

AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP

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Annual Report
of Progress

2010

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AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP

Annual Report
of Progress
2010

Research sponsored by the Federal Aviation Administration

TRANSPORTATION RESEARCH BOARD

WASHINGTON, D.C.

2010

www.TRB.org

AIRPORT COOPERATIVE RESEARCH PROGRAM

Airports are vital national resources. They serve a key role in transportation of people and goods and in regional, national, and international commerce. They are where the nation's aviation system connects with other modes of transportation and where federal responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports. Research is necessary to solve common operating problems, to adapt appropriate new technologies from other industries, and to introduce innovations into the airport industry. The Airport Cooperative Research Program (ACRP) serves as one of the principal means by which the airport industry can develop innovative near-term solutions to meet demands placed on it.

The need for ACRP was identified in *TRB Special Report 272: Airport Research Needs: Cooperative Solutions* in 2003, based on a study sponsored by the Federal Aviation Administration (FAA). The ACRP carries out applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing federal research programs. It is modeled after the successful National Cooperative Highway Research Program and Transit Cooperative Research Program. The ACRP undertakes research and other technical activities in a variety of airport subject areas, including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration. The ACRP provides a forum where airport operators can cooperatively address common operational problems.

The ACRP was authorized in December 2003 as part of the Vision 100-Century of Aviation Reauthorization Act. The primary participants in the ACRP are (1) an independent governing board, the ACRP Oversight Committee (AOC), appointed by the Secretary of the U.S. Department of Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the Airports Council International-North America (ACI-NA), the American Association of Airport Executives (AAAE), the National Association of State Aviation Officials (NASAO), and the Air Transport Association (ATA) as vital links to the airport community; (2) the TRB as program manager and secretariat for the governing board; and (3) the FAA as program sponsor. In October 2005, the FAA executed a contract with the National Academies formally initiating the program.

The ACRP benefits from the cooperation and participation of airport professionals, air carriers, shippers, state and local government officials, equipment and service suppliers, other airport users, and research organizations. Each of these participants has different interests and responsibilities, and each is an integral part of this cooperative research effort. Research problem statements for the ACRP are solicited periodically but may be submitted to the TRB by anyone at

any time. It is the responsibility of the AOC to formulate the research program by identifying the highest priority projects and defining funding levels and expected products.

Once selected, each ACRP project is assigned to an expert panel, appointed by the TRB. Panels include experienced practitioners and research specialists; heavy emphasis is placed on including airport professionals, the intended users of the research products. The panels prepare project statements (requests for proposals), select contractors, and provide technical guidance and counsel throughout the life of the project. The process for developing research problem statements and selecting research agencies has been used by TRB in managing cooperative research programs since 1962. As in other TRB activities, ACRP project panels serve voluntarily without compensation.

Primary emphasis is placed on disseminating ACRP results to the intended end-users of the research: airport operating agencies, service providers, and suppliers. The ACRP produces a series of research reports for use by airport operators, local agencies, the FAA, and other interested parties, and industry associations may arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by airport-industry practitioners.

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The **National Academy of Sciences** is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. On the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Ralph J. Cicerone is president of the National Academy of Sciences.

The **National Academy of Engineering** was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. Charles M. Vest is president of the National Academy of Engineering.

The **Institute of Medicine** was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, on its own initiative, to identify issues of medical care, research, and education. Dr. Harvey V. Fineberg is president of the Institute of Medicine.

The **National Research Council** was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both the Academies and the Institute of Medicine. Dr. Ralph J. Cicerone and Dr. Charles M. Vest are chair and vice chair, respectively, of the National Research Council.

The **Transportation Research Board** is one of six major divisions of the National Research Council. The mission of the Transportation Research Board is to provide leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal. The Board's varied activities annually engage about 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation. www.TRB.org

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Letter From the AOC Chair

This 2010 Annual Report of the Airport Cooperative Research Program marks the completion of five years of ACRP research for the airport industry. In addition to continuing to provide research results that have meaningful value and usefulness to airports, this year also provided an opportunity for introspective, self-evaluation, and process improvement.

In the past year we expanded our library of publications to nearly 100 reports, syntheses, and digests covering such topics as airport planning/design, information technology, and airport safety; addressing a variety of environmental issues; and offering guidance for airport efficiency and effectiveness. We invite you to visit www.trb.org/acrp to see what we have going on and to download our growing list of publications.

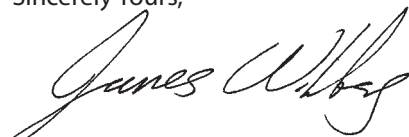
In addition, our 5-year anniversary afforded us a welcome opportunity to examine our airport-outreach and dissemination efforts and the processes we use to keep this "industry-driven" program relevant and valuable to our airport-audience. Early in the year we refined the processes for new problem statements and panel formation. Generally, these changes expanded industry involvement in reviewing new research ideas; provided in-depth evaluations for the ACRP Oversight Committee to consider before selecting projects; and improved transparency of our topic and panel selection processes. We believe these changes will improve the quality and value of future topics selected for research and the publications that result from them.

