



11th National Symposium on Aviation System Planning

MAY 15–18, 2023

Irvine, CA

Convened by
Transportation Research Board

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WELCOME FROM LEAH WHITFIELD AND FIN BONSET

Welcome to the 11TH National Symposium on Aviation System Planning and to Irvine, California! The last three years have been more than challenging to keep the momentum rolling on promulgating, advancing, and learning the latest aspects of aviation system planning due to the COVID-19 pandemic and significant other events impacting our ability to plan this normally recurring triennial event. However, we did it, and you are here! We are so excited to see all of our friends and cohorts and meet many new delegates as well. Things have changed since we last met in Anchorage in 2018 and we have an incredible agenda covering the latest trends such as advanced air mobility, subsequent vertiport planning, supersonic aircraft, equitable mobility, workforce resiliency, climate adaptability, and sustainability. In addition, we have some incredible poster session topics showing the latest research from leading universities and research affiliated institutions.

We are also very excited to host keynote speakers from two leading new aviation original equipment manufacturer (OEM) companies, Joby Aviation and Boom Supersonic! The Symposium will also officially start with a welcome from two local California airport representatives from Ontario International Airport and John Wayne Airport. This conference is also unique in the fact that the conference planning entailed collaboration between other TRB standing committees within the Aviation Group, as many topics are significantly relevant to all of our interests. We are proud to have achieved this synchronicity with fellow committees as it has enabled us to diversify our topics and provide a Symposium that has something new and interesting for everyone.

We are all responsible for ensuring a safe, secure, efficient, and resilient system and we sincerely hope this Symposium will provide you with the energy and networking to be able to do so. If anything, COVID-19 has taught to be more agile in responding to disruptions and achieve better outcomes for everyone, which can also be attributed to these wonderful new trends that are now at the forefront of aviation system planning.

Thank you for joining us! We hope you enjoy your time at the National Academies' facility in beautiful Irvine, California.

Leah Whitfield

Chair, Standing Committee on Aviation System Planning
Principal, The Aviation Planning Group

Fin Bonset

Chair, Symposium Planning Committee
Director of Aviation Services, VHB



Leah Whitfield



Fin Bonset

2023 PLANNING COMMITTEE

This conference would not have been possible without the combined efforts of many individuals and organizations.

Fin Bonset, Planning Committee Chair, VHB

Leah Whitfield, TRB Standing Committee on Aviation System Planning Chair,
The Aviation Planning Group

Courtney Beard, Mead & Hunt, Inc.

Adam Cohen, University of California, Berkeley

Jeff Borowiec, Aviation, a Woolpert Company

Daniel Friedenzohn, Embry-Riddle Aeronautical University

Geoffrey Gosling, Aviation System Consulting, LLC

Hiroshi Ishikawa, Southern California Association of Governments

Pamela Keidel-Adams, Kimley-Horn and Associates, Inc.

Jennifer Kim, AECOM

Max Z. Li, University of Michigan, Ann Arbor

Regan Schnug, Kimley-Horn and Associates, Inc.

Clayton Stambaugh, Illinois Department of Transportation

Stephanie Ward, Mead and Hunt, Inc.

TRB STAFF

Christine Gerencher, Senior Program Office

Tess Austin, Operations Coordinator

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Aviation System Planning (AV020)

Aviation Administration and Policy (AV010)

Airport Terminals and Ground Access (AV050)

New Users of Shared Airspace (AV095)

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American Planning Association Certification Maintenance (CM) for AICP Certified Planners

Certification Maintenance credits are offered for most of the sessions at this conference. CM credits have been requested for the sessions denoted with an asterisk on the following Schedule-At-A-Glance.

These credits are subject to approval.

