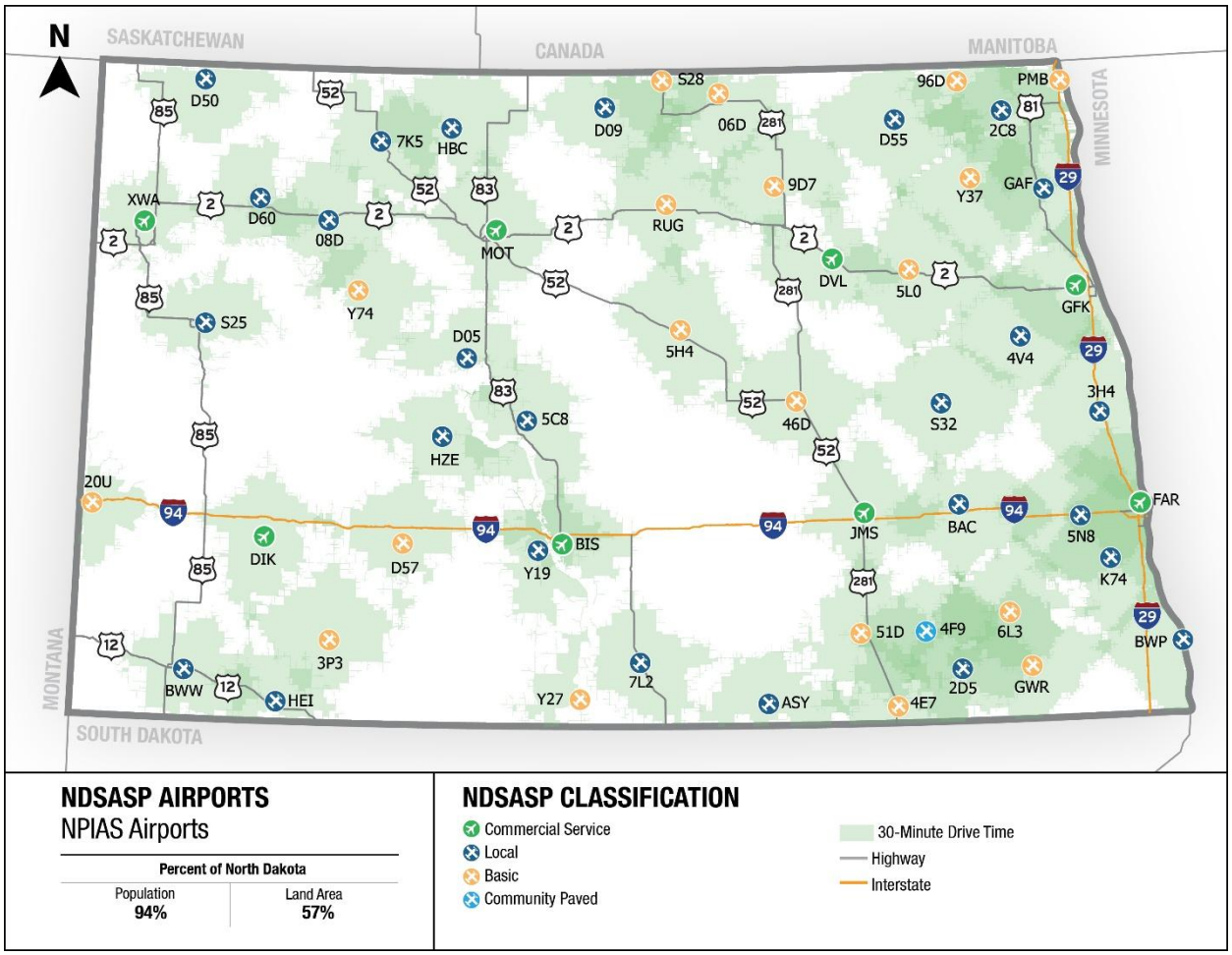
Sources: ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

In 2014, the analysis of commercial service airports coverage used a 60-minute drive time buffer and found that 80 percent of the population and 40 percent of the land area were within that distance of a commercial service airport. For the current analysis, the drive-time buffer was expanded to 90 minutes to reflect the willingness of more travelers to drive longer distances to access more varied flight options. Due to the expanded service area, as well as other factors such as improved roadway network and population increases or shifts, population and land coverage within a commercial service airport's service area has increased since 2014 from 80 percent of the population to 91 percent and land area coverage has increased from 40 percent to 67 percent (see **Figure 6-9**). While the change in drive time means the results are not directly comparable, this shift provides a broader view of accessibility and highlights the increased reach of commercial air service across the state.

6.2.2.2. PI: Percent of Area and Population Within 30 Minutes of a NPIAS Airport

NPIAS airports in North Dakota serve a wide range of aviation needs, from recreational GA and business travel to emergency response and agricultural operations. These airports are essential to the nation's system of aviation facilities and are eligible for federal funding to support ongoing development and maintenance. Ensuring that the state's residents and visitors have reasonable access to these facilities is a key component of system performance. As shown in **Figure 6-10**, approximately 94 percent of North Dakota's population and 57 percent of its land area fall within the service areas of NPIAS airports.

Figure 6-10. PI: Percent of Area and Population within 30 Minutes from a NPIAS Airport



Sources: ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

Table 6-1 presents the changes in accessibility to NPIAS airports between 2014 and 2025 studies. Since 2014, the percentage of both land area and population located within a 30-minute drive of a NPIAS airport has increased, with population coverage increasing by approximately six percentage points and land area coverage increasing by 19 percentage points. Changes in population are affected by the coverage area within drive times and the associated increases or

decreases in the number of people within those areas. The population coverage increase is attributed to the inclusion of Ashley Municipal Airport (ASY) which was adopted into the NPIAS in 2016. It is also important to note for this and all subsequent drive-time coverage map comparisons that an increase in land area between the analyses from 2014 and 2025 may be attributable to factors such as advancements in GIS technology, which have enabled more accurate modeling of travel times, changes to the source of the spatial roadway data used in the analysis, or even infrastructure improvements to the roadway network.

Table 6-1. Change in Area and Population Within 30 Minutes of a NPIAS Airport: 2014 vs. 2025

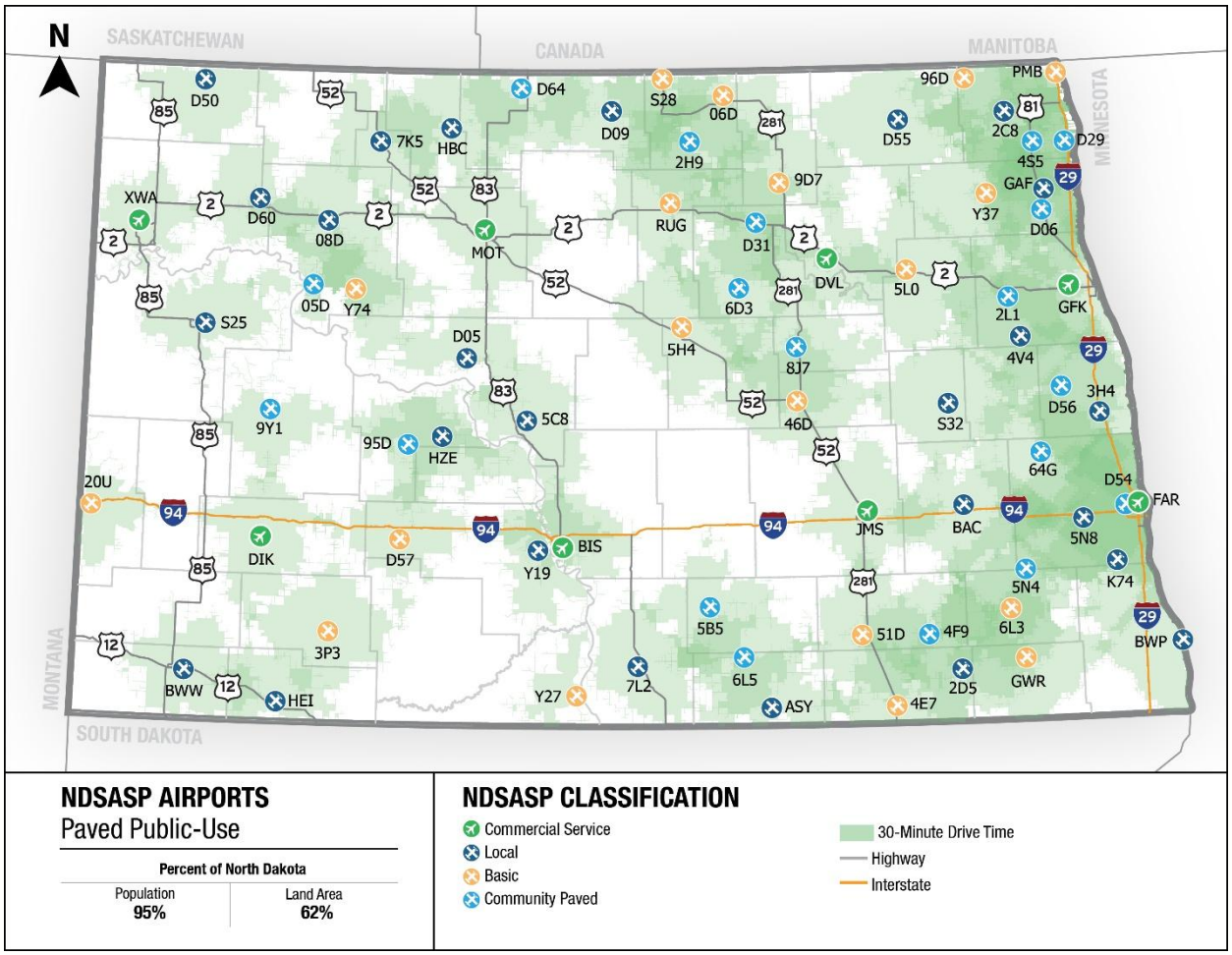
Study Year	Systemwide Performance – Population	Systemwide Performance – Land Area
2014	89%	43%
2025	95%	62%
Percent Change	+6%	+19%

Sources: ESRI Business Analyst, 2025; 2014 NDSASP, 2014; Kimley-Horn, 2025.

6.2.2.3. PI: Percent of Area and Population Within 30 Minutes of Paved Public-Use Airports (NPIAS And Non-NPIAS)

Paved public-use airports, whether part of the NPIAS or not, play a vital role in supporting North Dakota's aviation needs. These facilities accommodate a variety of operations throughout the state, including business travel, recreational flying, medical transport, and agricultural support. Airports with paved runways are often more accessible year-round and during a wider span of weather conditions and can support a broader mix of operations and aircraft. To evaluate the coverage of these airports' service areas, a 30-minute drive time analysis was conducted. As shown in **Figure 6-11**, 95 percent of North Dakota's total population is within a 30-minute drive of a paved public-use airport, while 62 percent of the total land area falls within the identified buffer areas.

Figure 6-11. PI: Percent of Area and Population Within 30 Minutes of Paved Public-Use Airports (NPIAS and Non-NPIAS)

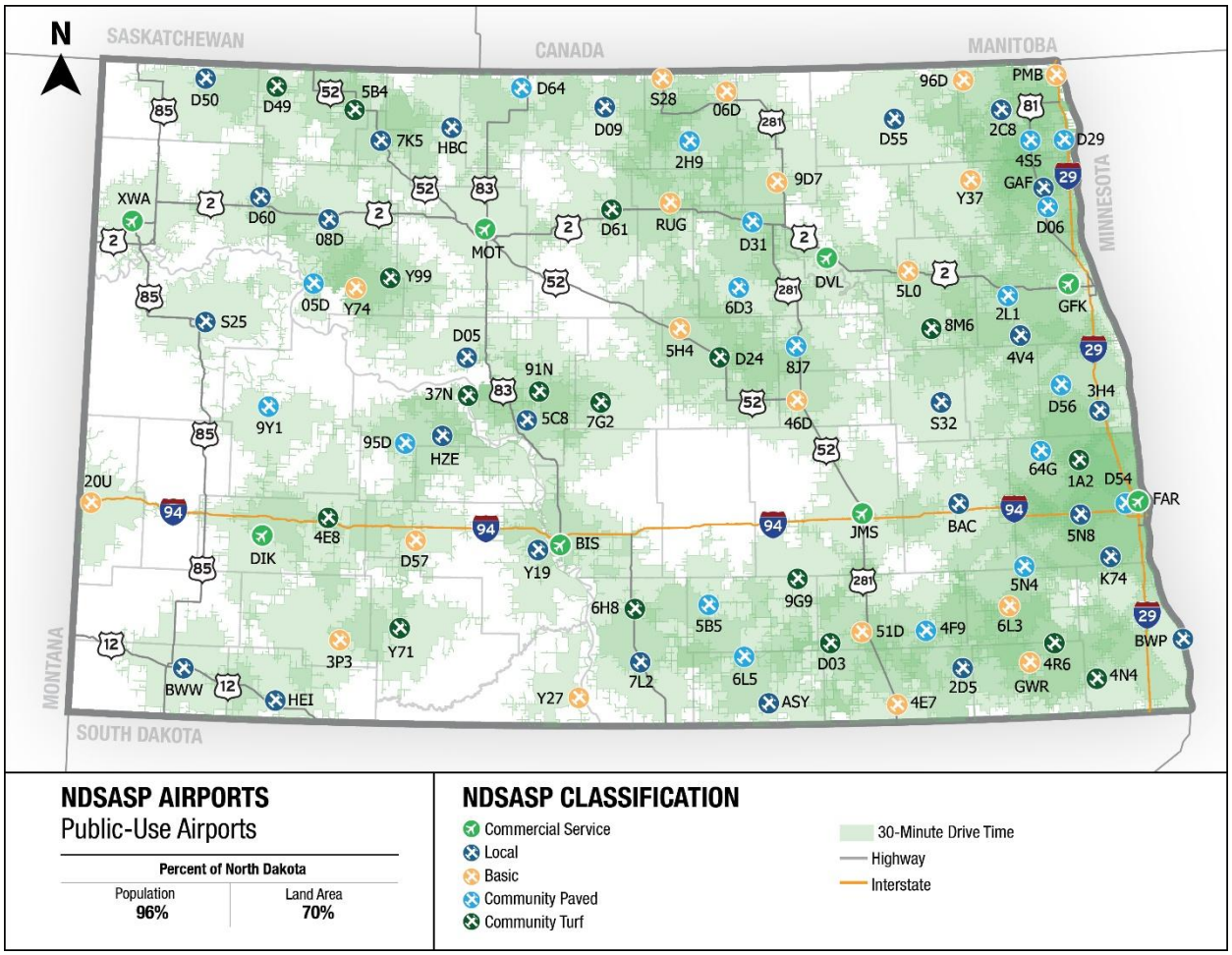


Sources: ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

6.2.2.4. PI: Percent of Area and Population Within 30 Minutes of Public-Use Airports (NPIAS And Non-NPIAS)

Every airport in North Dakota's public-use system, whether large or small, paved or turf, NPIAS or non-NPIAS, plays a role in supporting users of the state's aviation system. Collectively, these facilities enable operations of all types and sizes, from emergency medical flights and agricultural spraying to commercial airline service, business travel, flight training, and recreational flying. The presence of a public-use airport helps ensure that communities across the state remain connected to essential services, economic opportunities, and the national airspace system. To assess the reach of this public-use airport network, a 30-minute drive-time analysis was conducted. The results, shown in **Figure 6-12**, indicate that 96 percent of the state's population and 70 percent of its land area are located within a 30-minute drive of a public-use airport.

Figure 6-12. PI: Percent of Area and Population Within 30 Minutes of Public-Use Airports (NPIAS and Non-NPIAS)



Sources: ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

Table 6-2 provides a comparison between the 2014 and 2025 NDSASP analyses, showing the percentage of area and population within 30 minutes of public-use airports. Since the 2014 study, population coverage has increased by three percentage points, and land area coverage has grown by 12 percentage points.

Table 6-2. Change in Area and Population Within 30 Minutes from All Public-Use Airports (NPIAS and Non-NPIAS): 2014 vs. 2025

Study Year	Systemwide Performance – Population	Systemwide Performance – Land Area
2014	93%	58%
2025	96%	70%
Percent Change	+3%	+12%

Sources: ESRI Business Analyst, 2025; 2014 NDSASP, 2014; Kimley-Horn, 2025.

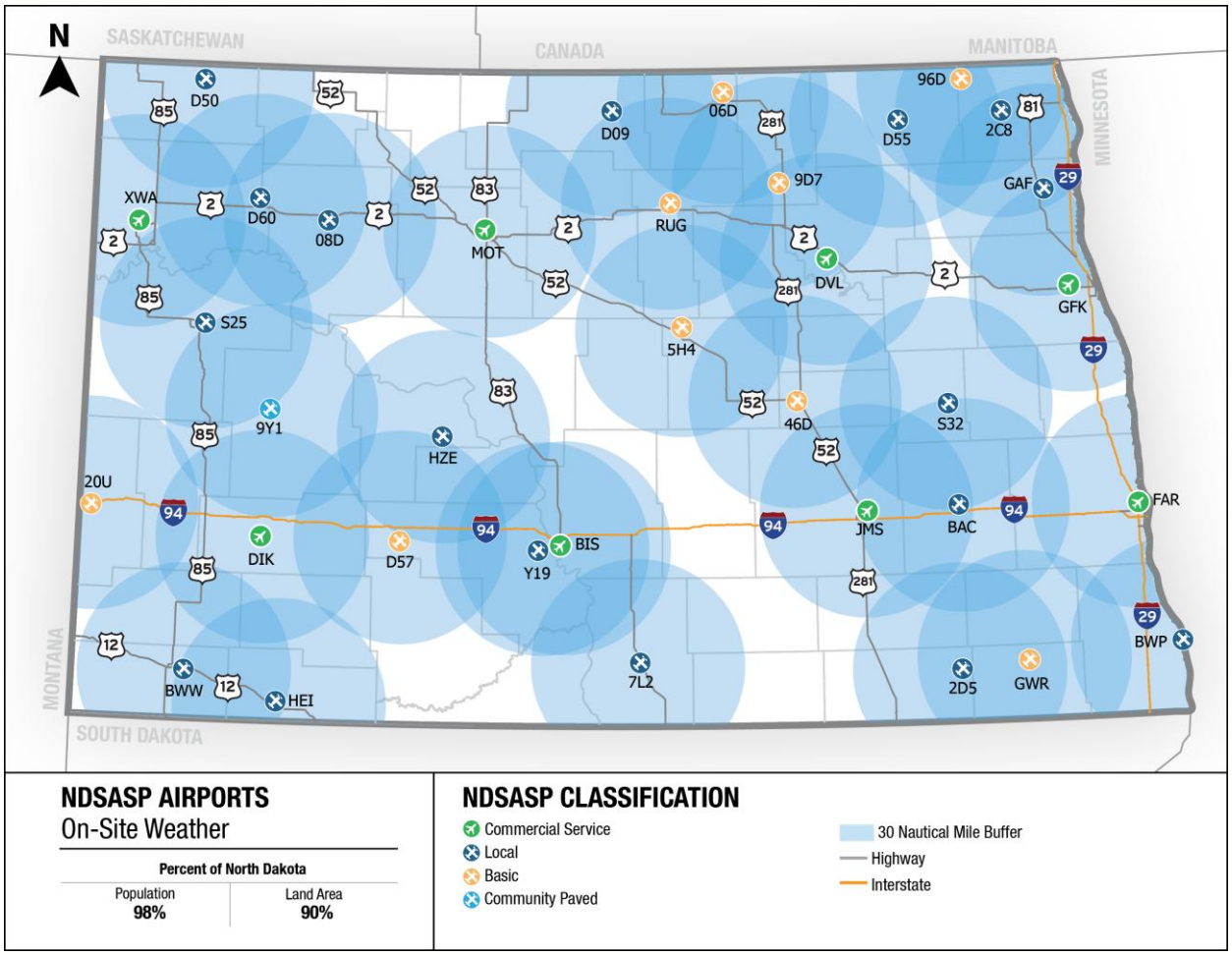
6.2.3. Goal: Provide Air Access to Airports

This goal emphasizes the importance of supporting reliable and equitable air access to airports across the state's aviation system. The five PMs and four PIs associated with this goal assess the percentage of population and land area within the service areas of airports that provide certain facilities, such as weather reporting and fuel, that promote access to airports for a variety of aircraft. The following nine subsections detail the system performance results for the PMs and PIs used to evaluate the goal to **Provide Air Access to Airports**.

6.2.3.1. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with On-Site Weather Reporting

Reliable, real-time weather data is a foundational element of aviation safety and operational efficiency. In North Dakota, 98 percent of the population and 90 percent of the land area are located within 30 nautical miles (NM) of an airport equipped with on-site weather reporting systems, (see **Figure 6-13**), ensuring broad access to critical weather data across the state.

Figure 6-13. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with On-Site Weather Reporting



Sources: 2025 NDSASP Airport Manager Survey, 2025; FAA Surface Weather Observation Stations, 2025; ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

Table 6-3 compares the percentage of area and population within 30 nautical miles of airports equipped with on-site weather reporting from the 2014 and 2025 studies. Since 2014, population coverage has increased by one percentage point, while land area coverage has increased by three percentage points. This change is primarily attributable to the addition of certified weather reporting at Dunn County–Weydahl Field Airport (9Y1) and Bottineau Municipal Airport (D09).

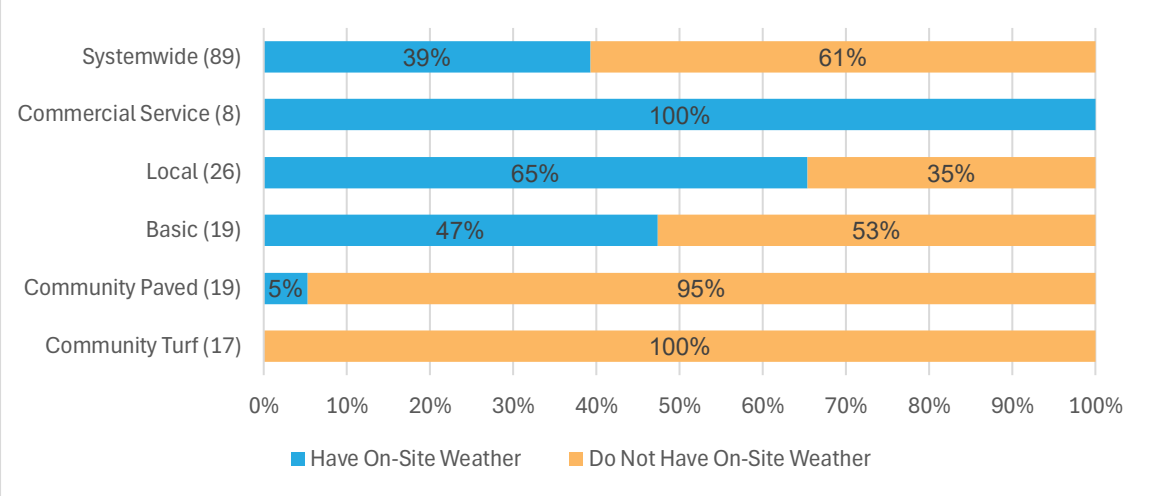
Table 6-3. Change in Area and Population Within 30 Nautical Miles of an Airport with On-Site Weather Reporting: 2014 vs. 2025

Study Year	Systemwide Performance – Population	Systemwide Performance – Land Area
2014	97%	87%
2025	98%	90%
Percent Change	+1%	+3%

Sources: 2025 NDSASP Airport Manager Survey, 2025; FAA Surface Weather Observation Stations, 2025; 2014 NDSASP, 2014; Kimley-Horn, 2025.

Figure 6-14 presents the results in terms of performance of the system overall and by airport classification. As shown, 39 percent of the airports in the system have on-site weather reporting, with 100 percent of Commercial Service airports, 65 percent of Local, 47 percent of Basic, and five percent of Community Paved airports all having these important facilities.

Figure 6-14. PM: Percent of Airports with On-Site Weather Reporting



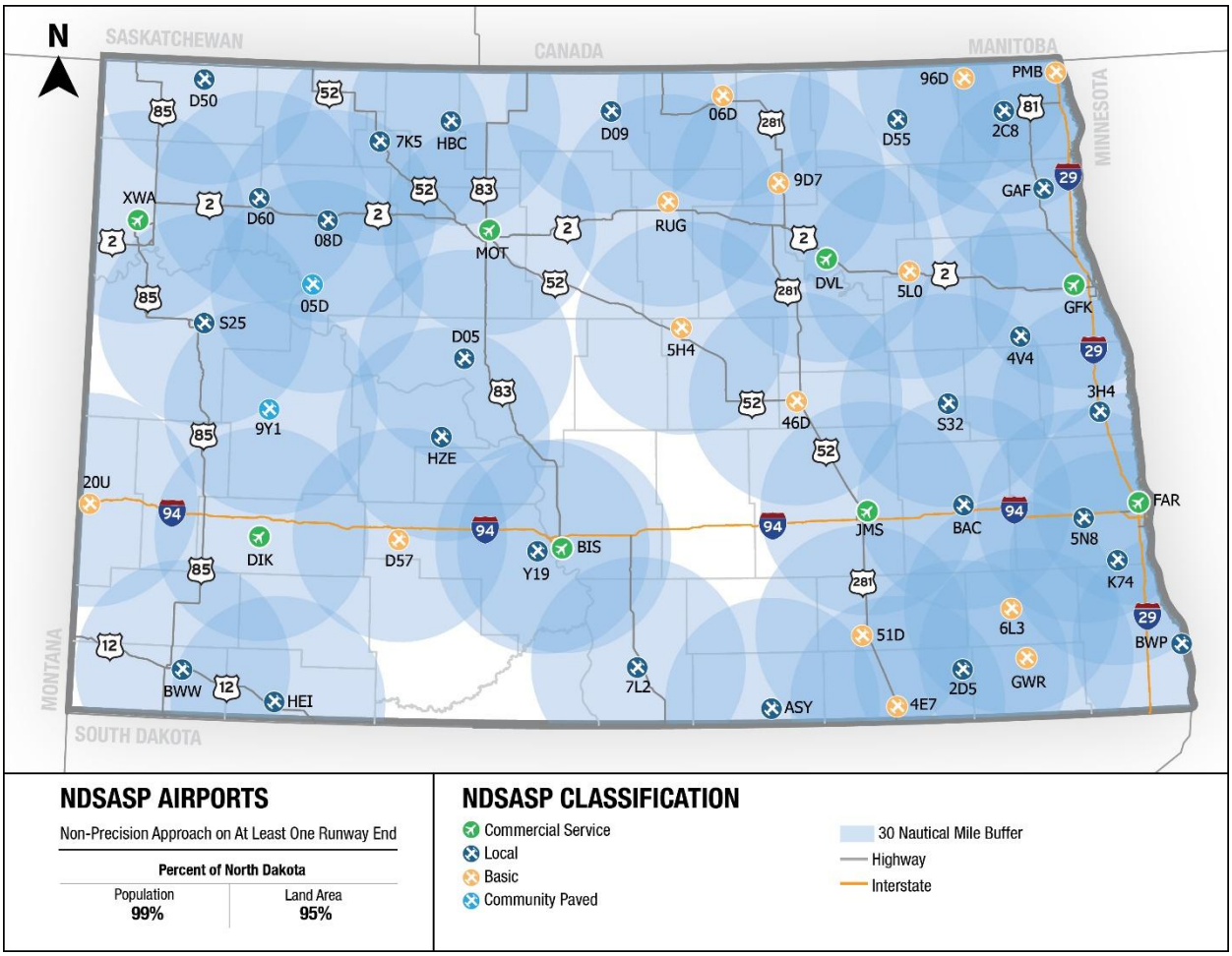
Sources: 2025 NDSASP Airport Manager Survey, 2025; FAA Surface Weather Observation Stations, 2025; Kimley-Horn, 2025.

6.2.3.2. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Non-Precision Approach

Non-precision approaches to runways can be achieved using Very High Frequency Omnidirectional Range (VOR), Non-Directional Beacon (NDB), or Global Positioning System (GPS)-based Area Navigation (RNAV). These approaches provide lateral guidance, allowing pilots to safely descend and align with a runway even in low-visibility or adverse weather conditions.

This metric evaluates how much of the state's population and land area lies within 30 NM of an airport equipped with a non-precision approach on at least one runway end. As shown in **Figure 6-15**, 99 percent of the population and 95 percent of the land area are within the service area of an airport equipped with a non-precision approach.

Figure 6-15. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Non-Precision Approach



Sources: FAA Instrument Flight Procedures Information Gateway, 2025; ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

Table 6-4 highlights improvements in statewide access to airports with non-precision approaches by comparing the percentage of land area and population within 30 nautical miles of such airports in the 2014 and 2025 studies. The analysis reveals a one percentage point increase in population coverage and a seven percentage point increase in land area coverage over the past decade.

Table 6-4. Change in Area and Population Within 30 Nautical Miles of an Airport with a Non-Precision Approach: 2014 vs. 2025

Study Year	Systemwide Performance – Population	Systemwide Performance – Land Area
2014	98%	88%
2025	99%	95%
Percent Change	+1%	+7%

Sources: FAA Instrument Flight Procedures Information Gateway, 2025; 2014 NDSASP, 20; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

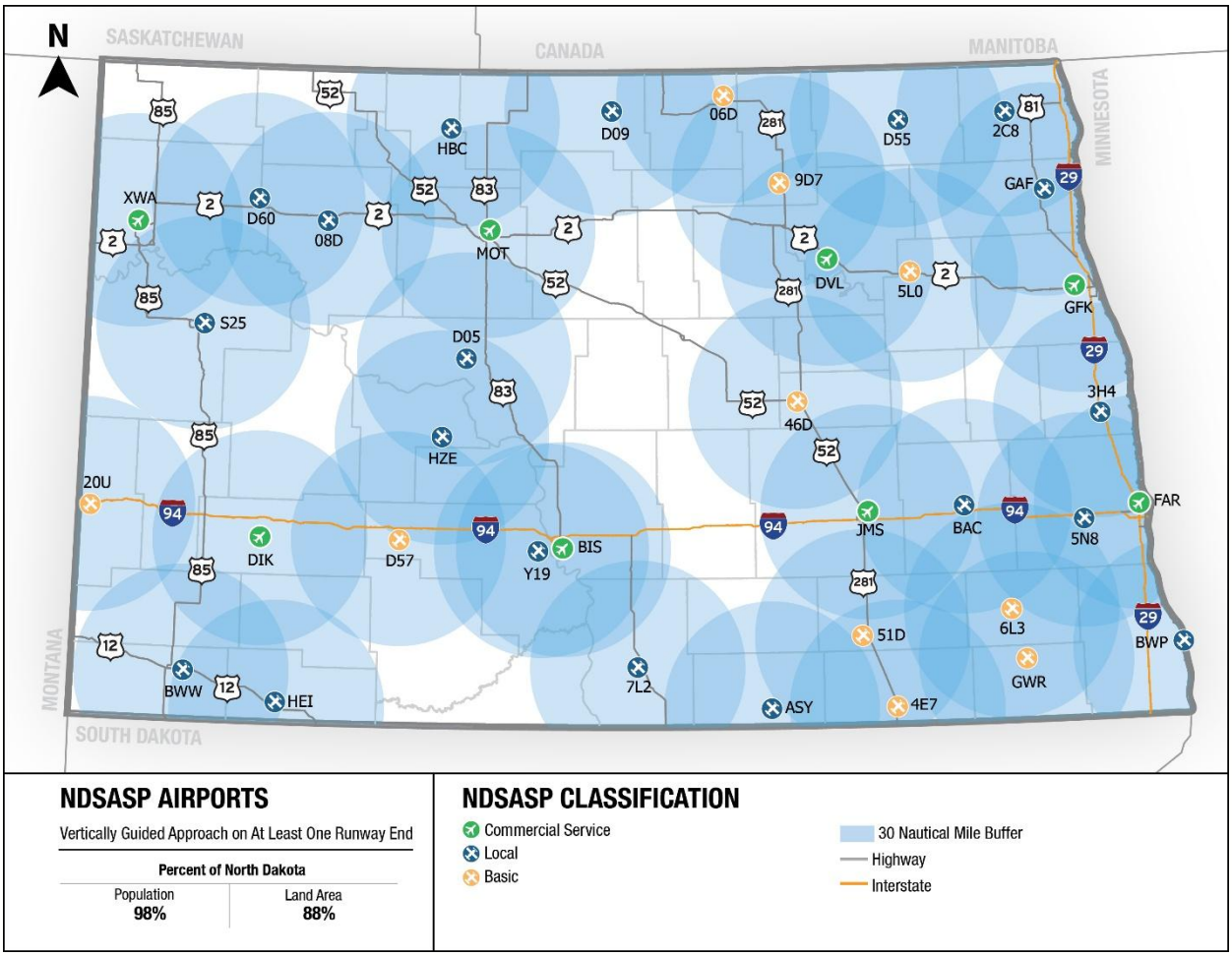
While percent of population and land coverage has only increased slightly due to overlaps in service areas, it's important to note that since the 2014 NDSASP, 10 additional airports across North Dakota have been equipped with non-precision approaches. These ten airports are listed below:

Ashley Municipal Airport (ASY)
Beach Airport (20U)
Cando Municipal Airport (9D7)
Edgeley Municipal Airport (51D)
Ellendale Municipal Airport (4E7)
Glen Ullin Regional Airport (D57)
Dunn County – Weydahl Field (9Y1)
Lakota Municipal Airport (5L0)
Lisbon Municipal Airport (6L3)
New Town Municipal Airport (05D)

6.2.3.3. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Vertically Guided Approach

Vertically guided approaches represent the most sophisticated tier of instrument landing capability, offering both lateral and vertical guidance to pilots during descent. These procedures are supported by Instrument Landing System (ILS), Localizer Performance with Vertical Guidance (LPV), and Lateral Navigation (LNAV)/Vertical Navigation (VNAV) and enable safer, more stable landings in low-visibility conditions. Vertically guided approaches are especially valuable for high-demand airports and critical operations, such as air ambulance operations. As shown in **Figure 6-16**, 98 percent of the population and 88 percent of the land area are located within a 30-nautical-mile radius of an airport equipped with a vertically guided approach.

Figure 6-16. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Vertically Guided Approach



Sources: FAA Instrument Flight Procedures Information Gateway, 2025; ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

Table 6-5 provides a comparative analysis of the percentage of land area and population located within 30 nautical miles of airports equipped with vertically guided approaches based on data from the 2014 and 2025 studies. Population coverage has increased by six percentage points, while land area coverage has increased by 18 percentage points.

Table 6-5. Change in Area and Population Within 30 Nautical Miles of an Airport with a Vertically Guided Approach: 2014 vs. 2025

Study Year	Systemwide Performance – Population	Systemwide Performance – Land Area
2014	92%	70%
2025	98%	88%
Percent Change	+6%	+18%

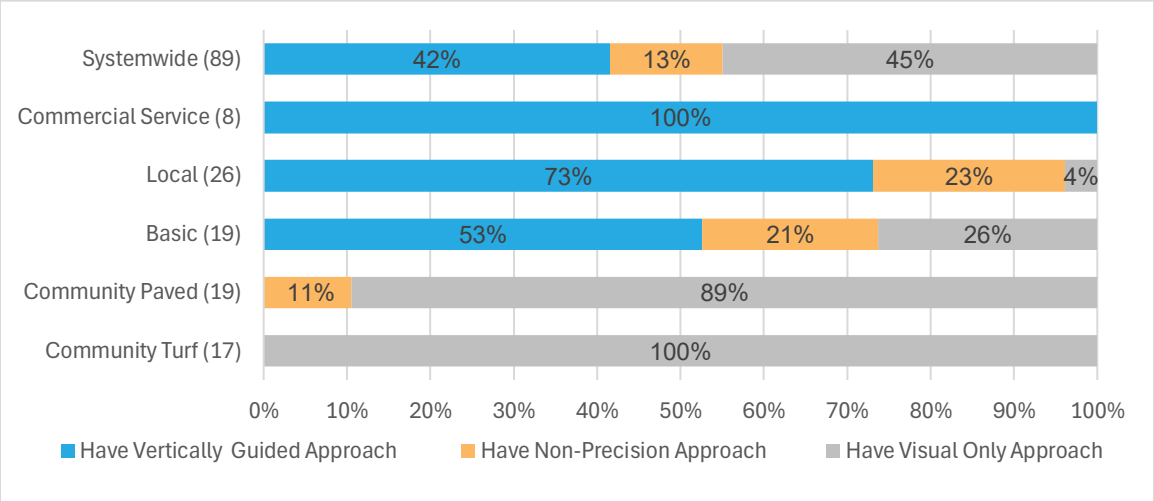
Sources: FAA Instrument Flight Procedures Information Gateway, 2025; 2014 NDSASP, 2014; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

The increase in population and land area shown in Table 6-5 corresponds to 15 additional airports becoming equipped with vertically guided approach capabilities since the 2014 study. These 15 airports are listed below.

Ashley Municipal (ASY)
Beach Municipal Airport (20U)
Bowman Regional Airport (BWW)
Cando Municipal Airport (9D7)
Edgeley Municipal Airport (4E7)
Ellendale Municipal Airport (47E)
Garrison Municipal (D05)
Glen Ullin Regional Airport (D57)
Hettinger – JB Lindquist Regional Airport (HEI)
Hillsboro Municipal Airport (3H4)
Lakota Municipal Airport (5H4)
Lisbon Municipal Airport (6L3)
Mandan Municipal Airport (Y19)
Mohall Municipal Airport (4E7)
Stanley Municipal Airport (08D)

Figure 6-17 presents the percent of system airports, by classification, that are supported by either a non-precision approach or a vertically guided approach on at least one runway end, with the remainder supporting only visual approaches. As shown, 55 percent of all airports have a non-precision or vertically guided approach on at least one runway end, including 42 percent with a vertically guided approach and 13 percent with a non-precision approach. The remaining 45 percent of system airports support only visual approaches.

Figure 6-17. PM: Percent of Airports with Vertically Guided, Non-Precision, and Visual Approaches



Sources: FAA Instrument Flight Procedures Information Gateway, 2025; Kimley-Horn, 2025.

While Figure 6-17 summarizes airport approach capabilities at the system level, **Table 6-6** provides additional detail by presenting the approach type for each runway end, organized by airport to provide additional context.

Table 6-6. Airport Runway Approaches – Data Table

Associated City	Airport Name	FAA ID	Primary Runway		Secondary Runway		Tertiary Runway		Quaternary Runway	
			Orientation	Approach	Orientation	Approach	Orientation	Approach	Orientation	Approach
Commercial Service										
Bismarck	Bismarck Municipal Airport	BIS	13/31	ILS / ILS	03/21	RNAV (GPS) / RNAV (GPS)	N/A	N/A	N/A	N/A
Devils Lake	Devils Lake Regional Airport	DVL	13/31	RNAV (GPS)/ILS	03/21	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	14/32	RNAV (GPS)/ILS	07/25	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A
Fargo	Hector International Airport	FAR	18/36	ILS/ILS	09/27	RNAV (GPS)/RNAV (GPS)	13/31	VIS/VIS	N/A	N/A
Grand Forks	Grand Forks International Airport	GFK	17R/35L	RNAV (GPS)/ILS	09L/27R	RNAV (GPS)/RNAV (GPS)	17L/35R	RNAV (GPS)/RNAV (GPS)	09R/27L	VIS/VIS
Jamestown	Jamestown Regional Airport	JMS	13/31	RNAV (GPS)/ILS	04/22	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A
Minot	Minot International Airport	MOT	13/31	RNAV (GPS)/ILS	08/26	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A
Williston	Williston Basin International Airport	XWA	14/32	RNAV (GPS)/ILS	04/22	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A
General Aviation										
Arthur	Arthur Airport	1A2	17/35	VIS / VIS	N/A	N/A	N/A	N/A	N/A	N/A
Ashley	Ashley Municipal Airport	ASY	15/33	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Beach	Beach Airport	20U	12/30	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Beulah	Beulah Municipal Airport	95D	10/28	VIS / VIS	N/A	N/A	N/A	N/A	N/A	N/A

Associated City	Airport Name	FAA ID	Primary Runway		Secondary Runway		Tertiary Runway		Quaternary Runway	
			Orientation	Approach	Orientation	Approach	Orientation	Approach	Orientation	Approach
Bottineau	Bottineau Municipal Airport	D09	13/31	RNAV (GPS)/RNAV (GPS)	03/21	VIS / VIS	N/A	N/A	N/A	N/A
Bowbells	Bowbells Municipal Airport	5B4	08/26	VIS / VIS	N/A	N/A	N/A	N/A	N/A	N/A
Bowman	Bowman Regional Airport	BWW	13/31	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Cando	Cando Municipal Airport	9D7	16/34	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Carrington	Carrington Municipal Airport	46D	13/31	VIS/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Casselton	Casselton Robert Miller Regional Airport	5N8	13/31	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Cavalier	Cavalier Municipal Airport	2C8	16/34	VIS/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Columbus	Columbus Municipal Airport	D49	07/25	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Cooperstown	Cooperstown Municipal Airport	S32	13/31	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Crosby	Crosby Municipal Airport	D50	13/31	RNAV (GPS)-A /RNAV (GPS)	03/21	VIS/VIS	N/A	N/A	N/A	N/A
Drayton	Drayton Municipal Airport	D29	17/35	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Dunseith	International Peace Garden Airport	S28	11/29	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Edgeley	Edgeley Municipal Airport	51D	14/32	RNAV (GPS)/RNAV (GPS)	09/27	VIS/VIS	N/A	N/A	N/A	N/A
Elgin	Elgin Municipal Airport	Y71	12/30	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Ellendale	Ellendale Municipal Airport	4E7	13/31	VIS/RNAV (GPS)	17/35	VIS/VIS	N/A	N/A	N/A	N/A
Enderlin	Sky Haven Airport	5N4	12/30	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A

Associated City	Airport Name	FAA ID	Primary Runway		Secondary Runway		Tertiary Runway		Quaternary Runway	
			Orientation	Approach	Orientation	Approach	Orientation	Approach	Orientation	Approach
Fessenden	Fessenden – Streibel Municipal Airport	D24	08/26	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Fort Yates	Standing Rock Airport	Y27	14/32	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Gackle	Gackle Municipal Airport	9G9	08/26	VIS/VIS	17/35	VIS/VIS	N/A	N/A	N/A	N/A
Garrison	Garrison Municipal Airport	D05	13/31	RNAV (GPS)/RNAV (GPS)	03/21	VIS/VIS	N/A	N/A	N/A	N/A
Glen Ullin	Glen Ullin Regional Airport	D57	11/29	VIS/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Grafton	Hutson Field	GAF	17/35	RNAV (GPS)/RNAV (GPS)	08/26	VIS/VIS	N/A	N/A	N/A	N/A
Gwinner	Gwinner – Roger Melroe Field	GWR	16/34	RNAV (GPS)/RNAV (GPS)	06/24	VIS/VIS	N/A	N/A	N/A	N/A
Harvey	Harvey Municipal Airport	5H4	11/29	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Hazelton	Hazelton Municipal Airport	6H8	17/35	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Hazen	Mercer County Regional Airport	HZE	15/33	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	12/30	RNAV (GPS)/RNAV (GPS)	17/35	VIS/VIS	N/A	N/A	N/A	N/A
Hillsboro	Hillsboro Municipal Airport	3H4	16/34	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Kenmare	Kenmare Municipal Airport	7K5	08/26	VIS/RNAV(GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Killdeer	Dunn County – Weydahl Field	9Y1	13/31	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Kindred	Robert Odegaard Field	K74	11/29	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Kulm	Kulm Municipal Airport	D03	12/30	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A

Associated City	Airport Name	FAA ID	Primary Runway		Secondary Runway		Tertiary Runway		Quaternary Runway	
			Orientation	Approach	Orientation	Approach	Orientation	Approach	Orientation	Approach
LaMoure	LaMoure Rott Municipal Airport	4F9	16/34	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Lakota	Lakota Municipal Airport	5L0	15/33	VIS/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Langdon	Robertson Field	D55	14/32	RNAV (GPS)/RNAV (GPS)	08/26	VIS/VIS	N/A	N/A	N/A	N/A
Larimore	Larimore Municipal Airport	2L1	12/30	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Leeds	Leeds Municipal Airport	D31	09/27	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Lidgerwood	Lidgerwood Municipal Airport	4N4	18/36	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Linton	Linton Municipal Airport	7L2	09/27	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Lisbon	Lisbon Municipal Airport	6L3	14/32	RNAV (GPS)/RNAV (GPS)	03/21	VIS/VIS	N/A	N/A	N/A	N/A
Maddock	Maddock Municipal Airport	6D3	12/30	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Mandan	Mandan Regional – Lawler Field	Y19	13/31	RNAV (GPS)/RNAV (GPS)	04/22	VIS/VIS	N/A	N/A	N/A	N/A
Mayville	Mayville Municipal Airport	D56	18/36	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
McClusky	McClusky Municipal Airport	7G2	13/31	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
McVille	McVille Municipal Airport	8M6	13/31	VIS/VIS	18/36	VIS/VIS	N/A	N/A	N/A	N/A
Milnor	Milnor Municipal Airport	4R6	08/26	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Minto	Minto Municipal Airport	D06	17/35	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Mohall	Mohall Municipal Airport	HBC	13/31	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A

Associated City	Airport Name	FAA ID	Primary Runway		Secondary Runway		Tertiary Runway		Quaternary Runway	
			Orientation	Approach	Orientation	Approach	Orientation	Approach	Orientation	Approach
Mott	Mott Municipal Airport	3P3	10/28	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Napoleon	Napoleon Municipal Airport	5B5	12/30	VIS/VIS	08/26	VIS/VIS	N/A	N/A	N/A	N/A
New Rockford	Tomlinson Field	8J7	13/31	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
New Town	New Town Municipal Airport	05D	12/30	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Northwood	Northwood Municipal – Vince Field	4V4	08/26	VIS/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Oakes	Oakes Municipal Airport	2D5	12/30	VIS/RNAV (GPS)	17/35	VIS/VIS	N/A	N/A	N/A	N/A
Page	Page Regional Airport	64G	17/35	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Park River	Park River – W C Skjerven Field	Y37	13/31	VIS/VIS	04/22	VIS/VIS	N/A	N/A	N/A	N/A
Parshall	Parshall – Hankins Airport	Y74	12/30	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Pembina	Pembina Municipal Airport	PMB	15/33	VIS/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Plaza	Trulson Field	Y99	08/26	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Richardton	Richardton Municipal Airport	4E8	11/29	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Riverdale	Garrison Dam Recreational Airpark	37N	11/29	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Rolette	Rolette Airport	2H9	15/33	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Rolla	Rolla Municipal Airport	06D	14/32	VIS/RNAV (GPS)	07/25	VIS/VIS	N/A	N/A	N/A	N/A
Rugby	Rugby Municipal Airport	RUG	12/30	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A

Associated City	Airport Name	FAA ID	Primary Runway		Secondary Runway		Tertiary Runway		Quaternary Runway	
			Orientation	Approach	Orientation	Approach	Orientation	Approach	Orientation	Approach
St Thomas	St. Thomas Municipal Airport	4S5	17/35	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Stanley	Stanley Municipal Airport	08D	10/28	RNAV (GPS)/RNAV (GPS)	02/22	VIS/VIS	N/A	N/A	N/A	N/A
Tioga	Tioga Municipal Airport	D60	12/30	RNAV (GPS)/RNAV (GPS)	03/21	VIS/VIS	N/A	N/A	N/A	N/A
Towner	Towner Municipal Airport	D61	16/34	VIS/VIS	03/21	VIS/VIS	N/A	N/A	N/A	N/A
Turtle Lake	Turtle Lake Municipal Airport	91N	08/26	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Valley City	Barnes County Municipal Airport	BAC	13/31	RNAV (GPS)/RNAV (GPS)	17/35	VIS/VIS	05/23	VIS/VIS	08/26	VIS/VIS
Wahpeton	Harry Stern Airport	BWP	15/33	RNAV (GPS)/RNAV (GPS)	03/21	VIS/VIS	N/A	N/A	N/A	N/A
Walhalla	Walhalla Municipal Airport	96D	15/33	VIS/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
Washburn	Washburn Municipal Airport	5C8	08/26	VIS/VIS	17/35	VIS/VIS	N/A	N/A	N/A	N/A
Watford City	Watford City Municipal Airport	S25	12/30	RNAV (GPS)/RNAV (GPS)	N/A	N/A	N/A	N/A	N/A	N/A
West Fargo	West Fargo Municipal Airport	D54	18/36	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Westhope	Westhope Municipal Airport	D64	14/32	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A
Wishek	Wishek Municipal Airport	6L5	14/32	VIS/VIS	N/A	N/A	N/A	N/A	N/A	N/A

Sources: FAA Instrument Flight Procedures Information Gateway, 2025; Kimley-Horn, 2025.

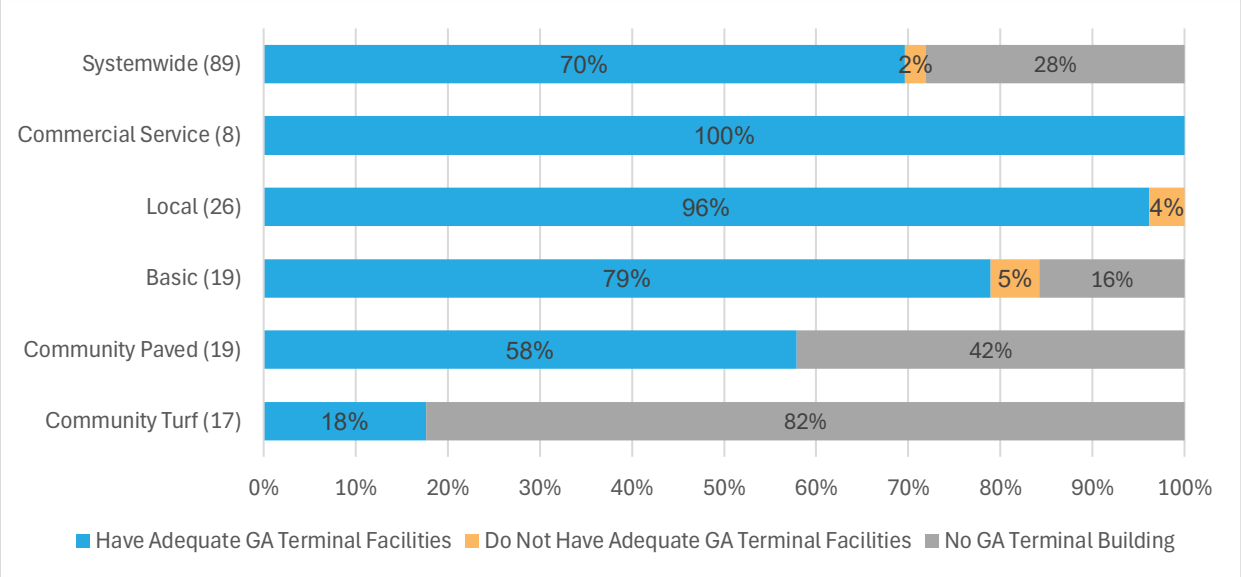
6.2.3.4. PM: Percent of Airports with Adequate Terminal Facilities to Support Passenger Demand

In this analysis, airport managers were asked to assess whether their terminal facilities adequately meet operational needs. Responses reflected each airport manager's opinion of the terminal facilities used by passengers, whether serving commercial service or GA users. This assessment relied on the managers' judgment rather than objective measures such as terminal square footage, age of the building, or other physical criteria. Adequate terminal infrastructure is critical for airports to accommodate passenger demand and ensure efficient operations. While the specific requirements vary by airport type, terminal facilities remain a fundamental component of systemwide airport infrastructure. For GA airports, a terminal building may consist of a Fixed Base Operator (FBO) facility or a structure operated by the airport sponsor that provides essential amenities such as a pilot lounge, restrooms, and other accommodations.

As shown in **Figure 6-18**, 70 percent of system airports reported having a GA terminal building that adequately meets passenger demand. Two percent reported having a GA terminal that does not adequately meet demand, while the remaining 28 percent of system airports do not have a GA terminal building on site.

The 2014 NDSASP also asked airports to report whether their GA terminal facilities were adequate. At that time, 48 system airports (54 percent) reported adequacy. Since then, the number has increased to 62 airports (69 percent), indicating a notable improvement in GA terminal facilities.

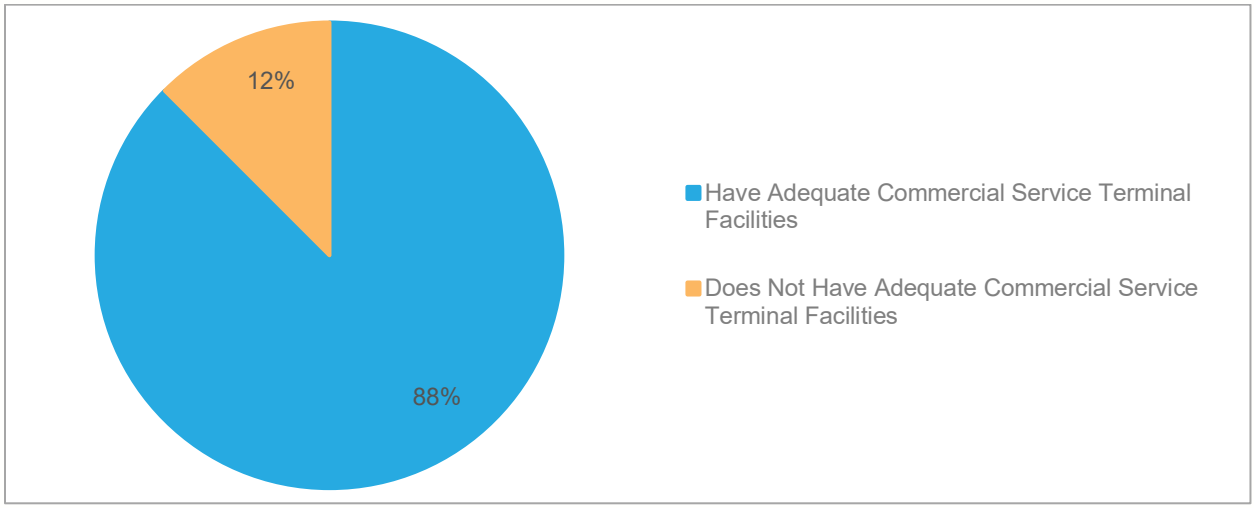
Figure 6-18. PM: Percent of Airports with Adequate GA Terminal Facilities to Support Passenger Demand



Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

Figure 6-19 shows the percentage of commercial service airports that consider their terminal facilities adequate to meet operational needs. Seven of the state's eight commercial service airports reported having adequate terminals, representing 88% of all commercial service airports.[19] Compared to the 2014 NDSASP, when six commercial service airports reported adequate facilities, the 2025 results show improvement, with one additional airport indicating that its terminal facilities adequately support passenger demand.

Figure 6-19. PM: Percent of Airports with Adequate Commercial Service Terminal Facilities to Support Passenger Demand



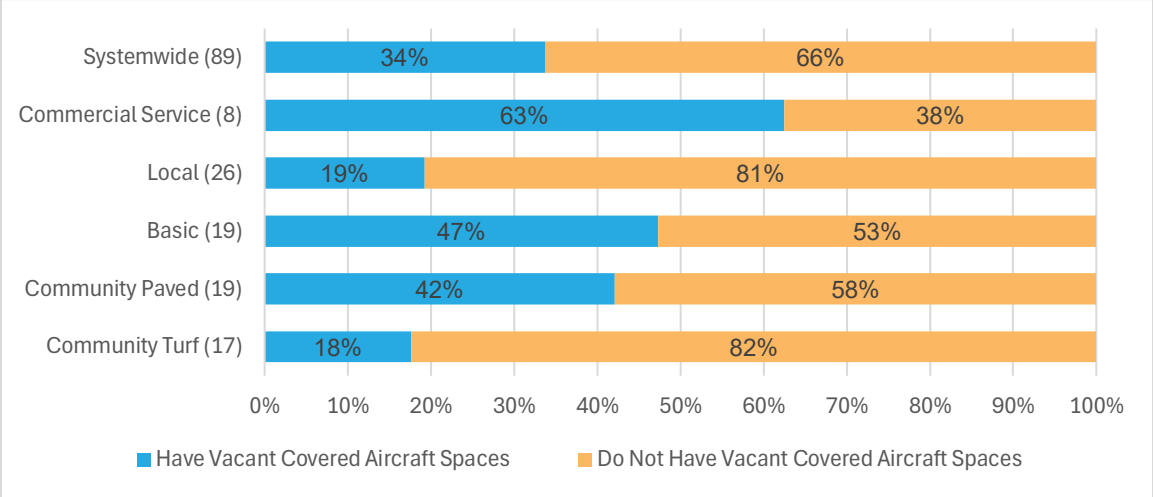
Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.3.5. PM: Percent of Airports with Available Covered Aircraft Storage

Covered aircraft storage is a critical component of airport infrastructure in North Dakota, where harsh weather conditions make enclosed storage essential for protecting aircraft and maintaining operational readiness. As shown in **Figure 6-20**, 34 percent of airports systemwide report having vacant covered aircraft storage, meaning these airports have empty aircraft storage spaces and are ready to accept new aircraft tenants at the time of this study's inventory effort. Sixty-three percent of Commercial Service airports report having some vacant aircraft storage. For the Local and Community Turf airports, less than 20 percent of the airports have vacant covered storage. Approximately 47 and 42 percent of Basic and Community Paved airports, respectively, have available covered aircraft storage facilities.

[19] Two of the seven commercial service airports with adequate terminal facilities are currently undergoing expansion projects.

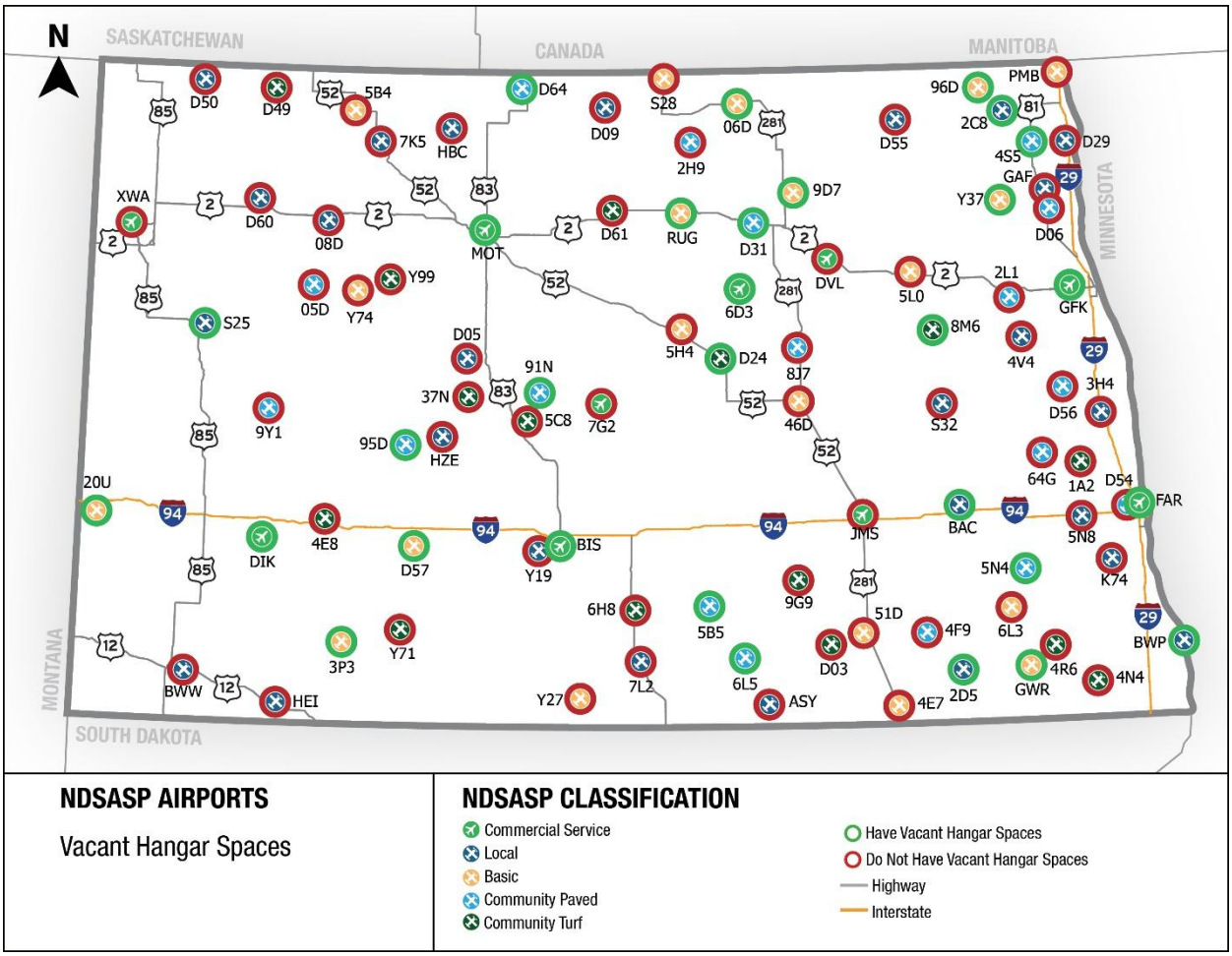
Figure 6-20. PM: Percent of Airports with Available Covered Aircraft Storage



Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

Figure 6-21 presents a statewide map of covered aircraft storage availability, offering a visual representation of where these facilities are located. The map reveals notable regional patterns, including pockets of availability in northeastern North Dakota and fewer available facilities in the southwestern portion of the state.

Figure 6-21. PM: Covered Aircraft Storage Availability



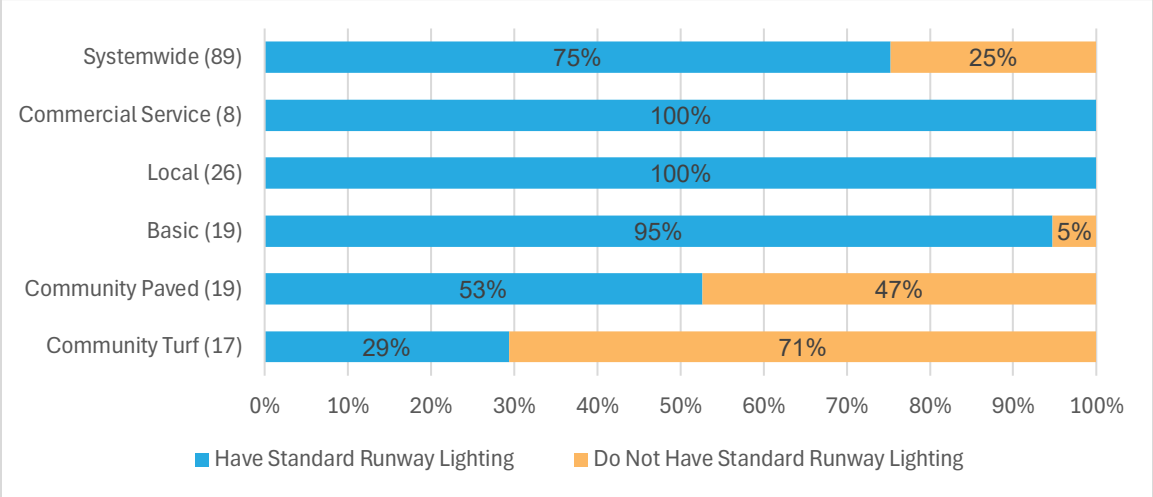
Sources: 2025 NDSASP Airport Manager Survey, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

6.2.3.6. PI: Percent of Airports with Standard Runway Lighting

Runway lighting is a critical safety feature that enables airports to support operations during nighttime and periods of reduced visibility. The FAA classifies standard runway lighting systems into three categories: High, Medium, and Low Intensity Runway Lights (HIRL, MIRL, and LIRL). Airports equipped with any of these systems were considered to have standard runway lighting for this analysis. A limited number of non-NPIAS airports utilize non-standard lighting systems, which typically consist of outdated, improvised, or solar-powered equipment. While these systems offer limited visual guidance, they do not meet FAA specifications and were therefore excluded from this analysis.

As shown in **Figure 6-22**, 75 percent of system airports meet this metric. Performance varies significantly by airport classification. All Commercial Service and Local airports are equipped with standard runway lighting, while 95 percent of Basic airports meet the standard. In contrast, only 53 percent of Community Paved and 29 percent of Community Turf airports are equipped with standard runway lighting.

Figure 6-22. PI: Percent of Airports with Standard Runway Lighting

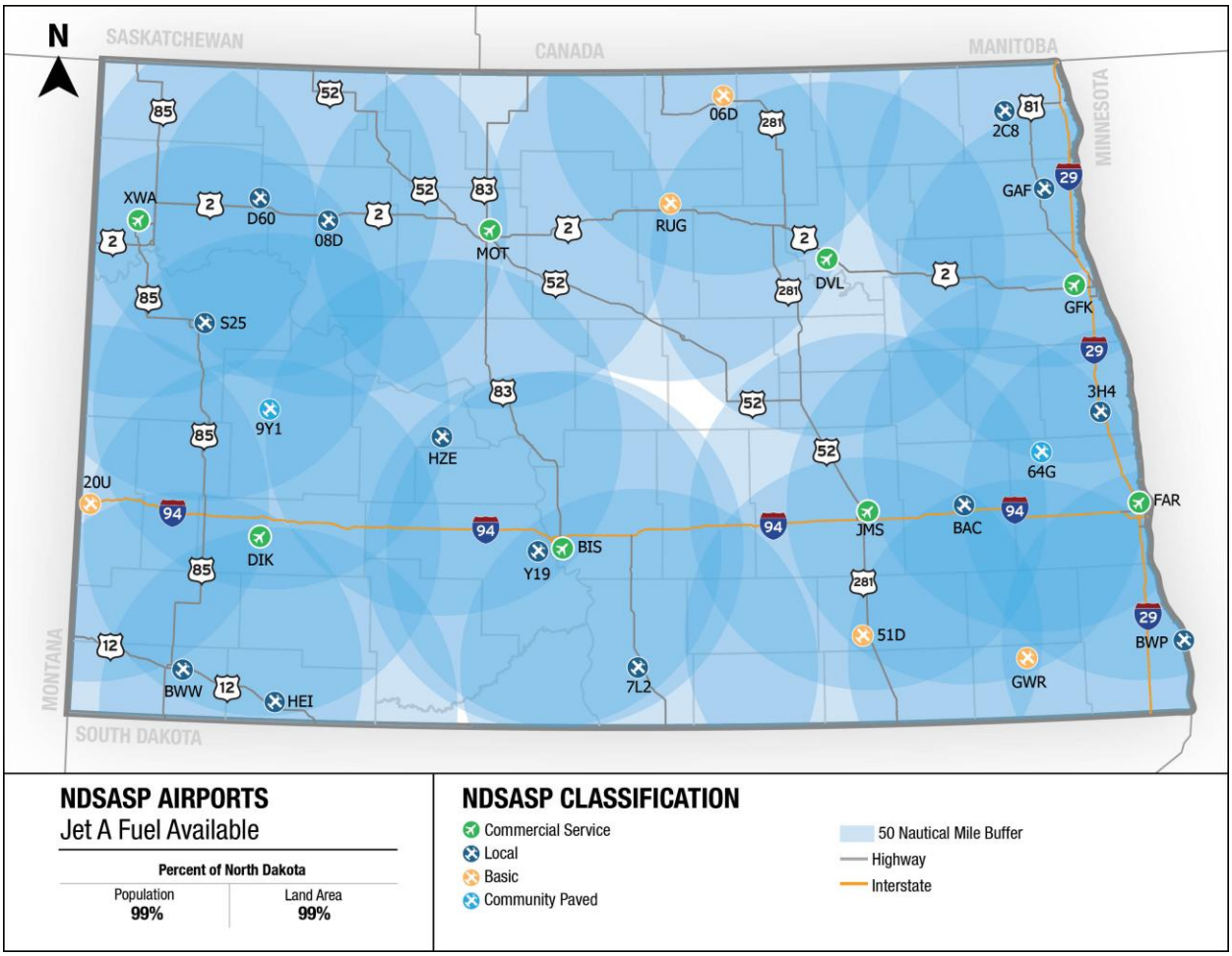


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.3.7. PI: Percent of Area and Population Within 50 Nautical Miles of an Airport with Jet A Fuel

Jet A fuel availability is a vital component of North Dakota's aviation infrastructure, supporting turbine-powered aircraft used in business, emergency response, and agricultural operations. As shown in **Figure 6-23**, nearly all of North Dakota's population resides within a 50-nautical-mile buffer of an airport offering Jet A fuel, ensuring broad accessibility for most residents. Additionally, nearly all the state's land area falls within these areas.