With a substantial and yet growing library of publications, we also began work to identify and reach out to a broader audience of potential beneficiaries for ACRP research and increase mid-level staff and small airport awareness of our program and the publications we are producing. These dissemination efforts will likely continue for the life of the program, but our initial approach is being formed with great thought and strategy. Meanwhile, we also have started post-publication reviews of many of our publications to assess satisfaction with the program among the airport community and evaluate the program's overall impact and performance. We have included three ACRP Impacts on Practice with this annual report, which show how our publications have been used in the industry.

One final thought. A Government Accountability Office (GAO) report was issued during the year, which evaluated ACRP as ordered by Congress. The GAO regards ACRP as a valuable resource for addressing the shared challenges faced by airport operators and concluded that ACRP's research processes include many of the practices necessary to select and implement high-quality applied research.

We are quite proud of our first five years, and are most appreciative of the strong support and active participation of the Federal Aviation Administration, along with the highly professional and committed efforts of the TRB staff. We look forward to continuing to grow and improve this body of research that works for airports.

Sincerely Yours,



James Wilding



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AIRPORT COOPERATIVE RESEARCH PROGRAM

Fifth Annual Report of Progress

December 31, 2010

BACKGROUND

The Airport Cooperative Research Program (ACRP) conducts applied research on problems important to airport operators. 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, acting through its Transportation Research Board (TRB), with program oversight provided by an independent governing board (the ACRP Oversight Committee) including representatives of airport operating agencies.

Airports are vital national resources. They serve a key role in the transportation of people and goods and in regional, national, and international commerce. They are where the nation's aviation system connects with other modes of transportation and where federal responsibility for managing and regulating air traffic operations intersects with the role of state and local governments that own and operate most airports. Research is necessary to solve common operating problems, to adapt appropriate new technologies and practices from other industries, and to introduce innovations into the airport industry.

The ACRP carries out applied research on problems that are shared by airport operating agencies that are not being adequately addressed by existing federal research programs. The need for ACRP was identified in *TRB Special Report 272: Airport Research Needs: Cooperative Solutions* in 2003, based on a study sponsored by the FAA. The ACRP undertakes research and other technical activities in a variety of airport subject areas, including design, construction, maintenance, operations, safety, security, policy, planning, human resources, and administration.

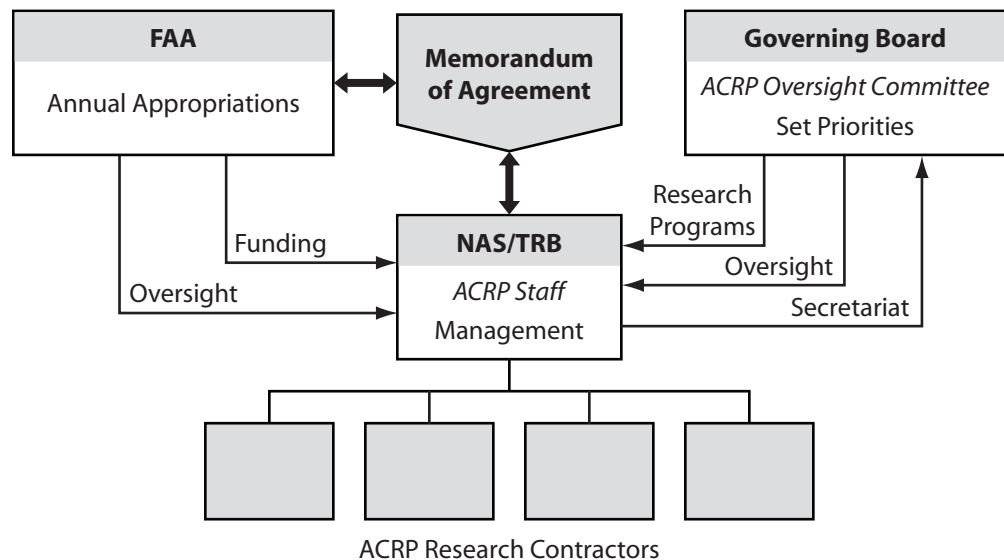
PROGRAM PARTICIPANTS

The primary participants in the ACRP are (1) an independent governing board, the ACRP Oversight Committee (AOC), appointed by the Secretary of the U.S. Department of Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the

Airports Council International-North America (ACI-NA), the American Association of Airport Executives (AAAE), the National Association of State Aviation Officials (NASAO), Airport Consultants Council (ACC) and the Air Transport Association (ATA) as vital links to the airport community; (2) the TRB as program manager and secretariat for the governing board; and (3) the FAA as program sponsor. Figure 1 illustrates the ACRP organizational structure.

The ACRP benefits from the cooperation and participation of airport professionals, air carriers, shippers, state and local government officials, equipment and service suppliers, other airport users, and research organizations. Each of these participants has different interests and responsibilities, and each is an integral part of this cooperative research effort.

Figure 1. ACRP Organizational Structure



SELECTION OF RESEARCH

Research problem statements for the ACRP are solicited periodically but may be submitted to the TRB by anyone at any time. It is the responsibility of the AOC to formulate the research program by identifying the highest priority projects and defining funding levels and expected products.

