

Mobridge Municipal Airport

Airport Master Plan Forecast and Facility Requirements Meeting –
February 26, 2025

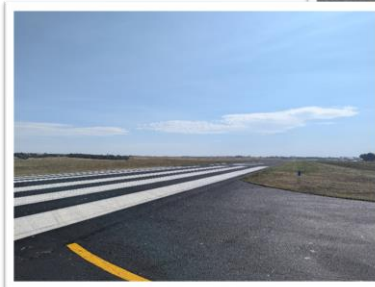


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Agenda

- Review Kickoff Items
- Primary Runway Issues
- Turf Runway Issues
- Open Discussion
- Next Meeting



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Aircraft

Critical Design Aircraft

Aircraft Approach Category B

- Represents speed that aircraft approaches runway
- 91 to 121 Kts

Airplane Design Group II

- Represents wingspan and height of aircraft
- 49' to 79' wingspan

Taxiway Design Group 2A

- Represents pavement width and turning clearance needed by aircraft
- Main Gear Width – 15' to 20'
- Cockpit to Main Gear – 20' to 40'

Based on Cargo Aircraft

Based Aircraft

- 13 single engine aircraft

Operations

- 1,542 total itinerant
- 4,000 total local
- 5,542 Total Operations



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Existing Airfield

- Design Group A/B-II
- Paved Runway 12-30
 - 4,410' x 75'
 - GPS Approach both ends
 - 2-light PAPIs
- Turf Runway 17-35
 - 2,399' x 250'
- Automated Surface Observation System (ASOS)
- Self-Fueling 100LL & Jet A



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Improvements to Primary Runway

- Visibility Minimums
- Parallel Taxiway
- Runway Length
- Obstructions Analysis
 - Part 77 (34:1)
 - 13B Surfaces (20:1)



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Instrument Meteorological Conditions

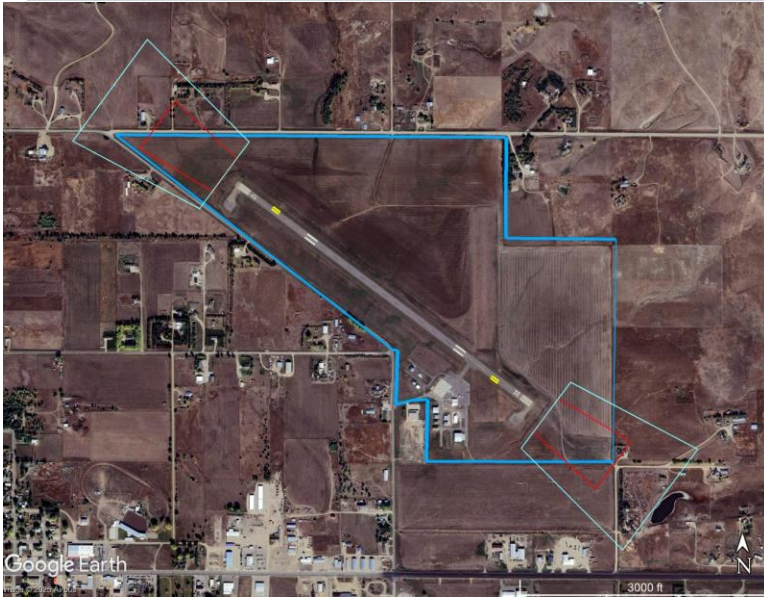
- Airport is accessible 97.8% of the time (93.5% VMC, 4.3% Usable IMC)
- 83% of IFR conditions occur between 1am and 10am
 - 42% between 1am and 6am
 - 41% between 7am and 10am
- Air medical companies stated can't use Runway 12 at night and if the winds are out of the south

Weather Condition	Percentage			Days Per Year	Hours Per Year
VMC	93.53%			341.4	8,193
Usable IMC - 1 Mile Visibility	4.29%			15.7	376
557-foot Ceiling Runway 12					
292-foot Ceiling Runway 30					
Existing Usability	97.82%			357.1	8,569
Additional Capture with IMC Improvements	Rwy 12	Wind Calm	Rwy 30		
1 Mile Visibility					
300-foot Ceiling Runway 12	0.66%	0.00%	0.00%	2.4	58
292-foot Ceiling Runway 30					
1/2 Mile Visibility					
300-foot Ceiling Runway 12	0.11%	0.01%	0.17%	1.0	24
292-foot Ceiling Runway 30					
Parallel Taxiway Required					
Below Weather Minimums	2.18%			7.9	191
Total	100.00%			365.0	8,760

