

Williston Basin International Airport Master Plan Stakeholder Advisory Committee Airside & Landside Facility Recommendations Meeting

January 18, 2023

Presented by:

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Airside Facility Recommendations Agenda

- Welcome & Introductions
- Master Plan Progress Update
- Airside Facility Recommendations & Alternatives
 - Cargo apron developments
 - Runway 4/22 visibility minimums
 - Self-service fueling & Agricultural spraying facilities
 - ATCT siting locations
- Landside Facility Recommendations & Alternatives
- Next Steps
- Discussion/Questions



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Welcome & Introductions

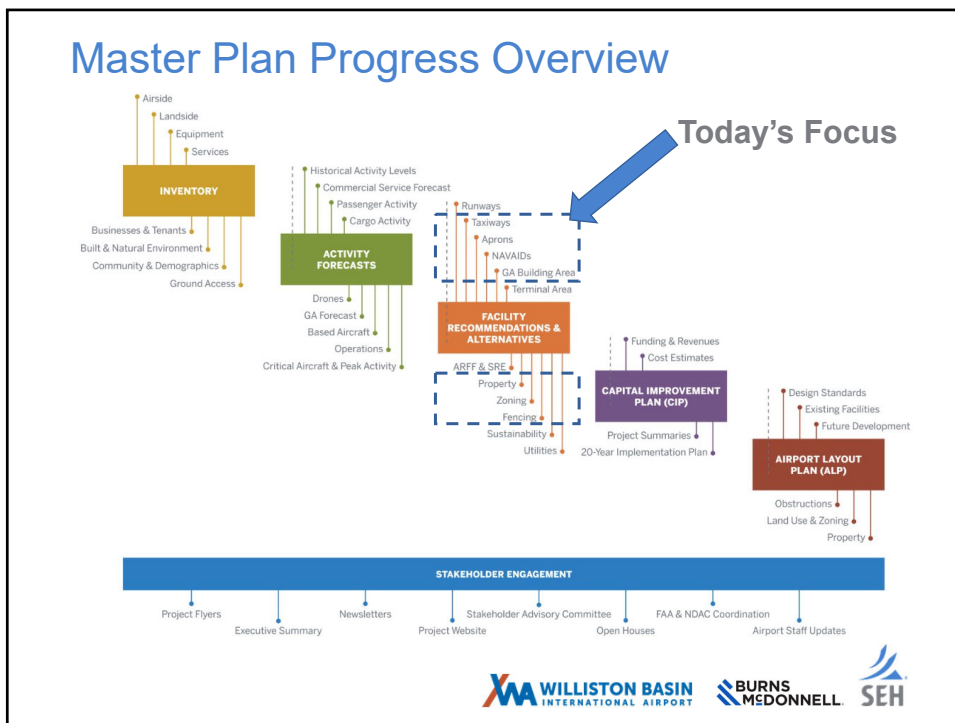
- Name
- Organization
- Role



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Airside Facility Recommendations & Alternatives

Overland Aerial Photography 2020



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Facility Recommendations



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Critical Design Aircraft

Critical Design Aircraft (overall airport)

Aircraft	MTOW	RDC	Operations					
			2019	2020	2022 ¹	2026	2031	2041
CRJ 200 or CRJ 700	53,000	C-II	4,046	2,500	2,085	2,190	1,460	-
E-175 or CRJ 900	85,517	C-III	-	592	156	1,643	2,373	4,015

Note: MTOW = Maximum Takeoff Weight (pounds), RDC = FAA Runway Design Code

¹ Note: 2022 is actual operations through Sept. 30, 2022, and estimated operations through the end of the calendar year.

Source: Landrum and Brown Analysis



CRJ-900
C-III



E-175
C-III



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Runway Design Code

Runway 14/32:
Existing Design Standards D-III
Existing & Future AIP Eligibility C-III



Runway 4/22:
Existing Design Standards A-II/B-II
Existing AIP Eligibility A-I/B-I



Key takeaway: The runway can accommodate larger aircraft.

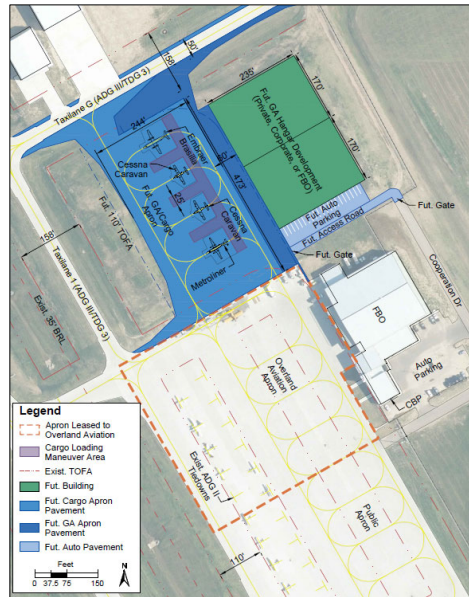


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Alternative A:
Utilize Future GA Ramp Expansion for Cargo Operations (not dedicated space)

