



## Midair Collision Involving US Army PAT25 and PSA Airlines Flight 5342 Washington, DC January 29, 2025

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Investigator-in-Charge

# Overview

- First animation
  - History of flight
  - Helicopter routes
  - Air traffic control (ATC) communications
- Second animation
  - Visibility study
- Wreckage examination
- Exclusionary findings
- Safety issues
- Previously issued safety recommendations

# Animations

- ATC audio included in animations
- Cockpit voice recorder (CVR) audio not included in animations
  - CVR transcript shown in animations
- First animation – 12 minutes
- Second animation – 8 minutes

# First Animation – Accident Overview

# Visibility Study

- Documents location, size, and movement of aircraft in each respective pilot's field of view
  - How aircraft structure may limit view
  - How conspicuous aircraft are to crew
  - Impact to see-and-avoid task
- Challenges
  - Night conditions and night vision goggles (NVGs)
  - Difficult to have accurate representation of night lighting or "cultural lighting" looked to crews

# Documentation of Cultural Lighting

- Night observation flights March 27 and 28, 2025
- Crews flew accident flight paths using exemplar aircraft
- Observed by human performance, operations, and air traffic control investigators
- Videos and photos recorded view from:
  - Each aircraft
  - Air traffic control tower
  - Various ground locations
- Used to determine which program best represented the cultural lighting

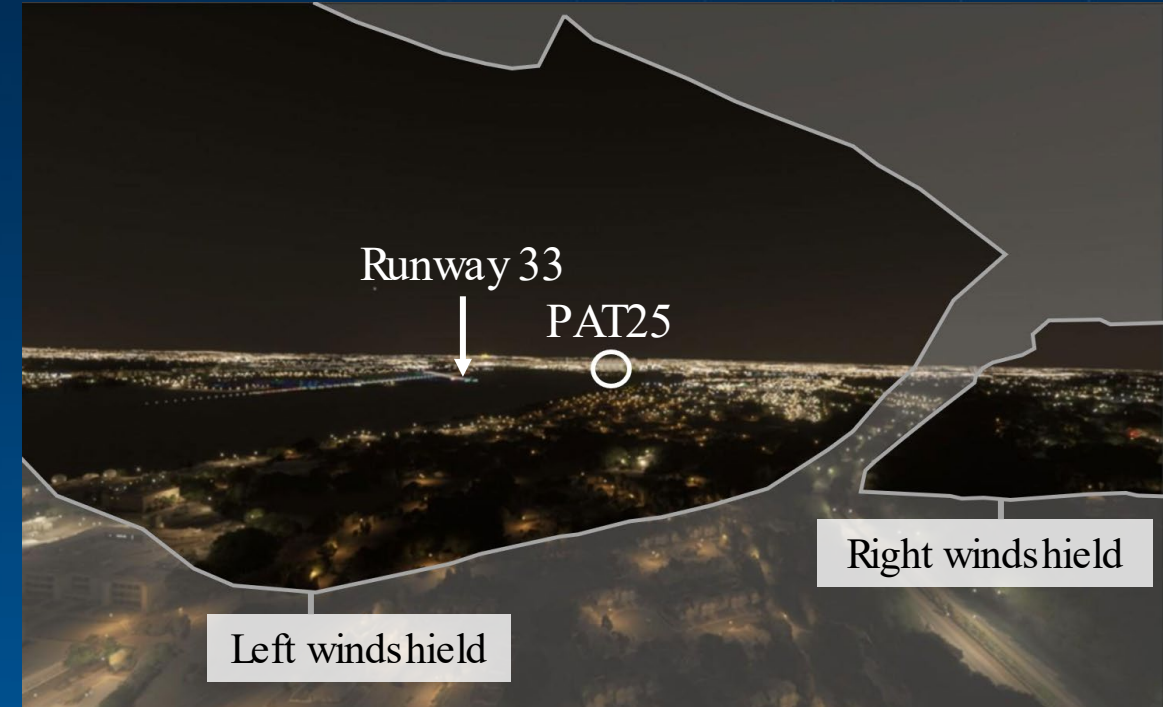
# Cultural Lighting Around Washington, DC



