

OpsTech Session 2

Airport Research Priorities--“Midyear” Problem Statement Development for ACRP

Moderator:

Greg Albjerg
Vice President & National
Aviation Planning Leader
HNTB

Speakers:

Laurie Cullen
Regional Aviation Director
VHB

Katherine Preston
Principal Consultant
HMMH



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ANNUAL CONFERENCE AND EXHIBITION
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#AIRPORTS19

ACRP Research Roadmap Problem Statement Development

ACI-NA Ops/Tech Committee Meeting
September 14, 2019

Laurie Cullen, VHB
Katherine Preston, HMMH

Background

- ✓ AOC met in July to select research projects
- ✓ Held \$3M for new research projects to be selected in Jan 2020
 - Approximately 10 more projects
- ✓ AOC directed ACRP to develop more problem statements using ideas developed in roadmaps
 - Approximately 20-25 problem statements
- ✓ AOC directed ACRP to coordinate with trade associations in fall
 - Looking for volunteers
- ✓ Schedule for problem statements
 - Drafts from industry by October 15
 - Drafts to ACRP by November 15
 - Revised to AOC by December 15

ACRP Problem Statement Development

6 ACRP Research Roadmaps

1. Airport Operations and Maintenance - complete
2. Design and Construction – complete
3. Policy and Planning – research complete, editorial review underway
4. Environmental – panel met 7/29/19
5. Administration and Human Resources – kickoff 5/10/19
6. Safety – contractor selected

Become a Volunteer: What can you do to help?

- ✓ Prepare a problem statement
 - Template will be provided
- ✓ Significant data available from roadmap files
 - Title
 - Idea background
 - Research objective
 - Related research
- ✓ Fill in a few blanks
 - Brief description
 - Justification
 - Duration
- ✓ VHB will work with ACRP on cost estimate

ACRP DESIGN AND CONSTRUCTION ROADMAP RESEARCH IDEAS

Idea Rank (1 = highest)	Roadmap	Research Idea: Working Title	Research Objective	Finance / HR Link?
1	Design & Construction	Best Practice Guidance on Modernizing Existing Aging Facilities with Limited Budgets	Objective is to develop guidance and best practices for how to identify the most appropriate updates to aging airport facilities, including guidance on selecting and implementing the least cost - highest impact initiatives for airports. The guidance should be broad and sufficiently flexible to help airports select the most important criteria for their unique facilities.	Finance
2	Design & Construction	Designing Airport Facilities for an Aging Population	Objective is to develop airport-specific design guidelines and best practices for serving an aging American demographic as well as understanding the concessions/customer service preferences of this demographic.	
3	Design & Construction	Restroom and Facility Design to Accommodate Travelers of All Abilities, Ages, Genders and Gender Identity	To develop a comprehensive guidebook for airport designers, planners and consultants on best practices for restroom design to accommodate all traveling demographics. The guidebook should include information on how to design restrooms and ancillary facilities (such as changing rooms, showers, etc) taking into account passengers of various ages, abilities, genders and gender identity, and families.	
4	Design & Construction	Alternative FAA Funding Mechanisms for Grants: Beyond Design-Bid-Build	Objective is to develop a synthesis of case studies in which airports have completed projects funded through FAA AIP grants that successfully utilize alternative delivery methods while meeting regulatory requirements.	Finance
5	Design & Construction	Alternative Delivery Methods – Replacing Design, Bid, and Build	Objective is to develop a primer on alternative project delivery methods including Design-Build (DB), Construction Manager at Risk (CM at Risk), and Progressive-Design-Build (PDB) including guidance on strategies for selecting most appropriate method based on project needs, laying out pros/cons, and presenting successful case studies.	Finance
6	Design & Construction	Integrating TNCs into Ground Transportation Infrastructure	Objective is to develop design guidelines and best practices for incorporating TNCs into ground transportation infrastructure, including TNC user agreements and fee structures to properly monetize airport infrastructure.	
6	Design & Construction	Passive Screening as a Pre-Checkpoint Risk Based Screening Tool	Objective is to determine how airports can utilize active and passive security screening systems as a pre-checkpoint tool to identify security risks prior to entering the secured portion of the airport facility in order to protect the general public from harm as a result of terrorism.	
6	Design & Construction	Guidebook on Professional Development and Retention: How to Retain Great Employees	Objective is to develop a guidebook on professional development and retention, including strategies for airports to attract, retain, and train new and existing employees in in airport design and construction fields. the research can build off of prior ACRP guidance on this topic.	HR

