

**Transportation Research Board
Committee on Aviation System Planning
(AV020)**

Triennial Strategic Plan – 2019

Scope

The Committee on Aviation System Planning (AV020) addresses planning activities in aviation from airport master planning at the local level, through regional and state airport planning, to national airport system planning. The scope of the committee's activities addresses the technical content of these planning activities and their interrelationship, as well as the role of airport system planning within the broader multimodal planning process.

Goals

1. Increase understanding of effective aviation system planning, including the identification and dissemination of best practices.
2. Promote the development and use of enhanced analytical techniques to support aviation system planning.
3. Identify research needs and develop research problem statements to improve the aviation system planning process.
4. Coordinate with other TRB committees with missions relevant to aviation system planning.
5. Broaden awareness of international practices for aviation system planning.
6. Effectively disseminate information relevant to aviation system planning to regional and state aviation system planners and stakeholders and to the broader aviation community.
7. Develop effective communication strategies to improve communication within the committee and between the committee and the broader aviation community.
8. Plan and execute symposia and conferences that promote education and information sharing in aviation system planning and identify and develop research topics and ideas.

Organization and Membership

Currently, the committee is comprised of 38 members and 190 friends from around the U.S. and other countries. In addition to its formal members, the committee benefits from the active participation of several friends of the committee who attend meetings and assist in organizing committee activities. The committee remains cognizant of the importance of diverse representation, including the participation of young members.

Informal subcommittees or program committees are formed on an ad-hoc basis to undertake specific activities such as managing the committee input to the TRB Research Needs Database, issuing calls for papers, and organizing the Aviation System Planning Symposia.

AV020 has the following ad/hoc sub-committees with the following responsibilities.

- Communications: This group communicates current, interesting and relevant information from the committee to the transportation and industry and to other committees, primarily via the TRB Aviation Facebook page. This group maintains and updates the committee website.
- Research Needs: This group is the committee's link to the TRB Research Needs Database. Tasks include parsing through the database for topics of interest to our committee, contribute ideas from the committee to the database, and coordinating review of ACRP problem statements.
- Annual Meeting Sessions and Calls for Papers: This group presents possible Annual Meeting session topics to the committee, assembles calls for papers, and coordinates the organization of sessions for the meeting.
- Symposium Planning: This group plans future offerings of the National Aviation System Planning Symposium and other symposia organized by the committee.
- Strategic Planning: This group evaluates, updates and revises the committee's Triennial Strategic Plan.
- Membership: This group reviews the current committee membership, identifies potential new members, and recommends new members.

Committee Activities since the 2016 TSP

Since the 2016 TSP, the committee has sponsored or co-sponsored between four and seven sessions at the last four Annual Meetings, as shown in Table 2. In addition, the committee has organized one National Aviation System Planning Symposia. Topics covered at the symposia included challenges to aviation system planning, aviation industry trends, and perspectives from the local, regional and federal levels.

The Tenth National Aviation System Planning Symposium (10th NASPS), was held May 21-23, 2018 in Anchorage, Alaska. It was organized in cooperation with the Alaska Department of Transportation, Anchorage International Airport, and the City of Anchorage. The Symposium program consisted of five plenary sessions, six concurrent sessions, a poster session, a symposium synthesis session, and research gaps workshop. The Symposium attracted approximately 100 participants, including international participants.

The committee has participated in the review of Airport Cooperative Research Program (ACRP) Problem Statements, providing comments and recommendations to ACRP staff for forwarding to the ACRP Oversight Committee.

In 2017, TRB formed the Committee Research Coordinators Council – Aviation (AV000(3)). This council is currently chaired by two members of AV020. Membership in the council includes the Committee Research Coordinators (CRCs) from the nine Aviation standing committees. The purpose of the subcommittee is to coordinate research interests among the Aviation Group, to facilitate populating the TRB Research Needs Statements (RNS) database, and to provide coordination with the TRB Airport Cooperative Research Program (ACRP).

Committee Communications

The committee meets twice a year during the TRB Annual Meeting in January and mid-year to plan for upcoming TRB meetings. In addition to these meetings, the principal means to communicate committee activities to members and friends is by e-mail using an e-mail distribution list maintained through the MyTRB web portal. It is used to plan for upcoming TRB meetings, keep members updated on activities of AV020 subcommittees and important developments related to aviation systems planning. The committee will continue to use the email list generated from the MyTRB site. The committee is in the process of updating and expanding its website, which it plans to have operational in 2019. The committee has a Committee Communications Coordinator (CCC) position. The CCC is a committee member who volunteers to maintain the committee's communication portfolio and interact with other committees about communication tools.