# Interior View of Exemplar CRJ700 Cockpit



Photo of exemplar airplane cockpit



Simulated view from left seat of Flight 5342  
35 seconds before collision

# Interior View of Exemplar UH-60L Cockpit

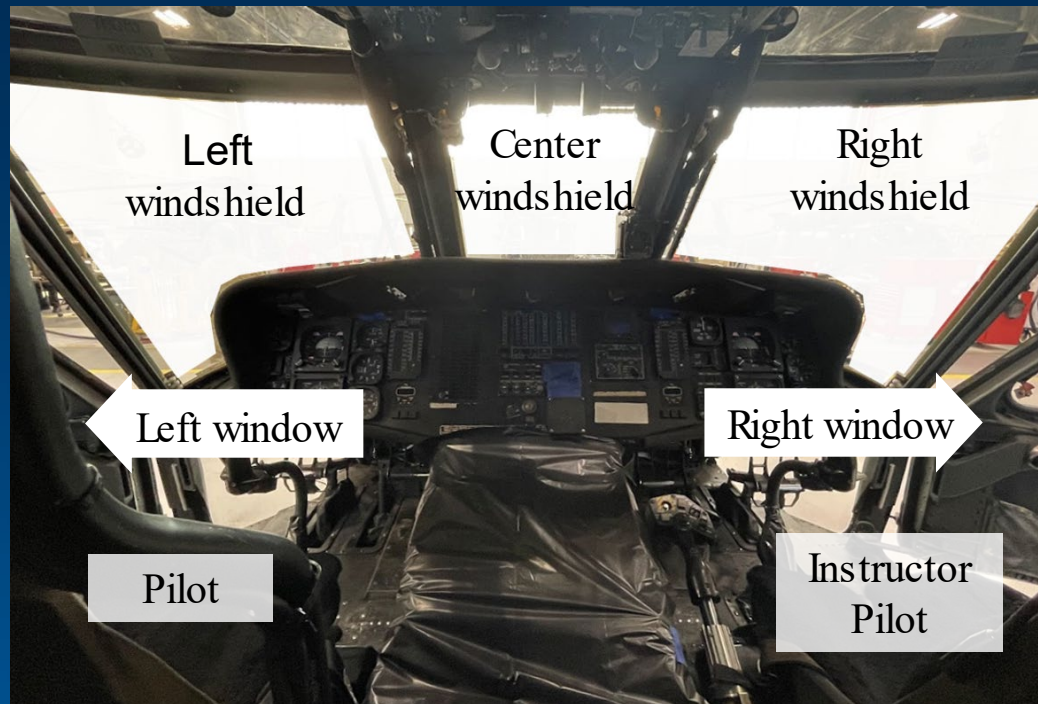
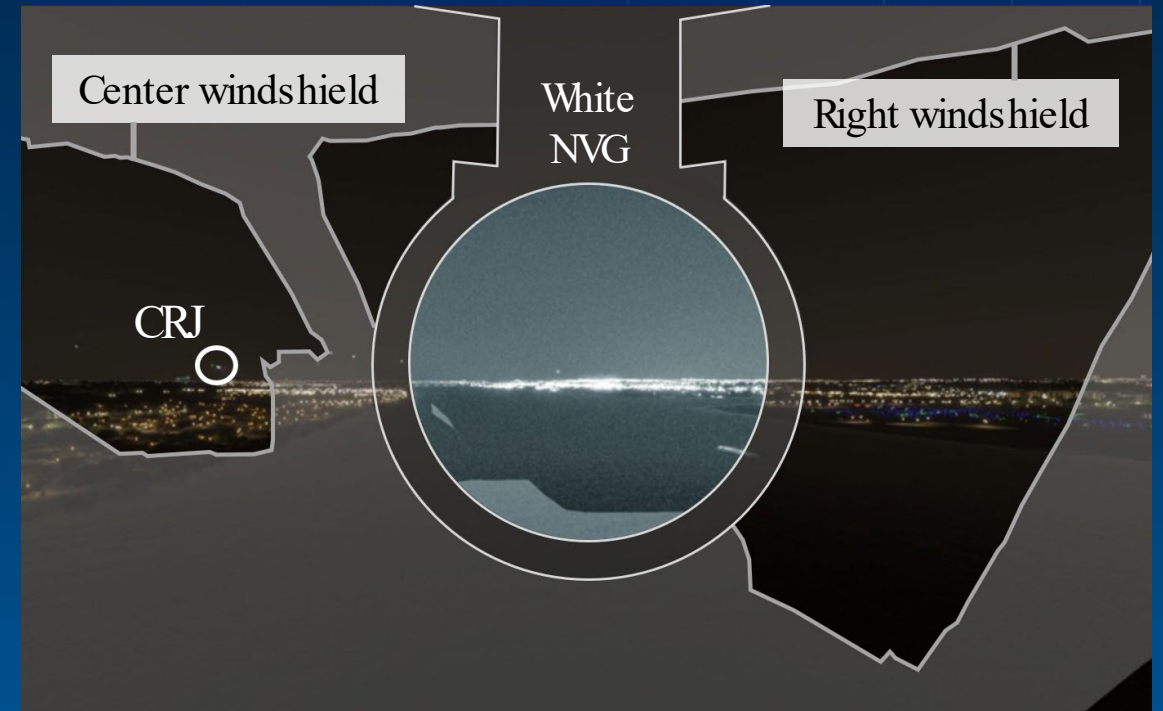


Photo of exemplar UH-60L Cockpit



Simulated view from right seat of PAT25  
19 seconds before collision

# Visibility Study Limitations

- Cultural lighting accuracy
  - Some landmarks unrealistically bright
  - Not all aircraft south of Wilson Bridge shown
- Aircraft external lighting accuracy
  - CRJ700 model lighting didn't work, model in animation is Boeing 737
- Night vision goggle accuracy
  - Shown stationary with head not moving
  - Does not depict additional light sources such as stars

