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TO: South Dakota Aeronautics Commission

FROM: Jack Dokken, Office of Aeronautics

DATE: October 11, 2019

SUBJECT: Chamberlain Master Plan

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The Chamberlain airport is engaged in a master plan project. The city engineer, Greg Powell, and consultant S.E.H. will present details regarding increased traffic and future runway realignment.

# CHAMBERLAIN MUNICIPAL AIRPORT

## Master Plan Overview

The existing paved runway at the Chamberlain Municipal Airport is 4,299 feet long and the pavement is at the end of its useful life. The City of Chamberlain has been working for many years to document justification for a longer runway to meet the needs of existing and potential users. In 2017 the City began a Master Plan to document user needs, gain FAA and SDDOT support for future improvements, and depict those future needs on the Airport Layout Plan (ALP).



### STAKEHOLDER OUTREACH

- Stakeholder outreach was conducted throughout the Master Plan process. Surveys and in-person interviews with airport users, hunters, hunting guides and lodges were critical components to building the justification for improvements in the Master Plan.



### FORECASTS, CRITICAL AIRCRAFT AND RUNWAY LENGTH APPROVAL

- The FAA approved Master Plan forecasts led the FAA to support the need for a 5,500-foot runway (1,201 longer than the current runway) to serve business jet type aircraft. With this support, the FAA considers a longer runway eligible and justified for federal funding.

<b>Approved Critical Aircraft:</b>	Cessna Citation II/Bravo B-II, Large Aircraft (Over 12,500 lbs)
<b>Approved Runway Length Need:</b>	5,500 feet long



### RUNWAY DEVELOPMENT AND ALTERNATIVES ANALYSIS

- The alternative analysis examined the ability of the existing airport to accommodate a 5,500-foot runway. Five initial alternatives were developed. Alternatives to improve all-weather access were evaluated but dismissed due to increased property acquisition, project costs and environmental impacts.

Three alternatives (Alternatives 1-3) evaluated extending the existing runway. Because these alternatives would require relocation of East King Street, relocation of at least one business, and relocation of three to five residential properties, they were removed from further consideration.

Alternatives 4 and 5 considered a runway in a new location and were developed to minimize land acquisition and avoid road relocations. Variations of each alternative were evaluated to further reduce land acquisition and wetland impacts. Ultimately, Alternative 5c was selected as the preferred alternative.

- **Alternative 5c: Maximum wind coverage with one-mile visibility minimums**

This alternative includes one-mile instrument approach visibility minimums (see Figure 1). The runway is rotated to maximize the wind coverage (allowing aircraft to land into the wind the largest percentage of the time). The existing runway can remain open for much of the construction, minimizing construction impacts. Additionally, portions of the existing paved runway can be repurposed as a taxiway resulting in construction cost savings.



### TERMINAL BUILDING

- The Master Plan documented the need for a new terminal building. The terminal should be ADA accessible, and include restrooms, flight planning and common spaces. The FAA supports the need for a terminal; however, conversations are ongoing whether the FAA will support a terminal project prior to the runway or after the runway improvement project. The terminal building is included in the project cost estimates below; however, the exact timing is not yet finalized.

# CHAMBERLAIN MUNICIPAL AIRPORT Master Plan Overview



## IMPLEMENTATION PLAN

□ The runway project will take multiple years to complete. Planning level cost estimates were developed for each phase of project development (see table below). These cost estimates will be further refined during the environmental assessment when a small amount of preliminary design, including survey and geotechnical borings can be completed.

## Project Cost Estimates

FFY	Project	Total Cost	FAA (90%)	State of South Dakota (5%)	City of Chamberlain (5%)
2020	Environmental Assessment (EA)	\$150,000	\$135,000	\$7,500	\$7,500
	Airports GIS – Aerial Survey	\$80,000	\$72,000	\$4,000	\$4,000
2021	Terminal Building*	\$400,000	\$360,000	\$20,000	\$20,000
2022	Land Acquisition	\$540,000	\$486,000	\$27,000	\$27,000
2023	Runway Design	\$450,000	\$405,000	\$22,500	\$22,500
2024	Wetland Mitigation	\$500,000	\$450,000	\$25,000	\$25,000
	Runway Construction	\$7,000,000	\$6,300,000	\$350,000	\$350,000
<b>Totals</b>		<b>\$9,120,000</b>	<b>\$8,208,000</b>	<b>\$456,000</b>	<b>\$456,000</b>

\*The terminal building project may be delayed until after the runway project is completed. If delayed, no project is anticipated in 2021. However, if the EA is completed, the land acquisition could be advanced to 2021.

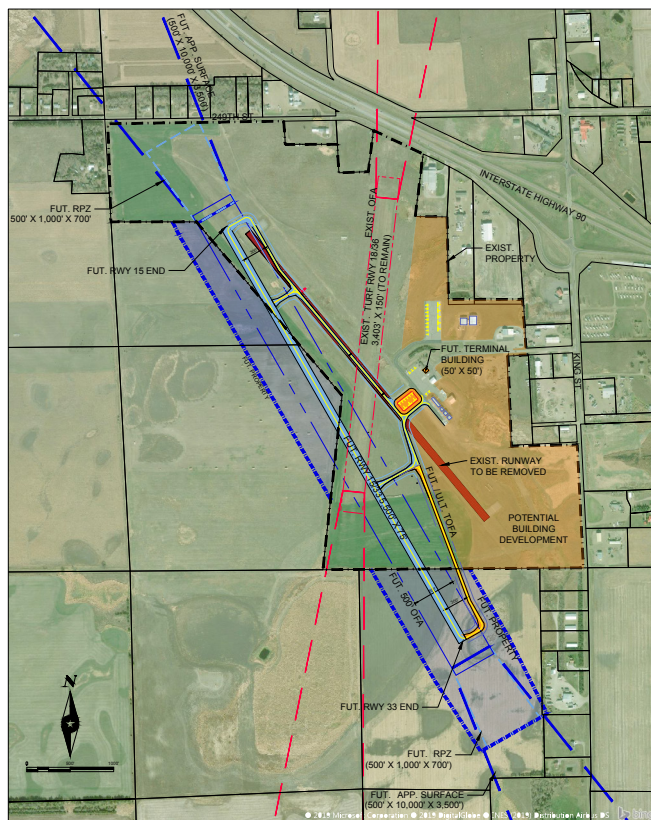


Figure 1 - Alternative 5C

5,500 Foot Runway

Alternative 5c Summary				
Runway Orientation	Property Acq. in Fee (Acres)	Wind Coverage		
		10.5 kts	13 kts	15 kts
15/33	Approx. 85 acres	93.89%	97.02%	99.17%

Figure 1 - Alternative 5C

LEGEND	
	RUNWAY PROJECT DEVELOPMENT
	ULT. AIRPORT DEVELOPMENT (5-20 YEARS)
	PAVEMENT REMOVAL
	FUT. AIRPORT PROPERTY

