



Current and Emerging Issues Facing the Airport Industry

DETAILS

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AUTHORS

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AIRPORT COOPERATIVE RESEARCH PROGRAM

Sponsored by the Federal Aviation Administration

Subject Area: V Aviation

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Research Results Digest 5

CURRENT AND EMERGING ISSUES FACING THE AIRPORT INDUSTRY

This digest provides an introduction to the Airport Cooperative Research Program (ACRP) and reports the results of ACRP Project 11-02, Task 7, a quick-response study that developed and implemented a process for the ACRP Oversight Committee (AOC) to identify strategic research areas for use with the FY 2010 ACRP problem statement solicitation process and beyond. This research was conducted by ACRP staff.

INTRODUCTION

A well-functioning airport system is essential to U.S. participation in the global economy. Airports provide (and often operate) facilities and infrastructure that accommodate various services needed to access the national and international air transportation system. The ACRP conducts and distributes applied research on problems important to the airport industry in order to assist airport operators in fulfilling their responsibilities. To ensure useful research is conducted, occasionally an inventory of the most critical issues faced by airport operators is needed. This digest reports on such an inventory undertaken by the ACRP.

BACKGROUND

The ACRP was authorized in December 2003 as part of the Vision 100—Century of Aviation Reauthorization Act. The program is sponsored by the Federal Aviation Administration (FAA) and managed by the National Academies, through its Transportation Research Board (TRB), with program oversight provided by an independent governing board.

The Secretary of the U.S. Department of Transportation appoints the primary members of the governing board, the ACRP Oversight Committee (AOC), with individuals representing airport operating agencies, academic institutions, and airport consultant firms. Several industry organizations—such as the American Association of Airport Executives (AAAE), the Airports Council International-North America (ACI-NA), the National Association of State Aviation Officials (NASAO), and the Air Transport Association of America (ATA)—also participate and are vital links to the airport community. The TRB acts as program manager and secretariat for the governing board, and the FAA acts as program sponsor.

The ACRP Research Process

The ACRP research process begins with a call for research ideas or problem statements from the industry. This solicitation is broadcast widely, and anyone can submit a brief description of a common problem or current challenge facing airport organizations. The AOC identifies the highest priority problem statements from the research ideas submitted and allocates

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available research money. ACRP projects are selected for their potential value, anticipated results, and relevance to the industry.

Problem statements and projects are categorized within an established system of research fields. This categorization documents the subjects being researched under the ACRP. Exhibit 1 lists research categories (also called “research fields”) in the ACRP. Each year, the AOC considers the research needs of the airport industry and determines the ACRP projects suited to meet those needs. An examination of the number of projects in each category shows subjects that have received research attention from the ACRP. An objective analysis of these categories in conjunction with a thorough research needs assessment should enable the AOC to determine areas of research that need attention from the ACRP.

Each ACRP project is assigned to a panel of volunteers appointed by the TRB; the project panel provides technical guidance throughout the project. Panel members include experienced practitioners, i.e., airport professionals, airport planning and engineering consultants, vendors, suppliers, airport tenants, airline representatives, academics, and research specialists; heavy emphasis is placed on including airport professionals, the intended users of ACRP research products.

Project panels define a project’s scope, objective, and research tasks and specify the intended product or result of the project. A request for proposals is issued to seek out research contractors for each project. The project panel evaluates each proposal and selects the best proposal based on the potential research contractor’s understanding of the problem and technical approach to research, as well as the experience and qualifications of the research team.

Research contractors provide periodic progress reports and specified interim deliverables to the project panel; comments and guidance are sought from the panel throughout the course of the research project to maximize the value and relevance of the results to the industry. The project panel reviews final deliverables prior to publication.

Current Research

As of December 2008, there were 119 research projects in the ACRP—29 publications, 16 completed projects in the editing and publication phase, 50 projects with research in progress, and 24 projects in the

Exhibit 1 Distribution of projects and syntheses by research field (December 2008)

Research Fields	Number of Projects
1. Administration	13
2. Environment	17
3. Policy and Planning	22
4. Safety	13
5. Security	2
6. Human Resources	1
7. Design	6
8. Construction	1
9. Maintenance	2
10. Operations	12
11. Special Projects (uncategorized)	30
Total	119

early scoping and proposal selection phase. Exhibit 1 shows how many projects are currently in each research category (or “field”). Generally, projects appear evenly distributed within 6 of the 11 categories. Four categories—Security, Human Resources, Construction, and Maintenance—contain very few projects, possibly indicating a gap in research. However, it is not clear whether or not there is a research gap because of the following:

- Most projects can be reasonably classified into more than one category;
- Some projects do not easily match any category;
- The industry has not indicated a substantial need for research in certain categories; and
- Problem statements (research ideas) have not been submitted in certain categories.

Although all ACRP projects originate from a grassroots or “bottom-up” solicitation for problem statements, the AOC is concerned that some important issues facing the airport industry may not be getting into the ACRP. Given that the gap analysis of project categories remains inconclusive, the AOC developed a strategic initiative to reveal any unmet research needs in the industry. The stated objectives of the ACRP strategic initiative were the following:

- Reach out to airport practitioners to identify the most important issues facing the industry and the ways that the ACRP could help;
- Examine the categories currently used to classify ACRP research and develop adjustments or even new classifications to help close any gaps in ACRP research; and

- Educate the airport industry on ACRP processes and known or anticipated research results to develop or increase the demand for ACRP results within the industry.

This digest describes and documents the results of the outreach effort and the examination of the ACRP's current research categories. Hopefully, both the outreach effort and the distribution of the results of this research will help to educate and inform airport professionals about the ACRP and what it can offer the airport industry.

IDENTIFYING AIRPORT INDUSTRY ISSUES

The ACRP's effort to identify issues important to the airport industry had two phases: the topic collection phase and the issue development phase. The topic collection phase consisted of a series of small focus group meetings with key industry associations, academics, the FAA, and the TRB's standing committees on aviation. The objective for this phase was to gather information in response to the question "What are the current and emerging issues facing the airport industry and how can the ACRP help?" Notes from focus group discussions were synthesized into a consolidated report listing potential topics for future ACRP research. In the issue development phase, this consolidated report was presented to a larger industry group in a workshop venue. The workshop groups first categorized the topics into issues, then further developed them into "critical issues," and finally prioritized these critical issues.

Phase 1—Topic Collection via Focus Group Meetings

Generally, each focus group contained a dozen or so people. The meetings were coordinated and co-scheduled with other industry association meetings to maximize participation and minimize expenses for invitees. (See Exhibit 2 for a listing of focus group meetings.) Invitations were also coordinated with the sponsoring industry association. Participants were

confirmed and provided with venue information for the meeting. Each focus group followed a standard agenda and format and utilized the same moderator.