Key Takeaway:
This site would increase overall space, but not separate cargo from GA activity

Designed to: ADG II
Estimated costs: \$5.64 million

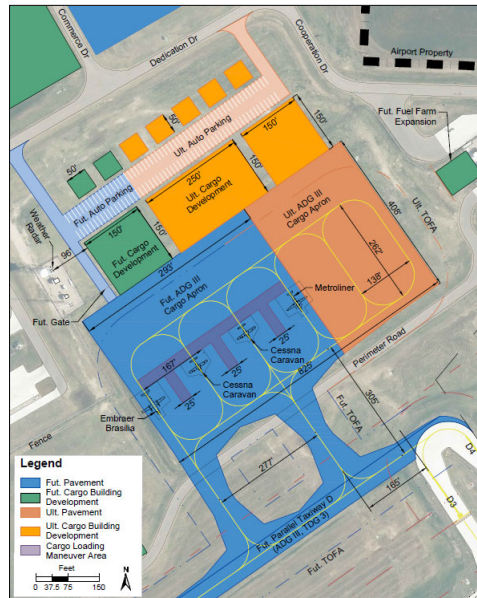


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Alternative B:
Smaller Cargo/Business Hangars with Landside (Non-Aeronautical) Support Facilities

Key Takeaway:
*Smaller hangar space
Potentially more Phase 1 (blue) space than needed*

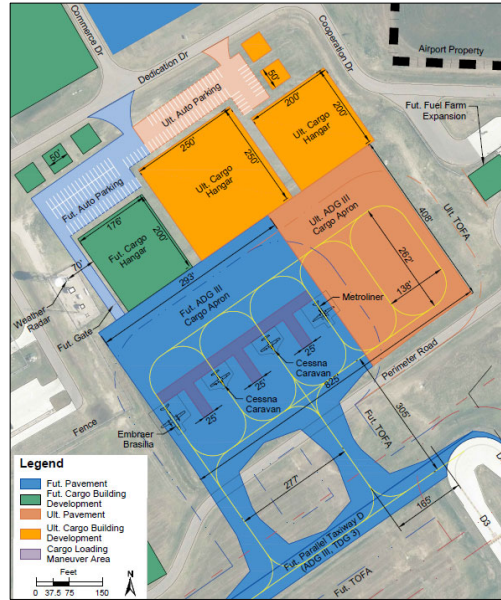
Designed to: ADG III/TDG 3



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Alternative C: Large Hangars

Key Takeaway:
Larger hangars with the potential to load and unload cargo away from the elements.
Potentially more Phase 1 (blue) space than needed



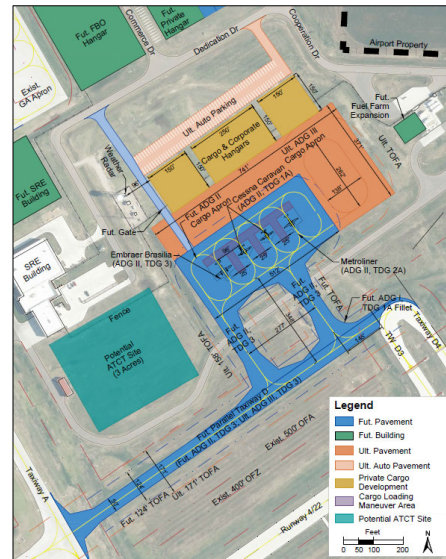
Designed to: ADG III/TDG 3



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Alternative D: ADG II & ADG III Mix

Key Takeaway:
Reduces the Phase I size of the future apron (blue) & accommodates only near-term critical aircraft
Maintains segregated perimeter road



Designed to: Fut. ADG II & Ult. ADG III
Estimated costs: \$10.88 million

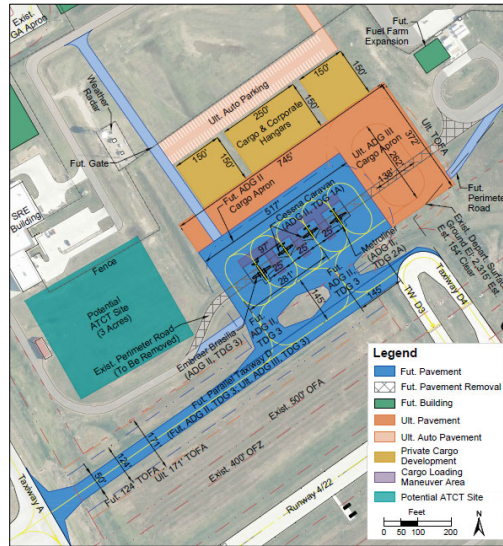


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Alternative E: Minimum Taxiway to Apron Separation

Key Takeaway:

Minimizes the airside infrastructure required and embeds the perimeter road in the apron.



