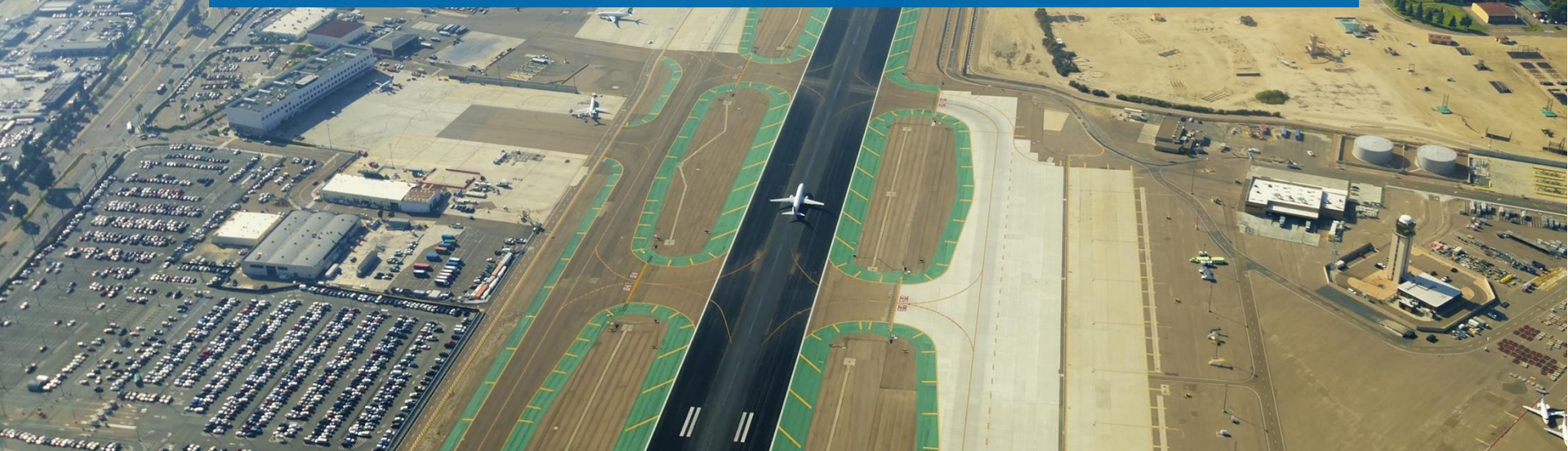


Envisioning the Future of U.S. Airports

May 27, 2025



Today's Learning Objectives

- (1) Identify and describe potential future challenges airports may face, along with their possible outcomes**
- (2) Apply near-term actions airports can take to address these challenges**
- (3) Recognize areas where research is needed to support long-term solutions for airports**

American Association of Airport Executives (AAAE)

**1.0 Continuing Education Units (CEUs)
are available to Accredited Airport
Executives (A.A.E.)**

**Report your CEUs:
www.aaae.org/ceu**

American Institute of Certified Planners (AICP)

1.5 Certification Maintenance Credits

You must attend the entire webinar to be eligible for credits

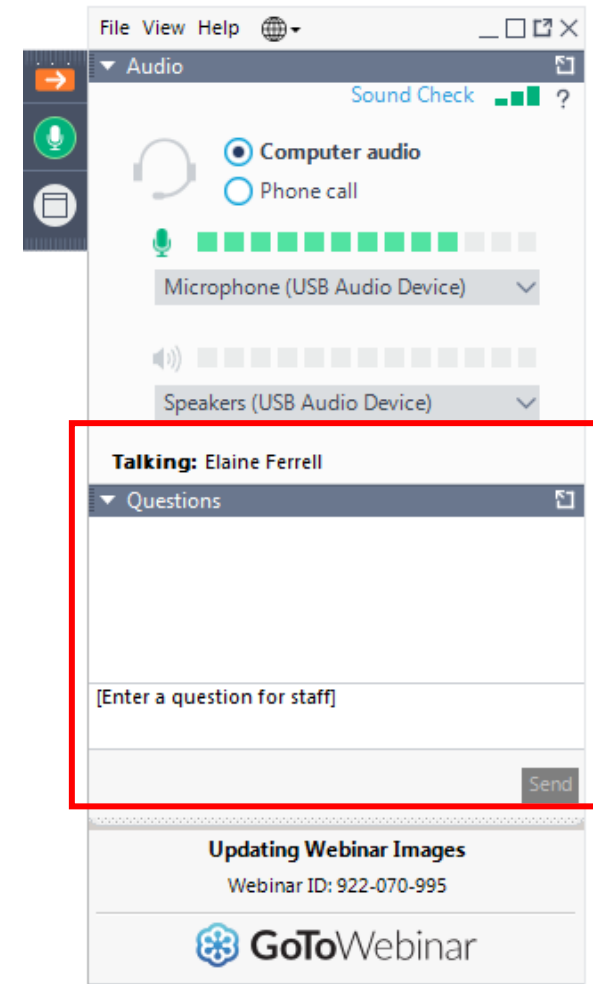
Log into the American Planning Association website to claim your credits