The moderator guided each focus group through a 2-hour discussion that probed attitudes and opinions about the state of the airport industry and the ACRP itself. The moderator encouraged the free flow of ideas through a loosely structured discussion and helped guide discussions to the stated objective. Each focus group meeting started with a short presentation that summarized ACRP research, noting topical coverage. The open-ended discussion was initiated with a few specific questions:

- What are the current and emerging issues facing the airport industry?
- How would you like to see ACRP research help airports with these issues?

Discussion and responses to questions were noted and documented. At the conclusion of the focus group meetings, the moderator developed a list of research topics, combining similar topics from different focus group meetings and devising a research approach appropriate for the ACRP. In the list of research topics that follows, the scope of each topic is presented, including a bulleted list of related issues that originated in the focus group discussions. Exhibit 3 presents the template used to display each topic's scope. When discussion centered on specific or unique elements, the moderator noted these and ultimately added them to the scope. Essentially, the scope reflects the depth and breadth of the discussion on each topic. Insofar as many topics were discussed in several independent focus group meetings, the moderator assigned each particular meeting a code that is used to indicate the meeting that was the source for each topic. (See Exhibit 2 for meeting codes). Some topics were discussed at several meetings.

The discussions of each focus group yielded a broad variety of ideas, totaling 58 distinct topics for potential research by the ACRP. They are provided on the following pages.

Exhibit 2 Association, meeting date, participants, and meeting code for focus groups and workshops (2008)

Association	Meeting Date	Participants	Meeting Code ¹
Focus Groups			
AAAE General Aviation Issues Conference	May 7	GA ² invitees	7b
Ad hoc meeting	June 4	ATA and NACA ³ invitees	7c
Ad hoc meeting	June 6	TRB committee chairs	7d
AAAE Annual Conference	June 7	VIP invitees	7e
AAAE Annual Conference	June 10	Members	7l
ACC ⁴ Summer Workshop Series	July 8	Members	7f
AABI ⁵ Annual Meeting	July 15	AABI and UAA ⁶ members	7g
Ad hoc meeting	August 13	FAA	7k
Ad hoc meeting	August 14	AOPA ⁷ staff	7q
ACI-NA Annual Conference	September 21	VIP invitees	7h
ACI-NA Annual Conference	September 22	Members	7i
NASAO Annual Conference	September 27	VIP invitees	7j
Workshops			
West Coast Workshop	November 10	Open	7n
East Coast Workshop	November 13	Open	7o

¹The section of this digest that lists research topics uses these codes to indicate the meeting in which a particular research idea was discussed.

²General aviation.

³National Air Carrier Association.

⁴Airport Consultants Council.

⁵Aviation Accreditation Board International.

⁶University Aviation Association.

⁷Aircraft Owners and Pilots Association.

Exhibit 3 Research topic presentation template**Title of the Topic**

Research Approach: A brief description of one approach to developing a product or useful result that may have value to the airport industry.

Scope:

- Individual discussion elements originating at the focus group meetings.
- Specific concerns or items that were the focus of attention.
- Particular areas of research to be included in the topic.

Source: The particular meeting(s) (i.e., focus group or workshop) in which the topic was raised, designated by a meeting code. (See Exhibit 2 for meeting codes.)

A Vision for a Green Airport

Research Approach: A case study describing an environmentally friendly airport operation. Discuss interim steps to bring airports closer to this vision.

Scope:

- Develop “green” procedures for flight training, mitigating aircraft noise, and “flying friendly.”
- Educate local elected officials on the practical aspects of greening the airport.
- Provide community outreach and education.

Source: 7k, 7q

A Vision for the Airport of the Future

Research Approach: A case study describing a variety of types and sizes of airports within a future industry that has new and different regulatory, operational, and functional characteristics. Discuss interim steps to bring airports closer to this vision.

Scope:

- New paradigms.
- Funding, finance, rates, and charges.
- Planning, facilities, infrastructure.
- Business plan.
- Operational characteristics.
- Future regulatory environment.
- Definition of a viable, sustainable airport.

Source: 7n, 7o

Air Service Is Essential

Research Approach: Examine the elements and considerations of small community air service to public policy-makers. Discuss options and alternatives to air service and probable public perceptions. Explore state and federal programs to support and encourage air service for small communities.

Scope:

- Does not mean air service to every community.
- Whether to subsidize and associated issues.
- Number and profiles of communities to receive air service.
- Flexibility as industry changes.
- Development of performance metrics.

Source: 7g, 7j

Airport/Airline Economics and Forecasting

Research Approach: Research options and alternative methodologies for forecasting demand for passenger air service at a variety of types and sizes of airports. Compare and contrast each. Discuss innovations and their implications for airports and communities. Examine regional issues in general and intermodal (mode-choice) implications.

Scope:

- Determining the role of the airline at the airport.
- Developing new forecasting methods.
- Identifying the forces that drive air travel.

Source: 7n

Airport Governance Alternatives

Research Approach: Research options and alternative forms of organizational governance for airports. Compare and contrast each. Discuss new innovations and their implications for airports and communities. Examine regional issues and inter-airport and intergovernmental cooperation. Develop tools to assist communities through the governance formation/evolution process.

Scope:

- Explore regionalization and multi-airport cooperation.
- Help communities understand what to expect.
- Delineate advantages, disadvantages, obstructions, and political implications.

Source: 7d, 7g, 7k, 7j

Airport Privatization

Research Approach: Identify privatization options and alternatives available to airport owners. Examine a variety of cases and report their strengths and weaknesses.

Scope:

- Explore changes to customer service.
- Identify funding opportunities for airport development.
- Identify management and operational flexibility.
- Develop cost and benefit measurement criteria.

Source: 7i, 7o

Airport Viability During an Economic Downturn

Research Approach: Describe economic downside thresholds and their probable effects on airports. Develop new strategies that do not rely on the weakest aspects of airport economics. Suggest best practices to preserve the airport in hard times.

Scope:

- Airlines are becoming unstable revenue for many airports.
- There is a need for flexibility in response to economic challenges.
- Communication of economic trends among airports needs improvement.
- Privatization is an option that should be explored.
- Benchmarking is necessary.
- International models should be examined.

Source: 7c, 7d, 7l, 7f, 7i

Airport Workforce Development

Research Approach: Examine the issues related to attracting and retaining a qualified workforce at airports. Discuss the cost implications of current practice. Evaluate and recommend the most effective workforce development practices.

Scope:

- Small community issues.
- Workforce access to large airports.
- Cost of workforce.
- Predicting turnover.
- Future employee profile.
- Minimizing labor expenses.
- Impact on rates and charges.