Designed to: Fut. ADG II & Ult. ADG III
Estimated costs: \$10.78 million



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Cargo/Business Area Development Matrix

Item	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
	Fut.	Ult.	Fut.	Ult.	Fut.	Ult.	Fut.	Ult.	Fut.	Ult.
Apron Size (sq. yd)	15,050		27,200	39,800	27,200	39,800	19,750	36,800	18,800	33,200
Aircraft Design Group	III		III	III	III	III	II	III	II	III
Taxiway Design Group	3		3	3	3	3	2	3	2	3
Aircraft Parking Spaces	4		4	6	4	6	6	8	6	8
Taxiway/Taxilane Centerline Separation	224'		305'		305'		348'		145'	
Requires Partial Parallel Taxiway D Construction	No		Yes		Yes		Yes		Yes	
Can Accommodate Dedicated Cargo Facility	No		Yes		Yes		Yes		Yes	
Perimeter Road Relocation Required	No		No		No		No (maintains segregated perimeter Rd)		Yes (minor)	
Separate Cargo and GA Operations	No		Yes		Yes		Yes		Yes	
Costs: Cargo Apron, Connector Taxiways & Vehicle Access Road	\$5.64M		Not Calculated		Not Calculated		\$7.70M		\$7.60M	
Costs: Partial Parallel Taxiway D	\$0		Not Calculated		Not Calculated		\$3.18M		\$3.18M	
Total Costs*	\$5.64M		Not Calculated		Not Calculated		\$10.88M		\$10.78M	

*Note: 2022 dollars

Source: SEH, Burns McDonnell



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Potential to Lower Runway 4/22 (Crosswind Runway) Visibility Minimums



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Potential to Lower Runway 4/22 Visibility Minimums

- Addition of full parallel Taxiway D to Runway 4/22 provides the opportunity to lower visibility minimums by $\frac{1}{4}$ mile
 - From Not Lower Than 1 Mile to Not Lower Than $\frac{3}{4}$ Mile
- Reducing visibility minimums:
 - Increases the size of the Runway Protection Zone
 - Increases the runway to taxiway centerline separation for A/B-I small aircraft by 25 feet



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Potential to Lower Runway 4/22 Visibility Minimums

Existing Wind Coverage

		10.5 knots	13 knots	16 knots	20 knots
Runway 14/32 ¹	All Weather	90.15%	94.86%	98.52%	99.74%
	VFR	90.43%	95.02%	98.56%	99.75%
	IFR ³	87.88%	93.57%	98.02%	99.60%
Runway 4/22 ²	All Weather	82.95%	89.21%	95.15%	98.41%
	VFR	82.85%	89.27%	95.41%	98.66%
	IFR ³	82.64%	88.04%	92.81%	96.58%
Combined	All Weather	97.14%	99.08%	99.80%	99.96%
	VFR	97.24%	99.15%	99.84%	99.98%
	IFR ³	96.13%	98.49%	99.48%	99.84%

¹: Calculated based on Runway 14/32 with a true bearing of 147°.

²: Calculated based on Runway 4/22 with a true bearing of 52°.

³: IFR Weather: Ceilings below 1,000' AGL and/or visibility less than 3 miles.

Source: Stoulin Field International Airport ASOS, 2011 to 2020. Obtained from the National Climatic Data Center.

General Aviation Forecast Summary

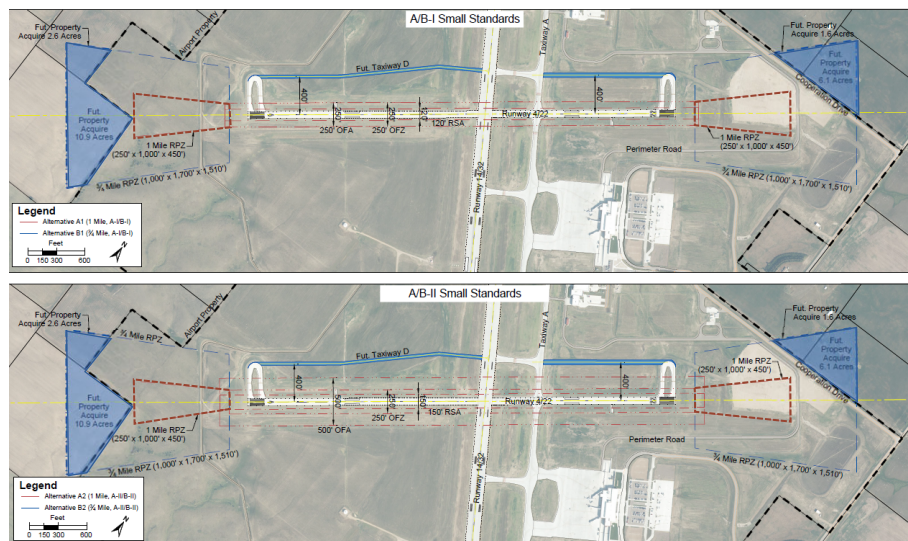
Metric	2019	2026	2031	2041	CAGR
Local Operations	6,533	7,151	7,628	8,680	1.3%
Itinerant Operations	29,646	32,451	34,616	39,389	1.3%
Total Operations	36,179	39,602	40,244	48,069	1.3%
Local Share	18%	18%	18%	18%	
Itinerant Share	82%	82%	81%	79%	