Critical Issues Identified by the Committee

As part of the committee's Triennial Strategic Plan update, the committee engaged in discussion to identify and discuss issues that are critical to the future of aviation system planning. These discussions considered the issues identified in the TRB report *Critical Issues in Transportation – 2019* that relate to aviation system planning. As a result of these discussions, the following issues were identified. These issues may form a basis for developing research statements, calls for papers, and topics for sessions at the TRB Annual Meeting, the National Aviation System Planning Symposium, and committee-hosted webinars and other activities.

- Emerging Technologies. (Coordinate with committee AV060 – Airfield and Airspace Capacity and Delay)

How will emerging technologies in aviation, navigation, communication, surface transportation, and data dissemination and analytics affect the strategic operation of airports and the National (and International) Airspace System (NAS)? Specific technologies to consider may include:

- o “NextGen” air traffic management technologies, including arrival & departure flow metering technologies in busy metro areas
 - o Technology to improve safety and efficiency at general aviation airports (e.g., ADSB-In / Out)
 - o Alternative aircraft taxi systems
 - o Electrical propulsion for aircraft
 - o Artificial intelligence
 - o Cockpit automation and single-pilot airline operations
 - o Advanced security screening technologies
 - o Surface transportation technologies, including autonomous vehicles
- Airport System Capacity and Performance. (Coordinate with committees AV010 – Intergovernmental Relations in Aviation; AV060 – Airfield and Airspace Capacity and Delay; and Special Task Force A0030T – Data for Decisions and Performance Measures)
 - o Meeting future airport capacity needs in large metropolitan regions
 - o Defining appropriate performance measures and key performance indicators (KPIs) for airports, state and regional airport systems, and the larger aviation system
 - o Identifying data needs to support effective aviation system performance measures and required data collection processes
- The Airport System Planning Process. (Coordinate with committee AV010 – Intergovernmental Relations in Aviation)
 - o Addressing the effects of new technology in the system planning process and the implications for the timing of capital investments
 - o Accounting for changing air service patterns
 - o Tailoring airfield design standards to risk at low-activity airports
 - o Creating strategies to provide flexibility to respond quickly to new or unforeseen technology innovations, policy developments, and other disruptors as they occur
 - o Conducting research to monitor trends in technology development and deployment and other drivers of demand, disseminating findings in a timely way, and updating guidance on an ongoing basis to address changing conditions
 - o Developing guidelines on techniques to address uncertainty in system planning and the preparation and use of scenario-based forecasts
 - o Developing and utilizing techniques to improve coordination with stakeholders and the public
 - o Identifying available data resources and dissemination of information on how to access and use these data
 - o Developing better data on aviation system activity levels

- o Developing and utilizing improved analytical tools and information technology to support the system planning process, including geographic information systems and online databases and tools
 - o Measuring the effectiveness of capital spending on airport projects, particularly at general aviation airports
 - o Conducting research to better quantify the contribution of system planning towards enhancing the performance and economic contribution of the aviation system
 - o Analyzing how the disruption of service at large hub airports affects multi-state and national air services (could also be a security issue)
 - o Measuring how well aviation system planning is being conducted
- Fiscal, Economic, and Intermodal Issues. (Coordinate with committees AV010 – Intergovernmental Relations in Aviation, AV040 – Aviation Economics and Forecasting, and AV050 – Airport Terminals and Ground Access)
 - o Developing sustainable funding models for aviation system development, system planning, and aviation system research
 - o Analyzing potential contribution of energy generation opportunities to airport revenues
 - o Understanding the economic impact of aviation/airport systems and capital investments in the aviation system
 - o Understanding the importance of air cargo
 - o Analyzing how airports integrate with other modes within the transportation system
 - o Analyzing impacts of transportation network companies and other changes in airport ground access/egress mode use on airport operations and revenues
 - o Forecasting future impacts of automated vehicles on airport operations, facilities, and revenues
- Issues Affecting the General Aviation Sector. (Coordinate with committee AV080 – Light Commercial and General Aviation)
 - o The challenge of tracking activity at non-towered general aviation airports
 - o Evolving trends in general aviation activity, aircraft ownership, and the size and composition of the general aviation pilot community
 - o Pilot supply challenges
 - o Achieving continued improvement in general aviation safety
 - o Issues concerning the preservation of general aviation airports
- Environmental Issues in Aviation System Planning. (Coordinate with committee AV030 – Environmental Impacts of Aviation)
 - o Increasing challenges with air quality and climate change
 - o Aircraft noise impacts
 - o Water quality issues
 - o Wildlife hazard management

