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# “The Perfect Storm” Lexington & Comair Flight 5191

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8/12/2014

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# The Accident



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- Sunday morning, 8/27/2006 @0606hrs
- Scheduled FAR Part 121 from LEX to ATL
- Full NTSB and party accident response
  - Operations/Human Factors
  - Survival Factors/Airports
  - Weather
  - Air Traffic Control
  - Maintenance
  - Structures
  - Systems
  - Witness
  - Powerplants
  - FDR
  - Performance



# Bluegrass Airport



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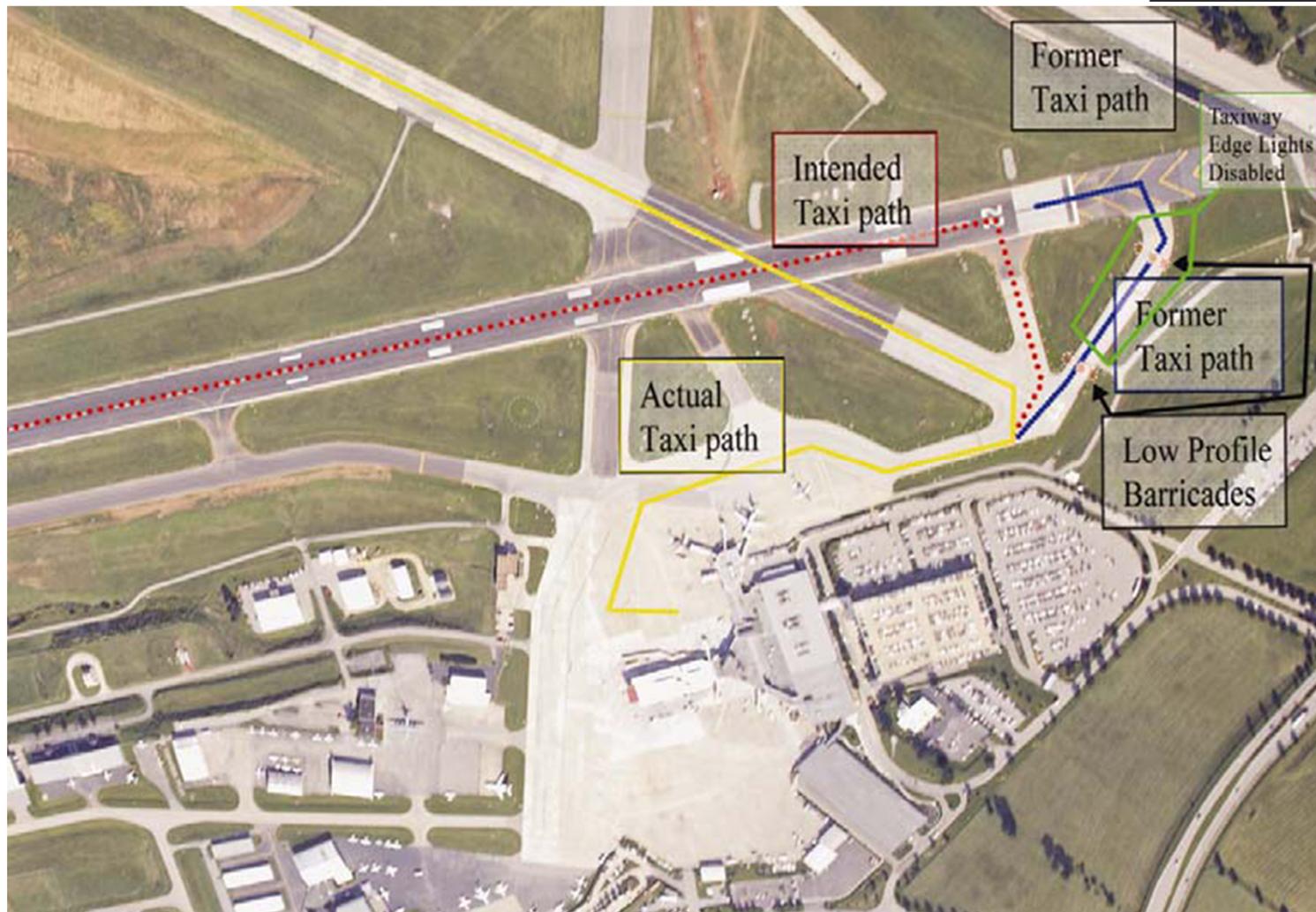
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# Taxi Paths



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# NTSB Probable Cause



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*“the flight crewmembers’ **failure** to use available cues and aids to identify the airplane’s location on the airport surface during taxi and their **failure** to cross-check and verify that the airplane was on the correct runway before takeoff. Contributing to the accident were the flight crew’s **nonpertinent** conversation during taxi, which resulted in a loss of positional awareness, and the Federal Aviation Administration’s **failure** to require that all runway crossings be authorized only by specific air traffic control clearances”*