Source: Landrum and Brown Analysis



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Runway Design Standards Comparison



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General Aviation Apron – Self-Service Fuel Facilities Agricultural Spraying Facilities



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Self-Service Fuel System



Key Takeaway: Additional revenue for the airport
and less congestion on the general aviation apron.



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Agricultural (Ag) Spraying Facilities

- 3 ag spraying services operating out of XWA
 - Ag spraying is a method of applying herbicides, pesticides, and fertilizers via aircraft flying over fields of crops.
 - When weather permits, ag sprayers can operate as many as ten flights per day from XWA

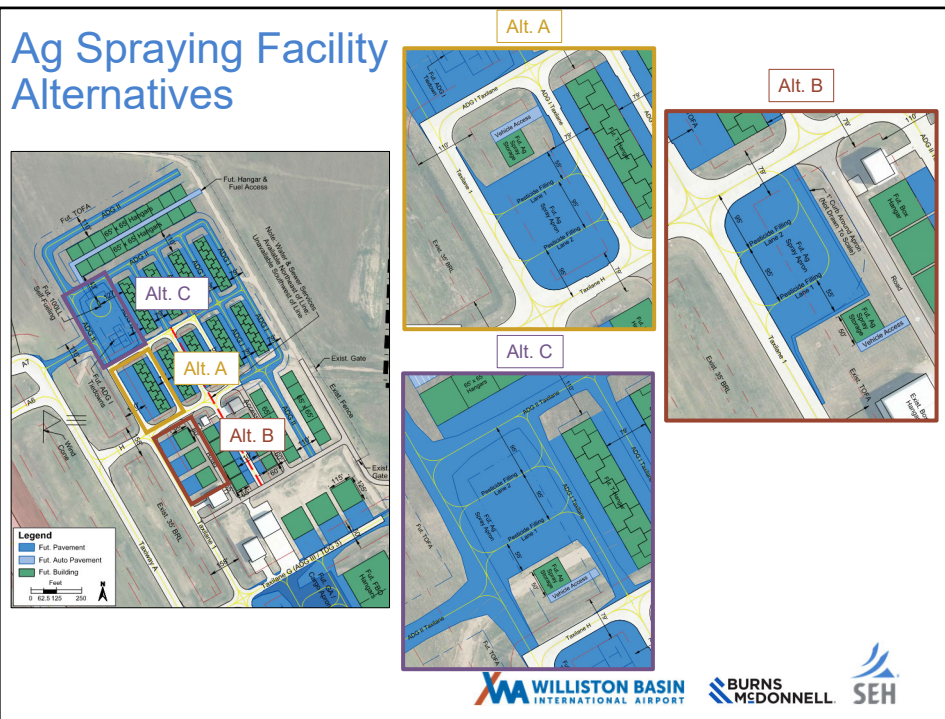
Challenge:

Ag spray operators utilize the GA apron to mix and load chemicals onto aircraft. Such operations encompass large areas of the apron.