Table 2-7 – Meteorological Analysis, p.2-5

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RPZ for ¾ Mile Approach



- > Existing (Red)
 - > 1 Mile Visibility
 - > 1 Residence
- > Ultimate (Light Blue)
 - > ¾ Mile Visibility
 - > 3 Residences
 - > 12 RPZ roughly 22 acres of easement needed
 - > 30 RPZ roughly 26 acres of easement needed



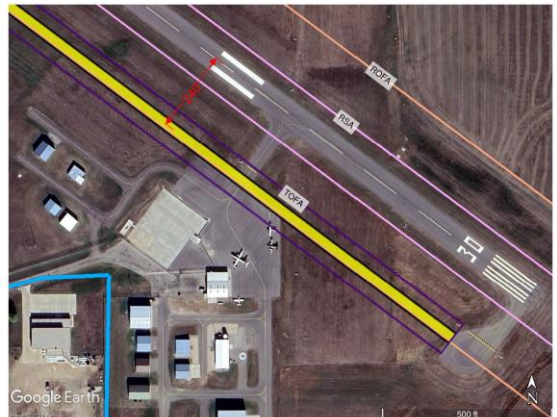
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Parallel Taxiway Option 1



- > 240' centerline separation
- > A/B-II ¾ Mile Visibility
- > 200' Hold Line



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Parallel Taxiway Option 2

- 300' centerline separation
- C/D/E-II ¼ Mile Visibility
- 200' Hold Line for A/B-II (250' for C/D/E-II)



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Airport and Runway Data		
Longest Runway Length (Runway 12-30)	4,410 feet	
Airport Elevation	1,716.2 ft	
Mean Daily Maximum Temperature of Hottest Month	87.4°F	
Aircraft Classification	Recommended Runway Length	
Small Airplanes 12,500 Pounds or less		
10 or more passenger seats	4,410 feet	
Less than 10 passenger seats at 100 percent of fleet	4,280 feet	
Less than 10 passenger seats at 95 percent of fleet	3,700 feet	
Small Aircraft Runway Length Analysis Tool		
Cessna 150	Dry	Wet
Cessna 172 Skyhawk	2,017 feet	2,320 feet
Cessna 177 Cardinal	2,074 feet	2,385 feet
Cessna 182 Skylane	2,018 feet	2,321 feet
Cessna 340	1,947 feet	2,239 feet
Cessna 402B	4,544 feet	5,226 feet
Cessna T206 Turbo Stationair	4,098 feet	4,713 feet
Cirrus SR 22	2,360 feet	2,714 feet
Cirrus SR 22 Turbo	2,798 feet	3,218 feet
Mooney M20J	2,951 feet	3,394 feet
Piper 28B Dakota	3,678 feet	4,230 feet
Beechcraft King Air B200GT	1,997 feet	2,297 feet
Beechcraft King Air C90	3,916 feet	4,503 feet
Cessna 208 Caravan	3,233 feet	3,718 feet
Pilatus PC-12	2,659 feet	3,058 feet
Piper PA-46 Malibu Meridian	3,648 feet	4,195 feet
Beechcraft 1900D	3,076 feet	3,537 feet
Cessna 560 XL	3,850 feet	-
Phenom 300	4,927 feet	5,666 feet
	4,547 feet	5,229 feet

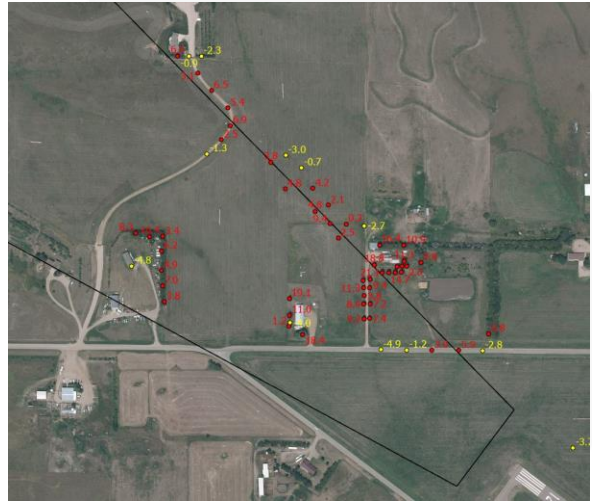
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Obstruction Analysis – Runway 12 End

13B (20:1)



