Information on ACRP

• www.TRB.org/ACRP
• Regular news and updates on:
  o Upcoming and ongoing research projects
  o New publications
  o Success stories
  o Announcements
  o Webinars
• Find ACRP on Facebook and LinkedIn
Upcoming ACRP Webinars

August 2016: To be determined

September 8, 2016: An Understanding of the Economic Impact of Airports and Their Operations

October 20, 2016: Renewable Energy Use and Sustainability Practices at Airports

You can register for and learn more about upcoming 2016 webinars by visiting: http://www.trb.org/ACRP/ACRPwebinars.aspx
Opportunities to Get Involved!

- ACRP’s Champion program is a new initiative!
- Designed to help early- to mid-career, young professionals grow and excel within the airport industry.
- Airport industry executives sponsor promising young professionals within their organizations to become ACRP Champions.
- Visit ACRP’s website to learn more.
Additional ACRP Publications Available on this Topic

- ACRP Report 20: Strategic Planning in the Airport Industry
- ACRP Report 32: Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports
- ACRP Report 38: Understanding Airspace, Objects, and Their Effects on Airports
- ACRP Legal Research Digest 14: Achieving Airport-Compatible Land Uses and Minimizing Hazardous Obstructions in Navigable Airspace

You can learn more about these publications by visiting www.trb.org/publications
Today’s Speakers

Moderated by
Christopher Swider, FAA

ACRP Report 144: Unmanned Aircraft Systems (UAS) at Airports: A Primer
• Ken Neubauer, Futron Aviation
ACRP Report 144: Unmanned Aircraft Systems (UAS) at Airports: A Primer

Kenneth P. Neubauer
Futron Aviation Corporation
Kenneth P. Neubauer
Principal Investigator

- Technical Director – Aerospace Safety
  - SMS Development
- Former US Navy Fighter Pilot
- Past Director – Naval School of Aviation Safety
- Past Director – Aviation Safety Programs, Naval Safety Center
- Principal Investigator
  - ACRP Project 10-22
Research Team

• Ken Neubauer – Futron Aviation
  • Principal Investigator
• Dave Fleet – Futron Aviation
  • Airport Operations
• Filippo Grosoli – Merlin Global Services
  • UAS Operations
• Harry Verstynen – Whirlwind Engineering
  • UAS Research – NASA Langley
ACRP Report 144 Oversight Panel

- Michael P. Hainsey - Golden Triangle Regional Airport, Columbus, MS (Chair)
- H. Norman Abramson - Southwest Research Institute, San Antonio, TX
- Ben Gielow - Amazon, Washington, DC
- Heather Hasper - Jacobsen/Daniels, Ypsilanti, MI
- Hernando Jimenez - Georgia Institute of Technology, Atlanta, GA
- Kimberly A. Kenville - University of North Dakota, Grand Forks, ND
- Todd L. McNamee - Ventura County Department of Airports, Camarillo, CA
- Carl Mikeman - Skyline Aviation Consulting, El Cajon, CA
- Danielle J. Rinsler - FAA Liaison
- Christopher Swider - FAA Liaison
- Christopher J. Oswald - Airports Council International, North America Liaison
ACRP Report 144 - *Unmanned Aircraft Systems (UAS) at Airports: A Primer*

- Assist airports and stakeholders in gaining an understanding of UAS
  - Potential uses
  - Impact on airports
- Primer addresses:
  - Costs and benefits to airports
  - Regulatory and community considerations
  - UAS infrastructure and operational considerations
  - UAS safety and security
- Published September 2015
Process for Primer Development

- Literature Review
- Interviews / Workshops
- On-line surveys
- Phone calls and emails
- Outreach to all six test sites
- Additional outreach
Research Results

- Operational Differences
- Airspace Impacts & COA Process
- Communications & Public Outreach
Operational Differences

- Vehicle dependent
- There IS a pilot
- Integrates into the airport environment
  - Airport dependent
  - Takeoff and landing modes vary
- Planning . . . Planning . . . Planning
  - Lost Link Points
  - Differences in procedures
Aircraft Modes

Raven

Scan Eagle

Reaper
Airspace Impacts & COA Process

- **UAS are airspace limited at present**
  - Approval from the FAA to fly
  - Exemptions from regulation

- **Certificate of Authorization or Waiver (COA)**
  - Vehicle specific
  - Role of airport varies
  - Limitation on attracting business
Communications

- **UAS Operator Needs**
  - Fiber
  - Data

- **Communications on the airport**
  - Standard in the movement area
  - NOTAMs

- **Communications with the Public**
  - Business development
  - Public Outreach
Primer Application by Airports
Primer Roadmap

- Introducing UAS to Airports Section 1
- Introduction to UAS Section 2
- UAS Lessons Learned from Airports Section 3
  - Costs and Benefits to Airports Section 4
  - Regulatory & Community Considerations Section 5
- UAS Infrastructure Considerations Section 6
- UAS Operational Considerations Section 7
- UAS Safety Security & Risk Management Section 8
- Conclusions and Moving Forward Section 9
Primer
Roadmap

- Appendix A: UAS References
- Appendix B: Modes of UAS Operations
- Appendix C: Checklists & Procedures
- Appendix D: UAS Safety Information
- Appendix E: Acronyms & Glossary
Chapter 3 – Lessons Learned

• Southern California Logistics Airport (VCV)
• Killen – Fort Hood Regional Airport (GBK)
• Golden Triangle Regional Airport (GTR)
• Syracuse Hancock International Airport (SYR)
• U.S. Military Airfields
Chapter 3 – Lessons Learned

• Facilities and Ground Operations
• Takeoffs and Landings
• Integrating with Manned Aircraft
• Normal – Abnormal Procedures and Planning
• Airspace and COA Development
• Training for Airport Personnel
Chapter 4 – Costs and Benefits

• Revenue Streams
• Infrastructure Considerations
• Public and Community Engagement
Public Outreach

U.S. Department of the Interior Aviation Program Overview

Mark Bathrick, MBA
Director
Office of Aviation Services
300 E. Mardi Dr.
Boise, Idaho
August 12, 2014
Chapter 5 – Regulatory and Community Considerations

• Early Rule Making
  • Small UAS
  • Section 333 Exemptions

• Challenges to Regulation
  • Educating the Public
  • Enforcement

• Very Dynamic
Chapter 7 – UAS Operational Considerations at Airports

• Segregation of UAS
• Certification Impacts
• Airport and ATC Coordination
• Communications Issues
Getting in the Game

- Engage with a UAS National Test Site
- Engage with area Universities
- Contact State Government
- UAS Conferences
- Investigate complimentary UAS businesses
- Determine UAS facility/infrastructure requirements
- Contact the FAA

~ Chennault International Airport (CWF)
Project Results

- **Opportunities for more information**
  - Military lessons learned
  - Test site lessons learned 2015+

- **Universities**
  - Degrees in UAS
  - Providing test results to multiple sites

- **UAS Center of Excellence**
A Snapshot in Time

The Industry has Changed Since the Primer was Published

- Small UAS Rule
- Challenges to the FAA

Focused on Operating UAS ON Airports
For additional information:

ACRP Report 144: Unmanned Aircraft Systems (UAS) at Airports: A Primer

http://www.trb.org/ACRP/Blurbs/173263.aspx

• Ken Neubauer
  o kneubauer@futronaviation.com