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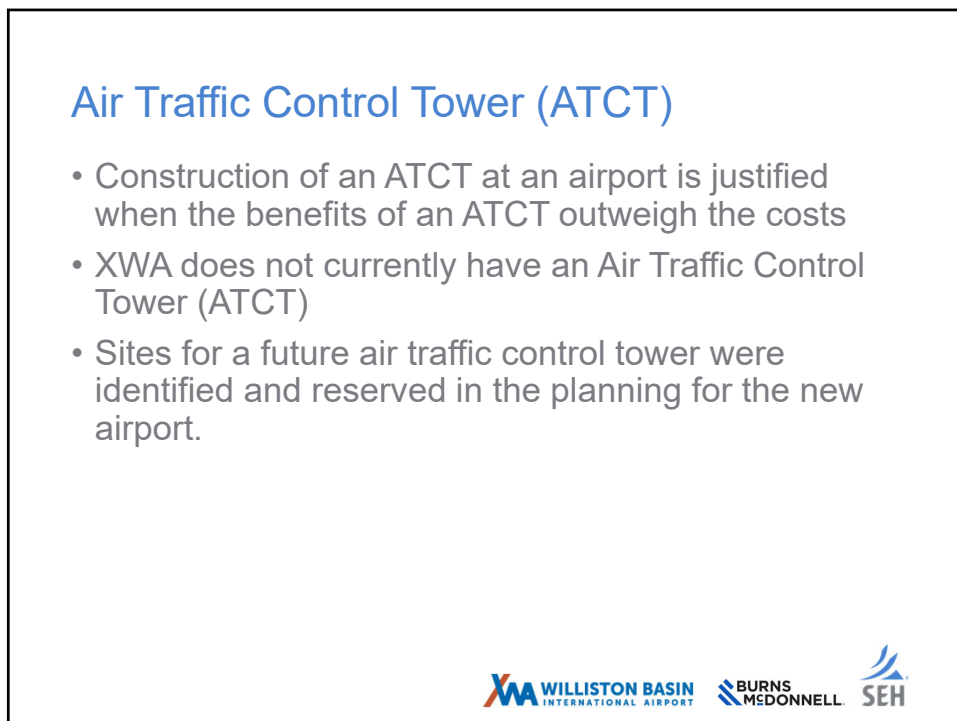
Ag Spraying Facility Alternatives



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Remote Air Traffic Control Tower Alternative

- Emerging technologies and pilot programs are in place in the US for remote towers.
- A **remote tower** uses a variety of sensors, visual, infrared, track-based (radar), etc. to provide an air traffic controller, located in a remote facility, with a comprehensive picture of the airport surface and local airspace.



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Remote Air Traffic Control Tower Considerations

- **FAA is evaluating this technology to assess its suitability for use in the National Airspace System.**
- Two remote tower systems are under evaluation in US:
 - [Northern Colorado Regional Airport \(FNL\)](#) – Loveland – Ft. Collins, CO
 - Public-private partnership
 - ~95,000 annual operations, 270 based aircraft
 - C-III, diverse mix of aircraft
 - Leesburg Executive Airport (JYO) – Leesburg, VA
 - Public-private partnership
 - ~115,000 annual operations, 250 based aircraft
- FAA Reauthorization Act of 2018 established the Remote Tower Program
 - Once remote towers are certified – there is potential for FAA funding to be available for remote facilities.
- If and when remote towers are certified, they will likely be part of the Federal Contract Tower Program (according to FAA staff)



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Benefits and Challenges with Remote Towers

Benefits of Remote Towers

- Lower capital and operations and maintenance costs
- Shortened timeline for site design/implementation
- Reduced environmental study
- Smaller footprint for more siting flexibility
- Potential for remote and consolidated tower operations

Potential Challenges of Remote Towers

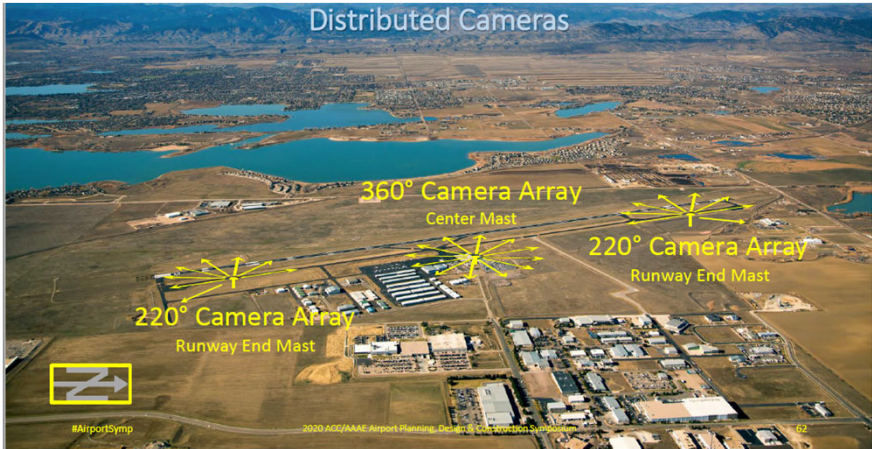
- Funding
- Pilot program priority currently given to existing federal contract tower airports.
- New technology – FAA type certification is not complete
- Uncertain timeline
- Security
- Public perceptions




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Test Site – Northern Colorado Regional Airport (Fort Collins)

Distributed Cameras





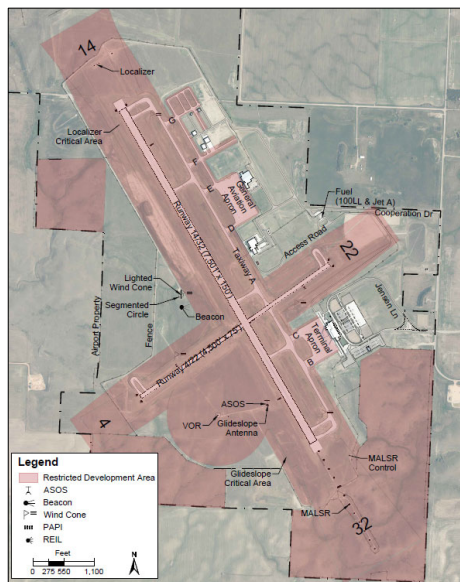
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Traditional Air Traffic Control Tower Siting