# NTSB Recommendations



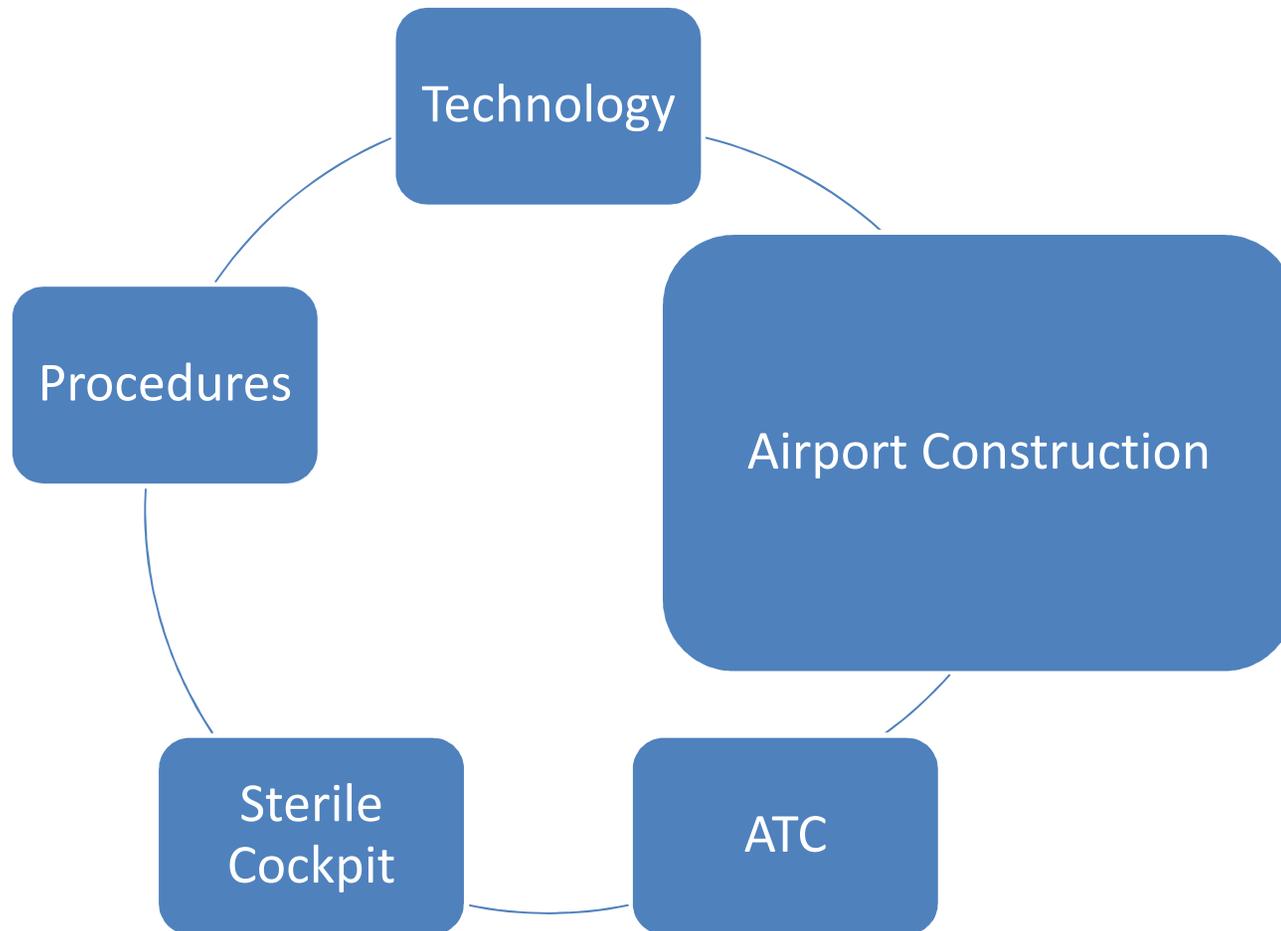
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- A total of 12 different recommendations
  - 11 to the FAA and 1 to NATCA (National Air Traffic Controllers Association)
    - Air Traffic Control procedures (4)
    - Air Traffic Controller fatigue (3)
    - Pilot procedures (2)
    - Air Traffic Control training (1)
    - Flight deck technology (1)
    - Airport signage/markings (1)