Questions and Answers

Please type your questions into
your webinar control panel

We will read your questions out
loud, and answer as many as
time allows

#TRBwebinar



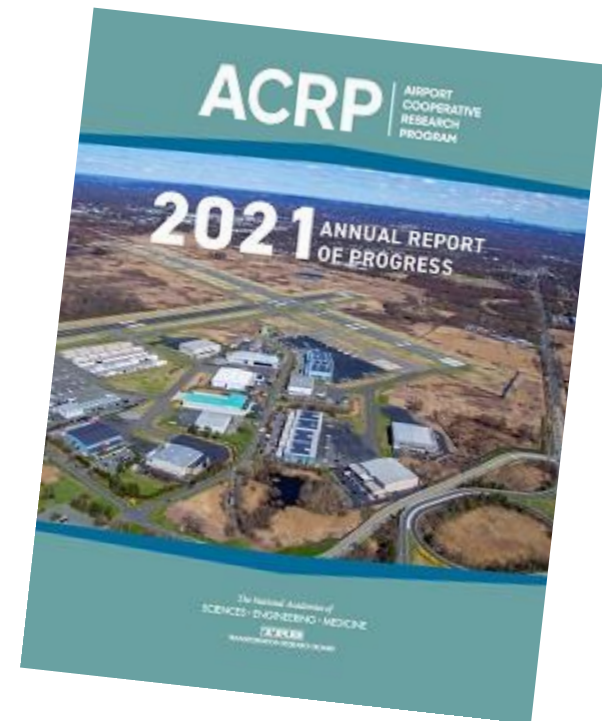
Rhonda Hamm-Niebruegge,

- ➔ Director of St. Louis Lambert International Airport (STL)
- ➔ Prior to STL, Ms. Hamm-Niebruegge logged over 25 years in aviation management positions with American Airlines, Trans World Airlines (TWA) and Ozark Air Lines



ACRP is an Industry-Driven Program

- Managed by TRB and sponsored by the Federal Aviation Administration (FAA).
- Seeks out the latest issues facing the airport industry.
- Conducts research to find solutions.
- Publishes and disseminates research results through free publications and webinars.



Benjamin Miller & Greg Principato



- ➔ Director, RAND Community Health and Environmental Policy Program
- ➔ Senior Economist, RAND
- ➔ Professor, RAND School of Public Policy



- ➔ President, International Air Sports Federation (FAI)
- ➔ Former President and CEO, National Aeronautic Association
- ➔ Former President and CEO, Airports Council International – North America (ACI-NA)

ACRP Report 271

Envisioning U.S. Airports in 2050

Benjamin Miller

Greg Principato

Benjamin Miller & Greg Principato



- ➔ Director, RAND Community Health and Environmental Policy Program
- ➔ Senior Economist, RAND
- ➔ Professor, RAND School of Public Policy



- ➔ President, International Air Sports Federation (FAI)
- ➔ Former President and CEO, National Aeronautic Association
- ➔ Former President and CEO, Airports Council International – North America (ACI-NA)

ACRP Report 271 Oversight Panel

The Need for a Vision for Airports

Reactive Evolution of Airports

- Today's aviation system has evolved over multiple decades, resulting in a patchwork of regulations and associated expectations that haven't always been stitched together cohesively
- With the benefit of hindsight, it is time to look at the relationships of those expectations

Goal

- Provide an ambitious but realistic vision for what U.S. airports might look like in 2050
- Inspire proactive and cohesive actions, rather than reactive and isolated actions

Visioning Exercises

Why do we need a vision?