- Limit impacts on instrument approach procedures
- Limit impacts on communication, navigation and surveillance equipment
- Visibility performance
 - Unobstructed view
 - Controller should be able to detect/identify an object on all airport surfaces 95.5% of the time.
 - The minimum line of sight angle of incidence should be equal to or greater than 0.80 degrees.
- Operational requirement
 - Primary view should face north. Alternatively, east, west and then south.
 - Where snow often accumulates in the northern hemisphere, a southern orientation should be avoided.
 - Visibility of all airport surface areas should be considered. Priority should be given to taxiways in non-movement areas.
- Economic considerations – consider tower height, land use and existing infrastructure

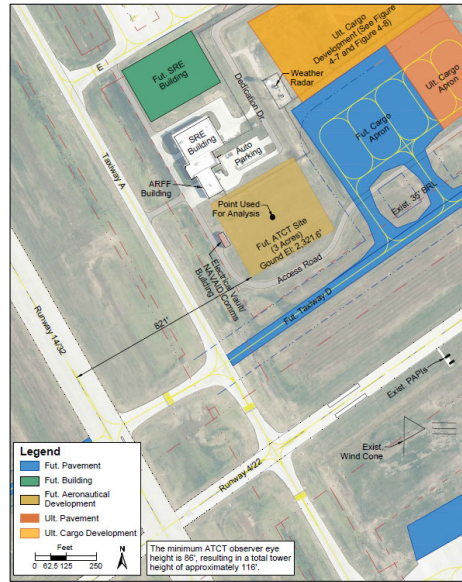
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Air Traffic Control Tower



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Air Traffic Control Tower Locations

