
CHAPTER 1: OVERVIEW

Purpose and Scope

The information presented in this report represents the study findings for the 2023 Supplemental Airport Planning study prepared for the Prairie County Airport Authority, the airport owner. Airport Plans are prepared in accordance with Federal Aviation Administration (FAA) Advisory Circulars. This project was funded in part by the FAA under grant number AIP 3-30-0075-012-2022.

This study for the Terry Airport (8U6) will serve to update components of the 2018 Airport Planning study and answer questions to facilitate future development. The airport sponsor and Kadmas, Lee & Jackson (KLJ) developed the scope for the project in cooperation with FAA Airports District Office and MT Aeronautics officials to identify the specific needs and objectives of the airport owner. The project received notice to proceed in May 2022 from the airport sponsor.

Issues for Supplemental Planning Study

The purpose of this supplemental planning work is in recognition that a wildlife fence is proposed around the airport to protect aircraft using the airport from wildlife. A wildlife fence is taller than the existing perimeter fence, and thus if the 10 foot tall fence were placed where the existing barbed wire fence is located, it would become an obstruction. The fence location also has a cascading effect to a residential road on the west side of the airport and an irrigation ditch on the north side of the airport. Because of the new fence, the existing residential road will need to be relocated around the new fence alignment. In addition, the new fence alignment may require realignment of the irrigation ditch along the north boundary of the airport. This supplemental planning will examine the road alignment and the drainage ditch alignment which also has a historic designation.

Future Wildlife Fence is taller and requires a wider separation from the Runway which impacts these facilities:

- Irrigation Ditch (north side)
- Residential Road (west side)

Study Documentation & Approvals

The Supplemental Planning Study is divided into chapters to document airport planning data, analysis, findings, and recommendation of the study. The following sections are included in the narrative report:

- Chapter 1 – Overview
- Chapter 2 - Environmental
- Chapter 3 – Alternatives Analysis
- Chapter 4 – Implementation
- Appendix A – Glossary of Terms
- Appendix B – General Aviation Airports 101
- Appendix C – Meetings & Public Involvement
- Detail Report – Cultural Resources
- Detail Report – Aquatic Resources Delineation

Each chapter was prepared separately and distributed to the airport owner for review and comment. After the airport owner’s review, each draft chapter findings were made available to key airport

stakeholders including the State and FAA for input prior to a final review and approval by the airport owner. Each approved final draft chapter was then published on the airport’s website for public viewing.

The completed Supplemental Planning Study was accepted by the Prairie County Airport Authority in August 2023. The ALP update was submitted to the State and FAA for review and approval in December 2023.

Public Involvement

Public involvement is a key component to the successful development of a Planning study. The purpose is to encourage information sharing and feedback from airport stakeholders including the airport owner, airport users/tenants, local government officials, resource agencies, elected and appointed officials and the public. Public involvement provides valuable input to assist the airport owner in decision making and develop consensus on study conclusions. The reports from the study will be maintained on the project website **TerryAirportPlan.net** throughout the planning process. A means to contact the planning team is also made available on the website for comments to be submitted to the consultant. See **Appendix A: Public Involvement** for other information including copies of meeting agendas, attendees, presentations, and summaries.

Background

The Airport Layout Plan report was completed in 2018 with the primary focus being the implementation of instrument approach capabilities at 8U6 as well as adding wildlife fencing. The next steps after the 2018 study were to complete an environmental review in anticipation of a road relocation and wildlife fence. Upon closer review by the FAA and other options for a different road alignment, it was determined that some supplemental planning was needed to look closer at the road options and at the same time complete specific major environmental elements first.

Findings from 2018 Study

The 2018 Study reviewed the forecast of activity, wind conditions and existing airfield at 8U6. In addition, a wildlife hazard assessment was completed. The wildlife hazard assessment recommended the following items:

1. *Follow the grass habitat management guidelines in this report (maintaining grass height between six and twelve inches) and work towards establishing a dense grass habitat on the airfield that contains minimal non-grass species (i.e. alfalfa, shrubs, weeds)*
2. *Continue to mow alfalfa in the fall, as needed, until it is eliminated from the airport.*
3. *Enclose the airfield with an effective deer proof perimeter fence.*
4. *Clean up any unnecessary storage piles.*
5. *Enclose the open hangar.*

The study noted that the recommended wildlife fence will need placement outside the applicable safety surfaces to not impede the ultimate needs of the airport. This will require land acquisition and a relocation of the residential road west of the airport. A Runway Protection Zone (RPZ) Analysis was completed as a part of the 2018 Study and the FAA concurred that the road could remain inside the Runway 8 RPZ if necessary. It is important to point out that even though it would remain inside the RPZ, the road would still be located further west than the current location 470 feet from the runway end.