Source: 7e, 7k, 7i, 7j

Airports Consolidation

Research Approach: Compare, contrast, and evaluate all airports within the adjacent, competing market areas. Discern the optimum, sustainable level of service for the area. Recommend additions or reductions to current airport services based upon the sustainable optimum.

Scope:

- Intergovernmental cooperation.
- Transparent discussion among competing airports.
- Necessary discussion to adapt to industry dynamics.
- Federal leadership needed.
- Funding priority for state and local governments that make these difficult decisions.
- Consolidation to preserve services to constrained market areas.
- Cooperation as the best chance to weather an economic downturn.
- The need to operate airports as a regional system.
- Acknowledgment of the parochial interests of communities.
- Communication of the “greater good.”
- Cooperation with a multimodal system in mind.

Source: 7b, 7j

Attracting and Retaining Corporate Aircraft at Airports

Research Approach: Describe services and practices that encourage corporate-owned aircraft activities and revenue at airports. Compare and contrast the service, operational, and economic needs of corporate aircraft. Develop financially viable marketing strategies.

Scope:

- Successful marketing techniques.
- Growing market segment.
- Airport provision of services normally provided through a fixed-base operator.
- Greater demands on infrastructure than other GA aircraft.
- Little or no difference from other GA for funding capital improvements.

Source: 7b

Attracting and Retaining Private Aircraft at Airports

Research Approach: Examine best practices that encourage privately owned aircraft activities and revenue at airports. Compare and contrast the operational and economic differences between private and corporate aircraft. Develop financially viable marketing strategies.

Scope:

- Reduced revenue potential.
- Declining market segment.
- Examination of airport policies that impact private aircraft.

Source: 7b

Balancing Environmental Impact with Demand for Capacity

Research Approach: Examine the regulatory criteria for assessing impact to the environment and the national demand for ground-based airport capacity. Evaluate demand and quantify impacts to the air transportation system with or without successfully adding capacity. Compare and contrast these two conflicting needs. Discuss the results.

Scope:

- Balance infrastructure with environmental concerns.
- Rationalize investment in additional capacity.

Source: 7b

Benchmarking in the Airport Industry

Research Approach: Identify processes that should/can be measured industry-wide. Compare with other industries. Evaluate and recommend practices that support industrywide performance measurement. Develop and provide industrywide performance criteria and benchmarks. Periodically update as necessary.

Scope:

- Environment and sustainability.
- Capital improvements.
- Operations and maintenance.
- Human resources.
- Safety.
- Finances and cost/benefit analyses.
- Marketing and business development.
- Comprehensive approach.
- Establishment of standards for the industry.

Source: 7c, 7l

Benchmarking to Reduce Airport Operating Cost

Research Approach: Examine operating costs at a variety of airports and categorize. Identify related performance metrics and analyze how benchmarking can influence rates and charges. Rank performance metrics according to reduction of airport operating cost.

Scope:

- Differentiate between cost reduction to airport and to airline.
- Consider alternative methods used to measure cost.
- Identify standards used in the industry.

Source: 7c, 7d, 7f

Business Model, Reliever Airport

Research Approach: Explore and catalog the unique operational and financial characteristics of reliever airports. Develop business strategies that meet inherent reliever airport threats and weaknesses. Assess practices that improve reliever airport financial and competitive viability.

Scope:

- Increase funding eligibility.
- Explore new revenue sources.
- Identify political implications.
- Include community expectations.
- Encourage policies that support financial viability.

Source: 7b, 7k

Business Model, General Aviation

Research Approach: Examine general aviation trends and their effect on small airport financial viability. Develop small airport business strategies that meet inherent general aviation threats and weaknesses. Describe when and how public funding becomes necessary. Assess new practices that improve airport finances and competitiveness.

Scope:

- Flexible response to economic changes.
- Economics of private aircraft versus corporate aircraft.
- Student pilot flight training.
- Financially sustainable rates and charges.
- Local community and political expectations.
- New sources of revenue.
- Funding development.

Source: 7b, 7k, 7n

Business Model, Profitable Airlines

Research Approach: Undefined

Scope:

- Restructuring, consolidation.
- Regulatory implications.
- Air service implications.
- Resolving conflicts with airport role to satisfy passenger expectations.
- Addressing barriers to new entrants.

Source: 7d, 7g

Capacity and Congestion at Airports

Research Approach: Explore the factors contributing to airside and landside congestion at airports. Discuss the possible causes of congestion and effective methods for expanding airside and landside capacity. Evaluate and recommend the most effective programs for mitigating this congestion.

Scope:

- More flights with fewer passengers.
- Changes in airline operating models.
- Impact of regulations and inability to respond.
- Environmental impacts of adding capacity.
- Impact of not adding capacity.
- Funding programs developed to mitigate congestion.
- Impact on national system.
- Balancing landside and airside capacity as a top priority.
- Road access to the airport.
- Getting responsible parties to talk.

Source: 7c, 7d, 7f, 7g, 7h, 7i, 7o

Changing Demand for Air Service

Research Approach: Examine current economic environment, air service sustainability, and passenger mode choices affected by economics. Discuss these issues as they relate to airport services, development, budget/finances, organization, and strategic mission/vision. Explore realistic forecasting methods for a dynamic environment. Discuss actions and policies that may enable airports to effectively weather forecasted/future demand.

Scope:

- Understanding the situation.
- Determining the right questions.
- Providing input to policy decisions.
- Maintaining flexibility.
- Identifying effect on airport capacity issue.
- Rethinking the master plan process.
- Developing future strategic planning.

Source: 7d, 7g, 7i

Closing Runways or Airports: Facts and Implications

Research Approach: Examine the long-term effects of runway closures on the airport and its community. Examine the long-term effects of airport closures on the community and regional transportation system. Discuss alternatives to closure.

Scope:

- Case studies.
- Diminishing local support.
- Accurately, objectively educating the decision-makers.
- The long-term implications to the airport, community, and National Plan of Integrated Airport Systems (NPIAS).
- Justifying the good, the bad, and the ugly.
- Pros and cons of FAA intervention.
- Assessing the real costs and benefits.

Source: 7q, 7j

Communication and Collaboration Among Airports

Research Approach: Describe intra-industry collaboration techniques, with and without technology, available to airports. Examine benefits of communication and collaboration in a dynamic environment. Suggest methods and techniques.

Scope:

- Encourage associations, state agencies, and federal agencies to facilitate.
- Determine whether TRB can facilitate on specific issues.
- Explore web-based, real-time, no-cost collaboration techniques.

Source: 7l

Comprehensive Series, Airport Maintenance Best Management Practices

Research Approach: Examine methods and practices for a wide variety of airport maintenance functions. Evaluate and recommend the most effective practices for assorted situations. Develop performance metrics and report industrywide benchmarks for these functions.

Scope:

- Temporary pavement markings.
- Pavement maintenance.
- Practical applications that can be implemented quickly.
- Sustainable practices.