PROGRAM MANAGEMENT

The ACRP is managed by the TRB using procedures modeled after those used in managing the National Cooperative Highway Research Program and the Tran-

sit Cooperative Research Program. Day-to-day program management includes the following tasks:

1. Assisting the AOC in identifying and prioritizing research needs;
2. Appointing and coordinating expert technical panels to guide research projects;
3. Developing and distributing Requests for Proposals;
4. Processing and evaluating proposals to select the best-qualified research agencies;
5. Executing contracts with the selected researchers;
6. Guiding the research;
7. Reviewing research reports;
8. Publishing and disseminating research reports; and
9. Promoting the application of research results.

PROJECT PANELS

Each ACRP project is assigned to a panel, appointed by the TRB; the panel provides technical guidance and counsel throughout the life of the project. Panels include experienced practitioners and research specialists; heavy emphasis is placed on including airport professionals, the intended users of the research products. The panels prepare Requests for Proposals and select contractors based on evaluation of the proposals received; the panels also guide the projects and review the reports. As in other TRB activities, ACRP project panel members serve voluntarily without compensation.

SELECTION OF CONTRACTORS

The process for selecting ACRP researchers has been used by the TRB in managing cooperative research programs for more than 45 years. This open process allows all potential research agencies to compete on the basis of technical merit and ensures that all proposers are treated fairly and that the program has access to the best talent available for each project. Proposals from potential research contractors are evaluated by the project panels. The evaluation considers the following: (1) the proposer's demonstrated understanding of the problem; (2) the merit of the proposed research approach and experiment design; (3) the experience, qualifications, and objectivity of the research team in the same or closely related areas; (4) the plan for promoting application of results; (5) the proposer's plan for involvement of disadvantaged business enterprises; and (6) the adequacy of the facilities.

FUNDING

The Vision 100-Century of Aviation Reauthorization Act authorized \$10 million per year for the ACRP in Fiscal Years (FYs) 2004 through 2008. Given the timing of the approval of the Act vis-a-vis the FY 2004 appropriation process, no funds were appropriated for the program in FY 2004. ACRP funding of \$3 million was appropriated for FY 2005. In FY 2006, FY 2007, and FY 2008, \$10 million was appropriated for each. In FY 2009 and FY 2010, funding for the program was increased to \$15 million. An additional \$15 million is anticipated for FY 2011. Funding for FY 2011 and beyond, however, will be contingent upon the reauthorization of the Vision 100 legislation, which is under consideration as of this writing.

PRODUCTS

Primary emphasis is placed on disseminating ACRP results to the intended end-users of the research: airport operating agencies, service providers, and suppliers. The ACRP will produce a series of research reports for use by airport operators, local agencies, the FAA, and other interested parties, and industry associations may arrange for workshops, training aids, field visits, and other activities to ensure that results are implemented by airport-industry practitioners.

STATUS

The ACRP officially started in October 2005. A Memorandum of Agreement was executed by the FAA and the TRB, and the ACRP governing board was appointed by the Secretary of the U.S. Department of Transportation, according to the terms of the Memorandum of Agreement.

Some 115 statements of research need were assembled for consideration in formulating the ACRP agenda for Fiscal Years 2005 and 2006, and the governing board met on January 30 and 31, 2006, to establish operating procedures for the ACRP and to select FY 2005/2006 research projects. An additional 68 statements of research needs were received in the first half of 2006. The governing board met again on July 30 and 31, 2006, and on January 31, 2007, to select FY 2007 research projects.

During the first half of 2007, an additional 139 potential research topics, totaling over \$45 million in research needs, were received in response to an industry-wide solicitation of the airport community. The ACRP governing board met on July 22 and 23, 2007, and selected the FY 2008 research program from among the topics received.

In 2008, 147 potential research topics were received for consideration totaling over \$53 million. The ACRP governing board met on July 20 and 21, 2008, to select the FY 2009 research program from among these topics.

In 2009, a solicitation of research ideas from the airport industry yielded 219 potential topics totaling over \$77 million. The ACRP governing board met on July 19 and 20, 2009, to select the FY 2010 research program from among the topics received.

In 2010, 104 problem statements totaling more than \$38.7 million were received for consideration. On July 18 and 19, 2010, the ACRP governing board selected 24 projects for the FY 2010 research program.

A total of 201 projects have been authorized to date in the ACRP (133 regular projects, 30 syntheses, 20 legal research projects, and 18 “quick-response” studies). See the section on ACRP Project Status.

Eleven research fields are used to classify ACRP research.

- Administration
- Environment
- Policy and Planning
- Safety
- Security
- Human Resources
- Design
- Construction
- Maintenance
- Operations
- Special Projects

The distribution of all projects and syntheses through December 2010 is shown in Table 1.

Table 1. Distribution of Projects and Syntheses by Research Field Through December 31, 2010

Research Fields	Number of Projects	Number of Syntheses
1. Administration	20	4
2. Environment	37	5
3. Policy and Planning	27	5
4. Safety	13	3
5. Security	1	1
6. Human Resources	2	2
7. Design	8	0
8. Construction	1	1
9. Maintenance	2	2
10. Operations	11	6

Table 2 shows the origin of potential research topics (i.e., problem statements) submitted through the FY 2011 cycle. In addition, this table identifies the sources of the problem statements that have been selected by the ACRP governing board.