From the study, the Critical Design Aircraft was determined to be the Beech King Air 250, a B-II(S) aircraft requiring a 2A Taxiway Design Group. The details of this turboprop aircraft are provided in **Table 1-1 Critical Design Aircraft**.

Table 1-1 – Critical Design Aircraft

Design Characteristics	Existing	Ultimate
Aircraft Make/Model	Beech King Air 250	Beech King Air 250
Airplane Approach Category	B	B
Airplane Design Group	II	II
Taxiway Design Group	2A	2A
Wingspan	57' 11"	57' 11"
Length	43' 10"	43' 10"
Height	14' 10"	14' 10"
Cockpit to Main Gear	8' 5"	8' 5"
Main Gear Width	18' 7"	18' 7"
Approach Speed (1.3 x Stall)	103 knots	103 knots
Maximum Takeoff Weight	12,500 pounds	12,500 pounds
Landing Gear Configuration	Dual Wheel	Dual Wheel

Source: KLJ Analysis

The existing and ultimate approaches were evaluated to change from visual approaches to 1-mile instrument approach capabilities. This results in changes in the Approach/Departure Surfaces as detailed in **Table 1-2 Approach/Departure Surface Requirements** and in changes to the FAR Part 77 Surfaces as detailed in **Table 1-3 Part 77 Approach Airspace Requirements**.

Table 1-2 – Approach/Departure Surface Requirements 150/5300-13A Table 3-2

Runway End(s)	Table 3-2 Surface	Description	Dimensions	Slope
Existing				
8, 26	2	Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more (visual, day/night)	250 x 700 x 2,250 + 2,750 Start at Threshold	20:1
Future & Ultimate				
8, 26	3	Approach end of runways expected to serve large planes (Visual day/night); or instrument approaches greater than or equal to 1 mile (day only)	400 x 1,000 x 1,500 + 8,500 Start at Threshold	20:1
8, 26	8	Approach end of runways expected to accommodate instrument approaches with vertical guidance	275 x 1,520 x 10,000 Start at Threshold	30:1
8, 26	9	Departure runway ends used for any instrument operations	1,000 x 6,466 x 10,000 Start at Threshold	40:1

Source: FAA AC 150/5300-13A, KLJ Analysis

Table 1-3 – Part 77 Approach Airspace Requirements

Runway End	Approach Standards	Part 77 Code	Inner Width*	Outer Width	Length	Slope
Existing						
8, 26	Visual Utility	A	250'	1,250'	5,000'	20:1
Ultimate						
8, 26	Non-Precision Utility As low as ¾ mile	A	500'	2,000'	5,000'	20:1

Source: [Title 14 CFR Part 77](#), KLJ Analysis *Inner width is also the Primary Surface width driven by the most demanding approach to a runway. **Bold** indicates change from existing standard.

However, it is very important to note that the change to instrument approach capabilities with the previous planning work were based on Table 3-2 of FAA AC 150/5300-13A. A new FAA Advisory Circular is now in effect and the criteria is in Paragraph 3.6 of AC 150/5300-13B. This now provides the guidance for creating instrument approaches at airports. The notable changes are shown by comparing **Table 1-2** with **Table 1-4**. What was a Type 3 surface in **Table 1-2** began at the runway threshold, but this is now a Type 5 surface in **Table 1-4** and begins 200 feet from the threshold. See **Appendix B – General Aviation Airports 101** for more information on approach surfaces and airport design standards. The other notable item is the departure surface Type 9 and 7 respectively from **Tables 1-2** and **1-4** has changed so that the sides now slope up from the runway width out. These changes will affect the fence and road relocation on the west end and the new standards will be included in the alternatives analysis in **Chapter 3**.