Figure 6-23. PI: Percent of Area and Population Within 50 Nautical Miles of an Airport with Jet A Fuel

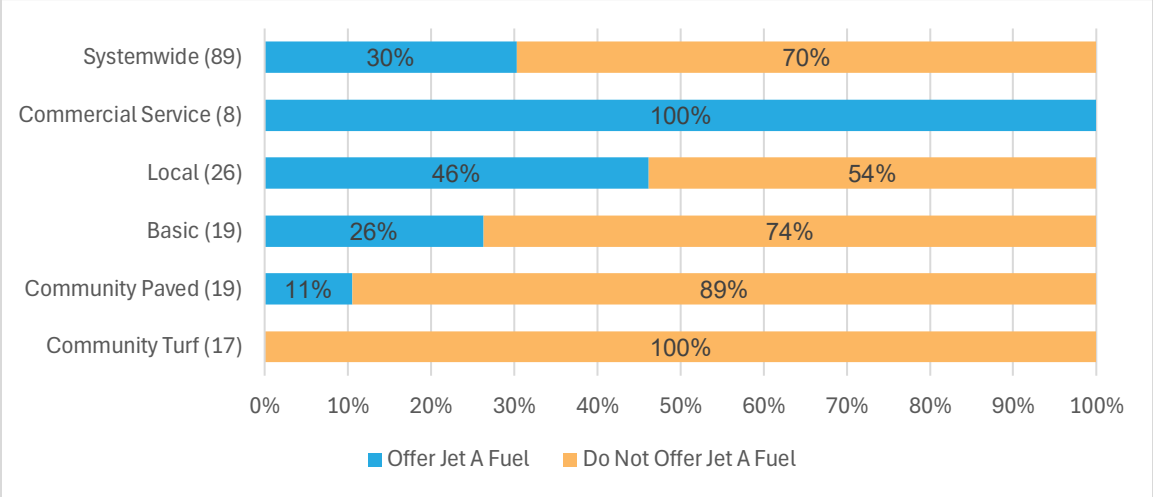


Sources: ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

While the 2014 study included a comparable performance measure, it relied on a 30-minute drive-time analysis, whereas the current study uses 50-nautical-mile buffers. Due to this methodological shift, direct comparisons of population and land area coverage for this performance indicator are not feasible between the two studies.

As shown in **Figure 6-24,** 30 percent of system airports are equipped with Jet A fuel. These airports include all Commercial Service airports, nearly half of the Local airports, and some Basic and Community Paved airports. While Jet A fuel is available at every Commercial Service airport, its availability naturally declines as airport classifications become more rural and less operationally intensive.

Figure 6-24. Percent of Airports with Jet A Fuel

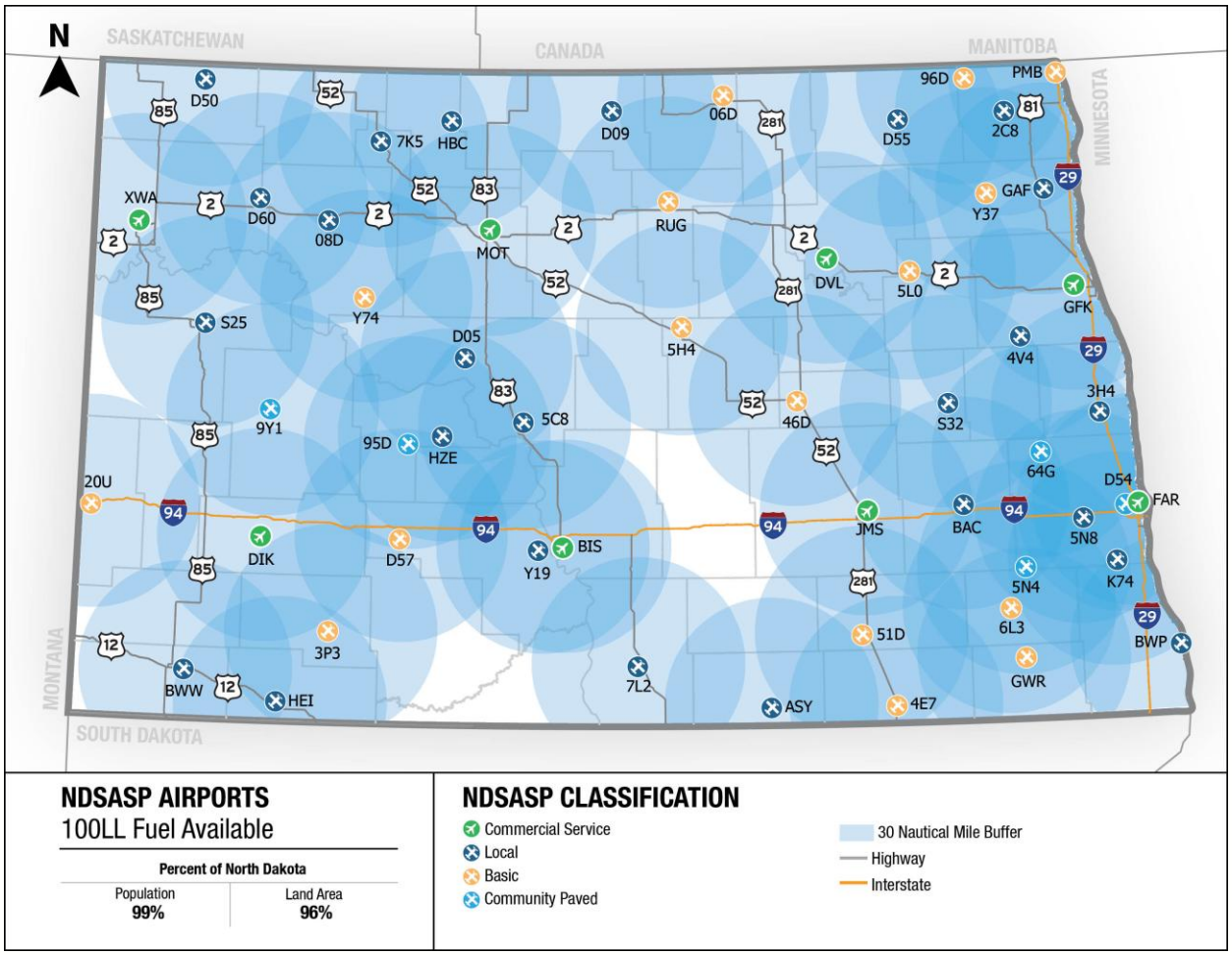


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.3.8. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport with 100LL Fuel

100LL fuel is an essential resource for single-engine piston aircraft, which constitutes a substantial segment of North Dakota's GA fleet. Given that the majority of airports have at least one based aircraft, providing 100LL fuel ensures those aircraft have convenient access to the fuel they need. Beyond that, maintaining 100LL availability is essential for supporting a wide range of GA activities, such as flight training, agricultural operations, recreational flying, and emergency response. As illustrated in **Figure 6-25**, nearly all of North Dakota's population and 96 percent of its land area are situated within 30 nautical miles of an airport supplying 100LL fuel.

Figure 6-25. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport with 100LL Fuel

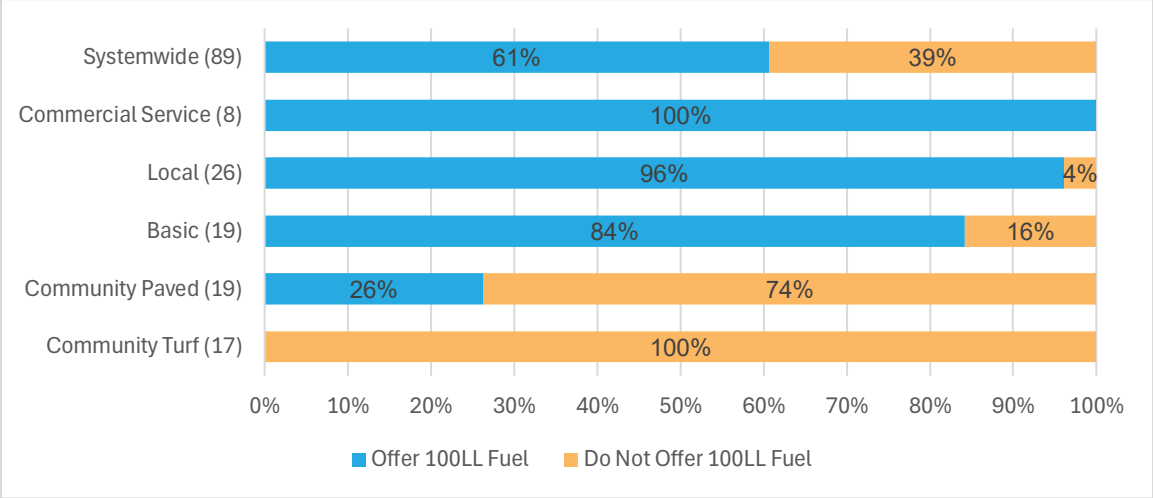


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

The 2014 NDSASP approached accessibility using a 30-minute drive-time model, which reflects how people travel by car. In contrast, this current study adopts a 30-nautical-mile buffer, a method more attuned to aviation operations where the distance an aircraft must fly to reach fuel or services is a more relevant metric. Because of this shift in analytical approach, the population and land area coverage results from the two studies are not directly comparable.

The population and land coverage associated with the 30-nautical-mile buffers around system airports corresponds to 61 percent of airports systemwide offering 100LL fuel, as shown in **Figure 6-26**. Airports serving larger populations and broader geographic areas, such as Commercial Service, Local, and Basic facilities, show high percentages of 100LL fuel availability. However, coverage drops in the less demanding classifications, such as the Community Paved and Community Turf airports.

Figure 6-26. PI: Percent of Airports with 100LL Fuel

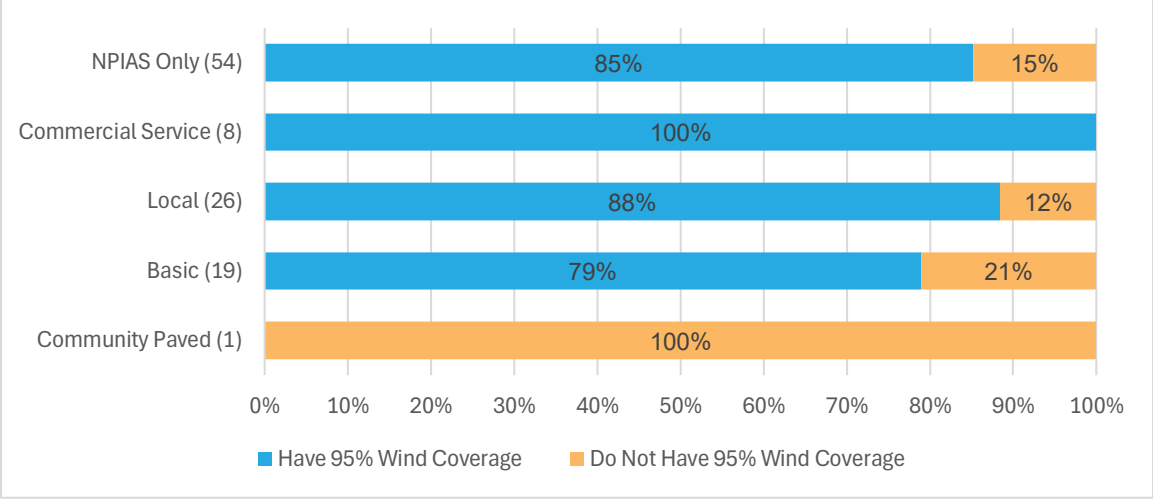


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.3.9. PI: Percent of NPIAS Airports That Have at Least 95 Percent Wind Coverage for All Runways

Runway wind coverage is a critical safety and operational metric for airports, particularly in North Dakota where wind conditions can vary significantly across seasons and terrain. The FAA recommends that public-use airports in the NPIAS achieve at least 95 percent wind coverage, ensuring aircraft can safely operate under prevailing wind conditions most of the time. As shown in **Figure 6-27**, 85 percent of NPIAS airports meet this metric. Performance is strongest among Commercial Service airports, where 100 percent meet the threshold, followed by Local and Basic airports. While Community Paved airports are included in the broader system, LaMoure Rott Municipal Airport (4F9) is the only airport in this classification that is included in the NPIAS.

Figure 6-27. PI: Percent of NPIAS Airports That Have at Least 95 percent Wind Coverage for All Runways



Sources: ALPs, 2025; Kimley-Horn, 2025.

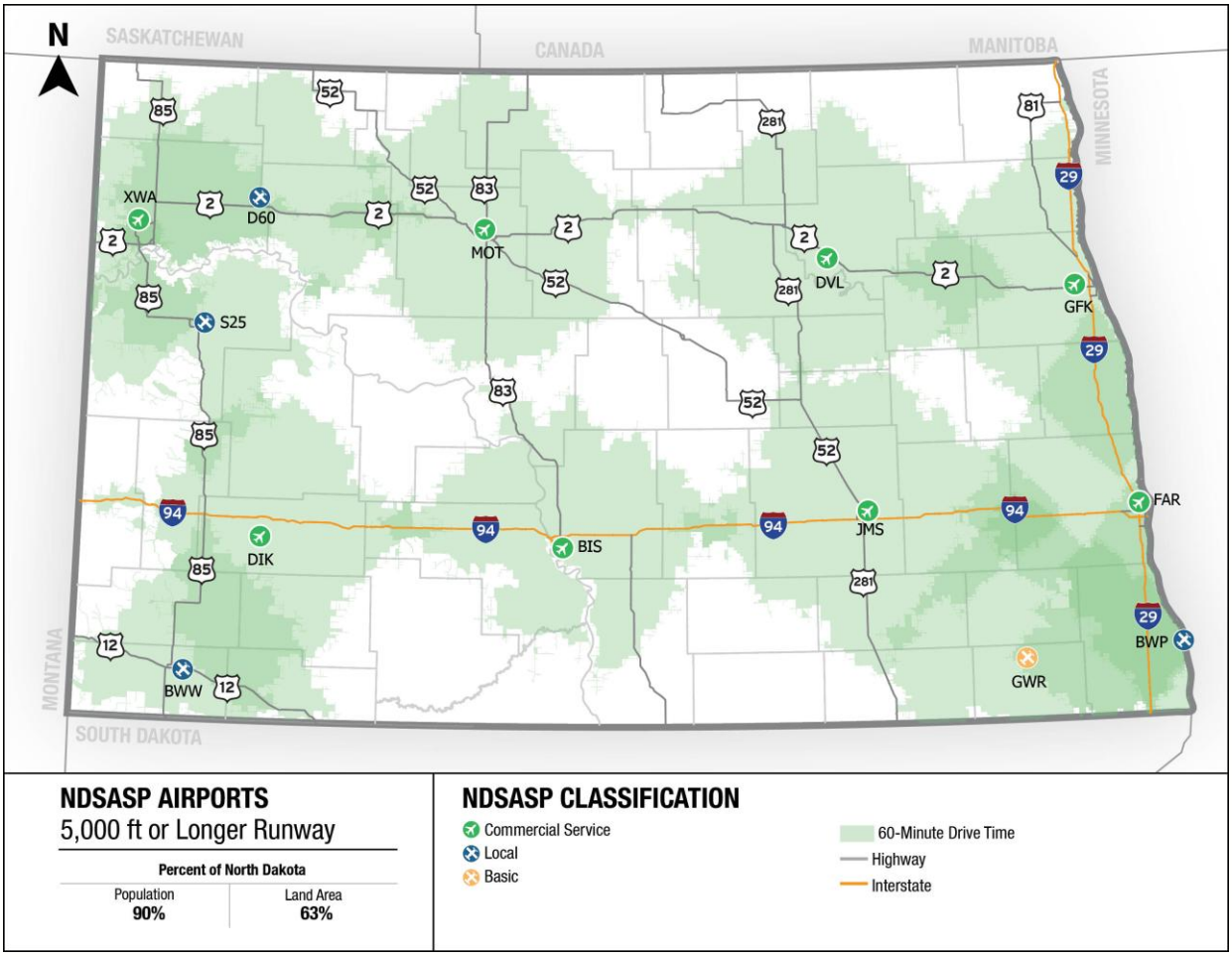
6.2.4. Goal: Enhance Quality of Life

This goal focuses on the broader impacts of aviation on communities, emphasizing sustainability, safety, and economic opportunity. By improving environmental stewardship, fostering innovation, and supporting workforce development, a more inclusive and resilient aviation ecosystem would be available to enhance the overall quality of life in North Dakota. The following subsections detail the system performance for the nine PIs (there are no PMs) used to evaluate the **Enhance Quality of Life** goal.

6.2.4.1. PI: Percent of Area and Population within 60 Minutes of a 5,000 ft or Longer Runway

Runway length plays a critical role in determining the range of aircraft operations that can be accommodated at an airport, particularly larger aircraft that require extended takeoff and landing distances. In North Dakota, access to runways that are 5,000 feet or longer is essential for enabling commercial service, air cargo, medical evacuation, and other high-performance aviation activities. Within the state, as shown in **Figure 6-28**, a substantial portion of North Dakota is well served by these facilities, with 90 percent of the population and 63 percent of the land area falling within the coverage buffer of airports with at least a 5,000-foot-long runway.

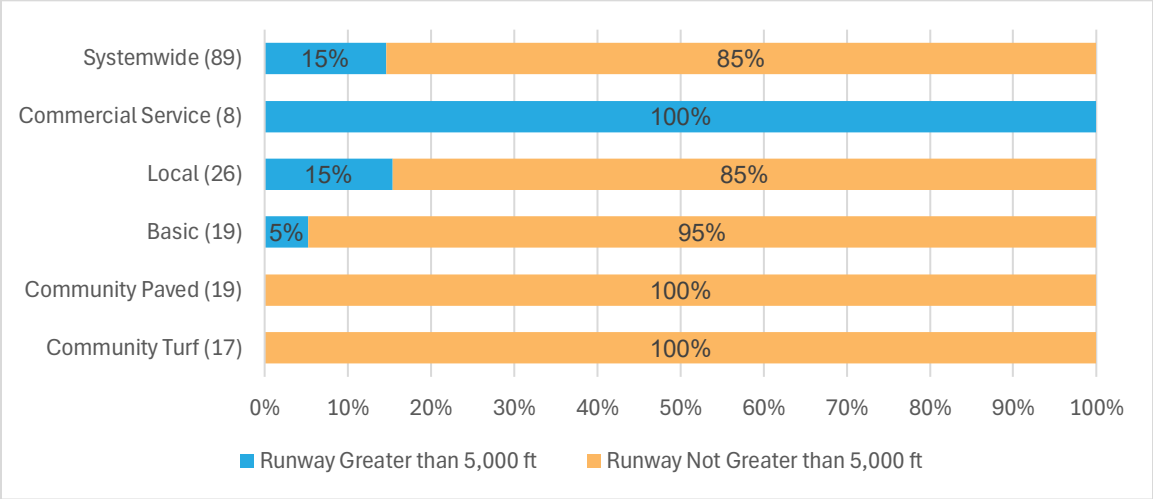
Figure 6-28. PI: Percent of Area and Population Within 60 Minutes of a 5,000 ft or Longer Runway



Sources: ADIP, 2025; ALPs, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

As illustrated in **Figure 6-29,** 15 percent of system airports have at least one runway that is 15 5,000 feet or longer. All Commercial Service airports meet this threshold, while only a few of the GA airports are equipped with runways of this length. In many cases, a 5,000-foot runway is not necessary at GA airports because the aircraft they support do not require that runway length for typical operations.

Figure 6-29. Percent of Airports with a 5,000 ft or Longer Runway



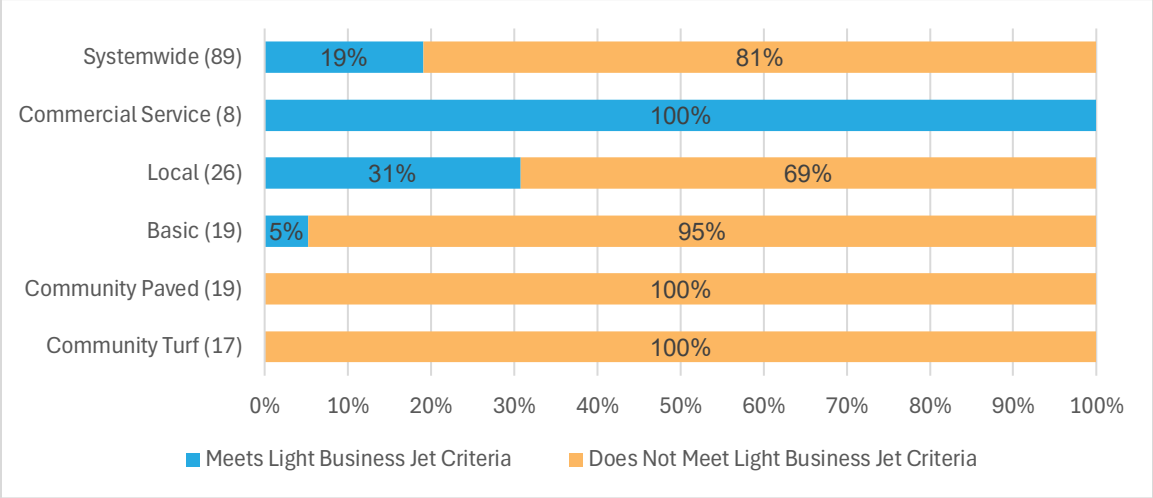
Sources: ADIP, 2025; ALPs, 2025; Kimley-Horn, 2025.

6.2.4.2. PI: Percent of Airports That Meet the Light Business Jet Capability Criteria

As mentioned in **Chapter 4**, light business jets require a specific set of infrastructure and services to operate effectively, including a runway of at least 4,000 feet by 75 feet, instrument approach capability, visual glide slope indicators (VGSI), runway lighting, on-site weather reporting, FBO services, and access to Jet A fuel.

Systemwide, 19 percent of airports meet this criteria, as shown in **Figure 6-30**, which includes all Commercial Service airports, 31 percent of Local airports, and five percent of Basic airports. Community Paved and Community Turf airports do not meet all the criteria.

Figure 6-30. PI: Percent of Airports That Meet the Light Business Jet Capability Criteria



Sources: 2025 NDSASP Airport Manager Survey, 2025; ADIP, 2025; ALPs, 2025; Kimley-Horn, 2025.

To provide a clearer understanding of where light business jet operations can be accommodated, **Table 6-7** lists the airports across the state that meet all required criteria and their respective data. This summary highlights the actual facilities available for jet-capable aircraft and sets the stage for a detailed look at their distribution and capabilities.

Table 6-7. NDSASP Airports that Meet the Light Business Jet Capability Criteria

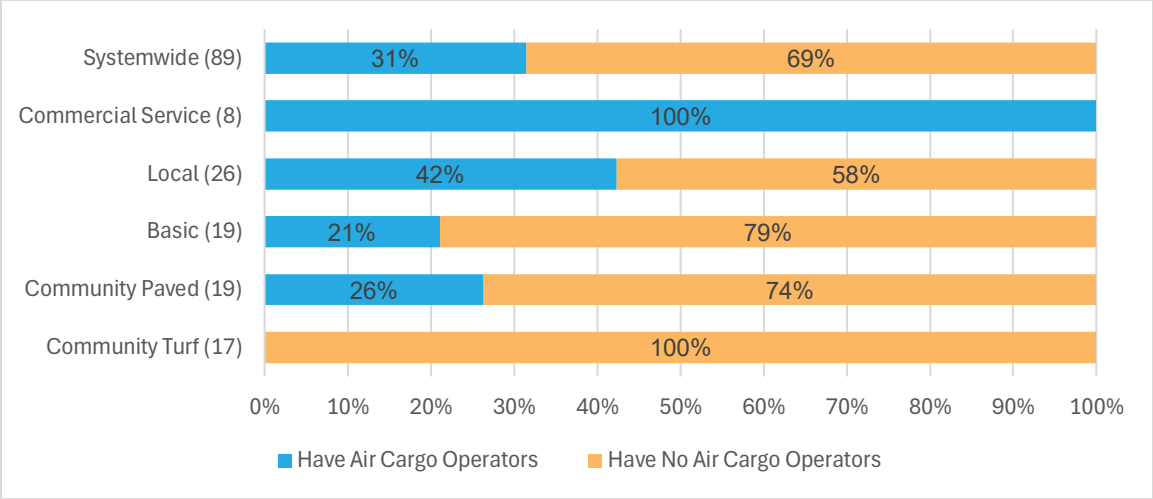
Associated City	Airport Name	FAA ID	Runway Length (ft)	Runway Width (ft)	VGSI	Runway Lighting	On-Site weather	FBO Services	Jet A	Approach	Light Business Jet Criteria
Commercial Service											
Bismarck	Bismarck Municipal Airport	BIS	8,794	150	P4L / P4L	HIRL	ASOS	Yes	Yes	Vertical Guidance	Yes
Devils Lake	Devils Lake Regional Airport	DVL	6,400	100	P4L / P4L	HIRL	AWOS-3PT	Yes	Yes	Vertical Guidance	Yes
Dickinson	Dickinson – Theodore Roosevelt Regional Airport	DIK	7,301	150	P4L / P4L	HIRL	ASOS	Yes	Yes	Vertical Guidance	Yes
Fargo	Hector International Airport	FAR	9,001	150	P4L / P4R	HIRL	ASOS	Yes	Yes	Vertical Guidance	Yes
Grand Forks	Grand Forks International Airport	GFK	7,351	150	P4L / P4L	HIRL	ASOS	Yes	Yes	Vertical Guidance	Yes
Jamestown	Jamestown Regional Airport	JMS	6,502	100	P4L / P4L	HIRL	ASOS	Yes	Yes	Vertical Guidance	Yes
Minot	Minot International Airport	MOT	7,700	150	P4L / None	HIRL	ASOS	Yes	Yes	Vertical Guidance	Yes
Williston	Williston Basin International Airport	XWA	7,503	150	P4L / P4L	HIRL	ASOS	Yes	Yes	Vertical Guidance	Yes
General Aviation											
Hettinger	Hettinger – JB Lindquist Regional Airport	HEI	4,652	75	P2L / P2L	MIRL	ASOS	Yes	Yes	Vertical Guidance	Yes
Valley City	Barnes County Municipal Airport	BAC	4,201	75	P2L / P2L	MIRL	AWOS-3	No*	Yes	Vertical Guidance	Yes
Wahpeton	Harry Stern Airport	BWP	5,100	75	P2L / P2L	MIRL	AWOS-3	No*	Yes	Vertical Guidance	Yes
Bowman	Bowman Regional Airport	BWW	5,701	75	P4L / P4L	MIRL	AWOS-3PT	No*	Yes	Vertical Guidance	Yes
Tioga	Tioga Municipal Airport	D60	5,102	75	P2L / P2L	MIRL	AWOS-3	No*	Yes	Vertical Guidance	Yes
Hazen	Mercer County Regional Airport	HZE	4,999	75	P2L / P2L	MIRL	AWOS-3PT	No*	Yes	Vertical Guidance	Yes
Gwinner	Gwinner – Roger Melroe Field	GWR	5,000	75	P2L / P2L	MIRL	AWOS-3	No*	Yes	Vertical Guidance	Yes
Watford City	Watford City Municipal Airport	S25	6,550	75	P2L / P2L	MIRL	AWOS-3PT	No*	Yes	Vertical Guidance	Yes
Mandan	Mandan Regional – Lawler Field	Y19	4,399	75	P2L / P2L	MIRL	AWOS-3	No*	Yes	Vertical Guidance	Yes

Note: The airports listed as not having an FBO on site are equipped to provide required jet services. Sources: ADIP, 2025; FAA Instrument Flight Procedures Information Gateway, 2025; ALPs, 2025; Kimley-Horn, 2025.

6.2.4.3. PI: Percent of Airports Utilized by Air Cargo Operators

The extent to which airports are utilized by air cargo operators reflects not only the system's logistical capacity but also its economic connectivity and regional accessibility. As shown in **Figure 6-31**, 31 percent of system airports reported having active air cargo operations, indicating a moderate level of integration across the network. All Commercial Service airports support air cargo operations, which is expected given their infrastructure and operational capacity. Local airports follow with 42 percent, while Basic and Community Paved airports show lower engagement at 21 percent and 26 percent, respectively. None of the Community Turf airports reported an air cargo presence.

Figure 6-31. Percent of Airports Utilized by Air Cargo Operators

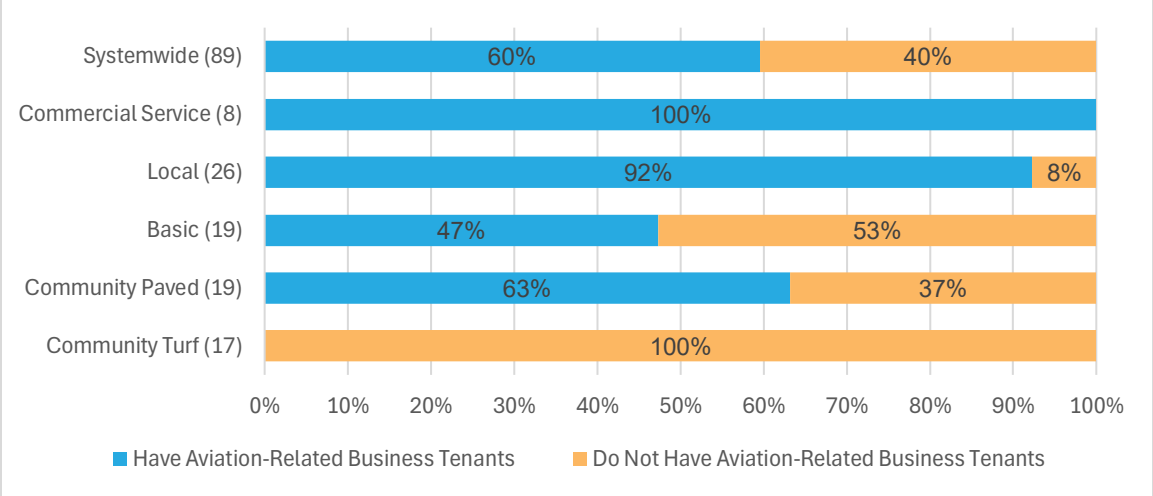


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.4.4. PI: Percent of Airports with Aviation-Related Business Tenants on Airport Property

Aviation-related businesses play an important role in the state's aviation system and are key economic drivers across communities. As shown in **Figure 6-32**, 60 percent of airports across the system report hosting aviation-related business tenants, reflecting a modest but meaningful presence of aviation-related business activity across the state. At the top of the scale, all Commercial Service airports and almost all Local airports reported having aviation-related tenants on site, while Basic and Community Paved airports show more limited tenant activity. Community Turf airports, on the other hand, report no tenant presence.

Figure 6-32. PI: Percent of Airports with Aviation Related Business Tenants on Airport Property

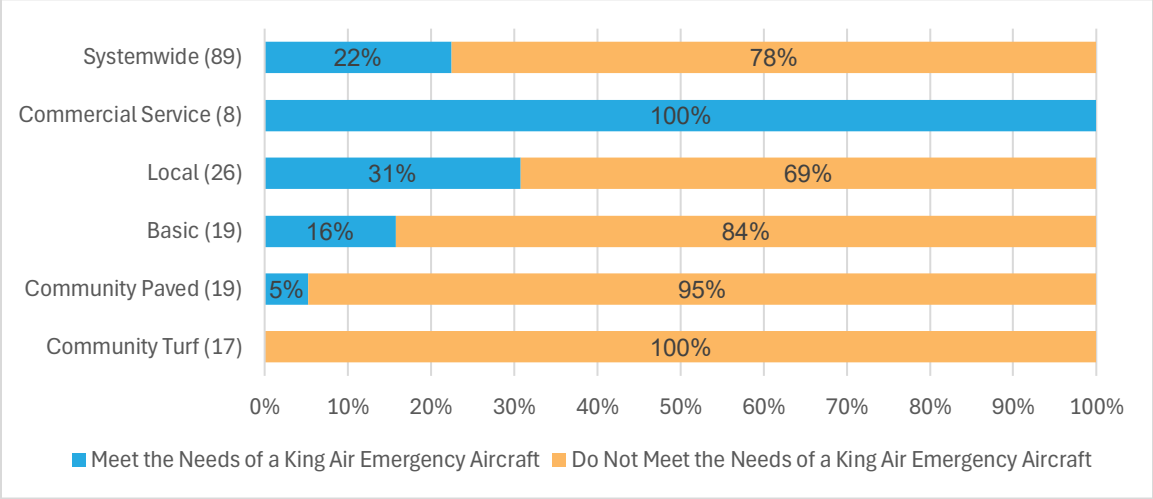


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.4.5. PI: Percent of Airports That Can Meet the Needs of the King Air Emergency Aircraft

Having infrastructure capable of supporting King Air emergency aircraft is critically important, especially in rural areas across the state where access to advanced medical care or emergency services may be limited. As shown in **Figure 6-33**, 22 percent of airports systemwide meet the operational requirements for King Air emergency aircraft, including a minimum runway length of 3,800 feet, runway lighting runway for nighttime operations, certified weather reporting, and a Runway Design Code (RDC) of at least B-II. While all Commercial Service airports meet these requirements, the numbers decline as the airport classifications become less demanding. 31 percent of Local airports, 16 percent of Basic, and five percent of Community Paved airports can meet the needs of a King Air aircraft used for emergency transportation or similar aircraft.

Figure 6-33. PI: Percent of Airports That Can Meet the Needs of the King Air Emergency Aircraft

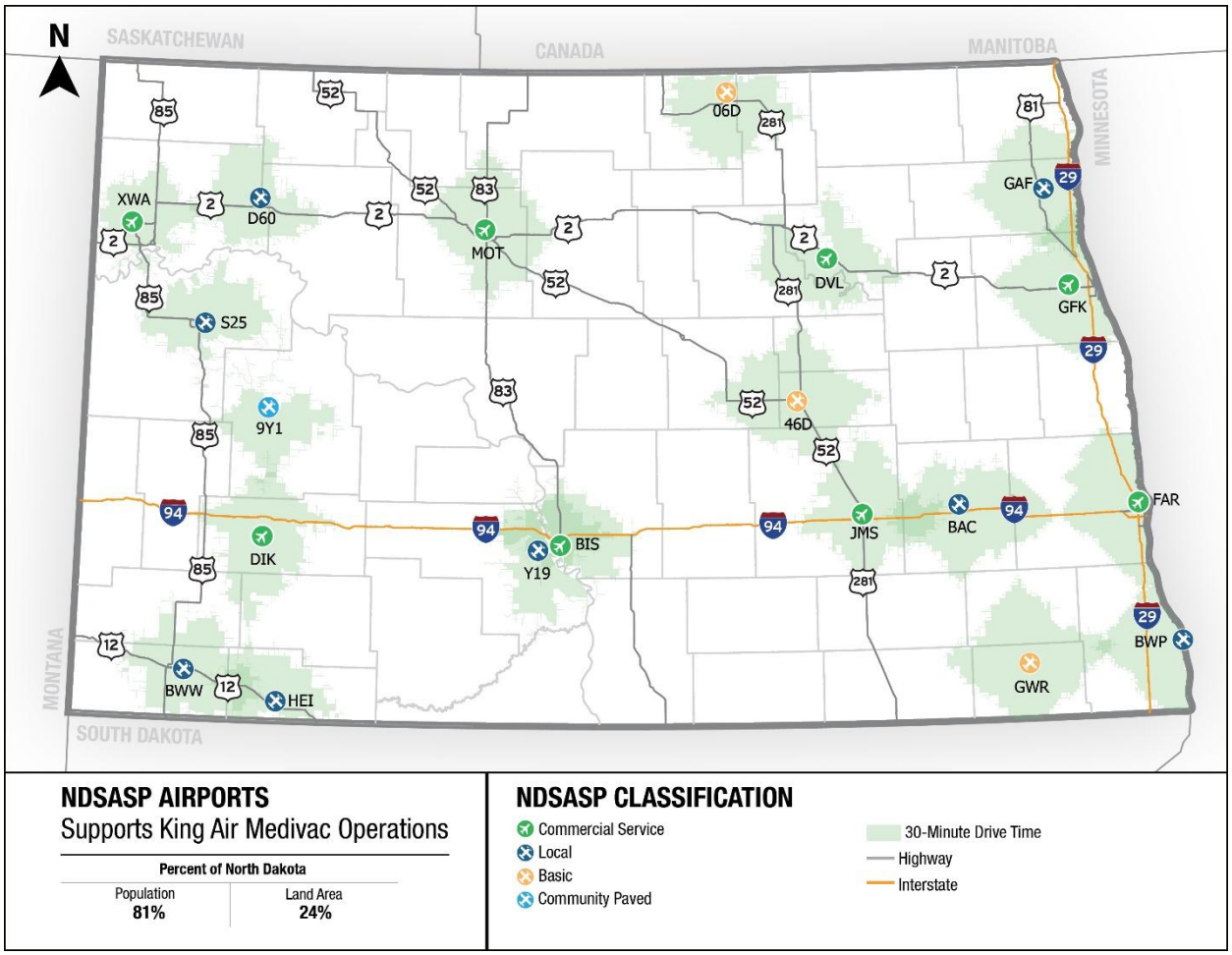


Sources: ADIP, 2025; Kimley-Horn, 2025.

6.2.4.6. PI: Percent of Area and Population Within 30 Minutes of an Airport That Can Meet the Needs of the King Air Emergency Aircraft

The percentage of airports capable of supporting King Air operations was also examined in terms of 30-minute drive-time analysis. As shown in **Figure 6-34**, this analysis reveals that 81 percent of North Dakota's population resides within the buffer zone surrounding these airports, while only 24 percent of the state's land area falls within the same range.

Figure 6-34. PI: Percent of Area and Population Within 30 Minutes of an Airport That Can Meet the Needs of the King Air Emergency Aircraft



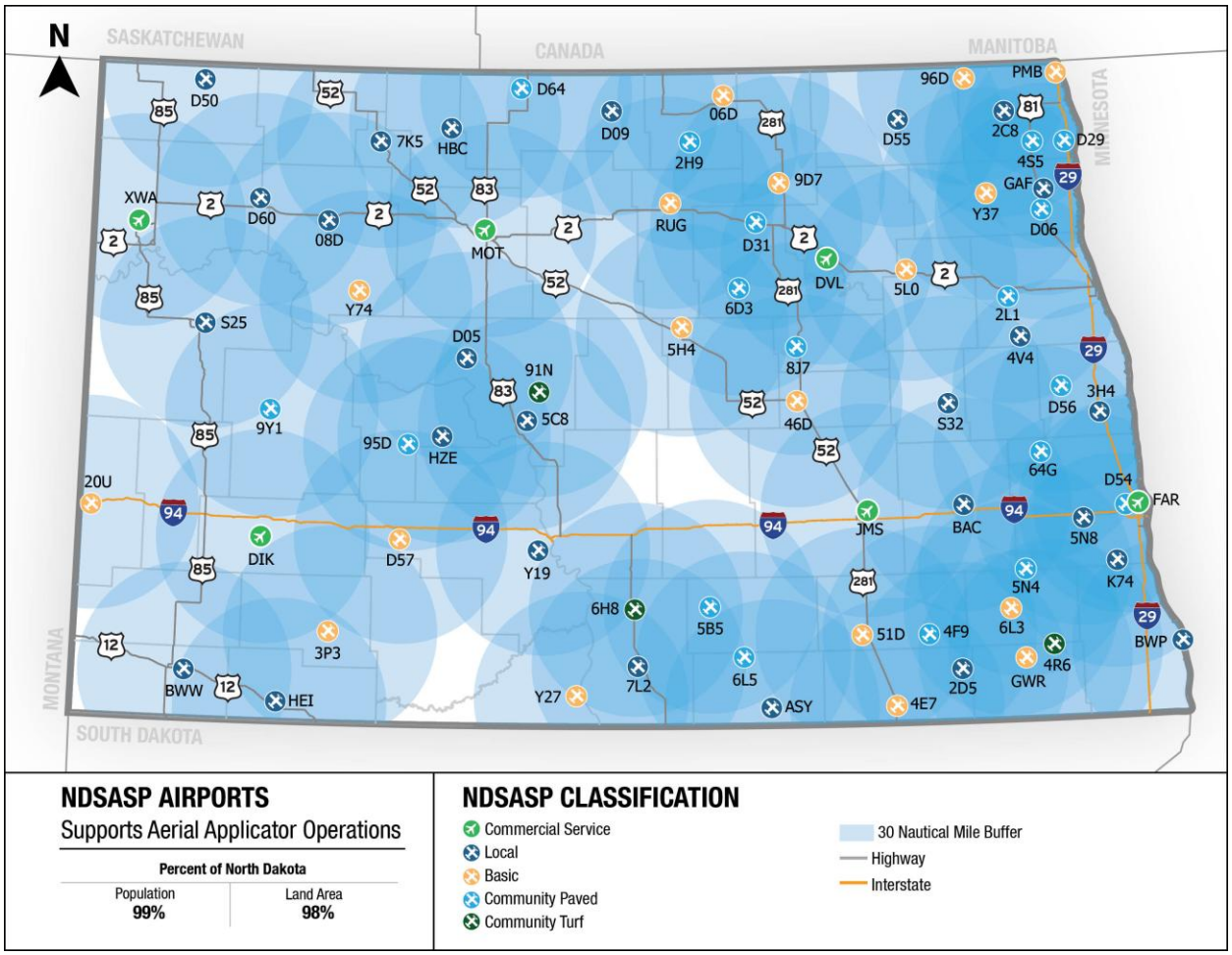
Sources: ADIP, 2025; ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

In the previous study, the same PI was utilized; however, the 2025 study examines four criteria as outlined, whereas the 2014 study considered only two (3,500+ft runway length and a non-precision approach) so a comparison between study years is not applicable.

6.2.4.7. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport That Supports Based or Transient Aerial Applicator Operations

Aerial agricultural operations play a vital role in supporting the agricultural backbone of the state. Whether based or transient, these operations rely on accessible airports to deliver timely and effective applicator service to farming communities. In **Figure 6-35**, a spatial analysis shows that nearly all of the state's population and 98 percent of its land area fall within 30 nautical miles of an airport that supports based or transient aerial applicator operations.

Figure 6-35. PI: Percent of Area and Population Within 30 Nautical Miles of an Airport That Supports Based or Transient Aerial Applicator Operations

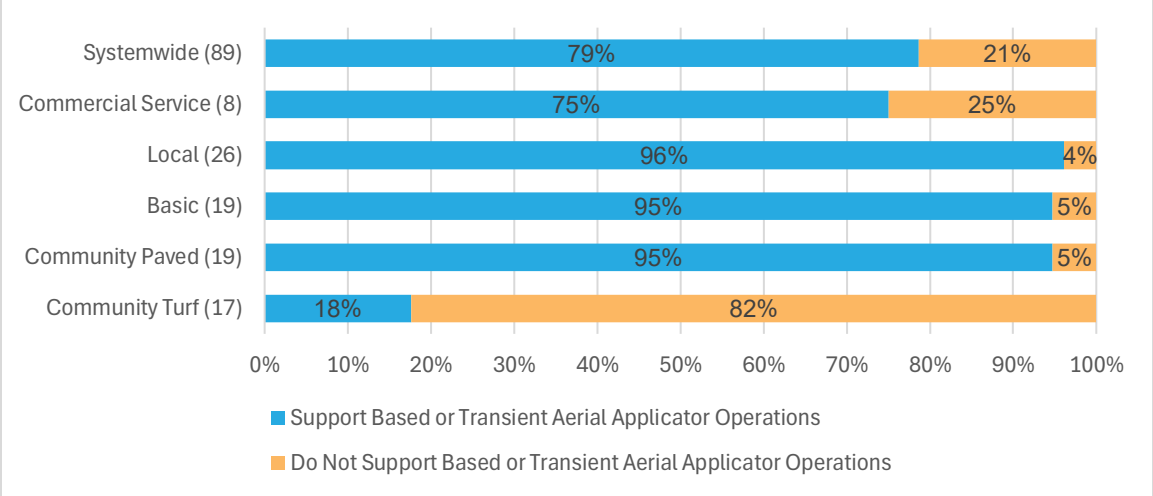


Sources: 2025 NDSASP Airport Manager Survey, 2025; ArcGIS Pro, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

The 2014 NDSASP evaluated accessibility to aerial applicator operations using a 30-minute drive-time model, which reflects how people travel by car. In contrast, this study uses a 30-nautical-mile buffer, a methodology more attuned to aviation operations because it measures the distance an aircraft must fly to reach an airport that supports aerial application activities. Because of this shift in analytical approach, the population and land area coverage results from the two studies are not directly comparable.

The population and land area coverage associated with this PI corresponds with 79 percent of system airports reporting they support based or transient aerial applicator operations, as shown in **Figure 6-36**. This coverage is especially strong among Local, Basic, and Community Paved airports, which are often located near agricultural zones. Commercial Service airports show 75 percent support, while Community Turf airports are at 18 percent.

Figure 6-36. PI: Percent of Airports that Supports Based or Transient Aerial Applicator Operations

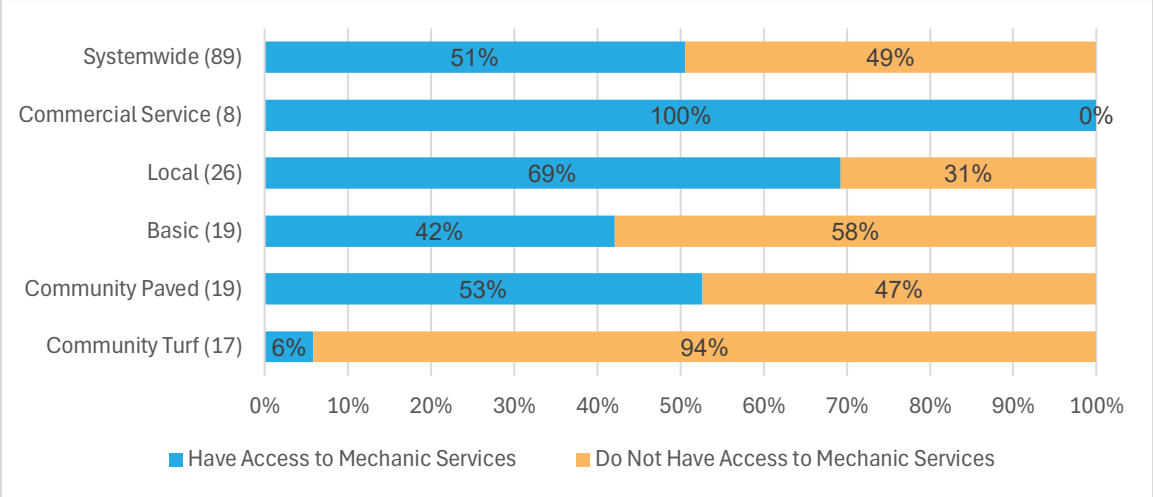


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.4.8. PI: Percent of Airports that Provide Access to Mechanic Services

Reliable access to mechanic services is essential to safe and efficient airport operations and supports economic activity across the state. Whether for routine maintenance or unexpected repairs, access to qualified aviation mechanics helps ensure aircraft remain airworthy and operations stay on schedule. This capability is especially vital in rural and remote areas where alternative maintenance options may be limited. As shown in **Figure 6-37**, 51 percent of system airports offer access to mechanic services. All Commercial Service airports meet this metric, while Local airports follow with 69 percent. In addition, 42 percent of Basic airports, 53 percent of Community Paved, and six percent of Community Turf airports reported offering mechanic services. This can include based, transient, or on-call services.

Figure 6-37. PI: Percent of Airports That Provide Access to Mechanic Services

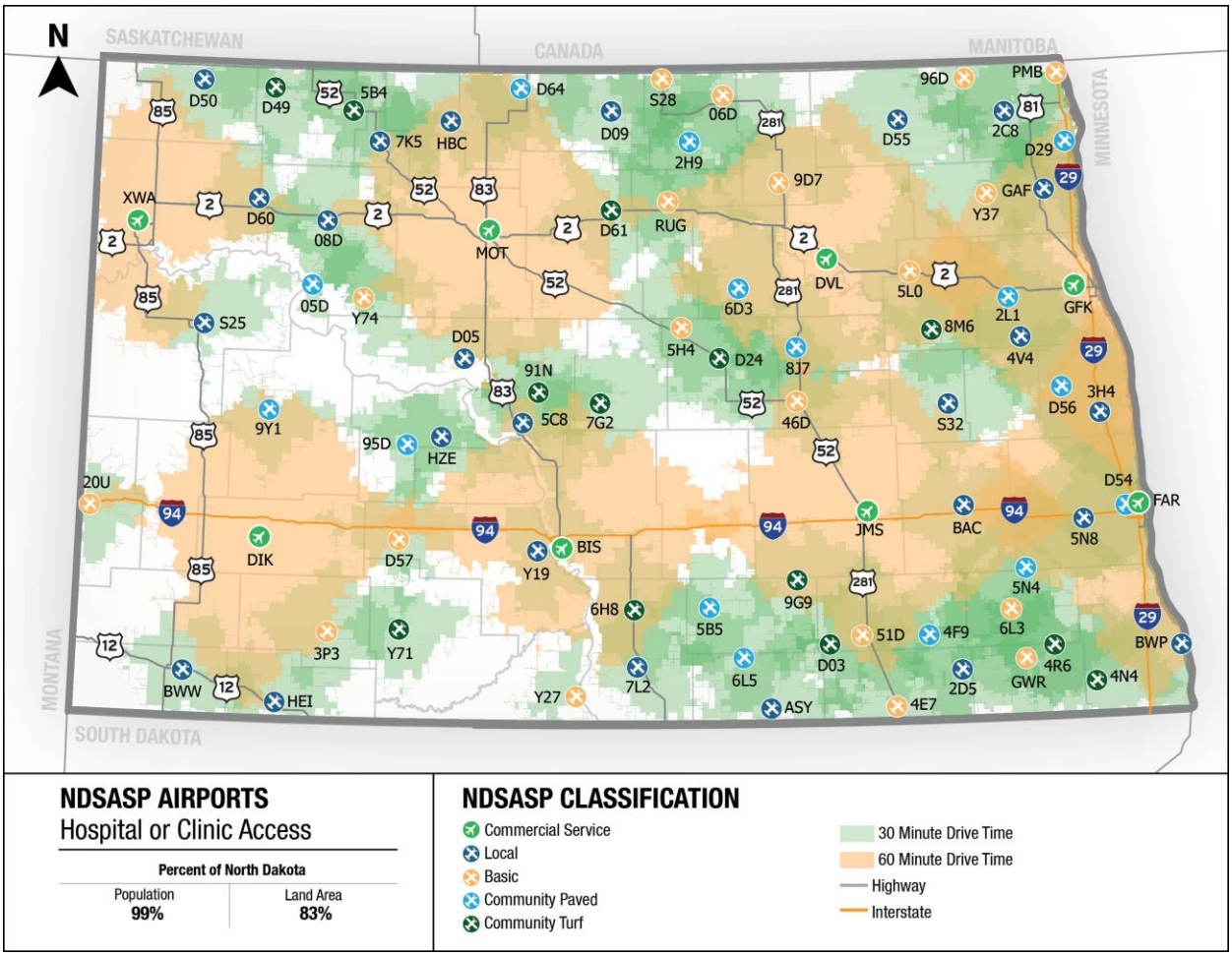


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.4.9. PI: Percent of Area and Population with a Hospital and/or Clinic Served by an Airport

The location of hospitals and clinics within an airport's service area is a key indicator of how well the aviation system supports public health, emergency response, and community resilience. Airports are used by medical professionals not only for emergency transport but also by numerous healthcare professionals that travel from larger communities to rural areas to provide the full spectrum of services such as cardiac or others that are not available at all hospitals or clinics. A 60-minute drive-time was deemed sufficient to analyze this metric for Commercial Service airports, while a 30-minute interval was used for GA airports. **Figure 6-38** shows nearly all of North Dakota's population and 83 percent of its land area are located within either a 30-minute drive of a GA airport or a 60-minute drive of a Commercial Service airport.

Figure 6-38. Percent of Airports and Population with a Hospital and/or Clinic Served by an Airport

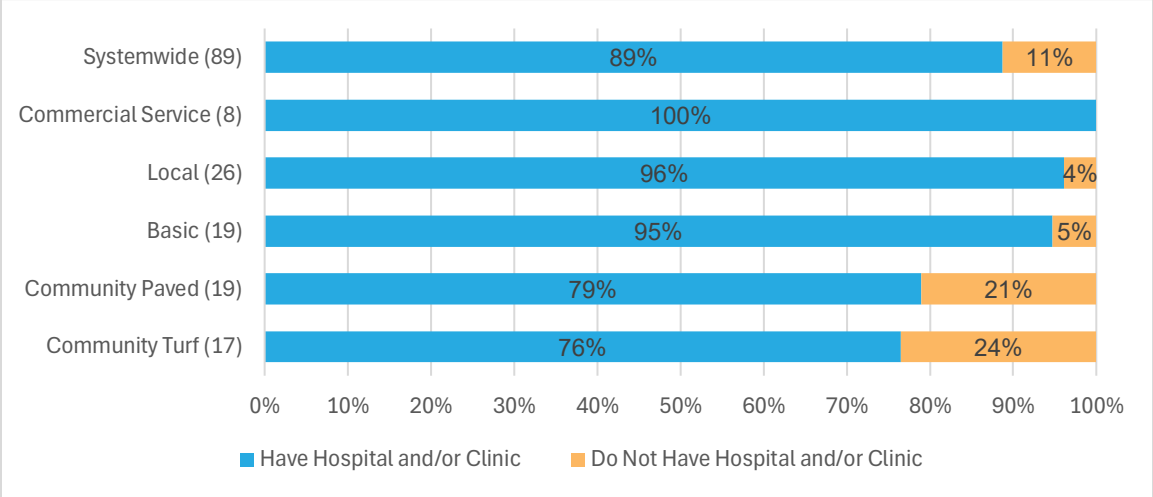


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

The previous 2014 study measured the percentage of communities with a hospital or clinic, while the current study examines the percentage of population and land area within an airport's service area that have these facilities. Therefore, the comparison results are not directly comparable.

As shown in **Figure 6-39**, 89 percent of system airports have a hospital or clinic within their service area. This includes full coverage at Commercial Service airports, and high accessibility at Local, Basic, Community Paved, and Community Turf airports. These measures reflect a strong alignment between aviation infrastructure and healthcare provider access across the state.

Figure 6-39. PI: Percent of Airports with a Hospital and/or Clinic Within its Service Area



Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

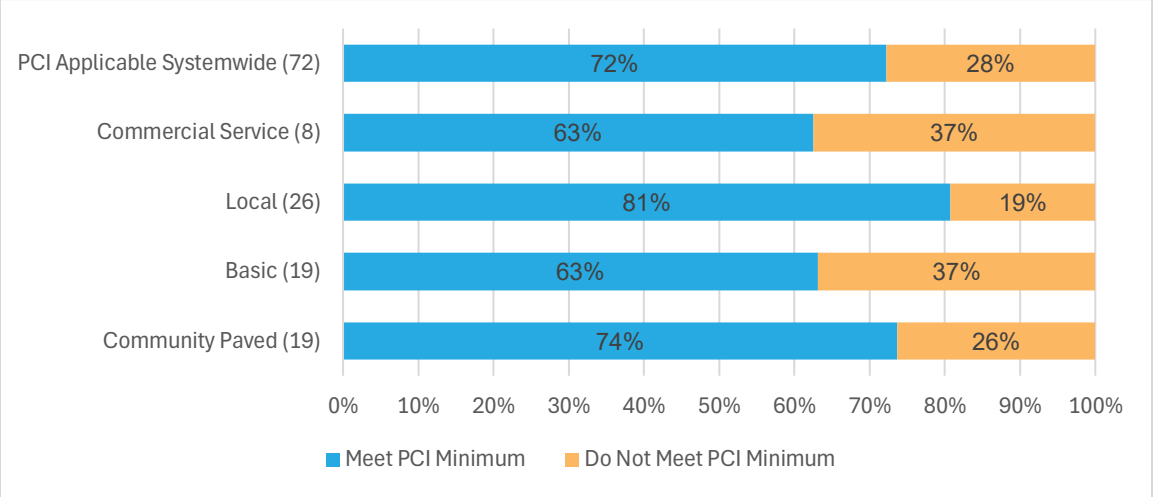
6.2.5. Goal: Preserve Airport Infrastructure

This goal focuses on long-term preservation and responsible management of airport infrastructure throughout the system. Airports rely on a wide array of physical assets and regulatory frameworks, from pavement and planning documents to protected airspace and funding mechanisms, that require ongoing attention and investment. These elements are foundational to safe, efficient, and future-ready operations. The following subsections detail the system performance for the two PMs and three PIs used to evaluate **Preserve Airport Infrastructure**. While many of the PMs and PIs were examined in the 2014 study, much of the analysis is not directly comparable due to the differences in methodologies employed for the analysis. Where applicable, comparable data is provided.

6.2.5.1. PM: Percent of Airports Meeting State Pavement Condition Index (PCI) Thresholds on Primary Runways

The PCI serves as a critical benchmark for assessing pavement health. Thresholds are established to identify an average PCI that is considered to represent “good pavement” where maintenance can be used to help manage the PCI without major rehabilitation efforts being needed. A threshold of 70 was established for GA runways and 75 for Commercial Service runways. Airports that meet or exceed this threshold are better positioned to support consistent service, reduce maintenance disruptions, and ensure safe landings and takeoffs. As shown in **Figure 6-40**, 74 percent of Community Paved airports meet the state PCI threshold on their primary runways. Performance varies across airport classifications, with Local airports leading with 81 percent compliance, followed by Community Paved at 74 percent, and both Commercial Service and Basic airports at 63 percent.

Figure 6-40. PM: Percent of Airports Meeting State PCI Thresholds on Primary Runways



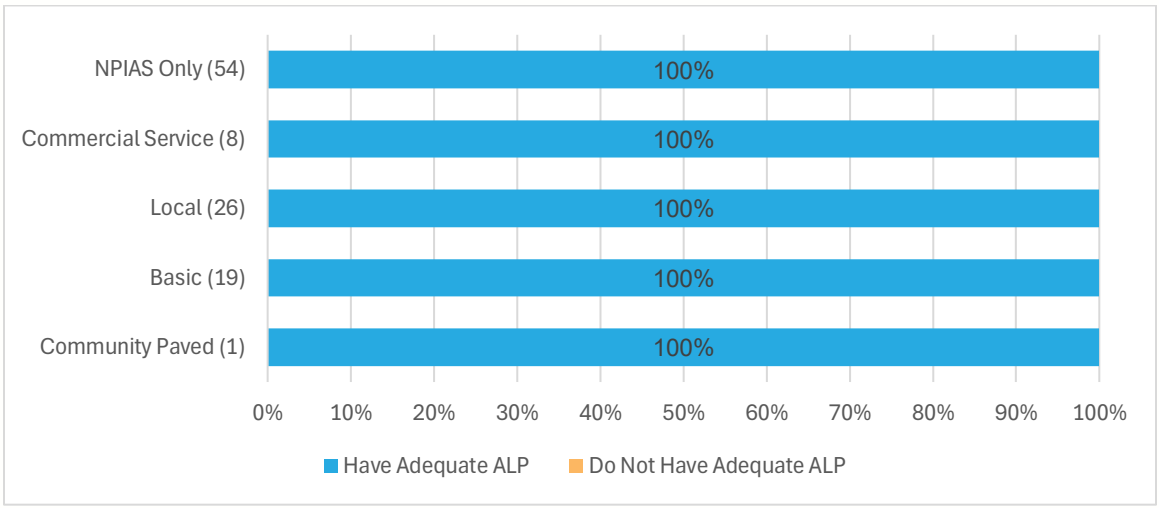
Sources: 2025 NDSASP Airport Manager Survey, 2025; ND Pavement Management System Update, 2025; Kimley-Horn, 2025.

The previous study used a PCI threshold of 60 for paved GA airports and 65 for commercial service airports. As a result, comparisons with previous performance figures are not applicable.

6.2.5.2. PM: Percent of NPIAS Airports with an Adequate Airport Layout Plan (ALP)

An ALP is a critical planning document that outlines current facilities and future development, serving as a roadmap for safe, efficient, and strategic airport growth. For airports included in the NPIAS, maintaining an adequate ALP is required to secure federal funding. As shown in **Figure 6-41**, all NPIAS airports systemwide have an adequate ALP.

Figure 6-41. PM: Percent of NPIAS Airports with an Adequate ALP



Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

Table 6-8 compares the percentage of NPIAS airports with an adequate ALP between the 2014 and 2025 studies. In 2014, 91% of airports met the state standard. By 2025, that figure increased to 100 percent, indicating full compliance across the system.

Since the 2014 NDSASP, the following airports are reporting an adequate ALP and contributing to the increase in performance.

- Ashley Municipal Airport (ASY)
- Cando Municipal Airport (9D7)
- Hutson Field (GAF)
- Jamestown Regional Airport (JMS)
- Rolla Municipal Airport (06D)
- Walhalla Municipal Airport (96D)

Table 6-8. Percent of NPIAS Airports with an ALP: 2014 vs. 2025

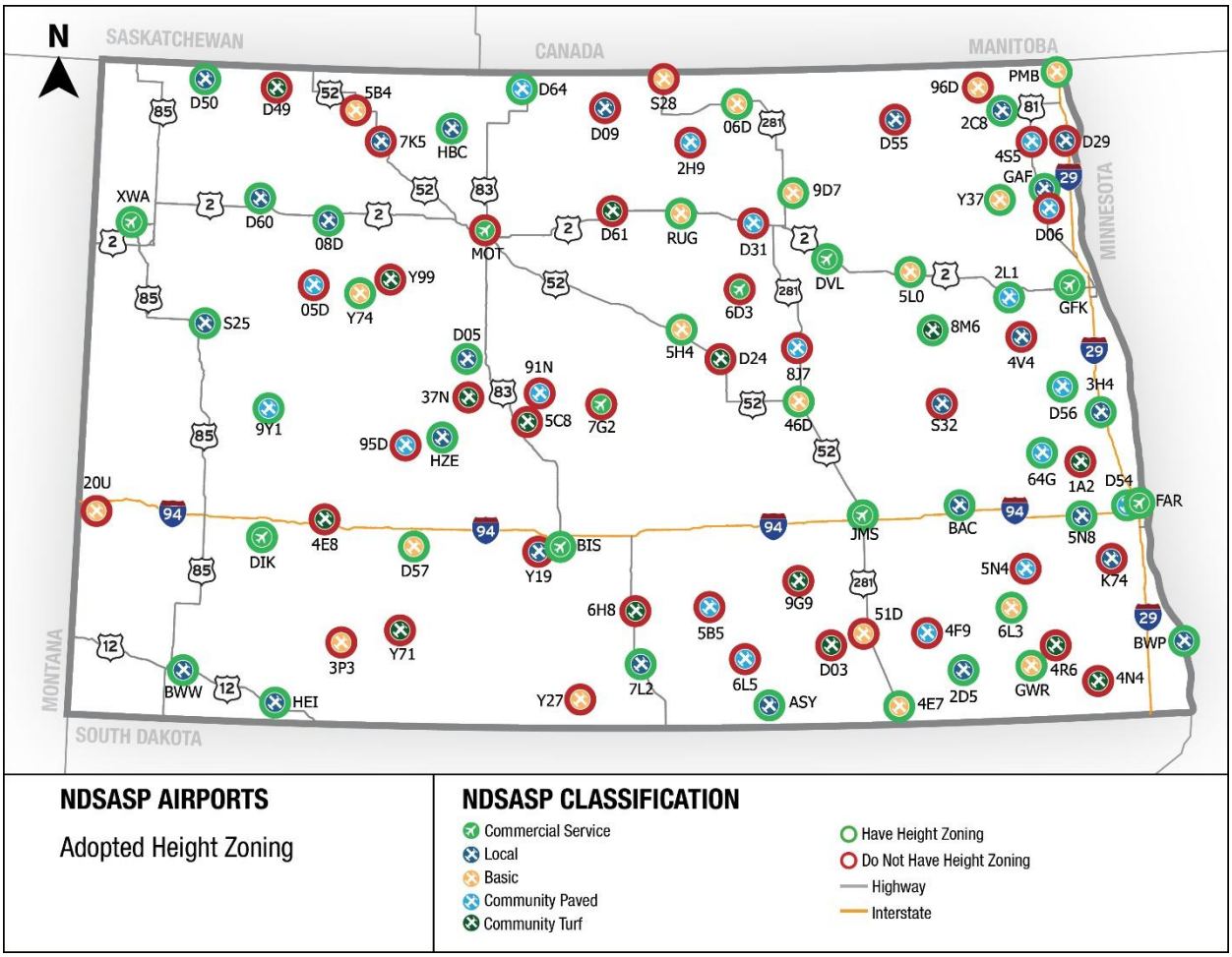
Study Year	Systemwide Performance
2014	91%
2025	100%
Percent Change	+9%

Sources: 2025 NDSASP Airport Manager Survey, 2025; 2014 NDSASP, 2014; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

6.2.5.3. PI: Percent of Airports That Have Height Zoning Following Part 77 Guidelines Adopted by a Local Zoning Board

Height zoning regulations, as outlined in FAA Part 77, are essential for safeguarding navigable airspace and ensuring safe operations near airports. When adopted by local zoning boards, these guidelines help prevent obstructions that could compromise flight paths, approach procedures, and overall airport safety. In the previous 2014 study, the focus of the analysis of this metric was solely on paved airports, revealing that only 24 percent were compliant with FAA FAR Part 77 guidelines, while 51 percent of airports were uncertain about their compliance status. In contrast, the 2025 study takes a comprehensive look at the entire airport system. Depicted, in **Figure 6-42**, this is an illustration of airports both with and without height zoning.