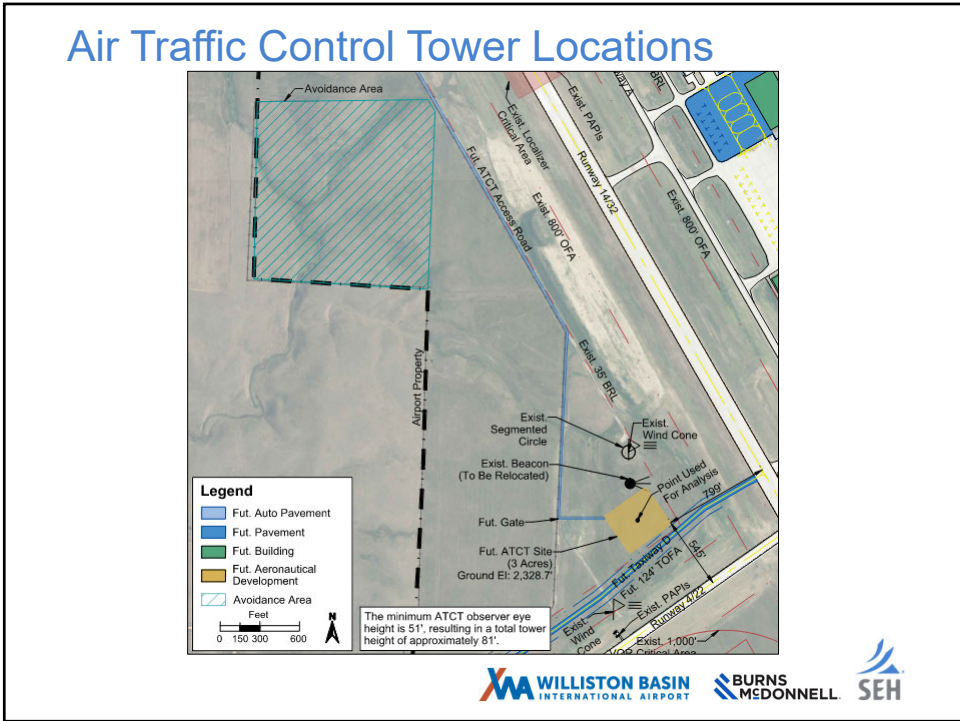


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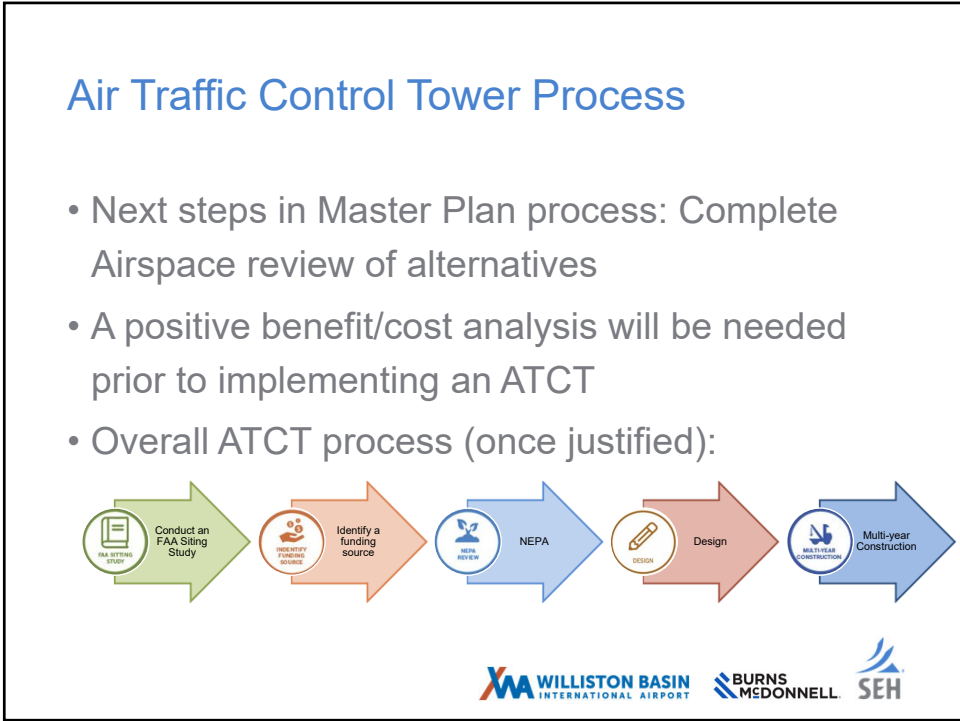
Air Traffic Control Tower Locations



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Landside Recommendations

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Aviation Support Facilities

- Airport Fencing
- Airport Property, Acquisition, and Easements
- Zoning

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Airport Fencing

- 10-foot wildlife and security fence around the airfield
- Installed at XWA in 2019 – good condition.

Recommendation:

Inspect fence line daily

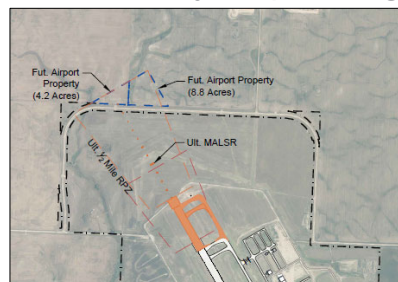
A fence inspection schedule should be included in the Wildlife Hazard Management Plan (WHMP)



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Airport Property, Acquisition, and Easements

- City of Williston owns 1,570.3 acres in fee for XWA
- City to acquire 13 acres for Runway 14 extension to 8,500 feet and ½ mile visibility minimums
- No other changes to airport property are recommended in the 20-year planning period.



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Airport Zoning

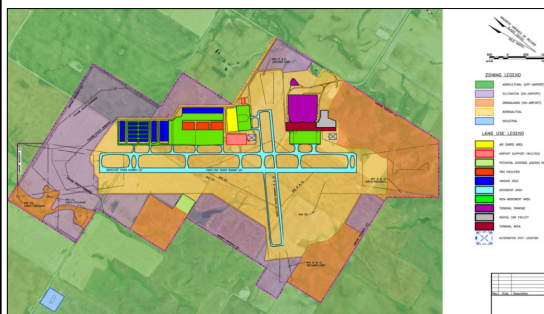
- City of Williston holds jurisdiction over airport property
- Land use surrounding the airport is controlled by the Joint Powers Board
- Two types of zoning in effect at XWA:
 - Municipal land use zoning
 - Development on airport property subject to Development Standards set forth by the City of Williston. Land surrounding the airport is submit to Williams County zoning and is zoned agricultural.
 - Airport safety overlay zoning
 - Height and safety zoning to protect airspace and to keep the surrounding area clear of incompatible land uses.
 - The 2015 Williams County Zoning Ordinance and Subdivision Regulations was amended in May 2019 by the Joint Powers Board for the newly constructed airport.



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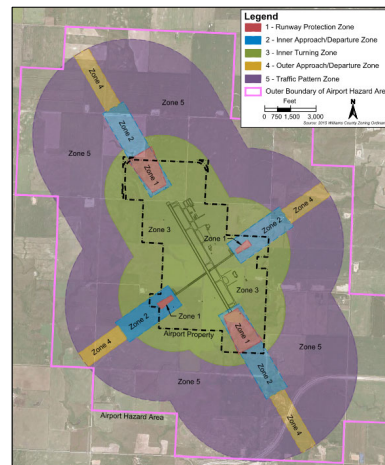
Airport Zoning

Municipal Land Use & Zoning



Recommendation:
 No changes are recommended to the zoning in place on and around the airport.