# Second Animation – Visibility Study

# Wreckage Examination

- Wreckage of both aircraft located in Potomac River in water depths ranging between 1 to 8 ft
- About 90% of both aircraft recovered
- Helicopter's main rotor contacted underside of airplane's left wing
- Outboard section of the airplane's left wing separated in flight
- Video evidence showed both aircraft rapidly descending and impacting the water

# Exclusionary Findings

- Pilots of flight 5342 were certificated and qualified
- Pilots of flight 5342 were medically qualified for duty and had no evidence of impairment
- Pilots of flight 5342 had adequate rest opportunities
- Pilot, Instructor Pilot (IP), and crew chief of PAT25 were qualified and current
- Pilot, IP, and crew chief of PAT25 were medically qualified for duty and had no evidence of impairment
- PAT25 crewmembers had adequate rest opportunities

# Exclusionary Findings

- Both aircraft were properly certificated, equipped, and maintained
- Air traffic controllers working in tower cab were certificated and current
- Local controller, assistant local controller, and operations supervisor had no evidence of impairment by medical conditions
- Local controller, assistant local controller, and operations supervisor had adequate rest opportunities
- No evidence of local atmospheric pressure anomalies that would have impacted barometric altimeter readings

# Safety Issues

- Design of helicopter routes and operator understanding of route structure and limitations
- Controller workload, position combining, and communication practices
- Extensive use of pilot-applied visual separation and inherent limitations of see-and-avoid
- Deficiencies in FAA safety culture and postaccident drug and alcohol testing
- Limitations of traffic awareness and alerting systems on both aircraft
- Shortcomings in FAA and US Army safety assurance and risk management processes

# Previously Issued Urgent Safety Recommendations

- NTSB found insufficient separation between traffic on Route 4 and runway 33
- Alternate route for helicopters was needed
- Two recommendations issued March 11, 2025
  - Prohibit operations on Helicopter Route 4 between Hains Point and Wilson Bridge when runways 15 and 33 are being used at Ronald Reagan Washington National Airport (DCA). (A-25-1)
  - Designate alternate helicopter route that can be used to facilitate travel between Hains Point and Wilson Bridge when that segment of Route 4 is closed. (A-25-2)

# FAA Safety Actions

- Implemented temporary airspace restrictions around DCA
- Removed Route 4 section between Hains Point and Wilson Bridge
- Prohibited use of DCA runways 15/33 and 4/22 during specific, limited helicopter operations

# What We Found: Helicopter Route Design

- Airplane pilots were unaware of conflicts between helicopter routes and approach and departure corridors to DCA
- Current aeronautical charting does not provide adequate information
- Lack of information is not unique to DCA
- No record of annual review of helicopter route chart at DCA

What we propose:

- Five recommendations to FAA

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# Parties to the Investigation

- Aerosonic
- Air Line Pilots Association (ALPA)
- Association of Flight Attendants (AFA)
- BAE Systems
- Collins Aerospace
- Federal Aviation Administration (FAA)
- GE Aerospace
- International Association of Machinists and Aerospace Workers (IAM)

# Parties to the Investigation

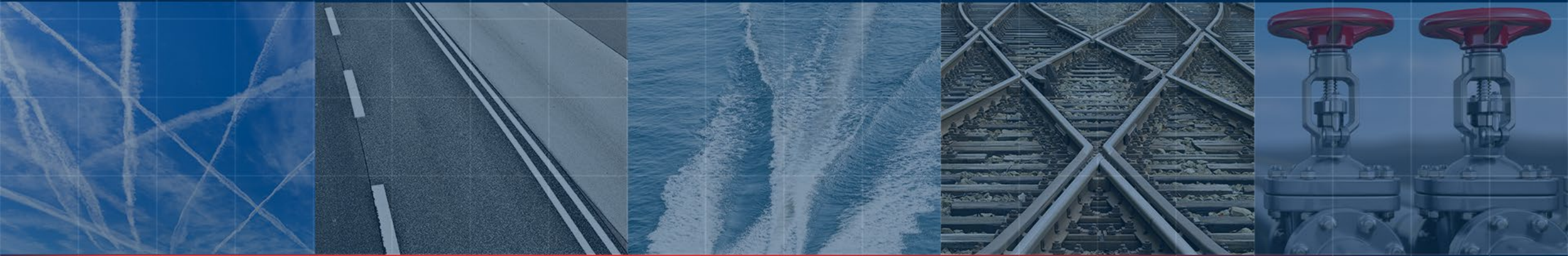
- Metropolitan Washington Airports Authority (MWAA)
- National Air Traffic Controllers Association (NATCA)
- PSA Airlines
- Sikorsky
- United States Army

# ICAO Annex 13

- Accredited Representative from Transportation Safety Board of Canada (TSB), State of Design and Manufacture
  - Technical Advisor from Transport Canada
  - Technical Advisor from MHI RJ Aviation

# Staff Presentations

- Air traffic control (ATC)
- Human performance (ATC)
- FAA ATC postaccident drug & alcohol testing
- Automatic Dependent Surveillance-Broadcast (ADS-B) and collision avoidance systems
- Helicopter operations
- Human performance (aircraft flight crews)
- Safety data and safety management systems (SMS)



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