# Our Focus



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# KLEX Construction



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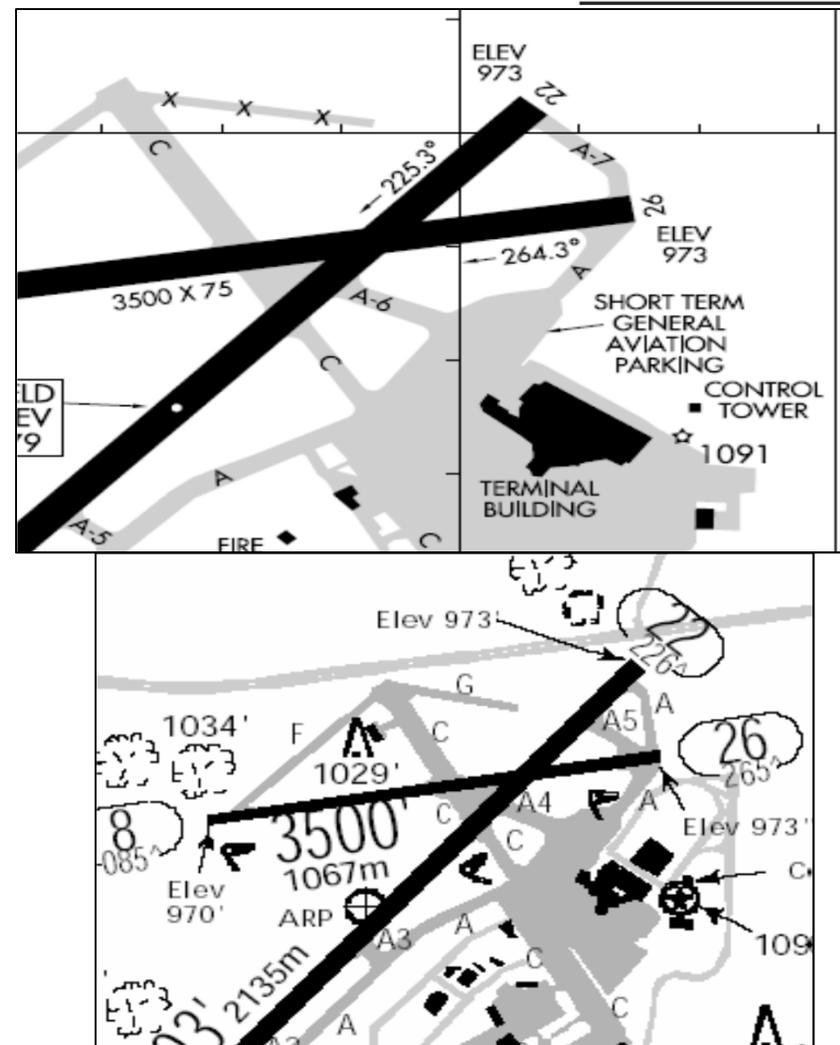
- The accident occurred during the final phase of a 5 yr. construction project to bring runway 4/22 runway safety areas into compliance (1000 ft vs. 100 ft ).
- June 2006 – New ADO project coordinator said that the remaining construction time-line was unacceptable due to the keeping the AFD depiction accurate.

# Charts



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- To keep the AFD accurate, the threshold of runway 22 would need to be moved much, much sooner.
- But moving the threshold of rwy 22 would now interfere with the required OFZ (400 ft either side of ctrline).
- Now we need to closed twy A north of runway 26 to keep the OFZ clear.



# Signs



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- Some of the taxiway signs had already been changed but when this process was accelerated in effort to get reality to match the AFD, there were various versions now.



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# NOTAMS



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- The FAA and airport authority decided that they would solve the problem of the charting and sign differences with NOTAMS.
- One in particular is of specific interest.
  - August 20, 2006, at 1405, the airport issued local NOTAM #A-1682 that stated
    - “T/W Alpha north of R/W 8/26 closed UFN.”
- Deemed important enough that it was the only NOTAM (besides construction on airport) that was placed on the ATIS on the 20<sup>th</sup>.

# NOTAMS/ATIS



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- The taxiway closure over the route they normally take did not make it to the crew. They were never looking for a clsd taxiway to be careful of.
- Thus no surprise when they got to the “runway” they never encountered one.
- Was not in the Comair flight release because it was a local NOTAM
- Was accidentally left off of the ATIS that was recorded within the hour prior to the accident.

# End of Investigation



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- A systems accident in every sense of the word
- Multiple threats and errors from many involved throughout the system
- No single cause as to why they took off the wrong runway
- However, many smaller factors that when combined and go untrapped can result in an event

# Systems Accident



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- *"System accidents involve the unanticipated interaction of multiple failures."* Perrow 1985
- *"Systems thinking is about relationships and integration."* Dekker 2005

# The Takeoff Attempt



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- They think they are pulling onto runway 22. Supported?

Runway 22	Runway 26
<b>Expecting “lights out everywhere”</b>	<b>No runway lights at all, very dark.</b>
<b>Centerline lights OTS</b>	<b>No centerline lights</b>
<b>Small hill at 2,000 feet</b>	<b>Small hill at 1,500 feet</b>
<b>Runway appears short</b>	<b>Runway appeared short</b>
<b>Close by runway intersection</b>	<b>Close by runway intersection</b>
<b>Dark hole appearance at end</b>	<b>Dark hole appearance at end</b>
<b>Paved 150 feet wide</b>	<b>Was paved 150 feet wide</b>

# Questions?



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**Go Bucks!**