Table 2. Origin of Problem Statements

Organization	FY 2007/ 2008		FY 2009		FY 2010		FY 2011		Selected to Date (Thru FY 2011)	
	No.	%	No.	%	No.	%	No.	%	No.	%
Airport Operator	25	12.1	29	19.7	27	12.3	12	11.5	24	18.8
State DOT	13	6.2	4	2.7	4	1.8	0	0	3	2.3
FAA	8	3.9	8	5.4	23	10.5	5	4.8	19	14.8
Airport Associations Staff/ Committee	13	6.3	13	8.8	18	8.2	7	6.7	18	14.1
Airlines/Airline Industry/ Associations	–	–	–	–	–	–	5	4.8	9	7.0
TRB Committees/Staff	6	2.9	6	4.1	9	4.1	5	4.8	8	6.3
Industry	29	14.0	19	12.9	9	4.1	7	6.7	7	5.5
University	37	17.9	30	20.4	47	21.5	12	11.5	12	9.4
Consultant	56	27.1	37	25.2	80	36.5	50	48.2	20	15.6
Other	20	9.6	1	0.8	2	1.0	1	1.0	8	6.2
Totals	207	100.0	147	100.0	219	100.0	104	100.0	128	100.0

Table 3 displays project panel composition by affiliation, race, and gender through the FY 2010 research program (FY 2011 project panels have not yet been formed as of this writing). Over 700 individuals from the airport industry are volunteering their time and effort to participate in the ACRP. This industry participation helps to ensure that the research products are useful to airport industry practitioners.

Table 3. Panel Composition of Active Projects

(81 Project Panels, 503 Members)

Demographics	No.	%
Affiliation		
Airport Operator	175	34.8
Airline	24	4.8
State Gov't	28	5.6
Local Gov't/MPO	26	5.2
Federal Gov't	12	2.4
Industry/Private Sector	54	10.7
Consultant	133	26.4
University	30	5.9
Association	21	4.2
Race		
	Members/Chairs	Members/Chairs
White	362/72	85.8/88.9
Minorities	60/9	14.2/11.1
Gender		
	Members/Chairs	Members/Chairs
Male	302/53	71.6/65.4
Female	120/28	28.4/34.6

During 2010, 28 ACRP publications were released. These publications include 15 in the ACRP Report series, 4 in the Synthesis of Airport Practice series, 2 in the Legal Research Digest series, 4 in the Research Results Digest series, 1 in the Web-Only Document series, and 2 other publications. Table 4 provides a listing of all currently available ACRP publications as of December 31, 2010.

The following ACRP activities of particular interest were completed during 2010. Table 5 provides a summary of all ACRP research projects selected, along with their status as of December 31, 2010.

Airport Planning/Design

ACRP Report 25: Airport Passenger Terminal Planning and Design, Volume 1: Guidebook and Volume 2: Spreadsheet Models and User's Guide, provide guidance in planning and developing airport passenger terminals and assist users in analyzing common issues related to airport terminal planning and design. *Volume 1* describes the passenger terminal planning process and provides, in a single reference document, the important criteria and requirements needed to address emerging trends and create solutions for airport passenger terminals. This comprehensive Guidebook addresses the airside, terminal building, and

landside components of the terminal complex. *Volume 2* consists of (1) a CD-ROM containing 11 spreadsheet models, which include practical learning exercises and several airport-specific sample data sets to assist users in determining appropriate model inputs for their situations, and (2) a User's Guide to assist the user in the correct use of each model. The models on the CD-ROM include such aspects of terminal planning as design hour determination, gate demand, check-in and passenger and baggage screening, which require complex analyses to support planning decisions.

ACRP Report 31: Innovative Approaches to Addressing Aviation Capacity Issues in Coastal Mega-regions, examines the aviation capacity issues in the two coastal mega-regions located along the East and West coasts of the United States. The report suggests integrated strategic actions to enhance decision making to address the constrained aviation system capacity and growing travel demand in the high-density, multijurisdictional, multimodal, coastal mega-regions. New and innovative processes are needed if the aviation capacity issues in these congested coastal mega-regions are going to be successfully addressed. These high-density areas invite an entirely new approach for planning and decision making that goes beyond the existing practice for transportation planning and programming that is usually accomplished within single travel modes and political jurisdictions or regions. This research will be useful for airport operators, regional transportation planners, and transportation agencies, as well as public officials at the federal, state, and local levels and other stakeholders involved in dealing with aviation capacity issues in the coastal mega-regions.

