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Wrong Runway Departures – How Are We Doing?

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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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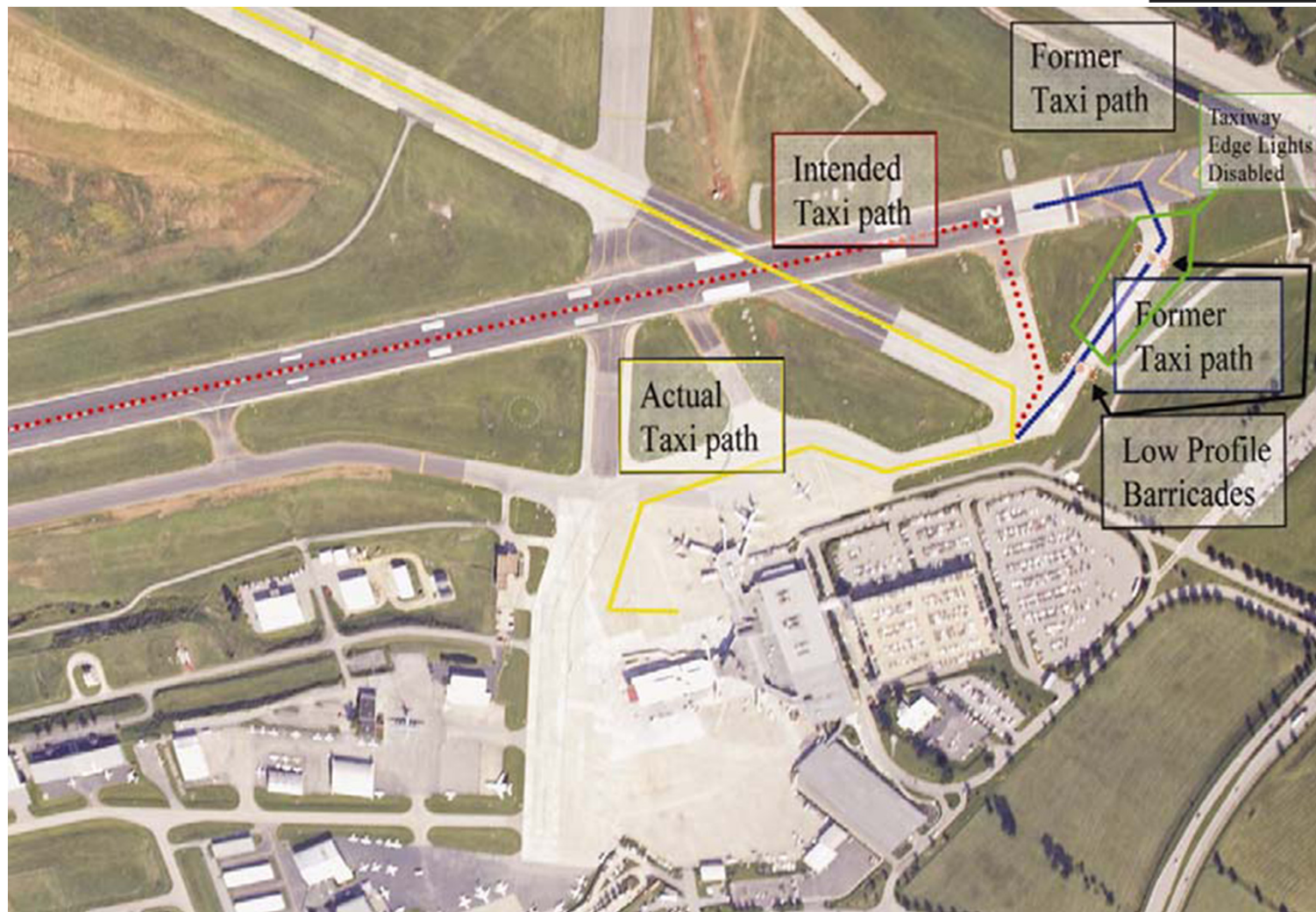
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Taxi Paths



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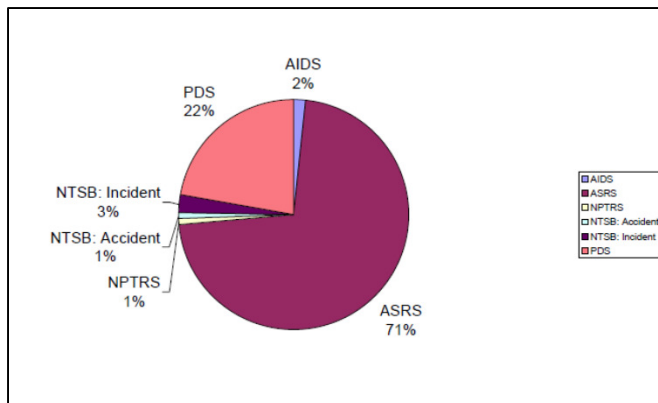
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2007 FAA Report



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- In response to CMR 5191 accident, the FAA ASIAS center examined these events
- Examined these events from 1981 to 2006
- Found initially 117 reports mostly from NASA ASRS program