SCHEDULE AT-A-GLANCE

	Monday, May 15	Tuesday, May 16	Wednesday, May 17	Thursday, May 18
7:30 AM–8:30 AM		Breakfast	Breakfast	Breakfast
8:30 AM–10:00 AM		Opening Remarks & Keynote Addresses Auditorium	Concurrent Session B1* & B2* Auditorium / Huntington	Concurrent Committee Meetings Auditorium/ Huntington
10:00 AM–10:30 AM	Lyon Air Museum Tour (Optional)	Break	Break	Break
10:30 AM–Noon		Plenary I* Auditorium	Concurrent Sessions C1* & C2* Huntington / Auditorium	Concurrent Committee Meetings Huntington / Auditorium
Noon–1:00 PM		Lunch	Lunch	Lunch
1:00 PM–1:30 PM		Plenary II* Auditorium	Plenary IV* Auditorium	NASA0 Members Meeting Huntington Room
1:30 PM–2:00 PM				
2:00 PM	Onsite Registration Check-In Desk Opens	Plenary III* Auditorium	Plenary V* Auditorium	
2:15 PM				
2:30 PM–3:00 PM	Atrium			
3:00 PM–3:30 PM	Airport Cooperative Research Program (ACRP) Strategic Planning Workshop Huntington Room	Break	Poster Session	
3:30 PM–4:00 PM		Concurrent Sessions A1* & A2* Huntington / Auditorium	Atrium	
4:00 PM–4:30 PM			Symposium Synthesis and Research Needs Auditorium	
4:30 PM–5:00 PM				
5:00 PM–5:30 PM	Welcome Reception			
5:30 PM–7:30 PM				

*indicates eligibility for AICP credits

SHUTTLE SCHEDULE

15-May Program ends 7:30 PM		
Bayview	Renaissance	Beckman
2:00 PM	2:15 PM	2:30 PM
3:00 PM	3:15 PM	3:30 PM
4:00 PM	4:15 PM	4:30 PM
5:00 PM	5:15 PM	5:30 PM
6:00 PM	6:16 PM	6:30 PM
7:00 PM	7:15 PM	7:45 PM*
16-May Program ends 5:30 PM		
Bayview	Renaissance	Beckman
7:00 AM	7:15 AM	7:30 AM
8:00 AM	8:15 AM	8:30 AM
10:00 AM	10:15 AM	10:30 AM
NOON	12:15 PM	12:30 PM
2:00 PM	2:15 PM	2:30 PM
4:00 PM	4:15 PM	4:30 PM
5:00 PM	5:15 PM	5:45 PM*
17-May Program ends 5:30 PM		
Bayview	Renaissance	Beckman
7:00 AM	7:15 AM	7:30 AM
8:00 AM	8:15 AM	8:30 AM
10:00 AM	10:15 AM	10:30 AM
NOON	12:15 PM	12:30 PM
2:00 PM	2:15 PM	2:30 PM
4:00 PM	4:15 PM	4:30 PM
5:00 PM	5:15 PM	5:45 PM*
18-May Program ends 1:00 PM		
Bayview	Renaissance	Beckman
7:00 AM	7:15 AM	7:30 AM
8:00 AM	8:15 AM	8:30 AM
9:00 AM	9:15 AM	9:30 AM
10:00 AM	10:15 AM	10:30 AM
11:00 AM	11:15 AM	11:30 AM
NOON	12:15 PM	12:30 PM
1:00 PM	1:15 PM	1:30 PM*

*last shuttle to both hotels

SYMPOSIUM PROGRAM

MONDAY, MAY 15, 2023

Shuttle service from hotels to Beckman Center begins at 2:00 PM on an hourly schedule

Scan the QR Code
for the online program.



10:00 AM

Lyon Air Museum Tour (Optional)

Participants must register separately for this tour and provide their own transportation to and from the museum.

2:00 PM

Registration Opens

Atrium

3:00 PM–5:00 PM

Airport Cooperative Research Program (ACRP) Strategic Planning Workshop

All registrants are welcome to participate in this interactive workshop.

Huntington Room

5:00 PM–7:30 PM

Welcome Reception

Shuttle service from Beckman Center to hotels ends at the conclusion of the day's events.

TUESDAY, MAY 16, 2023

Shuttle service from hotels to Beckman Center begins at 7:00 AM on an hourly schedule.