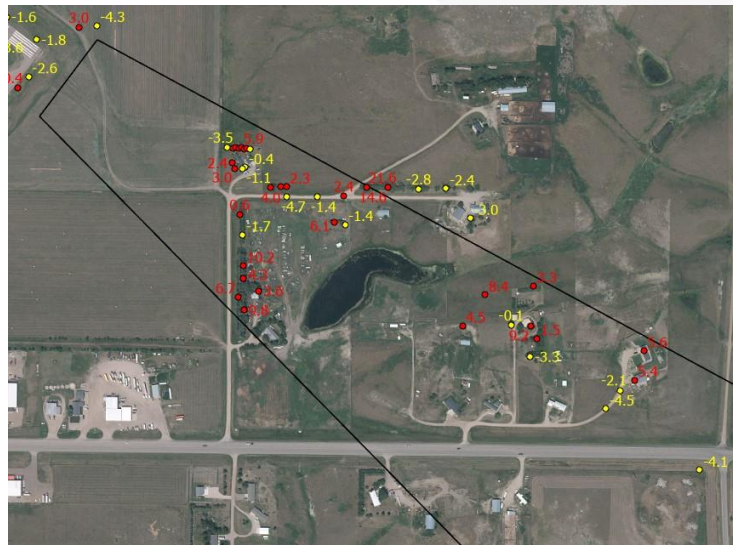
Part 77 (34:1)



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Obstruction Analysis – Runway 30 End

Part 77 (34:1)



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Preferred Alternatives for Primary Runway

- Visibility Minimums
 - Lower Ceilings to 300' (Runway 12)
 - Lower Visibility to $\frac{3}{4}$ mile
- Parallel Taxiway
 - 240' Centerline Separation
 - 300' Centerline Separation
- Runway Length
 - Maintain Existing 4,410'
 - Extend Runway



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Turf Runway

- Wind Coverage
- Turf Option
- Terminal/Hangar Area Impact



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Wind Analysis

CONFIGURATION	ALL-WEATHER WIND COVERAGE			
	CROSSWIND COMPONENT			
	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 12-30	92.67%	96.90%	99.03%	-
RUNWAY 17-35	88.29%	93.95%	-	-
COMBINED	98.32%	99.36%	99.03%	-

SOURCE: KMBG ASOS (2013-2022, HOURLY) FROM NATIONAL CLIMATIC DATA CENTER
86,117 TOTAL OBSERVATIONS

CONFIGURATION	INSTRUMENT FLIGHT RULES (IFR) WIND COVERAGE			
	CROSSWIND COMPONENT			
	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 12-30	85.23%	92.64%	96.82%	-
RUNWAY 17-35	-	-	-	-
COMBINED	85.23%	92.64%	96.82%	-

SOURCE: KMBG ASOS (2013-2022, HOURLY) FROM NATIONAL CLIMATIC DATA CENTER
5,573 TOTAL OBSERVATIONS
IFR = VISIBILITY LOWER THAN 3 MILES OR CEILING LOWER THAN 1,000 FEET

95% Desirable Wind Coverage

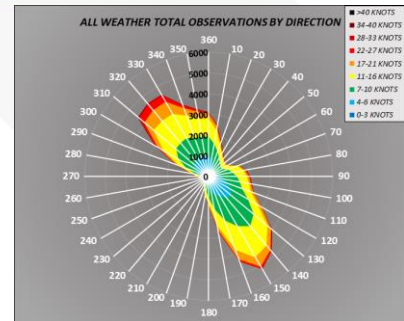


Table B-1. Allowable Crosswind Component per Runway Design Code (RDC)

RDC	Allowable Crosswind Component
A-I and B-I *	10.5 knots
A-II and B-II	13 knots
A-III, B-III, C-I through D-III D-I through D-III	16 knots
A-IV and B-IV, C-IV through C-VI, D-IV through D-VI	20 knots
E-I through E-VI	20 knots

Note: * Includes A-I and B-I small aircraft.

Runway Visibility Zone (RVZ)



- Need clear Line of Sight (LOS) from blocking the pilot's view to intersecting runways
- No Planes on East Tiedowns
- Crops west of 17-35 (no higher than 5' AGL)



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Usable Apron Area



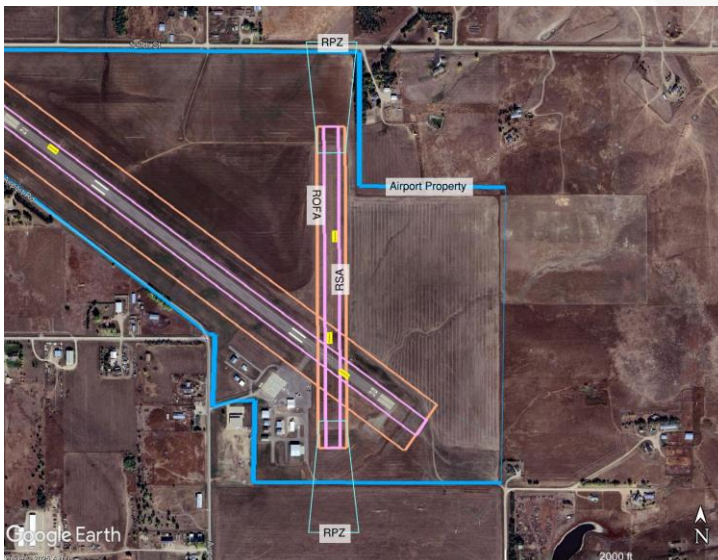
- > Fuel area – 50' diameter
- > Taxiing issues with parked aircraft by terminal and tiedowns



