



NTSB National Transportation Safety Board

Office of Aviation Safety

Presentation to the NATA Aviation Business Roundtable

Washington, DC

November 6, 2007



Accident Overview

- 7:14 pm
- Boeing 737-74H
- 1 fatality, 1 serious injury and 21 minor injuries



Weather and Runway Conditions

- Worst runway braking action reported was “fair to poor”
- Tailwind of 8 knots, right quartering
- Visibility of ½ mile
- Moderate snow and freezing fog
- Temperature 28 F

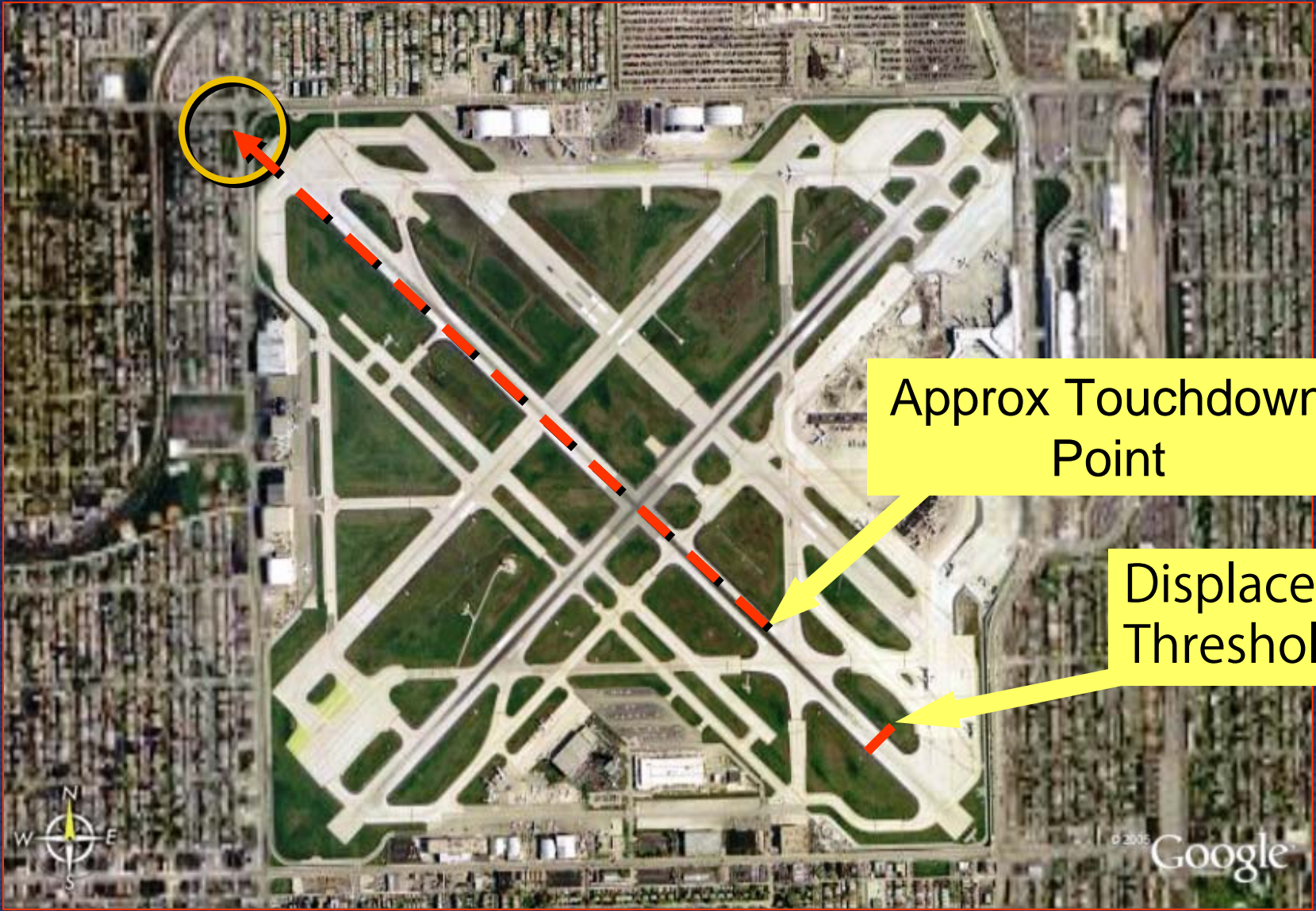




Aircraft Systems Examinations

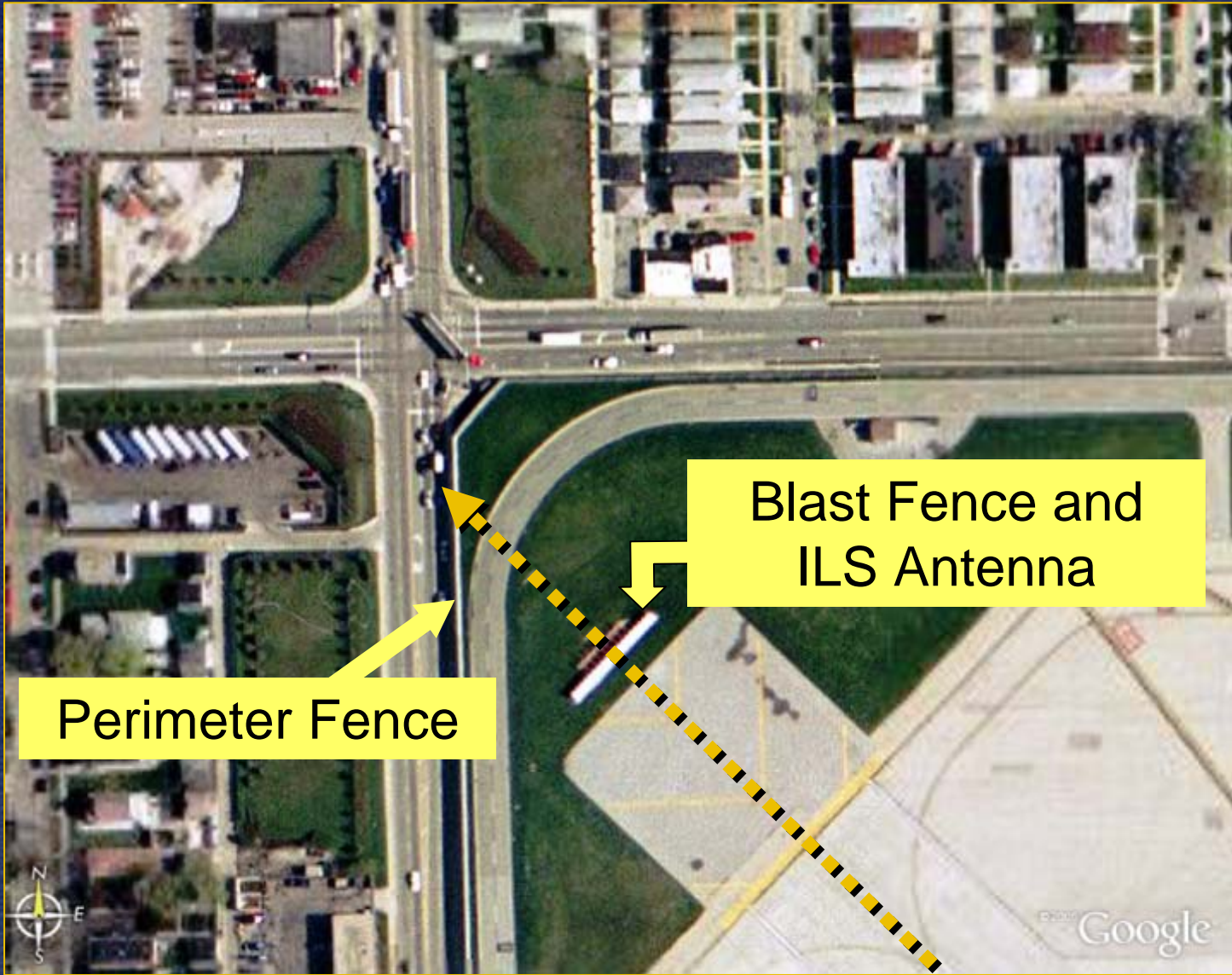
- No preimpact anomalies
 - Antiskid system
 - Ground spoiler system
 - Wheel brake system
 - Throttle quadrant and linkage
 - Thrust reverser systems
 - Engines





Approx Touchdown Point

Displaced Threshold





Flight 1248 Animation



FDR: Auto Brake ("ON")