- A statement of shared identity, purpose, and values
- A common endpoint around which to orient actions
- An inspiration to do more than is currently being done

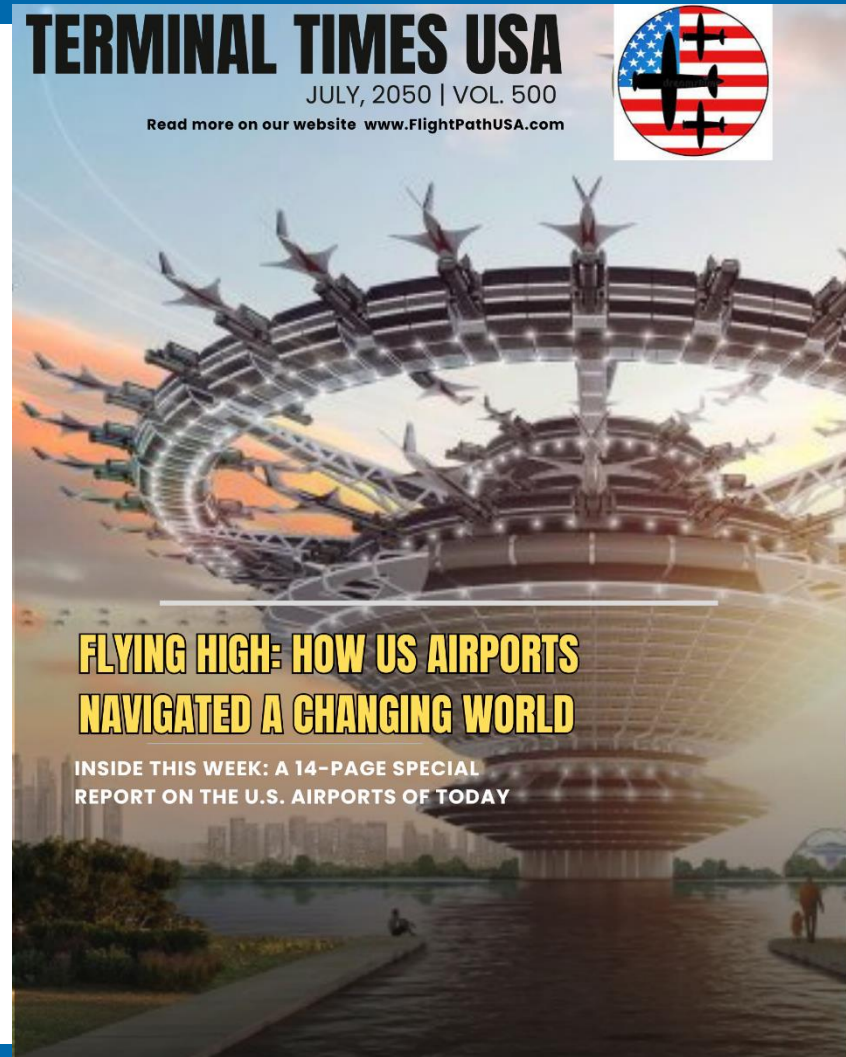
How was this vision developed?

- A series of three workshops, based on a strategic futuring method that combines Three Horizons Foresight (3HF) and Assumption-Based Planning (ABP)
- Participants included representatives from airports of all sizes, airlines, air cargo/logistics, aircraft manufacturing, state DOTs, and federal regulators

Visioning Exercises

Envision a desirable future for airports

- How would a successful U.S. airport system describe itself in 2050?
- What needed to happen to get there?
- What trends, events, or assumptions are needed to reach this future?
- How and why might these trends, events, or assumptions break or not occur?



The Vision

In 2050, airports are the gateway to multimodal frictionless transportation; their diverse workforce achieves efficiency, resilience, and equity while operating on a sustainable and financially sound basis.

Three Elements of the Vision

Operations

→ Workforce, procedures, and security

Sustainability

→ Environmental issues including emissions, climate change, noise, etc

Integration

→ Multimodal integration, emerging technologies, funding and regulatory issues

Narratives – Looking back from 2050

For each element, we describe events, actions, and decisions that might realistically occur over time

- State of Operations in 2024
- Initial steps to 2030
- 2030-2040
- 2040-2050
- Continuing Challenges

A hypothetical future, not a prediction

- The purpose is to be inspirational yet tangible
- Highlight key actions and decisions that set the stage for success

Taking Action Today

Are we
building a
vision or
responding
to events?