- Focus is on CFR Part 121
- After further analysis, left with 80 reports

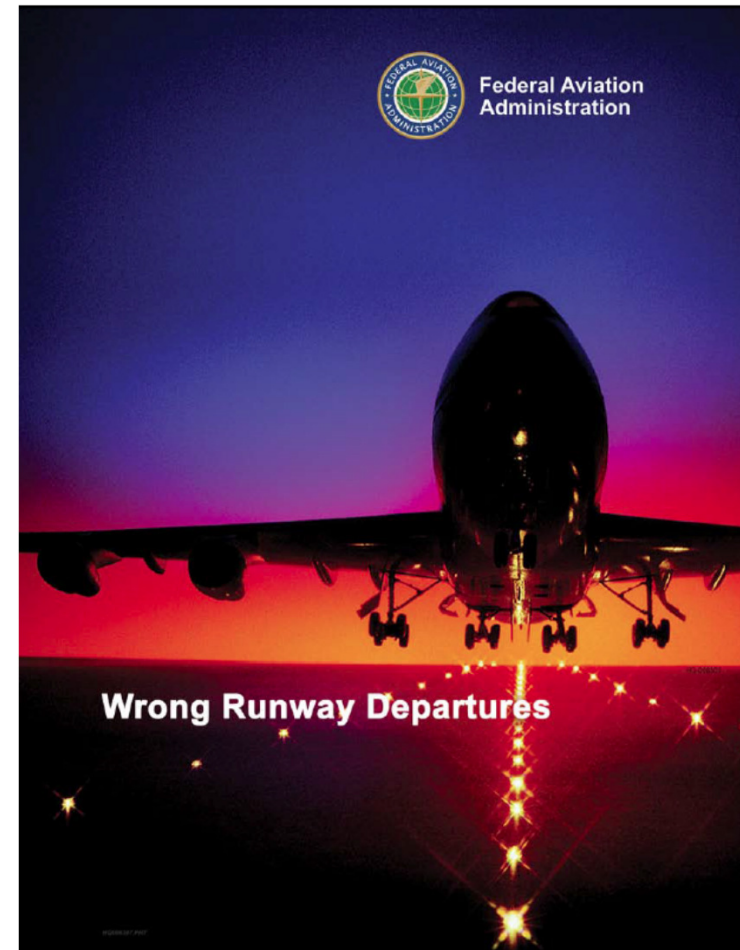


2007 FAA Report



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- The following airports had the highest number of reported events:
 - CLE@ 24%
 - HOU@ 11%
 - SLC@ 8%
 - MIA@6%
- Closer examination of the data by the SME showed the following characteristics for the airports in this data set.
 - Multiple runway thresholds located in close prox.
 - Short taxi distance
 - Complex airport design
 - Use of runway as taxiway
 - Single runway that uses intersection departures



2007 FAA Report



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- Appendix D in the report examined all Part 139 class 1 airports – 355
- They looked at each airport and noted if one of these characteristics was present
 - Short taxi distance = 45%
 - Complex airport design = 11%
 - One TWY to many runways = 28%
 - Multiple runway thresholds/close prox. = 27%
 - More than 4 of these present = 8%
 - Short runway = 9%
 - Use of runway as taxiway = 23%
 - Single rwy with intersection dep. = 16%

State	Airport	Short Taxi Distance	Complexity	One Taxiway To Multiple Runways	Close Proximity To Multiple Runway Departure Ends	Multiple Option (Excess of 4)	Short Runway (< 5,000 ft)	Runway Used As Taxiway	Single Runway
Colorado	ASE							*	*
	COS			*	*				
	DEN		*						
	DRO							*	*
	EGE								*
	FNL	*							
	GJT				*			*	
	GUC								
	HDN	*							*
	MTJ	*						*	
Connecticut	TEX	*						*	*
	BDL							*	
	HVN							*	
District of Columbia	DCA	*	*			*	*		
Florida	IAD								
	APF								
	DAB								
	EYW								*
	FLL	*	*		*				
	GNV				*		*	*	
	JAX								
	MCO			*					
	MIA			*	*	*			
	MLB	*		*	*	*	*		
	PBI								
	PFN								

Our Study



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- Our goals:
 - To examine this topic since the 2007 report - unable to find anything since
 - Two overarching questions:
 - To re-create the Appendix D table and re-asses the threats to look for trends
 - To examine the ASRS database to find wrong runway events
 - Also:
 - To see if the 4 highest with these events are the same as the 2007 report
 - Determine how many airports, based on the matrix, have increased, decreased or stayed the same.
- Our Limitations
 - Unable to access many of the databases the ASIAS group utilized
 - We were not able to determine which airports use runways as taxiways (dropped that column)
 - All characteristics may not carry the same danger, we weighed them the same.
 - Characteristic determination could be a bit subjective, did not control for inter-rater reliability.