ACRP Report 35: Planning for Offsite Airport Terminals provides information for airports that wish to serve urban or suburban originating passengers with remote terminal facilities. Airport planners (including facility, operations, environmental, and development) will find the report helps to identify potential customers for an offsite terminal and how the concept fits into airport planning. The report can be used in three ways. First, those in the airport industry interested in the concept can use the information in the conclusions and recommendations to determine whether the concept merits their consideration based on existing and anticipated operational issues and long-term goals and objectives for the airport/region. Second, those in the industry interested in pursuing the development of offsite terminals can use the detailed information in the report to determine geographic market areas to be served by an offsite terminal and the potential number of customers. Third, those interested in developing an offsite terminal can use the planning guide as a roadmap for the process. It is important for an airport to establish goals and objectives prior to evaluating the feasibility of offsite terminals. A planning guide provides practical assistance to airport staff and other decision makers when planning and developing an offsite terminal and airport transportation link. It is intended to guide project elements and issues that are common to most offsite terminal projects, with the recognition that circumstances at an individual airport may warrant deviations from the recommendations in the guide.

ACRP Report 37: Guidebook for Planning and Implementing Automated People Mover Systems is a guidebook for planning and developing automated people mover (APM) systems at airports. This report, directed primarily at airport planners, designers, and operators, encompasses a wide range of topics describing the planning and decision-making process, alternative system infrastructure and technologies, evaluation techniques and strategies, operation and maintenance requirements, coordination and procurement requirements, and other important planning and development issues. For any given topic, the report addresses key issues in multiple chapters and from multiple perspectives. In addition, Appendix A presents two theoretical examples using specific system characteristics, and Appendix E describes components of simulation models used to facilitate the pre-design phase of the overall system planning process.

ACRP Report 40: Airport Curbside and Terminal Area Roadway Operations presents a cohesive approach to analyzing traffic operations on airport curbside and terminal-area roadways. The guide describes operational performance measures and reviews methods of estimating those performance measures. A quick analysis tool for curbside operations and low-speed roadway weaving areas is packaged with this guide. Techniques for estimating traffic volumes are presented as well as common ways of addressing operational problems. The guide should be useful to airport landside operators, transportation planners, and consultants analyzing airport curbside and terminal-area roadway operations.

ACRP Synthesis 20: Airport Terminal Facility Activation Techniques explores lessons learned during terminal activations at 13 domestic and international airport facilities. The report is designed to help identify effective airport terminal facility activation practices.

ACRP Legal Research Digest 9: Case Studies on Community Challenges to Airport Development explores judicial decisions related to challenges to airport expansion and development. The report examines the basis, defense strategies, and outcomes of cases, as well as the results of a survey of airports regarding litigation strategies.

Information Technology

ACRP Report 30: Reference Guide on Understanding Common Use at Airports provides a reference guide and tools that can assist airports and airlines exploring the possibility of and evaluating the appropriateness of integrating “common use” in their operations. An accompanying CD-ROM includes a virtual tour that provides an alternative source of, and approach to, the information found in the reference guide. The report will be useful to airports and airlines, from those responsible for operations, information technology, business management, to the CEO. The reference guide and CD-ROM enable stakeholders to view information relevant to their areas of expertise and interest. The CD-ROM also includes

spreadsheet models that allow users to plug in relevant information, which can be used in analyzing and evaluating how to integrate common use.

Airport Safety

ACRP Report 29: Developing Improved Civil Aircraft Arresting Systems is a report that evaluates alternative materials that could be used for an engineered material arresting system (EMAS), as well as potential active arrestor designs for civil aircraft applications. Currently, there is only one manufacturer that has been approved by the FAA. This report provides an evaluation of (1) cellular glass foam, (2) aggregate foam, (3) engineered aggregate, and (4) a main-gear engagement active arrestor system. Airport operators will find the updated cost information and performance considerations useful; airport planning firms will be aided by evaluating future options with respect to runway dimensions and land requirements; and manufacturers of alternative products will be encouraged to see the performance characteristics of other materials and the potential process by which they may be able to gain approval.

ACRP Report 38: Understanding Airspace, Objects, and Their Effects on Airports provides a comprehensive description of the regulations, standards, evaluation criteria, and processes designed to protect the airspace surrounding airports. Aviation practitioners, local planning and zoning agencies, and developers all have a need to understand and apply the appropriate airspace design and evaluation criteria to ensure a safe operating environment for aircraft, to maintain airport operational flexibility and reliability, without unduly restricting desirable building development and attendant economic growth in the surrounding community.

ACRP Research Results Digest 10: Light Detection and Ranging (LIDAR) Deployment for Airport Obstruction Surveys explores the readiness of LIDAR technology as a cost-effective alternative to the traditional methods for collecting the data required to prepare airport obstruction surveys that meet government requirements. The report also examines a sample specification that responsible agencies might use to procure LIDAR-based aerial survey services to produce an airport obstruction survey.

Airport Efficiency and Effectiveness

ACRP Report 19: Developing an Airport Performance-Measurement System, provides guidance on how to develop and implement an effective performance-measurement system for airports and will be of interest to a variety of airport stakeholders—airport board members, directors, department leaders, and other employees—as well as aviation regulatory agencies, industry associations, and airport planning professionals and consultants. An electronic workbook, provided with the report on a CD-ROM, includes tools to help users complete the

step-by-step process for developing an airport performance-measurement system that is presented in the report.

ACRP Report 39: Recommended Guidelines for the Collection and Use of Geospatially Referenced Data for Airfield Pavement Management is a guidebook for the collection and use of geospatially referenced pavement-related data for the management of airfield pavements.