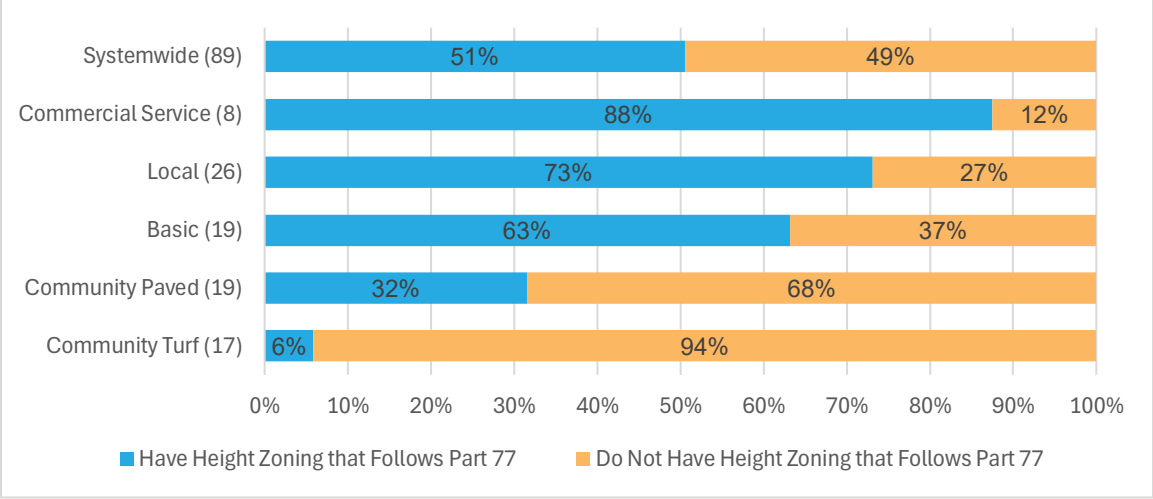
Figure 6-42. Percent of Airports that Have Height Zoning Following Part 77 Guidelines Adopted by a Local Zoning Board



Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

As shown in **Figure 6-43**, 51 percent of system airports have height zoning regulations in place that follow Part 77 guidelines. Compliance is strongest among Commercial Service airports at 88 percent, Local airports at 73 percent, and Basic airports at 63 percent. However, Community Paved and Community Turf airports show much lower adoption rates, likely because these communities are not experiencing rapid development that may encroach upon the airport environment.

Figure 6-43. PI: Percent of Airports that Have Height Zoning Following Part 77 Guidelines Adopted by a Local Zoning Board

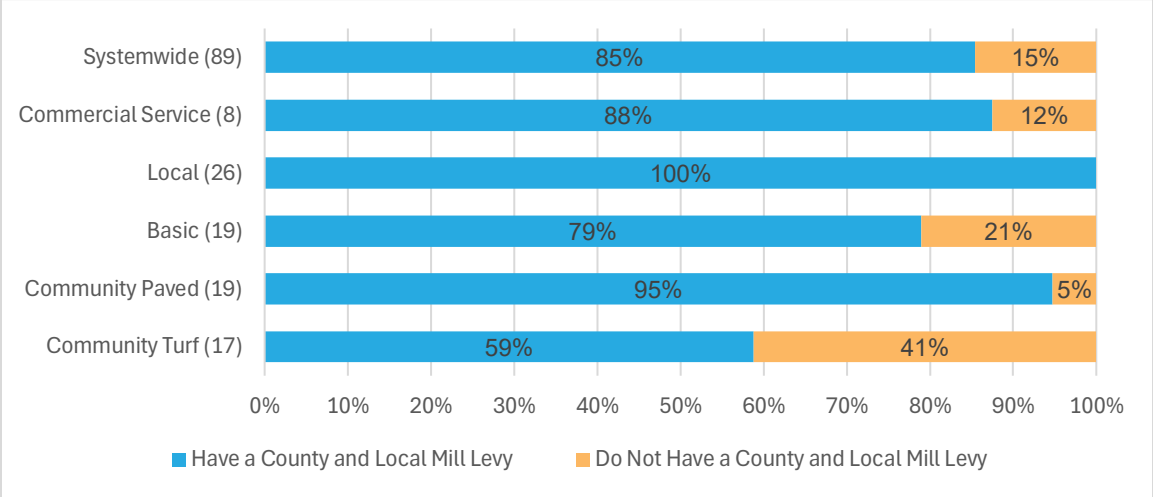


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.5.4. PI: Percent of Airports with a Local or County-Wide Mill Levy

Mill levies are a tangible expression of local commitment to aviation infrastructure. Whether enacted at the county or municipal level, these levies provide airports with a dedicated funding stream for operations, maintenance, and capital improvements. Airports supported by mill levies are better positioned to meet community needs, respond to growth, and maintain safe, reliable services due to this funding stream. As shown in **Figure 6-44**, in 2025, 85 percent of airports across the state benefit from a local or county-wide mill levy, indicating strong financial support for aviation infrastructure. This funding mechanism is widely adopted across airport classifications with Commercial Service, Local, Basic, and Community Paved airports all showing high levels of mill levy coverage. Even Community Turf airports, often located in more rural areas, demonstrate a notable 59 percent.

Figure 6-44. PI: Percent of Airports with a Local or County-Wide Mill Levy



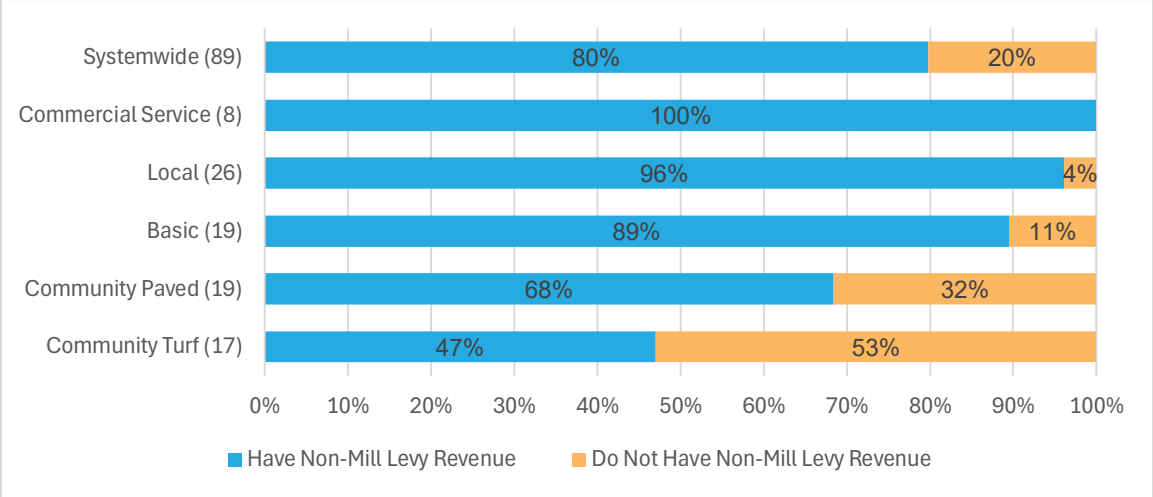
Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

In the 2014 NDSASP, the percentage of airports with a local mill levy and those with a county-wide mill levy were evaluated as two distinct metrics. In contrast, the 2025 NDSASP consolidated these into a single PI, offering a more streamlined assessment of mill levy presence—whether local or county-wide—across system airports. As a result of this methodological change, direct comparisons between the two study years are not valid.

6.2.5.5. PI: Percent of Airports with Non-Mill Levy Revenue

While mill levies provide a critical foundation for airport funding, non-mill levy revenue sources such as fuel sales, hangar leases, user fees, passenger fees, and more offer airports greater financial flexibility and resilience. These diversified revenue streams help airports reduce reliance on local tax support and better respond to operational and capital needs. As shown in **Figure 6-45**, 80 percent of airports systemwide report having non-mill levy revenue sources in place. All Commercial Service airports and nearly all Local and Basic airports benefit from these additional funding sources. Community Paved airports show 68 percent, while Community Turf airports trail at 47 percent that indicated they have non-mill levy revenue.

Figure 6-45. PI: Percent of Airports with Non-Mill Levy Revenue



Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

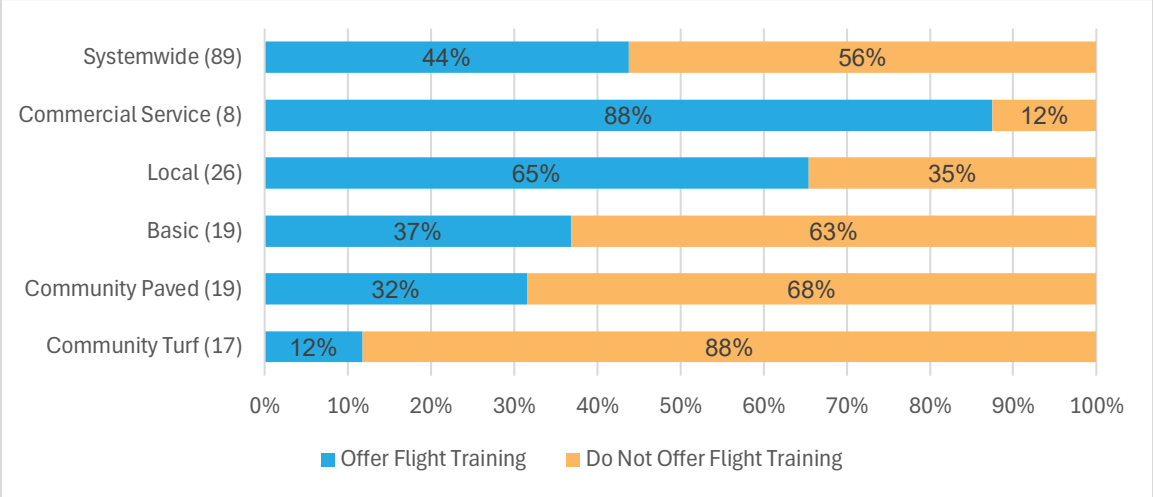
6.2.6. Goal: Support Aviation Education and Industry Advancement

Education plays a pivotal role in advancing the aviation industry by fostering growth, cultivating interest, and strengthening stakeholder engagement. The analyses presented in the following subsections highlight current system performance based on the five PIs (there are no PMs) related to **Support Aviation Education and Industry Advancement**.

6.2.6.1. PI: Percent of Airports That Offer Flight Training

Flight training is a critical component of the aviation system, supporting workforce development and long-term sustainability of the industry. Airports that offer flight training help develop the next generation of pilots, mechanics, and other aviation professionals, ensuring a continued pipeline of skilled personnel to support aviation operations. As shown in **Figure 6-46**, 44 percent of system airports offer flight training opportunities. Commercial Service airports lead the way, largely due to their larger populations and concentration of aviation resources, followed by Local airports, which often serve as regional hubs for aspiring aviators. Basic, Community Paved, and Community Turf airports show more limited availability of flight training opportunities across the system.

Figure 6-46. PI: Percent of Airports That Offer Flight Training

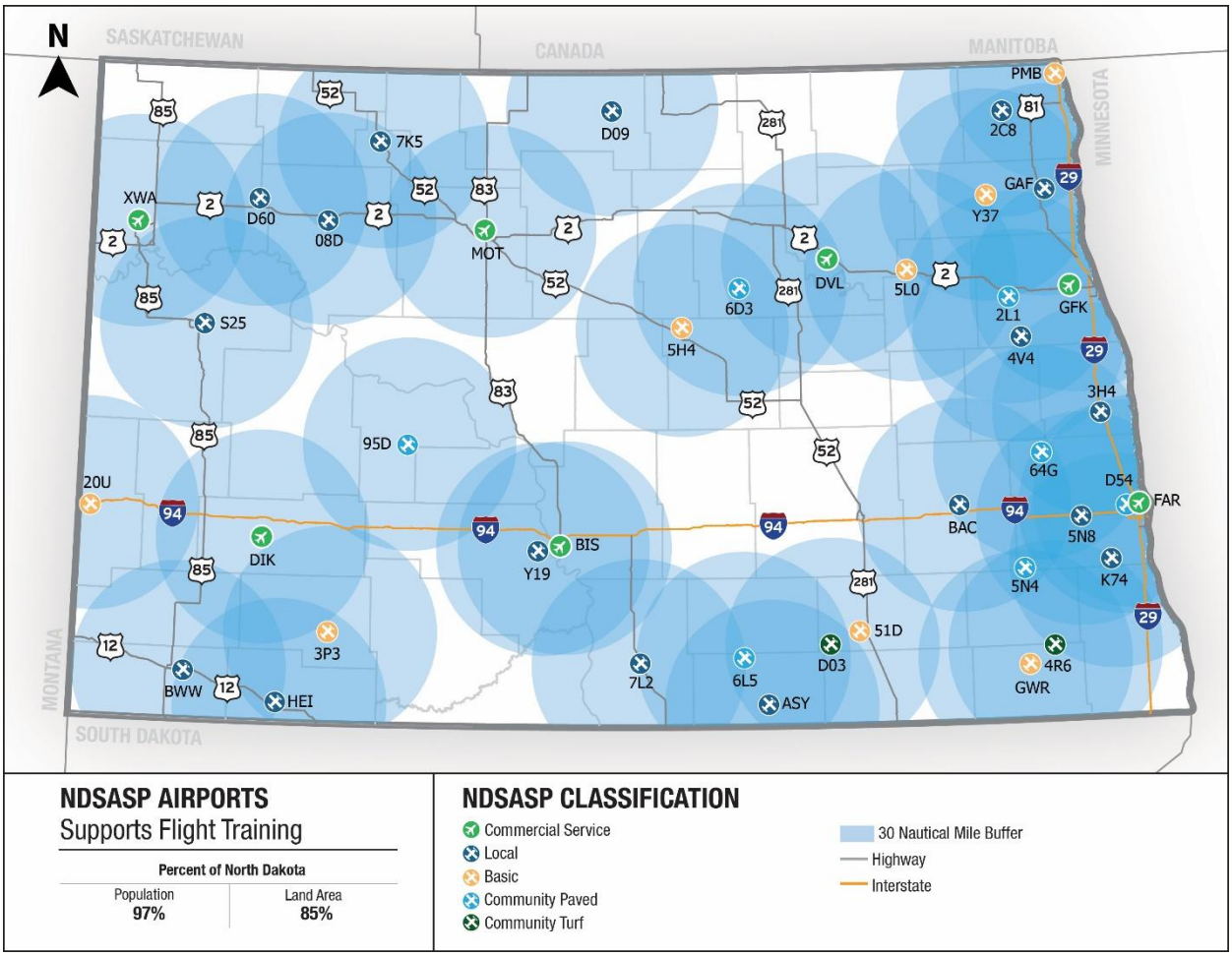


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.6.2. PI: Percent of Area and Population within 30 Nautical Miles of an Airport That Offers Flight Training

When looking at the whole state of North Dakota, access to flight training is more than just a convenience, it's a strategic asset. As shown in **Figure 6-47**, 97 percent of the population and 85 percent of the land area fall within a 30-nautical-mile buffer of an airport that offers flight training. This coverage reflects strong accessibility for most residents, particularly in more populated regions.

Figure 6-47. PI: Percent of Area and Population within 30 Nautical Miles of An Airport That Offers Flight Training

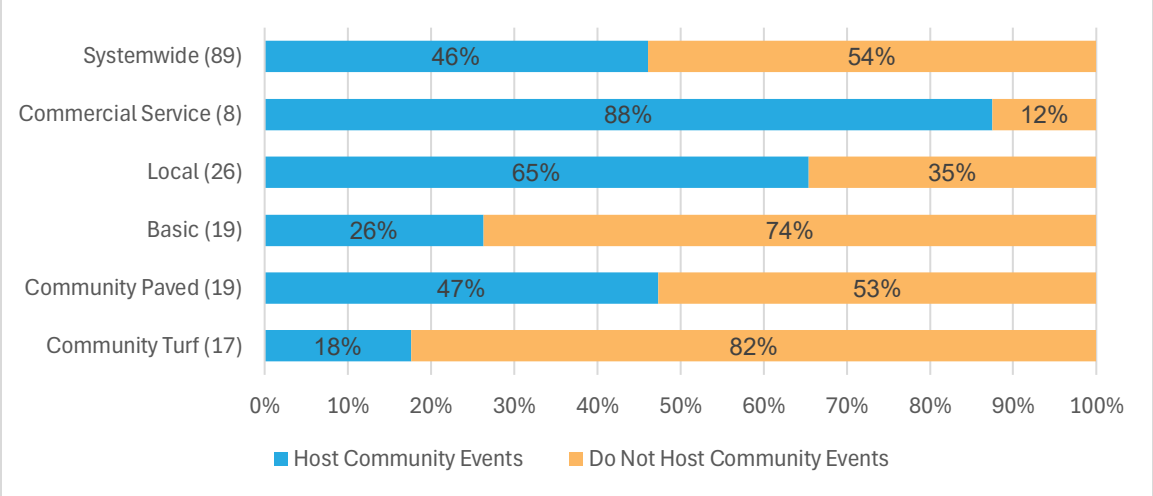


Sources: 2025 NDSASP Airport Manager Survey, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

6.2.6.3. PI: Percent of Airports That Host Annual Fly-Ins or Other Community Engagement Events

Annual fly-ins, open houses, and other engagement events help foster public interest in aviation, build local support, and create memorable experiences that connect people to their regional airports. As shown in **Figure 6-48**, 46 percent of system airports host community events. Participation is strongest among Commercial Service airports at 88 percent and Local airports at 65 percent, which may reflect more staff availability to participate in these activities or communities who are more aware of and more open to engaging with the airport. Forty-seven percent of Community Paved, 26 percent of Basic, and 18 percent of Community Turf airports show engagement, suggesting opportunities to expand outreach and strengthen community ties at many airports in these classifications.

Figure 6-48. PI: Percent of Airports That Host Annual Fly-Ins or Other Community Engagement Events

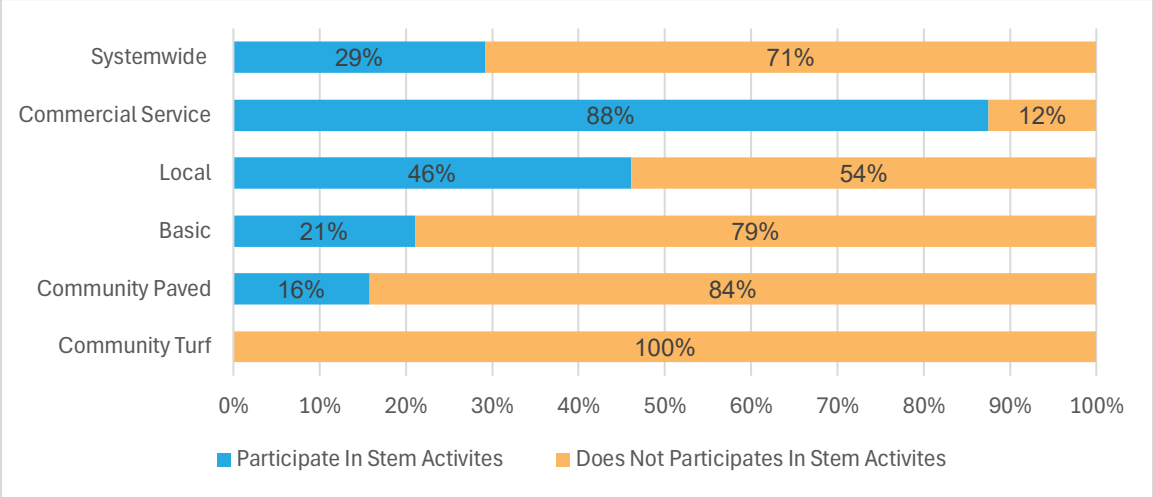


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.6.4. PI: Percent of Airports That Participate in STEM (Science, Technology, Engineering, and Mathematics) Activities

Airports have the unique potential to serve as gateways not only to destinations, but also to discovery. By participating in STEM activities, airports can spark curiosity, inspire future careers, and strengthen the connection between aviation and education. These programs, whether through school partnerships, aviation camps, or hands-on demonstrations, help build a pipeline of talent ready to shape the future of flight. As shown in **Figure 6-49**, 29 percent of system airports engage in STEM-related activities. Commercial Service airports lead with 88 percent participation, followed by Local airports at 46 percent. The percentages of participation drop among Basic, Community Paved, and Community Turf airports.

Figure 6-49. PI: Percent of Airports That Participate in STEM Activities

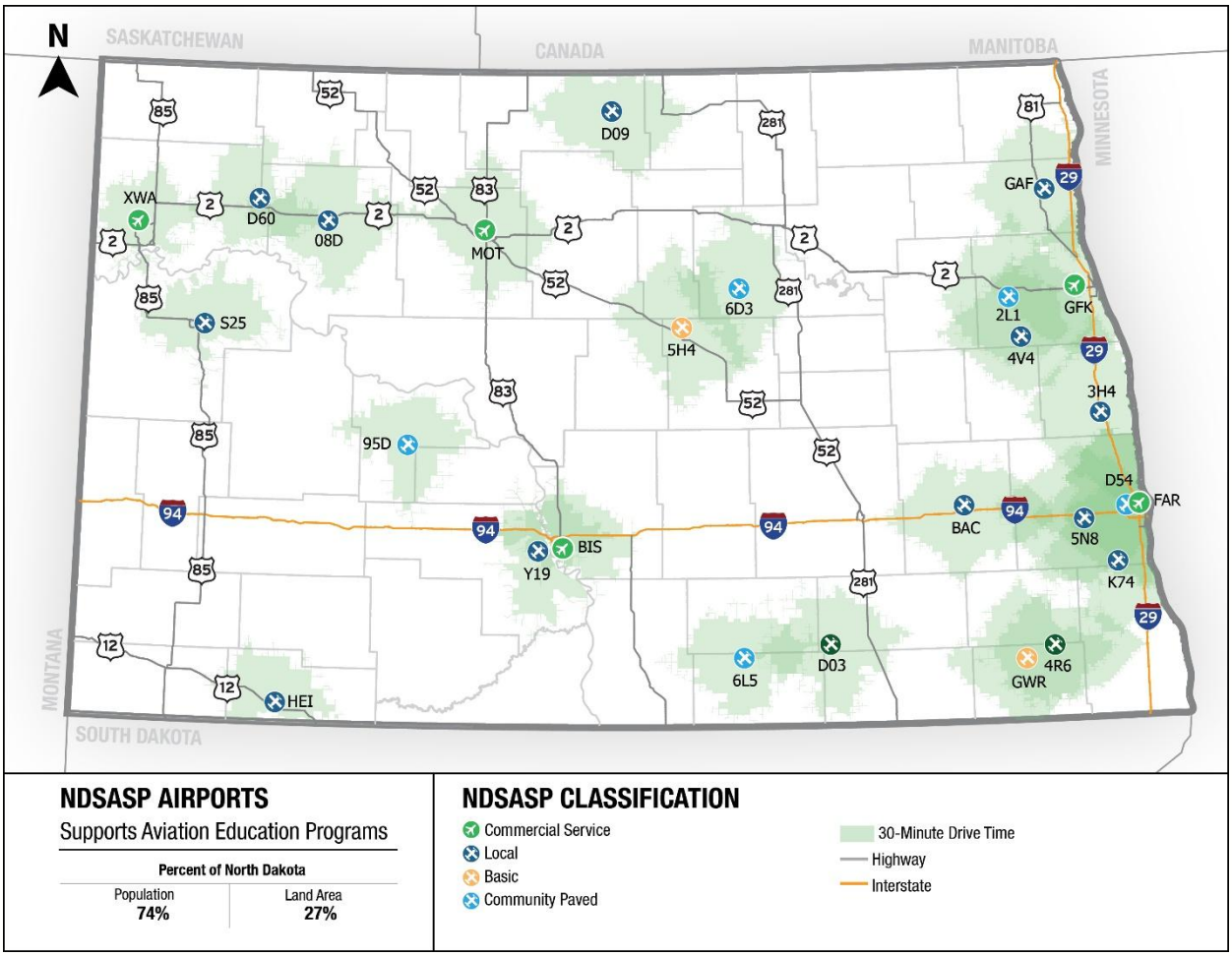


Sources: 2025 NDSASP Airport Manager Survey, 2025; Kimley-Horn, 2025.

6.2.6.5. PI: Percent of Area and Population That Have Aviation Educational Opportunities Available in the Community

Access to aviation-related educational opportunities, whether flight training, airframe and powerplant (A&P) programs, or STEM outreach, is essential in shaping the future of the industry. These opportunities not only foster local talent but also strengthen community ties to aviation. As shown in **Figure 6-50**, 74 percent of the state's population lives within reach of an airport offering aviation educational opportunities, while 27 percent of the land area is covered. This highlights strong access in more populated regions but also reveals geographic gaps where expanding educational outreach could help ensure broader, more equitable access across the state.

Figure 6-50. PI: Percent of Area and Population That Have Educational Opportunities Available in the Community



Sources: 2025 NDSASP Airport Manager Survey, 2025; ESRI Business Analyst, 2025; Kimley-Horn, 2025.

6.3. Summary

North Dakota's aviation system is a vital driver of statewide connectivity, economic growth, and community resilience. This chapter has provided a comprehensive assessment of system performance through goals and their associated PMs and PIs, revealing both areas of strength and opportunities for strategic improvement. From emergency access and infrastructure readiness to educational outreach and financial sustainability, the data reflects a system that is largely responsive to current needs. However, gaps in service availability particularly in rural regions highlight the importance of continued investment and targeted planning. The analysis also underscores the value of community engagement, local funding mechanisms, and aviation education in shaping a resilient and future-ready network. To support ongoing progress, **Chapter 8: Cost Estimates and Recommendations** will introduce future performance targets and inform recommendations for statewide aviation development based on the results of the analyses presented in this chapter.

Chapter 7. Issues and Industry Advancements

7.1. Introduction

This chapter examines key issues and industry advancements that may influence the future of aviation in North Dakota. By identifying and evaluating these factors and their potential influence on the aviation system, the NDSASP can develop recommendations that address emerging needs and help the system adapt to the evolving aviation landscape. The following issues and advancements are explored in this chapter:

- 7.2. Advanced Air Mobility
- 7.3. Emerging Aviation Fuel Sources
- 7.4. Air Traffic Control Modernization
- 7.5. Aging Fleet and Pilot Population
- 7.6. Aviation Professional Shortage
- 7.7. Commercial Service Access
- 0. Economic Conditions and Impacts on Buying Power
- 7.9. Revenue Producing Projects
- 7.10. Summary

7.2. Advanced Air Mobility

Advanced Air Mobility (AAM) is the emerging aviation ecosystem that uses next-generation aircraft and technology, as well as new business models, to move people and cargo efficiently. The following sections summarize the AAM ecosystem, current policy and regulatory developments, existing AAM activities in North Dakota, key challenges, and state-level considerations to support the future integration and adoption of AAM throughout the state.

7.2.1. AAM Ecosystem Overview

The AAM ecosystem encompasses several aircraft types including electric vertical takeoff and landing (eVTOL) aircraft, electric or hybrid fixed-wing aircraft, short takeoff and landing (STOL) aircraft, larger remotely piloted cargo drones, and autonomous uncrewed aircraft systems (UAS). These platforms use battery-electric, hybrid-electric, or hydrogen-based propulsion and are designed for quieter, lower-emission operations than conventional helicopters and general aviation (GA) aircraft.

Operators and system participants include original equipment manufacturers (OEMs), UAS operators, VTOL service providers, oil and gas companies, airport and heliport owners, and federal and state aviation and transportation agencies responsible for planning, permitting, and regulating new infrastructure. The AAM ecosystem anticipates a progression of automation from piloted aircraft to simplified vehicle operations, to remotely piloted fleets, and ultimately to highly autonomous systems capable of making decisions in normal and off-nominal conditions.

Economic benefits of AAM are expected to include reduced operating costs, especially those associated with helicopters and other GA aircraft, due to lower maintenance and fuel requirements as well as automation-driven labor efficiencies. Additional benefits include noise reduction, improved mobility, and potential congestion relief. For an energy-intensive state like North Dakota, AAM also presents opportunities to enhance productivity and safety, create jobs, support workforce development, and attract private capital and OEM activity.

Several use cases for AAM operations are shown in **Figure 7-1**. Rapid innovation is occurring in small UAS, which are already conducting real-world missions such as medical package deliveries, infrastructure inspections, last-mile retail delivery, and disaster response. These operations currently occur primarily under visual line-of-sight (VLOS) rules, with waivers enabling beyond-visual-line-of-sight (BVLOS) operations.

Figure 7-1. Example AAM Use Cases

Sources: Marr Arnold Planning: Open AI, 2026.

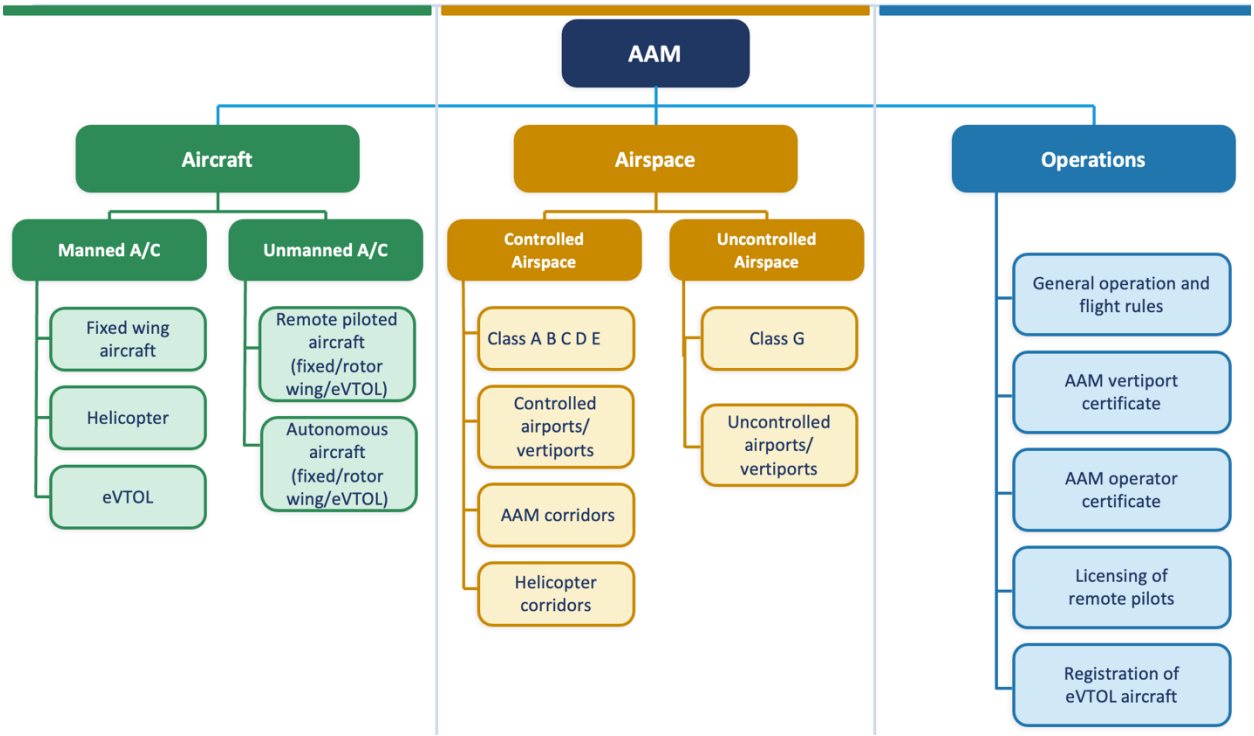
Larger VTOL and eVTOL systems are progressing toward certification; however, passenger-carrying VTOL aircraft have not yet been certified at the time of writing. As a result, early adoption is expected to focus on cargo and specialized missions before passenger services become operational.

7.2.2. Policy and Regulatory Development

Nationally and globally, AAM is transitioning from concept development to early operational implementation. **Figure 7-2** illustrates a typical AAM ecosystem from a regulatory perspective. Regulations are currently being developed worldwide in three main categories: aircraft, airspace, and operations. In the U.S, federal strategy documents describe a phased approach that begins with piloted operations using existing airports and heliports, progresses to expanded

operations supported by new vertiport infrastructure, and ultimately enables broader deployment across selected corridors and use cases.[20] Widespread operations in both urban and rural regions are generally envisioned around 2030 as regulations, infrastructure, and automation mature.

Figure 7-2. AAM Ecosystem

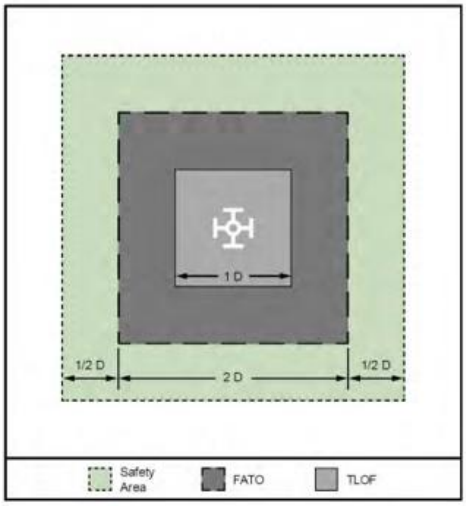


Sources: Transportation Research Interdisciplinary Perspectives (TRIP) Volume 24, March 2024: Advanced Air Mobility: A comparative review of policies from around the world – lessons for Australia, 2025; Marr Arnold Planning, 2026.

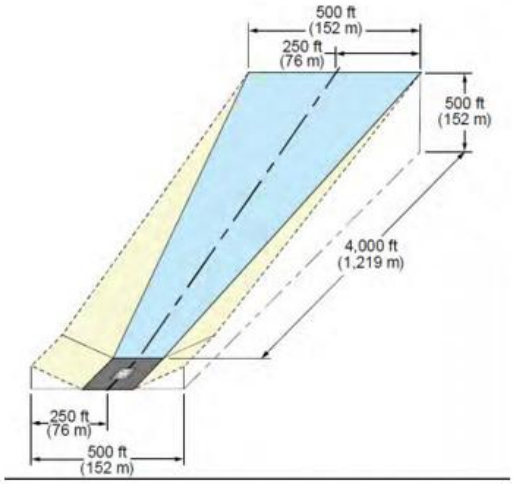
Federal Aviation Administration (FAA) Engineering Brief (EB) 105A provides preliminary recommendations for vertiport siting and design (see **Figure 7-3**), with a more performance-based advisory circular expected as aircraft performance data becomes available. Near-term federal strategy emphasizes a "crawl-walk-run" approach that prioritizes the incorporation of vertiports into airport master plans and airport layout plans (ALPs) and early airspace determinations through FAA approval processes. The first U.S. vertiport with an early conditional approach is located at Allen C. Perkinson Blackstone Army Airfield in Virginia.

[20] U.S. Department of Transportation, Advanced Air Mobility Interagency Working Group, "The Advanced Air Mobility Comprehensive Plan: LIFTing AAM to Maturity in the United States," U.S. Department of Transportation, December 17, 2025, https://www.transportation.gov/sites/dot.gov/files/2025-12/AAM%20Comprehensive%20Plan%202025.pdf.

Figure 7-3. FAA EB 105A Guidance on Vertiport Dimensions and Approach Surfaces



TLOF, FATO, and Safety Area Dimension



Vertiport Approach/Departure Surfaces

Source: FAA Engineering Brief 105A, 2024.
Note: TLOF = Touchdown and Liftoff area; FATO = Final Approach and Takeoff area

Internationally, regulators and industry stakeholders are advancing certification pathways for eVTOL and AAM aircraft, establishing demonstration corridors, and testing urban and regional use cases in Europe, Asia, and the Middle East. Many countries are beginning to align drone regulations, digital traffic management (such UAS traffic management [UTM] and U-space), and sustainable aviation policies to support integration of crewed and uncrewed AAM operations into existing airspace.

7.2.3. AAM Activities in North Dakota

North Dakota has been closely monitoring the development of AAM and has been at the forefront of supporting the use of AAM and UAS. Many of the initiatives in the state (private, military, federal, and university) work in unison to support advancements in UAS and future AAM operations. Through these initiatives, the state not only advances UAS technology and prepares for AAM implementation but also contributes to the economic development of North Dakota by fostering innovation, workforce development, and industry partnerships in this evolving sector.

7.2.3.1. Northern Plains UAS Test Site

In 2013, the FAA selected Grand Forks as one of seven UAS test sites in the U.S. The Northern Plains UAS Test Site (NPUASTS) is a national center for UAS research, testing, and commercial operations. The state and other private partners have also invested in infrastructure to support the research. A few key initiatives at the test site include:

- **BVLOS Operations:** Vantis, operated by the NPUASTS, is the nation's first BVLOS UAS network built on shared infrastructure. The system enables drones to operate safely beyond an operator's line of sight without requiring each company to develop its own expensive equipment or obtain separate approvals. Vantis includes a statewide system of ground-based radars, command-and-control radios, and data links connected to Mission and Network Operations Centers that manage traffic and safety.
- **Radar Data Pathfinder Program:** In 2024, the FAA granted the test site access to raw, unfiltered surveillance radar data used to monitor civil airspace. This marked the first time the FAA authorized the use of surveillance radar data for aviation research and standards development.
- **North Dakota Drone Replacement and Secure Fleet Modernization Program:** Administered by NPUASTS, this initiative assists state agencies and North Dakota University System entities in replacing legacy UAS with North Dakota Aviation Association (NDAA)-compliant platforms. The program covers the cost of replacement hardware, critical accessories, and operator training while requiring agencies to relinquish and properly decommission non-compliant systems. By accelerating the transition to compliant, secure UAS and enhancing integration with Vantis BVLOS infrastructure where applicable, the program reduces cybersecurity and supply-chain risks and strengthens operational reliability.
- **Multifaceted Partnerships**: The test site collaborates with the FAA, NASA, Department of Defense, universities, and private industry partners to support research, testing, and development related to autonomy, air traffic integration, and safety standards.

7.2.3.2. Grand Sky

Grand Sky is one of the nation's first UAS research and development parks and innovation hubs. Located on the Grand Forks Air Force Base (GFAFB), an Enhanced Use Lease between the U.S. Air Force and Grand Forks County enables commercial UAS operations on active military property. A Joint Use Agreement was also secured, granting access to base runways, air traffic control, and the base's raw radar feed needed for advanced detect-and-avoid and BVLOS operations. The park's two largest tenants, Northrop Grumman and General Atomics Aeronautical Systems, work closely with GFAFB to support large UAS surveillance and reconnaissance aircraft including the RQ-4 Global Hawk, MQ-4C Triton, MQ-1 Predator, and MQ-9 Reaper.

Photo: Grandskynd.com

Project ULTRA, short for UAS Logistics, Traffic, Research, and Autonomy, is an initiative launched by Grand Sky, Grand Forks County, and the NPUASTS. The program brings together federal agencies and private-sector partners, including the Department of Defense, NASA, the

Air Force Research Laboratory (AFRL), and MITRE, to advance UAS technologies and explore new approaches to logistics and traffic management within the National Airspace System (NAS).

7.2.3.3. Military

Several military missions in North Dakota are supported by UAS for intelligence, surveillance, and reconnaissance. The 319th Reconnaissance Wing located at GFAFB supports worldwide missions involving the RQ-4 Global Hawk, a high-altitude, long-endurance military UAS. GFAFB provides the aircraft maintenance, command-and-control capabilities, and infrastructure necessary to operate, train, and test the Global Hawk. In addition, the primary mission of the 119th Wing of the North Dakota Air National Guard, located at the Fargo Air National Base, is to provide trained and ready airmen to conduct precision attack and reconnaissance missions using the MQ-9 Reaper, an armed, remotely piloted UAS aircraft. Both units coordinate closely with the University of North Dakota's (UND's) UAS program as well as the NPUASTS and Grand Sky.

7.2.3.4. University Research

UND has emerged as a national leader in UAS research, education, and innovation. In 2006, UND was designated a Department of Defense Center of Excellence for uncrewed aerial vehicle (UAV) education and has since fostered collaboration across engineering, aviation, and behavioral sciences to advance UAS technologies. The university was the first to offer a four-year accredited degree in UAS operations, providing students with specialized tracks on low- and medium/high-altitude applications. Additionally, UND Aerospace's UAS Test Range at Gorman Field serves as a valuable facility for testing and training new UAS technologies, including BVLOS operations and real-time surveillance capabilities.

UND's UAS research spans critical areas including NAS integration, command-and-control systems, artificial intelligence, cybersecurity, and edge computing. The university has pioneered developments in BVLOS operations and detect-and-avoid technologies, contributing to the safe integration of UAS into civilian airspace. Collaborations with industry partners such as Vigilant Aerospace Systems have furthered advancements in UAS traffic management and counter-autonomy measures.

7.2.3.5. Agriculture

North Dakota is a leader in the adoption of UAS and other emerging agricultural technologies, positioning the state at the forefront of AgTech innovation. The North Dakota Aeronautics Commission (NDAC) began issuing licenses to uncrewed aerial applicators in 2022. By 2025, North Dakota had 32 licensed uncrewed aerial applicators covering more than 100,000 acres annually, highlighting the growing role of UAS in modern agriculture operations.

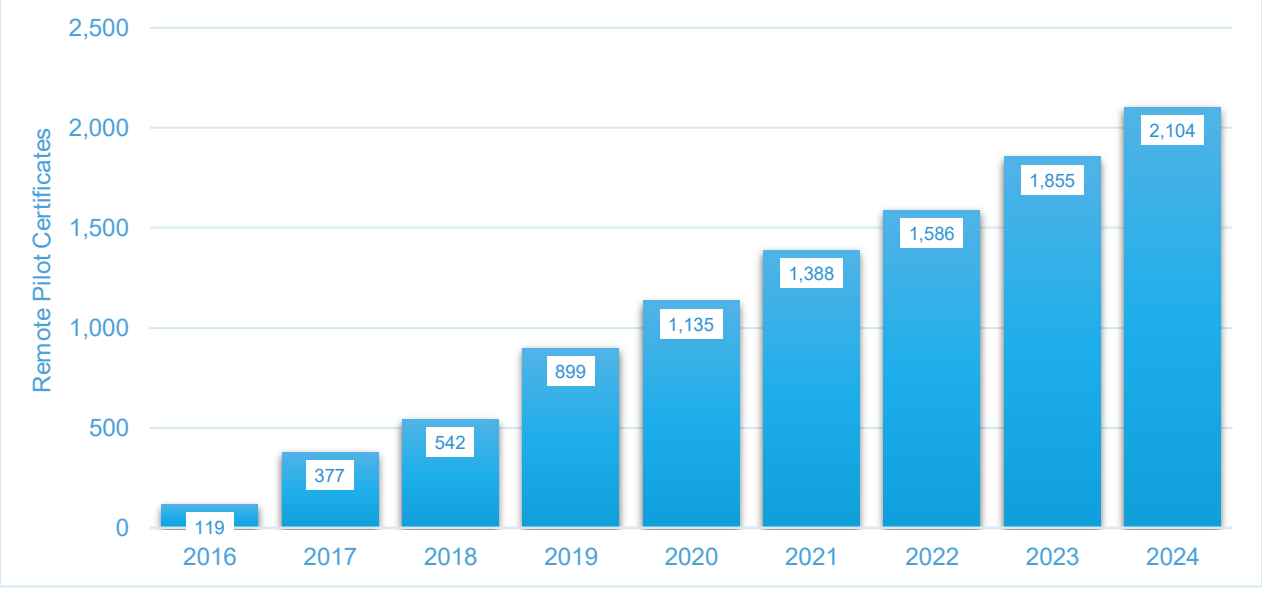
Grand Farm, a 590-acre agricultural innovation hub near Casselton, serves as a testbed for agricultural technologies. Grand Farm offers growers, researchers, startups, corporations, and policymakers the ability to address challenges in modern farming through the development and real-world testing of precision agriculture tools. This includes AAM and UAS, which will enhance efficiency

and sustainability in agricultural practices. The state recently funded a $300,000 initiative at Grand Farm to deploy drones equipped with artificial intelligence to detect noxious weeds. This research could eventually provide farmers with advanced tools for early detection and management of invasive species. Separately, Grand Farm has received $11 million in federal funding through a multi-year United States Department of Agriculture (USDA) Agricultural Research Service (ARS) cooperative agreement with North Dakota State University to support national-scale testing and validation of emerging precision agriculture technologies, which may include drones and other UAS-related applications.

7.2.3.6. Certified Remote Pilots

In addition to the initiatives discussed above, the number of remote pilots in North Dakota has grown rapidly in recent years. To operate a drone under the FAA's Small UAS Rule (Part 107), individuals must obtain a Remote Pilot Certificate from the FAA. This certificate demonstrates that an operator understands the regulations, operating requirements, and procedures necessary to safely fly drones. Figure 7-4 presents the growth in certified remote pilots in North Dakota since the introduction of Part 107 in 2016. In 2024, the state had more than 2,100 certified remote pilots, compared to 899 just five years earlier, representing an increase of 134 percent, or an average annual growth rate of 19 percent. As UAS applications continue to expand across commercial, public, and private sectors, the number of certified remote pilots is expected to continue growing.

Figure 7-4. Remote Pilots in North Dakota



Source: FAA U.S. Civil Airman Statistics, 2025.

7.2.4. Ongoing Challenges

Table 7-1 presents a timeline of the greatest challenges in the implementation of AAM that are likely to occur over the next 20+ years as it becomes more prevalent.

Table 7-1. Timeline of Challenges to Implementing the AAM Ecosystem

Near-Term (Now – Late 2020s)	Mid-Term (Early – Mid-2030s)	Long-Term (Beyond Mid-2030s)
Regulatory & Certifications Establishing certification standards for new aircraft and systems while clarifying regulatory pathways for both crewed and uncrewed VTOL operations that can safely integrate with existing aviation.	**Scaling Operations** Managing substantially higher traffic volumes near major airports and population centers without overloading air traffic controllers, potentially requiring advanced airspace management tools and digital "master control room" concepts to handle increased system complexity.	**Full Autonomy Integration** Achieving widespread, routine integration of highly autonomous AAM systems into the NAS while maintaining or improving current safety levels across all operations.
Physical Infrastructure Addressing vertiport siting constraints both on and off airports, ensuring compliance with FAA EB 105 guidance, providing sufficient electrical power and charging infrastructure, planning for fire and emergency response (particularly for battery systems and elevated structures), and preserving safe approach and departure paths with adequate separation from existing traffic. Infrastructure must also accommodate proper TLOF and FATO dimensions.	**Technology Transition** Transitioning from predominately piloted operations to remotely piloted and increasingly automated fleets which requires robust detect-and-avoid capabilities, resilient communications infrastructure, and comprehensive cybersecurity protections to ensure safe autonomous operations.	**Energy Infrastructure** Ensuring sufficient energy supply and distribution infrastructure, including expanded grid capacity, high-power charging networks, energy storage solutions, and potentially hydrogen production and distribution infrastructure to support large-scale AAM operations.
Community & Integration Managing community concerns related to noise, visibility, safety, privacy, security, and land use compatibility, while ensuring equitable access to AAM services. Early operations must integrate safely with legacy aviation operations using existing airports and heliports.	**Business Viability** Establishing sustainable business models as operators face significant investments in aircraft and infrastructure before demand is fully mature and public acceptance is established, creating financial risk during the scaling phase.	**Urban Planning Integration** Integrating AAM into comprehensive long-range land use, zoning, and transportation planning to ensure vertiports are equitably located, well connected to other transportation modes, and managed to mitigate cumulative impacts of noise, visual presence, and privacy concerns across communities.

Source: Marr Arnold Planning, 2025.

7.2.5. North Dakota Implementation Considerations

Recognizing the ongoing challenges identified in **Table 7-1**, North Dakota can continue to build upon its AAM ecosystem by addressing airspace integration, regulatory development, workforce development, education, infrastructure, and funding while focusing implementation on early, high-value use cases. Early UAS use cases in the state have included precision agriculture and inspections of energy and utility infrastructure, including pipelines, power lines, and other critical assets. Near-term opportunities also exist for VTOL cargo operations to rapidly transport time-critical materials.

By blending national and global AAM trends with North Dakota-specific priorities, the state can develop a phased, opportunity-driven plan for advancing AAM. The following could be considered:

- **Airspace and Regulatory Environment:** North Dakota should plan for AAM integration within low-altitude airspace already used by GA, agricultural aircraft, and advanced UAS test operations. Building on what has been developed so far with Vantis, priority actions include identifying additional AAM corridors for cargo and passenger operations, aligning these corridors with existing BVLOS infrastructure, and coordinating with the FAA on procedures, approvals, and airspace protections.
- **Workforce and Education:** AAM will create demand for a diverse workforce including pilots and remote operators, UAS and AAM maintenance technicians, electrical and battery specialists, emergency responders trained in battery and hydrogen safety, and planners and engineers experienced in vertiport design and airspace procedures. North Dakota's universities and technical colleges can expand or adapt existing programs in UAS operations, electric propulsion, autonomy, cyber-physical security, and AAM-specific fire and rescue procedures, leveraging the state's established UAS education and research capacity.
- **Vertiport Siting and Airport Readiness:** FAA EB 105A guidance can be applied to the strategic use of existing public-use airports and heliports where sufficient capacity and clear approach paths exist, while planning for potential new vertiports near employment centers, medical facilities, industrial sites, and multimodal transportation nodes. For North Dakota, this includes:
    - Evaluating public-use airports and key private facilities for TLOF and FATO layouts, safety areas, charging infrastructure, maintenance facilities, and basic passenger or cargo handling capabilities
    - Incorporating winter operations, de-icing, and snow removal considerations into vertiport design and access planning, including reliable all-season ground connectivity
    - Developing state-level siting criteria that align with federal guidance while addressing emergency access, airspace integration, land use compatibility, and multimodal connectivity
- **Funding and State Policy Tools:** While most vertiport capital is expected to come from private resources, targeted federal and state funding can support planning and initial deployments. North Dakota can pursue federal grants, enable public-private

partnerships (P3s) that support private vertiport development, and clarify state-level permitting roles and processes for vertiports.

- **Research, Testing, and Training:** The state can support continued expansion of UAS test ranges and university labs to encompass AAM and VTOL platforms, autonomy, BVLOS operations at scale, cold-weather performance testing, and responding to inquiries from OEMs and operators seeking realistic test environments.
- **Public Engagement and Statewide Framework:** North Dakota would benefit from developing a statewide AAM blueprint that articulates shared goals for economic development, workforce development, rural connectivity, and public-benefit missions while providing consistent guidance to local governments, airports, and industry stakeholders on siting, zoning, noise, and other implementation considerations. The state should establish ongoing public education and stakeholder engagement processes to address concerns related to safety, privacy, and noise and to ensure that communities, particularly rural and tribal communities, help shape AAM development and expansion across the state.

7.3. Emerging Aviation Fuel Sources

Over the last 20 years, significant progress has been made in the development of alternative aviation fuels. While federal policies and priorities related to sustainability and emissions reduction have evolved in recent years, research, investment, and technological advancements supporting alternative aviation fuels continue both in the U.S. and globally. This section briefly explores the types of alternative aviation fuels, current initiatives in North Dakota, and the potential implications of these fuels for the state's aviation system.

7.3.1. Types of Emerging Fuel Sources

Key emerging aviation fuel options include electric propulsion, Sustainable (or Synthetic) Aviation Fuel (SAF), hydrogen, and unleaded avgas substitutes. Each of these is subsequently described.

7.3.1.1. Electric Propulsion

Electric propulsion is the most mature alternative aviation energy source currently being developed and offers the potential for zero in-flight carbon emissions. One of the primary challenges facing electric aircraft manufacturers is the development of high-energy-density batteries capable of supporting longer flight ranges. Current battery technologies are limited by energy capacity, weight, charging requirements, and lifecycle performance, which constrain the operational capabilities and widespread adoption of electric aircraft. Continued advancements in battery chemistry and energy storage technologies will be necessary to support broader deployment. In addition, airports will require adequate electrical infrastructure, charging stations, and grid capacity to support the transition from conventional aviation fuels to electric propulsion.

ES-30 Photo: Heart Aerospace.com

Recognizing these limitations, many manufacturers are exploring hybrid electric aircraft designs. For example, Heart Aerospace is developing a 30-seat hybrid electric aircraft that combines battery-powered propulsion with a conventional fuel-powered backup system. This makes the aircraft lighter and less costly to operate and allows for more potential passengers. The hybrid system would be all-electric from takeoff to landing but can switch to turbine if longer distances are needed or if there is a diversion.

Several other companies, including Beta Technologies and Electra, are also developing hybrid aircraft designed to reduce emissions while extending operational range. A hybrid system provides additional opportunities for small regional commercial aircraft and GA aircraft to take advantage of electrification. Bemidji Aviation Services, a Part 135 air cargo carrier that operates throughout the Upper Midwest, including service to Fargo and Bismarck, is exploring the integration of Ampaire's Eco caravan into its cargo operations. The Eco Caravan is a Cessna 208B Grand Caravan aircraft retrofitted with a hybrid electric powertrain system.[21]

7.3.1.2. Sustainable (or Synthetic) Aviation Fuel (SAF)

SAF refers to drop-in fuel replacements produced from non-petroleum renewable (e-fuels) or waste feedstocks. SAF has a much lower carbon intensity compared to fossil jet fuel, reducing carbon emissions by up to 80 percent. SAF can be blended with conventional Jet A fuel and used in existing turbine engines without modifications. Currently, 11 certified SAF production pathways have been approved for aviation use, and industry adoption continues to grow. However, SAF supply is still extremely limited and costly. The International Air Transportation Association (IATA) estimates that SAF production will reach 0.6 percent of global jet fuel use in 2025.[22] Availability is typically limited to major airports, and the full rollout will take many more years. High costs are also a barrier as SAF typically sells for two to six times the price of conventional Jet A fuel.

[21] Ampaire, "Eco Caravan," https://www.ampaire.com/vehicles/eco-carava
[22] International Air Transport Association (IATA), "Net Zero 2050: Sustainable Aviation Fuels (SAF) Fact Sheet," IATA, December 2025. https://www.iata.org/en/iata-repository/pressroom/fact-sheets/fact-sheet-sustainable-aviation-fuels/

7.3.1.3. Hydrogen

Hydrogen is a zero-carbon energy source that is currently in the development phase for aviation applications. It can power aircraft through fuel cells that convert hydrogen to electricity onboard or through combustion in modified jet turbine engines. The primary byproduct of hydrogen fuel cells is water vapor. However, hydrogen-powered aircraft will require significant aircraft redesigns as well as new airport infrastructure for hydrogen production, liquefaction, storage, and fueling. Although hydrogen systems remain a longer-term option, several manufacturers plan for hydrogen aircraft in the 2030s and 2040s including Airbus ZEROe and ZeroAvia's hydrogen-electric prototype planes.

Airbus ZEROe Photo: Airbus.com

7.3.1.4. Unleaded Avgas

In 2023, the U.S. Environmental Protection Agency (EPA) determined that lead emissions from piston aircraft contribute to air pollution and are a public health concern.[23] This determination reinforced the need for unleaded avgas alternatives and prompted continued regulatory and industry efforts to transition away from leaded fuels. The FAA's Eliminate Aviation Gasoline Lead Emissions (EAGLE) initiative is actively working to end the use of leaded avgas by 2030, even amidst program reviews. To support this effort, the FAA has approved unleaded fuel (UL) options, including General Aviation Modifications, Inc.'s (GAMI) 100-octane G100UL and the lower-octane UL94. A drop-in replacement fuel candidate is also being evaluated under the FAA's Piston Aviation Fuels Initiative (PAFI). In early 2026, the FAA published a draft four-phase plan for the transition to unleaded fuels by 2030.[24]

Commercial availability of unleaded fuels is increasing; however, availability remains limited and adoption is still in the early stages. In 2023, UND transitioned its flight training fleet to UL94 unleaded avgas to be a test case, leading sustainability efforts for the industry. However, after several months, the program returned to 100LL due to engine valve seal wear issues. This attempt confirmed that there is still work to be done before the wide availability of unleaded avgas comes to fruition.

7.3.2. Current Initiatives in North Dakota and Future Implications

Each emerging alternative fuel must demonstrate commercial viability and safety before achieving widespread adoption. Although the timing and pace of implementation remain uncertain, these technologies have the potential to affect all sectors of aviation in North Dakota over the next several decades. As a predominantly rural, agriculture-based state, North Dakota

[23] U.S. Environmental Protection Agency, "Regulations for Lead Emissions from Aircraft," EPA, updated May 27, 2025, https://www.epa.gov/regulations-emissions-vehicles-and-engines/regulations-lead-emissions-aircraft
[24] Federal Aviation Administration. *Draft Transition Plan to Unleaded Aviation Gasoline – For Public Comment.* Version 1.02, January 2026. Federal Aviation Administration. https://www.faa.gov/aircraft/draft_docs/draft_unleaded_avgas_transition_plan

relies on its eight commercial service and extensive GA airport network to connect communities to regional, national, and global markets. Alternative aviation fuels may help support the continued viability of these connections while creating opportunities for innovation and growth within the state's aviation industry. In addition, North Dakota's 2024 Priority Climate Action Plan identified sustainability and emissions reduction as key priorities, providing further context for the potential role of alternative fuels in the state's aviation future.

Pipistrel Velis Electro Photo: Frank Galella, AIN

GA has a pivotal role in the early phases of alternative aviation fuels, especially electric aircraft. The first uses of electric aircraft will likely be for short missions such as flight training, aerial application, air ambulance, and other GA flights. The Pipistrel Velis Electro is the first certified fixed wing, battery-electric GA aircraft used for pilot training.[25] With one of the leading flight schools in the country located at UND, North Dakota could be poised to support these electric aircraft. In 2023 UND examined the challenges associated with integrating electric aircraft into collegiate flight training programs in its study, "Technical and Regulatory Factors of Adopting Electric Training Aircraft in a Collegiate Aviation Setting."[26] The research includes several key findings:

- **Regulatory Requirements:** Updated regulatory frameworks are needed to accommodate electric aircraft in flight training programs including certification processes and operational guidelines specific to electric propulsion systems.
- **Battery Performance and Charging Infrastructure:** Battery duration, charging times, and aircraft availability remain operational challenges. Efficient charging infrastructure is necessary to support electric aircraft in training environments.
- **Environmental and Operational Considerations:** Temperature variations and the impact of multiple charge-discharge cycles per day could influence the performance and maintenance requirements of electric aircraft.
- **Course-Level Implementation:** The Certified Instrument Flight Instructor (CIFI) course may be a suitable starting point for integrating electric aircraft. These courses typically involve shorter flight durations, aligning well with the capabilities of current electric aircraft.
- **Maintenance and Training Implications:** Specialized maintenance training, workforce development, and curriculum updates will be needed to support the safe integration of electric aircraft into flight training programs.

North Dakota's major industries of agriculture and energy are poised to support alternative fuel supply chains. Gevo Inc. purchased an ethanol plant in Richardton for $210M in 2025 to convert

[25] General Aviation Manufacturers Association (GAMA), "Recommendations for Accelerating the Development of the Electric Aviation Sector in Europe," Advanced Air Mobility Series white paper, April 2024, https://gama.aero/wp-content/uploads/GAMA-White-Paper-on-Electric-Aviation-2024-April.pdf

[26] Nick Wilson, Lewis Archer, Ryan Guthridge, et al. "Technical and Regulatory Factors of Adopting Electric Training Aircraft in a Collegiate Aviation Setting" (2023). *Aviation Faculty Publications*. https://commons.und.edu/avi-fac/63

bioethanol fuel from feedstocks to SAF.[27] If realized, this could be the first fully integrated SAF production plant in the U.S. converting crops to aviation fuel. In 2026, Gevo announced it is evaluating a significant expansion of its Richardton facility that would double low-carbon ethanol production and increase carbon capture capacity, further positioning North Dakota as a key hub for future sustainable aviation fuel production.[28] North Dakota's abundant wind and natural gas production may provide opportunities for the future production of hydrogen and SAF. In 2024, UND's Energy and Environmental Research Center (EERC) published the "Hydrogen Energy Road Map," which outlines how North Dakota's natural resources could support hydrogen production and identifies the infrastructure, transportation, storage, and economic considerations needed to facilitate its development.[29]

The transition to alternative aviation fuels will likely require investments at the federal, state, and local levels. The introduction of unleaded avgas, SAF, and hydrogen may require significant infrastructure improvements, including fuel storage, distribution, and fueling systems. For example, SAF may require tanker or pipeline delivery infrastructure, while hydrogen would require specialized storage, handling, and fueling facilities. Electric aircraft infrastructure needs, such as power upgrades, electrical connections, and charging equipment, are more straightforward investments, albeit still costly. Policymakers and airports should plan to support fuel diversity so pilots at both rural and more urban communities have access to viable fueling and charging options. In addition, supportive policies, regulatory frameworks, business incentives, and tax policies may help facilitate the adoption of alternative aviation fuels, while positioning North Dakota to build on its leadership in energy production and innovation.

7.4. Air Traffic Control Modernization

In 2004, the U.S. Department of Transportation (USDOT) published the *Integrated Plan for the Next Generation Air Transportation System (NextGen)*, a framework for bold changes to the NAS aimed at moving ground-based radar air traffic control to satellite-based navigation and surveillance, data-driven traffic management, and more automated decision support. This was the beginning of a generational shift: one that set the FAA on a two-decade journey to modernize air traffic management, evaluate safety, enhance efficiency, and build the infrastructure needed to support the future of aviation[30]. This transformation is especially consequential for aviation-dependent states like North Dakota, where both traditional airport

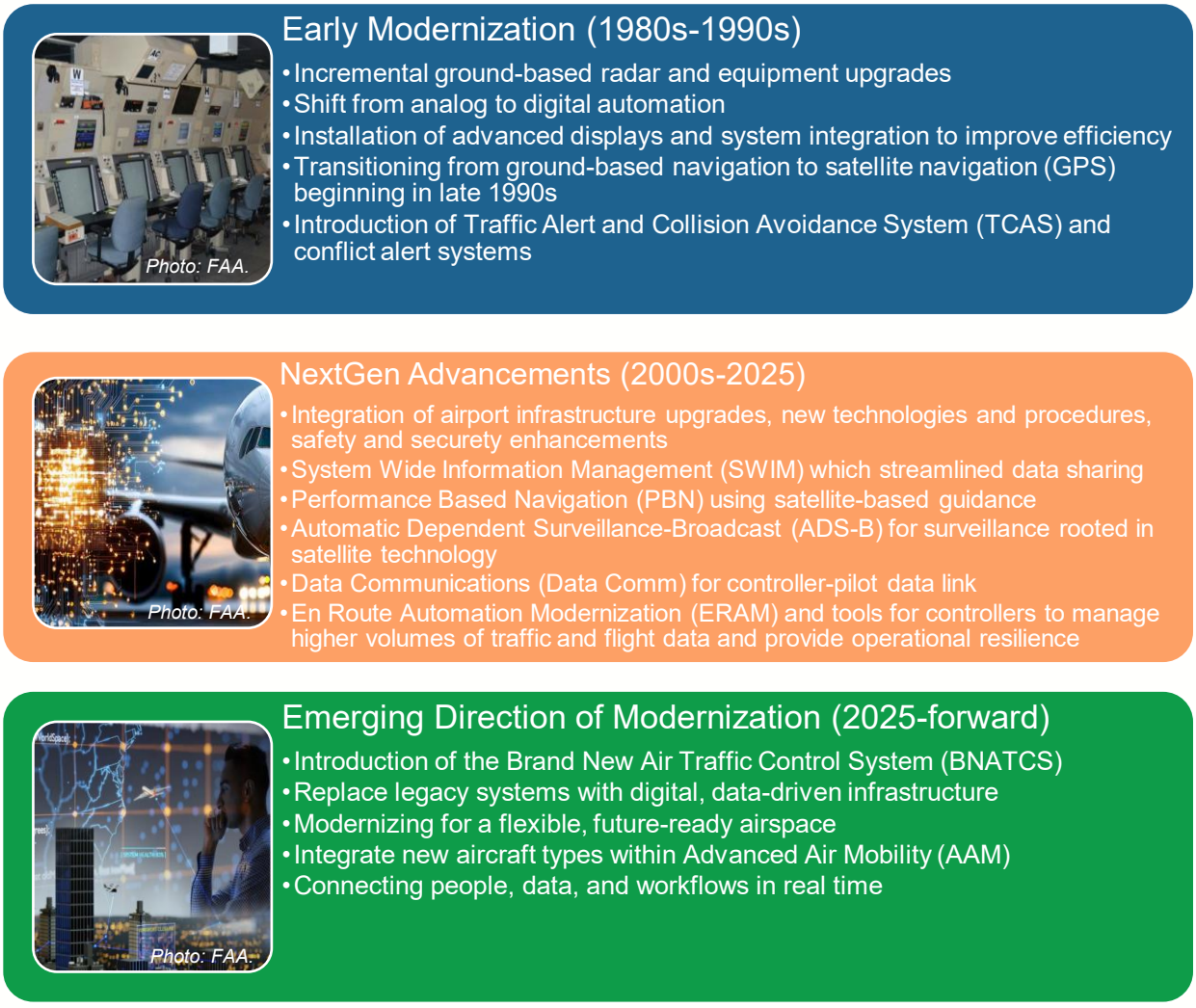
[27] Evan Butow, "North Dakota poised for first integrated U.S. jet fuel plant from bioethanol," *AgWeek,* July 2, 2025, https://www.agweek.com/agribusiness/north-dakota-poised-for-first-integrated-u-s-jet-fuel-plant-from-bioethanol
[28] Gevo, "Gevo Announces it is Developing Plans for Major Ethanol Expansion at Richardton, North Dakota Facility", https://investors.gevo.com/news-releases/news-release-details/gevo-announces-it-developing-plans-major-ethanol-expansion, March 30,2026.
[29] Energy & Environmental Research Center (EERC), University of North Dakota, "Hydrogen Energy Roadmap: Hydrogen and North Dakota's Energy Future," Final Report, revised June 30, 2024, North Dakota Industrial Commission, https://www.ndic.nd.gov/sites/www/files/documents/Oil--Gas-Research-Program/Grant-Rounds--Final-Reports/Approved-Projects/Grant-Rounds-59-50/FR-G-54-105.pdf
[30] Federal Aviation Administration (FAA), "NextGen Final Report 2025," January 7, 2026. https://www.faa.gov/nextgen/NextGen-Final-Report-2025.pdf

operations and emerging technologies like UAS/BVLOS operations rely on a modern, resilient air traffic system to support economic growth and integration of new technologies.

7.4.1. Modernization Efforts to Date

FAA's air traffic control (ATC) modernization mission has evolved from incremental radar-based upgrades to large, system transformation under NextGen and now the Brand New Air Traffic Control System (BNATCS) program. Launched in December 2025, BNATCS replaces NextGen and has the goal of implementing a new ATC system by the end of 2028.[31] **Figure 7-5** presents key milestones in the modernization of the ATC system.

Figure 7-5. Air Traffic Control Timeline of Modernization Efforts



Source: Marr Arnold Planning, 2025.