Operations

Sustainability

Integration

Actions That Can Be Taken Today: Operations

Capacity, Digital Operations, & Passenger Journey

- **Airports** can increase investment in digital connectivity, monitoring, and processing to enabled increased collaboration with stakeholders, to quickly and easily share data
- **Airports** can update facilities to make commercial service airports more accessible to passengers with disabilities, both physical and cognitive
- **Airports** can explore upgrades or changes to baggage delivery systems

Actions That Can Be Taken Today: Operations

Capacity, Digital Operations, & Passenger Journey

- **TSA & CBP** can continue experiments with process changes and emerging technologies that allow fundamental shifts in security approaches and expand these practices where they are successful.
- **Travelers** can utilize apps and other sources of real-time data updates from airports and operators for a smoother travel experience
- **Travelers** can be open-minded about the trade-off between privacy and security

Actions That Can Be Taken Today: Operations

Air Traffic Control

- **FAA** can continue to advance NextGen

Workforce

- **Airports** can explore new talent pools for recruitment to bring in more people from outside aviation
- **Airports** can consider new approaches to training staff, such as apprentice programs, and potentially collaborate with other airports and stakeholders on a nation-wide training program

Actions That Can Be Taken Today: Sustainability

Emissions

- **DOE National Labs** can continue to support fundamental research on environmentally friendly fuel sources, such as SAF and hydrogen, as well as resilience of the electric grid
- **Aircraft Manufacturers** can continue to support and collaborate with research on environmentally friendly fuel sources, such as SAF and hydrogen

Energy Resilience & Electrification

- **Airports** can invest in new infrastructure that is energy efficient, environmentally sustainable, and can accommodate the transition to clean energy sources

Actions That Can Be Taken Today: Sustainability

Climate Disruptions & Response

- ➔ **Airports** can develop climate response plans, focusing on adapting to climate change impacts that effect various elements of operations

Community Relations

- ➔ **Airports** can reach out to – or even help establish – working groups with the local community as a forum to discuss energy and climate plans, particularly as they involve complex interactions with local communities

Actions That Can Be Taken Today: Integration

Multimodal Integration

- ➔ **Airports** can consider how engagement with multimodal transportation models, including AAM, might impact existing fee structures and create new funding opportunities
- ➔ **USDOT** can encourage or convening collaborations that support airports as multimodal hubs, such as strengthening connections between airports, transit systems, and intercity rail
- ➔ **State and local governments** can advocate for and utilize more flexible approaches to multimodal funding
- ➔ **Travelers** can embrace multimodal travel options where available

Actions That Can Be Taken Today: Integration

Funding & Regulatory Issues

- **Airports** can explore creative approaches to public-private partnerships where helpful, including financing and operations of airports terminals
- **Airports** can consider how excess parking space might be repurposed towards new uses if parking demand continues to decline
- **FAA** can adopt new regulations around AAM aircraft to ensure safety and allow for commercialization and integration into the aviation ecosystem

Actions That Can Be Taken Today: Integration

Funding & Regulatory Issues

- **FAA** can consider ways to revise grant assurance requirements to allow for more flexible use of funding
- **Congress** can pass an authorization bill that allows USDOT to take a more flexible approach to funding multimodal transportation, including setting aside funds to be specifically targeted at connecting transit systems to airports
- **State and local governments** can ensure zoning boards communicate and collaborate with local airports, so that development patterns account for noise contours and other externalities

FOR ADDITIONAL INFORMATION



Benjamin Miller
bmiller@rand.org

Benjamin Miller & Greg Principato



- ➔ Director, RAND Community Health and Environmental Policy Program
- ➔ Senior Economist, RAND
- ➔ Professor, RAND School of Public Policy



- ➔ President, International Air Sports Federation (FAI)
- ➔ Former President and CEO, National Aeronautic Association
- ➔ Former President and CEO, Airports Council International – North America (ACI-NA)

NATIONAL
ACADEMIES *Sciences
Engineering
Medicine*

TRB TRANSPORTATION RESEARCH BOARD

TRB Weekly

Subscribe to the newsletter for the most recent
TRB news & research:

<https://bit.ly/ResubscribeTRBWeekly>

NATIONAL
ACADEMIES *Sciences
Engineering
Medicine*

TRB TRANSPORTATION RESEARCH BOARD

ACRP | AIRPORT
COOPERATIVE
RESEARCH
PROGRAM

Get involved with TRB

Receive emails about upcoming webinars:

<https://mailchi.mp/nas.edu/trbwebinars>

Find upcoming conferences:

<https://www.nationalacademies.org/trb/events>

 @NASEMTRB

 @NASEMTRB

 Transportation Research Board

Get Involved with TRB

Be a Friend of a Committee bit.ly/TRBcommittees

- Networking opportunities
- May provide a path to Standing Committee membership

Join a Standing Committee bit.ly/TRBstandingcommittee

Work with CRP <https://bit.ly/TRB-crp>

Update your information www.mytrb.org

Getting involved is free!