Airport Safety Zoning Overlay



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Master Plan Next Steps

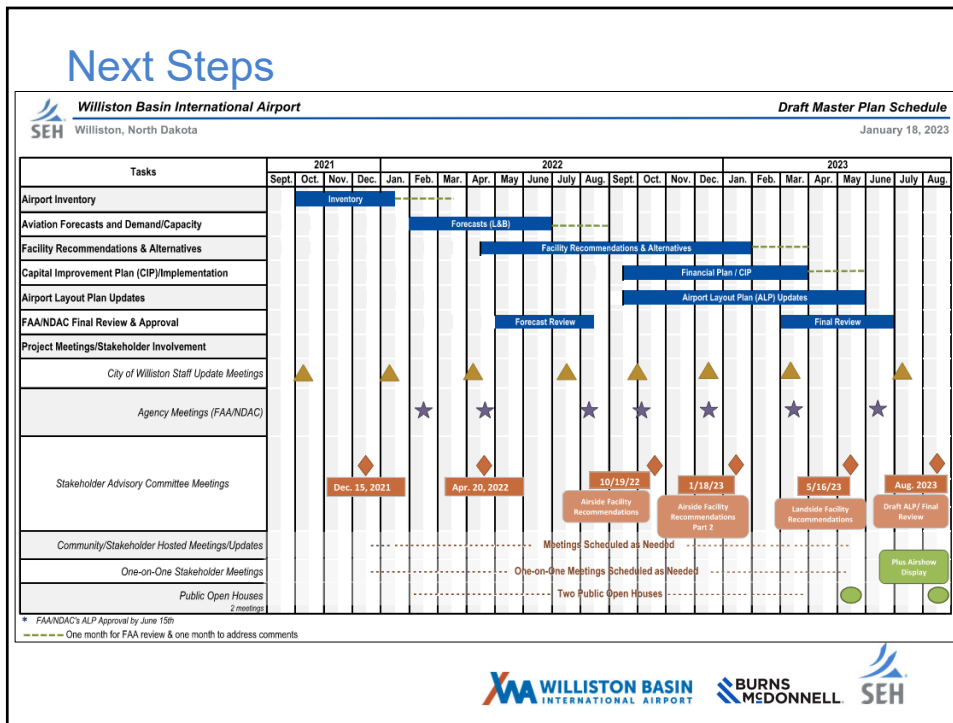
Project Team

- Finalize Landside Facility Recommendations & Alternatives
- FAA & NDAC are reviewing Forecasts and Airside Facility Recommendations & Alternatives chapter

SAC

- Meeting #5:
 - May 16, 2023
 - 9:00 a.m. – 10:30 a.m. at the airport
 - Topics
 - Continued discussion of Landside Facility Recommendations & Alternatives

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Questions and Discussion





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Fuel Facilities

Aviation Fuel

Fuel Tank Owner	Installation Year	Tank Type	Fuel Type	Capacity (Gallons)
Overland Aviation	2018	Above ground	Jet-A	15,000
Overland Aviation	2018	Above ground	Jet-A	15,000
Overland Aviation	2018	Above ground	100LL	12,000

Source: City of Williston

Vehicle Fuel

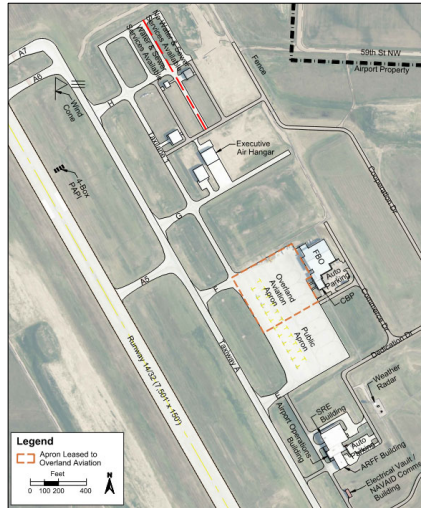
Fuel Tank Owner	Installation Year	Tank Type	Fuel Type	Capacity (Gallons)
City of Williston	2018	Above ground	Diesel	10,000
City of Williston	2018	Above ground	Unleaded	10,000

Source: City of Williston

Recommendation:
The fueling facilities should be expanded as operations and demand warrant.

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General Aviation Automobile Parking & Access Roads



- GA building area accessed from 141st Avenue NW via Cooperation Drive
- Auto parking at the FBO is accessed via Dedication Drive and Commerce Drive
- Roads built in 2019 – good condition & adequate parking available

Recommendation:

Routine maintenance continue to be performed to extend the life of the pavement

Additional parking to be constructed as needed