[31] FAA, "Brand New Air Traffic Control System (BNATCS) Fact Sheet," December 4, 2025. https://www.faa.gov/newsroom/brand-new-air-traffic-control-system-bnatcs-fact-sheet

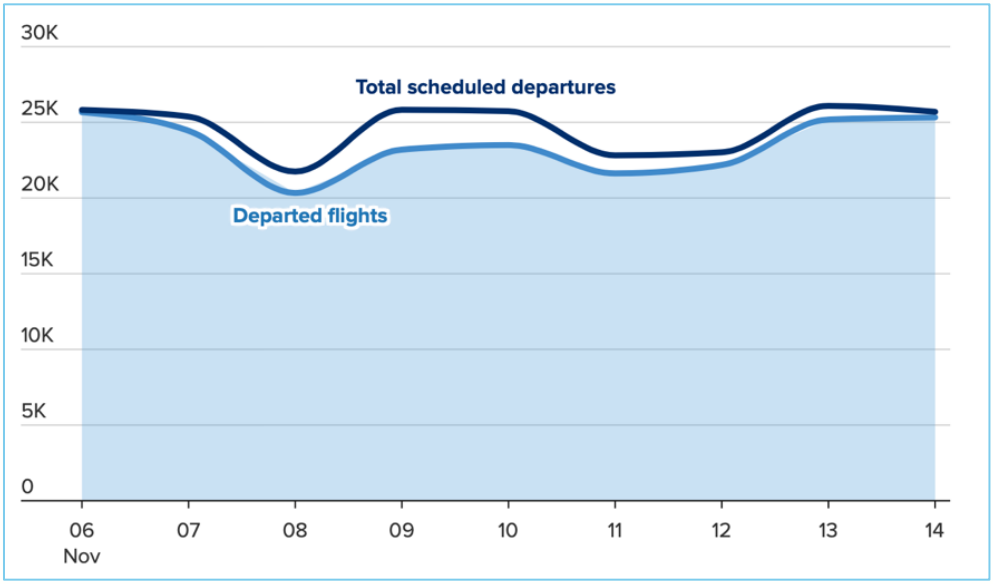
Today's air traffic management (ATM) remains a patchwork of legacy infrastructure that still relies heavily on ground-based radar and navigation beacons to define fixed airways known as 'victor routes' for low altitudes and 'jet routes' for high altitudes. Much of the nation's ATM system continues to rely on voice radio communications and manual air traffic control procedures that haven't changed since the 1960s.[32] In recent years, the Government Accountability Office (GAO) has urged the FAA to act on recommendations to better manage risks and improve their modernization efforts as a direct result of a nationwide ground stop for departures on January 11, 2023, due to a failure in its Notice to Air Missions (NOTAM) system which provides essential safety information to pilots.[33] The failure stemmed from the unintentional deletion of critical database files during maintenance, thus highlighting issues with aging systems and procedures and causing thousands of flight delays and cancellations before the system was restored.

Since that time, two key inflection points have had a significant influence on the direction the FAA is taking to modernize the ATC system. The first occurred in late January 2025 when American Airlines Flight 5342 and a U.S. Army helicopter fatally collided midair over the Potomac River near Ronald Reagan National Airport at an estimated altitude of 300 feet, killing 67 people. As the deadliest air disaster since September 11, 2001, the accident pushed modernizing the ATC system to the forefront of the nation's attention. As a direct result, Congress included a $12.5 billion down payment for the FAA to overhaul the ATC system as part of the One Big Beautiful Bill Act (OBBBA) which was signed into law in July 2025. The second critical event occurred 11 months later when the FAA mandated flight reductions of between four (4) percent and 10 percent at 40 major airports due to ATC staffing issues related to the U.S. government shutdown and ATC staff working without pay. The mandated reductions led to thousands of daily flight cancellations and significant travel disruptions between November 6-14, 2025, as shown **Figure 7-6**.

[32] Northern Plains UAS Test Site (NPUASTS), "The Future of Air Traffic Management: Why Modernizing Our Safety Systems Starts Now," May 8, 2025. https://www.npuasts.com/news/article/the-future-of-air-traffic-management-why-modernizing-our-safety-systems-starts-now

[33] Government Accounting Office (GAO), "Air Traffic Control: FAA Actions are Urgently Needed to Modernize Systems" Report GAO-25-108162, March 4, 2025. https://www.gao.gov/products/gao-25-108162; "Air Traffic Control: FAA Actions are Urgently Needed to Modernize Aging Systems." Report GAO-24-107001, September 23, 2024. https://www.gao.gov/products/gao-24-107001

Figure 7-6. Canceled Departures at U.S. Airports During the Government Shutdown (November 2025)



Sources: Cirium and CNBC, 2025.

The announcement of the BNATCS is FAA's response to these events, and the program has the ambitious goal of replacing outdated infrastructure including radar, software, hardware, and telecommunications networks within a few years' time. The program consists of five categories: communications, surveillance, automation, facilities, and Alaska. The FAA states that the system "will provide new and more reliable systems that will reduce equipment-related delays throughout the NAS." Critical actions that will be undertaken include:[34]

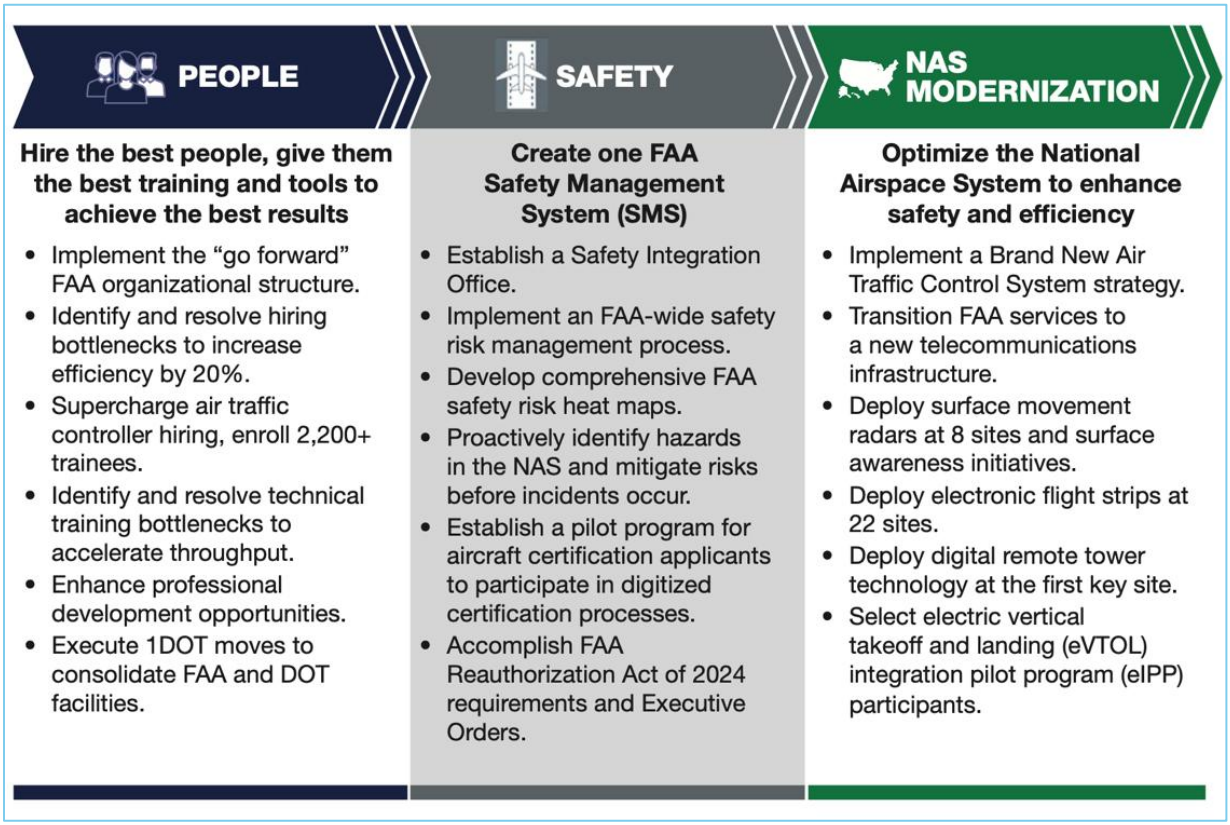
- Replacing old telecommunications with new fiber, wireless, and satellite technologies at over 4,600 sites
- Installing 25,000 new radios and 475 new voice switches
- Replacing 618 radars
- Addressing runway safety by increasing the number of airports (200) with Surface Awareness Initiative
- Building six (6) new Air Traffic Control Centers (ATCC) and replacing towers and Terminal Radar Approach Control facilities (TRACONs)
- Installing new hardware and software for air traffic facilities to create a common platform system through towers, TRACONs, and centers
- Addressing challenges faced in Alaska by adding 174 new weather stations

[34] U.S. Department of Transportation (USDOT), "US Transportation Secretary Sean P. Duffy Unveils Plan to Build Brand New State-of-the-Art Air Traffic Control System," May 8, 2025. https://www.transportation.gov/briefing-room/us-transportation-secretary-sean-p-duffy-unveils-plan-build-brand-new-state-art-air

7.4.2. Current Modernization Activities

To support the implementation of the BNATCS, the FAA published a strategic initiative called *Flight Plan 2026,* which aims to strengthen public trust through transparency and accountability. The plan places significant focus on workforce and training, safety and technology, and continued NAS modernization including selecting participants for AAM pilot programs (**Figure 7-7**). The USDOT and FAA announced in January 2026 that the FAA will begin replacing the nation's aging radar system in early 2026. Replacing this network of ground-based radars will enhance the safety and efficiency of the NAS, which is vital for detecting and tracking aircraft. The FAA estimates up to 612 radars will be replaced by June 2028.

Figure 7-7. FAA Flight Plan 2026 Pillars



Source: FAA, 2026.

While not formally a component of the BNATCS program, the FAA's Remote Tower Program is aligned with the same overarching modernization effort and goals of the BNATCS. The program has been in a relatively slow-moving test and evaluation phase since it was established by Congress in 2018. A draft Remote Tower Siting Order is currently under development and is being modeled after FAA Tower Siting Order JO 6480.4 and the new VISTA process used for brick-and-mortar towers.

To accomplish the objectives outlined in Flight Plan 2026, industry stakeholders and legislative leaders have identified several key challenges. One of the most immediate concerns is the integration of new digital and networked technologies with updated radar systems and legacy automation platforms that will remain in service as the NAS continues to evolve. Legislative oversight reports have emphasized the need for stronger cyber defenses and clearer lines of accountability for vendors as the system moves toward more software-driven operations. The next area of concern is the availability of funding and associated cost risks with the size and scope of this program. Multi-year appropriation uncertainty raises fears that Congress may not be able to sustain the level of investment (a total funding of $31.5 billion) needed to complete the modernization, leading to delays, cost overruns, or a partially deployed system as the BNATCS essentially compresses a 20-year plan into only 2-3 years.[35] The last area of shared stakeholder concern is the FAA's ability to hire and train the next generation of ATC staff while sustaining integrity of the NAS. As discussed subsequently in this chapter, workforce constraints remain a significant challenge for the ATC system. These challenges include an estimated shortage of 3,000 controllers,[36] high workload demands, high employee attrition rate, anticipated retirements, rigorous multi-year training requirements, and continued growth in air traffic activity.

7.4.3. Implications and Opportunities for North Dakota

Modernization of the ATC system directly supports North Dakota's growth as a UAS hub, improves service for its traditional aviation network, and positions the state to capture more traffic and investment as the NAS becomes more digital and automated. It affects everything from how Grand Forks' UAS ecosystem integrates with the national system to how reliably and efficiently small communities receive air service.

The NPUASTS is one of the FAA's designated test ranges used to generate data and concepts for safe integration of drones into the modernized NAS. Current efforts at NPUASTS include the Radar Data Pathfinder Program, which is validating how existing ground-based radar assets can detect and track low-altitude UAS operations. This program will help transform radar coverage maps from theoretical assumptions into operational safety nets for BVLOS flights. The Vantis program is proving to be model architecture for UTM and is a system that provides reliable command-and-control, real-time situational awareness, and surveillance services that mirror what traditional ATC offers to crewed flights. Finally, NPUASTS is bridging the gap to modernization by helping operators and manufacturers meet FAA regulatory expectations for new aircraft, flight profiles, and operational concepts.

In January 2025, UND was selected by the FAA to become the next school for their Enhanced Air Traffic – Collegiate Training Initiative (AT-CTI) program. UND offers a B.S. in Aeronautics

[35] USDOT Office of Inspector General (OIG), "DOT's Top Management Challenges FY2026," January 6, 2026. https://www.oig.dot.gov/sites/default/files/library-items/DOT's%20Top%20Management%20Challenges%20Report%20FY26.pdf
[36] USDOT, "ICYMI: US Department of Transportation Secretary Sean P. Duffy Joins Meet the Press," May 12, 2025. https://www.transportation.gov/briefing-room/icymi-us-department-transportation-secretary-sean-p-duffy-joins-meet-press

with a major in Air Traffic Management that prepares graduates for ATC careers. Under this program, students will complete the FAA Academy curriculum on campus, and if they pass the Air Traffic Skills Assessment and meet other medical and security requirements, they can bypass the Academy and move directly to on-the-job training at facilities. This significantly accelerates the air traffic controller pipeline. Additionally, UND Aerospace emphasizes 'next-generation' skills that include radar and tower operations, safety management, and exposure to emerging concepts like UAS and AAM, all of which provide graduates with evolving technology and operational concepts related to the FAA's modernization programs.

7.5. Aging Fleet and Pilot Population

The aviation industry, both commercial service and GA, is facing a unique convergence of challenges, as aging aircraft fleets coincide with a wave of pilots nearing retirement. The COVID-19 pandemic only highlighted these challenges, exposing vulnerabilities in workforce pipelines and the need for long-term investment in aircraft modernization. As travel demand returned post-COVID, the shortage of qualified pilots and mechanics, combined with the high costs of replacing or retrofitting older aircraft, has placed additional strain on operators, particularly those serving small and rural communities.

Advancements in automation and AAM are expected to reshape the aviation industry and influence pilot roles over the coming decades. Increased cockpit automation is anticipated to shift pilots' responsibilities toward system monitoring and management, while concepts such as single-pilot cruise operations may become more prevalent as enabling technologies, regulations, and operational procedures mature. Faster adoption of this technology will likely first occur for cargo, military, and remote operations. Zero-pilot passenger flights are not as likely to be near term although many eVTOL manufacturers desire fully autonomous activity. Despite the potential long-term implications of automation, the pilot shortage is expected to remain severe over the next decade, and it anticipated that airlines will need to aggressively hire trained pilots through the early 2030s.

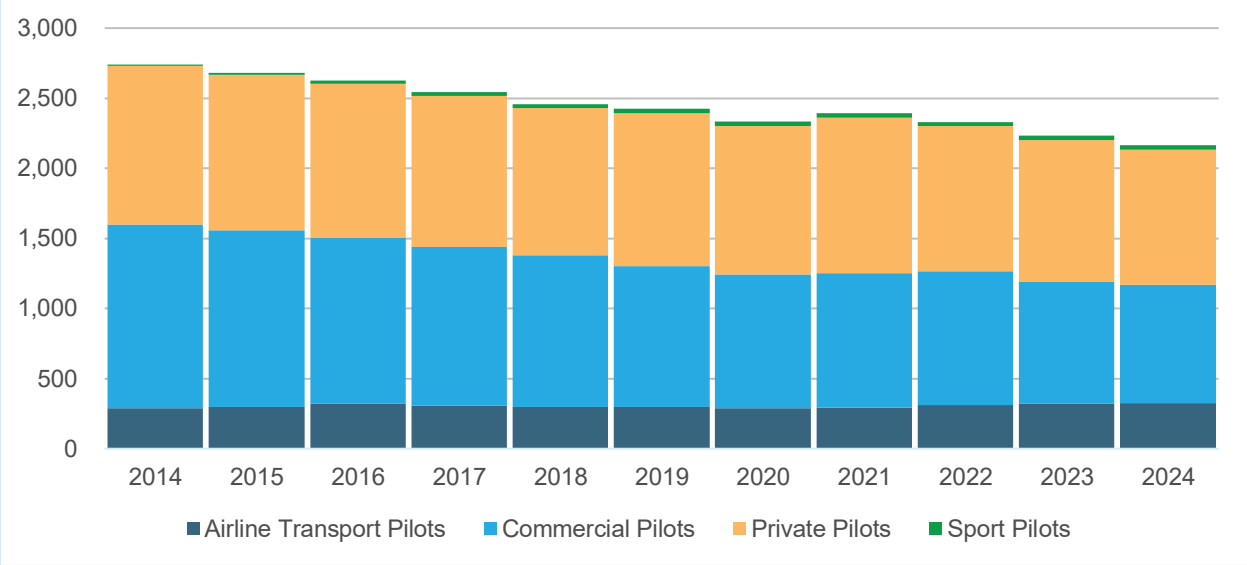
7.5.1. Aging Pilot Population

According to the Regional Airline Association (RAA), in 2023, the average pilot was 51 years old, with 14 percent of commercial pilots retiring in the next five years, and half of the workforce forced to retire in 15 years.[37] Pilots over 50 years old accounted for 59 percent of the airline transportation pilot certificates in 2024. The GA pilot pool is also aging, and most newly licensed pilots are opting to fly for airlines, instead of choosing GA pathways. In North Dakota, several aerial applicators based at rural airports have expressed concern about their companies' future as they approach retirement and note a shortage of younger pilots to take their place.

[37] Regional Airline Association (RAA), "Small Community Air Service Trends Update (4Q23)," RAA, October 2023, https://www.raa.org/wp-content/uploads/2023/12/4q23-Small-Community-Air-Service-V2.pdf.

One of the key reasons for the pilot shortage is the retirement of senior aviators, many of which were furloughed or took early retirement during the pandemic. According to FAA's U.S. Civil Airman Statistics, there was a decline in nearly all pilot certifications between 2010 and 2022 with an overall decline of five percent over the 12-year period. The largest declines were in private and commercial certificates.[38] This trend has been witnessed in North Dakota as well. **Figure 7-8** presents the decline in active pilots in North Dakota in the most recent 10 years (2014-2024). The number of commercial pilots in North Dakota fell 35 percent over the last decade, while the number of private pilots was down 18 percent during this period.

Figure 7-8. Active Pilots in North Dakota



Sources: FAA U.S. Civil Airman Statistics, 2025; North Dakota Aeronautics Commission, 2025.
Note: Excludes remote and student pilots

The U.S. Department of Employment and Economic Development projects that the aviation industry will have more than one million job openings over the next decade. Government and industry forecasts anticipate critical shortages in the next two decades as 10,000 baby boomers become eligible to retire each week.[39]

7.5.2. Aging Aircraft Fleet

The commercial airline fleet is also facing modernization challenges. More than 30,000 commercial aircraft were in operation worldwide in 2023, and more than 10,000, or

[38] Federal Aviation Administration. *FAA Aerospace Forecast: Fiscal Years 2023–2043*, May 8, 2023, https://www.faa.gov/dataresearch/aviation/aerospaceforecasts/faa-aerospace-forecast-fy-2023-2043
[39] National Academies of Sciences, Engineering, and Medicine, ACRP Web-Only Document 28: Identifying and Evaluating Airport Workforce Requirements, Transportation Research Board, Washington, DC, November 2016, https://nap.nationalacademies.org/catalog/27193/identifying-and-evaluating-airport-workforce-requirements

approximately one-third, were over 20 years old.[40] The average annual maintenance cost for a commercial aircraft is about $1 million, with costs generally increasing as aircraft age. During the post-pandemic recovery period, airlines lost more than $10 billion due to maintenance and repair issues, and these costs are expected to continue rising. Commercial fleets in North America also tend to be slightly older than those in some other regions, due in part to the continued use of aging regional jets that remain essential for serving smaller markets, including many communities in North Dakota. As a result, airlines must balance the costs of maintaining aging fleets with the significant capital investments required to procure newer aircraft.

Long-term investment in aircraft modernization presents significant financial and operational considerations for the aviation industry. As aircraft age beyond 20 years, maintenance costs increase substantially while fuel efficiency declines. Operators must balance the costs of maintaining existing fleets against investments in new aircraft or major retrofit programs. For regional carriers serving markets like North Dakota, the challenge is compounded by limited aircraft options suitable for smaller routes and manufacturing backlogs that extend delivery timelines for new aircraft by several years. The decision to modernize involves evaluating maintenance cost trajectories, aircraft utilization rates, available financing, and the timeline for new aircraft availability.

The GA sector faces similar modernization challenges. In 2023, the FAA reported that the U.S. GA fleet of more than 150,000 aircraft had an average age exceeding 50 years.[41] Many aircraft continue to operate well beyond their originally anticipated service lives, making continued airworthiness and safety oversight increasingly important. Cockpit modifications as well as new avionics and routine upgrades can extend the service life of GA aircraft and will play an important role as the ATC system continues to modernize.

Aging aircraft present several key concerns related to safety, reliability, and operating costs. As aircraft remain in service longer, operators face increasing maintenance and inspection requirements to ensure continued airworthiness. Since the pandemic, aging fleets have also required aircraft maintenance, repair, and overhaul (MRO) providers to adjust their strategies to address the unique challenges of servicing older aircraft. Continued investment in maintenance programs, safety initiatives, and technology upgrades is critical to maintaining safe and reliable operations.

These challenges are compounded by manufacturing constraints, with global aircraft order backlogs exceeding 17,000 units and estimated delivery timelines ranging from 11 to 14 years

[40] Edward Hardy, "The Challenges of Ageing Fleets in the Modern Era," Air Cargo Week, December 11, 2023, https://aircargoweek.com/the-challenges-of-ageing-fleets-in-the-modern-era/
[41] Federal Aviation Administration, *Best Practices Guide for Maintaining Aging General Aviation Airplanes*, FAA Small Airplanes Continued Operational Safety booklet, September 2003, https://www.faa.gov/sites/faa.gov/files/aircraft/air_cert/design_approvals/small_airplanes/aging_air_booklet.pdf

at current production rates.[42] As a result, many operators are extending the service lives of existing aircraft while awaiting new aircraft that may not arrive until the early 2030s.

Fleet modernization also plays a critical role in supporting the FAA's ongoing ATC modernization efforts. Modern aircraft equipped with updated avionics, ADS-B transponders, and digital communication systems are essential for integrating with newer air traffic management technologies. As the FAA invests in modernizing ATC infrastructure and implementing performance-based navigation procedures, aging aircraft lacking compatible avionics create operational inefficiencies and limit the full benefit of these systemwide improvements. Without aircraft modernization keeping pace with ATC system upgrades, the aviation system cannot fully leverage the capabilities of modern air traffic management.

7.5.3. Supporting Aging Pilots and Fleets

The aging pilot population and aircraft fleet impact many sectors of the aviation industry, both nationally and in North Dakota, and have broader implications for aviation-reliant industries. The primary concern is not the ability of older pilots to operate safely, but whether a sufficient workforce pipeline exists to replace retiring pilots. To help address these concerns, pilot training activity in North Dakota has grown dramatically, with the number of student pilot certificates increasing by 165 percent over the past decade. In 2024, 1,997 student pilots were registered in the state, compared to 794 in 2014. North Dakota is actively investing in aviation education and workforce development, with support from the state and major training institutions throughout the aviation sector. These include:

- **UND Expansion:** Enrolled over 1,200 total aviation students in 2024,[43] producing approximately 250 certified pilots a year with an 85 percent placement rate into airlines, corporate aviation, and military jobs.[44] Expanded flight training capacity by increasing its fleet,[45] purchasing new simulators and partnering with airlines and the military.
- **North Dakota State College of Science (NDSCS) Aviation Technology Program:** Launched in 2025, the FAA-certified program in Fargo expands the state's capacity to train aircraft maintenance technicians and helps address the growing workforce demand for qualified personnel to maintain both aging aircraft and increasingly complex modern aviation systems.
- **North Dakota Aeronautics Commission (NDAC) Flight Training Assistance Program (FTAP):** Reimburses instructors' transportation, meals, and lodging to

[42] International Air Transport Association, *The Global Commercial Aircraft Fleet,* August 2025. https://www.iata.org/en/iata-repository/publications/economic-reports/the-global-commercial-aircraft-fleet/
[43] University of North Dakota, Department of Aviation Fact Sheet, Accessed October 2025. https://www.gocivilairpatrol.com/media/cms/UND_aviation_Program_08FDB7AC02593.pdf
[44] University of North Dakota, "Student Achievement Data," John D. Odegard School of Aerospace Sciences, last updated November 28, 2025, https://aero.und.edu/aviation/student-achivement-data.html
[45] Piper Aircraft, Inc., "Piper Aircraft Awarded Its Largest Domestic Trainer Order in Company History from the University of North Dakota," press release, July 22, 2025, https://www.piper.com/press-releases/piper-aircraft-awarded-its-largest-domestic-trainer-order-in-company-history-from-the-university-of-north-dakota/

serve rural areas, having supported 300+ students at more than 20 airports since 2020 and boosting local student starts by 40 percent.

- **High School Education Programs:** NDAC has an integral role in advancing aviation education in North Dakota. NDAC provides aviation education assistance and grant funding to support aviation-related coursework at high schools across the state. These programs introduce students to aviation concepts, career pathways, and foundational technical training. Distance learning options are also available, allowing students from rural and remote areas to participate as well.

To further bolster aviation workforce pipelines, NDAC can continue to partner with universities, technical colleges, and high schools to expand aviation programs and introduce early-career pathways. State-funded scholarships, loan repayment/forgiveness, and employer training grants help reduce the high cost of flight training and attract new entrants. North Dakota may also benefit from expanding workforce development opportunities, including aviation maintenance apprenticeships and career and technical education programs that emphasize skilled trades and early aviation training. Many of these programs are supported through the North Dakota Department of Career and Technical Education and can help strengthen the state's aviation workforce pipeline.

These measures position North Dakota ahead of national trends, where FAA forecasts demand for 17,000 new pilots yearly through 2043.

To address the challenges of an aging fleet, the state could consider the following:

- **Comprehensive Maintenance Programs:** Work with existing aircraft maintenance shops or programs (or bring in new programs) that go beyond standard regulatory requirements to ensure proactive measures are taken, especially with older aircraft. Support upgrades to maintenance facilities at airports to ensure they can service both aging legacy aircraft and new aircraft with advanced systems.
- **Specialized Training:** Invest in additional training programs to promote technicians and engineers that are skilled in working with aging aircraft to ensure they are knowledgeable about working on older models of aircraft. This training is in addition to new training needed to address emerging aircraft technologies. Support partnerships between maintenance training programs, operators, and maintenance facilities to create coordinated training and resource-sharing opportunities.
- **Ag Applicator Incentives:** Provide a state tax credit or low-interest loans for fleet modernization, state scholarships or service-commitment reimbursement programs for ag pilot certification, and recruitment pipelines to sustain and grow the number of ag aircraft and pilots in North Dakota that are critical to treating cropland.

7.6. Aviation Professional Shortage

The aviation industry encompasses a wide range of occupations that depend on a highly skilled workforce. Workforce shortages have affected the aviation industry in North Dakota and throughout the U.S. over the past decade, resulting in declining numbers of workers in several critical occupations. As discussed in the prior section, pilot shortages have contributed to a surge in flight training activity, driven by strong airline hiring demand, global air travel growth, and accelerated retirements during and following the COVID-19 pandemic. While pilots, flight

attendants, and air traffic controllers are among the most visible aviation professions, many additional occupations support airport operations, aircraft manufacturing, aircraft MRO activities, and the broader network of businesses that provide parts, equipment, and services to the aviation and aerospace industries.

The U.S. aviation industry is experiencing strong growth in air travel demand as the industry has recovered from the pandemic. In addition, a record number of aircraft deliveries are anticipated in the next 10 years, despite continued supply chain disruptions. As discussed in the previous section, these deliveries may not be sufficient to replace all aging aircraft currently in service, resulting in continued pressure on airlines to extend the operational lives of existing fleets. In *Pilot and Technician Outlook 2025-2044*, Boeing estimates that more than 2.3 million new aviation personnel, including pilots, maintenance technicians, and cabin crew members, will be needed globally over the next 20 years. In the U.S., this translates to 435,000 new jobs by 2044, representing approximately 18.4 percent of the global need.

7.6.1. Key Shortages

The pilot shortage is just one of many workforce challenges facing the aviation industry. Current estimates indicate a shortage of between 12,000 and 18,000 aircraft maintenance technicians,[46] while the ATC system is short approximately 3,000 controllers.[47] These workforce shortages have contributed to flight delays and cancellations across the system. The emergence of UAS and AAM technologies is likely to increase demand for qualified pilots, technicians, mechanics, and other specialized personnel needed to support these evolving operations.

Aircraft maintenance technician shortages represent another significant workforce challenge for the aviation industry. An estimated two out of every five U.S. mechanics will reach retirement age by 2031. Although the supply of new technicians is growing, with record numbers of new mechanic certificates issued in 2023 and 2024, demand is expected to increase at an even faster rate.[48] According to a survey by Oliver Wyman, a shortage of aviation maintenance workers will persist over the next 10 years and likely peak in 2027, with an estimated shortfall of around 25 percent of the required workforce.[49] Oliver Wyman's research also highlights the need for a specialized support ecosystem for AAM, emphasizing that the workforce crunch affects the ability to support these new, innovative aircraft. While all players in the industry will

[46] Aaron Karp, "Aviation Maintenance Technician Shortage Threatens Post-COVID Rebound," Avionics (digital edition), March/April 2023, https://interactive.aviationtoday.com/avionicsmagazine/march-april-2023/aviation-maintenance-technician-shortage-threatens-post-covid-rebound/

[47] Gregory Wallace, "America hasn't had enough air traffic controllers for more than a decade," CNN (Travel), May 14, 2024, https://www.cnn.com/travel/article/faa-traffic-controllers-shortage/index.htm

[48] Aviation Technician Education Council (ATEC) and Oliver Wyman Vector, *2025 Pipeline Report: New Mechanic Certificates Jumped in 2024, but Technical Workforce Gap Concerns Remain*, ATEC, September 18, 2025, https://assets.noviams.com/novi-file-uploads/atec/Pipeline_Report_2025_web_optimized.pdf.

[49] Derek Costanza, Brian Prentice, et al., *Not Enough Aviation Mechanics: Aviation Technician Workforce Analysis*, Oliver Wyman, January 2023, https://www.oliverwyman.com/content/dam/oliver-wyman/v2/publications/2023/jan/Not%20Enough%20Aviation%20Mechanics%20-%20AMT%20report.pdf

be impacted, the largest impact will be on independent MROs and regional airlines, which are often the entry point for training. Larger companies and airlines are offering higher salaries and are often looking to fill positions from retirements. This means smaller businesses with tighter margins will feel the most impact.

7.6.2. Aviation-Related Workforce Challenges in North Dakota

The North Dakota aviation workforce drives $3.6 billion in annual economic activity[50], including ag aviation treating 5.5 million acres in 2024 via 183 agricultural aircraft.[51] North Dakota has experienced many of the workforce challenges affecting the national aviation industry but is taking steps to address them. Through investments in education, training, and workforce development programs, the state is helping build a skilled workforce capable of supporting safe operations, industry growth, and future aviation needs.

7.6.2.1. Survey Findings

As part of this study, NDAC gathered information on how the limited availability of qualified workers is affecting the state's aviation industry. Airport sponsors, managers, and airport tenants were asked about the workforce shortages and hiring challenges they are experiencing. The following questions were posed to both airport management and airport tenants:

- Were there job positions that you were unable to fill in calendar year (CY) 2024? If yes, please provide the role of the positions that you could not fill and indicate if you are still trying to fill this position.
- Are you aware of any upcoming employment departures? If yes, please provide the role of the position leaving the airport and indicate the timing that this departure is expected to occur.
- Are you aware of any future hiring needs? If yes, please provide the role for the upcoming position/s and when you expect the position to be open.

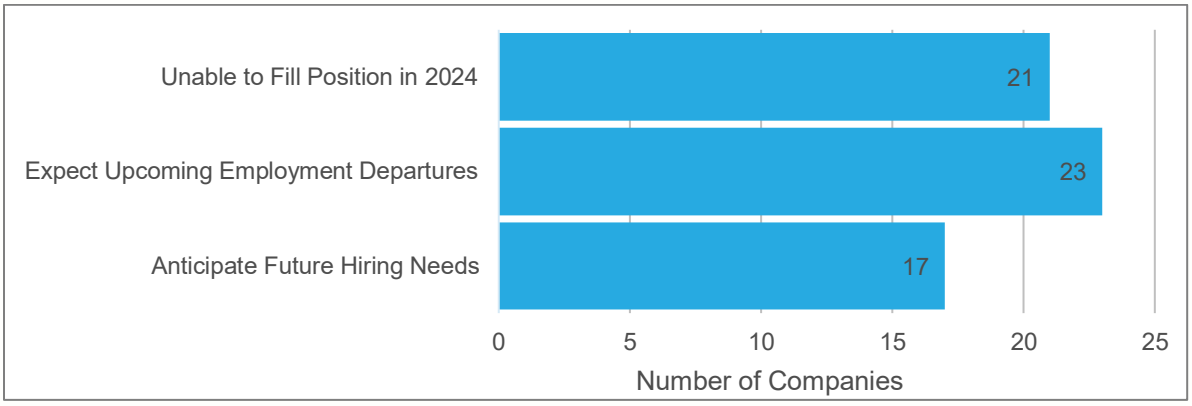
Five airport managers/sponsors reported being unable to fill positions within the past year. Snow removal and airport maintenance were the most cited unfilled positions. One airport also reported difficulty filling an airport director position. In addition, several airports identified upcoming workforce departures that may create additional staffing challenges in airport management, seasonal mowing, and airfield operations.

On-airport business tenants also reported workforce challenges. Of the 228 businesses located at North Dakota airports, approximately half answered the survey questions related to workforce challenges. Nearly 20 percent of those respondents noted that they experience challenges related to finding and retaining employees. These businesses currently have 570 employees

[50] Representative of the total economic output of North Dakota's aviation and aerospace industry according to the findings presented in the 2025 North Dakota Aviation Economic Impact Study (2025 NDAEIS).
[51] North Dakota Aeronautics Commission, "ND Aerial Applicators Provide Record Service to 5.5 Million Acres in 2024," news release, January 7, 2025, https://aero.nd.gov/news/nd-aerial-applicators-provide-record-service-to-55-million-acres-in-2024/

(383 full-time and 187 part-time. **Figure 7-9** highlights the number of businesses that reported various types of workforce challenges. Several tenants reported multiple types of challenges.

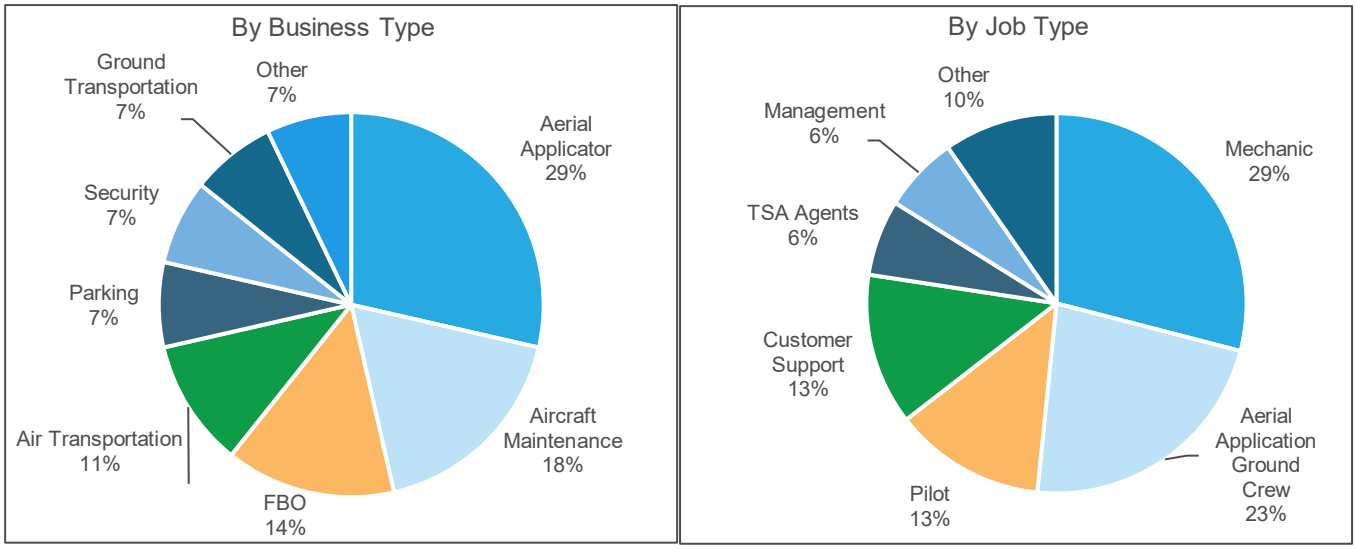
Figure 7-9. North Dakota Airport Tenants That Identified Various Workforce Challenges



Source: North Dakota AEIS Airport Tenant Survey, 2025.

Figure 7-10 presents a summary of the survey results of the companies that responded "Yes" to having workforce challenges. Aerial applicators, aircraft maintenance companies, and fixed-base operators (FBOs) represent the largest types of businesses that are experiencing or anticipating challenges. Aircraft maintenance shops and FBOs (or 29 percent of respondents) identified difficulties finding mechanics and flight line technicians. Aerial applicators, which accounted for the largest group of businesses that responded, noted that they struggle to find and maintain ground support/loaders as well as skilled pilots/sprayers.

Figure 7-10. North Dakota Airport Tenants That Identified Workforce Challenges, by Business Type and by Job Type



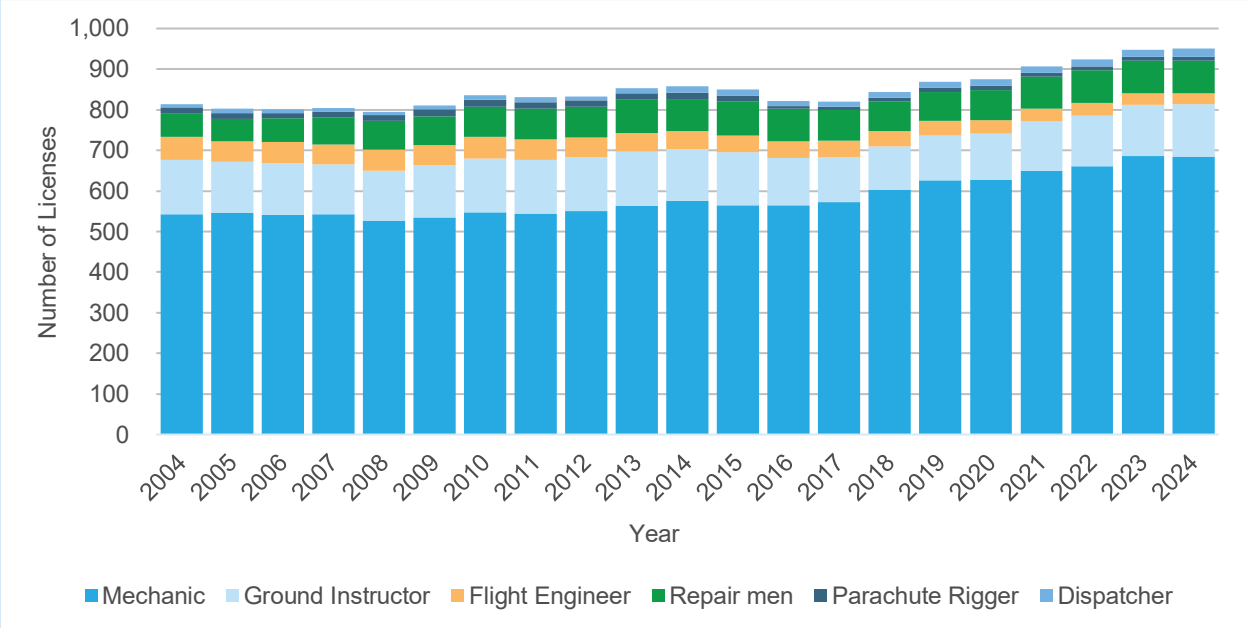
Source: North Dakota AEIS Airport Tenant Survey, 2025.

For additional detail on the estimated economic impacts associated with workforce development challenges in North Dakota, please refer to **Section 9.6.5** of **Chapter 9: North Dakota Aviation Economic Impact Study**. This section uses the survey data summarized here to quantify the economic activity lost due to unfilled positions within the state's aviation industry.

7.6.2.2. Non-Pilot Licensed Airmen in North Dakota

The survey results indicate a need for additional licensed mechanics in North Dakota, as well as several other key aviation professions. **Figure 7-11** highlights the number of licensed airmen (excluding pilots) in the state over the past 20 years, as reported by the FAA. Mechanics represent the largest share of non-pilot licensed airmen, accounting for 62 percent of the total in 2024, followed by ground instructors. Between 2004 and 2017, the number of licensed mechanics in the state fluctuated between 530 and 575 per year. In 2018, the number exceeded 600 and continued to increase, reaching 685 licensed mechanics in 2024. This growth was likely influenced by several workforce development initiatives discussed later in this chapter. Despite these gains, survey responses indicate that additional mechanics are still needed to support airport tenants and aviation businesses across the state.

Figure 7-11. North Dakota Non-Pilot Airmen Certificates by License Type



Sources: FAA Airmen Certification Database, NDAC. 2025.
Note: The number of mechanic licenses issued was revised based on NDAC data.

7.6.2.3. Barriers Facing New Commercial Pilots in North Dakota

During the NDSASP Technical Advisory Committee (TAC) meeting held in February 2026, committee members discussed barriers facing new commercial pilots in North Dakota. While pilot shortages are often attributed to an aging workforce, structural barriers can also limit how quickly certificated commercial pilots enter the workforce. Several challenges relevant to North Dakota were identified:

- **FAA Regulations:** The 1,500-hour requirement for obtaining an Airline Transport Pilot certificate can add more than two years and over $100,000 in training costs, making it more difficult for aspiring pilots to enter the airline workforce.
- **Financial Burden:** The cost of obtaining certification remains a significant deterrent.
- **Insurance Requirements:** Insurance requirements for operators and pilots can create additional barriers due to substantially higher premiums. These costs may discourage small operators from hiring and developing entry-level commercial pilots.
- **Rural Environment:** Recruiting and retaining young pilots, as well as other aviation professionals, can be challenging due to the state's rural character and the remote location of many aviation-related jobs.

7.6.3. North Dakota Initiatives

A critical component of addressing workforce challenges is ensuring that a sufficient number of trained and qualified individuals are available to meet current employer needs while preparing for the future workforce demands of the aviation industry. North Dakota has already taken several steps to strengthen aviation workforce pipelines statewide. The state has several schools that provide aviation-related training and education. Although a number of these schools are standalone programs, many of them are associated with colleges/universities.

UND's Aerospace School is a leader in North Dakota and nationally in training future pilots and air traffic controllers. As noted previously, UND was selected by the FAA to participate in the Enhanced Air Traffic-Collegiate Training Initiative (AT-CTI), which allows eligible students who successfully complete the program to earn an endorsement certificate and proceed directly to an FAA air traffic controller training facility.

In 2025, North Dakota State College of Science (NDSCS) launched a new FAA-certified Aviation Maintenance Technology program in Fargo, marking a significant development in the state's aviation education landscape. This program is North Dakota's only FAA Part 147-certified Aviation Maintenance Technology program, aimed at addressing regional and national workforce needs for highly trained aircraft maintenance technicians. The NDSCS program was made possible due to start-up grant funding from the FAA Workforce Development Program and aviation education grant funding from the NDAC.

The NDAA plays a pivotal role in supporting aviation education and workforce development across the state. One key initiative is the Fly-ND Career Expo, an annual event that introduces high school and college students to the wide range of opportunities in the aviation industry. NDAA also provides scholarships to students pursuing post-secondary education in aviation-

related disciplines. NDAA's scholarship program, along with its career expos and educational outreach, has received national recognition, including the National Business Aviation Association's Outstanding Excellence by a Local or Regional Group Award, highlighting the association's commitment to cultivating the next generation of aviation professionals.

NDAC prioritizes the development of the future aviation workforce through strategic investments in education and training. During the current biennium, aviation education initiatives experienced significant growth and provided $400,000 in educational assistance and grant funding to support workforce development across the state. Aviation programming at North Dakota high schools is currently available in eight cities, with aviation-related courses provided in Williston, Watford City, Minot, Bismarck, Jamestown, Kindred, West Fargo, and Grand Forks. Distance education is also available to ensure that all high school students, regardless of location, have access to aviation learning opportunities.

7.6.4. Federal, Professional Organization, and Other State Initiatives

As air travel demand continues to increase, the aviation industry must take proactive steps to address workforce challenges. Strategic efforts in recruitment, training, and workforce development can help ensure the safe and efficient operation of the aviation system while supporting innovation and long-term industry growth. In response to workforce shortages across multiple aviation sectors, numerous initiatives have been developed at the federal, state, industry, and educational levels. Airlines and private companies support workforce development by funding pilot and maintenance training programs, university and technical school partnerships, tuition assistance, and structured career pathways designed to recruit, train, and retain the next generation of aviation professionals. Professional organizations, government agencies, educational institutions, and other industry stakeholders have also implemented programs to strengthen the aviation workforce pipeline. These efforts are described in the following subsections.

7.6.4.1. Federal Initiatives

Federal programs, legislation, and agency efforts are strengthening the pipeline of pilots, maintenance technicians, air traffic controllers, and other aviation professionals. FAA Workforce Development Grants are funding scholarships, training programs, infrastructure improvements, and research initiatives, benefiting individuals and organizations involved in aviation education and training. UND has been a grant recipient and is currently using their grant to engage science, technology, engineering, and math (STEM) teachers by giving them the tools to teach students about careers in aviation and provide hands-on flight experiences.

Several legislative proposals are aimed to expand workforce programs. They include:

- **Aviation Workforce Development Act** seeks to address aviation workforce shortages by expanding 529 College Savings Plans to cover education and training

expenses for commercial pilot and aviation maintenance programs, making aviation careers more financially accessible.

- **Aviation WORKS Act** proposes funding for aviation workforce development, expanded grants, and the establishment of programs for aviation manufacturing alongside pilots and maintenance technicians.
- **AIRWAYS Act** will offer grants for education, recruitment, and workforce development across pilots, maintenance, and manufacturing sectors, with a focus on underrepresented communities.

7.6.4.2. Aviation Industry Professional Organization Initiatives

The two largest aviation industry professional organizations, the Aircraft Owners and Pilots Association (AOPA) and the National Business Aviation Association (NBAA), have developed programs to support workforce development. AOPA offers several initiatives, including "You Can Fly," which provides multiple pathways for growing and strengthening the pilot and aviation community, and the "High School Initiative," a four-year program that utilizes aviation-focused STEM education to prepare students for careers involving both piloted and uncrewed aircraft systems. In addition, the AOPA Foundation provides more than $1 million annually in scholarships for flight training.

NBAA efforts include "Collegiate Connect," which is aimed at growing the workforce by conducting a series of panel discussions and educational sessions to share job search and networking strategies; aviation career fairs to inform students about career opportunities throughout aviation including business aviation; professional development programs focused on advancing their careers in corporate/business aviation; and other on-demand education programs that allow members to take advantage of computer-based educational programs for professional development.

More than a dozen other professional aviation organizations provide workforce development programs and resources aimed at strengthening the current workforce and developing the next generation of aviation professionals by expanding educational opportunities, addressing airport-specific workforce needs, and fostering collaboration between industry, government, and academia.

7.6.4.3. Other State Initiatives and Best Practices

Many states also have initiatives in place to support aviation workforce shortages and workforce development. A few are highlighted here.

- **Alabama:** Alabama Department of Commerce's Workforce Development Division works with aerospace and aviation companies to assist with new start-ups and expansions. The organization provides services at no cost to the companies or trainees and includes recruiting, assessing, and training new and existing employees. They work to provide job-specific and customized training to meet the individual needs of the companies. The state also has several programs geared towards students including:

- **Flight Works Alabama:** Supports the education center located in Mobile near the Airbus manufacturing plant that hosts school field trips, conducts tours, and provides learning programs like FlightPath9 and We Build It Better. FlightPath9 is a pre-employment program for high school seniors that covers skills and certifications for an aviation career. We Build It Better provides classroom kits to instruct middle school students in work skills including project design, electrical wiring, fiber optics, and coding.
- **Boeing's FlexFactor Program:** Launched in 2018, Boeing developed this program to build awareness among high school and college students about career paths in the advanced aerospace manufacturing sector.
- **Alabama Aerospace and Aviation High School (AAHS):** AAHS welcomed its first class of students in 2022 and provides industry and career training and experience in aviation and aerospace.

- **Colorado:** The Colorado Aviation Education Grant Program is the state's answer to helping fill workforce development gaps. The program is geared towards science, technology, engineering, arts, and math (STEAM) opportunities at established and accredited educational organizations. Examples of grants awarded in fiscal year (FY) 2024 include:

  - **AIMS Community College:** Updating UAS fleet to provide greater student accessibility and opportunity in the fields of film, construction, inspection, and precision agriculture.
  - **Colorado Northwest Community College:** New crew-resource management (CRM) simulator.
  - **Colorado Pilots Association:** Technology upgrades for laptop computers and a projector that is needed for providing mountain flying course to pilots.
  - **District 11 CTE Aviation Pathways Program:** Aircraft engine, instrumentation, or avionics equipment to complete course work for a full aircraft maintenance program that will allow for hands-on training in aircraft construction which is to be built by students in the classroom.
  - **Eagle County Regional Airport:** Redbird TD2-S Flight Simulator with table, horizontal side monitors, and shipping costs which will permit logbook entry pilot training during non-flyable weather days.
  - **Legacy High School:** E6B Flight Computers and micro plotters that will assist students to obtain a private pilot certificate and/or Part 107 drone certification.

- **Kansas:** In early 2023, the Kansas Department of Commerce introduced the Aviation Learning Opportunities & Funded Training (ALOFT) Program whose goals are to increase training and development opportunities within the Kansas aviation industry, increase capacity of aerospace and aviation manufacturers, increase service of local airports via expansion of facilities that provide for additional staff and training opportunities, and use funding to leverage additional workforce investment in aviation and aerospace by requiring a 25 percent match. In June 2023, Department of Commerce awarded nearly $20 million in aviation workforce development grants to seven recipients to use over the next two years to provide construction on-site training facilities and service expansions; third-party and vendor training costs on machinery and equipment; machinery and equipment for training; salaries directly related to training, youth training services, and costs related to early interest development in aviation and aerospace industries; and course development costs

and services for development of in-house training, marketing, communication, and activities to attract talent to aviation and aerospace industries.

- **Oklahoma:** Oklahoma's Aerospace and Aeronautics Commission has a robust aerospace and aviation education grant program that addresses workforce challenges in the industry by introducing Oklahoma students to the array of STEM careers. Additionally, the Commission partners with Oklahoma's Department of Commerce in the delivery of the Aerospace Commerce Economic Services (ACES) program which seeks to grow and develop the aviation and aerospace industry. The Commission allocated over $1 million to AOPA schools, aerospace programs, and aviation-centric organizations in 2024. Recent legislative developments include the establishment of the Aero Student Pathways for Aerospace Careers and Education (AeroSPACE), a program to bolster aerospace educational efforts and align curricula with the workforce needs of the aviation and aerospace sectors. The Commission's Aero Education Program includes competitive grant awards, provisions for high schools offering the AOPA "You Can Fly" curriculum, support for classroom laboratories dedicated to aviation and aerospace education, and the continuation of key aerospace education events.

7.6.5. Addressing Workforce Challenges

Addressing workforce shortages will require a multifaced approach involving industry, government, educational institutions, and workforce development organizations. Legislative actions, advances in training and recruitment, new technological advancements, and continued economic growth all have the potential to help strengthen the aviation workforce pipeline. Airlines have responded by increasing compensation for pilots and mechanics and investing in flight training programs. However, additional efforts will be needed to meet future workforce demands across the aviation industry. there is more work to be done to boost employment in aviation fields.

For aviation mechanics, workforce recruitment and retention are increasingly influenced by competition from other high-tech industries as aviation maintenance becomes more reliant on digital systems, handheld technologies, and on-the-job training. To remain competitive, MRO providers and other aviation employers may need to offer competitive compensation, benefits, career development opportunities, and work-life balance initiatives.

Recruiting for aviation careers should begin early through middle school and high school education programs, internships, and scholarships. National and state initiatives are supporting workforce development efforts designed to attract young people to aviation careers and strengthen the future aviation workforce.

North Dakota has taken a meaningful step in recognizing aviation as a workforce priority. Commercial pilots, air traffic controllers, aircraft mechanics and service technicians, and civil engineering (airports) are all included on the state's annually updated *In-Demand Occupations List* which is published by the Governor's Workforce Development Council. By pursuing training in one of these designated fields, individuals qualify for funding assistance through the federal Workforce Innovation and Opportunity Act (WIOA), which includes career planning, training

support, and on-the-job training reimbursements of up to 50 percent of wages. Scholarships and loan repayment options are also provided to students pursuing careers included on the *In-Demand Occupation List* through the ND Career Builders program.[52] NDAA also offers scholarships for students pursuing post-secondary aviation education in professional pilot, aviation maintenance, aviation engineering, UAS, aviation management, and air traffic control.

To address the barriers in North Dakota for new pilots noted by the TAC (refer to *Section 7.6.2.3*), the state could explore the following strategies:

- **Financial Access:** In addition to the scholarship and loan programs in place, NDAC, in coordination with the Bank of North Dakota, could develop low-interest aviation training loans and loan forgiveness programs tied to in-state service commitments.
- **Flight Hour Pathways:** The state's rural nature can provide natural flight hour-building opportunities. Agreements between state agencies and low-time commercial pilots could create paid pathways to ATP flight hours while serving state needs. Example areas include aerial surveying, wildlife monitoring, and infrastructure inspection.
- **Insurance Cost Mitigation:** NDAC could explore a state-backed aviation insurance pool modeled on existing agricultural pool mechanisms to spread the risk and reduce individual premiums. Insurance premium tax credits for operators who hire and develop early-career pilots could further reduce the financial burden.
- **Employer and Pipeline Incentives:** WIOA on-the-job training reimbursements and workforce training tax credits should be actively marketed to local talent in North Dakota. Agreements between high school aviation programs and UND's Odegard School, combined with rural placement incentives for graduates who commit to working in North Dakota companies, could create a more continuous pipeline from early aviation exposure through ATP certification and ultimately career placement.

In addition, North Dakota can draw on best practices from other states to further strengthen its already extensive aviation and aerospace initiatives and expand programs that support a skilled and sustainable aviation workforce.

7.7. Commercial Service Access

Having access to the national air transportation network via commercial air service is a key driver of economic activity and jobs in many small communities. Air service allows small communities to attract investment, create and retain jobs, and support tourism and business. Flights from small communities to hub airports allow for one-stop service to cities around the world.

Since airline deregulation in 1978, small communities, including those in North Dakota, have struggled to maintain and expand commercial airline service. Each of North Dakota's eight

[52] North Dakota University System, ND Career Builders. (Accessed March 2026) https://ndus.edu/paying-for-college/career-builders

commercial service airports is considered to serve a small community[53]. The economics of service to small cities are challenging to overcome. As airlines continue to look for ways to increase revenue and decrease costs, communities, especially those whose service is provided by a single carrier, find themselves at risk. Regional airline service and the small airports these carriers serve are the most susceptible to economic dips. In turn, reduced air service can limit economic development, deter business investment, and restrict mobility for residents, making small communities less competitive and limited in their ability to sustain population and business activity.

7.7.1. Challenges in Small Community Air Service

Several factors have contributed to the challenges of supporting air service at small communities over the last several decades. Even more recently, between 2018 and 2023, mean total departures from small communities nationwide decreased by 14 percent, from 2,235 to 1,919 flights.[54] The factors for this decline include:

- **Passenger Leakage:** Passengers often drive to airports farther away to access lower fares, better flight times, more frequent flights, or direct service. It is difficult to regain passengers that have become accustomed to driving to access air service.
- **Declining Population:** Declining populations in small communities significantly undermine local air service. As populations shrink, demand for flights decreases, making routes less profitable and less attractive to airlines. This often leads to reduced flight frequency, fewer nonstop destinations, and even the loss of all commercial air service in the most affected communities.
- **Higher Fuel Costs:** Fuel accounts for up to 40 percent of an airline's expenses. Any increase in fuel costs in turn will increase the operational expenses for airlines. When fuel prices rise, small community routes (which already operate on thin profit margins) become even less economical. To offset the pressure, regional airlines may reduce service or increase fares.
- **Fleet Reduction in Small Aircraft:** Strong growth in 37- to 50-seat regional jets (RJs) during the 1990s and early 2000s led many airlines to replace turboprop aircraft serving smaller communities. However, following the spike in jet fuel prices during 2007 and 2008, operating smaller RJs on short-haul routes became less economically viable. As a result, average regional jet airline aircraft capacity increased from 51 seats in 2007 to 64 seats in 2019, reflecting a shift away from smaller turboprops and RJs in favor of larger aircraft. Despite this trend, 50-seat aircraft continue to play an important role in serving many small communities in the Essential Air Service (EAS) program, including communities in North Dakota.
- **Pilot Supply:** As discussed in prior sections, pilot shortages have affected the aviation industry for more than a decade and are expected to remain a challenge in the coming years. Contributing factors include the growing number of pilots reaching

[53] According to United States Government Accountability Office Report, *Commercial Aviation: Trends in Air Service to Small Communities,* a small community is defined to have a Census-reported statistical area population in the bottom 20 percent of all communities in the U.S. This equates to the 218 least populous communities with commercial airline service.
[54] United States Government Accountability Office, *Commercial Aviation: Trends in Air Service to Small Communities,* GAO-24-106681 (Washington, DC: U.S. Government Accountability Office, September 25, 2024; revised January 9, 2026), https://www.gao.gov/assets/gao-24-106681.pdf

the mandatory retirement age of 65, the high cost of flight training, and regulatory requirements that can make it difficult to enter the profession. In 2013, the FAA implemented a rule requiring airline pilots to accumulate at least 1,500 hours of flight time before obtaining an Airline Transport Pilot (ATP) certificate. The additional flight-hour requirements can add two years of training and more than $100,000 in expenses beyond what many aspiring pilots anticipated prior to the rule change. Regional airlines continue to experience the greatest impacts of pilot shortages as major airlines recruit experienced pilots to replace retiring flight crews. As a result, regional carriers often face challenges recruiting and retaining qualified pilots, which can affect air service in smaller communities. These challenges are expected to continue as airlines balance staffing needs, workforce turnover, and increasing pilot compensation costs.

- **Technology Impact on Business Travel:** Over the past 30 years, the way companies conduct business has changed significantly. Tasks that once required air travel and in-person meetings can now be accomplished through advanced technology and digital communication platforms. Data sharing is nearly instantaneous, and even large-scale meetings can be held effectively in virtual environments, a capability that became widely adopted during and after the COVID-19 pandemic. While these technological innovations have improved efficiency and reduced the need for some business travel, they have also contributed to changes in travel demand patterns. Small communities can be particularly affected by these shifts, as reduced business travel demand may make it more challenging to sustain commercial air service and support route development.
- **Shifting Corporate Travel:** Private aircraft travel for corporate purposes experienced a continued increase in demand even after the pandemic subsided, as business consumers valued its time savings and convenience over commercial airlines. Fractional ownership and jet card programs for companies such as NetJets and Flexjet have continued to grow as more corporate passengers shift from commercial flights to private options.

7.7.2. Federal Programs Supporting Small Communities

Several government programs help to support or improve scheduled passenger service in smaller communities.

7.7.2.1. Essential Air Service (EAS)

EAS helps subsidize commercial air service to eligible small communities across the U.S. and remains a critical tool for maintaining air service in these markets, including Jamestown, Devils Lake, and Dickinson in North Dakota. However, rising operating costs and declining passenger demand at some small airports have raised questions about the long-term sustainability of the program. Total EAS program expenditures have increased substantially since 2000, growing from approximately $50 million in 2000 to $591 million in 2024. Prior to the COVID-19 pandemic, annual program funding totaled $294 million in 2019, meaning subsidy expenditures had approximately doubled by 2024. In 2024, the three North Dakota airports in the program received a total of $20.6 million annually. SkyWest served each of the markets with service to Denver on 50-seat CRJ-200 aircraft.

With continued increases in the subsidies and limited increases in enplanement levels, some airports are dangerously close to exceeding the USDOT's per passenger subsidy caps, which vary based on an EAS airport's distance from a medium or large hub airport. The continuation of the EAS program will continue to be under scrutiny in the future as the aircraft fleet available to serve EAS markets is aging with limited aircraft types to replace it and increasing airline labor/pilot costs.

7.7.2.2. Small Community Air Service Development Program (SCASDP)

Small communities (served by airports no larger than a small hub) can compete annually for SCASDP federal discretionary grants. Communities must apply for grants and identify air service deficiencies in the airport's air service and proposed solutions such as revenue guarantees, marketing assistance, start-up costs, and studies. Local, state, private, and/or in-kind contributions for the proposed project are encouraged. **Table 7-2** summarizes the SCASDP grants that have been awarded in North Dakota since 2020.

Table 7-2. Small Community Air Service Grants Awarded in North Dakota (2020–2025)

Community	Year	Grant Amount	Details
Grand Forks	2024	$1,000,000	Revenue guarantee and marketing to initiate and support new service by a major air carrier to a hub market, with a primary focus on service to Denver by SkyWest/United Airlines, Grand Forks' largest unserved market. The community is providing a generous local funding match.
Fargo	2023	$500,000	Revenue guarantee and marketing efforts to support new service on American Airlines to its Charlotte hub to increase connectivity to the eastern U.S., improve competition, and add downward pressure on fares. The community is providing substantial local funding for the project.
Williston	2022	$500,000	Revenue guarantee, marketing, and start-up costs to begin twice weekly service to Phoenix on Sun Country Airlines. The community is relatively isolated and experiences high air fares. The new service would benefit local industry, centered on the petroleum business. The community is providing substantial local funding for the project.

Source: FAA, 2025.

7.7.3. Addressing Air Service Challenges in Small Communities

The many challenges of maintaining and growing commercial air service in small communities will continue into the future. GAO Report 24-106681*, Commercial Aviation: Trends in Air Service to Small Communities*[55] outlines key realities of serving small communities and identifies options for air service improvements.

- Increasing pilot supply by revising the 1,500 flight hour requirement or raise the mandatory retirement age from 65 to 67
- Supporting the continued allowance for public charter operators to operate under Part 135 versus requiring them to operate under Part 121
- Minimizing the costs of current airline operations such as energy and maintenance costs through new AAM opportunities to serve small communities using electric or new propulsion technologies on shorter routes
- Modifying the EAS program by changing distance requirements, eliminating waivers, requiring matching funds, or opening the program up to more airports
- Modifying the SCASDP program by increasing funding, increasing flexibility, or offering larger grants
- Loosening restrictions on the use of airport revenue or increasing passenger facility charges (PFCs) to allow additional funding for air service development initiatives

Many of these options involve federal policy decisions and broader industry considerations, limiting the actions available to states and communities to directly influence air service outcomes. However, the ability of a community to sustain and improve air service remains closely tied to the strength of its local economy and population base. As a result, efforts to attract businesses, grow employment, and expand economic opportunities can play an important role in supporting commercial air service in small communities.

7.8. Economic Conditions and Impacts on Buying Power

The economic environment facing airports today is defined by post-pandemic cost shifts rather than short-term price spikes, although these spikes can result in urgent response needs. National inflation has eased from its peak in 2022, but construction, labor, and materials now sit on a higher cost plateau, permanently raising the price of all areas of the aviation sector including airport infrastructure, aircraft operations, and materials.[56] For capital-intensive programs like airfield and terminal projects, each appropriated dollar now builds less pavement, structure, and systems than it did a decade ago.

In May 2025, Moody's revised its outlook for the U.S. airport sector from stable to negative, citing higher operating and capitals costs, ongoing supply chain frictions, and pressure on

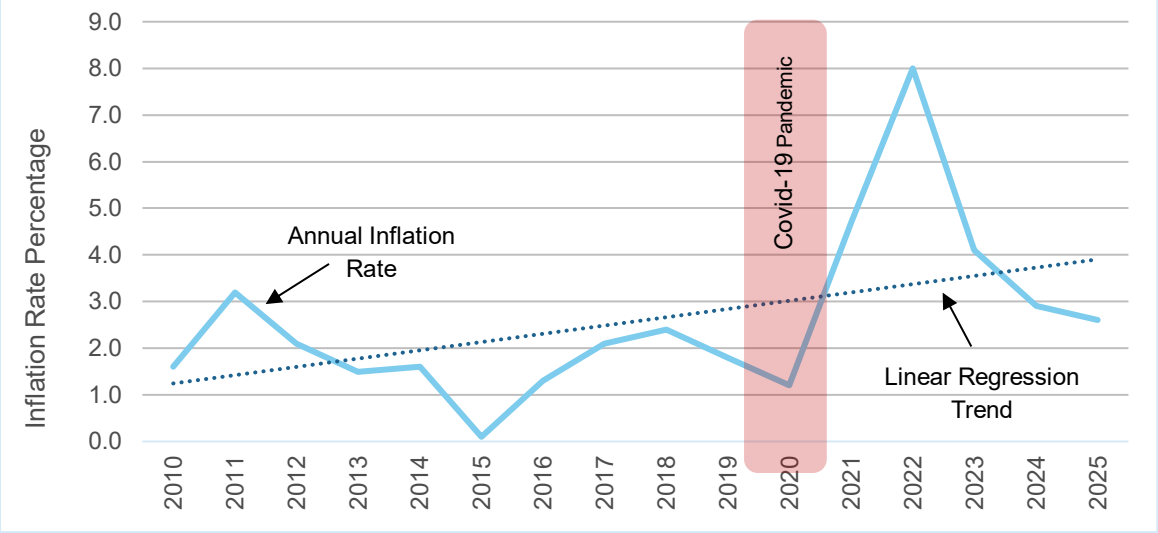
[55] U.S. Government Accountability Office, *Commercial Aviation: Trends in Air Service to Small Communities [Reissued with revisions on January 9, 2026]*, https://www.gao.gov/products/gao-24-106681.
[56] Torry, Torry (2026, Jan. 13). "Pace of Inflation Held Steady in December; Consumer Prices Up 2.7% on Year." *The Wall Street Journal*. https://www.wsj.com/erudeconomy/consumer-price-index-inflation-december-2025-5e292092

construction inputs.[57] The result for airports is persistent cost pressure even as general inflation moderates.

7.8.1. Post-Pandemic Inflation Rates and Construction Costs

From 2015 through 2019, the U.S. economy experienced steady growth, low inflation, and relatively predictable construction markets that supported stable planning assumptions for airport capital programs. **Figure 7-12** shows how the COVID-19 downturn in 2020 interrupted this environment, and the recovery in 2021–2023 pushed demand into supply-constrained construction, energy, and labor markets.