ACRP Report 33: Guidebook for Developing and Managing Airport Contracts provides an intuitive, easy-to-use guidebook of best practices for developing, soliciting, and managing airport agreements and contracts for use by a variety of airports. This report responds to the need for a single resource for examples of current airport best practices in preparing and administering agreements. The agreements referenced in this guidebook range from airline-related agreements to communication and utility service as well as common use, ground transportation, and concessions agreements for a variety of passenger services. An accompanying CD-ROM provides sample agreements in each of these areas. This report will be useful for administrators; finance, properties and contract services staff at airports of all sizes; and other stakeholders involved in dealing with a variety of airport agreements and contracts.

ACRP Report 34: Handbook to Assess the Impacts of Constrained Parking at Airports, discusses the different types of parking constraints that airports experience, provides tools to assess the impacts of the constraints and strategies to deal with them, and provides a predictive modeling tool (included on the accompanying CRP-CD-80: *Parking Forecast Model and Instructions for Use: Supplemental Materials for ACRP Report 34*). The modeling tool will assist in determining the effects of implementing various strategies. The report considers two types of customers when addressing parking strategy: (1) the flying public and the mode of transportation in getting to/from the airport and (2) employees. Financial, traffic and congestion, emissions, and customer service impacts will vary by strategy as well as by circumstance at an individual airport and the customer base served at that airport. The handbook and modeling tool will be useful to airport executives, planners, CFOs, and metropolitan planning organizations in determining solutions to parking constraints. In addition, airport executives can read the Executive Summary available on the ACRP website for a brief overview of the handbook.

ACRP Report 36: Airport/Airline Agreements—Practices and Characteristics provides an objective resource tool to assist both airport operators and airlines with negotiating and understanding various aspects related to airline/airport operator business relationships—including those in use and lease agreements—by enhancing mutual understanding of each other’s decision-making process during negotiations. The report presents examples and material collected from many airports to help clarify the thought process and perspective of

both airports and airlines during negotiations. Other industry stakeholders such as rating agencies, investment bankers, and financial advisors will also find this report informative and useful.

ACRP Synthesis 18: Aviation Workforce Development Practices explores airport operating entity jobs and related skill sets needed to perform those jobs. The report also identifies potential ways to gain training on the skill sets needed to fulfill airport-related jobs and notes gaps where skill sets, and educational and advancement opportunities, may exist.

ACRP Synthesis 19: Airport Revenue Diversification explores the different sources of revenue for airports, separating core aeronautical revenue from ancillary revenues. The report also examines ways that airports have diversified activities and highlights the challenges that arise when non-aeronautical activity is proposed on land that is subject to Federal Aviation Administration grants obligations and assurances.

ACRP Research Results Digest 9: Alternative Aircraft and Pavement Deicers and Anti-Icing Formulations with Improved Environmental Characteristics explores the aquatic toxicity and biological oxygen demand state of the art, components, and promising alternative formulations of deicing and anti-icing products. The report also examines the performance; efficiency; material compatibility; and environmental, operational, and safety impacts of alternative formulations and components as well as the fate and transport of deicing and anti-icing formulation components and their degradation products. *ACRP Web-Only Document 8: Alternative Aircraft Anti-Icing Formulations with Reduced Aquatic Toxicity and Biochemical Oxygen Demand* explores the same material.

ACRP Research Results Digest 11: Helping Airports Understand the Payment Card Industry Data Security Standard (PCI DSS) explores the PCI DSS standard, and determines what airport systems may be affected by the standard. For example, common use systems that may handle airline-related transactions; parking revenue systems; point of sale systems; airport museums; and online airport sales of goods or parking ticket payments. This introductory guide for airports describes responsibilities associated with the commercial PCI DSS, raises awareness for the airport practitioner, identifies types of unique airport systems that are affected, and identifies the issues to consider and the resources available to aid and fund compliance.

ACRP Synthesis 21: Airport Energy Efficiency and Cost Reduction describes successful practices that airports have implemented to increase airport energy efficiency and reduce airport operating costs. Because there are many more small airports with fewer discretionary funds, a particular focus is on no-cost, low-cost, and moderate-cost improvements, with the goal of identifying real,

implementable actions that will result in reducing energy consuming system costs in terminals.

ACRP Legal Research Digest 10: Analysis of Federal Laws, Regulations, and Case Law Regarding Airport Proprietary Rights examines the relevant federal statutes, regulation, and case law with regard to airport proprietary rights, including regulation of noise and other environmental matters, safety restrictions, leasing practices, congestion management, and other airport access limitations. The analysis includes a compilation of relevant statutes, regulations, and case decisions determining the scope of airport proprietary rights and a discussion of the rights within the owner's purview and those that have been determined to exceed the owner's authority.

Small Airports

ACRP Report 28: Marketing Guidebook for Small Airports will help airport managers with small or minimal budgets to develop a marketing program for their general aviation or commercial service airport. The guidebook discusses the basics of marketing, takes the reader through the process of developing and implementing a plan, presents approaches to marketing and public relations, provides worksheets, and concludes with a selection of instructive case studies. The guidebook provides ideas about how to regularly communicate with tenants and the community, how to effectively position the airport in the region, and how to develop and retain airport activity. Airport managers and those responsible for marketing and working with communities will find many useful worksheets and tools to assess their individual situation, set goals, and select from low-cost strategies to deliver their message. This guidebook, with its easy to use techniques and worksheets along with real-world examples, will help those in the airport community to create and sustain a positive and persuasive airport identity and message.