TRB's Podcast!

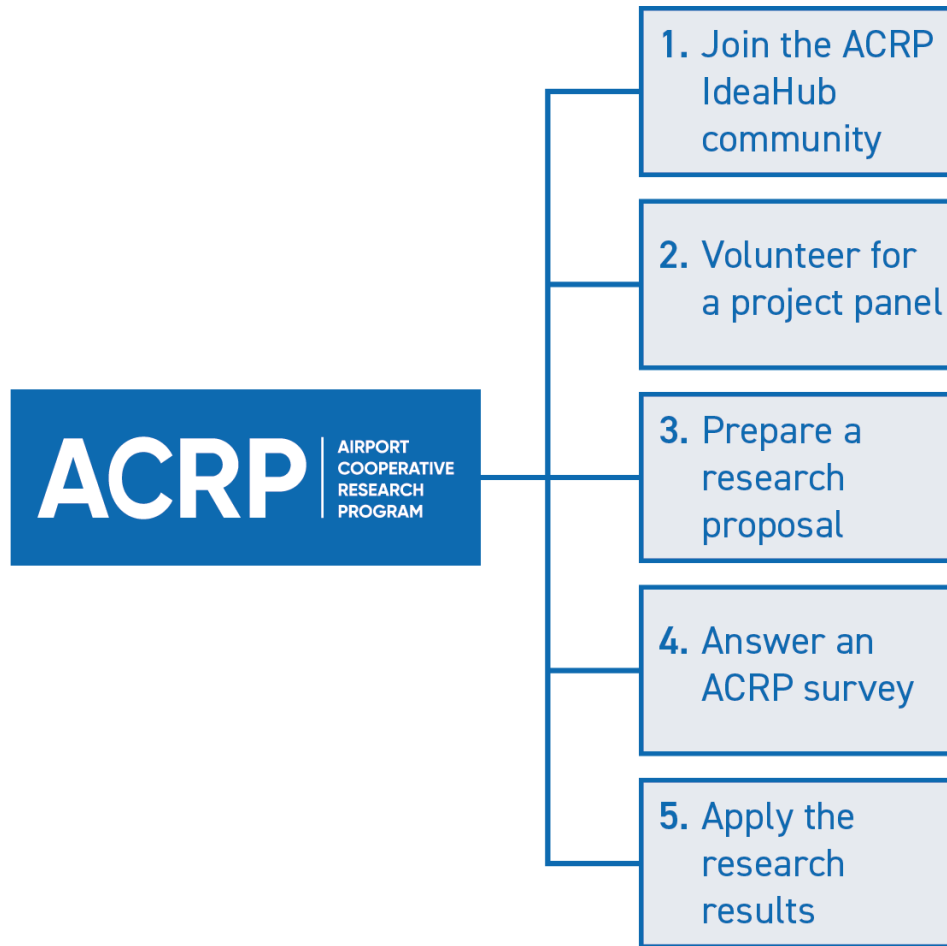
Have you heard TRB's
Transportation Explorers?

Listen on [our website](#) or
subscribe wherever you
listen to podcasts!

#TRBExplorers



Get involved with ACRP



Visit us online:

www.trb.org/ACRP

Other Ways to Participate



Become an Ambassador. Ambassadors represent ACRP at events and conferences across the country!



Sponsor or become an ACRP Champion. The champion program is designed to help early-to mid-career, young professionals grow and excel within the airport industry.



Visit ACRP's Impacts on Practice webpage to submit leads on how ACRP's research is being applied at any airport.

Visit us online:
www.trb.org/ACRP

ACRP Recorded Webinars



Have you missed a past ACRP webinar that you wish you could have attended?

No worries! All ACRP webinars are recorded and posted to TRB's website for viewing at any time.

There are over 100 webinar recordings on a variety of aviation topics available to you at:

<https://www.nationalacademies.org/events>

Select "Past Events" tab and search for "TRB Webinars".