Idea Rank (1 = highest)	Roadmap	Research Idea: Working Title	Research Objective	Finance / HR Link?
9	Design & Construction	Guidebook on Project Delivery and Construction: How to Successfully Deliver Construction Projects	Objective is to develop a guidebook on how to select the most appropriate construction project delivery methods for airports, with a particular focus on small and GA airport. The research should contain educational materials on contract negotiations as well.	
10	Design & Construction	Plug-n-Play: Integrating new technology into older infrastructure systems	The research objective is to identify strategies for integrating new technologies into existing facilities and seemingly incompatible software programs through a guidebook and case studies.	
11	Design & Construction	Accommodating Families in Crises – Preparing Passenger and Family Staging Areas	Objective is to develop design guidelines, best practices and case studies on designing passenger and family staging areas in the event of a safety or security event or disaster.	
11	Design & Construction	Determining the Best Financing Approach for Your Project: P3s vs. Municipal Bonds and other Options	Objective is to develop guidance for airports considering alternative financing options for their capital projects, including Public-Private Partnerships (P3s) and other options.	Finance
13	Design & Construction	Data Security for Airport Building Information Management Systems	Objective is to address the issue of data security for airport Building Information Management (BIM) systems and provide guidance on strategies for securing data across applications while satisfying GSA data security requirements.	
14	Design & Construction	Smart Buildings: Performance Monitoring Systems and Centralizing Dashboards for Building Health and Resiliency	The objective is to identify technology solutions for automatizing building systems and best practices for integrating these solutions into both new and existing IT systems and software programs at airports.	
15	Design & Construction	Defining, Measuring and Designing for the Passenger Experience	The objective of this research is to determine an objective definition of exceptional passenger experience and methods for delivering this experience and determining strategies for airports to influence the passenger experience beyond the confines of the airport itself (i.e. before the journey starts, or once the passenger boards the plane). The research will also identify how the aviation industry can standardize and validate planning criteria guidelines for achieving the optimum level of service provided to passengers and customers (i.e. business aviation).	
15	Design & Construction	Designing Resilient Infrastructure for an Uncertain Future: When the 100 Year Storm Occurs Every 10 Years	Objective is to provide guidance for developing airport design guidelines that take climate change into account in the face of increased frequency of extreme weather events and changing weather patterns including strategies for justifying expenses related to resilient infrastructure.	

ACRP OPERATIONS AND MAINTENANCE ROADMAP RESEARCH IDEAS

Idea Rank (1 = highest)	Roadmap	Research Idea: Working Title	Research Objective	Finance / HR Link?
1	Airport Ops & Maintenance	Optimizing Airfield Snow Removal	Conduct research on best practices focused on managing the resources at airports to optimize the number of runways and taxiways that can be kept open during winter storms. The guidelines should include using process optimization to reduce variation caused by unpredictable weather events and computer simulation analyses to optimize the number of equipment needed, resources required, and optimize the best deployment pattern for the snow removal equipment.	
2	Airport Ops & Maintenance	Evaluating Common Safety and Security Standards Across General Aviation Airports	Survey of practice regarding application of safety, security and operating standards at GA airports in the U.S., analysis of the utility and possibility of updating common standards of practice.	
2	Airport Ops & Maintenance	Guidebook on Professional Development and Retention for Airport Operations and Maintenance Personnel	Objective is to develop a guidebook on professional development and retention, including strategies for airports to attract, retain, and train new and existing employees in in airport operations and maintenance	HR
4	Airport Ops & Maintenance	Guidance for Integrating Airport IT Professionals with Other Departments to Effectively Implement New IT and Software Systems	Conduct synthesis of best practices and/or develop guidance on how to effectively approach the IT-related diagnostic and restoration needs of systems maintained by airport maintenance departments.	HR
5	Airport Ops & Maintenance	Guidebook for an Effective Transition from Construction to Operations and Maintenance	Develop guidance that will inform capital asset, new/replacement/renewal project managers on how to ensure that maintenance departments are capable of properly maintaining the assets and taking over assets immediately after project completion.	
6	Airport Ops & Maintenance	Development of Joint Operations Centers	Develop best practice guidance on how to develop a Concept of Operations, Design and Operation of a Joint Operations Center.	
7	Airport Ops & Maintenance	Understanding the Economic Benefits and Needs of General Aviation Airports	Develop guidance on how to demonstrate direct and indirect economic benefits of GA airports for community leaders in support of obtaining required operations and maintenance budget needs.	Finance
8	Airport Ops & Maintenance	Airport Tree Removal Best Practices	The objective of this research project is to develop a synthesis of current practices and case studies on airport tree removal.	
9	Airport Ops & Maintenance	Consequences of Delayed Maintenance of Airport Assets	This research will present a process for quantifying the "total cost" of delayed maintenance of airport assets for various maintenance strategies. That is, for each strategy, estimate both the direct cost of maintaining an asset over its useful life as well as the costs incurred by airport tenants due to disruption of service whenever the system is out of service for repair/replacement.	