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Current Turf Runway



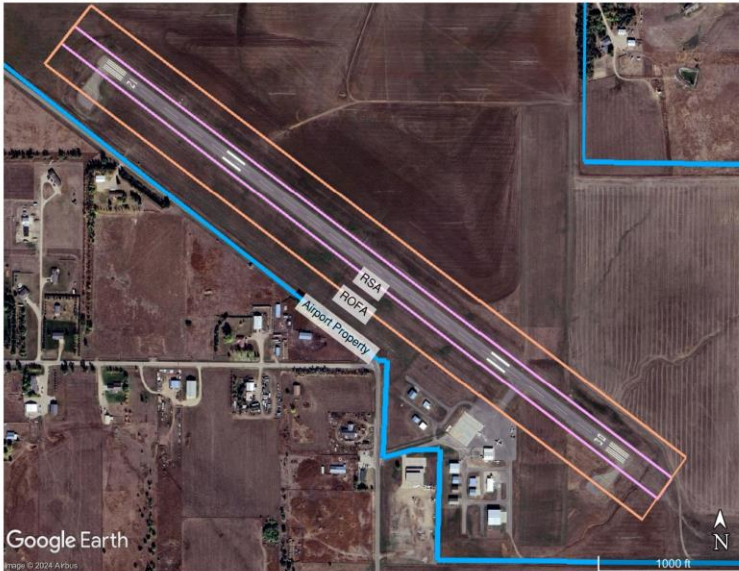
- > Runway Designation 17-35
- > 2,399' long x 250' wide
- > Current Design Group A/B-I(S)
- > RSA: 2,879' long x 120' wide
- > ROFA: 2,879' long x 250' wide
- > RPZ: 250' x 1,000' x 450'



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Option 1 - No Turf Runway



- Remove 17-35 turf runway
- No longer need aviation easements to the south
- No longer have RVZ issues
- Can expand terminal area towards the 30 End



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Option 2 - Parallel Turf Runway

- 2,400' x 100'
- 300' centerline separation
- Runway 12L-30R
- Simultaneous VFR Runway Use
- RPZs within current property
- Par 3.9.3.3 of AC 150/5300-13B



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Option 3 - Parallel Turf Runway

- 2,400' x 100'
- 120' centerline separation
- Runway 12-30
- Within the RSA and Used as Runway 12-30
- RPZs within current property
- Par 2.10.6 of AC 150/5300-13B



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Preferred Turf Runway

- Existing
- No Turf Runway
- Parallel 300' Centerline Separation
 - VFR Simultaneous Use with Paved Runway
- Parallel 120' Centerline Separation
 - Use is either Paved or Turf (recognized as same Runway)



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Outreach Findings

- Medical/Business users do not use the turf runway but would like a parallel taxiway (difficult to use turnarounds in winter)
- Local users would like a parallel taxiway but not at the expense of the turf runway.
- Apron space is adequate except during hunting season and do not like the layout, particularly location of the fueling island.
- Users would like higher level of service like hangaring aircraft and full service fueling.



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Open Discussion



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Typical Aircraft Hangar Attributes				
	T-Hangars	Small Storage Less than 6,000 sf	Large Storage More than 6,000 sf	FBO/SASO
Photo Examples				
Dedicated Apron	None	None	Equal to depth of hangar	Equal to depth of hangar (plus apron for services)
Airport Apron Access	No	No	No	Yes
Setbacks from Taxilanes	Yes - for Design Group (I or II)	Yes - for Design Group (I or II)	Yes plus Apron - for Design Group (II+)	Yes plus Apron - for Design Group (II+)
Airside Taxi Route	Yes - for Design Group (I or II)	Yes - for Design Group (I or II)	Yes - for Design Group (II+)	Yes - for Design Group (II+)
Public Road Access/Parking	No	Yes or No *	Yes*	Yes*

* Any business/corporate hangar located on an airport should have public road access and parking for customers/passengers. Particularly those customers/passengers who are not trained in driving on an airport.

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Next Steps

> Next Meeting:

- > Airfield Alternatives Determination
- > Terminal Area Alternatives

> Website: <https://inputcentral.com/mobridge-airport-plan>



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Questions/Comments

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