Thrust Rev. Status

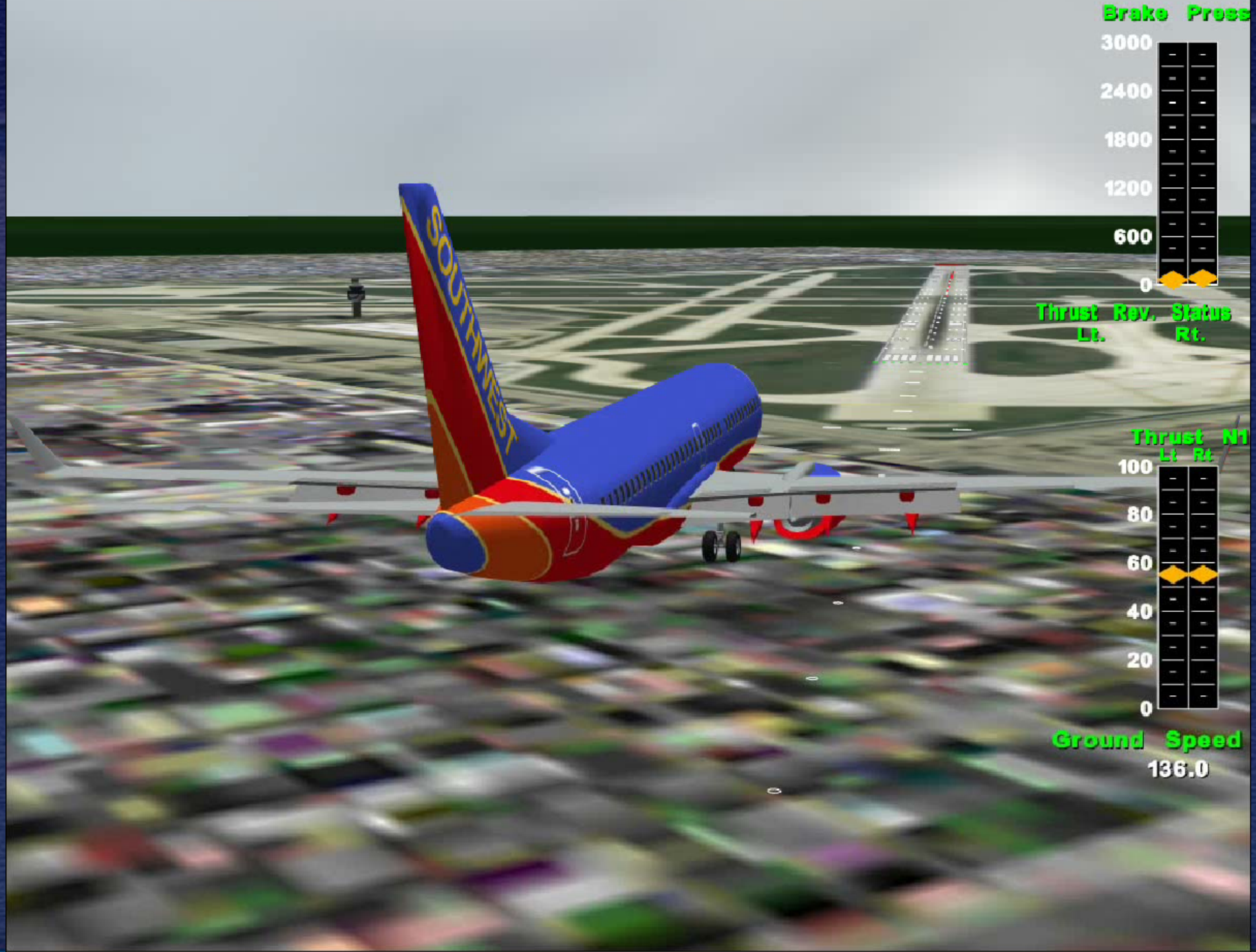


Thrust N1



Ground Speed
128.6

[Play animation](#)



Brake Press



Thrust Rev. Status
Lt. Rt.

Thrust N1
Lt. Rt.