ACRP Report 32: Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports presents the different wildlife challenges that airports may face and the techniques and strategies for addressing them. The Guidebook discusses for airport managers and other airport personnel at general aviation airports with limited resources (1) the different species that can be found at airports and specific information that will be helpful in identifying and controlling them, (2) the various wildlife attractants and best management practices that can be employed by airport operators to minimize wildlife activity at and around airports, (3) wildlife control strategies and techniques that are most appropriate at general aviation airports, and (4) how to develop a wildlife control program. General aviation airports are usually resource constrained, and, because of limited staff, there is very little specializing that occurs. Airport personnel often handle many different areas of airport management, and rely on easy-to-read, all encompassing materials to help them be as effective as possible in their dif-

ferent responsibilities in operating and maintaining the airport. *ACRP Report 32* is a guidebook for general aviation airport personnel in the area of wildlife management designed to assist them in providing the safest environment possible in an efficient manner.

DOCUMENTING SUCCESS

The goal of ACRP is to provide well-researched, useful publications that can contribute to the growth and development of the nation's airport industry. ACRP's Impacts on Practice series is designed to provide examples of how airport industry practitioners are using ACRP research results to assist them in their work.

Three Impacts on Practices are included in this report:

- Guidebook Informs Nation's Smaller Airports (*ACRP Report 16*)
- San Diego's Efforts to Mitigate Noise Impacts for Community Stakeholders (*ACRP Report 15* and *ACRP Synthesis 16*)
- Strategic Planning at Toronto Pearson International Airport (*ACRP Report 20*, *ACRP Report 3*, and *ACRP Report 24*)

Guidebook Informs Nation's Smaller Airports

The manager of a smaller airport has numerous responsibilities. As the Chief Executive Officer, s/he is responsible for board governance and personnel management. As the person responsible for operations and finance, the manager must contend with foreign debris on runways and reduced budgets. As the leader of planning and marketing for the airport, the manager must be versed in public speaking, airport layout plans, and customer satisfaction. No matter the responsibility, every manager of our nation's smaller airports needs help.

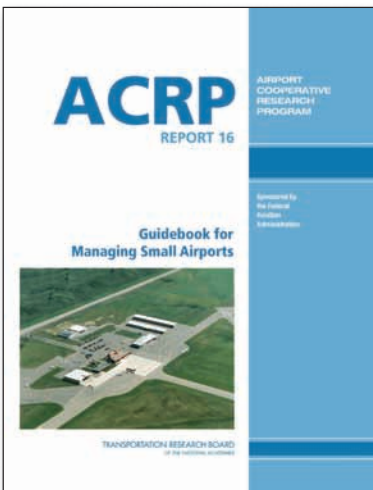
Sharon Glasgow of the Federal Aviation Administration describes one source of help. "ACRP Report 16: *Guidebook for Managing Small Airports* introduces airport practitioners to the myriad issues facing small airports in the United States. These practitioners—owners, operators, managers, and policy makers of small airports—are responsible for a wide range of activities, often unrelated to the management responsibilities of the airport. This report presents the critically important issues that these practitioners frequently encounter while wearing the airport manager's hat," Glasgow claimed.

"The Guidebook is a tremendous reference. If I need to find something, I can find it. The Guidebook helps me communicate with County staff and the airport Commission," stated Keith Markano, CM, manager of the county-owned airport in Waukesha County,

Wisconsin. "I work within the Public Works department and our Director has limited knowledge of and experience with airports. The Guidebook has helped me communicate more clearly with her. More specifically, the Guide has helped me help her better understand the FAA grant assurances. With the Guide, I do not have to constantly reinvent the wheel," Markano observed.

"We recently dealt with a height restriction issue here in Waukesha County. Our corporate counsel relied on the Guidebook to help him help us," noted Markano. "Our airport commissioners are successful business people who appreciate a business-like approach to airport management; the Guidebook helps me explain airport matters more clearly to them," said Markano.

Markano's sentiments are echoed by Stephanie Ward, Manager of Aviation Planning Services for Mead Hunt. "I see more and more general aviation airport managers who possess good managerial skills but who lack airport and aviation experience. The Guidebook captures so many parts of what managing an airport is all about and does so in a way that hits the highlights without getting into the nitty gritty," said Stephanie. "Plus, the Guidebook's links to other resources are



John Cunningham, front, of the Iowa Concrete Paving Association and Jeremy Keating of the Davenport Municipal Airport discuss small airport management issues at the 2010 Iowa Aviation Conference in West Des Moines, Iowa.



Photo courtesy of Iowa Department of Transportation Office of Aviation

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Guidebook—continued

valuable to both new and veteran airport managers,” Mead commented.