7:30 AM–8:30 AM

Breakfast

8:30 AM–10:00 AM

Welcome, Opening Remarks, Keynote Addresses

Auditorium

Welcome; Leah Whitfield, chair of the TRB Standing Committee on Aviation System Planning; and Fin Bonset, Symposium Planning Committee Chair

Opening Remarks

Komal Kumar, John Wayne Airport, Orange County
Michelle Brantley, Ontario International Airport



Komal
Kumar



Michelle
Brantley

Keynote Addresses

Eric Allison, Joby Aviation
Ben Murphy, Boom Supersonic



Eric
Allison



Ben
Murphy

10:00 AM-10:30 AM

Break

10:30 AM-Noon

Plenary Session I: Advancing the Practice of State Aviation System Planning**Auditorium**

Moderator: Leah Whitfield, The Aviation Planning Group

This session highlights the findings of an ACRP report that provides insight and best practices relevant to aviation system planning, and offers discussions on data collection in a big data world as well as enhanced tools for developing capital improvement programs.

- Regan Schnug and Georgia Twyerould, Kimley-Horn
- Rick Lucas, McFarland Johnson
- A.J. Schutzman, Wyoming Department of Transportation

Noon-1:00 PM

Lunch

1:00 PM-2:15 PM

Plenary Session II: Equitable Mobility in Aviation System Planning**Auditorium**

Moderator: Clayton Stambaugh, Illinois Department of Transportation

An aviation system should have the capability of bringing together multiple modes of transportation to enhance not only overall multimodal efficiency, but also be easily available for all its citizens. An equitable system based on sustainability and resiliency goals should also include the well-being of all communities to achieve an equitable and balanced transportation system. Join a select panel of experts to explore the possibilities of an equitable system based on new technology and sustainability initiatives.

- Matthew Friedman, California Department of Transportation
- Liza Josias, Eve Air Mobility
- Aaron Ray, Port of Portland

2:15 PM-3:30 PM**Plenary Session III: The Future of Aviation: Defining a New Landscape****Auditorium****Moderator:** Zach Simons, Kimley-Horn

As a pillar of transport, aviation is at the very center of our socio-economic fabric and has been reshaped due to significant changes in this fabric over the past few years. As new transportation norms are being established, emerging trends such as the focus on sustainability, new data collection and analyzation technologies, and the development of AAM are beginning to take prominent stage. This session will discuss the emergence of these trends and the role they play in the defining the future landscape of the aviation industry and how to address this from an aviation system planning perspective.

- Greg Hilsenrath, Gray Matter, Inc.
- Dan Sloat, Volatus Infrastructure, LLC
- Liza Josias, Eve Air Mobility
- Adam Cohen, Mineta Transportation Institute, San Jose State University / Transportation Sustainability Research Center, UC Berkeley

3:30 PM-4:00 PM**Break****4:00 PM-5:30 PM****Concurrent Session A1: Modeling Aviation Activity Allocation in Airport System Planning****Huntington Room****Moderator:** Geoff Gosling, Aviation System Consulting

A central challenge in regional and state aviation system planning is projecting how the total forecast regional or state aviation activity, whether air passengers, air cargo, general aviation operations, or advanced air mobility activity, will be distributed among the airports and vertiports serving the region or state in response to market forces, policy decisions, and infrastructure investments. This session will review the current state of practice of modeling this activity allocation process, identify aspects that are not well understood or well handled by existing models, and discuss needed research to improve the state of practice.

- Yi Gao, Purdue University
- Emma Southall, United Kingdom Department for Transport
- Sonjia Murray, The Meehan Aviation Group

Concurrent Session A2: Integrating Emerging Air Transport Technologies with Aviation System Planning

Auditorium

Moderator: David Ballard

Recent years have seen the emergence of new types of aircraft. These vehicles are well suited for serving new types of missions near airports and within the regions and communities these airports serve. Operators hopeful to bring these new vehicles and missions into reality are sometimes less than familiar with the operational norms and regulatory structures that are central to aviation system operations and planning. This session will explore how traditional system planning may have to be restructured, adjusted, and/or adapted to accommodate these new aircraft types, whether they be vertical takeoff and landing advanced air mobility aircraft or emerging types of uncrewed aircraft systems.

