Hart Solutions LLC

AAM Safety Issues

Christopher A. Hart
Former Chairman
National Transportation Safety Board

Presentation to

Berkeley Tech Transfer

Future of Aviation Conference

August 3, 2011

Safety Is Existentially Crucial

- Most aviation crashes do not injure or kill people on the ground or cause major ground damage
- AAM operations will be primarily urban
- One major urban crash anywhere in the world could cause widespread public disapproval of urban AAM operations

Safety Challenges

- Most AAM vehicles are novel eVTOL aircraft, certification standards are not currently addressed adequately in 14 CFR
- FAA is using 14 CFR Part 21.17(b) “special class” process for eVTOLs
- Issues to be addressed include
  - Safety of the vehicle
  - Avoiding collisions
- International harmonization?

Safety of the Vehicle

- Issues to be addressed include
  - Airworthiness standards
  - Operations standards
  - Electric propulsion standards
  - Standards for pilots
  - Human/machine interface
  - Maintenance training
  - Other
- Not yet developed
  - Standards re aircraft with remote or no pilot
  - Standards re propulsion redundancy
  - Standards re moving beyond VFR

Need to Address Collision Avoidance re

- Fixed objects
  - Onboard surveillance and warning
  - Include trees?
- Other flying objects
  - Onboard surveillance and warning
  - Low-altitude air traffic control
  - Include birds?
- Important even for VFR; essential for IFR

International Harmonization?

- Most AAM operations will be domestic
- Nonetheless, international harmonization would probably help improve safety due to quicker and more systemic identification and resolution of potential safety issues

Conclusion

- One major AAM urban crash could result in lengthy suspension, if not termination, of the entire industry
- Much of the approval territory is uncharted
- Long way to go regarding safety before urban AAM becomes operational and widespread

Thank You

Questions?

Christopher A. Hart
Hart Solutions LLC
chris@hartsolutionsllc.com
202-680-4122