Source: 7f, 7k

Comprehensive Series, Airport Operations Best Management Practices

Research Approach: Examine methods and practices for a wide variety of airport operational functions. Evaluate and recommend the most effective practices for assorted situations. Develop performance metrics and report industrywide benchmarks for these functions.

Scope:

- Snow removal activities.
- FOD control.
- Incursion reduction.
- Unmanned air vehicle operations.
- Movement area operations.
- Managing gliders, parachutes, and ultralights.
- Sustainable practices.

Source: 7f, 7k

Cultural Impacts of Airport Development

Research Approach: Research the implications of airport growth, governance, and development on the local and regional cultural community. Discuss and evaluate methods for effectively communicating airport strategy and mission within the community. Recommend best practices and policies that support both airport and cultural expectations.

Scope:

- Tribal governance.
- Historical preservation.
- Implications for grant assurances.
- Contracting authority.

Source: 7j

Customer Service—Passenger Rights

Research Approach: Identify airport-related (ground-based) sources of delay. Discuss actions that airports can take to reduce delay. Examine airport practices to improve services to passengers, including tenant and airline-provided services. Discuss tactics for establishing a minimum level of service.

Scope:

- Reduction of passenger aggravation.
- Regular and irregular operations.
- Services shifting from airline to airport.
- Community expectations.
- Costs and benefits.
- Public perception of airport responsibility.
- Privatization.
- Lack of employees to provide services.
- Common use services.
- Definition of qualified, sufficient staff.

Source: 7d, 7k, 7i

Developing Airport Leaders

Research Approach: Evaluate leadership development programs from other industries and adapt the best practices to the airport industry. Develop a curriculum for airport professionals who aspire to advance to top-level positions at airports. Design a program that can be implemented by the industry.

Scope:

- Working with elected officials.
- Working for a board of directors.
- Top-level decision-making.
- Strategic planning.
- Transitional issues.
- Representing an airport to the community.
- Budget, capital improvement programs (CIPs), and rates and charges.

Source: 7e, 7g, 7i

Economics of Small Community Air Service

Research Approach: Identify the factors that affect sustainable air service at small community airports. Compare and contrast these factors within the economic realities of small markets and airline route structures. Explain these relationships for airport decision-makers.

Scope:

- Changes to aircraft fleet.
- Incentives that work.
- Measuring real performance.
- Impact on airport revenue.
- Aircraft fleet inertia.

Source: 7g, 7j

Emergency Planning and Disaster Response Best Practices

Research Approach: Compare, contrast, and evaluate emergency planning practices and disaster response practices at airports. Develop best practices and performance measurement criteria for planning and implementation of emergency services.

Scope:

- Take into account federal regulatory guidelines.
- Consider flow of people and public safety resources.
- Include military resources.
- Identify movement of other goods and services.
- Provide community coordination.
- Provide effective communication.
- Consider survive-by-design approaches.

Source: 7d, 7e

Fuel, Alternatives to Petroleum

Research Approach: Identify and examine current research on alternative fuels for airports, airlines, and GA aircraft. Report on what policy and practice changes would support the introduction of these alternative fuels into the industry.

Scope:

- Environmental constraints.
- Regulatory obstructions.
- Engine efficiency and new technology.
- Airport and airline practices.
- Conservation.

Source: 7c, 7d, 7e, 7f, 7g, 7q, 7j

Fuel, Distribution Infrastructure for

Research Approach: Inventory existing distribution infrastructure and capacity and examine its adequacy for emergence of new alternative fuels. Identify and describe design criteria of infrastructure needed to distribute new alternative fuels to airports and airlines.

Scope:

- Inventory of existing distribution systems, including pipeline, refinery, storage, and trucking.
- Consideration of the expense of split loads for small airports.
- Need refineries adjacent to airport.
- Lack of distribution capacity.
- Environmental concerns limiting additions to distribution capacity.

Source: 7c, 7e

Fuel, Economics of

Research Approach: Examine how the cost of fuel affects airport and airline business models. Identify connections and interrelationships to airport construction, airport, and airline operations. Identify conservation and efficiency techniques, as well as best practices that will endure.

Scope:

- Aircraft engine fuel efficiency.
- Airport revenue reductions.
- Revenue reductions offset by reducing other airport and airline operational costs.
- Efficiency in surface operations.
- Use of fuel in ground operations.
- Potential benefit of situational awareness applications.
- Loss of air service.
- Increased construction cost.
- Identifying practices that support conservation.
- Examining changes to airspace utilization rules.
- Identifying impacts due to aircraft fleet inertia.
- Identifying funding sources for fuel technology advances.
- Determining the extent of lost general aviation activity.

Source: 7b, 7c, 7d, 7e, 7f, 7q, 7j

Funding a Safety Management System

Research Approach: Analyze the cost implications of designing and implementing an airport safety management system (SMS). Identify funding alternatives for SMS.

Scope:

- Adopt “no added cost” approach to implementation.
- Explore cost sharing with tenants.
- Consider savings in analysis.
- Consider small airport implications.
- Merge lessons learned from FAA’s internal SMS implementation.

Source: 7e, 7g, 7k, 7n

Funding Unfunded Mandates

Research Approach: Identify existing regulatory requirements that are considered unfunded mandates. Examine approaches used by airports to finance/fund these expenditures. Evaluate/recommend best practices and realistic approaches.

Scope:

- Define unfunded mandate.
- Determine how to calculate unfunded mandates.
- List funding sources and eligibility requirements.
- Communicate with key decision-makers.

Source: 7b, 7d, 7e, 7f, 7g

Generating Revenue Through Advertising

Research Approach: Identify revenue sources derived from advertising at airports and from other industries that can be adapted to airports. Evaluate and recommend best practices for implementing advertising programs.

Scope:

- Billboards.
- Sale of the airport name.
- Privatization.
- Landside and terminal.
- Parking lots.
- Advertising concessions.
- Do-It-Yourself advertising program.

Source: 7l

How to Develop an Airport Business Plan

Research Approach: Examine best practices inside and outside the airport industry. Develop guidance for airports to assess their unique economic situation and develop a viable business strategy. List options and alternatives for improving airport financial independence and viability.

Scope:

- Assess airport situation and intended strategic result.
- Integrate processes within parental (city/county/state) agencies.
- Integrate as a continuing part of master and strategic planning.
- Explore management training.
- Examine privatization.
- Develop practices for selling plan to the community.
- Identify sustainable strategies.

Source: 7d, 7e, 7l, 7k, 7n

How to Measure Lifecycle Cost

Research Approach: Describe the considerations for lifecycle cost analysis. List steps and practical guidance. Apply to infrastructure, operations, and maintenance.