- Jared Esselman, WSP
- Brent Skorup, Mercatus Center at George Mason University
- Hiroshi Ishikawa, Southern California Association of Governments
- Reiner Pelzer and Jennifer Kim, AECOM

5:30 PM

Adjourn

Shuttle service from Beckman Center to hotels ends at the conclusion of the day's events.

WEDNESDAY, MAY 17, 2023

Shuttle service from hotels to Beckman Center begins at 7:00 AM on an hourly schedule.

7:30 AM–8:30 AM

Breakfast

8:30 AM–10:00 AM

Concurrent Session B1: Advanced Air Mobility Vertiport System Planning

Auditorium

Moderator: Nancy Mendonca, National Aeronautics and Space Administration

If in the near future many new types of Vertical Takeoff and Landing aircraft enter our aviation system(s) with high volume operations, how do we plan for the necessary

supporting infrastructure? Join this panel of experts to discuss the challenges such as infrastructure planning, urban/city/community planning, airspace planning, and community outreach that will need to be better understood to accommodate these new users of shared airspace.

- **Gabriela Juarez**, City of Los Angeles
- **John Brazil**, City of San Jose
- **Nicole Johnson**, North Central Texas Council of Governments

Concurrent Session B2: State Aviation Funding: Project Prioritization and Selection Processes

Huntington Room

Moderator: Ryan Gaug, Minnesota Department of Transportation

This session will review the results from an ACRP Synthesis report concerning project prioritization and selection processes involved in state aviation funding. Hear from a state department of transportation representative and other subject matter experts on how this report has identified the differences and potential commonality to further state aviation system funding processes.

- **Stephanie Green**, Mead and Hunt, Inc.
- **Laurie Cullen**, Changeis, Inc.
- **Bradley Brandt**, Louisiana Department of Transportation and Development

10:00 AM–10:30 AM

Break

10:30 AM–Noon

Concurrent Session C1: Powering the Aircraft of Tomorrow

Huntington Room

Moderator: Loup-Giang Nguyen, WSP

Beyond the popular industry trend discussions on new types of aviation vehicles entering aviation systems, it is also important to understand what will power these new vehicles and how to accommodate operator needs in terms of utility infrastructure. Join this select panel of experts on a deep dive into the technologies and fuels that will power the new vertical takeoff and landing and other new types of aircraft, including what energy needs are expected, and what type of fuel storage facilities will be needed (e.g. hydrogen or sustainable aviation fuels).

- **Edward Yu**, University of Tennessee
- **Scott Cary**, National Renewable Energy Laboratory
- **Melinda Z. Pagliarello**, Airports Council International-North America

Concurrent Session C2: Aviation Workforce Resiliency**Auditorium**

Moderator: Katie Turnbull, Texas A&M Transportation Institute

The “Great Resignation” experienced since the COVID-19 pandemic has had an adverse effect on the aviation industry. Attracting and retaining talent has been a major challenge in all areas of aviation. This session addresses solutions and ideas to strengthen the aviation workforce based on experience and insight from aviation subject matter experts. This session will also address the importance of diversity, equity and inclusion initiatives and how to attract talent from underprivileged and minority communities.

- Courtney Beard, Mead and Hunt, Inc.
- Seth Young, DY Consultants
- Laurie Cullen, Changeis, Inc.
- Crystal Maguire, Aviation Technical Education Council
- Steve Landau, EBP

Noon-1:00 PM

Lunch

1:00 PM-2:15 PM

Plenary Session IV: Addressing Sustainability and Resiliency in Aviation System Planning: A Solution Based Approach**Auditorium**

Moderator: Mia Held, C&S Companies

Sustainability and resiliency are not only related to environmental concerns but also social and economic issues. This session will bring a multi-faceted perspective on the changing needs of an aviation system and suggested approaches for viable and sustainable solutions for long-term system resiliency.