Idea Rank (1 = highest)	Roadmap	Research Idea: Working Title	Research Objective	Finance / HR Link?
10	Airport Ops & Maintenance	Integrating Airport and Community Resiliency Planning	Develop guidance on how airports can engage their local communities in Integrated Resiliency Planning.	
11	Airport Ops & Maintenance	Ensuring Continuity of Operations during Adverse Weather	The objective is to develop guidance on the planning parameters as well as best practices and approaches for maintaining continuity of operations over these extended periods. Primary factors to consider include passenger needs, workforce availability as well as equipment availability and resupply of consumable resources, coordination with metropolitan planning organizations, transit, etc.	
11	Airport Ops & Maintenance	Integrating New Technologies into Aging Infrastructure	Develop a guidebook of best practices in providing limited IT-enabled capability into aging systems that have not yet reached the end of their useful life.	
11	Airport Ops & Maintenance	Evaluation of Wildlife Hazard Management Plan Outcomes	Provide guidance regarding airport wildlife management that is based upon a holistic review of the goals/objectives of both federal and state regulators of safeguarding flight operations as well as regulators who are charged with safeguarding wildlife and the environment.	
14	Airport Ops & Maintenance	Maintenance and Renewal of Assets During Limited Non-Operating Hours	Guidance to help airports identify best practices and approaches to both inspecting and maintaining airfields (both Movement Areas and Non-movement Areas) to minimize disruptions during operational hours.	
14	Airport Ops & Maintenance	Guidebook on Revising Curbside-roadway Operations and Demand Profiles to Address Changing Needs	Develop revised curbside-roadway operations and demand profiles (for all major users of such infrastructure) for use by airport planners and Commercial Ground Transportation Managers	
14	Airport Ops & Maintenance	Internet of Things (IoT) Standards for U.S. Airports	To propose, develop and encourage US airports, airlines & industries to adopt IoT standards to streamline the integration process.	
14	Airport Ops & Maintenance	Modernizing Management Models for Commercial Ground Transportation (CGT)	Develop comprehensive high-level guidance regarding each major aspect of managing Commercial Ground Transportation at an airport.	
14	Airport Ops & Maintenance	Guidebook for Recruitment, Training, Technological Literacy in Airport Staffs	Develop guidance that identifies both challenges as well as best practice approaches regarding the recruitment, training and retention of the modern technologically-enabled airport workforce.	HR
14	Airport Ops & Maintenance	Primer on General Aviation Airport Management	Develop guidance and training materials designed for new GA airport management who do not have an aviation background, and which can also serve as a primer for community leaders who serve in an airport oversight role.	