Figure 7-12. Historical U.S. Inflation Rates (2010–2025)

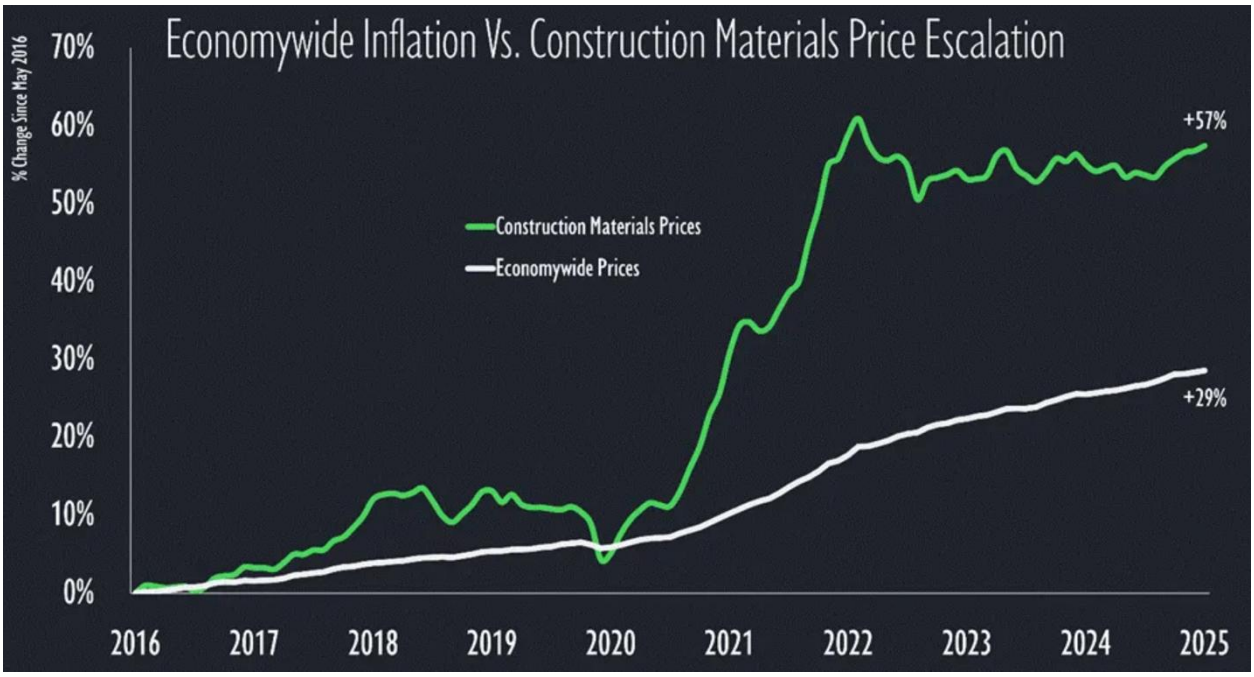


Sources: US BLS, 2026; Marr Arnold Planning, 2026.

Data from the U.S. Bureau of Labor and Statistics show that, while overall consumer price growth has moderated, construction material prices have remained well above pre-pandemic levels (**Figure 7-13**). Producer Price Index data for asphalt, concrete, steel, lumber, and mechanical and electrical components indicate that many of these costs have not returned to previous trends, resulting in a higher cost baseline for airport development. For long-lead-time airport projects, this shift can make earlier cost estimates less reliable and reduce the scope that can be delivered through fixed funding programs.

[57] Reed, Ted (2025, May 10). "Billion Dollar Airport Projects Face Inflation Cost Boosts, Report Says." *Forbes.* *https://www.forbes.com/sites/tedreed/2025/05/10/billion-dollar-airport-projects-face-inflation-cost-boosts-report-says/*

Figure 7-13. Economywide Prices vs Construction Materials Prices (Percent Change between 2016 and 2025)



Source: Sage Economics, 2026.

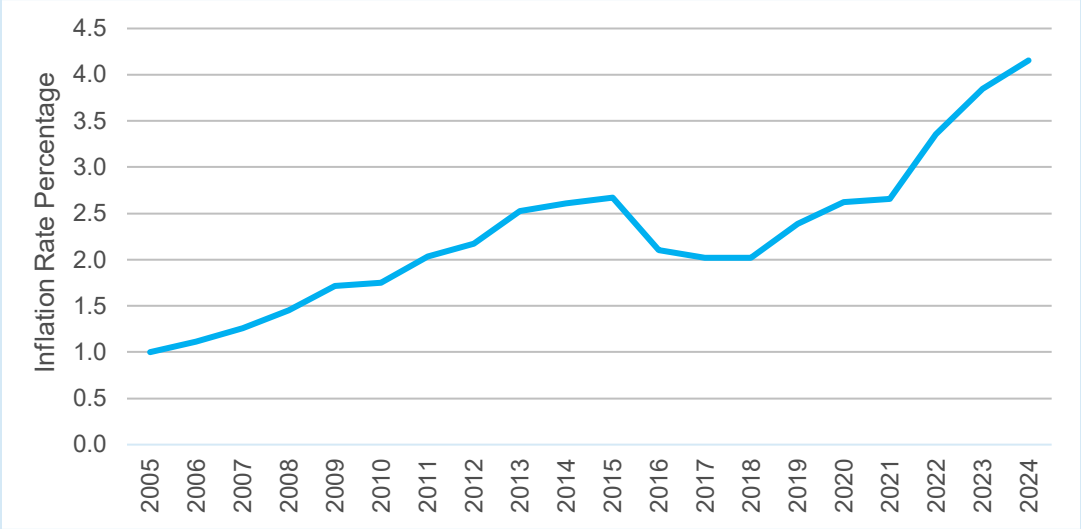
7.8.2. Airport Construction and Buying Power

For airports, the practical effect of this environment is a measurable loss of construction buying power. Projects that once fit comfortably within capital improvement plans (CIPs) now require larger total budgets, expanded contingencies, or substantial changes in phasing and scope. In many markets, limited contractor capacity and labor shortages amplify these pressures, with a small increase in project demand triggering disproportionately higher bids.

Federal funding has not kept pace with this cost reset. Formula entitlements and discretionary grants have grown only modestly, and the federal cap on PFCs has remained unchanged since 2000, even as unit costs for runways, taxiways, and terminals have risen dramatically. As a result, the same grant or PFC revenue stream that once covered a major rehabilitation or terminal project, may now fund only a portion of the same project. This situation forces sponsors to defer work, pursue additional local financing, or accept a reduced project footprint.

In North Dakota, construction cost index data shows that typical airport projects in 2024 cost nearly four times what comparable work required in 2005 (**Figure 7-14**). The data shows a spike in the cost index of 56 percent since 2021, post COVID. This escalation has outpaced growth in state aviation revenue, eroding the real value of NDAC's grant programs and narrowing the range of improvements that can be advanced in any given year.

Figure 7-14. Historical North Dakota Construction Cost Index Data (2005–2024)



Source: NDAC, 2025.

7.8.3. Capital Planning and Delivery Impacts

These conditions are reshaping how airports plan and deliver capital programs. Long range plans and CIPs developed under pre-2020 cost assumptions increasingly underestimate what it will take to execute projects once they reach construction. Sponsors are responding by:

- Elevating safety, compliance, and asset preservation work ahead of capacity or revenue generating projects.
- Breaking larger projects into phases that can be aligned with available funding cycles.
- Increasing contingency allowances and adjusting bid timing to manage volatility.

The 2025 Airports Council International-North America (ACI-NA) *Airport Infrastructure Needs Study* estimates nearly $174 billion in U.S. airport infrastructure needs for 2025–2029, up more than 15 percent from the previous five-year estimate.[58] A significant portion of this increase reflects projects that have become more expensive over time or were previously postponed due to funding gaps. Each year of delay tends to raise total cost, reinforcing a cycle where unfinished work erodes future buying power and enlarges the backlog of projects.

7.8.4. Implications for North Dakota

North Dakota's commercial service and GA airports are experiencing these dynamics in distinct ways. For commercial service airports, higher unit costs for terminals, aprons, and airfield systems are constraining the ability to move forward with modernization and capacity projects

[58] Airports Council International-North America, Modern Airports for a Stronger America: Unlocking Opportunities to Meet Soaring Demand – U.S. Airport Infrastructure Needs 2025-2029. https://airportscouncil.org/wp-content/uploads/2025/03/2025-Infrastructure-Needs-Study.pdf

while also addressing safety and regulatory requirements. Projects that were once achievable with a combination of federal grants, state support, and reasonable local match may now require additional debt or substantial re-scoping. Higher interest rates further increase the full-life cost of borrowing for major facility upgrades.

GA airports, which rely more heavily on fixed federal and state programs and have limited local revenue capacity, face tighter tradeoffs. As construction costs climb, the same state grant now covers fewer linear feet of pavement, fewer hangar positions, or a smaller share of lighting and navigational aid upgrades. Sponsors may struggle to assemble required local matches, leading to deferred pavement rehabilitation, prolonged use of aging facilities, and rising lifecycle costs as assets deteriorate faster than they can be renewed.

For NDAC, the central issue is that program dollars no longer translate into the same level of system. Even if annual appropriations and dedicated aviation revenues hold steady, higher construction costs reduce the number and scale of projects that can be supported each year. As a result, NDAC must make harder choices among safety critical needs, preservation work, and strategic investments that support capacity and economic development.

Rising project costs also increase pressure on state participation levels and matching policies. As airport sponsors are finding it more difficult to fund local shares, particularly at smaller GA facilities with limited revenue and tax bases, this can lead to more frequent requests for higher state cost shares, additional phases, or schedule adjustments to keep projects viable within realistic local constraints. At the same time, NDAC faces growing exposure to deferred maintenance at airports that depend on state aid to keep pavements, lighting, and basic facilities in serviceable condition. Prolonged deferral of these projects can accelerate deterioration, force more extensive reconstruction later, and ultimately require larger program commitments in future years.

Taken together, these trends shift NDAC's challenge from simply distributing available funds to actively managing the effectiveness of each dollar invested. Program design, prioritization criteria, cost-share policies, and project timing will all play a larger role in determining how much useful infrastructure can be delivered under current and projected revenue streams.

7.9. Revenue-Producing Projects

Airport development in North Dakota is funded through a combination of federal, state, local, and private sources, each with specific eligibility requirements and limitations. One of the key challenges airports face, especially GA airports, is securing funding for revenue-producing projects such as hangars and fuel facilities. These facilities are essential for long-term financial self-sustainability. Because federal and state grants include assurances that airports should work toward self-sufficiency, the inability to fund revenue-producing facilities like hangars and fuel facilities creates a direct conflict between policy expectations and available funding tools.

The FAA supports airport infrastructure through the Airport Improvement Program (AIP), funded by the Airport and Airway Trust Fund (AATF) and supplemented by the General Fund. AIP grants typically cover 90 percent of eligible costs and are prioritized by safety and operations related projects like runways, taxiways, and lighting. As a result, revenue-generating facilities, like fuel farms, hangars, and terminal leases, are often ineligible or ranked at the bottom of a funding priority list, even though they are critical to an airport's ability to increase revenues and move toward financial self-sufficiency.

At the state level, NDAC provides grants for airports using aviation-related tax revenues. While the state can support up to 50 percent of the local match for eligible projects, funding for revenue-producing facilities requires additional documentation (a business plan and proof of land control). Airports may also apply for low-interest loans through the Bank of North Dakota (BND) Infrastructure Revolving Loan Fund. These loans can fund a wide range of projects, including revenue-producing infrastructure. However, sponsors must first pursue all available federal and state grant options because the BND program serves as a gap-filler but requires upfront local commitment and long-term repayment planning.

7.9.1. Revenue-Producing Facilities at Airports

Commercial service airports generate revenue from a variety of aeronautical and non-aeronautical sources, including but not limited to the following:

- **Terminal Facilities:** Airline ticket counters, baggage handling areas, airline offices, lounges, and staff spaces leased to airlines
- **Retail and Concessions:** Restaurants, food and beverage outlets, shops, duty-free stores, and other concession spaces leased to concessionaires located within terminals
- **Car Rental Facilities:** On-airport car rental counters and parking
- **Parking Facilities:** Short- and long-term parking garages and surface lots for passengers and visitors
- **Hotels:** Hotels on or adjacent to airport property
- **Advertising Spaces:** Digital and static advertising displays in terminals, garages, and common areas
- **Aircraft Services:** Landing fees, gate fees, hangar space rentals, aircraft maintenance, and fueling services
- **Ground Transportation Network Companies (TNCs):** Limited ground-access revenues derived from contractual agreements with rideshare providers, subject to state-level regulatory frameworks

GA airports tend to focus on aeronautical revenue sources related to aircraft and services. Examples of these revenue sources include but are not limited to:

- **Hangars and Tie-Downs:** Rentals or leases for aircraft storage
- **Fuel Flowage Fees:** Charges based on the amount of fuel sold
- **Aircraft Parking and Storage:** Daily or monthly fees for transient or based aircraft

- **Ground Leases:** Renting airport land or buildings for aviation-related or compatible non-aviation businesses such as classrooms, MROs, aircraft manufacturing, or AAM-related businesses.
- **FBOs:** Service providers offering fueling, maintenance, and other aircraft support
- **Non-Aeronautical Revenues:** Advertising, automobile parking, non-aviation compatible leases like solar farms or natural resource extraction (i.e., oil and gas), agriculture/farming leases (i.e., growing crops or grazing cattle) on airport property

While both types of airports generate revenue, commercial airports typically have more diversified revenue streams due to passenger volume and more business activity, whereas GA airports rely on traditional aircraft-related revenue fees. Essentially, the types of revenue-generating facilities at commercial airports center more on passenger and airline services (terminals, retail, parking), while GA airports depend heavily on aviation infrastructure such as hangars, fuel, and ground leases. Both types of airports take advantage of available opportunities to maximize revenue from aeronautical and non-aeronautical sources; however, those sources vary widely depending on the community. These differing revenue profiles shape how airports experience funding constraints and where targeted state support can have the greatest impact.

7.9.2. Challenges Funding Revenue-Producing Projects

Airports face substantial challenges when trying to finance revenue-generating infrastructure. Many rely on a small number of funding sources including AIP grants, PFCs at commercial service airports, tenant rents, and fuel-related revenues. These sources have remained largely unchanged for decades. The federal cap on PFCs has not increased in over 20 years, leaving this funding mechanism behind inflation and the escalating cost of infrastructure development.[59] At the same time, airport construction costs have risen sharply, nearly 40 percent since 2012, outpacing general inflation which has increased 27 percent over the same period.[60]

Labor shortages, supply chain challenges, and cost escalation further constrain budgets, leading airports to delay or scale back maintenance and capital development projects that could otherwise enhance their revenues. Even when federal and/or state grants are secured, the need for local matching funds can strain limited municipal budgets. For GA airports, these challenges are even more pronounced because they face additional barriers due to fewer revenue streams, tighter restrictions on federal eligibility, and disproportionately higher infrastructure costs relative to their size. Collectively, these factors make it difficult for airports to invest in facilities that could strengthen their financial sustainability and support long-term growth.

[59] Federal Aviation Administration, *Passenger Facility Charge (PFC) Program*, FAA, last updated December 31, 2025, https://www.faa.gov/airports/pfc
[60] Airports Council International – North America (ACI-NA), 2023 *U.S. Airport Infrastructure Needs Report: Growing Needs Heighten Urgency to Modernize America's Airports*, March 2023, https://airportscouncil.org/wp-content/uploads/2023/03/2023ACI-NAInfrastructureNeedsReportFINAL.pdf

7.9.3. North Dakota Implications and Opportunities

The funding challenges that are experienced at the national level and discussed above, are very relevant to North Dakota's public-use airports. A top concern for NDAC and airport sponsors is how to move hangars, fuel facilities, and other revenue-producing projects up the funding priority ranking system due to their current low position in the scheme of project priorities. NDAC's coordinated federal, state, and local investments do help address many infrastructure needs. However, the challenges of balancing fiscal pressures and sustaining local revenue streams impact the ability of airports, especially GA, to finance crucial revenue-producing projects.

With traditional funding sources remaining tight, airports over the past two decades have increasingly reduced their reliance on local municipal subsidies to support operations and capital improvement projects. This shift aligns with FAA grant assurances and emphasizes the need for airports to operate more like independent enterprises than local government departments. Through effective business planning, forward-thinking investment strategies, and diversification of revenue, airports can strengthen community partnerships, improve infrastructure efficiency, and serve as economic engines within their region. The following subsections describe practical responses to the funding constraints and challenges outlined above, both at the airport and state levels.

7.9.3.1. Non-Aeronautical Revenue Opportunities at Airports to Encourage Diversified Revenue Streams

In addition to the aeronautical use revenue streams highlighted in the previous section, airports can also improve their financial sustainability by leveraging available or surplus land for non-aeronautical purposes, with differing requirements for airports included in the FAA's National Plan of Integrated Airport Systems (NPIAS). The potential strategies noted here not only diversify revenue streams but also help airports remain resilient to fluctuations in aviation activity. All proposed developments should carefully consider potential impacts to airport operations and facilities, and certain uses may require FAA approval for a change in land use. Potential opportunities include:

7.9.3.1.1. Commercial Real Estate Development

Strategic development of airport property for high-value commercial uses maximizes long-term returns. Proximity to transportation networks enhances market appeal, and profitability depends on demand, location, and accessibility. Common opportunities include:

- **Office Space:** Leasing land for office parks or developing facilities for lease directly to businesses
- **Logistics and Industrial Facilities:** Warehouses, distribution centers, or light manufacturing operations that benefit from multimodal access
- **Hospitality and Retail:** Hotels, restaurants, or retail centers serving both airport users and surrounding communities

- **Specialized Commercial Uses:** Conference or business centers located adjacent to airport facilities

7.9.3.1.2. Other Non-Aviation Uses

Additional non-aviation opportunities for generating non-aeronautical revenue (beyond those discussed in a prior section) include:

- **Energy Initiatives:** Installing solar arrays or rooftop panels to generate clean energy for on-site use or grid sale.
- **Educational Partnerships:** Leasing space for training academies, research labs, or aviation education centers that also support workforce development.
- **Sports Parks and Event Venues**: Repurposing old buildings or vacant land for recreation or community events to generate rental income and public engagement.
- **Agricultural Leases:** Using marginal or buffer acreage for farming or horticulture operations as a steady, low-impact revenue stream.

7.9.3.2. Best Practices for Funding Revenue-Generating Infrastructure Projects

To successfully fund and develop revenue-generating infrastructure facilities, airports should pursue strategies that balance financial sustainability with operational flexibility. The following practices help strengthen the overall funding mix, manage risk effectively, and align capital investments with market demand and long-range planning goals.

- **Optimize funding mix and capital structure:** Combine federal entitlements, state grants or loans, and local or private funds to reduce reliance on airport operating cash reserves.
- **Align debt with asset life and lease terms**: Structure hangar financing so that loan amortization matches the facility's useful life and lease duration, allowing long-term tenants to effectively retire project debt through rental payments.
- **Leverage ground leases and public-private partnership (P3):**
  - **Hangars:** Use ground lease structures that transfer capital costs and certain operating risks to private developers.
  - **Fuel systems:** Implement P3 arrangements where a developer finances and operates the system, recovers costs through user fees, and provides the airport with revenue or flowage fee payments while the airport retains oversight of operational standards.
- **Set market-based sustainable rates and charges:** Regularly review and adjust pricing to maintain competitiveness and ensure fair market value.
- **Update lease policies for long-term stability:** Ensure lease terms promote continuous reinvestment, tenant retention, and fiscal predictability.
- **Integrate projects into CIPs and Airport Layout Plans (ALPs):** Continue to coordinate infrastructure development with overarching airport and system planning documents to maintain regulatory compliance and project readiness.

7.9.3.3. Non-Traditional and Federal Funding Opportunities

In addition to traditional FAA and state funding mechanisms, airports can expand their financial strategies by pursuing non-traditional federal programs designed to support community, transportation, and economic infrastructure. These programs are administered through federal agencies outside of the FAA and can help fund revenue-generating or self-sustaining airport

projects, particularly at GA or rural facilities. Leveraging such programs can reduce reliance on limited aviation grant resources, accelerate project delivery, and enhance the overall economic impact of airport investments.

- **Congressional Earmarks**: Airports may also pursue congressionally directed funding (earmarks), known as Community Project Funding (CPF) in the House and Congressionally Directed Spending (CDS) in the Senate, to advance priority airport infrastructure projects. While earmarks are not always available, they are currently being included in many appropriations bills and may offer another federal funding option. As highlighted in a recent National Association of State Aviation Officials (NASAO) report, the FY 2026 Transportation HUD bill includes a substantial level of earmark support, with $542.4 million dedicated to airport-related earmarks out of $577.4 million in supplemental discretionary airport infrastructure grants. Notably, $368.7 million of this FY 2026 funding is derived from unspent Investment Infrastructure Jobs Act (IIJA) resources. These earmarks can support a broad range of capital improvements, including terminals, hangars, access roads, and safety or economic development projects, and can help airports move forward with initiatives that may not be competitive under traditional federal grant programs.
- **U.S. Department of Agriculture Rural Development Community Facilities Direct Loan & Grant Program:** This program provides affordable financing for essential community facilities in rural areas with populations under 20,000 residents. Eligible projects could include airport terminals, hangars, or safety-related improvements that enhance community access and supports essential services at rural airports.
- **U.S. Department of Commerce - Economic Development Administration (EDA):** The EDA offers competitive funding through various programs, including the Public Works Program announced via Notices of Funding Opportunity (NOFOs). These grants support projects that strengthen regional economies, create jobs, and upgrade infrastructure in distressed communities. Airports advancing projects that align with local or regional economic development strategies, like new hangar complexes or industrial park access improvements, may be well positioned for consideration.
- **U.S. Department of Transportation - Build America Bureau:** The Transportation Infrastructure Finance and Innovation Act (TIFIA) Rural Project Initiative (RPI) provides low-interest loans for rural transportation infrastructure projects valued between $10M and $100M. Eligible projects may include access roads, intermodal facilities, or other airport-related improvements that enhance connectivity and economic efficiency. The program's structure allows rural sponsors to pursue larger capital projects with flexible repayment options tied to project revenues.

7.9.3.4. Considerations for Enhancing the Project Priority and Evaluation Process

To better support airport development, NDAC could consider refining its prioritization framework to capture the full value of revenue-generating and economically beneficial projects. Updating the scoring process to account for broader economic, capacity, and system benefits would help ensure that investment decisions reflect both statewide aviation system goals and local community priorities. The following policy-oriented methods could strengthen NDAC's project evaluation and ranking procedures:

- **Incorporate economic impact as a scoring criterion:** Award higher priority to projects that enhance airport financial sustainability, create local jobs, attract businesses, or expand the regional economic base.
- **Integrate flexibility for alternative funding participation:** Recognize projects that leverage supplemental sources (i.e., IIJA or Airport Infrastructure Grant [AIG] programs) to encourage financial innovation and project scalability.
- **Expand capacity and system performance metrics:** Adjust scoring to reflect how projects improve service availability or address geographic gaps in the aviation system. Examples include hangar construction projects that increase based aircraft capacity or new or updated fuel systems that enhance operational and service coverage.
- **Enhance alignment with statewide aviation goals:** Refine the scoring framework so that projects aligning with SASP objectives and goals (i.e., enhancing rural accessibility, supporting business aviation, or increasing airport resiliency) receive additional emphasis or higher point values within the project scoring process.

7.10. Summary

North Dakota's aviation system is poised for a transformative journey, marked by groundbreaking advancements and formidable challenges that will define its trajectory in the coming decades. AAM, emerging fuel sources, and ATC modernization through the BNATCS promise to revolutionize aviation operations, building on North Dakota's established leadership in UAS operations and aviation innovation. At the same time, the industry is confronted by substantial workforce shortages, an aging aircraft fleet requiring major capital investment, persistent challenges in maintaining small community air service, and rising construction costs that erode airport buying power and complicate funding for revenue-generating infrastructure.

Throughout this chapter, opportunities for policy development and programmatic support have been identified for consideration by NDAC. These include developing a statewide AAM blueprint and vertiport siting criteria, investing in alternative fuel infrastructure, expanding aviation education and workforce training programs, refining project prioritization frameworks to recognize economic impact, encouraging diversified airport revenue streams, and pursuing non-traditional federal funding sources. North Dakota's proactive approach, encompassing NDAC programs, university partnerships, private sector innovation, and military collaboration, has laid a robust foundation for tackling these challenges. As subsequent chapters of the NDSASP integrate these findings, the recommendations will ensure North Dakota's aviation system remains safe, effective, and responsive to the full range of forces shaping the aviation landscape.

Chapter 8. Cost Estimates and Recommendations

8.1. Introduction

North Dakota's aviation system must continually adapt to changing demand including addressing industry trends and advancements, evolving operational requirements, and an increasingly complex regulatory environment. Airports across the state, regardless of size or functional role, play a vital role in supporting economic development, emergency response, and statewide connectivity. Maintaining a safe, reliable, and resilient aviation system requires sustained and strategically targeted capital investment.

This chapter of the 2025 North Dakota State Aviation System Plan (NDSASP) provides a high-level assessment of the capital investments needed to support the statewide airport system over the 10-year planning horizon as well as summarizes other non-capital-related recommendations. The chapter also examines potential funding sources and amounts and compares the anticipated funding to the capital investment needs to identify shortfalls.

Project needs associated with the latest Capital Improvement Program (CIP) developed by the North Dakota Aeronautics Commission (NDAC) for all public-use airports are identified as well as additional project needs and associated planning-level cost estimates identified through the system performance analyses presented in **Chapter 6: System Performance**. For planning purposes, NDAC CIP costs represent projects that have been identified and programmed through existing planning and development processes, while the NDSASP costs reflect system needs that have not yet been programmed and represent unmet or future investment requirements.

Projected capital needs from the NDAC CIP are organized across the near term (Years 1–5), mid-term (Years 6–10), and the full 10-year planning horizon to illustrate the relative scale, timing, and phasing of anticipated investments. Recommendations for additional project needs associated with the system performance analysis are organized by NDSASP goal.

Funding availability is a key factor in maintaining uninterrupted airport operations and implementing recommended improvements. Within the system, 54 airports (61 percent) are eligible for funding through the Federal Aviation Administration (FAA) by virtue of inclusion in the National Plan of Integrated Airport Systems (NPIAS). FAA funding is a critical component of support for NPIAS airports; however, these airports also rely on funding from the State of North Dakota, local governments, and private sources to fully address their capital needs. The remaining 35 airports (39 percent), which are not included in the NPIAS, must rely on these same non-FAA funding sources to support airport development and maintenance activities.

The combined NDAC CIP and NDSASP needs are evaluated in relation to anticipated federal, state, and local funding levels to assess the overall funding outlook for the system and to identify the shortfall, or gap, between 10-year needs and anticipated 10-year funding.

This assessment supports informed decision-making and establishes a foundation for future discussions related to project prioritization, funding strategies, and the long-term sustainability and resiliency of North Dakota's aviation system.

In addition to evaluating 10-year capital needs and the projected funding shortfall, this chapter summarizes recommendations identified in previous chapters of the 2025 NDSASP. The focus is on recommendations related to airport classification considerations and on broader national aviation issues and trends that may impact North Dakota and its future aviation system needs and development.

8.2. Summary of Proposed Aviation Development Needs

The following subsections provide an overview of the anticipated financial needs required to support the maintenance, improvement, and optimization of North Dakota's aviation system over the 10-year planning horizon. A longer-term needs assessment (e.g., a 20-year estimate) was not developed due to the uncertainty of system needs beyond the 10-year NDAC CIP and the likelihood of significant cost changes.

For planning purposes, the NDSASP assumes that all identified system needs are captured within the 10-year planning horizon; therefore, no additional NDSASP needs are identified beyond 10 years. This assumption reflects how the analysis was structured and does not imply that all projects will be fully funded or delivered within a 10-year period. As demonstrated in the funding shortfall analysis later in the chapter, anticipated funding levels are insufficient to address all identified NDAC CIP and NDSASP needs within the 10-year horizon, and as a result, many projects are expected to be delayed beyond this period.

The 10-year system needs are categorized into two components: needs identified in the NDAC CIP, presented in **Section 8.2.1**, and additional needs associated with the NDSASP, presented in **Section 8.2.2**. The total 10-year needs estimate, representing the combined NDAC CIP and NDSASP needs, with duplication removed, is presented in **Section 8.2.3**.

8.2.1. NDAC's 10-Year NDAC CIP Needs

The 2026–2035 NDAC CIP provides a snapshot of identified airport infrastructure needs across North Dakota's 89 public-use airports. NDAC works with airport sponsors to identify facility deficiencies, confirm project scopes, and develop planning-level cost estimates, making the NDAC CIP a "bottom-up" representation of project and financial needs.

Because project needs continue to evolve as airports refine scopes, adjust priorities, and respond to changing operational and regulatory conditions, NDAC CIP data represents a

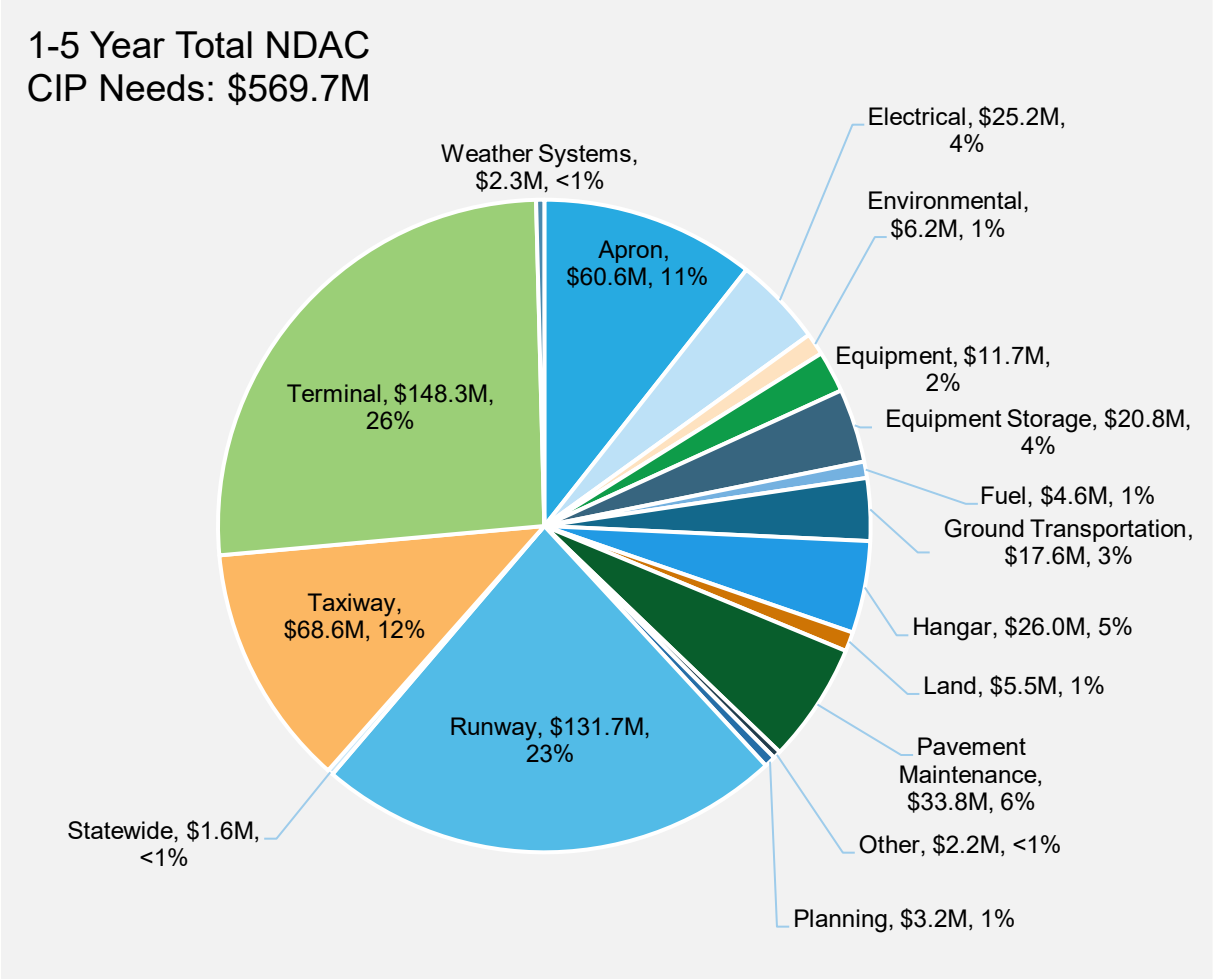
moment-in-time view that will continue to change as projects advance. While inclusion in the NDAC CIP is a necessary step toward securing funding, it does not guarantee that funding will be awarded, as available federal, state, and local resources can vary from year to year. This section summarizes NDAC CIP-identified costs anticipated over the next 10 years.

NDAC CIP cost information is presented in **Section 8.2.1.1** through **Section 8.2.1.3** and is organized into near-term (Years 1–5), mid-term (Years 6–10), and total 10-year planning horizons. Capital needs are further categorized by commercial service and general aviation (GA) airports, as well as by NPIAS and non-NPIAS facilities, to provide a comprehensive view of systemwide investment needs.

8.2.1.1. NDAC CIP Needs: Years 1–5

Throughout the five-year planning period from 2026–2030, the NDAC CIP identifies approximately $569.7 million in needs across North Dakota system airports. **Figure 8-1** presents the breakdown of these five-year costs by project category, illustrating where the highest demand for projects exists. As shown, terminal and runway projects account for the majority of financial need in the first five years, accounting for $148.3 million (26 percent), and $131.7 million (23 percent), respectively. This is followed by taxiway (12 percent), aprons (11 percent), and pavement maintenance (six percent) projects.

Figure 8-1. Distribution of 1–5 Year NDAC CIP Project Costs by Category



Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026

As summarized in **Table 8-1**, of the total five-year need identified in the NDAC CIP, $410.6 million, representing 72 percent, is associated with commercial service airports, while $157.5 million, accounting for 28 percent, is needed for GA facilities, which includes non-NPIAS airports. The remaining portion (less than one percent) of the 1–5-year needs is associated with statewide planning, which represents $1.6 million in needs.

Table 8-1. Commercial Service and GA NDAC CIP Totals (1–5 Year Period)

Category	1-5 Year Need	Percent of 1-5 Year Need
Commercial Service	$410,600,000	72%
GA	$157,520,000	28%
Statewide Planning	$1,600,000	<1%
Total	**$569,720,000**	**100%**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

Table 8-2 breaks down the 1–5-year NDAC CIP needs by NPIAS status, showing that approximately $553.5 million (97 percent) of needs are associated with NPIAS airports, with an additional $1.6 million in statewide planning needs. In comparison, roughly $14.7 million, representing three percent, is attributed to non-NPIAS facilities.

Table 8-2. NPIAS and Non-NPIAS NDAC CIP Totals (1–5 Year Period)

Category	1-5 Year Need	Percent of 1-5 Year Need
NPIAS	$553,470,000	97%
Non-NPIAS	$14,650,000	3%
Statewide Planning	$1,600,000	<1%
Total	**$569,720,000**	**100%**

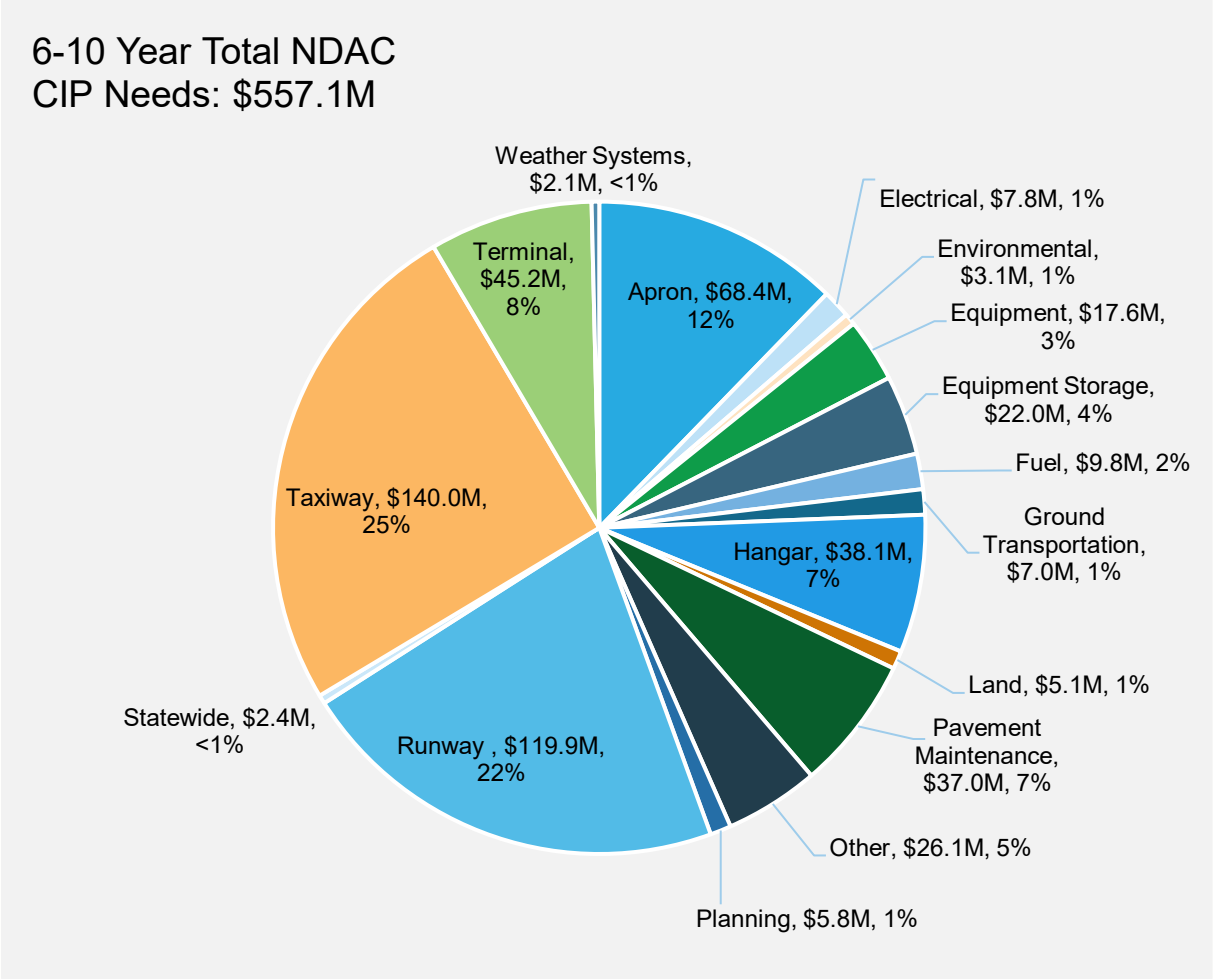
Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.1.2. NDAC CIP Needs: Years 6–10

The 6–10-year horizon of the 2026-2035 NDAC CIP reflects the system's longer-term development outlook, capturing projects that extend beyond immediate operational needs. These future improvements often relate to major reinvestment cycles, facility modernization, and projects that require additional planning, coordination, or funding alignment before they can advance. Because these needs are farther out on the timeline, they represent a blend of anticipated priorities and preliminary concepts that will continue to evolve as airports refine their plans.

Figure 8-2 presents the 6–10-year needs by project category, offering insight into the types of infrastructure investments expected later in the planning period. As shown, taxiway projects contribute the most to the 6–10-year needs, accounting for 25 percent, followed by runway projects at 22 percent. With significant terminal investment in the first five years, that project category decreased from 26 percent to only eight percent of the total need in the 6–10-year period. Apron (12 percent), hangar (seven percent), and pavement maintenance (seven percent) projects remain some of the higher categories of need in the 6–10-year period as well.

Figure 8-2. Distribution of 6–10 Year NDAC CIP Project Costs by Category



Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

As shown in **Table 8-3** the split in needs between commercial service and GA airports is more even, 51 percent and 48 percent respectively, in the 6–10-year period than 1–5 years. In addition to the airport needs, there is $2.4 million estimated for statewide planning needs, accounting for less than one percent.

Table 8-3. Commercial Service and GA NDAC CIP Totals (6–10 Years)

Category	6-10 Year Need	Percent of 6-10 Year Need
Commercial Service	$286,400,000	51%
General Aviation	$268,260,000	48%
Statewide Planning	$2,400,000	<1%
Total	**$557,060,000**	**100%**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

As shown in **Table 8-4**, NPIAS airports continue to account for the majority of longer-range capital needs, representing approximately $539.7 million, or 97 percent, of total identified costs in the 6–10-year period. The $2.4 million in statewide planning would also be associated with federal funding needs, which account for less than one percent. Non-NPIAS airports account for $15.0 million, at three percent.

Table 8-4. NPIAS and Non-NPIAS NDAC CIP Totals (6–10 Years)

Category	6-10 Year Need	Percent of 6-10 Year Need
NPIAS	$539,660,000	97%
Non-NPIAS	$15,000,000	3%
Statewide Planning	$2,400,000	<1%
Total	**$557,060,000**	**100%**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

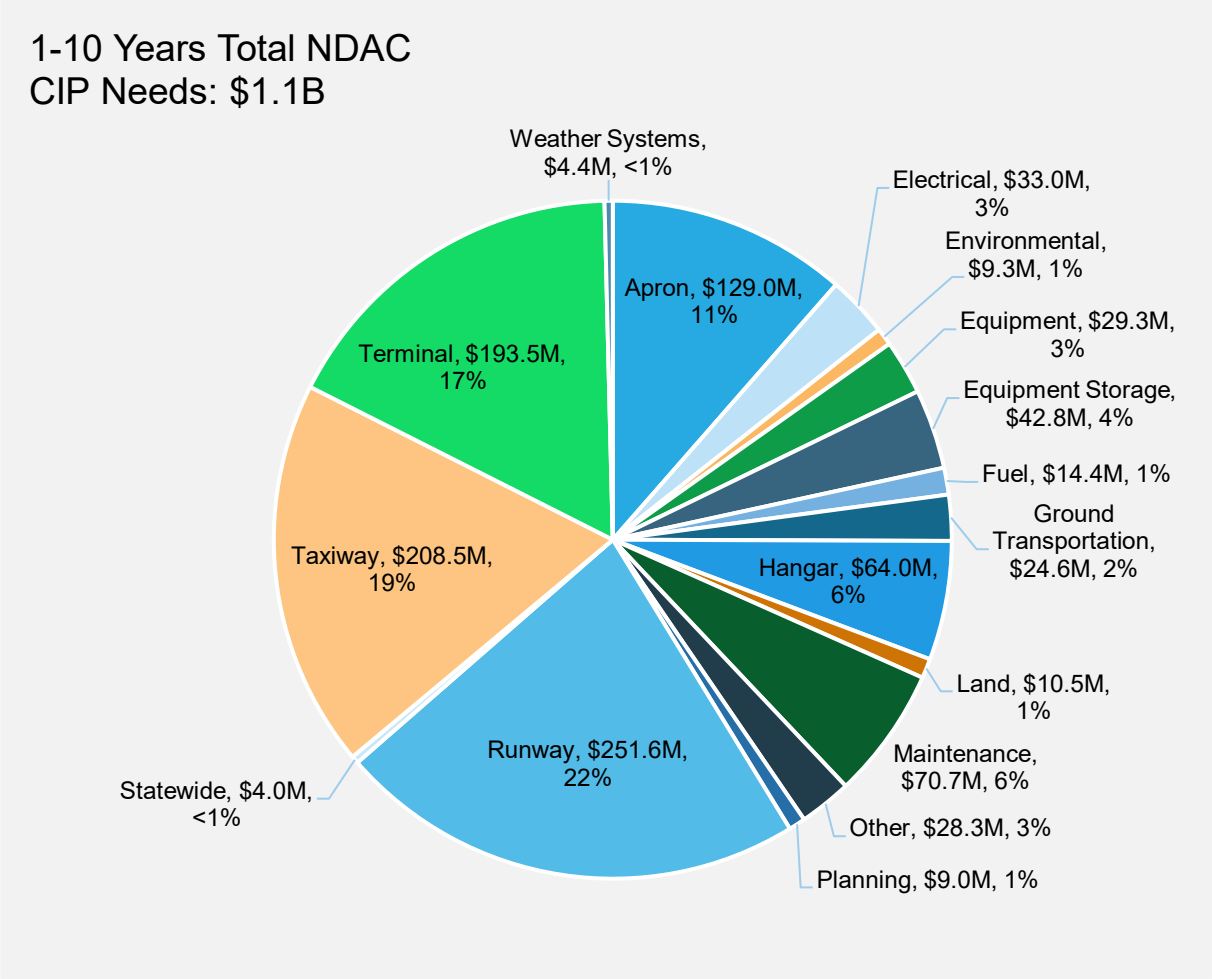
8.2.1.3. NDAC CIP Needs: Years 1–10

The combined 1–10-year outlook provides a comprehensive view of the total aviation system needs identified in the 2026–2035 NDAC CIP. By merging both near-term priorities and longer-range improvements, this summary helps illustrate the full scale of development needs across North Dakota's system of airports through the next decade. The consolidated dataset captures routine reinvestment needs, major capital upgrades, and strategic system enhancements that support long-term operational capacity and infrastructure resilience.

Figure 8-3 displays the distribution of the 1–10-year NDAC CIP costs by project category, offering a systemwide perspective on where funding needs are concentrated over the 10-year planning horizon. As shown, of the approximately $1.1 billion in needs, runway costs account for the most over the 10-year planning horizon, at 22 percent, followed by taxiway projects at 19 percent, terminal projects at 17 percent, and apron projects at 11 percent.

This holistic view enables agencies, policymakers, and stakeholders to better understand cumulative investment requirements and evaluate how they align with available funding programs and long-term system goals.

Figure 8-3. Distribution of 1–10 Year NDAC CIP Project Costs by Category



Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

The combined 10-year outlook presented in **Table 8-5** shows the $1.1 billion in need separated by commercial service and GA airports, as well as statewide planning needs. Over the full planning horizon, commercial service airports account for about $697.0 million, equivalent to 62 percent of total costs, while GA airports represent roughly $425.8 million, at 38 percent, highlighting the scale of long-term investment needed across all airport roles. Less than one percent is identified for statewide planning over the 10 years.

Table 8-5. Commercial Service and General Aviation NDAC CIP Totals (1–10 Years)

Category	1-10 Year Need	Percent of 1-10 Year Need
Commercial Service	$697,000,000	62%
GA	$425,780,000	38%
Statewide Planning	$4,000,000	<1%
Total	**$1,126,780,000**	**100%**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

As summarized in **Table 8-6**, the vast majority of capital investment identified over the 10-year period is associated with NPIAS airports, totaling approximately $1.1 billion, or 97 percent of the total. Non-NPIAS airports account for about $29.7 million, or three percent of total systemwide needs, reflecting more limited but still important investment requirements for select facilities.

Table 8-6. NPIAS and Non-NPIAS NDAC CIP Totals (1–10 Years)

Category	1-10 Year Need	Percent of 1-10 Year Need
NPIAS	$1,093,130,000	97%
Non-NPIAS	$29,650,000	3%
Statewide Planning	$4,000,000	<1%
Total	**$1,126,780,000**	**100%**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2. 2025 NDSASP Project Recommendations and Needs

The project recommendations and cost estimates presented in this section represent the culmination of analyses completed as part of the 2025 NDSASP. These recommendations are intended to address identified system needs, support achievement of the NDSASP goals, and guide strategic investment decisions over the planning horizon.

In addition to the capital needs identified by NDAC through development of the 2026–2035 NDAC CIPs, the 2025 NDSASP establishes future performance targets, associated project recommendations, and cost estimates for applicable performance measures (PMs) within each system goal, recognizing only three of the six system goals include PMs. While only some goals include PMs, all system goals include performance indicators (PIs). However, future performance targets, project recommendations, and associated cost estimates are not developed for PIs because they are intended solely as informational objectives. PIs provide broader context on system performance and may support decision-making or policy guidance, but they are not tied to cost estimates or specific project recommendations.

The future performance targets, associated with the PMs, were established in coordination with NDAC through a review of existing system performance and airport-by-airport deficiencies to evaluate where improvements may be appropriate, feasible, and reasonable within the planning

horizon to meet NDSASP goals. The future performance targets help NDAC identify areas where investment may be needed and provide a consistent framework for tracking progress toward achievement of NDSASP goals.

All cost estimates presented in this section are intended for planning purposes only and should not be used for project bidding, grant applications, or interpreted as a guarantee of funding.

8.2.2.1. Maintain a Safe Aviation System

The Maintain a Safe Aviation System goal is supported by three PMs that focus on protecting critical airspace and land use areas around airport runways. These measures address the extent to which airports maintain clear approaches, control Runway Protection Zones (RPZs), and avoid incompatible land uses, such as public gatherings, within RPZs. Future performance targets and associated costs for each PM are presented in the following subsections.

8.2.2.1.1. PM: Percent of Airports with Clear Approaches to All Runway Ends

As shown in **Table 8-7**, existing conditions indicate that 75 percent of primary runway ends have clear approaches, compared to a future performance target of 84 percent systemwide. This gap identifies the need for additional improvements and is addressed through project recommendations to mitigate obstructions at 16 runway ends.

Table 8-7. Existing Performance and Future Targets – Clear Approaches on Primary Runway Ends

Classification	No. of Primary Runway Ends Meeting PM	Percent of Primary Runway Ends Meeting PM	Future Performance Target	Additional Primary Runway Ends Needed to Achieve Future Performance Target
Systemwide Primary Runway Ends (178)	**134**	**75%**	**84%**	**16**
Commercial Service Primary Runway Ends (16)	14	88%	88%	0
Local Primary Runway Ends (52)	45	87%	92%	3
Basic Primary Runway Ends (38)	34	89%	97%	3
Community Paved Primary Runway Ends (38)	22	58%	71%	5
Community Turf Primary Runway Ends (34)	19	56%	71%	5

Sources: NDAC, 2025; Kimley-Horn, 2026.

As presented in **Table 8-8**, the estimated cost to achieve the future performance target is approximately $2.4 million. Of this total, $1.1 million reflects obstruction mitigation projects already identified in the NDAC CIP, while the remaining $1.3 million represents new needs not previously identified in the NDAC CIP. These NDSASP planning-level cost estimates are derived from comparable NDAC CIP projects and in coordination with NDAC.

Table 8-8. Costs Associated with Future Targets – Clear Approaches on Primary Runway Ends

Cost Category	Total Cost
NDSASP-related NDAC CIP Costs	$1,120,000
NDSASP Costs	$1,300,000
Total	**$2,420,000**

Sources: NDAC, 2025; Kimley-Horn, 2026.

As shown in Table 8-9, existing conditions indicate that 91 percent of non-primary runway ends have clear approaches. Achieving the future performance target of 93 percent requires only one additional obstruction-clearing project at a Local airport.

Table 8-9. Existing Performance and Future Targets – Clear Approaches on Non-primary Runway Ends

Classification	No. of Non-Primary Runway Ends Meeting PM	Percent of Non-Primary Runway Ends Meeting PM	Future Performance Target	Additional Non-Primary Runway Ends Needed to Achieve Future Performance Target
Systemwide Non-Primary Runway Ends (70)	**64**	**91%**	**93%**	**1**
Commercial Service Non-Primary Runway Ends (22)	22	100%	100%	0
Local Non-Primary Runway Ends (28)	25	89%	93%	1
Basic Non-Primary Runway Ends (12)	12	100%	100%	0
Community Paved Non-Primary Runway Ends (2)	2	100%	100%	0
Community Turf Non-Primary Runway Ends (6)	3	50%	50%	0

Sources: NDAC, 2025; Kimley-Horn, 2026.

As presented in **Table 8-10**, the estimated cost to achieve the future performance target is approximately $100,000. This cost represents NDSASP planning-level needs not previously identified in the NDAC CIP.

Table 8-10. Cost Associated with Future Targets – Clear Approaches on Non-primary Runway Ends

Cost Category	Total Cost
NDSASP-related NDAC CIP Costs	$0
NDSASP Costs	$100,000
Total	**$100,000**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.1.2. PM: Percent of Airports That Control RPZs Through Fee Simple Ownership or Easement for All Runway Ends

In addition to clear approaches, control of RPZs was evaluated by type of runway and for each end. **Table 8-11** shows that existing RPZ control on primary runway ends is at 83 percent systemwide, narrowly short of the 84 percent future performance target, with only one Basic airport runway requiring additional action on one runway end. Airports may address remaining RPZ control needs through coordination with adjacent landowners, including the implementation of avigation easements or other land control agreements; therefore, no NDAC CIP or NDSASP costs are associated with this PM.

Table 8-11. Existing Performance and Future Targets – Control of RPZs on Primary Runway Ends

Classification	No. of Primary Runway Ends Meeting PM	Percent of Primary Runway Ends Meeting PM	Future Performance Target	Additional Primary Runway Ends Needed to Achieve Future Performance Target
Systemwide Primary Runway Ends (178)	**149**	**83%**	**84%**	**1**
Commercial Service Primary Runway Ends (16)	16	100%	100%	0
Local Primary Runway Ends (52)	52	100%	100%	0
Basic Primary Runway Ends (38)	37	98%	100%	1
Community Paved Primary Runway Ends (38)	27	71%	71%	0
Community Turf Primary Runway Ends (34)	16	47%	47%	0

Note: Runway ends were considered as "meeting" this PM if there is full or partial control. Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

As shown in **Table 8-12**, existing RPZ control on non-primary runway ends is currently at 97 percent. The future performance target of 99 percent represents a marginal increase over

current conditions and would require action at only one Basic airport runway end, where a land acquisition project has already been included in the 2026-2035 NDAC CIP.

Table 8-12. Existing Performance and Future Targets – Control of RPZs on Non-primary Runway Ends

Classification	No. of Non-Primary Runway Ends Meeting PM	Percent of Non-Primary Runway Ends Meeting PM	Future Performance Target	Additional Non-Primary Runway Ends Needed to Achieve Future Performance Target
Systemwide Non-Primary Runway Ends (70)	**68**	**97%**	**99%**	**1**
Commercial Service Non-Primary Runway Ends (22)	22	100%	100%	0
Local Non-Primary Runway Ends (28)	28	100%	100%	0
Basic Non-Primary Runway Ends (12)	11	92%	100%	1
Community Paved Non-Primary Runway Ends (2)	2	100%	100%	0
Community Turf Non-Primary Runway Ends (6)	5	83%	83%	0

Note: Runway ends were considered as "meeting" this PM if there is full or partial control. Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

As shown in **Table 8-13**, the need to meet this PM was already identified in the NDAC CIP and accounts for approximately $400,000. No additional NDSASP needs were identified related to this PM.

Table 8-13. Cost Associated with Future Targets – Control of RPZs on Non-primary Runway Ends

Cost Category	Total Cost
NDSASP-related NDAC CIP Costs	$400,000
NDSASP Costs	$0
Total	**$400,000**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.1.3. PM: Percent of Airports with Public Gathering in the RPZs

As shown in **Table 8-14**, the future performance target is already achieved under existing conditions for instances of public gatherings in RPZs for primary runway ends; therefore, no project recommendations or associated costs are identified. It was determined that it would be unreasonable to resolve the instances of existing public gathering uses for the five primary

runway ends where these uses exist. RPZ requirements and guidance changed over time, becoming stricter, after many airports already had public gathering uses within their RPZs and it is nearly impossible to mitigate those uses now. Rather, airports can focus on establishing and enforcing land use controls to prevent further instances.

Table 8-14. Existing Performance and Future Targets – Public Gatherings in the RPZs of Primary Runway Ends

Classification	No. of Primary Runway Ends Meeting PM	Percent of Primary Runway Ends Meeting PM	Future Performance Target	Additional Primary Runway Ends Needed to Achieve Future Performance Target
Systemwide Primary Runway Ends (178)	**173**	**97%**	**97%**	**0**
Commercial Service Primary Runway Ends (16)	14	88%	88%	0
Local Primary Runway Ends (52)	51	98%	98%	0
Basic Primary Runway Ends (38)	38	100%	100%	0
Community Paved Primary Runway Ends (38)	37	97%	97%	0
Community Turf Primary Runway Ends (34)	33	97%	97%	0

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

As shown in **Table 8-15**, existing conditions also already achieve the future performance target for public gatherings in the RPZs of non-primary runway ends, with system performance at 94 percent. Because current performance meets the established target, no additional needs, project recommendations, or associated costs are identified.

Table 8-15. Existing Performance and Future Targets – Public Gatherings in the RPZs of Non-Primary Runway Ends

Classification	No. of Non-Primary Runway Ends Meeting PM	Percent of Non-Primary Runway Ends Meeting PM	Future Performance Target	Additional Non-Primary Runway Ends Needed to Achieve Future Performance Target
Systemwide Non-Primary Runway Ends (70)	**66**	**94%**	**94%**	**0**
Commercial Service Non-Primary Runway Ends (22)	20	91%	83%	0
Local Non-Primary Runway Ends (28)	27	96%	100%	0
Basic Non-Primary Runway Ends (12)	12	100%	100%	0
Community Paved Non-Primary Runway Ends (2)	2	100%	96%	0
Community Turf Non-Primary Runway Ends (6)	5	83%	91%	0

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.2. Provide Air Access to Airports

The Provide Air Access to Airports goal is supported by five PMs that evaluate the availability and quality of air access across the statewide airport system. These measures focus on population and geographic coverage within 30 nautical miles of airports offering key navigational capabilities, such as on-site weather reporting and instrument approach procedures, as well as the adequacy of terminal facilities and the availability of covered aircraft storage.

The following subsections present future performance targets and associated planning-level costs for each PM, identifying areas where additional investment may be needed to maintain or improve air access throughout North Dakota.

8.2.2.2.1. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with On-Site Weather Reporting

Table 8-16 shows existing on-site weather reporting coverage adequately serves the statewide aviation system and already meets the established future performance target of 39 percent.

Although only 39 percent of airports have on-site weather reporting, **Chapter 6** shows that approximately 98 percent of the state's population and 90 percent of the land area are within 30 nautical miles of an airport with weather reporting. As a result, existing system performance provides adequate state coverage, and no additional improvements or costs are identified for this PM.

Table 8-16. Existing Performance and Future Targets – On-Site Weather Reporting

Classification	No. of Airports Meeting PM	Percent of Airports Meeting PM	Future Performance Target	Additional Airports Needed to Achieve Future Performance Target
Systemwide (89)	**35**	**39%**	**39%**	**0**
Commercial Service (8)	8	100%	100%	0
Local (26)	17	65%	65%	0
Basic (19)	9	47%	47%	0
Community Paved (19)	1	5%	5%	0
Community Turf (17)	0	0%	0%	0

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.2.2. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Non-Precision Approach

As shown in Table 8-17, existing system performance for the non-precision approach PM is 55 percent, compared to a future performance target of 61 percent. Achieving this target would require improvements at five additional airports, including one Local airport and four Basic airports.

Table 8-17. Existing Performance and Future Targets – Non-Precision Approach

Classification	No. of Airports Meeting PM	Percent of Airports Meeting PM	Future Performance Target	Additional Airports Needed to Achieve Future Performance Target
Systemwide (89)	**49**	**55%**	**61%**	**5**
Commercial Service (8)	8	100%	100%	0
Local (26)	25	96%	100%	1
Basic (19)	14	74%	95%	4
Community Paved (19)	2	11%	11%	0
Community Turf (17)	0	0%	0%	0

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

Chapter 6 demonstrates the 55 percent of system airports with non-precision approaches corresponds with approximately 99 percent of the state's population and 95 percent of the land area are within 30 nautical miles of an airport with this capability. While the 30-nautical-mile buffer around airports with non-precision approaches already covers most of the population and

land area within the state, the five additional airports recommended for this PM will provide some added coverage and important system redundancy.

As shown in **Table 8-18**, the estimated costs to achieve this PM is $920,000. This includes $120,000 in NDAC CIP-identified improvements and $800,000 in planning-level costs developed through the NDSASP. The NDSASP cost estimates are based on the average unit costs identified for similar projects in the NDAC CIP.

Table 8-18. Associated Costs with Future Targets – Non-Precision Approach

Cost Category	Total Cost
NDSASP-related NDAC CIP Costs	$120,000
NDSASP Costs	$800,000
Total	**$920,000**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.2.3. PM: Percent of Area and Population Within 30 Nautical Miles of an Airport with a Vertically Guided Approach

As shown in Table 8-19, vertically guided approach existing performance already meets the future target of 42 percent, indicating that current coverage is adequate. Vertically guided approaches are present at 42 percent of system airports; however, **Chapter 6** shows that these airports serve approximately 98 percent of the state's population and 88 percent of the land area within 30 nautical miles. This distribution demonstrates that the system is functioning effectively, resulting in no NDAC CIP or NDSASP investment right now.

Table 8-19. Existing Performance and Future Targets – Vertically Guided Approach

Classification	No. of Airports Meeting PM	Percent of Airports Meeting PM	Future Performance Target	Additional Airports Needed to Achieve Future Performance Target
Systemwide (89)	**37**	**42%**	**42%**	**0**
Commercial Service (8)	8	100%	100%	0
Local (26)	19	73%	73%	0
Basic (19)	10	53%	53%	0
Community Paved (19)	0	0%	0%	0
Community Turf (17)	0	0%	0%	0

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.2.4. PM: Percent of Airports with Adequate Terminal Facilities to Support Passenger Demand

As shown in Table 8-20, 70 percent of GA airports currently have terminal facilities adequate to support passenger demand, which meets the established future performance target. This indicates that system performance already aligns with desired conditions. As a result, no additional recommendations or investment needs are identified for this PM.

Table 8-20. Existing Performance and Future Targets – Adequate GA Terminal Facilities

Classification	No. of Airports Meeting PM	Percent of Airports Meeting PM	Future Performance Target	Additional Airports Needed to Achieve Future Performance Target
Systemwide (89)	**62**	**70%**	70%	**0**
Commercial Service (8)	8	100%	100%	0
Local (26)	25	96%	96%	0
Basic (19)	15	79%	79%	0
Community Paved (19)	11	58%	58%	0
Community Turf (17)	3	18%	18%	0

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

Table 8-21 presents existing performance and future targets for terminal facilities at Commercial Service airports. Current system performance is at 88 percent, with a future target of 100 percent. The remaining gap reflects one Commercial Service airport that does not yet meet the target.

Table 8-21. Existing Performance and Future Targets – Adequate Terminal Facilities (CS Only)

Classification	No. of Airports Meeting PM	Percent of Airports Meeting PM	Future Performance Target	Additional Airports Needed to Achieve Future Performance Target
Commercial Service (8)	**7**	**88%**	**100%**	**1**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

Table 8-22 summarizes the capital cost associated with addressing terminal facility needs at the one Commercial Service airport to meet the future performance target. Approximately $150 million in improvements is already programmed within the NDAC CIP for the Commercial Service terminal that is considered inadequate as a part of this PM.

Table 8-22. Associated Cost with Future Targets – Adequate Terminal Facilities (CS Only)

Cost Category	Total Cost
NDSASP-related NDAC CIP Costs	$150,000,000
NDSASP Costs	$0
Total	**$150,000,000**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.2.5. PM: Percent of Airports with Available Covered Aircraft Storage

As shown in Table 8-23, approximately 34 percent of airports statewide currently provide adequate covered aircraft storage, compared to a future performance target of 37 percent. This indicates that systemwide performance is generally aligned with desired conditions, with only a small gap remaining. Three Commercial Service airports would need to provide additional covered storage to achieve the future target.

Table 8-23. Existing Performance and Future Targets – Covered Aircraft Storage

Classification	No. of Airports Meeting PM	Percent of Airports Meeting PM	Future Performance Target	Additional Airports Needed to Achieve Future Performance Target
Systemwide (89)	**30**	**34%**	**37%**	**3**
Commercial Service (8)	5	63%	100%	3
Local (26)	5	19%	19%	0
Basic (19)	9	47%	47%	0
Community Paved (19)	8	42%	42%	0
Community Turf (17)	3	18%	18%	0

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

Table 8-24 summarizes the estimated future costs associated with achieving the covered aircraft storage target. Of the total $11.3 million in identified needs, approximately $8.3 million is already reflected in the NDAC CIP, while the remaining $3.0 million represents additional planning-level costs identified through the NDSASP. Together, these costs reflect the systemwide investment needed to address remaining gaps in covered aircraft storage capacity and support long-term air access objectives.

Table 8-24. Associated Costs with Future Targets – Covered Aircraft Storage

Cost Category	Total Cost
NDSASP-related NDAC CIP Costs	$8,300,000
NDSASP Costs	$3,000,000
Total	**$11,300,000**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.3. Preserve Airport Infrastructure

The Preserve Airport Infrastructure goal includes two PMs addressing airport pavement conditions and the adequacy of Airport Layout Plans (ALPs) at NPIAS airports. Future performance targets and associated costs for each measure are presented in the following subsections

8.2.2.3.1. PM: Percent of Airports Meeting State Pavement Condition Index (PCI) Thresholds on Primary Runways

Table 8-25 shows existing performance and future performance targets for primary runway pavement conditions across the statewide airport system. Currently, 72 percent of PCI-applicable airports meet the state PCI thresholds, compared to a future performance target of 97 percent. An applicable airport is defined as having pavement; therefore, all Community Turf airports are excluded from the PM analysis. This performance gap represents 18 airports statewide that do not currently meet the PCI standard, including three Commercial Service airports, five Local airports, seven Basic airports, and three Community Paved airports.

Table 8-25. Existing Performance and Future Targets – PCI for Primary Runways

Classification	No. of Airports Meeting PM	Percent of Airports Meeting PM	Future Performance Target	Additional Airports Needed to Achieve Future Performance Target
PCI Applicable Airports (72)	**52**	**72%**	**97%**	**18**
Commercial Service (8)	5	63%	100%	3
Local (26)	21	81%	100%	5
Basic (19)	12	63%	100%	7
Community Paved (19)	14	74%	89%*	3

*Note: *Y27 and 8J7 completed pavement maintenance or reconstruction after the system performance evaluation. The existing and future performance reflect Y27 and 8J7 as not meeting and needing improvement to meet the future performance target given the timing of the completed projects on their primary runways, but no costs are assigned since the projects have since been finished.*
Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

Table 8-26 presents the planning-level costs associated with achieving the future performance targets for primary runway pavement conditions, showing that meeting the target is fully

addressed through NDAC CIP projects. A total of approximately $17.6 million in NDAC CIP-identified needs is associated with this performance measure, with no additional NDSASP costs identified.

Table 8-26. Associated Costs with Future Targets – PCI for Primary Runways

Cost Category	Total Cost
NDSASP-related NDAC CIP Costs	$17,550,000
NDSASP Costs	$0
Total	**$17,550,000**

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.3.2. PM: Percent of NPIAS Airports with an Adequate Airport Layout Plan (ALP)

Table 8-27 shows existing and future targets for adequate ALPs, which only apply to the 54 NPIAS airports. The existing performance already meets the future target, with 100 percent of NPIAS airports having adequate ALPs. Due to full compliance with this PM, no NDAC CIP or NDSASP costs are identified.