- Jennifer Maples, Phoenix Sky Harbor International Airport
- Justin Castagna, Aeroplex/Aerorelease Group
- Curt Castagna, National Air Transportation Association

2:15 PM-3:00 PM

Plenary Session V: Don't Let Your System Plan Sit on the Shelf**Auditorium**

Moderator: Zach DeVeau, Kimley-Horn

As states and regions scope and develop system plans and economic impact studies, there has been a growing focus on developing them to be implementation-based; focusing on project and topic-specific tools and process flows to provide tangible and

implementable resources to state departments of transportation, regional planning agencies, and airports. This includes developing standard procedures for a variety of processes, education and training of professionals, as well as a more meaningful presentation of project findings - departing from traditional reports to more dynamic and data-driven visualizations. This session will explore a variety of cutting-edge solutions that states and regions have employed recently.

- Rylan Juran, Minnesota Department of Transportation
- Bob Brock, Kansas Department of Transportation
- Evan Lester, Tennessee Department of Transportation
- Nick Harwell, Florida Department of Transportation (invited)

3:30 PM-4:30 PM

Poster Session

Atrium

Facilitator: Jeffrey Borowiec, Jviation, A Woolpert Company

This session will showcase recent research conducted in aviation system planning.

- **Estimating Airport Leakage with Emerging Access Modes**
Shirya Karam, University of Pennsylvania
- **Technology and Policy Recommendations on Integration of Advanced Air Mobility Technologies into Existing Airport System – A Case Study of Ohio**
Jacob Shila, Bowling Green State University
- **Cross-Domain Data Sharing for Safety: The Public Digital Services Model**
John S. Eberhardt III, ATA, LLC
- **How Does Mobile Location of Airport Passengers Tell and Predict Airport Catchment Areas: A Case Study of the New York Metropolitan Multi-Airport Region**
Sen Wang, Purdue University
- **The Impact of Unleaded Fuel on a Collegiate Aviation Flight Training Environment**
Tanner Way and Irene Miller, Southern Illinois University
- **Airport System Planning and Airport Master Plan: Conflicts and Compromises**
Joel Shon, Tainan University of Technology, Taiwan
- **Estimating Electrical Energy and Capacity Demand for Regional Electric Flight Operations at Two Mid-Sized Airports in Washington**
Steffen Coenen, University of Washington
- **Airmail with Ivy: Aviation, Education, and Preservation**
Ivy Adams, Middle Tennessee State University

4:30 PM–5:30 PM**Symposium Synthesis and Research Needs: Where Do We Go From Here?****Auditorium****Moderator:** Fin Bonset, VHB

This will be an opportunity for all Symposium attendees to discuss session outcomes, principal findings, lessons learned, and to identify needed research and topics for continued discussion at future meetings.

5:30 PM**Adjourn**

Shuttle service from Beckman Center to hotels ends at the conclusion of the day's events.

Thursday, May 18, 2023

Shuttle service from hotels to Beckman Center begins at 7:00 AM on an hourly schedule.

7:30 AM–8:30 AM**Breakfast****8:30 AM–10:00 AM****Concurrent Committee Meetings
(open to all registrants)****Aviation System Planning (AV020)****Auditorium****Chair:** Leah Whitfield, The Aviation Planning Group

The committee is focused on aviation planning activities at the local, regional, state, national, and global levels that take a systems approach to evaluating the interrelationships of aviation and airport infrastructure, as well as interactions with related and supporting infrastructure. The focus of the committee includes the relationships between aviation planning and other planning, policy, and regulatory processes. The following individuals will present during the meeting:

- Farinoush Sharifi and Craig Smith, Overair

New Users of Shared Airspace (AV095)**Huntington Room****Chair:** Daniel Friedenzohn, Embry-Riddle Aeronautical University

The committee is concerned with emerging and growing aviation applications such as commercial space operations, uncrewed aircraft systems (UAS), and urban air mobility (UAM), as new participants in an already occupied airspace. The committee will address how the aviation ecosystem can support these emerging types of aerospace operations in harmony with the operations of established users in a safe and efficient manner.