Appendix D Table Results



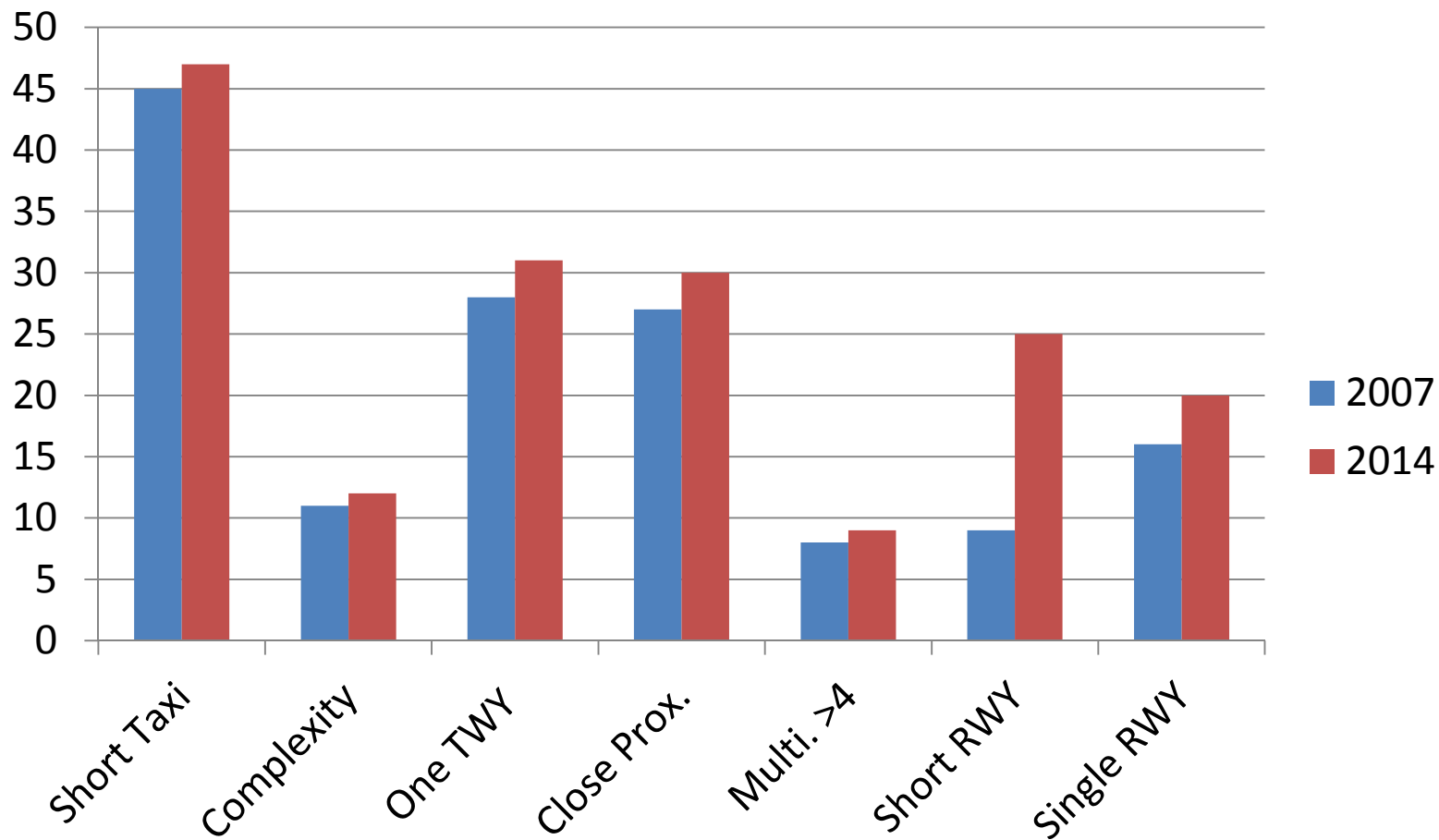
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- Total of 355 Part 139 class 1 airports, threat determination. Number of threats
 - Increased = 114/355 -> 32%
 - Decreased = 34/355 -> 10%
 - Stayed the same = 207/355 -> 58%
- Previous top four
 - CLE - **improved** [Lost one twy to multiple rwys]
 - HOU - **stayed the same**
 - SLC - **worse** [Increase in complexity]
 - MIA - **worse** [Increase in complexity]

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Other Events

- Since the Lexington accident.
 - One Part 121 wrong runway takeoff documented in NTSB and ASRS databases. 10/2006
 - SEA, B737, parallel runway departure
 - No accident, nor conflict, LC realized it late T/O let it go.
 - Checking runway heading on DG not helpful



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Mitigations

- FAA 2007 report
 - Own-ship moving map display
 - Runway Advisory System
 - ADSE
- Lexington Accident NTSB
 - Procedures
 - Own-ship moving map display
 - Enhanced taxiway centerline markings



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Conclusions

- The data is conflicting
- These events in Part 121 operations are rare as they appear to have decreased significantly
- However, although rare, very high consequences
- A greater analysis of the data is required.
 - Incident and accident rate in the Part 121 is rare
 - Most concerning is the changes in the specific airports examined
 - Expansion into Part 91 flight operations is warranted

Questions?



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Go Bucks!