ACRP POLICY AND PLANNING ROADMAP RESEARCH TOPICS

Idea	Roadmap	High Level Theme	Research Idea: Working Title	Research Objective	Finance / HR Link?
1	Policy & Planning	Landside Connectivity	Landside Connectivity (and/or update ACRP Report 35, “Planning for Offsite Terminals”)	Airports with landside congestion are increasingly looking at options for staging passengers off-site for pick-ups and drop-off as well as for taxis and TNC operations, and bringing them to airport terminals in buses, airport people movers, and possibly through automated vehicles. These strategies require examination of their congestion-relief benefits as well as the operating cost implications. Airports increasingly refer to ground transportation facilities outside of the main terminal area as “auxiliary curbs.”	
2	Policy & Planning	Landside Connectivity	First to Last Mile Strategies—Managing the Customer Experience	Increasing focus on the customer experience recognizes the “home to gate” nature of airport trips. What has not been extensively researched is how airports can influence the multiple agencies and organizations that affect the customer experience so as to improve it. Together with technologies that make the customer journey more visible—to the airport, customer and other stakeholders—the possibilities of improving the customer experience have arrived.	
3	Policy & Planning	Landside Connectivity	Improving Airport Parking Through New Pricing & Product Models (align with ACRP 03-47, “Rethinking Airport Parking Facilities to Protect & Enhance Non-Aeronautical Revenue” scope)	In the last 5 years, many U.S. airports have lost parking revenues as off-airport parking competition and new entrants, such as TNCs, have increased their shares for passengers accessing the airport. A small number of airports have begun procurement processes for parking reservation systems that enable a variety of new products and provide forward-booking information useful for more sophisticated pricing. These systems have been in place at airports in the United Kingdom and other aviation markets for some time. How can U.S. airports take advantage of these systems and increase their market share and revenue?	Finance
4	Policy & Planning	Landside Connectivity	Autonomous Vehicles (AVs) at Airports	As AVs gradually enter the transportation system, AVs and Connected Autonomous Vehicles (CAVs) are increasingly being considered by airport planners. Compared to other technologies, such as Automated People Movers, they potentially provide a cost-affordable and flexible, point-to-point solution for the movement of airport users on- and off-airport.	
5	Policy & Planning	Airside & Terminal Planning	Remote Air Traffic Control Towers, Ramp Towers and Enabling Technologies	Globally, air traffic control providers are increasingly utilizing air traffic facilities operated remotely from airports. This allows for a cost-efficient solution that promises to increase safety and airport availability in subpar weather conditions. In the U.S. the pace of adoption has been more gradual, but already tests are underway in Virginia and Colorado. Research suggests that remote towers, and towers to assist with ramp control, could be useful in remote regions such as Alaska and could assist airports with manned towers when development creates “blind spots” on the airside (which cameras could cover). What promise, and applications do remote towers and ramp towers, as well as accompanying technologies, have for U.S. airports?	
6	Policy & Planning	Air Service Management	Airport Congestion Management Strategies	For congested airports, often because of its geographic location, it is challenging to expand airside, terminal or ground transportation capacity. Through its regulations, especially for the airside, FAA rules circumscribe the types of strategies that can be employed to alleviate congestion and maximize throughput. However, even slot-controlled airports, often enjoy increases in passenger capacity. Within the FAA regulations, especially with terminals and ground transportation, what policies are permitted to encourage efficient utilization of the facility and promote increased throughput? How can use during non-peak times be incentivized? The study or legal synthesis, while accounting for legal and regulatory differences, should look at U.S. and other nations where congested airports have successfully used management strategies to deliver more capacity.	

Idea	Roadmap	High Level Theme	Research Idea: Working Title	Research Objective	Finance / HR Link?
7	Policy & Planning	Air Service Management	The Role of Airports in Facilitating Passenger Self-Connects	Many city-pair markets globally are not large enough to be served by a connecting itinerary offered by a global alliance, or the cost can be prohibitive. Increasingly passengers are using smart phone technologies and web sites such as kiwi.com to book their own multi-segment trips. These trips are not interlined (i.e. the journeys require multiple tickets) and passengers assume some risks unless the travel provider or the airport provides insurance or other protective measures. Airports such as London Gatwick and Milan have self-connect programs that facilitate passenger connections. This study would determine the prevalence of self-connects in the U.S. and what U.S. airports could do to enhance connections (e.g. connected concourses, premium security lanes for international to domestic travelers, expedited checked bag drops and insurance products).	
8	Policy & Planning	Airport Business Model	Value for Money and Airports	As airports plan their future facilities, they increasingly consider alternative methods of project delivery, either by the airport itself or through a public-private partnership with a variety of possible partners. How can airports assess which delivery method is appropriate for their airport, considering the asset, revenues (if any) that are associated with the asset, risk tolerance, and local and state procurement laws? Examples of Value for Money and other processes for determining the appropriate project delivery method would aid airports in cost-effectively delivering timely projects (while ACRP has commissioned past reports on alternative project delivery methods, including ACRP Report 21, "A Guidebook for Selecting Airport Capital Project Delivery Methods", these reports are not explicitly about a Value for Money process that joins commercial and project delivery processes).	Finance
9	Policy & Planning	Airport Business Model	Airport-Airline Agreements and Rate Ordinances (update ACRP Report 36 "Airport/Airline Agreements")	In recent years, a growing number of airports and their airline partners have negotiated new varieties of airline agreements, including agreements with shorter terms and with new models of revenue sharing (often referred to as hybrid agreements). In some cases, airports have not negotiated an agreement and have adopted a rate ordinance. Updating ACRP Report 36 would give airports insights into the negotiation processes and the options they have for seeking agreements or choosing to adopt a rate ordinance. Given that this area is one regulated by the FAA, consideration should be given to demonstration of regulatory/legal expertise.	Finance
10	Policy & Planning	Governance & Community Engagement	Public-Private-Partnerships (P3s) and the Airport and the Community	Billion-dollar P3s in some of the biggest aviation markets, including New York and Los Angeles, are currently underway after many years of analysts asking when airport P3s were going to come to the U.S. Now that they are here, what are the implications of P3s for airport governing boards, executive teams, and the community. How does it affect their roles when an asset may be managed and operated by a private entity for two or three decades? What influence do and should boards and executives have over the asset? How should this impact the negotiation strategy employed by the airport with the private entities?	