Table 8-27. Existing Performance and Future Targets – Adequate ALP

Classification	No. of Airports Meeting PM	Percent of Airports Meeting PM	Future Performance Target	Additional Airports Needed to Achieve Future Performance Target
NPIAS Airports (54)	**53**	**100%**	**100%**	**0**
Commercial Service (8)	8	100%	100%	0
Local (26)	26	100%	100%	0
Basic (19)	19	100%	100%	0
Community Paved (1)	1	100%	100%	0

Sources: NDAC, 2025; FAA, 2025; Kimley-Horn, 2026.

8.2.2.4. Summary of 2025 NDSASP Project Recommendations

Table 8-28 shows that the total estimated financial need to meet all future performance targets associated with the applicable NDSASP goals is approximately $183.0 million. Of this $183.0 million, 89 percent is attributable to meeting PMs associated with the Provide Air Access to Airports goal, which is primarily due to the large terminal project already identified as a need in the NDAC CIP. Only three percent of the financial need estimated to achieve all applicable system PMs is considered new need from the NDSASP and beyond the existing NDAC CIP needs.

Table 8-28. Summary of Estimated NDSASP Needs

Goal	Cost Category	Total Cost	Percent of Total
Maintain a Safe Aviation System	NDSASP-related NDAC CIP Costs	$1,520,000	1%
	NDSASP Cost	$1,200,000	<1%
	Goal Total	***$2,720,000***	***1%***
Provide Air Access to Airports	NDSASP-related NDAC CIP Costs	$158,420,000	87%
	NDSASP Cost	$4,300,000	2%
	Goal Total	***$162,720,000***	***89%***
Preserve Airport Infrastructure	NDSASP-related NDAC CIP Costs	$17,550,000	10%
	NDSASP Cost	$0	0%
	Goal Total	***$17,550,000***	***10%***
Combined NDSASP Goals	NDSASP-related NDAC CIP Costs	$177,490,000	97%
	NDSASP Cost	$5,500,000	3%
	All Goals Total	***$182,990,000***	***100%***

Sources: NDAC, 2025; FAA "AIP Grant Histories" https://www.faa.gov/airports/aip/grant_histories, accessed 2026; Kimley-Horn, 2026.

8.2.3. Total 10-Year System Needs

The final component of estimating the total system needs over the 10-year planning horizon is to sum the NDAC CIP costs, presented throughout **Section 8.2.1**, with the NDSASP costs presented throughout **Section 8.2.2**. It is important to note that since the NDAC CIP costs presented in **Section 8.2.2** are considered duplicative of the costs presented in **Section 8.2.1**, they are only included once in the summary of total needs, reflected in the NDSASP-related NDAC CIP cost.

Table 8-29 presents a summary of total needs for the 1–5-, 6–10-, and 1–10-year periods. As shown, it is anticipated that total project needs over 10 years amounts to approximately $1.13 billion. It was assumed that NDSASP costs associated with the Maintain a Safe Aviation System goal should be in programmed in the 1–5-year period considering they are safety related, while non-primary NDSASP costs are programmed to occur in the 6–10-year period. This phasing is reflected in the costs presented in **Table 8-29.**

Table 8-29. Summary of Total 10-Year System Needs

Period	Cost Category	Total Cost	Percent of Total
1–5 Years	NDSASP-related NDAC CIP Costs	$569,720,000	100%
	NDSASP Costs	$1,200,000	<1%
	1–5-Year Total	***$570,920,000***	***100%***
6–10 Years	NDSASP-related NDAC CIP Costs	$557,060,000	99%

Period	Cost Category	Total Cost	Percent of Total
	NDSASP Costs	$4,300,000	1%
	6–10-Year Total	***$561,360,000***	***100%***
1–10 Years	NDSASP-related NDAC CIP Costs	$1,126,780,000	100%
	NDSASP Costs	$5,500,000	<1%
	1–10-Year Total	***$1,132,280,000***	***100%***

Note: "Percent of Total" values are calculated within each period (1–5 years, 6–10 years, and 1–10 years). Sources: NDAC, 2025; FAA "AIP Grant Histories" https://www.faa.gov/airports/aip/grant_histories, accessed 2026; Kimley-Horn, 2026.

8.3. Projected Funding

The following subsections summarize potential federal, state, and local funding sources and document assumptions made to estimate funding from these sources over the 10-year planning horizon.

8.3.1. Projected Federal Funding

The primary source of aviation funding at the federal level comes from the FAA's Airport Improvement Program (AIP), which is funded by aviation user fees and taxes. AIP funds are distributed to eligible North Dakota airports for projects that enhance safety, security, capacity, preservation, and environmental compliance. Only airports included in the NPIAS are eligible to receive AIP funding, and project eligibility is determined on a project-by-project basis in coordination with the FAA.

Table 8-30 provides a summary of projects that are typically eligible and ineligible to receive AIP funding. In addition to the ineligible projects outlined in **Table 8-30**, it is important to note that AIP funds cannot be used for operating expenses.

Table 8-30. Commonly AIP Eligible and Ineligible Projects

Eligible Projects	Ineligible Projects
Runway construction/rehabilitation	Maintenance equipment and vehicles
Taxiway construction/rehabilitation	Office and office equipment
Apron construction/rehabilitation	Fuel farms*
Airfield lighting and signage	Landscaping
Airfield drainage	Aircraft hangars*
Automated Weather Observing System (AWOS)	Industrial park development
Navigational Aids (NAVAIDs)	Training
Planning and environmental studies (including ALPs)	Maintenance or repairs of buildings
Safety area improvements	Improvements of commercial enterprises
Snow Removal Equipment (SRE) and SRE Buildings	

*Note: *May be conditionally eligible at nonprimary airports if the airport has already satisfactorily addressed all airside needs and the improvement will increase revenue for the airport. Sources: FAA "Overview: What is AIP?" https://www.faa.gov/airports/aip/overview/, accessed 2026.*

AIP funds are distributed through **entitlement** and **discretionary** programs. **Entitlement** funding includes primary airport entitlements, non-primary entitlements, cargo entitlements, and state apportionment funds. Primary airports receive annual entitlement funding based on passenger enplanements. Nonprimary airports included in the NPIAS are eligible for up to $150,000 per year in FAA AIP nonprimary entitlement funding, as established in federal statute and FAA AIP guidance. Cargo entitlement funding supports airports with significant freight activity, and state apportionment funds are allocated to states for use at non-primary airports and for statewide planning efforts.

After entitlement and apportionment funds are distributed, remaining AIP funds are awarded competitively as **discretionary** grants are based on national priorities.

The projected FAA AIP funding levels are based on a combination of historic FAA AIP grant awards to North Dakota airports and anticipated future grants programmed in the NDAC CIP. Historic AIP funding provides the basis for long-term projections, while the NDAC CIP informs near-term expectations.

Anticipated AIP grant awards for the 2026–2028 period identified in the NDAC CIP exclude discretionary funding, as discretionary awards are difficult to predict and depend on project eligibility, national priorities, and annual funding availability. To account for discretionary funding during this period, an estimate was developed using the historic share of discretionary funds

awarded to North Dakota system airports. This estimated discretionary amount is applied to the NDAC CIP-programmed funding levels.

Table 8-31 summarizes the methodology used to estimate FAA AIP funding levels over the 10-year planning period (2026–2035). As shown in **Table 8-31**, total FAA AIP funding over the 10-year period is projected to be approximately $544.1 million. Funding for the first three years (2026–2028) consists of $80.1 million in NDAC CIP-identified AIP funding (Row C) and $76.9 million in estimated discretionary funding (Row D), resulting in a combined total of $157.0 million (Row E) for those three years.

Funding for the remaining seven years (2029–2035) is projected using the annualized average of historic FAA AIP grants received between 2016 and 2025 (Row B). This annualized value is applied to the seven-year period and combined with the 2026–2028 estimate to derive the total 10-year projection shown in Row F.

Table 8-31. Methodology of Projecting FAA AIP Funding (2026-2035)

Row	Data Source	Period	Funding	Notes
A	Historic FAA AIP Data	2016–2025	$553,100,000	49% of total funding was discretionary
B	Historic FAA AIP Data	Annualized	$55,310,000	Calculated as Row A divided by 10 years
C	NDAC CIP AIP Data	2026–2028	$80,059,000	Estimated AIP funding excluding discretionary
D	Estimated Discretionary Data	2026–2028	$76,919,000	Estimated using historic discretionary share (49%)
E	Estimated NDAC CIP AIP Data	2026–2028	$156,978,000	Sum of Rows C and D
F	**Projected FAA AIP Grants**	**2026–2035**	**$544,148,000**	**Calculated as (Row B × 7 years) + Row E**

Sources: NDAC, 2025; FAA "AIP Grant Histories" https://www.faa.gov/airports/aip/grant_histories, accessed 2026; Kimley-Horn, 2026.

In addition to FAA AIP funds, the 10-year projection of federal funding levels accounts for funding anticipated from remaining committed Infrastructure Investment and Jobs Act (IIJA) funds. Under IIJA, $25 billion is allocated to NPIAS airports over five years (FY 2022–2026), consisting of $15 billion for Airport Infrastructure Grants (AIG), $5 billion for the Airport Terminal Program (ATP), and $5 billion for air traffic facilities. ATP funding is distributed to both primary and nonprimary airports, with large hub airports receiving 55 percent of terminal funds, medium hubs 15 percent, small hubs 20 percent, and the remaining 10 percent shared by non-hub and nonprimary airports, with federal cost shares ranging from 80 to 95 percent depending on airport size. AIG funding is also distributed to both primary and nonprimary airports, with the majority

allocated by formula and a small portion awarded competitively, while air traffic facility funding supports improvements to air traffic control towers nationwide.

While the funding for the program ended in 2026, there are NPIAS airports in North Dakota that have not yet spent their awarded funds and are expected to spend those over the next three years (2026–2028). These unspent IIJA funds are approximately $31.5 million and should be included in the projection for federal funding over the 10-year planning horizon. It is possible that airports may have remaining IIJA funds to spend beyond 2028; however, these amounts are expected to be minor, if any, and are inconsequential to the total projections developed for the 10-year planning horizon.

Table 8-32 sums the FAA AIP and IIJA projections, for a total of $575.6 million of federal funding anticipated over the next 10 years.

Table 8-32. Summary of Federal Funding Projections (2026–2035)

Source	Funding
FAA AIP Projections	$544,148,000
IIJA Projections	$31,495,000
Total Projections	**$575,643,000**

Sources: NDAC, 2025; FAA "AIP Grant Histories" https://www.faa.gov/airports/aip/grant_histories, accessed 2026; Kimley-Horn, 2026.

It is important to note that additional federal funding sources, such as Congressionally Directed Spending (CDS) and other competitive or discretionary grant programs, may be available to support airport development projects. However, because these funding sources are highly variable, dependent on annual federal appropriations, legislative priorities, and competitive selection processes, their availability and applicability to North Dakota's airports cannot be reliably projected. As a result, these programs are not included in the funding projections presented in this plan, but they represent potential supplemental resources that could be pursued in the future to help reduce the funding gap identified in **Section 8.3.2**.

8.3.2. Projected State Funding

In addition to federal funding, state-level funding is available to North Dakota's public-use airports and is administered by NDAC. The core state funding sources include aviation fuel taxes, aircraft excise taxes, and aircraft registration fees, which together form the backbone of the state's Airport Grant Funding Program. Beyond this program, NDAC may also seek and receive one-time appropriations from the North Dakota Legislature. These funds are routinely requested to address major capital needs at specific airports and are often justified on the basis that state dollars leverage federal investment. While FAA AIP and other federal airport grants do not require a state match, federally assisted airport projects typically require a nonfederal sponsor match. In North Dakota, NDAC state grants may be used to support a portion of the

sponsor share, consistent with NDAC policy, with participation levels varying by airport classification and project type (including whether the project is federally assisted). For projects funded solely with state and local funds, NDAC grant participation levels also vary by airport classification and project type, with higher state participation generally provided at non-NPIAS airports.

Additional funding may also be available to airports through Operation Prairie Dog, established in 2019, which directs oil and gas gross production tax revenues into several infrastructure funding buckets, including a dedicated Airport Infrastructure Fund. Because Operation Prairie Dog relies on oil and gas tax revenues, funding availability is inconsistent and subject to market conditions. Moreover, revenues must first be allocated to several higher-priority funding buckets before any remaining dollars are deposited into the Airport Infrastructure Fund. As a result, Operation Prairie Dog airport funds, like legislatively appropriated funds, are not guaranteed and may fluctuate significantly if and when available.

Historical state aviation grant award amounts were reviewed and, in coordination with NDAC, future state funding levels were projected. Based on this review, NDAC anticipates having approximately $39 million available for allocation to aviation projects statewide in 2026. Beyond 2026, it is anticipated that approximately $15 million per year will be available to support statewide aviation priorities through 2035. Collectively, these projected annual funding levels equate to an estimated $174 million in state aviation funding over the next 10 years.

These projected funds are expected to support state matching shares for federal airport projects, as well as provide state funding for both NPIAS and non-NPIAS airport needs. The estimated funding levels were used to develop the state funding projections applied in the analysis of 1–5-, 6–10-, and total 1–10-year funding shortfalls presented in **Section 8.4**.

8.3.3. Projected Local Funding

Local funding for airport development in North Dakota is provided by local airport sponsors, other local government entities, and, in some cases, private funding sources. Local funding is a critical component of aviation development, as federally funded projects require at least a five percent local match, and state-only funded projects require a local match of 10 percent. Predicting local funding levels can be challenging, as most communities do not maintain dedicated funding sources for airport development, and contributions from airport sponsors may fluctuate significantly from year to year.

For the 2025 NDSASP, local funding projections were based solely on the anticipated five percent local match for federally funded projects. It was assumed that the projected federal funding total of $575.6 million (see **Table 8-32**) represents 90 percent of the total cost of federally funded airport projects over the 10-year planning period. Applying the five percent local match to this yields an estimated $32.0 million in local funding needs over the 10-year period just to match anticipated federal funding. Local funding associated with state-funded airport

projects, including NDAC grant awards at non-NPIAS airports, is not explicitly estimated in this analysis. This is due to uncertainty in how future state funding will be distributed between NPIAS and non-NPIAS airports, variability in state participation levels, and the unpredictability of discretionary funding awards. In addition, local airport sponsors may independently fund airport improvements that do not receive federal or state assistance; these locally funded projects are not captured in the projected funding levels presented in this chapter. These estimated local funding levels were used to develop the funding projections applied in the analysis of 1–5-, 6–10-, and total 1–10-year funding shortfalls presented in **Section 8.4**.

8.3.4. Summary of Projected Funding from All Sources

Table 8-33 presents the summary of projected funding levels from federal, state, and local funding sources for the next 10 years. These projected funding levels amount to a total of $781.6 million and are used in **Section 8.4** to estimate funding shortfalls.

Table 8-33. Summary of Projected Funding Levels (2026–2035)

Funding Source	Projected Funding Level (2026–2035)
Federal	$575,643,000
State	$174,000,000
Local	$31,980,000
Total	**$781,623,000**

Sources: FAA "AIP Grant Histories" https://www.faa.gov/airports/aip/grant_histories, accessed 2026; NDAC, 2025; Kimley-Horn, 2026.

8.4. Anticipated Shortfall

As previously noted, the capital needs identified in earlier sections of this chapter are expected to exceed the funding projected to be available over the 10-year planning horizon. By comparing anticipated federal, state, and local funding levels with identified system needs, this analysis provides insight into the extent to which planned investments can be supported under current funding assumptions. The anticipated shortfall reflects the differences between total system needs, as presented in **Section 8.2**, and projected funding levels summarized in **Section 8.3**. This comparison is presented for the 1–5-, 6–10-, and the full 10-year planning horizon to illustrate how funding constraints may vary over time. The results are intended to inform future planning related to project phasing, prioritization, and funding strategies.

8.4.1. Years 1-5 Needs and Shortfall

As presented in **Table 8-34**, over the near-term planning period (Years 1–5), total identified system needs are estimated at approximately $570.9 million. Of this total, $553.5 million is associated with NPIAS airport NDAC CIP projects, accounting for 97 percent of near-term needs. An additional $14.7 million (three percent) is attributed to non-NPIAS airport NDAC CIP projects, while $1.6 million reflects statewide planning needs identified in the NDAC CIP. The

remaining $1.2 million (less than one percent) represents additional needs identified through the NDSASP.

Anticipated funding during this period totals approximately $414.1 million, consisting of $299.1 million in federal funds accounting for 72 percent, $99.0 million in state funds (24 percent), and $16.0 million in local funds (four percent). When compared with total identified system needs, projected funding falls short by approximately $156.8 million, indicating that approximately 27 percent of system need costs are not supported by projected funding based on current anticipated funding assumptions.

Table 8-34. Anticipated Years 1–5 Needs and Shortfall

Category	Cost	Percent
Anticipated Need		
NPIAS NDAC CIP	$553,470,000	97%
Non-NPIAS NDAC CIP	$14,650,000	3%
Statewide Planning NDAC CIP	$1,600,000	<1%
NDSASP Needs	$1,200,000	<1%
Total Cost	**$570,920,000**	**100%**
Anticipated Funding		
Federal Funds	$299,093,000	72%
State Funds	$99,000,000	24%
Local Funds	$15,990,000	4%
Total Anticipated Funding	**$414,083,000**	**100%**
Shortfall	**$156,837,000**	**27%**

Sources: NDAC, 2025; FAA "AIP Grant Histories" https://www.faa.gov/airports/aip/grant_histories, accessed 2026; Kimley-Horn, 2026.

8.4.2. Years 6-10 Needs and Shortfall

Table 8-35 presents total identified system needs over the years 6–10 planning period, estimated at approximately $561.4 million. Of this total, $539.7 million is associated with NPIAS airport NDAC CIP projects, accounting for approximately 96 percent of 6–10-year term needs. An additional $15.0 million (about three percent) is attributed to non-NPIAS airport NDAC CIP projects, while $2.4 million (less than one percent) reflects statewide planning needs from the NDAC CIP. The remaining $4.3 million (less than 1 percent) represents additional needs identified through the NDSASP.

Projected funding available during the 6–10-year planning period totals approximately $367.5 million, including approximately $276.6 million in federal funds constituting 75 percent, $75.0 million in state funds (20 percent), and $16.0 million in local funds (four percent).

When compared with total identified system needs of approximately $561.4 million, this results in an estimated funding shortfall of approximately $193.8 million, representing about 35 percent of the system's needs based on current anticipated funding assumptions.

Table 8-35. Anticipated Years 6–10 Needs and Shortfall

Category	Cost	Percent
Anticipated Need		
NPIAS NDAC CIP	$539,660,000	96%
Non-NPIAS NDAC CIP	$15,000,000	3%
Statewide Planning NDAC CIP	$2,400,000	<1%
NDSASP Needs	$4,300,000	<1%
Total Cost	**$561,360,000**	**100%**
Anticipated Funding		
Federal Funds	$276,550,000	75%
State Funds	$75,000,000	20%
Local Funds	$15,990,000	4%
Total Anticipated Funding	**$367,540,000**	**100%**
Shortfall	**$193,820,000**	**35%**

Sources: NDAC, 2025; FAA "AIP Grant Histories" https://www.faa.gov/airports/aip/grant_histories, accessed 2026; Kimley-Horn, 2026.

8.4.3. Years 1–10 Needs and Shortfall

Shown in **Table 8-36**, over the full 10-year planning horizon (Years 1–10), total identified system needs are estimated at approximately $1.13 billion. Of this total, approximately $1.1 billion is associated with NPIAS airport NDAC CIP projects, accounting for about 97 percent of total system needs. An additional $29.7 million (approximately three percent) is attributed to non-NPIAS airport NDAC CIP projects, while $4.0 million (less than one percent) reflects statewide planning needs from the NDAC CIP. The remaining $5.5 million (less than one percent) represents additional needs identified through the NDSASP.

Projected funding available over the full 10-year planning horizon (Years 1–10) is approximately $781.6 million, consisting of approximately $575.6 million in federal funds approximating 74 percent, $174.0 million in state funds (22 percent), and $32.0 million in local funds (four percent). When compared with total identified system needs of approximately $1.13 billion, this results in an estimated long-term funding shortfall of approximately $350.7 million (31 percent of the total system needs). This shortfall highlights the level of investment needed from federal, state, and local funding sources to support the continued development and optimization of North Dakota's aviation system over the 10-year planning horizon.

Table 8-36. Anticipated Years 1–10 Needs and Shortfall

Category	Cost	Percent
Anticipated Need		
NPIAS NDAC CIP	$1,093,130,000	97%
Non-NPIAS NDAC CIP	$29,650,000	3%
Statewide Planning NDAC CIP	$4,000,000	<1%
NDSASP Needs	$5,500,000	<1%
Total Cost	**$1,132,280,000**	**100%**
Anticipated Funding		
Federal Funds	$575,643,000	74%
State Funds	$174,000,000	22%
Local Funds	$31,980,000	4%
Total Anticipated Funding	**$781,623,000**	**100%**
Shortfall	**$350,657,000**	**31%**

Sources: NDAC, 2025; FAA "AIP Grant Histories" https://www.faa.gov/airports/aip/grant_histories, accessed 2026; Kimley-Horn, 2026.

While the estimated long-term funding shortfall is based on a planning-level comparison of identified needs to anticipated funding, it demonstrates that not all identified projects are likely to be funded within the 10-year planning period, meaning many projects may be delayed beyond the planning period. Sustained funding constraints create real-world implications for how airports may be able to address safety, regulatory compliance, asset preservation, and meeting service level demand, particularly when needs continue to accumulate and compound over time.

NDAC's state grant decision making is informed by a project priority framework that assigns higher priority to projects addressing needs such as obstruction removal and mitigation, pavement rehabilitation and maintenance, and airfield lighting replacement, while comparatively lower priority is assigned to projects such as GA terminal improvements, fuel facilities, community hangars, and certain landside improvements. This framework helps distribute limited resources to the projects most directly tied to safety, regulatory compliance, and asset preservation outcomes. However, when a funding gap exists, the practical implication is that lower-priority projects are more likely to be deferred to preserve funding capacity for higher-priority needs.

Over time, repeated deferral can translate into measurable system impacts. From an asset condition and cost perspective, postponing pavement maintenance to prioritize more urgent rehabilitation or reconstruction can extend the period during which facilities operate below desired condition standards and may accelerate deterioration, resulting in more costly and time-sensitive rehabilitation needs in the future. For example, the system performance

assessment shows that 72 percent of PCI-applicable airports currently meet the state PCI thresholds, compared to a future target of 97 percent, with 18 airports identified as not meeting the PCI standard on primary runways at the time of evaluation. Although the plan identifies projects intended to address these gaps, a persistent funding shortfall increases the likelihood that some preservation projects may be delayed, potentially prolonging conditions below state thresholds and shifting needs later into the horizon or beyond it.

From a service level and capacity perspective, underinvestment due to funding constraints may also affect facilities that support passenger experience, operational efficiency, and air-service development, all of which are categories that may fall below the higher priority categories. As one example, commercial service terminal adequacy is shown at 88 percent against a future target of 100 percent, with major terminal investment already identified in the NDAC CIP for the remaining gap airport. If future projects of this nature are deferred due to constrained funding, airports may face longer-term limitations in accommodating passenger demand and supporting air service objectives, even if core airfield safety needs are being addressed first.

Finally, sustained funding gaps can affect system resiliency, particularly where improvements are intended to provide important redundancy across the airport network. While population coverage within 30 nautical miles of airports equipped with on-site certified weather reporting is currently sufficient at the system level, only 39 of the system's 89 airports have this capability. Where future needs are identified to equip additional airports with on-site weather equipment to support expanded coverage and improve redundancy, existing funding levels and project prioritization may delay implementation beyond an appropriate timeframe. If these enhancements are deferred, the resiliency benefits of increased operational flexibility during adverse weather, maintenance closures, or other disruptions may not be fully realized within the planning horizon.

Overall, the projected funding shortfall is not only a statement of unmet capital need, but also a signal that NDAC and airport sponsors may be forced into prioritization decisions that protect the highest-priority safety and preservation projects while increasing the likelihood that lower-priority capacity, service, economic development, and revenue-supporting projects are delayed.

8.5. System Plan Recommendations

The 2025 NDSASP produced several project recommendations, presented in **Section 8.2.2**, that relate to the PMs associated with three of the six system plan goals. These recommendations were identified based on gaps between existing performance and future performance targets and, together with the 10-year NDAC CIP, form the foundation of the plan's capital project recommendations over the planning horizon.

In addition to these capital project recommendations, other analyses within the NDSASP, particularly those in **Chapter 3: Airport Classifications**, and **Chapter 7: Issues and Industry**

Advancements, identify potential policy-oriented recommendations and considerations for NDAC to evaluate and potentially implement over the 10-year horizon. Cost estimates are not developed for these items, as they are not tied to specific capital projects, but instead reflect operational actions or policy changes that could be undertaken by NDAC to enhance the North Dakota system.

8.5.1. Airport Classification Recommendations

As identified in **Section 3.4** of **Chapter 3**, the 35 non-NPIAS GA airports included within the 2025 NDSASP were evaluated using current data and the minimum entry criteria to identify if any of these airports may be eligible for future NPIAS inclusion. Following the analysis, only Dunn-County Weydahl Field (9Y1) was identified for possible inclusion in a future NPIAS publication. The airport meets all inclusion criteria and is expected to exceed 10 based aircraft by the next NPIAS planning cycle (data will likely be for the period October 2025 and April 2026, for the NPIAS publication for Fiscal Years 2027–2031). Since 2014, the airport has seen substantial public and private investment, underscoring its growing regional significance and importance within the state aviation system. The FAA is aware of the airport's growth and investment trends and has been coordinating with NDAC regarding its future role.

In addition to the recommendation of including 9Y1 into the NPIAS in future planning cycles, NDAC will continue monitoring LaMoure Rott Municipal Airport (4F9). 4F9 has long been classified as Unclassified in the NPIAS due to low based aircraft counts and because the City of LaMoure does not own the airport property, instead operating under a long-term lease from a private landowner. NDAC and the City of LaMoure are working collaboratively to acquire the airport property and attract additional based aircraft, with the goal of achieving at least a Basic airport classification.

And finally, as recommended in **Chapter 3**, NDAC will continue evaluating other non-NPIAS airports' operations, growth, regional significance, and interest in joining the NPIAS to determine if future inclusion of other airports may be warranted.

8.5.2. Issues and Industry Advancement Recommendations

The following recommendations are derived from the analyses presented in **Chapter 7**. These recommendations are provided for NDAC's consideration and may be implemented at its discretion over the planning horizon or beyond. Some recommendations focus on potential policy changes, while others address operational actions.

Table 8-37 summarizes the recommendations identified in **Chapter 7** and organizes them by the eight topic areas discussed in the chapter.

Table 8-37. Recommendations from Chapter 7. Issues and Industry Advancements

Topic	Recommendation
Advanced Air Mobility (AAM)	Develop a statewide AAM blueprint to articulate shared goals for economic development, workforce, rural connectivity, and public-good missions, and provide consistent guidance to local governments and airports on siting, zoning, noise, and community considerations.
	Continue to coordinate closely with the FAA on procedures, approvals, design requirements, and airspace protections for low-altitude AAM integration.
	Identify opportunities to pursue federal grants and public-private partnerships (P3s) to support early AAM infrastructure and planning.
Emerging Aviation Fuel Sources	Support fuel diversity at airports so rural and urban communities retain operational options as fuel technologies evolve.
	Align aviation fuel initiatives with state energy and economic development policies to leverage North Dakota's role in energy production.
Air Traffic Control Modernization	Support system airports through coordination and planning to facilitate integration with the FAA's Brand New Air Traffic Control System (BNATCS), enhancing operational reliability and supporting rural and emerging aviation operations.
Aging Fleet and Pilot Population	Continue to support or expand partnerships with universities, technical colleges, and high schools to strengthen early-career aviation pathways.
	Encourage or support enhanced maintenance programs that go beyond minimum compliance for aging aircraft.
Aviation Professional Shortage	Build on existing aviation education initiatives by expanding funding and geographic reach, particularly in rural areas.
	Continue supporting aviation career exposure beginning at the middle and high school level, including curriculum, internships, and sponsorships.
Commercial Service Access	Assist communities in air service development planning, including marketing, revenue guarantees, and regional coordination. *Most actions associated with commercial service access may occur at the federal level, but NDAC may provide advocacy, coordination, and technical support.*

Topic	Recommendation
Economic Conditions & Impacts on Buying Power	Consider updates to project prioritization, such as emphasizing safety-critical and asset-preservation projects in funding decisions when buying power is constrained.
	Continue close coordination with the FAA to ensure efficient and effective grant cycles.
Revenue-Producing Projects	Reconsider how hangars, fuel facilities, and other revenue-producing projects are prioritized within NDAC funding programs.
	Promote use of P3s or other non-traditional funding sources for hangars and fuel systems.

Sources: Marr Arnold Planning, 2025; Kimley-Horn, 2025.

These recommendations are intended to offer guidance to NDAC on certain actions, whether through coordination with airports or the FAA, or updates to policies and programs.

8.6. Conclusion

North Dakota's aviation system is a vital component of the state's transportation network, supporting economic activity, emergency services, agricultural operations, and statewide connectivity across a diverse range of airport roles and facility types. Sustaining this system in a safe, reliable, and resilient condition requires continuous evaluation of airport-specific needs and targeted investment aligned with statewide aviation system goals.

This chapter serves as the conclusion of the analyses presented throughout the 2025 NDSASP, translating system performance findings into identified development needs and planning-level cost estimates. While Chapter 8 represents the conclusion of the NDSASP, it is followed by **Chapter 9: North Dakota Aviation Economic Impact Study (NDAEIS)**. Distinct from the NDSASP, the NDAEIS was conducted concurrently and provides important context related to the economic impact associated with North Dakota's system airports and the state's aviation industry.

The combined recommendations of the NDSASP and the 20-year CIP indicate a long-term system investment need of approximately $1.13 billion over the planning horizon. An estimate of anticipated funding available during the same 10-year period compared to the needs demonstrates an estimated funding shortfall of approximately $350.7 million.

This gap is not merely a financial constraint—it represents deferred infrastructure improvements, delayed system enhancements, and an increased risk of long-term cost escalation. Without strategic prioritization and continued coordination among NDAC, airport sponsors, and funding partners, portions of the system will face difficult tradeoffs between

maintaining existing assets and advancing improvements that support future demand and economic opportunity.

While many elements of the system currently meet baseline performance targets, these measures reflect minimum thresholds rather than optimal conditions. The long-term sustainability of North Dakota's aviation system will depend on continued investment in asset preservation, targeted capacity improvements, and the ability to respond to evolving industry trends and operational requirements.

The recommendations presented in this chapter provide a framework to guide decision-making over the planning horizon. Moving forward, emphasis should be placed on prioritizing safety-critical and asset preservation projects, maximizing the leverage of federal funding opportunities, and exploring additional state, local, and private funding mechanisms to address the identified gap.

As system needs continue to evolve, ongoing coordination between NDAC, airport sponsors, federal partners, and industry stakeholders will be essential. This collaboration will ensure that North Dakota is well positioned to adapt to changing conditions, maintain system performance, and support the continued growth and vitality of the state's aviation network.

While this chapter concludes the analytical components of the 2025 NDSASP, it also establishes a forward-looking framework for action. The decisions made over the next decade—particularly regarding funding priorities and project implementation—will shape the performance, resilience, and accessibility of North Dakota's aviation system for years to come.

Chapter 9. North Dakota Aviation Economic Impact Study

9.1. Introduction

Aviation plays an essential role in supporting North Dakota's economy by enhancing connectivity for businesses, residents, and visitors through a range of activities, including facilitating agricultural activity and energy development, supporting emergency medical and public safety services, and connecting communities to regional, national, and global markets. Airports across the state serve a diverse range of users, including general aviation (GA) pilots, commercial air service passengers, military operations, uncrewed aircraft systems (UAS), and aviation education and training programs. The state's airport system also hosts businesses and activities that generate economic activity through employing residents and spending.

The 2025 North Dakota Aviation Economic Impact Study (2025 NDAEIS) evaluates and quantifies the economic contributions generated by this activity throughout the state, offering clear and data-driven insights into how the state's airports stimulate economic activity. The findings of this study are intended to communicate the economic importance of aviation to federal, state, and local decision-makers, airport sponsors, and the general public.

The 2025 NDAEIS is a companion study to the 2025 North Dakota State Aviation System Plan (2025 NDSASP). While the 2025 NDSASP focuses on evaluating system performance, facility needs, and future investment priorities, the 2025 NDAEIS identifies and quantifies the economic role aviation plays in supporting North Dakota's statewide economy. Together, these studies provide a comprehensive foundation for informed planning and investment decisions by the North Dakota Aeronautics Commission (NDAC) and its partners.

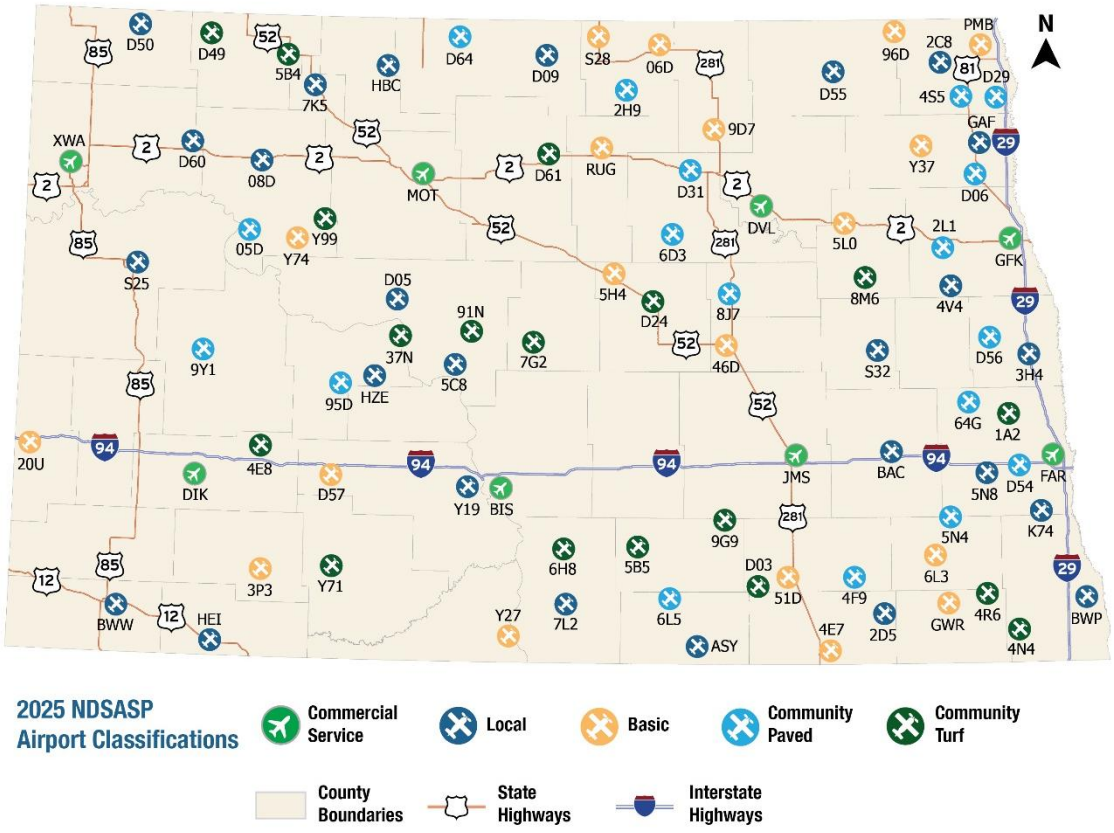
9.1.1. Prior Aviation Economic Impact Analyses

NDAC has conducted several analyses of the state's aviation economic impact over the years, with the most recent study completed in 2015. There were also earlier iterations, including one in 2010. Each of these studies builds on prior analyses, with the emphasis on the changes that have occurred in the national, state, regional, and local economies that impact economic activity resulting from aviation in North Dakota. The methodologies are generally consistent between studies, with small modifications depending on data available at the time of the analysis. As appropriate and relevant, comparisons to the 2015 NDAEIS results are presented. Notable differences in methodology are identified for reference in the relevant sections.

9.1.2. Study Airports

North Dakota's airport network includes a mix of public-use and private-use facilities, with the Federal Aviation Administration (FAA) reporting approximately 309 aviation-related facilities statewide. As shown in **Figure 9-1**, this analysis focuses on the state's 89 public-use airports, including eight commercial service airports and 81 GA airports. These 89 public-use airports serve a variety of functions within the statewide aviation system and support a diverse range of users and activities.

Figure 9-1. NDSASP Airports



Source: Kimley-Horn, 2026.

9.2. Economic Impact Methodology

The economic impacts presented in this chapter were estimated using an industry-standard input-output modeling approach consistent with best practices for statewide aviation economic impact studies (AEISs). This methodology is designed to measure and quantify the contribution of aviation activity to the North Dakota economy and capture a range of economic activity supported by the state's public-use airport system. As is typical for statewide aviation economic impact studies, data is gathered to represent 12 months, which in the case of the 2025 NDAEIS is calendar year (CY) 2024.

The terminology, impact measures, and general methodology used in the 2025 NDAEIS are consistent with those applied in the 2015 NDAEIS, allowing for high-level comparison between studies. The economic impact terms, measures, categories, and modeling process utilized for the 2025 study are detailed in the following sections.

9.2.1. Economic Impact Terms

Three economic impact terms are used in this study to classify impacts at individual airports and the statewide level: direct, multiplier, and total impacts. Direct impacts refer to the impacts generated directly by airport operations and visitors arriving by air and are estimated based on survey results and other primary data sources. Indirect and induced impacts, referred to as "multiplier impacts," arise through supplier purchases and income re-spending.[61] The multiplier impacts are quantified through IMPLAN during the economic modeling process, based on the direct data inputs. Together, these categories capture a range of economic activity generated by the aviation industry in North Dakota. The definitions of each impact category and their relationship to the economic impact measures reported in this study are summarized in **Table 9-1**.

Table 9-1. Economic Impact Term Definitions

Term	Definition
Direct Impacts	Economic activity that occurs as an immediate result of aviation-related operations, including expenditures by airport operators, on-airport businesses, construction spending, and visitors.
Indirect Impacts	Economic activity generated when aviation-related businesses purchase goods and services from other businesses (supplier purchases) within the region, supporting additional production and employment among suppliers.
Induced Impacts	Economic activity resulting from employees spending their earnings on goods and services (income re-spending) further supporting jobs and business activity.
Total Impacts	The sum of direct and multiplier (indirect and induced) impacts.

Source: Kimley-Horn, 2026.

9.2.2. Economic Impact Measures

The economic terms are measured by way of jobs, payroll, value added, and output. These measures are generally consistent with the 2015 NDAEIS, with the new measure of "value added" being introduced to the 2025 NDAEIS. Each impact measure is defined in **Table 9-2**.

[61]The 2015 NDAEIS reported a single indirect impact category that combined both indirect and induced effects; these impacts are reported separately in the 2025 NDAEIS.

Table 9-2. Economic Impact Measure Definitions

Measure	Definition
Jobs	The total number of individuals employed as a result of airport or aviation-related activity, including both full-time and part-time positions.
Payroll	The total compensation earned by employees, including salaries, wages, and employer-provided benefits, as well as associated taxes paid on behalf of employees.
Value Added	The contribution of aviation activity to the overall economy, measured as the value of goods and services produced minus the cost of inputs required to produce them (such as fuel, materials, and services). This measure is comparable to gross domestic product (GDP).
Output	The total value of economic activity generated by aviation, including the initial spending and the additional business transactions it supports. This measure reflects both production and the flow of spending across industries.

Source: Kimley-Horn, 2026.

9.2.3. Economic Impact Categories

Economic impact categories group impacts based on their source. For this study, five impact categories are organized into two primary groups: on-airport and off-airport. Each category is defined and described within these groupings in the sections that follow.

9.2.3.1. On-Airport

On-airport impacts refer to the impacts that originate from on-airport activity. This includes employment of airport administrative staff, on-airport business tenants, and expenses related to capital improvement projects.

Airport Administration encompasses all personnel responsible for managing daily airport operations. Typical roles include airport managers, maintenance and grounds staff, finance administrators, and local government employees who oversee the airport.

On-Airport Business Tenants refer to businesses located on airport property that operate under a lease, rental agreement, or other formal arrangement with the airport sponsor and have paid employees. These businesses may occupy private facilities or public-facing spaces, such as terminal buildings, and include both aeronautical and non-aeronautical activities. Examples of on-airport business tenants include fixed-base operators (FBOs), flight schools, maintenance providers, and rental car agencies.

Businesses that lease hangar space but are based off-site and do not have employees working on airport property are not considered on-airport business tenants for this analysis. The primary criterion for inclusion is the presence of employee activity on airport property.

Capital Improvements refer to development and construction efforts occurring on airport property. The analysis incorporates project spending reported by airport sponsors and on-airport business tenants and reflects the full cost of each project, regardless of whether funding was provided privately or at the local, state, or federal level.

Information on construction expenditures was collected for the period from 2021 through 2024 from both airport managers and on-airport businesses. Because capital spending can fluctuate from year to year, these expenditures were averaged over the four-year period to provide a more stable representation of overall investment levels and the resulting economic impact.

9.2.3.2. Off-Airport

Off-airport impacts represent the economic activity generated outside airport property by visitors who travel to North Dakota using the state's airports. This includes spending by both commercial service and GA visitors across local industries such as lodging, food service, transportation, retail, and entertainment.

This analysis is designed to capture new economic activity entering the state, rather than existing spending that is recirculated within the state and local economies. As a result, only expenditures made by out-of-state visitors traveling to North Dakota were included in the analysis.

Commercial Service Visitor Spending represents the economic activity generated by out-of-state travelers arriving in North Dakota via scheduled commercial air service at one of the eight commercial airports in the state. This analysis focused on visitors whose final destination is North Dakota.

General Aviation Visitor Spending includes the economic activity generated by out-of-state visitors traveling to North Dakota via private or non-commercial aircraft. This category encompasses spending by pilots and passengers who arrive via GA aircraft and spend money off airport property. Money spent on fuel for the aircraft or in a terminal, such as concessions, is not included since it is reflected in the on-airport business activity reported. GA visitor spending was included at all 89 airports across the state.

9.3. Approach to Data Collection

A series of targeted surveys, distributed in coordination with airport site visits, were used to gather detailed information on aviation-related activities generating direct economic impacts both on- and off- airport property. These efforts focused on capturing employment levels, payroll, operating expenses, capital investment, and visitor spending associated with aviation activity across the state.

This section outlines the data collection efforts supporting the economic impact analysis, including survey administration, airport site visits, and the data validation process. The objective

of this effort was to obtain reliable and readily available direct data, which serves as the foundation for estimating multiplier effects.

9.3.1. Surveys and Data Collection Methods

Three surveys were developed and distributed to collect primary data on aviation activity occurring both on- and off-airport. These surveys included the Airport Manager Survey (AMS), Business Tenant Survey, and Commercial Service Passenger Survey. In addition to the Commercial Service Passenger Survey, other secondary data collection methods were deployed to estimate the number of out-of-state (true visitors) for both commercial service and GA visitors, as well as estimate spending by GA visitors as no GA passenger survey was deployed. Additional details on each survey and other data collection methods are provided in the sections that follow.

9.3.1.1. Airport Manager Survey

The economic impact data collection effort was incorporated into the broader AMS developed for the 2025 NDSASP. The economic impact elements of the survey were designed to collect direct, on-airport data from airport administrative staff, including information on airport employment, GA activity, and on-airport business tenants.

The economic impact aspects of the survey were organized into five primary data categories: aviation activity, airport employment, airport expenditures, on-airport business tenant identification, and airport narrative for inclusion in individual airport profiles.

The AMS was distributed as a fillable PDF via email to the managers or equivalent representatives of all 89 public-use airports. Information related to on-airport business tenant identification was requested separately through a Microsoft Excel spreadsheet, which was included in the same email distribution as the AMS PDF.[62] A summary of the specific data collected through the AMS is provided in **Table 9-3**.

[62] Commercial service airports were provided the option of filling out the business tenant Excel spreadsheet attached to the AMS or providing the airport security badge list.

Table 9-3. Airport Manager Survey Data Categories

Survey Category	Data Collected
Aviation Activity	Total annual GA operations, percentage of out-of-state operations, and average number of passengers per GA aircraft
Airport Employment	Full- and part-time airport sponsor employment
	Occupational breakdown of airport employment (i.e., managerial/supervisory, clerical/administrative, maintenance and skilled trades, security, food service, retail, other)
Airport Expenditures	Airport sponsor payroll
	Contracted services, including service type, number of employees, 2024 contract cost, and service location (on- or off-airport)
	Capital improvement expenditures over the four-year period 2021–2024
	Annual operating expenses (2024)
	Private investment projects by non-tenant entities and associated costs (2021–2024)
On-Airport Business Tenant Identification	Business name, primary contact, and email address
	Estimated on-airport employment by tenant
	Security badge lists (commercial service airports only)
Airport Narrative	Qualitative information describing the airport's broader economic role and community contributions

Source: Kimley-Horn, 2026.

9.3.1.2. Business Tenant Survey

The business tenant survey was developed to collect business-specific information from all on-airport tenants identified through the AMS. The survey gathered data across four primary categories: business tenant profile, tenant employment, capital improvement expenditures, and workforce shortages. In cases where employment information reported by tenants differed from that provided by airport managers, tenant responses were used as the primary data source.

The survey was distributed via email to all on-airport businesses that had an identified point of contact on the AMS. Respondents were given the option to complete the survey using either a fillable PDF or an online questionnaire accessed through a link or QR code. Phone calls were made to tenants without email addresses provided and the survey was completed over the phone, if needed. A summary of the specific data requested through the business tenant survey is provided in **Table 9-4**.

Table 9-4. Business Tenant Survey Data Categories

Survey Category	Data Collected
Business Tenant Profile	Business name, primary contact, phone number, email address, and airport of operation
	Classification of business activity (e.g., air transportation, FBO, wholesale distribution, car rental, flight training, construction, grounds maintenance, concessions, aerial application)
Tenant Employment	Full- and part-time on-airport employment (2024)
Capital Improvement Expenditures	Capital investment expenditures made by the business tenant at the airport over the four-year period 2021–2024
Workforce Shortages	Number of unfilled positions (2024) and associated job roles
	Anticipated employee departures, including role, reason, and expected timing
	Projected hiring needs and anticipated hiring timelines

Source: Kimley-Horn, 2026.

9.3.1.3. Commercial Service Visitor Data Collection

Estimating impacts associated with visitor spending requires two key inputs: the number of total visitors and the amount of money those visitors spent while in North Dakota.

Estimating the number of true visitors at the eight commercial service airports was based on data from Airline Data, Inc., ND Airline Boarding Reports, and close coordination with NDAC. While the base year for the 2025 NDAEIS is CY 2024 for most analyses, 2025 passenger spending was collected through real-time surveys. To better align with this timeframe, passenger data from ND's Airline Boarding Reports for fiscal year (FY) 2025 was used. The Boarding Reports provide total passenger counts but do not distinguish between residents and visitors. To estimate the share of out-of-state travelers, the percentage of residents versus visitors was derived from Airline Data, Inc. reports. Applying the visitor percentage to total passengers yielded an estimate of annual true visitors for each commercial service airport.

Estimating the spending by these true visitors was based on responses from the Commercial Service Passenger Survey, which was deployed at all eight commercial service airports and collected airport-specific visitor spending and passenger experience data. The survey was administered electronically using QR codes displayed on posters throughout commercial service airport terminal facilities. Passengers accessed the survey by scanning the QR code with a mobile device, allowing for convenient, self-guided participation during their time at the airport. The survey was deployed from November 2025 through August 2026.

Of the eight commercial service airports surveyed, five achieved statistically valid sample sizes: Bismarck Municipal Airport (BIS), Hector International Airport (FAR), Grand Forks

International Airport (GFK), Minot International Airport (MOT), and Williston Basin International Airport (XWA). Three airports, Devils Lake Regional Airport (DVL), Dickinson - Theodore Roosevelt Regional Airport (DIK), and Jamestown Regional Airport (JMS), did not reach the minimum threshold required for a valid sample size. For these airports, a regionality factor analysis was conducted to adjust direct visitor spending estimates based on the average statewide commercial service spending per visitor value determined from all valid survey responses. This analysis examined the relationship between visitor-spending industries, including retail, lodging, food and beverage, entertainment, and local transportation, and regional payroll per employee metrics. The adjustment methodology accounts for regional economic differences by comparing industry-specific payroll per employee across regions against the statewide average. Regions with higher payroll costs relative to the state average received proportional adjustments to visitor spending estimates, while regions below the statewide average were adjusted accordingly.

As shown in **Figure 9-2** a total of 39,545 survey responses were received across all airports. Of these, 23,751 responses (60 percent) were considered valid for the quantitative and qualitative components of the survey. The threshold for inclusion in the quantitative visitor spending was more stringent. To be considered a valid true visitor survey, a respondent needed to mark out of state and provide valid responses to all required questions. A total of 6,754 valid true visitor surveys were received. **Figure 9-2** also presents a summary of the qualitative data gathered from both in-state- and out-of-state passengers.

Figure 9-2. North Dakota Commercial Service Visitor Feedback Overview

North Dakota Commercial Airports - Overview of Visitor Feedback

Collected via Survey Monkey from November 2024 - August 2025

Number of Responses: 39,545

Number of Valid Responses: 23,751

Reason for Travel

Leisure	42%
Business	47%
Other	11%

Over 300 individuals reported traveling for the purpose of touring or visiting a North Dakota College or University!

Rating of Overall Experience at the Airport

Excellent	52%
Good	38%
Neutral	9%
Poor	1%
Awful	0%

90% of survey responses indicate a positive experience travelling through North Dakota's Commercial Service Airports!

Positive Feedback Received

BIS: We LOVE the Bismarck airport. The size is perfect, no lines, TSA crew is friendly, and the shop has a good selection.
XWA: Williston Airport is my favorite airport in America, and SO clean!
MOT: I am in Minot once a month and it is one of my favorite airports.
GFK: Everything in the GFK is perfect! Very nice people and nice facility!
JMS: This airport is great! Very convenient and clean!
DVL: WE love flying out of Devils Lake
DIK: The staff in Dickinson were amazingly friendly, helpful, and efficient.
FAR: We love FAR! We are annual travelers to Kenora, ON and have traveled through ND for the last 10 years.

Suggested Areas of Improvement

Offered Suggested Improvements 62%

Common Themes Presented in Suggested Improvements

More food options post security including coffee shops and restaurant that can accommodate various food allergies.
Decreased TSA wait times and broadening TSA hours of operation.
More connectivity and direct flight options (frequently noted: Chicago, Seattle, Salt Lake City, Florida, and Texas)
Increase staffing at airline counters to assist with checking baggage and questions.

Importance of the Airport to the Community

100% so important. I could not live and work here without this airport.
100% important for business, family, and tourism. All airports in ND are important.
Absolutely critical. A viable airport is always important to a communities growth.
Absolutely IMPERATIVE!! Airports bring in new businesses and more people with them.

Surveys specified how essential airports are in supporting the oil industry!

Alternate Airport

Percent of passengers that have chosen another airport in the past three years: 31%

Commonly Cited Reasons for Choosing Another Airport in the Past Three Years:

Cost, Flight Times, Driving is cheaper.
Direct flights were not offered to destination.
MSP and DEN were the most commonly chosen alternate airport for their affordability and international reach.

Source: Kimley-Horn, 2026.

As mentioned in **Section 9.2.3.2,** the commercial service passenger surveying analysis captured new spending within North Dakota and not spending circulating or exiting the state. Visitor profile and expenditure data were collected only from survey respondents who indicated they were traveling to North Dakota from out of state.

Information was gathered across three primary categories: visitor profile characteristics, visitor expenditures, and visitor experience. **Table 9-5** provides an overview of the data collected for each of these categories.

Table 9-5. Commercial Service Passenger Survey Data Categories

Survey Category	Data Collected
Visitor Profile	Travel origin, trip purpose (business or leisure), party size, length of stay, and airport used
Expenditures	Estimated spending by category (i.e., lodging, food and beverage, transportation, retail, entertainment, recreation, or other)
Visitor Experience	Passenger feedback related to airport facilities, services, and overall travel experience

Source: Kimley-Horn, 2026.

Visitor profile characteristics and expenditure data provided the information needed to calculate direct inputs for the AEIS. Visitor experience data were not incorporated into the economic impact calculations; instead, these data were collected to provide supplemental context for airport sponsors and stakeholders regarding passenger perceptions and overall experience at each commercial service airport.

9.3.1.4. General Aviation Visitor Data Collection

As with commercial service visitors, estimating GA impacts required determining both the number of true GA visitors and their associated spending.

Because official passenger data are not available for GA operations, airport managers and FBOs were asked to estimate total annual itinerant (non-local) operations, as well as the percentage of those operations that are out-of-state. These percentages were applied to annual itinerant operations to estimate the number of out-of-state operations, which were then divided by two to approximate annual transient departures. Managers and FBOs also provided estimates of average passengers per aircraft, which were multiplied by the number of transient departures to estimate total true GA visitors at each airport. When airports were unable to provide reliable estimates, gaps were filled through coordination with NDAC and review of comparable data from the 2015 NDAEIS.

Due to the nature of GA activity, it is often difficult to obtain sufficient sample sizes to directly estimate visitor spending. As a result, spending estimates from the 2015 NDAEIS were updated in coordination with NDAC. An average spending value per GA visitor was first established for

commercial service and GA airports based on spending data from the 2015 NDAEIS, then these averages were increased by 33 percent to reflect changes in costs based on the Bureau of Labor Statistics (BLS) Consumer Price Index (CPI). As shown in **Table 9-6** commercial service airports in the 2015 NDAEIS had an average GA visitor spending of $193 per trip. After applying the CPI adjustment, the 2025 NDAEIS estimated statewide average spending per trip for GA passengers at commercial service airports increased to $256. In contrast, GA visitors traveling via GA airports spent $78 per trip, on average, in the 2015 NDAEIS. After the CPI adjustment, the statewide average for GA visitors at GA airports was estimated at $104 for the 2025 NDAEIS.

Table 9-6. CIP Adjusted Statewide GA Visitor Spending Averages

Airport Category	2015 Spending per Visitor	CPI Adjustment	2025 Spending per Visitor
Commercial Service	$193	33%	$256
General Aviation	$78	33%	$104

Sources: 2015 NDAEIS; U.S. Bureau of Labor Statistics (BLS); Kimley-Horn, 2026.

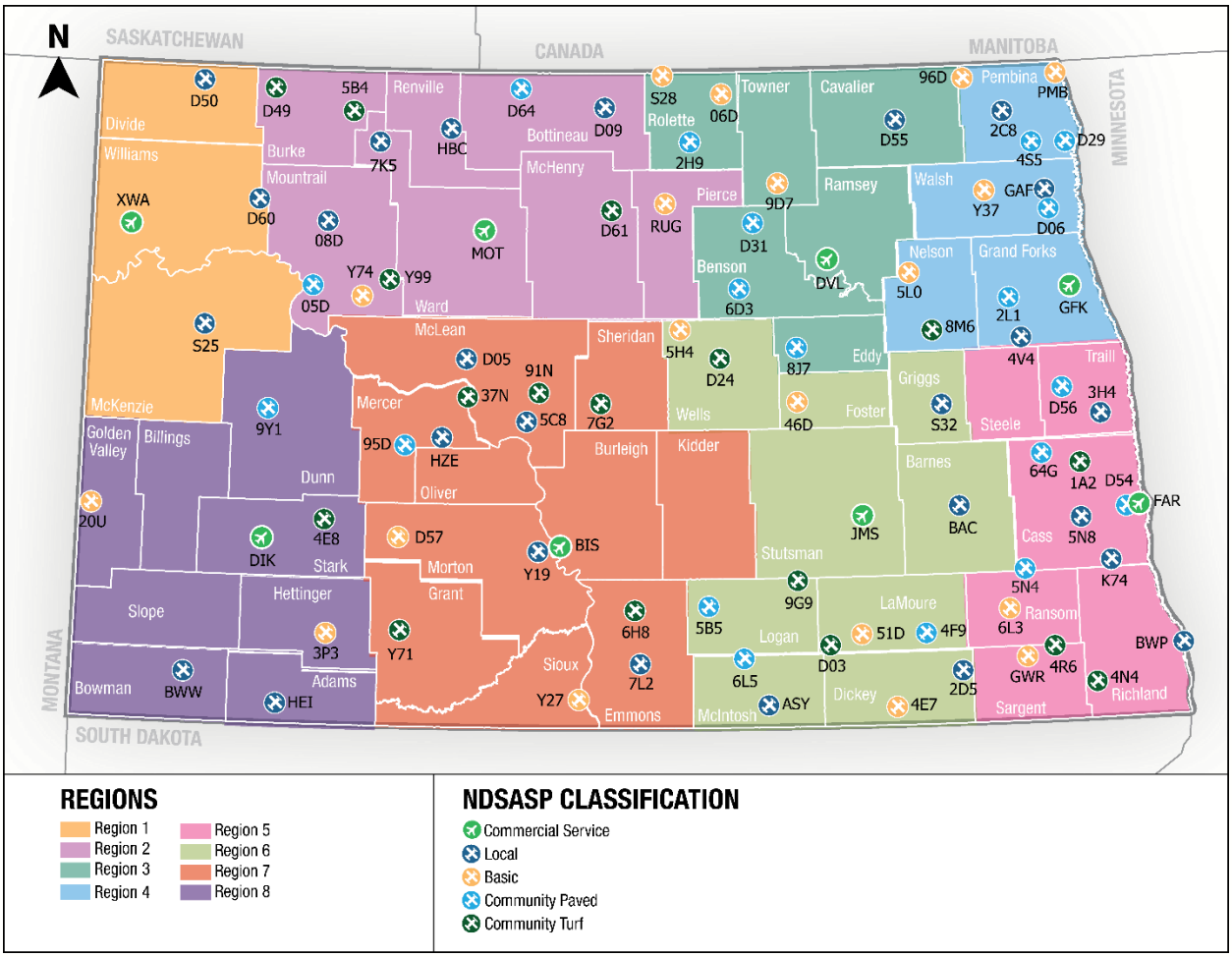
As shown in **Table 9-7**, regional adjustment factors were then applied to the 2025 NDAEIS statewide averages to account for geographic variation in visitor spending across North Dakota's eight regions. As with the regional factor analysis for commercial service visitor spending, these factors are derived from average wages per employee in visitor-related industries and reflect differences in local economic conditions, cost of living, and commercial activity levels. The regional factor analysis allows for GA visitor spending estimates to accurately reflect local economic conditions rather than applying a uniform statewide assumption. **Figure 9-3** presents a map of the regions and the airports within each for additional content.

Table 9-7. Regional Spending Adjustments for GA Visitors

Region	% of State Average	Spending per Trip by GA Visitors at GA Airports	Spending per Trip by GA Visitors at Commercial Service Airports
Region 1	104%	$108	$267
Region 2	87%	$90	$222
Region 3	86%	$89	$221
Region 4	92%	$96	$237
Region 5	117%	$121	$300
Region 6	87%	$90	$222
Region 7	92%	$95	$235
Region 8	94%	$98	$242

Sources: IMPLAN, 2025; Kimley-Horn, 2026.

Figure 9-3. Statewide Regional Map



Sources: North Dakota Commerce, Regional Councils, 2026; ArcGIS, 2026; Kimley-Horn, 2026.

9.3.2. Airport Site Visits

Airport site visits served as the primary coordination point for confirming data needs, collecting requested data, documenting next steps, and initiating post-visit outreach necessary to complete the economic impact data collection effort. Because data for the study were gathered from both airport sponsors and on-airport business tenants, a structured follow-up after each site visit was required to ensure all relevant parties were contacted and provided the opportunity to submit required information.

Airport site visits were conducted for all 89 public-use airports across North Dakota. In-person site visits were completed at the state's eight commercial service airports, while virtual site visits were conducted for the remaining 81 GA airports. Each site visit and accompanying AMS materials were coordinated with the airport manager or an equivalent representative at least two weeks before the site visit, allowing review and potential completion of the AMS prior to the scheduled visit.

During site visits, surveyors reviewed AMS responses with airport sponsors to ensure completeness and consistency, and to avoid duplication across data fields. For example, if an FBO is responsible for the day-to-day operation of the airport, their employment could be counted as either the airport administrative staff or business tenant staff, as they fall under the same category, but not both.

At commercial service airports, surveyors also requested security badge lists to support business tenant information included in the Excel spreadsheet. In addition, surveyors requested permission to place commercial service passenger survey posters with QR codes in high-traffic terminal areas to encourage passenger participation.

In cases where AMS data or tenant employment information remained incomplete following the site visit, airport managers received targeted follow-up emails identifying specific data gaps. For on-airport businesses that did not respond to the Business Tenant Survey, follow-up phone calls were conducted to encourage participation and obtain employment estimates at a minimum. Each airport's site visit was considered complete upon completion of the AMS, including estimated employment for all on-airport business tenants.

9.3.3. Data Validation

Given the statewide scope of the study and the reliance on survey-based data collected from multiple sources, a structured data validation process was implemented to ensure accuracy and consistency across all airports. This process was designed to confirm survey responses, resolve incomplete or inconsistent information, and document instances where data were not provided.

To further strengthen the dataset, secondary data sources, such as ESRI Business Analyst, FAA databases, IMPLAN, airport records, visitor and tourism studies, and other publicly available datasets, were compared to survey data, as appropriate, to support validation efforts and address identified data gaps. The integration of secondary data helped support a more complete and representative accounting of aviation activity, particularly for smaller airports and businesses with limited survey participation.

This validation process was critical in supporting the AEIS results presented in this chapter and in applying a consistent methodology across all 89 public-use airports. Validation procedures differed for on-airport and off-airport data, as described in the following sections.

9.3.3.1. On-Airport Data

Following completion of each airport's AMS and prior to economic modeling, all datasets were aggregated into a centralized database and subjected to a structured quality control review. Key data points—including employment, payroll, business activity, and capital expenditures—were evaluated for completeness, internal consistency, and alignment with airport size, function, and historical trends. Data entries identified as incomplete, inconsistent, or disproportionate were flagged for further review.

NDAC staff supported this effort by reviewing compiled data, applying institutional knowledge of airport operations, and assisting in the resolution of data gaps. Where necessary, follow-up coordination with airport sponsors and on-airport businesses was conducted to confirm or refine reported values. All airports were given an opportunity to review the direct data inputs specific to their airport before data was considered final.

9.3.3.2. Off-Airport Data

A separate validation process was conducted for commercial service passenger survey data used to estimate visitor spending impacts. Survey responses were reviewed to identify invalid entries (e.g., incomplete or logically inconsistent responses). Errant data that did not align with survey intent and statistical outliers that could disproportionately influence results were removed from the dataset before analysis.

Following data cleaning, final sample sizes and expenditure patterns were evaluated to calculate the estimated spend per visitor. The resulting visitor spending data were reviewed by both the project team and NDAC before integration into the economic impact analysis.

9.4. Applying IMPLAN and the Economic Modeling Process

Once survey data were collected and reviewed as described in **Section 9.3.3,** IMPLAN was used to assist in estimating direct impacts based on a regional calculation, filling in direct data that is not readily reportable, aggregating industry sectors, and estimating multiplier impacts.

IMPLAN is one of the most widely used input-output modeling platforms in the United States and draws on data from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA), BLS, and U.S. Census Bureau. The model incorporates key economic metrics—including employment, payroll, value added, and business output—across 546 industry classifications that align with two- to six-digit North American Industry Classification System (NAICS) codes.

Activity reported through surveys, as well as activity related to capital expenditures and visitor spending, were classified into one of the 546 IMPLAN industry sectors to accurately represent economic impacts. In some instances, aggregated industry sectors were compiled to reflect a mix of industries associated with one activity, such as accounting for full-service, limited service, and other food and beverage services.

9.4.1. Filling in Direct Data Inputs

Surveys implemented throughout the data collection process collected readily available information from airports, on-airport businesses, and visitors. IMPLAN was used to supplement these inputs by estimating non-readily available data and developing a complete direct data set. Specifically, IMPLAN uses reported survey data in combination with region-specific industry relationships to estimate direct measures of jobs, payroll, value added, and output, as described subsequently.

Jobs: On-airport job figures were primarily obtained directly from airport management and on-airport business tenants through the survey process. These reported values reflect respondent-provided headcounts. Employment associated with capital expenditure activity and visitor spending was estimated in IMPLAN based on direct spending inputs. IMPLAN uses those direct spending inputs and associated industries to derive jobs, payroll, value added, and total output.

Payroll: Payroll information for airport administrative staff was collected directly. For all other categories, including on-airport tenants, capital expenditure activity, contracted services, and visitor-supported activity, payroll was estimated using IMPLAN based on employment or direct spending inputs.

Tenant surveys collected employment data, which—along with industry classifications—were input into IMPLAN to estimate payroll using region- and industry-specific wage relationships. For contracted services, capital expenditures, and visitor-supported activity, identified direct spending and corresponding industry assignments were input into IMPLAN to estimate both payroll and employment, again based on these relationships.

This approach avoids reliance on self-reported tenant payroll data while maintaining consistency across airports and activity types.

Value Added: Value added data is not available from the data collection process and was estimated using IMPLAN's value-added-to-output relationships. These ratios reflect region- and industry-specific production structures and are a standard component of IMPLAN-based impact analysis. This is a standard process given this data is calculated and not directly available from any other source.

Output: Output estimates were developed using a combination of reported and modeled inputs. Airport administrative operating expenses and capital expenditures were provided directly by airports. Visitor spending was obtained through passenger survey responses and other secondary assessments as described in **Section 9.3.1.4**. For on-airport business tenants, output was estimated by IMPLAN based on reported employment levels and associated industry production relationships.

9.4.2. Regional Calibration

To better reflect differences in economic conditions across the state, IMPLAN models for the 2025 NDAEIS were configured at the North Dakota Department of Commerce (NDOC) regional level. This regional calibration accounts for variation in payroll, productivity, and industry structure across North Dakota communities and improves the representation of local economic activity when direct financial measures are not available.

For example, when estimating direct inputs, such as output, for FBOs across the state, an FBO located at Hector International Airport (FAR) serving large corporate aircraft is expected to generate higher output and payroll per job than an FBO at Cavalier Municipal Airport (2CB),

which primarily supports piston aircraft operations. This difference reflects the underlying regional economic conditions, as FAR is situated in a higher-activity economic region. Accordingly, the IMPLAN-derived output and payroll estimates for the FBO at FAR are higher than those for a comparable operation at 2CB, despite both being assigned to the same industry classification.

9.4.3. Aggregating Industry Sectors

Many on-airport businesses can be accurately represented using individual industry sectors based on reported business descriptions; however, there are some activities that require aggregation of multiple sectors to accurately reflect the range of economic activity associated with the spending. Using a single IMPLAN sector for these activities does not fully capture the diverse components of the associated expenditures. Aggregation involves combining closely related industry sectors to represent broader categories of economic activity. This approach enhances the modeling process and supports consistent analysis, particularly when detailed data are unavailable or when results are presented at a statewide level. For the 2025 NDAEIS, commonly reported on-airport activities, such as capital expenditures, government, retail, and food and beverage, were modeled using multiple IMPLAN sectors and aggregated to reflect the full range of associated economic activity.