- o Strategies to enhance airport sustainability and reduce environmental impact
- New Aircraft in the Airspace. (Coordinate with committee AV070 – Aircraft/Airport Compatibility, the joint AV060/AV010/AV020 subcommittee on Unmanned Aircraft Systems, and the AV010 subcommittee on Commercial Space Transportation)
 - o Unmanned Aircraft Systems – implications of increasing capabilities and use
 - o Commercial Space Transportation
 - o Potential developments in Urban Air Mobility
- State/Regional Aviation Agency and Airport Workforce Development. (Coordinate with committee AV010 – Intergovernmental Relations in Aviation)
 - o Information technology skills and resources, particularly in state/regional aviation agencies and smaller airports
 - o Analyzing and projecting effects of new aviation, airport operations and concessions technologies on airports' workforces
 - o Education and training opportunities
 - o Leadership development
 - o Synthesizing system planning activities noted elsewhere in this strategic plan, to assist organizations in prioritizing, structuring, and staffing their operations
- Increasing the Effectiveness of ACRP Research. (Coordinate with ACRP staff)
 - o Getting results of ACRP research fielded more quickly
 - o Exploring new ways to distribute research findings
 - o Updating prior research findings where needed to keep current
 - o Maintaining a list of research needs identified in past ACRP studies
 - o Better integration/use of IdeaHub or other ACRP collaborative software
- Future Vision. How does the U.S. DOT 30-year vision for the U.S. transportation system ("Beyond Traffic") impact our thinking on future trends in aviation?
 - See <http://www.dot.gov/BeyondTraffic>

Planned Activities for the Next Triennium

The committee has identified the following traditional, ongoing and new strategies and planned actions to pursue over the next triennium to achieve the vision and to accomplish the goals contained in the preceding sections as follows:

Ongoing Strategies	Planned Actions
A. Develop and implement processes to identify and address emerging and critical transportation issues affecting aviation system planning in a more strategic and proactive manner.	1. Annually designate one or more “hot topics,” drawing from TRB’s <i>Critical Issues in Transportation 2018</i>, other critical issues identified by the committee, and other sources. Current examples include system performance, safety, climate change, resiliency, changing demographics, emerging technology, and funding. 2. Develop and implement action plans to address each hot topic. Plans should include consideration of all programs and activities at TRB’s disposal, how to address the issues within TRB’s structure, the desired outcomes, and the communications and outreach efforts. 3. Create a white paper on critical issues in aviation system planning. 4. Identify stakeholders and information needs for aviation system planning. 5. Identify potential topics for TRB Annual Meeting sessions at committee meetings and issue appropriate Calls for Papers. 6. Involve other aviation committees to help identify and address these issues. 7. Apply more systematic approaches for identifying and tracking the impacts of other aviation research programs.

Ongoing Strategies	Planned Actions
B. Continue to be active within the aviation and TRB communities to ensure the aviation system planning committee stays up-to-date with aviation and TRB committees.	1. Sponsor papers and technical sessions at TRB Annual Meetings. 2. Recommend papers for consideration for TRB-sponsored awards. 3. Organize periodic committee-sponsored symposia and/or workshops. 4. Develop research problem statements to be submitted for consideration under the ACRP. 5. Review and comment on ACRP problem statements (i.e., more engagement via ACRP's collaborative software) relevant to aviation system planning submitted by others, including the creation of a "Recommended but Not Funded" project list in the research needs database. 6. Encourage participation on ACRP project panels.
C. Continue to hold the triennial TRB National Aviation System Planning Symposium.	1. Prepare a TRB E-Circular documenting the results of the most recent National Aviation System Planning Symposium. 2. Organize the following National Aviation System Planning Symposia.
D. Take steps to involve a broader cross section of stakeholders and constituencies in TRB programs and activities.	1. Increase awareness and ensure programs and activities include mentoring options that represent the committee's demographics and diversity. 2. Encourage diverse participation in committee membership and activities.
E. Continue to develop and implement coordinated approaches to communicate information on aviation activities and products that address emerging and critical issues.	1. Enhance the committee communications strategy, consider utilizing the committee website and social media to increase the visibility of committee activities and encourage more active participation in the work of the committee by members and friends.