10:00 AM–10:30 AM**Break****10:30 AM–Noon****Concurrent Committee Meetings****(open to all registrants)****Aviation Administration and Policy (AV010)****Auditorium****Chair:** Clayton Stambaugh, Illinois Department of Aviation

The committee is concerned with intergovernmental and cooperative aspects of administration and policy as it relates to the operation and development of the aviation industry, including governance participation and stakeholder involvement.

Airport Terminals and Ground Access (AV050)**Huntington Room****Chair:** Dr. I. Richmond Nettey, Kent State University

The committee is concerned with the planning, design, operation, and maintenance of the airport landside, which encompasses the area between points where passengers and goods enter airports to points, including terminals, where they board and disembark aircraft. The landside includes systems conveying passengers and baggage between landside and airside terminal buildings. The committee is also concerned with the transportation of passengers between their local origin or destination, and the airport.

Noon–1:00 PM**Lunch**

Symposium Program Concludes

Shuttle service from Beckman Center to hotels ends at 1:30 PM.

1:00 PM-3:00 PM

National Association of State Aviation Officials (NASAO) Meeting of Members

Huntington Room



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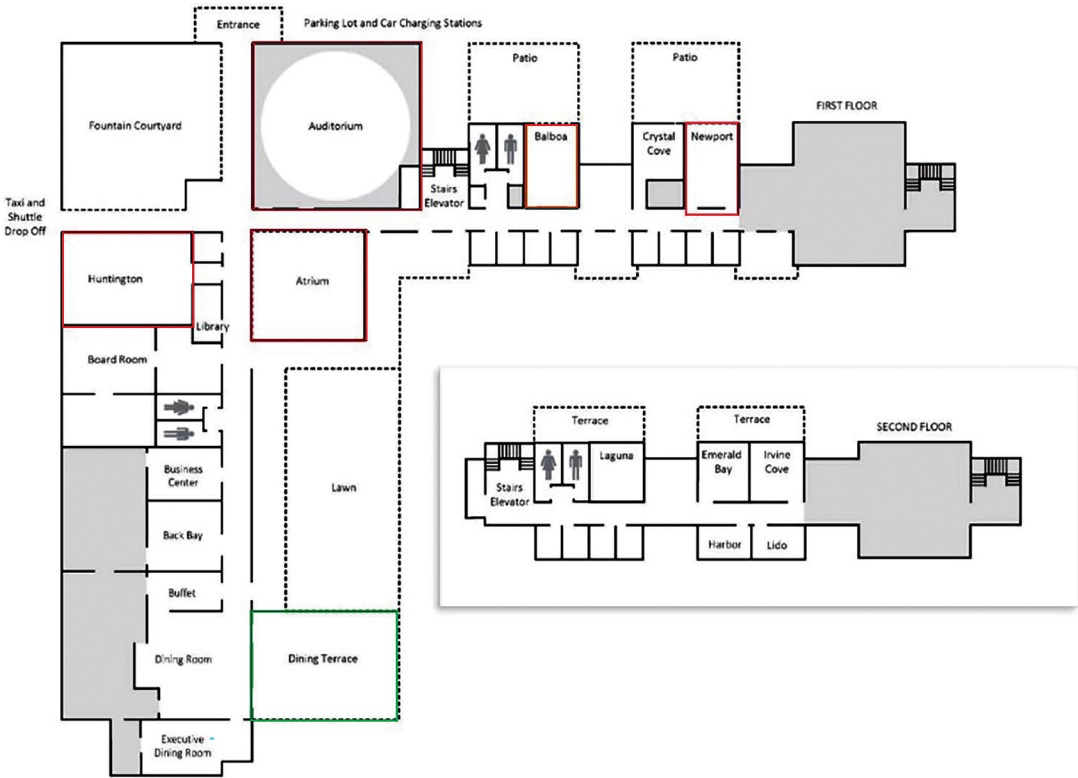
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