In terms of off-airport visitor spending industries, individual tourism-related expenditures were grouped into broader categories such as lodging, food service, transportation, retail, and entertainment to enhance reporting and improve consistency. For example, a restaurant may offer both full-service dining and limited-service takeout, which are categorized separately within IMPLAN. Because visitor spending data were collected at the category level (e.g., total food and beverage spending), activity was not allocated to individual IMPLAN sub-sectors. Instead, to reflect these combined operations, the activity was aggregated across the applicable IMPLAN sectors and applied to the reported activity.

A similar approach was used for capital expenditures, which often span multiple industry sectors rather than aligning with a single IMPLAN category. For example, airport capital improvement projects such as terminal upgrades, hangar construction, or airfield improvements can include a range of costs related to general construction, architectural and engineering services, site preparation, and specialty trade contractors. Because these expenditures represent a combination of activities, they were distributed across the relevant IMPLAN sectors and aggregated to reflect the full scope of economic activity associated with each project.

9.4.4. Estimating Multiplier Impacts

After filling in and estimating all direct impacts, IMPLAN was used to calculate the multiplier effects associated with direct activity. IMPLAN applies state-specific economic multipliers to estimate multiplier (indirect and induced) impacts, capturing how aviation-related spending circulates through the North Dakota economy. This analysis used state-specific multipliers

rather than the region-specific multipliers previously discussed, as regionality is accounted for in direct data inputs. These statewide multiplier effects provide a more comprehensive measure of the total economic contribution of aviation to the state as a whole by accounting for supply chain activity and household spending supported by direct impacts that occur in North Dakota.

9.5. Core Airport Economic Impact Findings

The 2025 NDAEIS quantified two types of impacts: core and supplemental. The core economic impacts presented in this section are related to the 89 public-use airports and are derived from airport administration, airport business tenants, airport and tenant capital expenditures, and visitor spending at both the statewide and individual airport levels. The methodology presented in **Section 9.3** is largely specific to the core impacts. Supplemental impacts reflect additional off-airport impacts, with the methodology and results of these impacts presented in **Section 9.6**.

9.5.1. Statewide Airport Economic Impact Findings

Statewide core impacts are presented by impact location, distinguishing between on-airport and off-airport activities.

9.5.1.1. On-Airport Impacts

On-airport impacts refer to the employment, payroll, value added, and output generated by activity sources occurring on airport property, including airport administration, on-airport business tenants, and capital improvement projects. In 2024, on-airport activity was responsible for approximately 61 percent of the total core impacts, highlighting the importance of on-airport employment and operations. On-airport impacts are presented by category of impact.

9.5.1.1.1. Airport Administration

Airport administrative employees are responsible for the day-to-day operation and management of North Dakota's public-use airports and generate additional economic activity through multiplier effects associated with their employment and expenditures.

In 2024, North Dakota airports reported 244 direct airport administrative employees. These employees support an additional 198 jobs through multiplier impacts, resulting in a total of 442 jobs statewide. Collectively, these jobs are associated with $25.7 million in payroll, $53.2 million in value added, and $79.2 million in total economic output.

Airport administration impacts represent approximately seven percent of the total on-airport impacts and are summarized in **Table 9-8**.

Table 9-8. Airport Administration Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	244	$13,681,000	$34,182,000	$45,306,000
Multiplier	198	$12,014,000	$19,041,000	$33,900,000
Total	**442**	**$25,695,000**	**$53,223,000**	**$79,206,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.1.1.2. On-Airport Business Tenants

On-airport business tenants include businesses that employ staff located on airport property. These businesses may be aviation-related, such as FBOs; maintenance, repair, and overhaul (MRO) providers; and flight schools; or non-aviation businesses, including concessions; retail establishments; and hotels. On-airport business tenants are typically the largest employers on airport property and represent the primary drivers of on-airport economic activity. In 2024, on-airport business tenants accounted for approximately 76 percent of total on-airport economic impacts statewide.

On-airport business tenant activity directly supports 4,452 jobs located on airport property. The economic activity associated with these jobs supports an additional 1,846 multiplier jobs, resulting in a total of 6,298 jobs statewide. These impacts are associated with nearly $428.7 million in payroll, $550.0 million in value added, and $834.8 million in total economic output. These on-airport business tenant impacts are summarized in **Table 9-9**.

Table 9-9. On-Airport Business Tenant Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	4,452	$315,795,000	$368,142,000	$496,395,000
Multiplier	1,846	$112,903,000	$181,759,000	$338,402,000
Total	**6,298**	**$428,697,000**	**$549,900,000**	**$834,797,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.1.1.3. Capital Improvements

Capital improvement activity includes construction and development projects undertaken by airports and their tenants to maintain, expand, or enhance airport facilities and infrastructure. These projects generate substantial short-term economic activity through construction employment, professional services, and the purchase of goods and materials, while also supporting long-term airport functionality and economic competitiveness. As previously discussed, airports and tenants were requested to provide annual capital expenditures from 2021 through 2024, and an annual average was developed to estimate the economic impacts.

Spending on capital improvement projects at North Dakota's airports supported 616 direct jobs associated with construction and related activities. The economic activity generated by these projects supported an additional 309 indirect and induced jobs through multiplier effects, resulting in a total of 924 jobs statewide. Collectively, capital improvement activity was associated with $63.6 million in payroll, $98.3 million in value added, and $182.5 million in total economic output.

Capital improvement impacts support approximately 16 percent of the total on-airport impacts as reflected in **Table 9-10**.

Table 9-10. Capital Improvement Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	616	$42,963,000	$62,793,000	$117,287,000
Multiplier	309	$20,593,000	$35,528,000	$65,177,000
Total	**924**	**$63,556,000**	**$98,321,000**	**$182,464,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.1.2. Total On-Airport Impacts

On-airport activities generated substantial economic impacts across North Dakota in 2024. On-airport impacts, including airport administration, on-airport business tenants, and capital improvement activity, supported a total of 7,665 jobs statewide. This includes 5,312 direct jobs located on airport property and an additional 2,353 jobs supported through multiplier effects. These on-airport activities generated approximately $517.9 million in payroll, $701.4 million in value added, and $1.1 billion in total economic output statewide.

The impacts highlighted in **Table 9-11** emphasize the significant role that on-airport operations and investment play in supporting employment, payroll, and total economic output throughout North Dakota.

Table 9-11. Total On-Airport Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	5,312	$372,439,000	$465,117,000	$658,989,000
Multiplier	2,353	$145,510,000	$236,328,000	$437,479,000
Total	**7,665**	**$517,948,000**	**$701,445,000**	**$1,096,467,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.1.3. Off-Airport Impacts

Off-airport impacts refer to employment, payroll, value added, and output generated by off-airport visitor spending. These impacts represent the economic activity generated in local

communities through visitor expenditures across industries such as lodging, food and beverage, transportation, retail, and entertainment.

In 2024, off-airport activity accounted for approximately 39 percent of total core economic impacts, demonstrating the key role airports play in supporting out-of-state visitor travel and its impact on the statewide economy. Off-airport impacts are organized and presented by commercial service and GA visitor spending.

9.5.1.3.1. Commercial Service Visitor Spending

Commercial service visitor spending reflects the impact of these out-of-state residents spending money within North Dakota, in turn supporting direct and multiplier jobs.

Table 9-12 presents the number of visitors, direct spending per trip, and total direct visitor spending for each of the eight commercial service airports. These airports supported approximately 492,900 visitors with an average spending level of about $670 per trip, resulting in approximately $334.0 million in direct visitor spending.

Table 9-12. Visitor Spending per Trip by Commercial Service Airport

FAA ID	Airport	Total Visitors	Spending Per Trip	Direct Visitor Spending
BIS	Bismarck Municipal Airport	112,299	$664	$74,588,000
DVL	Devils Lake Regional Airport	3,951	$591	$2,334,000
DIK	Dickinson - Theodore Roosevelt Regional Airport	11,485	$667	$7,660,000
FAR	Hector International Airport	218,783	$672	$147,060,000
GFK	Grand Forks International Airport	33,099	$603	$19,959,000
JMS	Jamestown Regional Airport	4,053	$643	$2,607,000
MOT	Minot International Airport	65,864	$605	$39,819,000
XWA	Williston Basin International Airport	43,338	$922	$39,976,000
	Total	**492,872**	**$671(Average)**	**$334,003,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

In 2024, commercial service visitor spending directly supported 3,456 jobs statewide. The economic activity associated with these direct jobs generated an additional 1,114 jobs through multiplier effects, resulting in a total of 4,570 jobs supported across North Dakota.

Collectively, commercial service visitor spending represents 76 percent of the statewide off-airport impacts, and was associated with approximately $179.1 million in payroll, $288.2 million in value added, and $532.1 million in total economic output. These impacts are detailed in **Table 9-13**.

Table 9-13. Commercial Service Visitor Spending Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	3,456	$115,738,000	$186,134,000	$334,003,000
Multiplier	1,114	$63,351,000	$102,047,000	$198,054,000
Total	**4,570**	**$179,088,000**	**$288,181,000**	**$532,057,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.1.3.2. GA Visitor Spending

GA visitor spending reflects expenditures made within the state by out-of-state visitors who arrive on GA aircraft. These visitors consist of pilots and passengers arriving via one of North Dakota's 89 airports, generating jobs in off-airport visitor spending industries (lodging, food and beverage, transportation, retail, and entertainment).

In 2024, GA visitor spending directly supported 1,062 jobs statewide. The economic activity associated with this spending generated an additional 340 jobs through multiplier effects, resulting in a total of 1,402 jobs supported across North Dakota. These jobs are associated with approximately $53.8 million in payroll, $87.5 million in value added, and $162.4 million in total economic output.

GA visitor spending accounts for 24 percent of the total visitor spending impacts statewide and is summarized in **Table 9-14**.

Table 9-14. GA Visitor Spending Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	1,062	$34,444,000	$56,360,000	$101,923,000
Multiplier	340	$19,332,000	$31,140,000	$60,437,000
Total	**1,402**	**$53,775,000**	**$87,500,000**	**$162,361,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.1.4. Total Off-Airport Visitor Spending

Off-airport visitor spending impacts represent a substantial share of North Dakota's overall economic activity supported by aviation. In 2024, visitor spending generated by both commercial service and GA travelers accounted for approximately 39 percent of total core economic impacts statewide, demonstrating the significant role airports play in facilitating visitor travel and supporting economic activity beyond airport property.

As shown in **Table 9-15**, visitor spending supported 5,972 jobs across North Dakota, including 4,518 direct jobs and an additional 1,454 jobs generated through multiplier effects. These impacts were associated with approximately $232.9 million in payroll, $375.7 million in value added, and $694.4 million in total economic output statewide.

Table 9-15. Total Off-Airport Visitor Spending Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	4,518	$150,182,000	$242,494,000	$435,926,000
Multiplier	1,454	$82,682,000	$133,187,000	$258,492,000
Total	**5,972**	**$232,864,000**	**$375,681,000**	**$694,418,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2026; Kimley-Horn, 2026.

9.5.1.5. Total Statewide Core Airport Impacts

In 2024, aviation activity at North Dakota's public-use airports generated substantial statewide economic benefits through a combination of on-airport operations and off-airport visitor spending. On-airport activity, including airport administration, on-airport business tenants, and capital improvement projects, represented the majority of core impacts (61 percent), underscoring the importance of direct aviation employment and investment occurring on airport property.

As summarized in **Table 9-16**, on-airport and off-airport core airport impacts supported 13,637 jobs, generated $750.8 million in payroll, $1.1 billion in value added, and $1.8 billion in total economic output.

Table 9-16. Total Statewide Core Airport Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	9,831	$522,620,000	$707,611,000	$1,094,915,000
Multiplier	3,807	$228,192,000	$369,515,000	$695,970,000
Total	**13,637**	**$750,812,000**	**$1,077,126,000**	**$1,790,885,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.2. Individual Airport Impacts by Categories

Individual airport impacts are summarized in subsequent tables and organized by direct, multiplier, and total impacts. **Table 9-39** in **Section 9.11. Additional Tables** summarizes the direct, multiplier, and total impacts for each system airport in a single combined table.

9.5.2.1. Direct Impacts by Airport

Direct impacts refer to the jobs, payroll, value added, and total output that occur on-and off-airport as a direct result of airport administration, on-airport business tenants, capital improvements, commercial service, and GA visitor spending. Direct impacts are summarized by airport in **Table 9-17**, and organized in alphabetical order by associated city with the commercial service airports first followed by the GA airports.

Table 9-17. Direct Impacts by Airport

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Commercial Service						
Bismarck	Bismarck Municipal Airport	BIS	1,491	$76,542,000	$109,272,000	$171,350,000
Devils Lake	Devils Lake Regional Airport	DVL	136	$7,124,000	$9,721,000	$15,883,000
Dickinson	Dickinson - Theodore Roosevelt Regional Airport	DIK	321	$21,679,000	$27,995,000	$42,333,000
Fargo	Hector International Airport	FAR	4,123	$217,509,000	$274,128,000	$404,199,000
Grand Forks	Grand Forks International Airport	GFK	1,266	$72,740,000	$104,941,000	$171,724,000
Jamestown	Jamestown Regional Airport	JMS	163	$9,815,000	$13,386,000	$24,881,000
Minot	Minot International Airport	MOT	909	$43,764,000	$62,501,000	$101,762,000
Williston	Williston Basin International Airport	XWA	773	$37,258,000	$59,028,000	$90,749,000
General Aviation						
Arthur	Arthur Airport	1A2	<1	$3,000	$8,000	$13,000
Ashley	Ashley Municipal Airport	ASY	12	$555,000	$699,000	$1,225,000
Beach	Beach Airport	20U	6	$342,000	$518,000	$906,000
Beulah	Beulah Municipal Airport	95D	8	$328,000	$360,000	$473,000
Bottineau	Bottineau Municipal Airport	D09	9	$500,000	$661,000	$1,069,000
Bowbells	Bowbells Municipal Airport	5B4	<1	$6,000	$13,000	$23,000
Bowman	Bowman Regional Airport	BWW	18	$1,509,000	$1,679,000	$2,120,000
Cando	Cando Municipal Airport	9D7	10	$490,000	$552,000	$802,000
Carrington	Carrington Municipal Airport	46D	6	$237,000	$344,000	$650,000
Casselton	Casselton Robert Miller Regional Airport	5N8	37	$1,858,000	$2,030,000	$2,742,000
Cavalier	Cavalier Municipal Airport	2C8	9	$535,000	$640,000	$924,000
Columbus	Columbus Municipal Airport	D49	2	$4,000	$6,000	$10,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Cooperstown	Cooperstown Municipal Airport	S32	6	$300,000	$359,000	$467,000
Crosby	Crosby Municipal Airport	D50	6	$535,000	$848,000	$1,361,000
Drayton	Drayton Municipal Airport	D29	1	$62,000	$83,000	$132,000
Dunseith	International Peace Garden Airport	S28	7	$311,000	$423,000	$962,000
Edgeley	Edgeley Municipal Airport	51D	3	$126,000	$180,000	$302,000
Elgin	Elgin Municipal Airport	Y71	<1	$2,000	$6,000	$10,000
Ellendale	Ellendale Municipal Airport	4E7	4	$121,000	$181,000	$341,000
Enderlin	Sky Haven Airport	5N4	1	$46,000	$83,000	$141,000
Fessenden	Fessenden-Streibel Municipal Airport	D24	<1	$6,000	$13,000	$22,000
Fort Yates	Standing Rock Airport	Y27	3	$162,000	$221,000	$402,000
Gackle	Gackle Municipal Airport	9G9	<1	$1,000	$2,000	$3,000
Garrison	Garrison Municipal Airport	D05	4	$219,000	$319,000	$556,000
Glen Ullin	Glen Ullin Regional Airport	D57	4	$224,000	$346,000	$651,000
Grafton	Hutson Field	GAF	11	$549,000	$801,000	$1,407,000
Gwinner	Gwinner-Roger Melroe Field	GWR	6	$298,000	$443,000	$734,000
Harvey	Harvey Municipal Airport	5H4	5	$216,000	$295,000	$420,000
Hazelton	Hazelton Municipal Airport	6H8	1	$33,000	$54,000	$99,000
Hazen	Mercer County Regional Airport	HZE	10	$462,000	$650,000	$1,152,000
Hettinger	Hettinger - JB Lindquist Regional Airport	HEI	10	$935,000	$1,064,000	$1,379,000
Hillsboro	Hillsboro Municipal Airport	3H4	20	$1,224,000	$1,614,000	$2,505,000
Kenmare	Kenmare Municipal Airport	7K5	21	$1,292,000	$1,535,000	$2,242,000
Killdeer	Dunn County - Weydahl Field	9Y1	6	$354,000	$551,000	$932,000
Kindred	Robert Odegaard Field	K74	9	$621,000	$753,000	$1,069,000
Kulm	Kulm Municipal Airport	D03	2	$18,000	$35,000	$60,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
LaMoure	LaMoure Rott Municipal Airport	4F9	5	$224,000	$254,000	$358,000
Lakota	Lakota Municipal Airport	5L0	7	$191,000	$333,000	$610,000
Langdon	Robertson Field	D55	7	$356,000	$445,000	$566,000
Larimore	Larimore Municipal Airport	2L1	14	$787,000	$846,000	$1,058,000
Leeds	Leeds Municipal Airport	D31	2	$93,000	$149,000	$319,000
Lidgerwood	Lidgerwood Municipal Airport	4N4	<1	$1,000	$5,000	$7,000
Linton	Linton Municipal Airport	7L2	7	$380,000	$528,000	$857,000
Lisbon	Lisbon Municipal Airport	6L3	10	$547,000	$651,000	$963,000
Maddock	Maddock Municipal Airport	6D3	5	$248,000	$280,000	$388,000
Mandan	Mandan Regional - Lawler Field	Y19	34	$2,117,000	$2,638,000	$3,997,000
Mayville	Mayville Municipal Airport	D56	9	$516,000	$593,000	$879,000
McClusky	McClusky Municipal Airport	7G2	<1	$3,000	$7,000	$12,000
McVille	McVille Municipal Airport	8M6	2	$6,000	$9,000	$15,000
Milnor	Milnor Municipal Airport	4R6	<1	$25,000	$44,000	$76,000
Minto	Minto Municipal Airport	D06	2	$72,000	$87,000	$111,000
Mohall	Mohall Municipal Airport	HBC	12	$639,000	$744,000	$1,069,000
Mott	Mott Municipal Airport	3P3	4	$224,000	$307,000	$496,000
Napoleon	Napoleon Municipal Airport	5B5	6	$146,000	$164,000	$236,000
New Rockford	Tomlinson Field	8J7	7	$237,000	$308,000	$650,000
New Town	New Town Municipal Airport	05D	5	$247,000	$434,000	$824,000
Northwood	Northwood Municipal - Vince Field	4V4	10	$466,000	$623,000	$979,000
Oakes	Oakes Municipal Airport	2D5	5	$280,000	$324,000	$463,000
Page	Page Regional Airport	64G	11	$615,000	$626,000	$734,000
Park River	Park River – W C Skjerven Field	Y37	8	$474,000	$595,000	$945,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Parshall	Parshall-Hankins Airport	Y74	6	$190,000	$273,000	$520,000
Pembina	Pembina Municipal Airport	PMB	8	$475,000	$549,000	$763,000
Plaza	Trulson Field	Y99	<1	$1,000	$3,000	$5,000
Richardton	Richardton Municipal Airport	4E8	<1	$2,000	$5,000	$8,000
Riverdale	Garrison Dam Recreational Airpark	37N	1	$7,000	$12,000	$20,000
Rolette	Rolette Airport	2H9	<1	$18,000	$37,000	$73,000
Rolla	Rolla Municipal Airport	06D	15	$775,000	$878,000	$1,196,000
Rugby	Rugby Municipal Airport	RUG	11	$679,000	$788,000	$1,164,000
St. Thomas	St. Thomas Municipal Airport	4S5	3	$157,000	$177,000	$242,000
Stanley	Stanley Municipal Airport	08D	14	$743,000	$1,073,000	$2,170,000
Tioga	Tioga Municipal Airport	D60	21	$1,224,000	$1,667,000	$2,535,000
Towner	Towner Municipal Airport	D61	<1	$3,000	$8,000	$13,000
Turtle Lake	Turtle Lake Municipal Airport	91N	<1	$12,000	$21,000	$38,000
Valley City	Barnes County Municipal Airport	BAC	11	$514,000	$919,000	$1,387,000
Wahpeton	Harry Stern Airport	BWP	25	$1,468,000	$1,740,000	$2,470,000
Walhalla	Walhalla Municipal Airport	96D	9	$483,000	$581,000	$866,000
Washburn	Washburn Municipal Airport	5C8	7	$381,000	$496,000	$814,000
Watford City	Watford City Municipal Airport	S25	56	$4,710,000	$6,697,000	$10,552,000
West Fargo	West Fargo Municipal Airport	D54	23	$775,000	$1,064,000	$1,712,000
Westhope	Westhope Municipal Airport	D64	3	$149,000	$228,000	$458,000
Wishek	Wishek Municipal Airport	6L5	3	$45,000	$65,000	$111,000
	Statewide Total		**9,831**	**$522,620,000**	**$707,611,000**	**$1,094,915,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.2.2. Multiplier Impacts by Airport

Multiplier impacts represent the additional employment, payroll, value added, and total economic output generated throughout the state as direct airport-related activity circulates through the broader economy. Multiplier impacts capture both indirect and induced effects and are summarized by airport in **Table 9-18**, and are organized in alphabetical order by associated city with the commercial service airports first followed by the GA airports.

Table 9-18. Multiplier Impacts by Airport

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Commercial Service						
Bismarck	Bismarck Municipal Airport	BIS	616	$36,903,000	$59,677,000	$112,972,000
Devils Lake	Devils Lake Regional Airport	DVL	56	$3,418,000	$5,608,000	$10,477,000
Dickinson	Dickinson - Theodore Roosevelt Regional Airport	DIK	149	$9,030,000	$14,667,000	$27,430,000
Fargo	Hector International Airport	FAR	1,446	$85,957,000	$138,977,000	$260,849,000
Grand Forks	Grand Forks International Airport	GFK	525	$31,975,000	$51,824,000	$98,137,000
Jamestown	Jamestown Regional Airport	JMS	78	$4,730,000	$7,682,000	$14,282,000
Minot	Minot International Airport	MOT	379	$22,561,000	$36,370,000	$69,209,000
Williston	Williston Basin International Airport	XWA	326	$19,187,000	$30,879,000	$58,988,000
General Aviation						
Arthur	Arthur Airport	1A2	<1	$3,000	$4,000	$8,000
Ashley	Ashley Municipal Airport	ASY	4	$227,000	$383,000	$700,000
Beach	Beach Airport	20U	3	$163,000	$278,000	$513,000
Beulah	Beulah Municipal Airport	95D	2	$98,000	$159,000	$286,000
Bottineau	Bottineau Municipal Airport	D09	3	$212,000	$350,000	$644,000
Bowbells	Bowbells Municipal Airport	5B4	<1	$5,000	$7,000	$14,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Bowman	Bowman Regional Airport	BWW	8	$495,000	$798,000	$1,443,000
Cando	Cando Municipal Airport	9D7	3	$157,000	$260,000	$470,000
Carrington	Carrington Municipal Airport	46D	2	$123,000	$206,000	$383,000
Casselton	Casselton Robert Miller Regional Airport	5N8	10	$623,000	$1,008,000	$1,825,000
Cavalier	Cavalier Municipal Airport	2C8	3	$181,000	$303,000	$544,000
Columbus	Columbus Municipal Airport	D49	<1	$2,000	$3,000	$6,000
Cooperstown	Cooperstown Municipal Airport	S32	2	$98,000	$159,000	$286,000
Crosby	Crosby Municipal Airport	D50	4	$243,000	$416,000	$766,000
Drayton	Drayton Municipal Airport	D29	<1	$25,000	$42,000	$77,000
Dunseith	International Peace Garden Airport	S28	3	$170,000	$292,000	$537,000
Edgeley	Edgeley Municipal Airport	51D	1	$58,000	$97,000	$178,000
Elgin	Elgin Municipal Airport	Y71	<1	$2,000	$3,000	$6,000
Ellendale	Ellendale Municipal Airport	4E7	1	$65,000	$108,000	$201,000
Enderlin	Sky Haven Airport	5N4	<1	$28,000	$45,000	$85,000
Fessenden	Fessenden-Streibel Municipal Airport	D24	<1	$4,000	$7,000	$13,000
Fort Yates	Standing Rock Airport	Y27	1	$74,000	$125,000	$230,000
Gackle	Gackle Municipal Airport	9G9	<1	$1,000	$1,000	$2,000
Garrison	Garrison Municipal Airport	D05	2	$104,000	$174,000	$322,000
Glen Ullin	Glen Ullin Regional Airport	D57	2	$117,000	$200,000	$369,000
Grafton	Hutson Field	GAF	4	$264,000	$446,000	$816,000
Gwinner	Gwinner-Roger Melroe Field	GWR	2	$143,000	$235,000	$437,000
Harvey	Harvey Municipal Airport	5H4	1	$87,000	$142,000	$258,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Hazelton	Hazelton Municipal Airport	6H8	<1	$18,000	$31,000	$57,000
Hazen	Mercer County Regional Airport	HZE	3	$218,000	$367,000	$675,000
Hettinger	Hettinger - JB Lindquist Regional Airport	HEI	5	$315,000	$510,000	$923,000
Hillsboro	Hillsboro Municipal Airport	3H4	8	$504,000	$831,000	$1,525,000
Kenmare	Kenmare Municipal Airport	7K5	8	$456,000	$746,000	$1,360,000
Killdeer	Dunn County - Weydahl Field	9Y1	3	$173,000	$294,000	$538,000
Kindred	Robert Odegaard Field	K74	4	$235,000	$385,000	$697,000
Kulm	Kulm Municipal Airport	D03	<1	$12,000	$20,000	$37,000
LaMoure	LaMoure Rott Municipal Airport	4F9	1	$73,000	$120,000	$215,000
Lakota	Lakota Municipal Airport	5L0	2	$114,000	$192,000	$355,000
Langdon	Robertson Field	D55	2	$120,000	$196,000	$350,000
Larimore	Larimore Municipal Airport	2L1	4	$223,000	$363,000	$647,000
Leeds	Leeds Municipal Airport	D31	1	$59,000	$100,000	$183,000
Lidgerwood	Lidgerwood Municipal Airport	4N4	<1	$2,000	$3,000	$5,000
Linton	Linton Municipal Airport	7L2	3	$165,000	$275,000	$504,000
Lisbon	Lisbon Municipal Airport	6L3	3	$196,000	$323,000	$582,000
Maddock	Maddock Municipal Airport	6D3	1	$83,000	$137,000	$249,000
Mandan	Mandan Regional - Lawler Field	Y19	14	$858,000	$1,387,000	$2,547,000
Mayville	Mayville Municipal Airport	D56	3	$176,000	$288,000	$522,000
McClusky	McClusky Municipal Airport	7G2	<1	$2,000	$4,000	$7,000
McVille	McVille Municipal Airport	8M6	<1	$3,000	$5,000	$10,000
Milnor	Milnor Municipal Airport	4R6	<1	$14,000	$24,000	$44,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Minto	Minto Municipal Airport	D06	<1	$24,000	$39,000	$70,000
Mohall	Mohall Municipal Airport	HBC	4	$214,000	$352,000	$636,000
Mott	Mott Municipal Airport	3P3	1	$94,000	$157,000	$287,000
Napoleon	Napoleon Municipal Airport	5B5	1	$47,000	$77,000	$139,000
New Rockford	Tomlinson Field	8J7	2	$117,000	$200,000	$367,000
New Town	New Town Municipal Airport	05D	2	$155,000	$259,000	$481,000
Northwood	Northwood Municipal - Vince Field	4V4	3	$190,000	$315,000	$578,000
Oakes	Oakes Municipal Airport	2D5	2	$92,000	$152,000	$274,000
Page	Page Regional Airport	64G	3	$190,000	$302,000	$540,000
Park River	Park River - W C Skjerven Field	Y37	3	$178,000	$298,000	$545,000
Parshall	Parshall-Hankins Airport	Y74	2	$97,000	$162,000	$301,000
Pembina	Pembina Municipal Airport	PMB	3	$167,000	$271,000	$492,000
Plaza	Trulson Field	Y99	<1	$1,000	$2,000	$3,000
Richardton	Richardton Municipal Airport	4E8	<1	$2,000	$3,000	$5,000
Riverdale	Garrison Dam Recreational Airpark	37N	<1	$4,000	$7,000	$13,000
Rolette	Rolette Airport	2H9	<1	$14,000	$24,000	$44,000
Rolla	Rolla Municipal Airport	06D	4	$240,000	$395,000	$712,000
Rugby	Rugby Municipal Airport	RUG	4	$230,000	$379,000	$687,000
St. Thomas	St. Thomas Municipal Airport	4S5	1	$48,000	$79,000	$142,000
Stanley	Stanley Municipal Airport	08D	7	$442,000	$707,000	$1,328,000
Tioga	Tioga Municipal Airport	D60	8	$502,000	$822,000	$1,530,000
Towner	Towner Municipal Airport	D61	<1	$3,000	$4,000	$8,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Turtle Lake	Turtle Lake Municipal Airport	91N	<1	$7,000	$12,000	$22,000
Valley City	Barnes County Municipal Airport	BAC	5	$298,000	$486,000	$882,000
Wahpeton	Harry Stern Airport	BWP	9	$535,000	$869,000	$1,579,000
Walhalla	Walhalla Municipal Airport	96D	3	$168,000	$279,000	$507,000
Washburn	Washburn Municipal Airport	5C8	2	$154,000	$259,000	$471,000
Watford City	Watford City Municipal Airport	S25	31	$1,974,000	$3,323,000	$6,122,000
West Fargo	West Fargo Municipal Airport	D54	6	$347,000	$565,000	$1,083,000
Westhope	Westhope Municipal Airport	D64	1	$82,000	$140,000	$257,000
Wishek	Wishek Municipal Airport	6L5	<1	$23,000	$37,000	$70,000
	Statewide Total		**3,807**	**$228,192,000**	**$369,515,000**	**$695,970,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.5.2.3. Total Impacts by Airport

The total impacts of each airport are summarized in **Table 9-19** and represent the sum of the direct and multiplier impacts listed previously. Airports are organized in alphabetical order by associated cities with the commercial service airports first followed by the GA airports.

Table 9-19. Total Impacts by Airport

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Commercial Service						
Bismarck	Bismarck Municipal Airport	BIS	2,107	$113,445,000	$168,949,000	$284,322,000
Devils Lake	Devils Lake Regional Airport	DVL	192	$10,542,000	$15,329,000	$26,360,000
Dickinson	Dickinson - Theodore Roosevelt Regional Airport	DIK	470	$30,709,000	$42,661,000	$69,764,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Fargo	Hector International Airport	FAR	5,569	$303,467,000	$413,105,000	$665,048,000
Grand Forks	Grand Forks International Airport	GFK	1,791	$104,715,000	$156,765,000	$269,861,000
Jamestown	Jamestown Regional Airport	JMS	241	$14,544,000	$21,068,000	$39,164,000
Minot	Minot International Airport	MOT	1,288	$66,325,000	$98,871,000	$170,971,000
Williston	Williston Basin International Airport	XWA	1,099	$56,446,000	$89,907,000	$149,737,000
General Aviation						
Arthur	Arthur Airport	1A2	<1	$6,000	$12,000	$21,000
Ashley	Ashley Municipal Airport	ASY	15	$782,000	$1,082,000	$1,926,000
Beach	Beach Airport	20U	8	$505,000	$796,000	$1,419,000
Beulah	Beulah Municipal Airport	95D	10	$426,000	$519,000	$759,000
Bottineau	Bottineau Municipal Airport	D09	13	$713,000	$1,011,000	$1,712,000
Bowbells	Bowbells Municipal Airport	5B4	<1	$11,000	$20,000	$37,000
Bowman	Bowman Regional Airport	BWW	27	$2,004,000	$2,478,000	$3,563,000
Cando	Cando Municipal Airport	9D7	12	$647,000	$812,000	$1,272,000
Carrington	Carrington Municipal Airport	46D	8	$360,000	$550,000	$1,033,000
Casselton	Casselton Robert Miller Regional Airport	5N8	48	$2,482,000	$3,038,000	$4,567,000
Cavalier	Cavalier Municipal Airport	2C8	11	$716,000	$943,000	$1,467,000
Columbus	Columbus Municipal Airport	D49	2	$6,000	$9,000	$16,000
Cooperstown	Cooperstown Municipal Airport	S32	8	$398,000	$518,000	$754,000
Crosby	Crosby Municipal Airport	D50	10	$779,000	$1,264,000	$2,127,000
Drayton	Drayton Municipal Airport	D29	1	$87,000	$126,000	$209,000
Dunseith	International Peace Garden Airport	S28	10	$481,000	$715,000	$1,499,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Edgeley	Edgeley Municipal Airport	51D	3	$184,000	$277,000	$480,000
Elgin	Elgin Municipal Airport	Y71	<1	$4,000	$10,000	$17,000
Ellendale	Ellendale Municipal Airport	4E7	5	$186,000	$289,000	$542,000
Enderlin	Sky Haven Airport	5N4	1	$74,000	$128,000	$226,000
Fessenden	Fessenden-Streibel Municipal Airport	D24	<1	$10,000	$20,000	$35,000
Fort Yates	Standing Rock Airport	Y27	4	$235,000	$346,000	$632,000
Gackle	Gackle Municipal Airport	9G9	<1	$1,000	$3,000	$5,000
Garrison	Garrison Municipal Airport	D05	6	$323,000	$494,000	$878,000
Glen Ullin	Glen Ullin Regional Airport	D57	6	$342,000	$546,000	$1,021,000
Grafton	Hutson Field	GAF	15	$813,000	$1,247,000	$2,222,000
Gwinner	Gwinner-Roger Melroe Field	GWR	9	$441,000	$678,000	$1,171,000
Harvey	Harvey Municipal Airport	5H4	7	$304,000	$438,000	$677,000
Hazelton	Hazelton Municipal Airport	6H8	1	$51,000	$84,000	$156,000
Hazen	Mercer County Regional Airport	HZE	14	$680,000	$1,017,000	$1,826,000
Hettinger	Hettinger - JB Lindquist Regional Airport	HEI	15	$1,249,000	$1,574,000	$2,303,000
Hillsboro	Hillsboro Municipal Airport	3H4	28	$1,728,000	$2,445,000	$4,030,000
Kenmare	Kenmare Municipal Airport	7K5	29	$1,748,000	$2,280,000	$3,602,000
Killdeer	Dunn County - Weydahl Field	9Y1	9	$527,000	$844,000	$1,470,000
Kindred	Robert Odegaard Field	K74	13	$856,000	$1,138,000	$1,766,000
Kulm	Kulm Municipal Airport	D03	2	$30,000	$55,000	$96,000
LaMoure	LaMoure Rott Municipal Airport	4F9	6	$296,000	$374,000	$573,000
Lakota	Lakota Municipal Airport	5L0	8	$305,000	$525,000	$966,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Langdon	Robertson Field	D55	9	$476,000	$640,000	$916,000
Larimore	Larimore Municipal Airport	2L1	18	$1,010,000	$1,209,000	$1,706,000
Leeds	Leeds Municipal Airport	D31	3	$151,000	$249,000	$502,000
Lidgerwood	Lidgerwood Municipal Airport	4N4	<1	$3,000	$7,000	$12,000
Linton	Linton Municipal Airport	7L2	10	$545,000	$803,000	$1,361,000
Lisbon	Lisbon Municipal Airport	6L3	14	$743,000	$974,000	$1,545,000
Maddock	Maddock Municipal Airport	6D3	6	$331,000	$418,000	$637,000
Mandan	Mandan Regional - Lawler Field	Y19	48	$2,974,000	$4,025,000	$6,544,000
Mayville	Mayville Municipal Airport	D56	12	$692,000	$881,000	$1,401,000
McClusky	McClusky Municipal Airport	7G2	<1	$5,000	$11,000	$19,000
McVille	McVille Municipal Airport	8M6	2	$10,000	$15,000	$25,000
Milnor	Milnor Municipal Airport	4R6	1	$40,000	$68,000	$120,000
Minto	Minto Municipal Airport	D06	3	$96,000	$126,000	$181,000
Mohall	Mohall Municipal Airport	HBC	16	$853,000	$1,096,000	$1,705,000
Mott	Mott Municipal Airport	3P3	5	$318,000	$464,000	$783,000
Napoleon	Napoleon Municipal Airport	5B5	6	$193,000	$241,000	$374,000
New Rockford	Tomlinson Field	8J7	8	$355,000	$508,000	$1,018,000
New Town	New Town Municipal Airport	05D	8	$401,000	$693,000	$1,304,000
Northwood	Northwood Municipal - Vince Field	4V4	13	$656,000	$938,000	$1,556,000
Oakes	Oakes Municipal Airport	2D5	7	$372,000	$476,000	$738,000
Page	Page Regional Airport	64G	14	$805,000	$928,000	$1,274,000
Park River	Park River - W C Skjerven Field	Y37	11	$653,000	$893,000	$1,490,000

Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output
Parshall	Parshall-Hankins Airport	Y74	7	$287,000	$435,000	$821,000
Pembina	Pembina Municipal Airport	PMB	10	$642,000	$820,000	$1,255,000
Plaza	Trulson Field	Y99	<1	$2,000	$5,000	$8,000
Richardton	Richardton Municipal Airport	4E8	<1	$3,000	$7,000	$12,000
Riverdale	Garrison Dam Recreational Airpark	37N	1	$11,000	$18,000	$32,000
Rolette	Rolette Airport	2H9	1	$33,000	$61,000	$117,000
Rolla	Rolla Municipal Airport	06D	19	$1,015,000	$1,273,000	$1,908,000
Rugby	Rugby Municipal Airport	RUG	15	$908,000	$1,167,000	$1,851,000
St. Thomas	St. Thomas Municipal Airport	4S5	3	$205,000	$256,000	$384,000
Stanley	Stanley Municipal Airport	08D	21	$1,185,000	$1,779,000	$3,498,000
Tioga	Tioga Municipal Airport	D60	30	$1,726,000	$2,488,000	$4,065,000
Towner	Towner Municipal Airport	D61	<1	$6,000	$12,000	$21,000
Turtle Lake	Turtle Lake Municipal Airport	91N	<1	$19,000	$33,000	$60,000
Valley City	Barnes County Municipal Airport	BAC	16	$812,000	$1,405,000	$2,268,000
Wahpeton	Harry Stern Airport	BWP	34	$2,003,000	$2,609,000	$4,049,000
Walhalla	Walhalla Municipal Airport	96D	12	$651,000	$860,000	$1,373,000
Washburn	Washburn Municipal Airport	5C8	9	$535,000	$754,000	$1,285,000
Watford City	Watford City Municipal Airport	S25	87	$6,684,000	$10,020,000	$16,674,000
West Fargo	West Fargo Municipal Airport	D54	29	$1,122,000	$1,629,000	$2,795,000
Westhope	Westhope Municipal Airport	D64	4	$231,000	$368,000	$715,000
Wishek	Wishek Municipal Airport	6L5	3	$68,000	$102,000	$181,000
	Statewide Total		**13,637**	**$750,812,000**	**$1,077,126,000**	**$1,790,885,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.6. Supplemental Off-Airport Impact Findings

This section summarizes supplemental off-airport aviation impacts that are relevant to North Dakota's aviation economy but are not fully captured in the core airport impact estimates presented in **Section 9.5**. These analyses are presented separately to avoid double-counting because they rely on distinct data sources and assumptions. Supplemental components evaluated in this section include the University of North Dakota School of Aerospace Sciences (UND Aerospace), off-airport aircraft/aerospace manufacturing activity, off-airport UAS business activity, and economic impacts reported for Grand Forks and Minot Air Force Bases, as well as an estimate of potential economic losses associated with aviation workforce challenges.

9.6.1. Off-Airport University of North Dakota School of Aerospace Sciences Impacts

Located in Grand Forks, UND Aerospace is an important part of North Dakota's broader aviation industry, supporting aviation education, flight training, and UAS-related instruction and research. UND Aerospace conducts activities both on the University of North Dakota campus and at Grand Forks International Airport (GFK), with flight training operations occurring at the airport and academic and administrative functions based on campus. UND Aerospace is one of UND's largest programs, with more than 2,100 full-time enrolled students, and operates one of the largest civilian flight training fleets in North America (more than 110 aircraft and simulators) with over 110,000 annual flight hours, logging more than 212,294 operations in 2025.

The assessment of UND Aerospace's impacts was conducted as part of the 2025 NDAEIS in partnership between NDAC and UND. It is important to note that the following analysis focuses solely on off-airport impacts related to UND Aerospace since the on-airport activity associated with UND Aerospace is included within GFK's core impacts and the core statewide impacts as presented in **Section 9.5**. The following analysis represents a high-level analysis compared to a more detailed economic impact study that may be commissioned by and specific to UND's full operations. The analysis presented in this section is limited to the School of Aerospace Sciences. The following subsections outline the methodology, key assumptions, and results of this analysis.

9.6.1.1. Methodology and Assumptions

The analysis of UND Aerospace's off-airport economic impacts includes an assessment of the off-airport operations of the program, as well as the off-campus spending associated with UND Aerospace students. Both of these assessments are documented in the following sections.

UND Aerospace's off-airport operations include the economic activity associated with jobs, payroll, capital improvements, and annual operating expenses generated by the program. This includes campus-based instruction and administrative functions but does not include staff or operations occurring on-airport at GFK.

To support this analysis, the study team met with UND staff in person to collect detailed information specific to off-airport employment, payroll, capital expenditures, and operating expenses. The same IMPLAN modeling framework used to estimate the core airport impacts (as described in **Section 9.5**) was applied to estimate the economic impacts associated with UND Aerospace's off-airport operations, ensuring methodological consistency for the study.

The second component of the analysis estimated the economic impact of off-campus spending by UND Aerospace students, including those attending only flight training at GFK, only on-campus classes, and those participating in both. This required estimating how many students relocated to the Grand Forks area specifically to attend the program, as local students do not introduce new spending to the regional economy.

The analysis also differentiated between on- and off-campus residents, since off-campus students generate higher levels of local spending, particularly for housing, transportation, and other non-university services. UND Aerospace staff provided estimates of the applicable student population, defined as students who relocated to attend the program, along with their housing distribution. Based on this input, approximately 97 percent of UND Aerospace students relocated to Grand Forks, and of these students, about 67 percent live off campus and 33 percent live on campus.

Typical student spending was estimated using an 11-month academic period, reflecting the average length of stay for UND Aerospace students in the Grand Forks area, as many remain in the community during the summer for coursework, internships, or other activities.[63] Moderate off-campus student budgets published by CollegeBoard.org were used as the primary data source. Because CollegeBoard.org does not publish North Dakota-specific budgets, the reported expenditures at the national level were adjusted using BLS Regional Price Parities to better reflect local cost-of-living conditions. The published nine-month budgets were converted to monthly amounts and expanded to represent an 11-month spending period.

To account for spending by students living on campus, the off-campus spending estimate was further adjusted using CollegeBoard.org-provided expenditure breakdowns. Based on these data, it was assumed that approximately 25 percent of off-campus student spending could be attributed to off-campus spending by on-campus students.

Unlike other components of this study, the economic impacts associated with student spending were estimated using IMPLAN's Household Spending module. This module traces how income paid to households is spent within the local economy and estimates the resulting induced economic effects. As a result, the student spending analysis captures induced impacts only and does not include direct or indirect impacts, which are generated through industry production and

[63] The 11-month academic year was estimated by UND Aerospace staff. It may or may not reflect a typical academic year of UND students who are not enrolled in the Aerospace program.

supply-chain relationships. This approach avoids double counting and allows induced impacts associated with student spending to be estimated transparently and consistently with other study components.

9.6.1.2. Results

The economic impacts associated with off-airport UND Aerospace operations and student spending are summarized in **Table 9-20**. Results are presented separately to distinguish institutional off-airport operations from student spending.

As shown in **Table 9-20**, off-airport UND Aerospace operations supported 337 direct jobs, generating approximately $18.8 million in payroll and $33.8 million in direct output. When multiplier effects are included, these activities supported a total of 461 jobs and approximately $56.4 million in total economic output.

Student spending impacts reflect household spending by students who relocated to the Grand Forks area to attend UND Aerospace and are therefore estimated as induced impacts only. This spending supported an estimated 295 jobs and generated approximately $46.6 million in total economic output.

When all off-airport UND Aerospace-related sources are combined, the program supported a total of 756 jobs, generated approximately $42.6 million in payroll, contributed $59.0 million in value added, and produced more than $103.1 million in total economic output. These results demonstrate that UND's aerospace programs generate substantial economic activity beyond airport property through both operations and student-driven spending.

Table 9-20. Off-Airport Economic Impacts of the UND School of Aerospace Sciences

Source of Impact	Impact Category	Jobs	Payroll	Value Added	Output
Off-Airport	Direct	337	$18,767,000	$19,790,000	$33,774,000
	Multiplier	124	$7,427,000	$11,855,000	$22,679,000
	Total	**461**	**$26,193,000**	**$31,646,000**	**$56,454,000**
Student Spending	Direct	N/A	N/A	N/A	N/A
	Induced Only*	295	$16,415,000	$27,397,000	$46,609,000
	Total	**295**	**$16,415,000**	**$27,397,000**	**$46,609,000**
All Sources Combined	Direct	337	$18,767,000	$19,790,000	$33,774,000
	Multiplier	419	$23,842,000	$39,252,000	$69,289,000
	Total	**756**	**$42,608,000**	**$59,044,000**	**$103,063,000**

*Notes: * To avoid double counting impacts already captured in the 2025 NDAEIS, these results are limited to induced impacts, representing household spending effects only. Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding.*
Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.6.2. Off-Airport Aircraft/Aerospace Manufacturing Impacts

North Dakota has a growing and increasingly diverse aircraft and aerospace manufacturing sector that supports the state's broader aviation ecosystem. This activity includes the design, production, maintenance, and support of aircraft, aircraft components, and related aerospace technologies, as well as firms engaged in specialized manufacturing, research, and defense-related aviation work. While some of this activity is located at the state's 89 public-use airports and captured in the on-airport business tenant impacts, a substantial portion occurs at off-airport industrial, research, and manufacturing sites across the state. These businesses contribute skilled employment opportunities, generate payroll and business output, and support supply chain activity both within North Dakota and beyond.

To provide a more complete representation of aviation's economic role in North Dakota, this study includes a separate evaluation of off-airport aircraft and aerospace manufacturing activity. These impacts are presented as a supplemental analysis to distinguish manufacturing activity that is not dependent on airport location but remains closely tied to the aviation industry.

9.6.2.1. Methodology and Assumptions

The methodological approach for this analysis focused on identifying and quantifying off-airport aircraft and aerospace manufacturing employment within the state and estimating the resulting economic impacts using a consistent modeling framework. In coordination with the NDAC, the Greater North Dakota Chamber, and North Dakota Department of Commerce, the study team compiled an inventory of aircraft and aerospace manufacturing firms operating within North Dakota. This list was carefully reviewed to remove businesses and jobs already captured in the on-airport tenant impacts or within other supplemental analyses, such as the UND Aerospace and UAS business evaluations.

To supplement this effort, additional employment data were identified using ESRI's Business Analyst tool by screening applicable aviation- and aerospace-related NAICS codes. Only firms not previously identified through stakeholder coordination were included. The final employment totals served as inputs to the IMPLAN economic model, which was used to estimate direct payroll, value added, and output, as well as associated multiplier impacts. This approach ensures methodological consistency with the core airport economic impact analysis while providing a standalone assessment of off-airport aircraft and aerospace manufacturing activity.

9.6.2.2. Results

As shown in **Table 9-21**, off-airport aircraft and aerospace manufacturing activity supported 1,598 direct jobs statewide and generated approximately $146.0 million in direct payroll and $526.0 million in direct economic output. These direct impacts reflect employment and production associated with manufacturing, research, and related aviation activities occurring at off-airport facilities.

When multiplier effects are considered, including supplier purchases and employee household spending within the state, this activity supported an additional 1,025 jobs. In total, off-airport aircraft and aerospace manufacturing supported approximately 2,623 jobs, $213.4 million in payroll, $377.5 million in value added, and more than $731.6 million in total economic output. These results underscore the significant role that off-airport manufacturing aviation and aerospace plays in supporting North Dakota's economy beyond airport boundaries.

Table 9-21. Off-Airport Aircraft and Aerospace Manufacturing Economic Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	1,598	$145,987,000	$267,442,000	$526,009,000
Multiplier	1,025	$67,432,000	$110,087,000	$205,637,000
Total	**2,623**	**$213,419,000**	**$377,529,000**	**$731,646,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.6.3. Off-Airport UAS Business Impacts

North Dakota is a national leader in UAS activity, supporting a broad range of applications including research and development, flight testing, manufacturing, data collection, and public-sector operations. This activity is supported by a combination of private-sector businesses, public agencies, and research institutions that rely on UAS technology as a core component of their operations. While some UAS-related activity occurs on airport facilities and is captured within the on-airport tenant impacts, a significant portion takes place at off-airport locations throughout the state.

To provide a more complete picture of aviation-related economic activity in North Dakota, this study includes a supplemental evaluation of off-airport UAS business activity. These impacts are presented separately to distinguish UAS operations that are not dependent on airport location but remain closely tied to the state's aviation and aerospace economy.

9.6.3.1. Methodology and Assumptions

The approach to estimating off-airport UAS business impacts focused on identifying UAS-related employment within North Dakota and estimating the associated economic activity using a consistent modeling framework. In coordination with NDAC, the Greater North Dakota Chamber, and the Northern Plains UAS Test Site, the study team developed an inventory of private-sector businesses and public agencies that may use or rely on UAS technology. Comprehensive surveys were distributed to these organizations, and multiple rounds of follow-up outreach were conducted to encourage participation.

Because survey response rates were limited, additional employment data were identified using ESRI's Business Analyst tool by screening applicable UAS- and aviation-related industry classifications. Employment totals derived from survey responses and supplemental data

sources were reviewed to ensure they did not overlap with employment captured in other components of the study, including on-airport tenants or other supplemental analyses.

The final estimate of direct UAS-related employment served as the input to the IMPLAN economic model, which was used to estimate the direct, multiplier, and total economic impacts associated with off-airport UAS business activity. This approach is consistent with the methodology used throughout the 2025 NDAEIS and provides a standalone assessment of UAS-related economic contributions outside the airport environment.

9.6.3.2. Results

As shown in **Table 9-22**, off-airport UAS business activity supported 380 direct jobs statewide, generating approximately $32.8 million in direct payroll, and $72.6 million in direct economic output. These direct impacts represent employment and business activity associated with private-sector firms, public agencies, and research organizations that rely on UAS technology at off-airport locations across the state.

When multiplier effects are included reflecting supplier purchases and household spending by UAS-related employees, off-airport UAS business activity supported an additional 232 jobs. In total, this activity supported approximately 612 jobs, generated $47.1 million in payroll, contributed $63.1 million in value added, and produced more than $114.3 million in total economic output statewide. These results highlight the growing contribution of off-airport UAS business activity to North Dakota's aviation and aerospace economy beyond airport property.

Table 9-22. Off-Airport UAS Business Economic Impacts

Impact Category	Jobs	Payroll	Value Added	Output
Direct	380	$32,767,000	$40,403,000	$72,581,000
Multiplier	232	$14,378,000	$22,695,000	$41,722,000
Total	**612**	**$47,145,000**	**$63,097,000**	**$114,304,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.6.4. Grand Forks and Minot Air Force Base Impacts

In addition to the 89 public-use civilian airports included in the 2025 NDAEIS, the state is home to two major military installations, Grand Forks Air Force Base (AFB) and Minot AFB. These military airfields provide significant contributions to the state's economy.

It is important to note that the Economic Impact Statements prepared for the Grand Forks and Minot Air Force Bases were conducted separately from the 2025 NDAEIS; therefore, the methodologies and terminology do not exactly align. Differences between 2025 NDAEIS terminology and the AFB Economic Impact Statement terminology, both for economic impact categories and economic impact measures, are summarized in **Table 9-23** and **Table 9-24**, respectively.

Table 9-23. Comparison of Economic Measure Definitions: 2025 NDAEIS and AFB Economic Impact Statements

Economic Measure	2025 NDAEIS Definition	AFB Economic Impact Definition
Jobs	The number of people employed	Same (including civilian and active duty)
Payroll	Total compensation (salaries, wages, benefits)	Same (including civilian and active duty)
Value Added	Contribution to the state economy, comparable to GDP	Not included
Output	Considering the economic impact of an entity, accounts for payroll, other expenses, and value added impacts	Referred to as "expenditures" but not comparable to "output" as it does not include payroll or the value added impacts

Sources: IMPLAN, 2025; Kimley-Horn, 2026.

While **Table 9-23** summarizes differences in how economic measures are defined and reported, differences exist in how economic impact categories are defined and applied between the 2025 NDAEIS and the AFB Economic Impact Statements. These distinctions are summarized in **Table 9-24**.

Table 9-24. Comparison of Economic Impact Category Definitions: 2025 NDAEIS and AFB Economic Impact Statements

Economic Impact Category	2025 NDAEIS Definition	AFB Economic Impact Definition
Direct	Initial effects from airport operations, construction, and visitor spending	AFB statement includes direct jobs and payroll
Indirect	Portions of direct revenues used to purchase goods and services from businesses in North Dakota	Includes "Estimated Indirect Jobs Created" and assumed to include "Estimated Annual Dollar Value of Jobs Created"
Induced	Income earned by workers from direct and supplier sales transactions that are then spent in North Dakota (household spending)	No Reference
Total	The sum of direct, indirect, and induced impacts	Assumed to be the sum of all payroll and all expenditures and referred to as "Total Impacts"

Source: Kimley-Horn, 2026.

Section 9.6.4.3 further describes how these terminology differences were reconciled to develop a total economic impact for each AFB. These reconciled totals were then incorporated into the statewide aviation economic impact presented in **Section 9.8.2** to allow for comparison with the previous 2025 NDAEIS.

9.6.4.1. Grand Forks Air Force Base

Grand Forks AFB is located 16 miles west of Grand Forks in northeastern North Dakota. Over the decades, the mission of the base has evolved from an air defense and nuclear deterrence mission to what it is today—home to the 319th Reconnaissance Wing and a leader in its growing mission set in cyber, space, and air domains[64]. The base is a hub for UAS, utilizing the RQ-4 Global Hawk, which is a high-altitude, long-endurance UAS based at Grand Forks AFB.

Every five years, the 319th Comptroller Squadron updates and publishes an economic impact statement for the AFB. The most recent Economic Impact Statement available is for Fiscal Year (FY) 2023. **Table 9-25** presents a summary of direct and indirect impacts from the *Grand Forks Air Force Base – Fiscal Year 2023 Economic Impact Statement*. Direct impacts include jobs for active duty personnel and civilian/non-active duty personnel (excluding active duty dependents), payroll for military and civilian personnel, and local expenditures. Indirect impact categories include estimated jobs that are created in the community as a result of the AFB and the estimated dollar value of those jobs. As shown, the total economic impact of Grand Forks AFB was neary $197.6 million and supported 2,611 jobs (direct and indirect) in 2023.

Table 9-25. Grand Forks AFB Economic Impact Summary

Economic Impact Category	Value
Direct Impacts	
Jobs (active duty + civilian)	2,201
Annual Payroll (active duty + civilian)	$142,251,734
Local Annual Expenditures	$35,877,187
Indirect Impacts	
Estimated Indirect Jobs Created	410
Estimated Annual Dollar Value of Jobs Created	$19,438,100
Average Annual Pay	$47,410
Total Annual Economic Impact Estimate	
Total Jobs	2,611
Annual Payroll	$142,251,734
Local Annual Expenditures	$35,877,187
Estimated Annual Dollar Value of Jobs Created	$19,438,100
Total Impacts	**$197,577,021**

Note: All dollar figures are presented as reported in the Grand Forks Air Force Base – Fiscal Year 2023 Economic Impact Statement. Source: Grand Forks Air Force Base – Fiscal Year 2023 Economic Impact Statement, 2025.

[64] *Grand Forks Air Force Base – Fiscal Year 2023 Economic Impact Statement*.

9.6.4.2. Minot Air Force Base

Minot AFB is a major United States Air Force installation that is located 13 miles north of Minot in north central North Dakota. It is the home of the 5th Bomb Wing and 91st Missile Wing. Minot AFB's mission centers on nuclear deterrence and ensuring national security through nuclear-armed bombers and missiles. The 5th Bomb Wing operates the B-52H Stratofortress bombers, and the 91st Missile Wing oversees intercontinental ballistic missiles and manages Minuteman III missile sites.

The Budget Office of the 5th Bomb Wing Comptroller updates and publishes an Economic Impact Analysis annually for the base. The most recent economic impact analysis available is for Fiscal Year (FY) 2024. **Table 9-26** presents a summary of direct and indirect impacts from the *Minot Air Force Base, North Dakota – Economic Impact Analysis, Edition FY23*. Similar to the Grand Forks AFB economic impact study, direct impacts include jobs for active duty personnel and civilian/non-active duty personnel (excluding active duty dependents), payroll for military and civilian personnel, and local expenditures. Indirect impacts include estimated jobs that are created in the community as a result of the AFB and the estimated dollar value of those jobs. The total economic impact of the Minot AFB was over $651.6 million in 2024. The base also supported 8,494 jobs (direct and indirect combined).

Table 9-26. Minot AFB Economic Impact Summary

Economic Impact Category	Value
Direct Impacts	
Jobs (active duty + civilian)	6,479
Annual Payroll (active duty + civilian)	$451,993,779
Annual Expenditures	$80,629,944
Indirect Impacts	
Estimated Indirect Jobs Created	2,015
Estimated Annual Dollar Value of Jobs Created	$118,985,750
Average Annual Pay	$59,050
Total Annual Economic Impact Estimate	
Total Jobs	8,494
Annual Payroll	$451,993,779
Annual Expenditures	$80,629,944
Estimated Annual Dollar Value of Jobs Created	$118,985,750
Total Impacts	**$651,609,473**

Note: All dollar figures are presented as reported in the Minot Air Force Base, North Dakota – Economic Impact Analysis. Sources: Minot Air Force Base, North Dakota – Economic Impact Analysis: Edition FY23, 2025.

9.6.4.3. Summary of Military Impacts

Table 9-27 provides a summary of jobs, payroll, and expenditures for both Grand Forks and Minot AFBs. As shown, military aviation supports more than 11,100 jobs that have an annual payroll of $732.7 million, which includes the dollar value of jobs that are created within the local community as a result of the bases. Combined, the bases have annual expenditures of $116.5 million, which reflect construction, service contracts, and procurement. Both Grand Forks AFB and Minot AFB have a combined total impact of nearly $850 million annually.

Table 9-27. Grand Forks and Minot AFB Economic Impact Summary

Economic Impact Category	Grand Forks AFB (2023)	Minot AFB (2024)	Total
Total Jobs (direct + indirect)	2,611	8,494	11,105
Total Payroll (annual payroll + estimated annual dollar value of jobs created)	$161,689,834	$570,979,529	$732,669,363
Total Expenditures	$35,877,187	$80,629,944	$116,507,131
Total Impacts	**$197,567,021**	**$651,609,473**	**$849,176,494**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.6.5. Economic Impact Loss Due to Aviation Workforce Challenges

Aviation workforce availability is a growing challenge facing the U.S., including North Dakota's aviation system. Airports and aviation-related businesses across the country and within the state report increasing difficulty filling open positions, particularly in skilled maintenance, technical, and specialized aviation occupations. As documented in **Chapter 7: Issues and Industry Advancements**, these unfilled positions disproportionately affect maintenance and technician roles that are essential to safe operations, aircraft availability, and overall system performance.

Because workforce shortages can limit operational capacity and constrain economic activity, this study includes a supplemental analysis to estimate the potential economic impact loss associated with reported aviation workforce challenges. The following subsections summarize the methodology, assumptions, and results of this assessment.

9.6.5.1. Methodology and Assumptions

During site visits with airport managers and through surveys of on-airport tenants and select off-airport organizations, including UND Aerospace and UAS-related entities, respondents were asked to report the number and type of unfilled aviation positions in 2024. No secondary data sources were available to independently support or validate estimates of economic impact loss associated with aviation workforce challenges. It should be noted that response rates were limited (see **Chapter 7**) which suggests the economic impacts presented may understate the true scale of workforce-related constraints. Reported direct employment associated with unfilled

positions was used as the input to the IMPLAN economic model to estimate potential economic impact loss.

9.6.5.2. Results

As presented in **Table 9-28**, unfilled aviation positions reported by airports and aviation-related businesses in 2024 represent an estimated 52 unfilled direct jobs, corresponding to approximately $3.8 million in direct payroll, $4.0 million in direct value added, and over $4.8 million in direct economic output that is not being realized due to workforce constraints.

When multiplier effects are considered reflecting forgone supplier activity and reduced household spending associated with these unfilled positions, the potential economic impact loss increases to an estimated 73 total jobs, $5.0 million in payroll, $6.0 million in value added, and approximately $8.5 million in lost total economic output statewide.

These estimates represent the potential economic activity that could be supported if reported aviation workforce positions were fully filled. Given survey response limitations and the absence of secondary validation data, these results likely understate the full extent of workforce-related economic constraints across North Dakota's aviation system.

Table 9-28. Economic Impact Loss Associated with Unfilled Aviation Positions

Impact Category	Jobs	Payroll	Value Added	Output
Direct	52	$3,778,000	$3,973,000	$4,845,000
Multiplier	21	$1,263,000	$2,022,000	$3,664,000
Total	**73**	**$5,041,000**	**$5,994,000**	**$8,509,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.7. 2025 NDAEIS Total Impacts and Statewide Context

Table 9-29 summarizes the total jobs, payroll, value added, and output impacts associated with the activities presented in **Sections 9.5** and **9.6**, including the core impacts generated by North Dakota's 89 public-use airports and the supplemental off-airport impacts, which make up the broader aerospace industry in the state. In total, North Dakota's aerospace industry supports more than 28,000 jobs and approximately $1.8 billion in payroll. The industry also contributes an estimated $1.6 billion in value added to the state's GDP and generates a total economic output of approximately $3.6 billion. A comparison of these results with those from the 2015 NDAEIS is provided in **Section 9.8**.

Table 9-29. Total Economic Impact of North Dakota's Aviation Industry

Impact Categories	Jobs	Payroll	Value Added	Output
Core Airport Impacts	13,637	$750,812,000	$1,077,126,000	$1,790,885,000
Off-Airport UND Aerospace	*756*	*$42,608,000*	*$59,044,000*	*$103,063,000*
Off-Airport Aircraft/Aerospace Manufacturing	*2,623*	*$213,419,000*	*$377,529,000*	*$731,646,000*
Off-Airport UAS Impacts	*612*	*$47,145,000*	*$63,097,000*	*$114,304,000*
Grand Forks AFB	*2,611*	*$161,689,834*	*N/A*	*$197,567,021*
Minot AFB	*8,494*	*$570,979,529*	*N/A*	*$651,609,473*
Sub-Total of Supplemental Impacts	15,097	$1,035,841,000	$499,670,000	$1,798,189,000
Sum of All Impacts	**28,734**	**$1,786,653,000**	**$1,576,796,000**	**$3,589,074,000**

Notes: Jobs are rounded to the nearest whole number. Dollar values are rounded to the nearest 1,000. Totals may not sum due to rounding. Value Added impacts were not evaluated in the AFB Economic Impact Statements and are therefore not included in this table. Sources: IMPLAN, 2025; Minot Air Force Base, North Dakota – Economic Impact Analysis: Edition FY23, 2025; Grand Forks Air Force Base – Fiscal Year 2023 Economic Impact Statement, 2025; 2015 NDAEIS; Kimley-Horn, 2026.

Table 9-30 offers the breakdown of direct, multiplier, and total jobs supported by the aerospace industry in North Dakota. As shown, direct employment accounts for the majority of aerospace-supported jobs in the state, representing 72 percent of total employment, or 20,826 jobs. The remaining 7,908 jobs (28 percent) are attributable to multiplier effects, including indirect impacts generated through supplier purchases (indirect impacts) and induced impacts resulting from employee household spending.

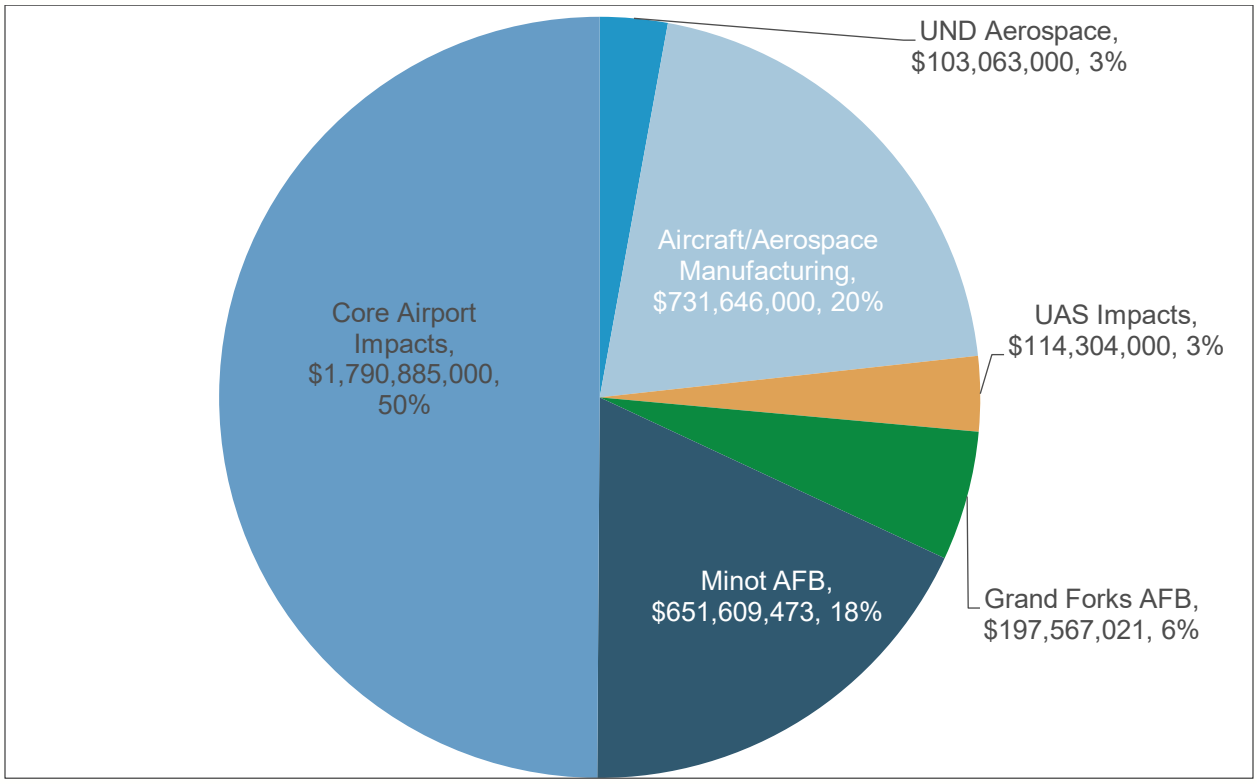
Table 9-30. Distribution of Aerospace Industry Jobs in North Dakota

Impact Type	Jobs	% of Total
Direct	20,826	72%
Multiplier	7,908	28%
Total	**28,734**	**N/A**

Sources: IMPLAN, 2025; Kimely-Horn, 2026.