Scope:

- Cite examples or case studies.
- Include systemwide economic analysis.
- Include sustainability as a part of the equation.

Source: 7d

Human Resource Outsourcing

Research Approach: Evaluate the practice of contracting with external firms for certain skills needed at the airport. Discuss the value of internal versus external staffing options. Establish a means to measure, compare, and decide among these alternatives.

Scope:

- Place a value on experience.
- Identify internal overhead.
- Examine privatization.
- List candidate job classifications.

Source: 7e, 7f, 7i

Improving Passenger Flow from the Entrance Road to the Aircraft Door

Research Approach: Examine passenger processing needs from landside to airside and determine the optimum rate required to maximize passenger flow to the aircraft. Evaluate and recommend practices that improve the flow rate from drop-off to departure gate.

Scope:

- Landside processing.
- Security processing.
- Terminal processing.

Source: 7c, 7g, 7i

Influencing Public Perceptions and Expectations

Research Approach: Take inventory of the most common issues facing airports that involve community perception. Examine airport activities that have successfully influenced perceptions or expectations on these issues. Evaluate and recommend the most practical, successful practices.

Scope:

- Performance measures to determine success.
- Communication techniques.
- The “Bully Pulpit” and how to use it.
- Determination of who is in charge.
- Role of airport in the community.
- Political reality and the lost cause.
- The airport as a constituent.
- Identification of the “uphill” battle.
- Intervention in problem areas before they become unmanageable.
- Combating ignorance and apathy.
- Working with state and federal agencies.
- Exploring the FAA’s role as an advocate for airports.

Source: 7b, 7e, 7g, 7k, 7q, 7o

Innovations in Generating Revenue at Airports

Research Approach: Examine and assess the most innovative and creative activities that can produce revenue for airports. Develop implementation guidance and best management practices for all airports.

Scope:

- Identifying case studies and examples.
- Rethinking policies that discourage non-aviation revenue.
- Maneuvering through/around regulatory obstructions.
- Assessing impacts to rates and charges.

Source: 7l, 7k, 7j

Innovative, Sustainable Construction Techniques

Research Approach: Examine and assess current and emerging construction techniques in relation to environmentally sustainable performance. Evaluate practical benefits of these techniques and recommend practices that offer the greatest performance. Develop implementation guidance for airports.

Scope:

- Little innovation in decades.
- Airports, communities, states, and federal government as change agents.
- Update of specifications for environmentally friendly materials.
- Development of an airport version of LEED certification.

Source: 7f

Land Use Compatibility Adjacent to Airports

Research Approach: Examine current practice for managing adjacent land use. Evaluate best practices that successfully mitigate/diminish local concerns for airport development. Cite examples that add/enhance value of the airport to the community.

Scope:

- Capacity-constrained airports.
- Response to encroachment.
- Metrics for assessing noise and emissions impact.
- Alternatives to airport expansion.
- Land acquisition and purchasing development rights.
- City/county mitigation expectations.
- Definition of appropriate land uses.
- Ways to work with state and federal agencies to address significant concerns.
- Need for political solution rather than financial one.
- Education of the community about airport development.

Source: 7b, 7c, 7d, 7e, 7g, 7k, 7q, 7o

Managing Airport CIPs, Best Practices

Research Approach: Examine current airport practice for developing, presenting, managing, and implementing CIPs. Evaluate and recommend best practices that meet regulatory requirements and local expectations. Develop tools to assist airports in managing a CIP.

Scope:

- Community involvement.
- FAA involvement.
- Airline/tenant involvement.
- Majority-in-interest clauses.
- Reallocation/distribution of limited resources (funds) among competing airports' projects.
- Assessment of real cost/benefit.
- Airfield design specifications that fit small airport needs.
- Prioritizing projects at an airport.
- IT applications to manage and administer CIPs.
- Knowledge and understanding of federal grant assurances.

Source: 7l, 7f, 7k, 7i, 7j

Measuring Braking Action

Research Approach: Examine and evaluate current practice for measuring runway surface friction. Discuss informational needs of the pilot and optimum methods for meeting those needs. Present a set of best practices for satisfying the regulatory requirements and pilot needs.

Scope:

- Establishment of an industrywide approach.
- Primarily winter operations issue.
- Understanding aircraft landing performance.
- Use of available technologies.
- Standard reports.

Source: 7c

Measuring the Airport's Carbon Footprint

Research Approach: Evaluate methods and models for measuring carbon emissions at airports. Evaluate and recommend the best methodology. Discuss the implications of emissions trading, needed changes in sustainable airport practices, and the dynamic operating environment that is the airport industry.

Scope:

- Determine whose interests take priority (local, regional, state, or federal).
- Determine where general aviation fits in.
- Measure real emissions.
- Map reality.

Source: 7b, 7d, 7l

Mode Choice in Small Airport Markets

Research Approach: Examine the issues related to mode choice in small communities that have multiple transportation mode alternatives. Discuss comprehensive/lifecycle cost of travel on different modes.

Scope:

- Explore the implementation of shifting short-haul travel to roads and rail.
- Determine the impact on the small airport's local economy.
- Investigate air service in a competitive regional market.

Source: 7e, 7f, 7g, 7j

Needs Assessment for Aviation Education

Research Approach: Evaluate current enrollment statistics and educational track for airport industry careers. Assess gaps in enrollment. Determine policy and practice to fill these gaps. Discuss educational program adoption to meet the future human resource needs of the airport industry.

Scope:

- Pilots, mechanics, avionics, and flight instructors.
- Airport and airline jobs.
- Engineers and planners.
- Training and development of internal candidates.
- Unique needs of general aviation.
- Secondary education programs.
- Civil Air Patrol.
- Internship and mentoring programs.
- Recruiting minorities.

Source: 7b, 7g, 7k, 7j

New Technology, Friend or Foe?

Research Approach: Periodically examine emerging technologies and applications available to airports. Objectively evaluate and report findings.

Scope:

- No vendor recommendations.
- Assistance in understanding application of new technologies.
- Infrastructure requirements.
- Full integration as a goal.
- Examination of security-related technology.
- Performance measurement.

Source: 7d, 7f

Providing Ground Services to Aircraft and Airlines

Research Approach: Examine domestic and international practices where airports service aircraft and provide full ground service for airlines. Describe the advantages and disadvantages and cost, benefit, and decision criteria for these new business strategies.

Scope:

- Outreach and advocacy with airlines.
- Human resource issues.
- Economies of scale for small airports.
- New revenue source.

Source: 7l, 7i

Recruiting and Educating the Next Generation

Research Approach: Explore and assess new techniques for airports to engage student interest in aviation. Develop an internship model and best educational practices for aviation careers. Compare, contrast, and evaluate airport policies that support educational initiatives.