Table 1-4 – Approach/Departure Surface Requirements 150/5300-13B Para. 3.6

Runway End(s)	Par. 3.6 Surface	Description	Dimensions	Slope
Existing				
8, 26	2	Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more (visual, day/night)	250 x 700 x 2,250 + 2,750 Start at Threshold	20:1
Future & Ultimate				
8, 26	5	Approach end of runways expected to accommodate instrument approaches having visibility minimums greater than or equal to ¾ mile	400 x 3,400 x 10,000 Start 200' from Threshold	20:1
8, 26	6	Approach end of runways expected to accommodate instrument approaches with vertical guidance	275 x 1,520 x 10,200 Start at Threshold	30:1
8, 26	7	Departure runway ends used for any instrument operations	1,000* x 6,466 x 10,000 Start at Threshold	40:1

Source: FAA AC 150/5300-13B, KLJ Analysis

Note: The beginning of the departure surface starts at the runway elevation at the width of the runway then slope up to 150' above runway elevation to the outer edges. See Appendix B for details.

Based on the Critical Design Aircraft and the planned 1-mile approach minimums, the design standards for Runway 8/26 are provided in detail in **Table 1-5 Runway 8/26 Design Standard Matrix**.

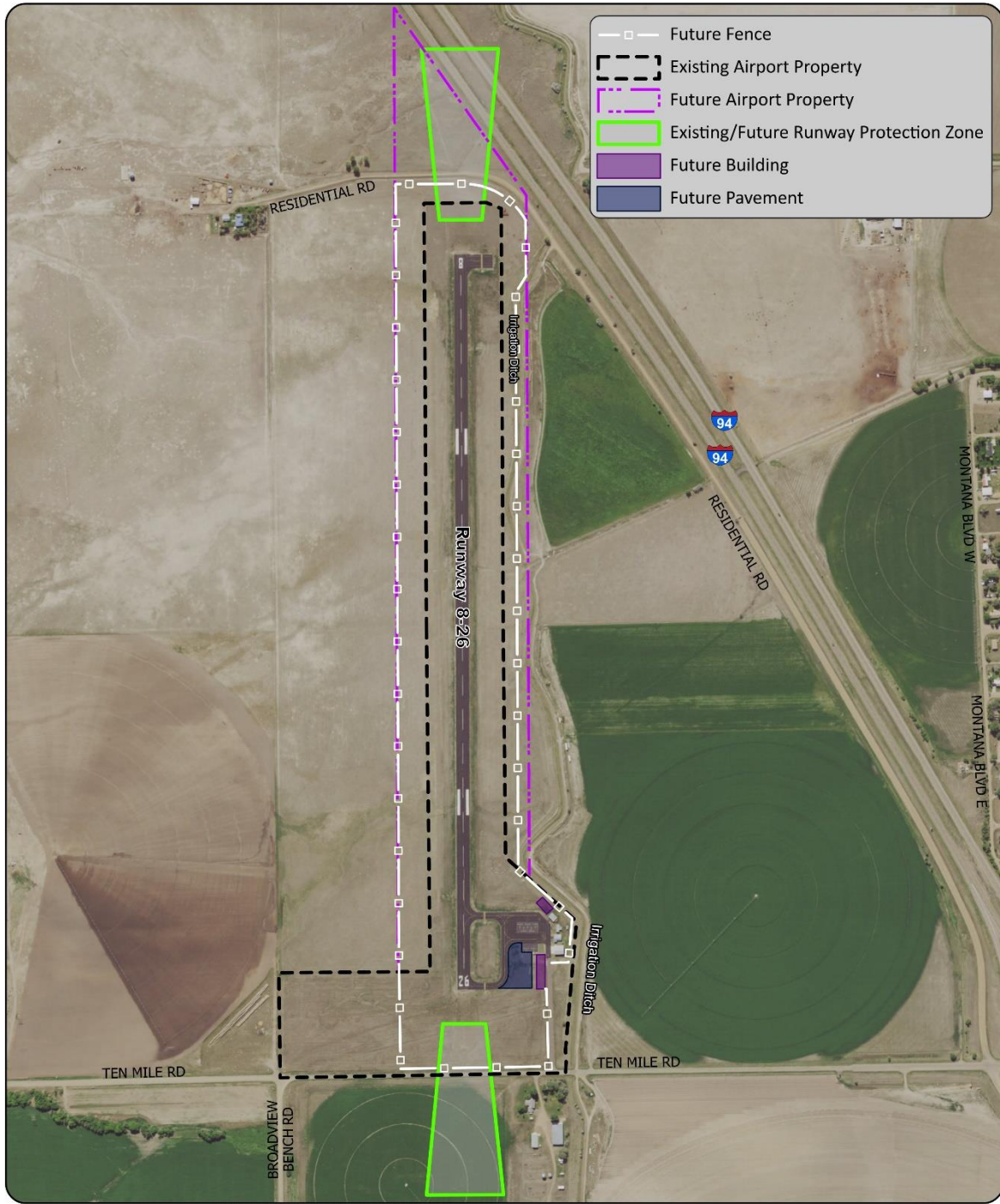
Table 1-5 – Runway 8/26 Design Standard Matrix