Ground Speed
136.0



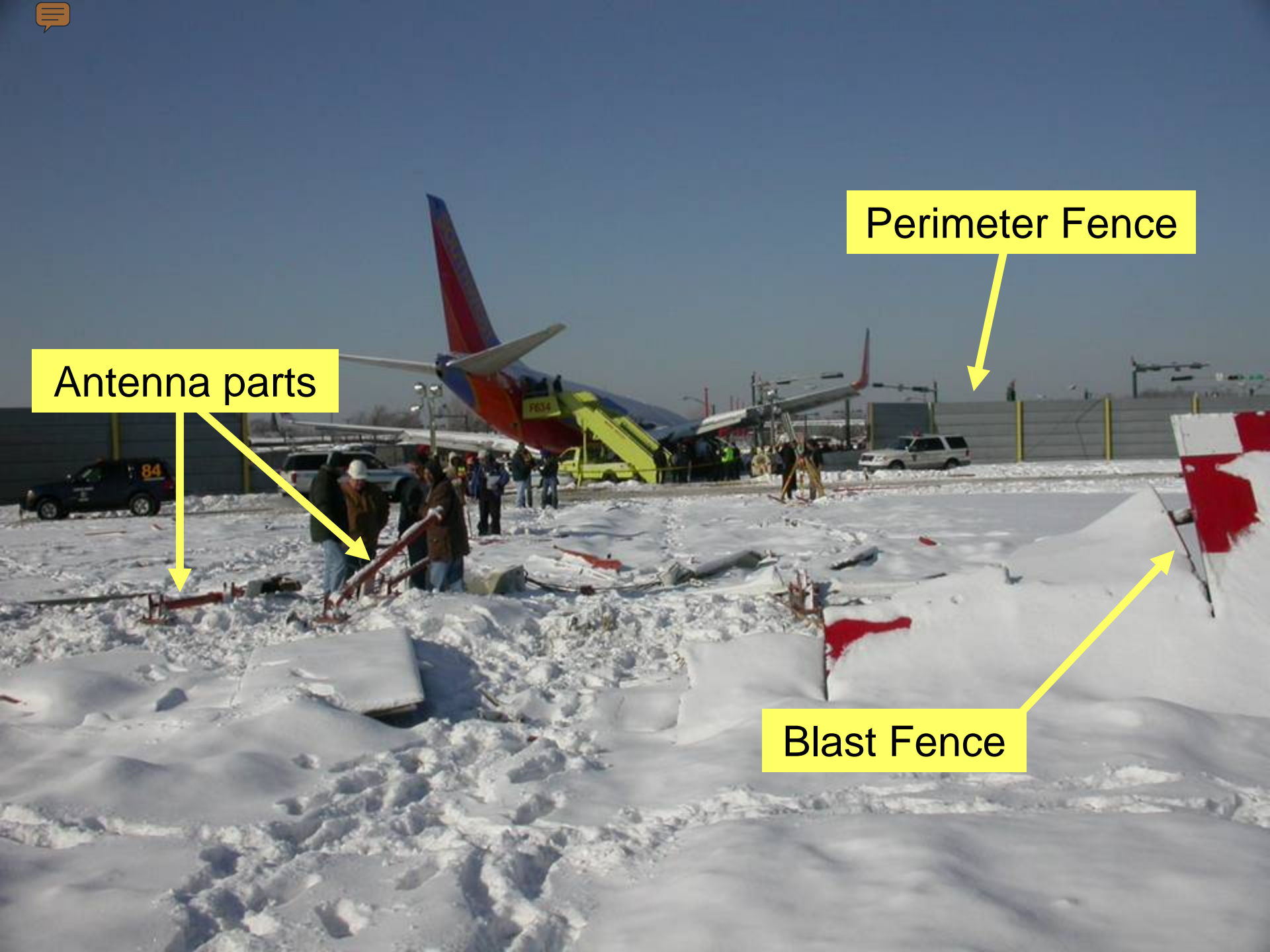


W 55TH ST
5500 S

F634

NO
TURN
ON RED

Chicago Fire Dept.



Antenna parts



Perimeter Fence



Blast Fence





Safety Issues

- The flight crew's decision to land and actions after touchdown
- OPC calculations and assumptions
- SWA policies, guidance, and training
- Runway safety areas (RSAs)





Safety Issues

- Runway surface condition assessments and braking action reports
- Airplane-based friction measurements
- Arrival landing distance assessments and safety margins





Runway Surface Condition Assessments

- Three Methods
 - Airplane braking action report
 - Contaminant type and depth
 - Runway friction measurement





Airplane Braking Action Report

- Flight crew describes actual stopping performance, after landing (good, fair, poor, nil)
- Reported to ATC; relayed to approaching airplanes
- Reports are subjective, may contain mixed content





Contaminant Type & Depth Report

- Airport management characterizes runway surface condition (compact snow, wet/dry snow, slush, ice, etc.)
- Updated as warranted, reported via ATIS and NOTAM
- Conditions can vary rapidly and may not be uniform





Runway Friction Measurements

- Airport management measures runway friction with specialized equipment (e.g., decelerometer, 72/59/68 = 67)
- Reported via ATIS when measurement falls below a threshold of 40
- Example: “Runway 27, MU 42/41/28 at zero one eight zulu, ice.
- Operations suspended; equipment subject to contaminant constraints



Landing Performance Data

	Certified Data	Advisory Data
Operational role	Flight dispatch	Enroute decisions
FAA-required?	Yes	No
Location	AFM	QRH
Factored data?	Yes	No
Thrust reversers included?	No	Optional
Safety margin source?	FARs	Operator/FAA





Arrival Landing Distance Assessments

- Much performance data and many operators' practices pre-date accident
- Advocated by FAA but not required
- Attempt to ensure airplane performance capability is adequate (for actual conditions, configuration, and planned procedures)





Rational Arrival Assessments

1. Defined procedures
2. Actual condition, configuration, deceleration data
3. Scientific method to calculate stopping performance
4. FAA-approved performance data
5. Minimum standard to correlate runway condition to airplane braking
6. Planned positive margin





Conclusions (Arrival Assessments)

- Good, voluntary practices exist, but landing overruns continue to occur
- Arrival assessments provide both operational and safety benefits
- FAA must establish a rational method for operators to use



Recommendations

- Clear guidance/training to pilots and dispatchers
- Standard methodology for arrival landing distance assessments
- Performance data, conditions, plus 15% minimum safety margin
- Minimum standard for braking ability



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