Figure 9-4 illustrates the distribution of the aerospace industry's $3.59 billion in total economic output across activity types. As shown, the core airport impacts account for 50 percent of the industry's total economic impact, demonstrating the importance of North Dakota's public-use airports to the state's aerospace economy. Off-airport aircraft and aerospace manufacturing activities represent approximately 20 percent of total impacts, followed closely by Minot AFB, at 18 percent. Grand Forks AFB contributes six percent of total impacts, while the UND School of Aerospace Sciences and off-airport UAS impacts each account for approximately three percent.

Figure 9-4. Percentage of Total Economic Output by Aerospace Activity Type



Note: Totals were rounded to the nearest thousand and may not sum. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

Table 9-31 shows a similar share of impacts across activity types for total jobs and payroll, further illustrating that core airport impacts are the primary driver of North Dakota's aerospace industry. These impacts are followed by those generated by Minot Air Force Base and off-airport aircraft and aerospace manufacturing activities. Differences in rank between an activity type's share of total jobs and its share of total payroll reflect variations in average wages across the industry. In some cases, activity types support a larger share of employment but account for a smaller share of payroll, indicating comparatively lower average wages, while the opposite is true for higher-wage segments of the aerospace industry.

Table 9-31. Percentage of Total Jobs and Payroll by Aerospace Activity Type

Activity Type	% of Total Jobs	% of Total Payroll
Core Airport Impacts	47%	42%
Minot AFB	30%	32%
Off-Airport Aircraft/Aerospace Manufacturing	9%	12%
Grand Forks AFB	9%	9%
Off-Airport UAS Impacts	2%	3%
Off-Airport UND Aerospace	3%	2%

Sources: IMPLAN, 2025; Kimley-Horn, 2026.

Table 9-32 summarizes North Dakota's total aerospace-related economic impacts for jobs, payroll, value added, and output within the broader context of the state economy. As shown, the aerospace industry supports more than two percent of North Dakota's total output and approximately five percent of all jobs statewide. The industry also accounts for about four percent of statewide payroll, and more than two percent of total value added, reflecting its significant contribution to North Dakota's GDP. It should be noted that value added impacts for Minot AFB and Grand Forks AFB were not reported in the respective Economic Impact Statements for those installations and, therefore, are not included in the results presented in **Table 9-32**.

Table 9-32. North Dakota's Aerospace Industry's Contributions to the State Economy

Measure	State Economy	Total Aerospace Industry Impacts	Percent of Economy Supported by Aviation
Jobs	597,016	28,734	4.8%
Payroll	$44,330,532,000	$1,786,653,000	4.0%
Value Added	$76,866,186,000	$1,576,796,000	2.1%
Output	$141,330,684,000	$3,589,074,000	2.5%

Note: Jobs were rounded to the nearest whole number. Dollar values were rounded to the nearest thousand. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.8. Study Comparison (2015 to 2025)

This section summarizes key differences between the 2015 and 2025 North Dakota Aviation Economic Impact Studies and provides context for interpreting changes in reported economic impacts over time. While both studies were conducted using industry-standard methodologies, differences in economic conditions, aviation activity, data availability, and modeling inputs affect the comparability of results. As a result, comparisons between the two studies should be interpreted at a high level and viewed as indicators of overall trends rather than precise point-to-point measures of growth or decline.

9.8.1. Core Airport Impact Comparison

Between 2015 and 2025, aviation activity at North Dakota's public-use airports continued to support substantial economic contributions across the state. As shown in **Table 9-33**, total core airport impacts, including airport administration, on-airport businesses, capital spending, and visitor expenditures, grew across all reported measures.

In 2025, core airport activity supported 13,637 jobs, an increase of approximately 12 percent compared to the 12,217 jobs reported in the 2015 study. Total payroll associated with core airport impacts increased from approximately $505.2 million in 2015 to $750.8 million in 2025, representing a 49 percent increase over the ten-year period. Total economic output increased from approximately $1.6 billion to $1.8 billion, a growth of 14 percent.

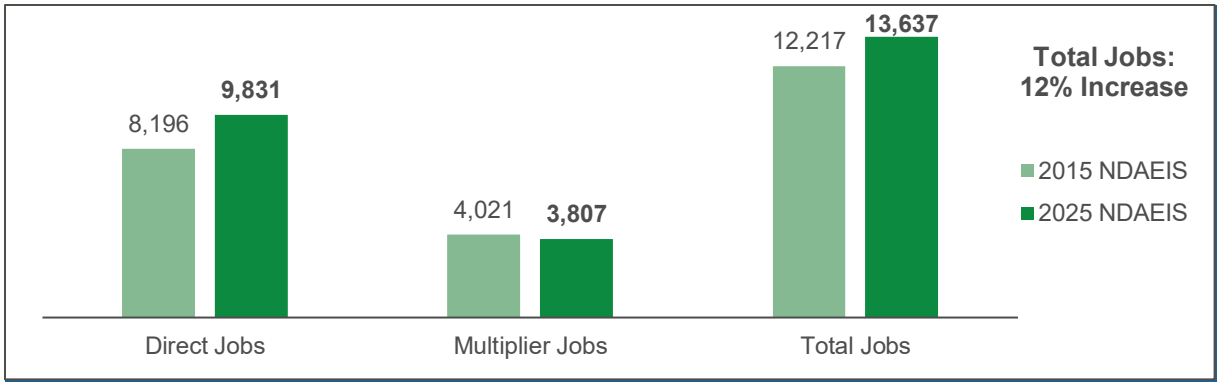
Table 9-33. Core Airport Impacts

Year	Jobs	Payroll	Value Added	Output
2025	13,637	$750,812,000	$1,077,126,000	$1,790,885,000
2015	12,217	$505,247,509	N/A	$1,564,352,371
% Change	**12%**	**49%**	**N/A**	**14%**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

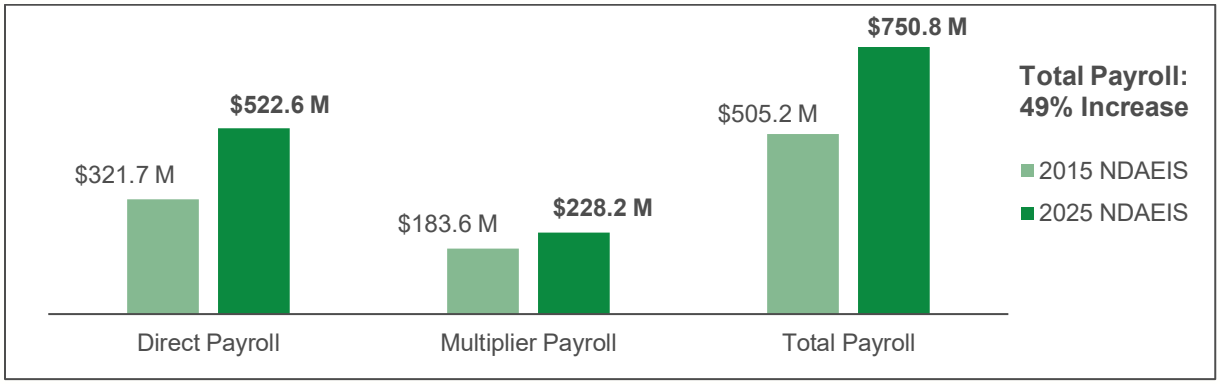
Figure 9-5 through **Figure 9-7** provide a more detailed overview of the comparison between direct, multiplier, and total impacts for the core airport jobs, payroll, and output between the 2015 and 2025 NDAEIS. Value added is excluded as it was not evaluated in the 2015 NDAEIS.

Figure 9-5. Comparison of Direct, Multiplier, and Total Job Impacts for Core Airport Impacts



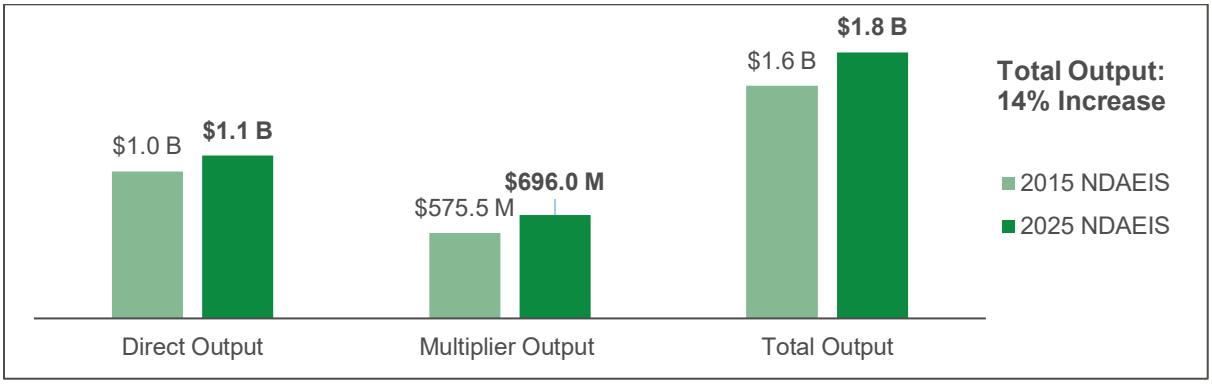
Sources: 2015 NDAEIS: Kimley-Horn, 2025.

Figure 9-6. Comparison of Direct, Multiplier, and Total Payroll Impacts for Core Airport Impacts



Sources: 2015 NDAEIS: Kimley-Horn, 2025.

Figure 9-7. Comparison of Direct, Multiplier, and Total Output Impacts for Core Airport Impacts



Sources: 2015 NDAEIS: Kimley-Horn, 2025.

See **Table 9-40** in **Section 9.11. Additional Tables** for an airport-by-airport comparison of 2025 and 2015 core airport impact results.

9.8.2. Core Airport and Supplemental Impact Comparison

To provide a more complete assessment of aviation's economic footprint and changes from 2015, it is important to compare the results of the core impacts alongside the supplemental impacts assessed in both the 2015 and 2025 NDAEIS studies. It is important to note that while the scope of work is largely comparable between the two studies, there were some differences in the supplemental impacts that were assessed. **Table 9-34** provides a list of the supplemental impacts assessed in 2025 and clarifies if those same supplemental impacts were assessed in 2015. The 2015 NDAEIS included an assessment of off-airport aerial applicator impacts, which was not assessed in 2025.[65]

Table 9-34. Differences in Supplemental Impacts Assessed (2015 and 2025 NDAEIS)

Supplemental Impacts in 2025 NDAEIS	Included in 2015 NDAEIS (Yes/No)
Minot and Grand Forks AFB	Yes
Off-Airport Aviation/Aerospace Manufacturing	Yes
Off-Airport UND Aerospace	Yes*
UAS Businesses	No (Qualitative assessment only)

*Note: * Employment associated with UND Aerospace's off-airport activity was included in the Aviation and Aerospace Companies assessment performed in the 2015 NDAEIS. Sources: 2015 NDAEIS, Kimley-Horn, 2015.*

[65] The 2015 NDAEIS assessed impacts associated with improved job efficiency from aviation use and included those results in the study's total impacts. However, these impacts represented existing jobs, payroll, and output that benefit from aviation through increased efficiency (e.g., reduced travel time, improved connectivity, and enhanced supply chain performance), rather than new economic activity generated by aviation. Consistent with this distinction, the values shown in Table 9-28 exclude these efficiency-related impacts and instead focus solely on jobs, payroll, and output directly attributable to aviation activity, ensuring a consistent, comparison between 2015 and 2025 results.

Table 9-35 compares the supplemental and core impacts of the 2015 and 2025 NDAEIS studies. Due to the differences outlined in **Table 9-34**, the supplemental impacts are not directly comparable across all categories, whereas the core airport impacts are considered directly comparable.

Despite these differences in supplemental activities, the supplement activity impacts from the 2025 NDAEIS indicate modest growth in employment and substantial increases in payroll and output. When combined with core airport impacts, the results demonstrate overall growth in the economic impact of North Dakota's aviation sector since 2015.

In 2025, North Dakota's aviation industry supported more than 28,000 jobs, an increase of approximately eight percent compared to the jobs reported in the 2015 NDAEIS. Total payroll associated with the industry increased from approximately $1.17 billion in 2015 to $1.79 billion in 2025, representing a 53 percent increase over the ten-year period. Total economic output increased from approximately $2.8 billion to $3.6 billion, a growth of 28 percent.

Table 9-35. Core Airport and Supplemental Impacts

Impact Categories	2025	2015	% Change	2025	2015	% Change	2025	2015	% Change
	Jobs			Payroll			Output		
Off-Airport UND Aerospace	756	N/A	N/A	$42,608,000	N/A	N/A	$103,063,000	N/A	N/A
Off-Airport Aircraft/ Aerospace	2,623	4,479	-41%	$213,419,000	$227,100,000	-6%	$731,646,000	$497,000,000	47%
Off-Airport UAS Impacts	612	N/A	N/A	$47,145,000	N/A	N/A	$114,304,000	N/A	N/A
Off-Airport Aerial Applicators	N/A	156	N/A	N/A	$5,600,000	N/A	N/A	$15,600,000	N/A
Grand Forks AFB	2,611	2,565	2%	$161,689,834	$105,200,000	54%	$197,567,021	$203,700,000	-3%
Minot AFB	8,494	7,283	17%	$570,979,529	$321,000,000	78%	$651,609,473	$513,500,000	27%
Sub-Total of Supplemental Impacts	*15,097*	*14,483*	*4%*	*$1,035,841,000*	*$658,900,000*	*57%*	*$1,798,189,000*	*$1,229,800,000*	*46%*
Core Airport Impacts	13,637	12,217	12%	$750,812,000	$505,247,509	49%	$1,790,885,000	$1,564,352,371	14%
Sum of All Impacts	**28,734**	**26,700**	**8%**	**$1,786,653,000**	**$1,164,147,509**	**53%**	**$3,589,074,000**	**$2,794,152,371**	**28%**

Note: Core impacts from 2015 NDAEIS and Grand Forks and Minot AFB dollar values were kept unchanged from the documents they were sourced from. Excluding results for the core impacts of the 2015 NDAEIS, Grand Forks and Minot AFB, dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Minot Air Force Base, North Dakota – Economic Impact Analysis: Edition FY23, 2025; Grand Forks Air Force Base – Fiscal Year 2023 Economic Impact Statement, 2025; 2015 NDAEIS; Kimley-Horn, 2026.

9.9. Tax Revenue Analysis

Public tax revenues are generated at the federal, state, and local levels as a result of aviation-related economic activity across North Dakota. These impacts are associated with taxes paid by airport administration, on-airport business tenants, construction and development activity related to capital improvements, and out-of-state visitors traveling to the state by air. Taxes considered in this analysis include social insurance taxes, personal income taxes, sales taxes, property taxes, and other taxes and fees. These taxes are defined in **Table 9-36**.

Table 9-36. Tax Categories

Tax	Definition
Social Insurance	Includes employee and employer contributions to Social Security, Medicare, and federal unemployment insurance. Represents revenue for these programs collected at the federal level only.
Personal Income	Represents income taxes paid at the federal and state levels.
Sales	Represents estimated tax revenue generated from taxable purchases of goods and applicable services at the state and local level.
Property	Represents property taxes paid to county, city, township, and special district governments (such as school or fire districts), estimated based on observed regional property tax collections.
Other Taxes/Fees	Represents a mix of federal, state, and local taxes and fees, including selective consumption taxes such as motor fuel, alcohol, and tobacco taxes; import tariffs; corporate profits taxes; motor vehicle license, registration, title, and renewal fees; fishing and hunting licenses; business property taxes on commercial land, equipment, and facilities; severance taxes on oil, gas, and other natural resource extraction; and other similar levies. These taxes are classified primarily as Taxes on Production and Imports (TOPI) and are treated as a cost of production, derived from value added rather than labor income.

Sources: IMPLAN, 2025; Kimley-Horn, 2026.

9.9.1. Methodology and Assumptions

IMPLAN's Tax Module estimates government revenues generated by economic activity such as jobs, payroll (also referred to as wages), business output, and household spending. Rather than applying statutory tax rates specified in law, IMPLAN uses effective tax rates derived from actual historical tax collections within a region. These effective rates reflect what households and businesses actually pay after accounting for deductions, exemptions, credits, income distribution, and non-payers, producing more realistic and defensible tax estimates.

IMPLAN works backward from observed tax collections, estimating typical tax relationships such as the amount of tax paid per dollar of wages, business output, or household spending. These average relationships are applied to the direct economic output estimated for each aviation activity category (airport administration, on-airport business tenants, capital improvement expenses, and visitor spending). This approach avoids overstating tax impacts and ensures alignment with observed public revenue trends.

9.9.2. Results

In total, aviation activity in North Dakota generated approximately $276.2 million in tax revenue in 2024. Of this total, approximately $228.1 million was generated at the federal level, $41.2 million accrued to the state, and $6.9 million supported by local governments.

On-airport business tenants were the largest contributors to aviation-related tax revenues, generating approximately $185.0 million, or about 67 percent of total tax impacts statewide. Airport capital expenditures generated approximately $18.5 million in tax revenue, while airport administrative activity contributed approximately $11.5 million.

Visitor spending also accounted for a significant share of tax generation across North Dakota. Commercial service visitors generated approximately $46.9 million in tax revenues, while GA visitor spending contributed an additional $14.3 million, reflecting the role of air travelers in supporting public revenues through off-airport economic activity. **Table 9-37** summarizes IMPLAN-estimated tax revenues by activity category and level of government.

Table 9-37. IMPLAN Estimated Tax Revenues Generated from Aviation Activity

Tax Source	Federal	State	Local	Total
Airport Administration	$9,895,000	$1,440,000	$203,000	$11,538,000
Capital Expenditures	$14,873,000	$3,166,000	$502,000	$18,542,000
Business Tenants	$165,977,000	$16,695,000	$2,294,000	$184,966,000
Commercial Service Visitors	$28,598,000	$15,246,000	$3,023,000	$46,867,000
GA Visitors	$8,727,000	$4,652,000	$922,000	$14,302,000
Total	**$228,071,000**	**$41,199,000**	**$6,944,000**	**$276,213,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Sources: IMPLAN, 2025; Kimley-Horn, 2026.

Certain aviation-specific taxes are not explicitly modeled within IMPLAN, including North Dakota's aviation fuel tax, aircraft excise tax, and airline property tax. While some aviation-related taxes may be implicitly embedded within aggregated tax categories, IMPLAN does not allow these revenues to be isolated or directly attributed to aviation activity. As a result, these taxes are treated as outside the scope of IMPLAN's tax impact estimates and are added separately using primary data. The taxes estimated through IMPLAN and those that are

presented in **Table 9-38** are not additive in that summing these figures may result in double-counting aviation-specific tax revenues.

In 2024, aviation-specific taxes generated an additional $5.4 million in revenue statewide. This total includes approximately $3.0 million from aircraft excise taxes, $2.2 million from aviation fuel taxes, and $0.2 million from airline property taxes. These revenues provide direct support for aviation-related programs and infrastructure investment within the state.

Table 9-38. Additional Tax Revenues Generated from Aviation Activity

Tax Source	Revenue
Aviation Fuel	$2,161,769
Airline Property	$228,408
Aircraft Excise	$3,041,734
Total	**$5,431,911**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Source: NDAC, 2025.

Together, the IMPLAN-estimated tax impacts and additional aviation-specific tax revenues demonstrate that aviation activity in North Dakota not only supports jobs and economic output but also generates meaningful public revenues that benefit federal, state, and local governments and help fund essential public services and infrastructure.

See **Table 9-41** in **Section 9.11. Additional Tables** for an airport-by-airport overview of the tax revenues generated from aviation activity.

9.10. Conclusion

Aviation plays a critical role in supporting North Dakota's economy, communities, and quality of life. By enabling the movement of people and goods, providing essential services, and supporting business and industry, the state's aviation system serves as a key economic engine that extends well beyond airport boundaries. The 2025 NDAEIS was conducted to quantify these contributions and provide decision-makers with a clear, data-driven understanding of aviation's economic importance.

The findings presented in this report demonstrate that aviation activity at North Dakota's public-use airports supports substantial employment, payroll, value added, and economic output statewide. Core airport impacts, including airport administration, on-airport business tenants, capital investment, and visitor spending, reflect the direct, day-to-day economic activity generated through airport operations. As presented in **Chapter 9**, these impacts alone represent a significant share of statewide economic activity and underscore the importance of maintaining a safe, efficient, and well-functioning airport system.

Beyond core airport activity, the 2025 NDAEIS also captures aviation-related economic activity that occurs off airport property but remains closely tied to the aviation system. Supplemental analyses of aviation education, aircraft and aerospace manufacturing, UAS businesses, and military aviation illustrate aviation's reach across a diverse range of industries and institutions. Comparisons between the 2015 and 2025 NDAEIS results indicate that aviation's role in the state economy has grown over the past decade, with increases observed in employment, payroll, and total economic output, reinforcing aviation's continued importance to North Dakota's economic vitality.

The 2025 NDAEIS also identifies challenges that may affect the future performance of the aviation system, particularly workforce availability constraints. Unfilled aviation positions represent potential economic activity that is not fully realized, highlighting the importance of workforce development and training initiatives. Taken together, the 2025 NDAEIS demonstrates that aviation is not only a transportation asset but also a foundational component of North Dakota's economy. When used alongside the NDSASP, the 2025 NDAEIS findings provide a comprehensive framework to inform future investment, policy, and planning decisions and support the state's long-term economic competitiveness.

9.11. Additional Tables

Table 9-39. Direct, Multiplier, and Total Economic Impacts by Airport

Airport			Direct				Multiplier				Total			
Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output	Jobs	Payroll	Value Added	Output	Jobs	Payroll	Value Added	Output
Commercial Service														
Bismarck	Bismarck Municipal Airport	BIS	1,491	$76,542,000	$109,272,000	$171,350,000	616	$36,903,000	$59,677,000	$112,972,000	2,107	$113,445,000	$168,949,000	$284,322,000
Devils Lake	Devils Lake Regional Airport	DVL	136	$7,124,000	$9,721,000	$15,883,000	56	$3,418,000	$5,608,000	$10,477,000	192	$10,542,000	$15,329,000	$26,360,000
Dickinson	Dickinson - Theodore Roosevelt Regional Airport	DIK	321	$21,679,000	$27,995,000	$42,333,000	149	$9,030,000	$14,667,000	$27,430,000	470	$30,709,000	$42,661,000	$69,764,000
Fargo	Hector International Airport	FAR	4,123	$217,509,000	$274,128,000	$404,199,000	1,446	$85,957,000	$138,977,000	$260,849,000	5,569	$303,467,000	$413,105,000	$665,048,000
Grand Forks	Grand Forks International Airport	GFK	1,266	$72,740,000	$104,941,000	$171,724,000	525	$31,975,000	$51,824,000	$98,137,000	1,791	$104,715,000	$156,765,000	$269,861,000
Jamestown	Jamestown Regional Airport	JMS	163	$9,815,000	$13,386,000	$24,881,000	78	$4,730,000	$7,682,000	$14,282,000	241	$14,544,000	$21,068,000	$39,164,000
Minot	Minot International Airport	MOT	909	$43,764,000	$62,501,000	$101,762,000	379	$22,561,000	$36,370,000	$69,209,000	1,288	$66,325,000	$98,871,000	$170,971,000
Williston	Williston Basin International Airport	XWA	773	$37,258,000	$59,028,000	$90,749,000	326	$19,187,000	$30,879,000	$58,988,000	1,099	$56,446,000	$89,907,000	$149,737,000
General Aviation														
Arthur	Arthur Airport	1A2	<1	$3,000	$8,000	$13,000	<1	$3,000	$4,000	$8,000	<1	$6,000	$12,000	$21,000
Ashley	Ashley Municipal Airport	ASY	12	$555,000	$699,000	$1,225,000	4	$227,000	$383,000	$700,000	15	$782,000	$1,082,000	$1,926,000
Beach	Beach Airport	20U	6	$342,000	$518,000	$906,000	3	$163,000	$278,000	$513,000	8	$505,000	$796,000	$1,419,000
Beulah	Beulah Municipal Airport	95D	8	$328,000	$360,000	$473,000	2	$98,000	$159,000	$286,000	10	$426,000	$519,000	$759,000
Bottineau	Bottineau Municipal Airport	D09	9	$500,000	$661,000	$1,069,000	3	$212,000	$350,000	$644,000	13	$713,000	$1,011,000	$1,712,000
Bowbells	Bowbells Municipal Airport	5B4	<1	$6,000	$13,000	$23,000	<1	$5,000	$7,000	$14,000	<1	$11,000	$20,000	$37,000
Bowman	Bowman Regional Airport	BWW	18	$1,509,000	$1,679,000	$2,120,000	8	$495,000	$798,000	$1,443,000	27	$2,004,000	$2,478,000	$3,563,000
Cando	Cando Municipal Airport	9D7	10	$490,000	$552,000	$802,000	3	$157,000	$260,000	$470,000	12	$647,000	$812,000	$1,272,000
Carrington	Carrington Municipal Airport	46D	6	$237,000	$344,000	$650,000	2	$123,000	$206,000	$383,000	8	$360,000	$550,000	$1,033,000
Casselton	Casselton Robert Miller Regional Airport	5N8	37	$1,858,000	$2,030,000	$2,742,000	10	$623,000	$1,008,000	$1,825,000	48	$2,482,000	$3,038,000	$4,567,000
Cavalier	Cavalier Municipal Airport	2C8	9	$535,000	$640,000	$924,000	3	$181,000	$303,000	$544,000	11	$716,000	$943,000	$1,467,000

Airport			Direct				Multiplier				Total			
Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output	Jobs	Payroll	Value Added	Output	Jobs	Payroll	Value Added	Output
Columbus	Columbus Municipal Airport	D49	2	$4,000	$6,000	$10,000	<1	$2,000	$3,000	$6,000	2	$6,000	$9,000	$16,000
Cooperstown	Cooperstown Municipal Airport	S32	6	$300,000	$359,000	$467,000	2	$98,000	$159,000	$286,000	8	$398,000	$518,000	$754,000
Crosby	Crosby Municipal Airport	D50	6	$535,000	$848,000	$1,361,000	4	$243,000	$416,000	$766,000	10	$779,000	$1,264,000	$2,127,000
Drayton	Drayton Municipal Airport	D29	1	$62,000	$83,000	$132,000	<1	$25,000	$42,000	$77,000	1	$87,000	$126,000	$209,000
Dunseith	International Peace Garden Airport	S28	7	$311,000	$423,000	$962,000	3	$170,000	$292,000	$537,000	10	$481,000	$715,000	$1,499,000
Edgeley	Edgeley Municipal Airport	51D	3	$126,000	$180,000	$302,000	1	$58,000	$97,000	$178,000	3	$184,000	$277,000	$480,000
Elgin	Elgin Municipal Airport	Y71	<1	$2,000	$6,000	$10,000	<1	$2,000	$3,000	$6,000	<1	$4,000	$10,000	$17,000
Ellendale	Ellendale Municipal Airport	4E7	4	$121,000	$181,000	$341,000	1	$65,000	$108,000	$201,000	5	$186,000	$289,000	$542,000
Enderlin	Sky Haven Airport	5N4	1	$46,000	$83,000	$141,000	<1	$28,000	$45,000	$85,000	1	$74,000	$128,000	$226,000
Fessenden	Fessenden-Streibel Municipal Airport	D24	<1	$6,000	$13,000	$22,000	<1	$4,000	$7,000	$13,000	<1	$10,000	$20,000	$35,000
Fort Yates	Standing Rock Airport	Y27	3	$162,000	$221,000	$402,000	1	$74,000	$125,000	$230,000	4	$235,000	$346,000	$632,000
Gackle	Gackle Municipal Airport	9G9	<1	$1,000	$2,000	$3,000	<1	$1,000	$1,000	$2,000	<1	$1,000	$3,000	$5,000
Garrison	Garrison Municipal Airport	D05	4	$219,000	$319,000	$556,000	2	$104,000	$174,000	$322,000	6	$323,000	$494,000	$878,000
Glen Ullin	Glen Ullin Regional Airport	D57	4	$224,000	$346,000	$651,000	2	$117,000	$200,000	$369,000	6	$342,000	$546,000	$1,021,000
Grafton	Hutson Field	GAF	11	$549,000	$801,000	$1,407,000	4	$264,000	$446,000	$816,000	15	$813,000	$1,247,000	$2,222,000
Gwinner	Gwinner-Roger Melroe Field	GWR	6	$298,000	$443,000	$734,000	2	$143,000	$235,000	$437,000	9	$441,000	$678,000	$1,171,000
Harvey	Harvey Municipal Airport	5H4	5	$216,000	$295,000	$420,000	1	$87,000	$142,000	$258,000	7	$304,000	$438,000	$677,000
Hazelton	Hazelton Municipal Airport	6H8	1	$33,000	$54,000	$99,000	<1	$18,000	$31,000	$57,000	1	$51,000	$84,000	$156,000
Hazen	Mercer County Regional Airport	HZE	10	$462,000	$650,000	$1,152,000	3	$218,000	$367,000	$675,000	14	$680,000	$1,017,000	$1,826,000
Hettinger	Hettinger - JB Lindquist Regional Airport	HEI	10	$935,000	$1,064,000	$1,379,000	5	$315,000	$510,000	$923,000	15	$1,249,000	$1,574,000	$2,303,000
Hillsboro	Hillsboro Municipal Airport	3H4	20	$1,224,000	$1,614,000	$2,505,000	8	$504,000	$831,000	$1,525,000	28	$1,728,000	$2,445,000	$4,030,000
Kenmare	Kenmare Municipal Airport	7K5	21	$1,292,000	$1,535,000	$2,242,000	8	$456,000	$746,000	$1,360,000	29	$1,748,000	$2,280,000	$3,602,000
Killdeer	Dunn County - Weydahl Field	9Y1	6	$354,000	$551,000	$932,000	3	$173,000	$294,000	$538,000	9	$527,000	$844,000	$1,470,000

Airport			Direct				Multiplier				Total			
Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output	Jobs	Payroll	Value Added	Output	Jobs	Payroll	Value Added	Output
Kindred	Robert Odegaard Field	K74	9	$621,000	$753,000	$1,069,000	4	$235,000	$385,000	$697,000	13	$856,000	$1,138,000	$1,766,000
Kulm	Kulm Municipal Airport	D03	2	$18,000	$35,000	$60,000	<1	$12,000	$20,000	$37,000	2	$30,000	$55,000	$96,000
LaMoure	LaMoure Rott Municipal Airport	4F9	5	$224,000	$254,000	$358,000	1	$73,000	$120,000	$215,000	6	$296,000	$374,000	$573,000
Lakota	Lakota Municipal Airport	5L0	7	$191,000	$333,000	$610,000	2	$114,000	$192,000	$355,000	8	$305,000	$525,000	$966,000
Langdon	Robertson Field	D55	7	$356,000	$445,000	$566,000	2	$120,000	$196,000	$350,000	9	$476,000	$640,000	$916,000
Larimore	Larimore Municipal Airport	2L1	14	$787,000	$846,000	$1,058,000	4	$223,000	$363,000	$647,000	18	$1,010,000	$1,209,000	$1,706,000
Leeds	Leeds Municipal Airport	D31	2	$93,000	$149,000	$319,000	1	$59,000	$100,000	$183,000	3	$151,000	$249,000	$502,000
Lidgerwood	Lidgerwood Municipal Airport	4N4	<1	$1,000	$5,000	$7,000	<1	$2,000	$3,000	$5,000	<1	$3,000	$7,000	$12,000
Linton	Linton Municipal Airport	7L2	7	$380,000	$528,000	$857,000	3	$165,000	$275,000	$504,000	10	$545,000	$803,000	$1,361,000
Lisbon	Lisbon Municipal Airport	6L3	10	$547,000	$651,000	$963,000	3	$196,000	$323,000	$582,000	14	$743,000	$974,000	$1,545,000
Maddock	Maddock Municipal Airport	6D3	5	$248,000	$280,000	$388,000	1	$83,000	$137,000	$249,000	6	$331,000	$418,000	$637,000
Mandan	Mandan Regional - Lawler Field	Y19	34	$2,117,000	$2,638,000	$3,997,000	14	$858,000	$1,387,000	$2,547,000	48	$2,974,000	$4,025,000	$6,544,000
Mayville	Mayville Municipal Airport	D56	9	$516,000	$593,000	$879,000	3	$176,000	$288,000	$522,000	12	$692,000	$881,000	$1,401,000
McClusky	McClusky Municipal Airport	7G2	<1	$3,000	$7,000	$12,000	<1	$2,000	$4,000	$7,000	<1	$5,000	$11,000	$19,000
McVille	McVille Municipal Airport	8M6	2	$6,000	$9,000	$15,000	<1	$3,000	$5,000	$10,000	2	$10,000	$15,000	$25,000
Milnor	Milnor Municipal Airport	4R6	<1	$25,000	$44,000	$76,000	<1	$14,000	$24,000	$44,000	1	$40,000	$68,000	$120,000
Minto	Minto Municipal Airport	D06	2	$72,000	$87,000	$111,000	<1	$24,000	$39,000	$70,000	3	$96,000	$126,000	$181,000
Mohall	Mohall Municipal Airport	HBC	12	$639,000	$744,000	$1,069,000	4	$214,000	$352,000	$636,000	16	$853,000	$1,096,000	$1,705,000
Mott	Mott Municipal Airport	3P3	4	$224,000	$307,000	$496,000	1	$94,000	$157,000	$287,000	5	$318,000	$464,000	$783,000
Napoleon	Napoleon Municipal Airport	5B5	6	$146,000	$164,000	$236,000	1	$47,000	$77,000	$139,000	6	$193,000	$241,000	$374,000
New Rockford	Tomlinson Field	8J7	7	$237,000	$308,000	$650,000	2	$117,000	$200,000	$367,000	8	$355,000	$508,000	$1,018,000
New Town	New Town Municipal Airport	05D	5	$247,000	$434,000	$824,000	2	$155,000	$259,000	$481,000	8	$401,000	$693,000	$1,304,000
Northwood	Northwood Municipal - Vince Field	4V4	10	$466,000	$623,000	$979,000	3	$190,000	$315,000	$578,000	13	$656,000	$938,000	$1,556,000
Oakes	Oakes Municipal Airport	2D5	5	$280,000	$324,000	$463,000	2	$92,000	$152,000	$274,000	7	$372,000	$476,000	$738,000

Airport			Direct				Multiplier				Total			
Associated City	Airport Name	FAA ID	Jobs	Payroll	Value Added	Output	Jobs	Payroll	Value Added	Output	Jobs	Payroll	Value Added	Output
Page	Page Regional Airport	64G	11	$615,000	$626,000	$734,000	3	$190,000	$302,000	$540,000	14	$805,000	$928,000	$1,274,000
Park River	Park River - W C Skjerven Field	Y37	8	$474,000	$595,000	$945,000	3	$178,000	$298,000	$545,000	11	$653,000	$893,000	$1,490,000
Parshall	Parshall-Hankins Airport	Y74	6	$190,000	$273,000	$520,000	2	$97,000	$162,000	$301,000	7	$287,000	$435,000	$821,000
Pembina	Pembina Municipal Airport	PMB	8	$475,000	$549,000	$763,000	3	$167,000	$271,000	$492,000	10	$642,000	$820,000	$1,255,000
Plaza	Trulson Field	Y99	<1	$1,000	$3,000	$5,000	<1	$1,000	$2,000	$3,000	<1	$2,000	$5,000	$8,000
Richardton	Richardton Municipal Airport	4E8	<1	$2,000	$5,000	$8,000	<1	$2,000	$3,000	$5,000	<1	$3,000	$7,000	$12,000
Riverdale	Garrison Dam Recreational Airpark	37N	1	$7,000	$12,000	$20,000	<1	$4,000	$7,000	$13,000	1	$11,000	$18,000	$32,000
Rolette	Rolette Airport	2H9	<1	$18,000	$37,000	$73,000	<1	$14,000	$24,000	$44,000	1	$33,000	$61,000	$117,000
Rolla	Rolla Municipal Airport	06D	15	$775,000	$878,000	$1,196,000	4	$240,000	$395,000	$712,000	19	$1,015,000	$1,273,000	$1,908,000
Rugby	Rugby Municipal Airport	RUG	11	$679,000	$788,000	$1,164,000	4	$230,000	$379,000	$687,000	15	$908,000	$1,167,000	$1,851,000
St. Thomas	St. Thomas Municipal Airport	4S5	3	$157,000	$177,000	$242,000	1	$48,000	$79,000	$142,000	3	$205,000	$256,000	$384,000
Stanley	Stanley Municipal Airport	08D	14	$743,000	$1,073,000	$2,170,000	7	$442,000	$707,000	$1,328,000	21	$1,185,000	$1,779,000	$3,498,000
Tioga	Tioga Municipal Airport	D60	21	$1,224,000	$1,667,000	$2,535,000	8	$502,000	$822,000	$1,530,000	30	$1,726,000	$2,488,000	$4,065,000
Towner	Towner Municipal Airport	D61	<1	$3,000	$8,000	$13,000	<1	$3,000	$4,000	$8,000	<1	$6,000	$12,000	$21,000
Turtle Lake	Turtle Lake Municipal Airport	91N	<1	$12,000	$21,000	$38,000	<1	$7,000	$12,000	$22,000	<1	$19,000	$33,000	$60,000
Valley City	Barnes County Municipal Airport	BAC	11	$514,000	$919,000	$1,387,000	5	$298,000	$486,000	$882,000	16	$812,000	$1,405,000	$2,268,000
Wahpeton	Harry Stern Airport	BWP	25	$1,468,000	$1,740,000	$2,470,000	9	$535,000	$869,000	$1,579,000	34	$2,003,000	$2,609,000	$4,049,000
Walhalla	Walhalla Municipal Airport	96D	9	$483,000	$581,000	$866,000	3	$168,000	$279,000	$507,000	12	$651,000	$860,000	$1,373,000
Washburn	Washburn Municipal Airport	5C8	7	$381,000	$496,000	$814,000	2	$154,000	$259,000	$471,000	9	$535,000	$754,000	$1,285,000
Watford City	Watford City Municipal Airport	S25	56	$4,710,000	$6,697,000	$10,552,000	31	$1,974,000	$3,323,000	$6,122,000	87	$6,684,000	$10,020,000	$16,674,000
West Fargo	West Fargo Municipal Airport	D54	23	$775,000	$1,064,000	$1,712,000	6	$347,000	$565,000	$1,083,000	29	$1,122,000	$1,629,000	$2,795,000
Westhope	Westhope Municipal Airport	D64	3	$149,000	$228,000	$458,000	1	$82,000	$140,000	$257,000	4	$231,000	$368,000	$715,000
Wishek	Wishek Municipal Airport	6L5	3	$45,000	$65,000	$111,000	<1	$23,000	$37,000	$70,000	3	$68,000	$102,000	$181,000
Statewide Total			**9,831**	**$522,620,000**	**$707,611,000**	**$1,094,915,000**	**3,807**	**$228,192,000**	**$369,515,000**	**$695,970,000**	**13,637**	**$750,812,000**	**$1,077,126,000**	**$1,790,885,000**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Source: Kimley-Horn, 2026.

Table 9-40. Comparison of Economic Impacts by Airport

Airport			2025 NDAEIS Total Impacts			2015 NDAEIS Total Impacts			Percentage Difference 2025–2015 Results			Value Difference 2025–2015 Results		
Associated City	Airport Name	FAA ID	Jobs	Payroll	Output	Jobs	Payroll	Output	Jobs	Payroll	Output	Jobs	Payroll	Output
Commercial Service														
Bismarck	Bismarck Municipal Airport	BIS	2,107	$113,445,000	$284,322,000	2,126	$86,510,312	$279,744,887	-1%	31%	2%	-19	$26,934,688	$4,577,113
Devils Lake	Devils Lake Regional Airport	DVL	192	$10,542,000	$26,360,000	89	$4,013,851	$11,811,488	115%	163%	123%	103	$6,528,149	$14,548,512
Dickinson	Dickinson - Theodore Roosevelt Regional Airport	DIK	470	$30,709,000	$69,764,000	475	$20,322,935	$76,618,095	-1%	51%	-9%	-5	$10,386,065	-$6,854,095
Fargo	Hector International Airport	FAR	5,569	$303,467,000	$665,048,000	3,353	$142,166,337	$387,465,584	66%	113%	72%	2,216	$161,300,663	$277,582,416
Grand Forks	Grand Forks International Airport	GFK	1,791	$104,715,000	$269,861,000	1,669	$73,622,396	$199,368,171	7%	42%	35%	122	$31,092,604	$70,492,829
Jamestown	Jamestown Regional Airport	JMS	241	$14,544,000	$39,164,000	120	$4,797,458	$24,425,703	101%	203%	60%	121	$9,746,542	$14,738,297
Minot	Minot International Airport	MOT	1,288	$66,325,000	$170,971,000	1,985	$74,678,827	$254,598,258	-35%	-11%	-33%	-697	-$8,353,827	-$83,627,258
Williston	Williston Basin International Airport	XWA	1,099	$56,446,000	$149,737,000	1,474	$57,256,315	$209,047,988	-25%	-1%	-28%	-375	-$810,315	-$59,310,988
General Aviation														
Arthur	Arthur Airport	1A2	<1	$6,000	$21,000	0	$0	$23,250	N/A	N/A	-10%	N/A	$6,000	-$2,250
Ashley	Ashley Municipal Airport	ASY	15	$782,000	$1,926,000	17	$806,986	$2,382,031	-9%	-3%	-19%	-2	-$24,986	-$456,031
Beach	Beach Airport	20U	8	$505,000	$1,419,000	13	$283,851	$656,324	-36%	78%	116%	-5	$221,149	$762,676
Beulah	Beulah Municipal Airport	95D	10	$426,000	$759,000	13	$625,781	$1,708,123	-27%	-32%	-56%	-3	-$199,781	-$949,123
Bottineau	Bottineau Municipal Airport	D09	13	$713,000	$1,712,000	10	$522,677	$1,546,789	26%	36%	11%	3	$190,323	$165,211
Bowbells	Bowbells Municipal Airport	5B4	<1	$11,000	$37,000	0	$0	$8,200	N/A	N/A	351%	N/A	$11,000	$28,800
Bowman	Bowman Regional Airport	BWW	27	$2,004,000	$3,563,000	84	$4,546,230	$11,879,439	-68%	-56%	-70%	-57	-$2,542,230	-$8,316,439
Cando	Cando Municipal Airport	9D7	12	$647,000	$1,272,000	14	$448,730	$1,821,461	-13%	44%	-30%	-2	$198,270	-$549,461
Carrington	Carrington Municipal Airport	46D	8	$360,000	$1,033,000	14	$471,458	$1,586,478	-40%	-24%	-35%	-6	-$111,458	-$553,478
Casselton	Casselton Robert Miller Regional Airport	5N8	48	$2,482,000	$4,567,000	55	$2,192,020	$5,610,341	-13%	13%	-19%	-7	$289,980	-$1,043,341
Cavalier	Cavalier Municipal Airport	2C8	11	$716,000	$1,467,000	14	$573,265	$1,933,077	-18%	25%	-24%	-3	$142,735	-$466,077
Columbus	Columbus Municipal Airport	D49	2	$6,000	$16,000	0	$0	$3,000	N/A	N/A	433%	2	$6,000	$13,000
Cooperstown	Cooperstown Municipal Airport	S32	8	$398,000	$754,000	3	$129,618	$431,535	154%	207%	75%	5	$268,382	$322,465
Crosby	Crosby Municipal Airport	D50	10	$779,000	$2,127,000	13	$452,141	$1,473,286	-23%	72%	44%	-3	$326,859	$653,714

Airport			2025 NDAEIS Total Impacts			2015 NDAEIS Total Impacts			Percentage Difference 2025–2015 Results			Value Difference 2025–2015 Results		
Associated City	Airport Name	FAA ID	Jobs	Payroll	Output	Jobs	Payroll	Output	Jobs	Payroll	Output	Jobs	Payroll	Output
Drayton	Drayton Municipal Airport	D29	1	$87,000	$209,000	1	$64,809	$185,378	47%	34%	13%	0	$22,191	$23,622
Dunseith	International Peace Garden Airport	S28	10	$481,000	$1,499,000	<1	$0	$69,753	N/A	N/A	2049%	N/A	$481,000	$1,429,247
Edgeley	Edgeley Municipal Airport	51D	3	$184,000	$480,000	9	$408,353	$1,261,884	-61%	-55%	-62%	-6	-$224,353	-$781,884
Elgin	Elgin Municipal Airport	Y71	<1	$4,000	$17,000	0	$0	$3,625	N/A	N/A	369%	N/A	$4,000	$13,375
Ellendale	Ellendale Municipal Airport	4E7	5	$186,000	$542,000	9	$246,800	$1,031,194	-41%	-25%	-47%	-4	-$60,800	-$489,194
Enderlin	Sky Haven Airport	5N4	1	$74,000	$226,000	0	$0	$72,892	N/A	N/A	210%	1	$74,000	$153,108
Fessenden	Fessenden-Streibel Municipal Airport	D24	<1	$10,000	$35,000	7	$336,038	$874,424	N/A	-97%	-96%	N/A	-$326,038	-$839,424
Fort Yates	Standing Rock Airport	Y27	4	$235,000	$632,000	<1	$0	$7,133	N/A	N/A	8760%	N/A	$235,000	$624,867
Gackle	Gackle Municipal Airport	9G9	<1	$1,000	$5,000	<1	$0	$7,686	N/A	N/A	-35%	N/A	$1,000	-$2,686
Garrison	Garrison Municipal Airport	D05	6	$323,000	$878,000	6	$302,006	$819,976	-2%	7%	7%	0	$20,994	$58,024
Glen Ullin	Glen Ullin Regional Airport	D57	6	$342,000	$1,021,000	2	$123,212	$353,985	181%	178%	188%	4	$218,788	$667,015
Grafton	Hutson Field	GAF	15	$813,000	$2,222,000	19	$846,433	$2,337,041	-21%	-4%	-5%	-4	-$33,433	-$115,041
Gwinner	Gwinner-Roger Melroe Field	GWR	9	$441,000	$1,171,000	27	$1,168,122	$3,701,214	-68%	-62%	-68%	-18	-$727,122	-$2,530,214
Harvey	Harvey Municipal Airport	5H4	7	$304,000	$677,000	5	$236,927	$702,922	36%	28%	-4%	2	$67,073	-$25,922
Hazelton	Hazelton Municipal Airport	6H8	1	$51,000	$156,000	0	$0	$23,250	N/A	N/A	571%	1	$51,000	$132,750
Hazen	Mercer County Regional Airport	HZE	14	$680,000	$1,826,000	4	$145,456	$557,298	240%	367%	228%	10	$534,544	$1,268,702
Hettinger	Hettinger - JB Lindquist Regional Airport	HEI	15	$1,249,000	$2,303,000	20	$955,530	$2,693,237	-24%	31%	-14%	-5	$293,470	-$390,237
Hillsboro	Hillsboro Municipal Airport	3H4	28	$1,728,000	$4,030,000	24	$887,146	$2,922,895	17%	95%	38%	4	$840,854	$1,107,105
Kenmare	Kenmare Municipal Airport	7K5	29	$1,748,000	$3,602,000	26	$1,301,723	$3,034,219	11%	34%	19%	3	$446,277	$567,781
Killdeer	Dunn County - Weydahl Field	9Y1	9	$527,000	$1,470,000	24	$1,564,863	$3,065,201	-63%	-66%	-52%	-15	-$1,037,863	-$1,595,201
Kindred	Robert Odegaard Field	K74	13	$856,000	$1,766,000	9	$340,767	$3,626,376	44%	151%	-51%	4	$515,233	-$1,860,376
Kulm	Kulm Municipal Airport	D03	2	$30,000	$96,000	3	$150,192	$270,422	-18%	-80%	-64%	-1	-$120,192	-$174,422
LaMoure	LaMoure Rott Municipal Airport	4F9	6	$296,000	$573,000	3	$129,618	$361,906	102%	128%	58%	3	$166,382	$211,094
Lakota	Lakota Municipal Airport	5L0	8	$305,000	$966,000	0	$0	$131,082	N/A	N/A	637%	8	$305,000	$834,918
Langdon	Robertson Field	D55	9	$476,000	$916,000	9	$289,506	$1,053,010	-1%	64%	-13%	0	$186,494	-$137,010

Airport			2025 NDAEIS Total Impacts			2015 NDAEIS Total Impacts			Percentage Difference 2025–2015 Results			Value Difference 2025–2015 Results		
Associated City	Airport Name	FAA ID	Jobs	Payroll	Output	Jobs	Payroll	Output	Jobs	Payroll	Output	Jobs	Payroll	Output
Larimore	Larimore Municipal Airport	2L1	18	$1,010,000	$1,706,000	12	$507,389	$1,886,989	49%	99%	-10%	6	$502,611	-$180,989
Leeds	Leeds Municipal Airport	D31	3	$151,000	$502,000	2	$70,700	$225,343	39%	114%	123%	1	$80,300	$276,657
Lidgerwood	Lidgerwood Municipal Airport	4N4	<1	$3,000	$12,000	0	$0	$9,443	N/A	N/A	27%	N/A	$3,000	$2,557
Linton	Linton Municipal Airport	7L2	10	$545,000	$1,361,000	12	$508,504	$1,589,613	-20%	7%	-14%	-2	$36,496	-$228,613
Lisbon	Lisbon Municipal Airport	6L3	14	$743,000	$1,545,000	5	$311,872	$699,239	170%	138%	121%	9	$431,128	$845,761
Maddock	Maddock Municipal Airport	6D3	6	$331,000	$637,000	12	$1,230,638	$2,012,105	-47%	-73%	-68%	-6	-$899,638	-$1,375,105
Mandan	Mandan Regional - Lawler Field	Y19	48	$2,974,000	$6,544,000	67	$3,149,158	$8,950,629	-28%	-6%	-27%	-19	-$175,158	-$2,406,629
Mayville	Mayville Municipal Airport	D56	12	$692,000	$1,401,000	20	$778,094	$2,436,563	-42%	-11%	-43%	-8	-$86,094	-$1,035,563
McClusky	McClusky Municipal Airport	7G2	<1	$5,000	$19,000	<1	$0	$7,117	N/A	N/A	167%	N/A	$5,000	$11,883
McVille	McVille Municipal Airport	8M6	2	$10,000	$25,000	0	$0	$23,450	N/A	N/A	7%	2	$10,000	$1,550
Milnor	Milnor Municipal Airport	4R6	1	$40,000	$120,000	0	$0	$38,448	N/A	N/A	212%	1	$40,000	$81,552
Minto	Minto Municipal Airport	D06	3	$96,000	$181,000	6	$301,736	$806,069	-57%	-68%	-78%	-3	-$205,736	-$625,069
Mohall	Mohall Municipal Airport	HBC	16	$853,000	$1,705,000	19	$631,793	$2,180,976	-17%	35%	-22%	-3	$221,207	-$475,976
Mott	Mott Municipal Airport	3P3	5	$318,000	$783,000	4	$195,633	$493,806	36%	63%	59%	1	$122,367	$289,194
Napoleon	Napoleon Municipal Airport	5B5	6	$193,000	$374,000	3	$129,618	$372,540	111%	49%	0%	3	$63,382	$1,460
New Rockford	Tomlinson Field	8J7	8	$355,000	$1,018,000	1	$64,809	$217,776	729%	448%	367%	7	$290,191	$800,224
New Town	New Town Municipal Airport	05D	8	$401,000	$1,304,000	22	$1,315,808	$3,217,102	-64%	-70%	-59%	-14	-$914,808	-$1,913,102
Northwood	Northwood Municipal - Vince Field	4V4	13	$656,000	$1,556,000	6	$254,467	$877,356	114%	158%	77%	7	$401,533	$678,644
Oakes	Oakes Municipal Airport	2D5	7	$372,000	$738,000	19	$637,092	$2,337,630	-64%	-42%	-68%	-12	-$265,092	-$1,599,630
Page	Page Regional Airport	64G	14	$805,000	$1,274,000	13	$498,619	$2,085,675	5%	61%	-39%	1	$306,381	-$811,675
Park River	Park River - W C Skjerven Field	Y37	11	$653,000	$1,490,000	8	$388,854	$1,108,549	38%	68%	34%	3	$264,146	$381,451
Parshall	Parshall-Hankins Airport	Y74	7	$287,000	$821,000	7	$440,805	$1,106,385	2%	-35%	-26%	0	-$153,805	-$285,385
Pembina	Pembina Municipal Airport	PMB	10	$642,000	$1,255,000	10	$405,928	$1,400,955	3%	58%	-10%	0	$236,072	-$145,955
Plaza	Trulson Field	Y99	<1	$2,000	$8,000	0	$0	$3,000	N/A	N/A	167%	N/A	$2,000	$5,000
Richardton	Richardton Municipal Airport	4E8	<1	$3,000	$12,000	0	$0	$6,033	N/A	N/A	99%	N/A	$3,000	$5,967

Airport			2025 NDAEIS Total Impacts			2015 NDAEIS Total Impacts			Percentage Difference 2025–2015 Results			Value Difference 2025–2015 Results		
Associated City	Airport Name	FAA ID	Jobs	Payroll	Output	Jobs	Payroll	Output	Jobs	Payroll	Output	Jobs	Payroll	Output
Riverdale	Garrison Dam Recreational Airpark	37N	1	$11,000	$32,000	<1	$1,800	$17,369	N/A	511%	84%	N/A	$9,200	$14,631
Rolette	Rolette Airport	2H9	1	$33,000	$117,000	5	$213,471	$649,140	-87%	-85%	-82%	-4	-$180,471	-$532,140
Rolla	Rolla Municipal Airport	06D	19	$1,015,000	$1,908,000	21	$866,159	$2,680,203	-8%	17%	-29%	-2	$148,841	-$772,203
Rugby	Rugby Municipal Airport	RUG	15	$908,000	$1,851,000	9	$380,677	$1,040,119	63%	139%	78%	6	$527,323	$810,881
St. Thomas	St. Thomas Municipal Airport	4S5	3	$205,000	$384,000	3	$129,618	$357,925	10%	58%	7%	0	$75,382	$26,075
Stanley	Stanley Municipal Airport	08D	21	$1,185,000	$3,498,000	20	$928,496	$2,442,100	7%	28%	43%	1	$256,504	$1,055,900
Tioga	Tioga Municipal Airport	D60	30	$1,726,000	$4,065,000	34	$1,492,413	$3,878,182	-12%	16%	5%	-4	$233,587	$186,818
Towner	Towner Municipal Airport	D61	<1	$6,000	$21,000	0	$0	$24,050	N/A	N/A	-13%	N/A	$6,000	-$3,050
Turtle Lake	Turtle Lake Municipal Airport	91N	<1	$19,000	$60,000	0	$0	$51,241	N/A	N/A	17%	N/A	$19,000	$8,759
Valley City	Barnes County Municipal Airport	BAC	16	$812,000	$2,268,000	22	$901,786	$2,803,132	-29%	-10%	-19%	-6	-$89,786	-$535,132
Wahpeton	Harry Stern Airport	BWP	34	$2,003,000	$4,049,000	36	$1,446,088	$4,397,025	-7%	39%	-8%	-2	$556,912	-$348,025
Walhalla	Walhalla Municipal Airport	96D	12	$651,000	$1,373,000	12	$580,058	$1,559,947	0%	12%	-12%	0	$70,942	-$186,947
Washburn	Washburn Municipal Airport	5C8	9	$535,000	$1,285,000	0	$0	$138,429	N/A	N/A	828%	9	$535,000	$1,146,571
Watford City	Watford City Municipal Airport	S25	87	$6,684,000	$16,674,000	44	$2,063,056	$5,205,805	98%	224%	220%	43	$4,620,944	$11,468,195
West Fargo	West Fargo Municipal Airport	D54	29	$1,122,000	$2,795,000	12	$374,063	$1,262,928	143%	200%	121%	17	$747,937	$1,532,072
Westhope	Westhope Municipal Airport	D64	4	$231,000	$715,000	3	$129,618	$355,215	28%	78%	101%	1	$101,382	$359,785
Wishek	Wishek Municipal Airport	6L5	3	$68,000	$181,000	0	$0	$85,259	N/A	N/A	112%	3	$68,000	$95,741
Statewide Total			**13,635**	**$750,813,000**	**$1,790,885,000**	**12,217**	**$505,247,509**	**$1,564,352,371**	**12%**	**49%**	**14%**	**1,418**	**$245,565,491**	**$226,532,629**

Note: Dollar values rounded to the nearest 1,000. Totals may not sum due to rounding. Results from 2015 NDAEIS remained unchanged from source material, resulting in unrounded dollar value differences. Sources: 2015 NDAEIS, 2026; Kimley-Horn, 2026.

Table 9-41. Tax Revenue Impacts by Airport

Associated City	Airport Name	FAA ID	Federal Taxes	State Taxes	Local Taxes	Total Taxes
Commercial Service						
Bismarck	Bismarck Municipal	BIS	$40,254,000	$6,769,000	$1,139,000	$48,162,000
Devils Lake	Devils Lake Regional	DVL	$4,544,000	$603,000	$94,000	$5,241,000
Dickinson	Dickinson - Theodore Roosevelt Regional Airport	DIK	$7,620,000	$1,748,000	$308,000	$9,676,000
Fargo	Hector International	FAR	$82,283,000	$15,381,000	$2,597,000	$100,261,000
Grand Forks	Grand Forks International	GFK	$29,641,000	$5,350,000	$887,000	$35,878,000
Jamestown	Jamestown Regional	JMS	$4,395,000	$887,000	$151,000	$5,433,000
Minot	Minot International	MOT	$29,768,000	$4,148,000	$676,000	$34,592,000
Williston	Williston Basin International	XWA	$18,486,000	$3,909,000	$698,000	$23,093,000
General Aviation						
Arthur	Arthur Airport	1A2	$2,000	<$1,000	<$1,000	$2,000
Ashley	Ashley Municipal Airport	ASY	$177,000	$37,000	$6,000	$220,000
Beach	Beach Airport	20U	$114,000	$26,000	$4,000	$145,000
Beulah	Beulah Municipal Airport	95D	$91,000	$17,000	$3,000	$111,000
Bottineau	Bottineau Municipal Airport	D09	$152,000	$38,000	$6,000	$196,000
Bowbells	Bowbells Municipal Airport	5B4	$2,000	<$1,000	<$1,000	$4,000
Bowman	Bowman Regional Airport	BWW	$379,000	$69,000	$11,000	$458,000
Cando	Cando Municipal Airport	9D7	$137,000	$27,000	$4,000	$168,000

Associated City	Airport Name	FAA ID	Federal Taxes	State Taxes	Local Taxes	Total Taxes
Carrington	Carrington Municipal Airport	46D	$81,000	$22,000	$4,000	$106,000
Casselton	Casselton Robert Miller Regional Airport	5N8	$480,000	$91,000	$14,000	$585,000
Cavalier	Cavalier Municipal Airport	2C8	$158,000	$30,000	$5,000	$192,000
Columbus	Columbus Municipal Airport	D49	$1,000	<$1,000	<$1,000	$2,000
Cooperstown	Cooperstown Municipal Airport	S32	$89,000	$17,000	$3,000	$109,000
Crosby	Crosby Municipal Airport	D50	$171,000	$39,000	$6,000	$216,000
Drayton	Drayton Municipal Airport	D29	$20,000	$4,000	<$1,000	$25,000
Dunseith	International Peace Garden Airport	S28	$121,000	$27,000	$4,000	$152,000
Edgeley	Edgeley Municipal Airport	51D	$44,000	$10,000	$2,000	$56,000
Elgin	Elgin Municipal Airport	Y71	$1,000	<$1,000	<$1,000	$2,000
Ellendale	Ellendale Municipal Airport	4E7	$43,000	$11,000	$2,000	$56,000
Enderlin	Sky Haven Airport	5N4	$16,000	$5,000	<$1,000	$23,000
Fessenden	Fessenden-Streibel Municipal Airport	D24	$3,000	<$1,000	<$1,000	$4,000
Fort Yates	Standing Rock Airport	Y27	$54,000	$11,000	$2,000	$66,000
Gackle	Gackle Municipal Airport	9G9	<$1,000	<$1,000	<$1,000	<$1,000
Garrison	Garrison Municipal Airport	D05	$74,000	$18,000	$3,000	$95,000
Glen Ullin	Glen Ullin Regional Airport	D57	$82,000	$19,000	$3,000	$104,000
Grafton	Hutson Field	GAF	$187,000	$45,000	$8,000	$240,000

Associated City	Airport Name	FAA ID	Federal Taxes	State Taxes	Local Taxes	Total Taxes
Gwinner	Gwinner-Roger Melroe Field	GWR	$95,000	$26,000	$5,000	$126,000
Harvey	Harvey Municipal Airport	5H4	$73,000	$15,000	$2,000	$90,000
Hazelton	Hazelton Municipal Airport	6H8	$13,000	$3,000	<$1,000	$16,000
Hazen	Mercer County Regional Airport	HZE	$155,000	$34,000	$6,000	$195,000
Hettinger	Hettinger - JB Lindquist Regional Airport	HEI	$239,000	$44,000	$7,000	$290,000
Hillsboro	Hillsboro Municipal Airport	3H4	$370,000	$84,000	$14,000	$468,000
Kenmare	Kenmare Municipal Airport	7K5	$365,000	$80,000	$13,000	$458,000
Killdeer	Dunn County - Weydahl Field	9Y1	$126,000	$26,000	$4,000	$156,000
Kindred	Robert Odegaard Field	K74	$179,000	$33,000	$5,000	$217,000
Kulm	Kulm Municipal Airport	D03	$9,000	$2,000	<$1,000	$11,000
LaMoure	LaMoure Rott Municipal Airport	4F9	$65,000	$12,000	$2,000	$78,000
Lakota	Lakota Municipal Airport	5L0	$79,000	$19,000	$3,000	$101,000
Langdon	Robertson Field	D55	$110,000	$20,000	$3,000	$133,000
Larimore	Larimore Municipal Airport	2L1	$211,000	$38,000	$6,000	$254,000
Leeds	Leeds Municipal Airport	D31	$43,000	$9,000	$1,000	$53,000
Lidgerwood	Lidgerwood Municipal Airport	4N4	$1,000	<$1,000	<$1,000	$1,000
Linton	Linton Municipal Airport	7L2	$127,000	$28,000	$5,000	$160,000
Lisbon	Lisbon Municipal Airport	6L3	$169,000	$32,000	$5,000	$205,000
Maddock	Maddock Municipal Airport	6D3	$62,000	$12,000	$2,000	$75,000

Associated City	Airport Name	FAA ID	Federal Taxes	State Taxes	Local Taxes	Total Taxes
Mandan	Mandan Regional - Lawler Field	Y19	$847,000	$124,000	$18,000	$989,000
Mayville	Mayville Municipal Airport	D56	$150,000	$32,000	$5,000	$187,000
McClusky	McClusky Municipal Airport	7G2	$2,000	<$1,000	<$1,000	$2,000
McVille	McVille Municipal Airport	8M6	$2,000	<$1,000	<$1,000	$3,000
Milnor	Milnor Municipal Airport	4R6	$10,000	$2,000	<$1,000	$13,000
Minto	Minto Municipal Airport	D06	$22,000	$4,000	<$1,000	$27,000
Mohall	Mohall Municipal Airport	HBC	$187,000	$37,000	$6,000	$229,000
Mott	Mott Municipal Airport	3P3	$74,000	$15,000	$2,000	$91,000
Napoleon	Napoleon Municipal Airport	5B5	$42,000	$8,000	$1,000	$51,000
New Rockford	Tomlinson Field	8J7	$86,000	$18,000	$3,000	$107,000
New Town	New Town Municipal Airport	05D	$103,000	$27,000	$5,000	$134,000
Northwood	Northwood Municipal - Vince Field	4V4	$145,000	$34,000	$6,000	$184,000
Oakes	Oakes Municipal Airport	2D5	$81,000	$16,000	$3,000	$99,000
Page	Page Regional Airport	64G	$153,000	$24,000	$4,000	$181,000
Park River	Park River - W C Skjerven Field	Y37	$141,000	$31,000	$5,000	$176,000
Parshall	Parshall-Hankins Airport	Y74	$63,000	$17,000	$3,000	$83,000
Pembina	Pembina Municipal Airport	PMB	$130,000	$26,000	$4,000	$160,000
Plaza	Trulson Field	Y99	<$1,000	<$1,000	<$1,000	$1,000
Richardton	Richardton Municipal Airport	4E8	$1,000	<$1,000	<$1,000	$1,000

Associated City	Airport Name	FAA ID	Federal Taxes	State Taxes	Local Taxes	Total Taxes
Riverdale	Garrison Dam Recreational Airpark	37N	$2,000	<$1,000	<$1,000	$3,000
Rolette	Rolette Airport	2H9	$10,000	$2,000	<$1,000	$13,000
Rolla	Rolla Municipal Airport	06D	$213,000	$41,000	$7,000	$261,000
Rugby	Rugby Municipal Airport	RUG	$197,000	$40,000	$6,000	$243,000
St. Thomas	St. Thomas Municipal Airport	4S5	$44,000	$8,000	$1,000	$53,000
Stanley	Stanley Municipal Airport	08D	$254,000	$63,000	$11,000	$328,000
Tioga	Tioga Municipal Airport	D60	$333,000	$96,000	$17,000	$446,000
Towner	Towner Municipal Airport	D61	$2,000	<$1,000	<$1,000	$2,000
Turtle Lake	Turtle Lake Municipal Airport	91N	$4,000	$1,000	<$1,000	$6,000
Valley City	Barnes County Municipal Airport	BAC	$235,000	$46,000	$7,000	$288,000
Wahpeton	Harry Stern Airport	BWP	$419,000	$86,000	$14,000	$519,000
Walhalla	Walhalla Municipal Airport	96D	$139,000	$29,000	$5,000	$172,000
Washburn	Washburn Municipal Airport	5C8	$121,000	$26,000	$4,000	$151,000
Watford City	Watford City Municipal Airport	S25	$1,396,000	$319,000	$52,000	$1,767,000
West Fargo	West Fargo Municipal Airport	D54	$229,000	$131,000	$26,000	$386,000
Westhope	Westhope Municipal Airport	D64	$59,000	$13,000	$2,000	$74,000
Wishek	Wishek Municipal Airport	6L5	$14,000	$4,000	<$1,000	$19,000
		Statewide Total	**$228,071,000**	**$41,195,000**	**$6,940,000**	**$276,213,000**

Note: Tax values are reported to the nearest thousand, with amounts below $1,000 shown as "< $1,000." Sources: IMPLAN, 2025; Kimley-Horn, 2026