Design Standard	Facility Requirement or Recommendation	
	Existing	Future
Runway Classification	Utility	Utility
Runway Design Code (RDC)	B-II(S)-Visual	B-II(S)-5000
Approach Reference Code (APRC)	B-II-4000	B-II-4000
Departure Reference Code (DPRC)	B-II	B-II
Pavement Strength (Wheel Loading)	12,500 (DW)	12,500 (DW)
Runway Width	75'	75'
Runway Length	4,300'	4,300'
Runway Safety Area (RSA)		
RSA Width	150'	150'
RSA Length Past Departure End	300'	300'
RSA Length Prior to Threshold	300'	300'
Runway Object Free Area (ROFA)		
ROFA Width	500'	500'
ROFA Length Past Departure End	300'	300'
ROFA Length Prior to Threshold	300'	300'
Runway Object Free Zone (ROFZ)		
ROFZ Width	250'	400'
ROFZ Prior/Past Threshold	200'	200'
Runway Protection Zone (RPZ)		
RPZ Start from Runway	200'	200'
RPZ Length	1,000'	1,000'
RPZ Inner Width	250'	250'
RPZ Outer Width	450'	450'
Parallel Taxiway Centerline	240'	240'
Hold Position	125'	200'
Runway Lighting Type	MIRL	MIRL
Runway Marking Type	-	Non-Precision
Approach Type / Minimums	Visual / na	NPI / 1-mile
14 CFR Part 77 Approach Surface	250' x 1,250' x 5,000' 20:1 Slope	500' x 2,000' x 5,000' 20:1 Slope
Par. 3.6 Approach Surface	Type 2 250' x 700' x 2,250' (+2,750') 20:1 Slope	Type 5 400' x 3,400' x 10,000' 20:1 Slope
Par. 3.6 Approach Surface Starting Position	At Threshold	200' from Threshold

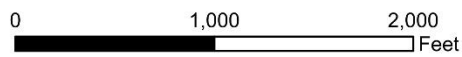
Source: FAA AC 150/5300-13B, KLJ Analysis

The existing and ultimate airfield from the 2018 Study are provided in **Figure 1-1 Existing/Ulimate Airfield**. The location of the irrigation ditch and residential road are noted.

Figure 1-1 – Existing/Ultimate Airfield (2018 Study)



*Intended for Planning Purposes Only



Terry Airport
Existing/Ultimate
2018 ALP

Road Alignment/Location Issues

The existing residential road goes around the west end of the airport approximately 470 feet from the threshold to Runway 8 and is within the Runway Protection Zone (RPZ) for Runway 8. The road also currently penetrates the FAR Part 77 approach surface by as much as 7 feet for the ultimate instrument approach requirements. The wildlife fence location is depicted on **Figure 1-1** and shows that on the west end it would be moved out to the western edge of airport property, according to the 2018 ALP, because of how close the northern portion of Interstate 94 is to airport property.

While the FAA recognized the limited use of the residential road, which would allow it to be relocated and remain in the RPZ, other alternatives will be analyzed in this supplemental planning.

Wildlife Fence Location

Fences around airports must be placed so that the height of the fence does not impede any safety surfaces based on the future airport reference code. Terry is needing both a new taller wildlife fence and needs to accommodate larger safety surfaces to accommodate instrument approaches in the future. For Terry the airport reference code in **Table 1-5** shows a change from B-II(S)-Visual to B-II(S)-5000. This change recognizes the plans to add instrument approach capabilities. The 10-foot-tall wildlife fence will need to be placed at least 320 feet from the runway centerline. This location is feasible around the airport with some amount of land acquisition but on the north side, it will also require the relocation of portion of a historic irrigation ditch which is currently 245 feet from the centerline of the runway. There are environmental considerations to factor into this analysis and alternatives will be evaluated in this supplemental planning.