Scope:

- Evaluate changes in general aviation business culture.
- Assess future recruitment needs.
- Inventory airport academic programs.
- Develop job training and career education.

Source: 7b, 7k, 7j

Reducing Energy Consumption

Research Approach: Evaluate industry practices that improve efficiency or reduce energy consumption. Develop implementation guidance and recommend best practices.

Scope:

- Refuse disposal.
- Recycling programs.
- Airport lighting system modernization.
- Efficiency performance benchmarks.
- Energy reduction costs.
- Immediate implementation.
- Regional approach to recycling.
- Utility capacity and redundancy.
- Limits on what airports can do.

Source: 7c, 7e, 7k

Revenue Diversification at Airports

Research Approach: Examine and assess a wide variety of aviation and non-aviation business activities that can produce revenue at airports. Develop guidance and best practices for smaller airports to diversify and stabilize their revenue sources and activities.

Scope:

- Rethink policies that discourage revenue diversification.
- Find solutions and practices that work.
- Target strategies to general aviation, reliever, and small air carrier airports.
- Include non-aviation sources.

Source: 7c, 7e, 7g, 7i, 7j

Satellite-based Technology for Airports

Research Approach: Research available applications for airports that utilize space-based technology. Discuss and evaluate these applications. Report any implementation issues or considerations and provide guidance for airports.

Scope:

- GPS approaches.
- Situational awareness on the ground.
- Emergency conditions applications.
- Cost and benefits comparison.
- Streamlining the FAA review process.
- Regulatory hurdles and obstructions.
- Policy implications.
- Flight procedures and Land And Hold Short Operations (LAHSO).

Source: 7c, 7g, 7k, 7j, 7o

Security at Airports

Research Approach: Undefined

Scope:

- Passenger, cargo, and employee screening standards.
- Impacts from technology.
- Funding sources.
- Need for predictable expenses.
- Threat from large-vehicle improvised explosive devices (IEDs).
- The future of access control.
- Biometrics and credentials.
- General aviation needs versus the impact of security regulation.
- Need for implementation guidance.
- First influence perceptions.
- Practical, affordable solutions for general aviation.
- Traffic at border airports caused by international border security.
- Unmanned air vehicle operations.

Source: 7b, 7c, 7d, 7e, 7q, 7j

Stable Sources of Capital Funding for Airports

Research Approach: Inventory, compare, and contrast federal and state programs that fund airport capital improvements. Describe project eligibility and application requirements. Measure and report relative success and viability of these programs within airport industry dynamics.

Scope:

- Stable, predictable funding needed.
- Strategic intent of a program matched with actual results.
- Revenue-producing projects a priority.
- Needs of multi-year projects accommodated.
- Impact of funding instability.
- Payment for general aviation projects.

Source: 7b, 7d, 7f, 7g, 7k

Strategic Planning, Macro Issues

Research Approach: Periodically examine current and emerging macro (airport industrywide) strengths, weaknesses, opportunities, and threats. Present and explain this material to airports so that they can use it in their strategic planning efforts.

Scope:

- Organized, collective effort to evaluate emerging issues.
- A variety of active courses in response to emerging issues needed.
- Interrelationships with other airports, transportation modes, industries.
- Effective communication of potential threats.
- Knowledge and understanding to reduce fear and overreaction.

Source: 7l

Succession Planning for Airports

Research Approach: Examine practices from other industries to attract, develop, and retain the next generation of airport executives. Adapt best practices to the airport and recommend internal policies and steps to succeed aging/retiring management and fill management vacancies.

Scope:

- Training.
- Reduction of turnover.
- Guidance through transition to leadership.
- Recruiting best practices.
- Generational cultural differences.
- Understanding the evolving work ethic.

Source: 7e, 7i

Sustainability Best Practices

Research Approach: Evaluate current sustainable practices at airports worldwide. Assess and recommend the most successful environmentally sustainable activities. Develop guidance and steps to implement these best practices.

Scope:

- Construction projects.
- Airport operations and maintenance.
- Environmental management systems.
- Regulatory obstructions.
- Changes to airport policies.
- Provision of common-use facilities.
- Role of technology.

Source: 7f, 7q

Phase 2—Critical Issue Development via Workshops

Each full-day workshop had several dozen participants. A moderator presented the topics received from focus group discussions. Participants then separated into smaller groups to discuss and develop these topics and their associated research approaches. The participants were instructed to organize the topics into major categories, convert the categories into critical issues, and provide a narrative description of these critical issues. Through a self-directed process, each break-out group developed a title for the critical issue, a draft narrative description, and a list of the relevant research topics. Once each break-out group defined the critical issues and listed related research topics, they presented their results to the larger group of participants in a plenary session. All participants completed the workshop by prioritizing the newly identified critical issues.

This digest contains concepts and elements, in aggregate form, raised in discussions and group presentations from both workshops. The critical issues, in the priority order determined by a vote of participants during the two workshops, are as follows:

- Environmental and Energy Sustainability
- Operations and Maintenance
- Finance
- Planning, Design, and Construction of Facilities and Infrastructure
- Policy and Strategic Planning
- Safety and Security
- Governance, Management, and Administration
- Business Strategies
- Emergencies and Disaster Management
- Systems Development

A description of each critical issue and a list of the research topics related to the issue follow.

Environmental and Energy Sustainability

This issue area summarizes responsibilities and practices necessary to operate an airport in a manner that minimizes adverse impacts to the environment, reduces consumption of finite natural resources, and attempts to avoid compromising the ability of future generations to meet these same responsibilities. This issue area involves sustainable practices related to the design, construction, and use of the airport that encourage conscientious stewardship of the environment; reductions in energy consumption, carbon foot-

print, and emissions; and balancing these impacts with demand for growth and development of the airport. Topics categorized in this area should address the capacity to meet these larger responsibilities while also sustaining airport operations and system needs now and into the future.

Related Topics:

- Fuel, Economics of
- Fuel, Distribution Infrastructure for
- Fuel, Alternatives to Petroleum
- Measuring the Airport's Carbon Footprint
- Sustainability Best Practices
- Reducing Energy Consumption
- Land Use Compatibility Adjacent to Airports
- A Vision for a Green Airport
- New Technology, Friend or Foe?
- Comprehensive Series, Airport Maintenance Best Management Practices
- Comprehensive Series, Airport Operations Best Management Practices
- Balancing Environmental Impact with Demand for Capacity

Operations and Maintenance

This issue covers the processes, practices, and use and preservation of assets (equipment) and resources necessary to move people (passengers), aircraft, and commodities through an airport system. This issue area involves the application of technology, equipment, and innovation to improve practices that enhance safety and improve the efficiency of airport operations and maintenance. Topics categorized in this area should address the acquisition, operation, and preservation of assets that accommodate safe, efficient, sustainable, and cost-effective operation of the airport.

