Runway Length Justification and Runway Siting Case Study: Chamberlain Municipal Airport Master Plan

South Dakota Airport Conference

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Chamberlain Municipal Airport

Turf Runway

4,299' x 75' Runway
The City understood the airport had demanding users
The City also knew there was an undocumented need
Challenges - what were we trying to solve?

• Does the airport meet the needs of users, including seasonal pheasant hunting traffic?
  • Runway needs?
  • Taxiway needs?

• If not, what needs to be improved?

• What is the best alternative to meet the demonstrated needs?
Master Plan Process

**INVESTIGATION**
- Inventory
- Stakeholder needs & growth
- Forecasts
- Facility requirements

**SOLUTIONS**
- Alternatives development and analysis
- Scenario considerations
- Selection of preferred alternative

**IMPLEMENTATION**
- Financial planning
- CIP
- Final master plan document
- ALP

Building a Better World for All of Us
Runway Needs & Project Justification

- IFR flight plan & hunting data
- User surveys
- Stakeholder meetings

Goal: Data driven approach, supported by qualitative input
Large Aircraft Airport Use – 2017 IFR Data

[Graph showing IFR operations by month for different categories: 9V9 Total Operations, 9V9 Large Aircraft Operations, MHE Total Operations, MHE Large Aircraft Operations, ICR Total Aircraft Operations, ICR Large Aircraft Operations.]
Pheasants Harvested

Legend
- Focus Airport
- Airport

Pheasants Harvested per 100 sq miles
- > 15.00 Pheasants
- 15.01 - 30.00 Pheasants
- 30.01 - 45.00 Pheasants
- 45.01 - 60.00 Pheasants
- 60.01 - 75.00 Pheasants
- > 75.00 Pheasants

2017 Data will be available 9/10/2018
Non-Resident Economic Impact
Comparative analysis

What would happen to operations if Chamberlain facilities were improved?
Project Justification

IFR flight plan data
Chamberlain & comparative analysis
Project Justification

User surveys
Individual users, lodges, businesses

CAN CHAMBERLAIN AIRPORT SERVE YOU BETTER?

The Chamberlain Municipal Airport (9V9) is studying the degree to which the Airport can better serve the needs of its community and users. Your input is invaluable as you can provide very meaningful information concerning airport usage, current needs, and long-range improvement priorities.

THANK YOU FOR TAKING TIME TO FILL OUT THIS SURVEY!
Project Justification

Stakeholder meetings
What are you doing now, what would you do differently?
Runway Needs & Project Justification

- IFR flight plan & hunting data
- User surveys
- Stakeholder meetings

**Goal:** Data driven approach, supported by qualitative input
Critical Aircraft

• **Existing:**
  B-II Small (<12,500 lbs)
  - King Air 200
  - 759 existing operations

• **Future:**
  B-II Large (>12,500 lbs)
  - Cessna Citation II/Bravo
  - 505 large aircraft operations by 2023 (B-II and C-II)
What Runway Length Does a B-II Large Aircraft Need?

AC 150/5325-4B – Runway Length Requirements for Airport Design

- **Small aircraft (Chapter 2)**
  - Less than 10 passenger seats
  - 10 or more passenger seats

- **Large aircraft up to 60,000 MTOW (Chapter 3)**
  - 75% of fleet at 60% useful load
    - Turbo Prop: 4,900 feet
    - Jet: 5,500 feet
  - 75% of fleet at 90% useful load
  - 90% of fleet – 60% of 90% useful load

- **Large aircraft >60,000lbs MTOW and RJs (Chapter 4)**
Project Justification
Keys to Success

- Look under all the rocks
- Be creative in your research
- Tell your story and tell it well
Other key airport needs

- Pavement rehabilitation
Other key airport needs

- Pavement rehabilitation
- Parallel taxiway
Other key airport needs

- Pavement rehabilitation
- Parallel taxiway
- Taxiway geometry improvements
Other key airport needs

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- Instrument approach improvements
Other key airport needs

- Pavement rehabilitation
- Parallel taxiway
- Taxiway geometry improvements
- Instrument approach improvements
- Terminal building improvements
Runway Alternatives Analysis Goals

- Meet the purpose and need
- Minimize environmental impacts
- Minimize project costs and be financially feasible
- Consider stakeholder input and impacts to stakeholders
Preferred Alternative

- 5,500’ Runway
- Maximize wind coverage
- Parallel taxiway
- Eliminate direct access to runway
- Potential for phased construction
- Minimize wetland impacts
- Minimize property acquisition
- Improve instrument approach procedures
Next steps

- Continuous stakeholder involvement

- 2020 – Environmental Assessment
  - Purpose & need ✔ Complete
  - Alternatives analysis ✔ Complete

- Land acquisition & project design

- Construction
Yes, planning takes time and money, but…. 

If you don’t do comprehensive planning

- Your timing will be off
- You won’t compete for the money
Questions?