Proposed Strategies	Proposed Actions
F. Create a committee mentorship program.	1. Utilizing the committee's collective historical knowledge and experience, establish a program that is accountable and measureable regarding it's success factors, desired outcomes, and evaluation of the scope and quality of program activities. 2. Increase and ensure committee leadership support, thereby increasing member participation and program success. 3. Strive to increase the perception that the mentoring program and services are career development and lifelong learning experiences. 4. Ensure program modifications are based on survey and evaluation findings and/or changes in TRB guidelines and comply with the mission and objectives of the committee.
G. Develop and implement new coordinated approaches to communicate information on aviation activities and products that address emerging and critical issues.	1. Deliver at least one webinar each year based on one of the critical issues identified by the committee. 2. Explore the feasibility of establishing a blog on issues relevant to aviation system planning as a forum to encourage greater interaction among committee members and friends and involve the wider aviation system community in committee activities.

Table 1: TRB Aviation System Planning (AV020) Committee Membership Composition as of January 2019

State/Country	Number		Organization	Number
Alabama	1		Consulting	16
Alaska	1		University	8
California	1		State Government	5
Colorado	1		Federal Government	2
Florida	6		Regional Government	1
Georgia	1		Professional/Industry Organization	1
Illinois	1		Non-Profit	3
Maryland	1		Emeritus	2
Massachusetts	2		TOTAL	38
Michigan	1			
North Carolina	1			
Ohio	2		Membership Type	Number
Oregon	1		Main Members	25
Pennsylvania	1		Emeritus	2
Rhode Island	1		Young Members	4
Texas	4		International Members	5
Virginia	3		DOT Members	2
Washington	2		TOTAL	38
Washington, DC	2			
Brazil	1			
Canada	3			
China	1			
TOTAL	38			

Table 2: Recent Committee Sponsored and Co-Sponsored Annual Meeting Sessions over last four years

2016 Annual Meeting

- Workshop – Unmanned Aircraft Systems Part 1 and Part 2*
- Workshop – Commercial Space: Exploring the Path Forward*
- The Human Side of Aviation: Exploring Next-Generation Workforce Challenges
- How Megatrends Affect Aviation Systems Planning
- Underlying Factors Affecting General Aviation
- Airports and NextGen: Updates on Airport Cooperative Research Program NextGen Projects
- Evolving Commercial Ground Transportation Services: Implications for Long-Term Airport Planning*
- Multimodal Connections: Passenger Accessibility*

2017 Annual Meeting

- Workshop – Unmanned Aircraft Systems*
- Strategic Airport Planning for the London Region
- Current Issues in General Aviation Airport Planning and Operations
- Challenges and Opportunities for Multijurisdictional Airport Development Projects*
- Remote Towers and Other Advanced Airport Sensing and Surveillance Technologies*
- How Airports Serve: Case Studies of Codevelopment of Cities and Their Airports*

2018 Annual Meeting

- International Perspectives in Airport System Planning for Capital Cities
- Current Trends in Aviation System Planning: System Performance and Resilience
- Measuring Aviation System Performance: Role in Decision Making and Data Needs
- Current Research in Airline Competition*
- Stating the Initiative: Aviation Programs, Funding, Support, and Developments Among States*
- Modeling Intercity Long-Distance Travel: Bringing Air and Surface Modes Together*
- Ongoing Air Service Battles in Small Communities*

2019 Annual Meeting

- Workshop – Unmanned Aircraft Systems: Impacts of New Capabilities and New rules on Integrating UAS into Day-To-Day Use Part 1 and Part 2*
- Aviation System Planning: A 20-Year Look into the Future
- Airspace Governance and Access Issues: Implications for Aviation System Planning
- Beyond the Norm: Flying into the Realm of Non-Traditional Airports*

* Co-sponsored session