Related Topics:

- Fuel, Economics of
- Fuel, Distribution Infrastructure for
- Providing Ground Services to Aircraft and Airlines
- Benchmarking to Reduce Airport Operating Cost
- How to Measure Lifecycle Cost
- Sustainability Best Practices
- Innovative, Sustainable Construction Techniques
- Emergency Planning and Disaster Response Best Practices

- New Technology, Friend or Foe?
- Measuring Braking Action
- Benchmarking in the Airport Industry
- Comprehensive Series, Airport Maintenance Best Management Practices
- Comprehensive Series, Airport Operations Best Management Practices
- Satellite-based Technology for Airports

Finance

Every airport must identify and acquire sources of public and private funds to support airport operations and capital investment. This administrative function is distinct in that it summarizes the activities required to provide for long-term economic viability of an airport. In a perpetually active economy, traditional models and assumptions may not always work; it is increasingly important to explore non-aeronautical sources of revenue. Topics categorized in this area should include both emerging ideas and sound, proven practices.

Related Topics:

- Revenue Diversification at Airports
- Stable Sources of Capital Funding for Airports
- Funding Unfunded Mandates
- Benchmarking to Reduce Airport Operating Cost
- Generating Revenue Through Advertising
- Innovations in Generating Revenue at Airports

Planning, Design, and Construction of Facilities and Infrastructure

This issue area is focused on the use of pre-assigned resources to aid the growth and development of airport facilities and infrastructure so that they meet a predetermined vision for the airport. In this area, safe, secure, and flexible processes and activities are applied to planning, design, and construction that provide successful (e.g., cost-effective) delivery of high-quality, sustainable projects. Planning, in this context, reflects the production processes and actions necessary to implement a decided vision (plan) that was determined elsewhere (i.e., higher) in the organization. Topics categorized in this area should cover the environmental, energy, and other regulatory responsibilities of the airport and indicate the potential efficiencies of integrating facility planning, design, and construction.

Related Topics:

- Fuel, Distribution Infrastructure for
- Innovative, Sustainable Construction Techniques
- Reducing Energy Consumption
- Improving Passenger Flow from the Entrance Road to the Aircraft Door

Policy and Strategic Planning

This issue encompasses the systematic development of broad visions, goals, core values, and management approaches for the airport organization. It includes the organizational framework and practices that foster guidance and leadership. Topics categorized in this area should offer an assessment of alternative approaches that enable airport leaders to identify and accomplish organizational goals.

Related Topics:

- Land Use Compatibility Adjacent to Airports
- Improving Passenger Flow from the Entrance Road to the Aircraft Door
- Influencing Public Perceptions and Expectations
- Business Model, Reliever Airport
- How to Develop an Airport Business Plan
- Capacity and Congestion at Airports
- Business Model, General Aviation
- Closing Runways or Airports: Facts and Implications
- Airport Governance Alternatives
- Airport Privatization
- Strategic Planning, Macro Issues
- Mode Choice in Small Airport Markets
- Airports Consolidation
- Changing Demand for Air Service
- Air Service Is Essential

Safety and Security

This issue summarizes practical issues related to the public safety and security of airport operations. Topics in this category address current and emerging technology, safety and security practices, human resources, and techniques for public facilitation.

Related Topics:

- Funding Unfunded Mandates
- Emergency Planning and Disaster Response Best Practices
- New Technology, Friend or Foe?

Governance, Management, and Administration

This issue area encapsulates the processes and activities necessary for sensible, timely leadership and effective decision-making in the public environment. It includes collaboration with governing and advisory bodies, as well as back-office activities. Actions include organizing, staffing, leading, and controlling resources to accomplish organizational goals and implement plans; assessing and reporting performance and adjusting to the dynamics and demands of the local and national environment are also involved. Topics categorized in this area should have a fundamental focus on management processes and strategy.

Related Topics:

- Influencing Public Perceptions and Expectations
- How to Develop an Airport Business Plan
- Airport Workforce Development
- Human Resource Outsourcing
- Succession Planning for Airports

Business Strategies

Airports should assess their business strategies frequently, adapting to changes in the local, regional, and national economy and to the economics of the airport industry. As a distinct policy function, these business strategies should take into account ever-changing regulatory requirements and innovative business practices. Topics categorized in this area should have a focus on preparing airports to make good business decisions, resulting in airport economic viability and affordability for users.

Related Topics:

- Business Model, General Aviation
- Business Model, Reliever Airport
- Revenue Diversification at Airports
- Attracting and Retaining Private Aircraft at Airports
- Attracting and Retaining Corporate Aircraft at Airports
- Stable Sources of Capital Funding for Airports
- How to Develop an Airport Business Plan
- Airport Viability During an Economic Downturn
- Providing Ground Services to Aircraft and Airlines
- Airport Privatization

- Generating Revenue Through Advertising
- Innovations in Generating Revenue at Airports
- Airport Governance Alternatives

Emergencies and Disaster Management

Airports need to imagine, consider, and prepare for a wide variety of emergencies in order to maximize their organizational resiliency during adverse situations. This critical issue is distinct from the issue of airport safety and security in that it includes the examination of state-of-the-art practice and the assessment of new technology. Topics in this category should be focused on preparing the airport for a public safety response to minor incidents, planned events, unplanned emergencies, manageable disasters, and unmanageable catastrophes.

Related Topics:

- Sustainability Best Practices
- Emergency Planning and Disaster Response Best Practices
- Communication and Collaboration Among Airports
- Airport Governance Alternatives
- Strategic Planning, Macro Issues

Systems Development

Airports must discern their unique contribution to facilities, infrastructure, and services required to meet future national demand and capacity needs. This issue overlaps with the issue of policy and strategic planning; however, it focuses on each airport's contribution to a regional and national transportation system. Topics in this category should focus on providing the maximum benefit to the macro community, in an economic and environmentally responsible manner consistent with the national aviation infrastructure strategy.

Related Topics:

- Fuel, Distribution Infrastructure for
- Closing Runways or Airports: Facts and Implications
- How to Measure Lifecycle Cost
- Mode Choice in Small Airport Markets
- Economics of Small Community Air Service
- Airports Consolidation
- Land Use Compatibility Adjacent to Airports
- Improving Passenger Flow from the Entrance Road to the Aircraft Door

- Influencing Public Perceptions and Expectations
- New Technology, Friend or Foe?
- Changing Demand for Air Service
- Capacity and Congestion at Airports
- Strategic Planning, Macro Issues
- Air Service Is Essential
- Satellite-based Technology for Airports

CONCLUSIONS

Most of the critical issues and research topics identified in this industry outreach effort will be familiar to most airport operators. Even the priority order of these issues will not be surprising. However, this research yielded some unexpected outcomes.

