Airside Expansion at Lambert Field:

The Blues in St. Louis

Tudor Masek – December 6, 2007

16.871 Airport Systems Planning, Design, and Management
Overview

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- Trans World Airlines
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Motivation

- STL traffic collapse in the new millennium
  - 30.6 mil pax in 2000
  - 13.4 mil pax in 2004

- New 9,000 ft. runway at Lambert Field
  - Cost just over $1 billion
  - Friction with the local communities

- Why the mismatch of supply and demand?
Lambert-St. Louis Airport

- Passenger traffic soared in the 1970s
  - Airport expanded terminal facilities, extends runways, and increased capacity by 50% to keep up with demand
- Boom continued in the 1980s and 1990s
  - Master Plan calls for additional airside capacity
- Runway 11-29 construction
Trans World Airlines

- Hub in St. Louis since 1982
- De-regulation hit TWA hard
  - Had neglected to develop domestic network
- Sold to Carl Icahn in 1985
  - Bankruptcy in 1992
- Icahn ousted in 1993
  - Karabu Deal
  - Bankruptcy again in 1995
- Short-lived turnaround in the late 1990s
  - Third bankruptcy
  - Acquired by American Airlines in 2001
The Blues in St. Louis..

- American cuts service to Lambert-St. Louis
  - Flights to Lambert cut in half in 2003
  - Lease renewed only for Concourse C in 2005
  - Passenger traffic through Lambert plummets

History of Traffic at Lambert Field

- Operations
- Passengers

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Year


Thousands

600 500 400 300 200 100 0

Millions

35 30 25 20 15 10 5 0
What Happened?

- So what went wrong at Lambert Field?
  - Bad planning?
  - Bad timing?
  - Bad luck?
- Or was construction justified and within the scope of regional and national goals?
  - Is runway beneficial despite decline in demand?
  - Was the expansion project worthwhile?
Lambert Airport Master Plan

- Original Master Plan (1987-1993) called for rebuilding the entire airfield
  - 4 new parallel runways rotated clockwise 10 degrees
  - Construction to take place while operations continue!
- Master Plan Supplement initiated in 1994
  - Preserve Lambert’s role as critical link in NAS
  - Strengthen role as major economic asset → hub
  - Provide facilities to keep Lambert competitive
- Simultaneous independent IFR approaches
Traffic Forecasts & Assumptions

- **Low (no hub):** 26 mil annual pax in 2015
  - Assumes loss of airline hub connecting traffic, with eventual replacement by a new airline

- **Middle (baseline):** 42 mil pax in 2015
  - Assumes business-as-usual
  - Was used for all the alternative comparisons

- **High (new hub):** 56 mil pax in 2015
  - Assumes either increased hubbing by existing carriers, new hub established by another airline, or higher-than-expected regional economic growth
Multiple Airport System

- Option to develop Mid-America to relieve Lambert
  - Lambert is 12 miles to the northwest of downtown
  - Mid-America is about 19 miles to the southeast!

- Airline hubbing makes this option infeasible
  - Threshold for secondary airport seems to be 10 to 12 million originating passengers per year
  - Demand forecast for St. Louis region indicates only about 8.7 million originating passengers in 2015
Lambert Development Options

Source: Leigh Fischer Associates, Master Plan Supplement Study, Lambert-St. Louis International Airport
W-1W Details

- New 9,000' x 150' $1.059 billion runway (11/29)
- 4,100' centerline displacement from 12L/30R
- 12,000' threshold displacement
- Average hourly runway capacity to increase from 97 to 131
- Average taxi time to increase from 5.3 to 6.9 min per op
- Reduction of operational and passenger delays both at Lambert and in the National Airspace System
More Highlights

- Acquisition of almost 1,600 acres, including 2,300 homes, displacing about 5,680 people (City of Bridgeton)
- Moved 18.3 million tons of soil; soil neutral
- First automobile tunnel in the state of Missouri
- Noise impacts projected to decrease
- Improvement of air quality
- Injection of over $400m into the economy through contracts with 550 companies (80% local) employing 14,000 people
Master and Land Use Plan

Source: Leigh Fischer Associates, Master Plan Update for Airport Expansion, Lambert-St. Louis International Airport
Land Acquisition

Offers Extended: 1586 (82%)
Offers Accepted: 1564 (81%)
Parcels Closed: 1533 (79%)
Parcels Vacant: 1507 (78%)
Parcels Demolished: 1428 (74%)

Total Parcels to Acquire:
- 1937 Residential Parcels
- 70 Commercial Parcels

Source: Lambert-St. Louis International Airport, Status Briefing for Society of Military Engineers, Nov 8 2004
Local Tensions

- Bridgeton sues the City of St. Louis (land use)
- Resistance from Bridgeton and interest groups
  - Concerns about fair market price for land acquisition
  - Requested real-time simulation (MPS assumptions)
Terminal Expansion

- Currently: 89 aircraft gate positions; ~1.5 million square feet
- Projected future need: ~110 total gates (2015)
- Site between runways can accommodate a satellite terminal with 150 additional gates positions

Mid-field satellite terminal concept
Demand driven development

Source: Lambert-St. Louis International Airport, Status Briefing for Society of Military Engineers, Nov 8 2004
Project Financing

- Of the $1 billion cost of the project:
  - Almost half of is for land acquisition
  - Almost 40% is for construction itself
  - The remainder is for management and consulting overhead
- Only about 1/3 of costs passed on to airlines
- Construction completed on time and on budget
Both Operations and Passengers are below the Low forecast!

Runway completed but terminal expansion abandoned
What’s Next?

- Delay reductions
  - Lambert more attractive to new airlines

- Excess in capacity
  - Renewed or increased hub operations?

- On-time performance rankings
  - Lambert has performed better than O’Hare
  - On par with Dallas/Ft. Worth
Conclusion

- Demand forecasts were over-optimistic, **BUT**
- The need for the new runway was not demand-driven but rather delay-driven
- Terminal expansion plans were (rightly) abandoned as traffic plummeted
- New runway was probably cheaper to build than it would have been 10 years later
- Runway 11/29 seems to have been justified and will likely be invaluable when traffic returns to STL
Questions?