First, many of the separate research topics included in each critical issue are included in more than one issue, suggesting that it may be difficult or impossible to address any of these issues alone. Issues are inter-related, and focusing on one issue will affect others. The complexity of this web of issues suggests that the ACRP may want to devote research attention to a broad array of issues over time. The research topics that are included in more than one critical issue area are the following:

- Fuel, Economics of
- Fuel, Alternatives to Petroleum
- Revenue Diversification at Airports
- Stable Sources of Capital Funding for Airports
- Funding Unfunded Mandates
- Airport Viability During an Economic Downturn
- Mode Choice in Small Airport Markets
- Managing Airport CIPs, Best Practices
- Developing Airport Leaders
- Land Use Compatibility Adjacent to Airports
- Capacity and Congestion at Airports
- Security at Airports.

Secondly, many of the research topics and critical issues generated in this research effort include an analysis of federal policy, which is generally outside the scope of TRB's cooperative research programs. The ACRP is an industry-based program working to produce applied research results using a cooperative research process with industry practitioners. ACRP project panels generally do not review federal policy or programs. However, it is not uncommon for a problem statement submitted to ACRP to inquire about federal policies and programs.

Other TRB research procedures allow for the examination of federal policy, following requirements established in the Federal Advisory Committee Act (FACA)—a federal law that governs the behavior of federal advisory committees. In particular, the TRB must follow FACA when forming and operating committees whose intended purpose is to make recommendations concerning federal policies or programs.

The scope of several topics raised in this outreach effort appears to fall under FACA guidelines. If the AOC determines that such research is appropriate for ACRP, the required FACA process would be followed instead of the cooperative research process. Research topics that appear to fall under the FACA guidelines are the following:

- A Vision for the Airport of the Future
- Air Service Is Essential
- Airports Consolidation
- Capacity and Congestion at Airports
- Closing Runways or Airports: Facts and Implications.

A third point is that the workshop groups reworked several of the standing ACRP research fields into four critical issues to more accurately describe the topics contained in them. The groups of industry representatives from the two workshops sought to differentiate these issues in distinct and purposeful ways. These four critical issues are the following:

- **Finance.** This issue includes specific funding sources, their prudent uses, and the economic implications of world, national, regional, or local events on an airport's ability to fund operations and development.
- **Business Strategies.** This issue, like finance, targets the financial viability of the airport. However, this issue also includes innovation and flexibility as a means to adapt to the dynamics of the airport industry.
- **Systems Development.** In this issue, each airport is seen as a component of a system, and the airport's role within that system is examined, as well as the perception and political implications of airport decisions.
- **Emergencies and Disaster Management.** In this issue, the policies and practices that an airport can design to respond and recover from adverse events are explored.

Finally, six of the standing ACRP research fields—Operations, Maintenance, Design, Construction, Safety, and Security—have been incorporated into three critical issues. Although each of the six original research fields is distinct, the topics they contain often overlap. The three newly defined critical issues are the following:

- Operations and Maintenance;
- Planning, Design, and Construction of Facilities and Infrastructure;
- Safety and Security.

Identifying Research Gaps

Exhibit 4 shows ACRP projects to date sorted into the 10 newly defined critical issues. It appears that a research gap may exist in three of these critical issues: Finance; Governance, Management, and Administration; and Emergencies and Disaster Management (these issues are italicized in Exhibit 4). The focus groups provided several research topics in these critical issue areas, and questions raised at the workshops indicated a need for practical guidance.

Using the Critical Issues to Generate Problem Statements

In 2008, the AOC experimented with a process intended to generate problem statements within a targeted strategic area. The purpose of this experi-

Exhibit 4 New distribution of ACRP projects by critical issue

Critical Issues	Number of Projects
Environmental and Energy Sustainability	20
Operations and Maintenance	14
<i>Finance</i>	5
Planning, Design, and Construction of Facilities and Infrastructure	27
Policy and Strategic Planning	10
Safety and Security	11
<i>Governance, Management, and Administration</i>	8
Business Strategies	10
<i>Emergencies and Disaster Management</i>	3
Systems Development	11
Total	119

ment was to allow the AOC to target critical issues in collaboration with the airport industry. The AOC selected information technology (IT) as the targeted focus area for the 2009 ACRP problem statement solicitation. Under this experimental process, when the standard solicitation for problem statements was circulated to the industry, an additional request accompanied the solicitation. In addition to the general call for research ideas (i.e., problem statements), a special call requested problem statements related to IT or problem statements in which IT was a major aspect of the proposed research.

Over 50 of the more than 150 problem statements received for the ACRP 2009 program were submitted under the targeted research focus area of IT. An ad hoc panel of topic-area experts met and reviewed the IT research problem statements. For problem statements where it was necessary, the panel explained the technical aspect of the proposed research, clarified the problem statement, improved upon the research approach, and prepared a recommendation to the AOC. Using the targeted focus area approach, the AOC selected several of the IT research problem statements for the ACRP 2009 program.

RECOMMENDATIONS

Based on the results of the 2009 ACRP problem statement solicitation, it is recommended that the AOC adopt general and targeted solicitation processes each year for the next 3 years, using the results of the industry outreach effort contained in this digest. An approach similar to the targeted focus area approach described above can begin immediately.

Each year for the next 3 years, at their January meeting, the AOC can select an ACRP targeted focus area from among the critical issues described in this digest to generate related, targeted problem statements in that area. ACRP staff will assemble an ad hoc panel of topic experts for the selected targeted focus area, and this group will review all research problem statements received and prepare a recommendation to the AOC for consideration at their July meeting.

After a few years, the value of the findings presented in this digest will diminish and a fresh outreach effort should be considered. Although the focus group process used for this strategic initiative was well received by the airport industry, other approaches should also be considered, such as a comprehensive survey of practitioners, interviews, or variations on

the focus group and workshop approach. An important aspect of the next outreach effort would be an assessment of the ACRP projects that flow from the effort described in this digest. It would be helpful to understand how the findings presented here were used to generate new projects in the ACRP.

ACKNOWLEDGMENTS

By all accounts, the industry outreach effort described in this digest was successful, and feedback from participants has been universally positive. This success would not have been possible were it not for the support and cooperation of the many airport-industry associations. The subcommittee is grateful for help from the following organizations and individuals who provided membership lists, a meeting

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Michael R. Salamone, C. M., managed the strategic initiative from its onset, including the industry outreach effort, and prepared the final report under the guidance of the AOC subcommittee.

These digests are issued in order to increase awareness of research results emanating from projects in the Cooperative Research Programs (CRP). Persons wanting to pursue the project subject matter in greater depth should contact the CRP Staff, Transportation Research Board of the National Academies, 500 Fifth Street, NW, Washington, DC 20001.

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