As a former manager of a small airport, Tim McClung, who currently serves as Planning and Outreach Manager with the Iowa Department of Transportation’s Office of Aviation, finds the Guidebook a real asset. “The Guidebook offers a 1-stop shop for small airport managers and commissioners. It references a broad variety of topics and is directly applicable to every airport here in Iowa. Our staff reviewed the report thoroughly and found the Guidebook to be right on target. The Guide had to pass our DOT litmus test before we distributed it,” McClung asserted.

And distribute the report they did. McClung and his team developed an informational session about the Guide at the state’s annual aviation conference.

The Iowa DOT distributed the Guide to more than 100 airports throughout Iowa, and posted the Guide prominently on the department’s web site.

The Guide’s value is further evidenced in Michigan, where Dick Acker and his colleagues from the Michigan Association of Airport Executives (MAAE) have adopted the Guide as the “textbook” for their Airport Manager’s 101 training. Acker is manager of the Clare Municipal Airport in Clare, Michigan, and a trainer of the 101 class. “There are 235 public-use airports in Michigan. Before budget cuts, the Michigan Bureau of Aeronautics was able to provide annual training for airport managers. Now, it’s up to the MAAE. Because the Guide is right on, we made it the central piece of our airport manager’s training,” Acker said.

There are many aspects of the report that Ward appreciates. “The Guide’s size is just right, it is written to the target audience, and it contains numerous links to additional resources,” she observed.

“Plus, there are things in the report I’ve never considered,” she said. Because the Guidebook captures so much of what managing a small airport is all about, Ward and her Mead Hunt colleagues frequently distribute copies of the Guidebook to their small airport clients.

“In our Iowa DOT aviation office we receive a lot of questions about airport operations, public relations, finance, and planning,” McClung commented. “The Guide was developed with a national perspective, which provides us with different ideas and experiences that we would not otherwise have and which we share with the managers of our smaller airports.”

Because managers of our nation’s smaller airport are responsible for so much, they often find themselves operating in a reactionary mode. “Like many, I am expected to be a jack of all trades. The Guide improves my understanding of airport management issues and functions as a just-in-time resource,” Markano observed.

AIRFIELD MAINTENANCE

“If there is the slightest chance that an airport will experience snow and ice conditions, a snow and ice control plan should be established. At a minimum, a snow and ice control program should identify equipment, personnel, airfield inspection procedures, snow removal priorities, and a list of key contact personnel involved in coordinating airfield operations.”

ACRP Report 16
Guidebook for Managing Small Airports
http://www.trb.org/Publications/Blurbs/Guidebook_for_Managing_Small_Airports_162145.aspx



Photo courtesy of Iowa Department of Transportation Office of Aviation

ACKNOWLEDGMENT OF SPONSORSHIP: This work was sponsored by the Federal Aviation Administration and was conducted in the Airport Cooperative Research Program, which is administered by the Transportation Research Board of the National Academies.

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San Diego's Efforts to Mitigate Noise Impacts for Community Stakeholders

Dan Frazee, Director of Airport Noise Mitigation at San Diego International Airport (SAN) has a 3-part professional mission—to better understand his community and the concerns the community has regarding airport noise, to better inform his community of measures implemented at SAN to address their noise concerns, and to seek collaborative airport noise solutions that positively impact all stakeholders.

“We’ve been focused on community education regarding airport noise since 1976. Our airport noise office has worked diligently to identify community stakeholders and proactively involve these stakeholders in the process. And, our community stakeholders have educated themselves about airport noise,” stated Frazee.

Frazee and his noise mitigation team are constantly looking to verify that their current efforts are effective and are searching for new tools that may improve their efforts. “*ACRP Report 15: Aircraft Noise: A Toolkit for Managing Community Expectations* and *ACRP Synthesis 16: Compilation of Noise Programs in Areas Outside DNL 65* have provided me insights, ideas, perspectives, and tools that make me and my team more effective,” noted Frazee.

San Diego International Airport's remote noise monitoring terminals.

The new terminals are solar powered and use wireless technology to download data.

Photo courtesy of San Diego County Regional Airport Authority

ACRP Report 15 identifies “best practices” in airport communication, explains how building relationships with the public can be beneficial to the airport as well as the public, and discusses outcomes an airport should expect if it does build a good relationship with the surrounding community.

For smaller airports staffed perhaps only by the airport manager, the Report provides ideas to consider and basic direction for a communications approach

that can be successful immediately. For medium-sized airports, basic guidance is augmented with suggestions on staffing and basic communication techniques. For large airports, there are ideas for refinement of the basic approach, as well as ideas for improving techniques or strategies that may already be in place. “Regardless of size, the report provides information that helps airports and communities co-exist,” said Frazee.

“The Report provides a toolkit and self-assessment instrument which have helped us assess programs, sound insulation, noise metrics, and community response at San Diego. The Federal Aviation Administration states that airport-related noise is the primary deterrent to airport expansion. This ACRP report contains information that can help airports and communities co-exist,” Frazee noted.

ACRP Synthesis Report 16 provides airport operators, stakeholders, and policymakers information about alternative actions currently used by airports to address noise outside the DNL (Day-Night Average Noise Level) 65 contour.

According to Frazee, “airports across the country are receiving increased complaints about airport noise from stakeholders who reside outside the 65DNL.” For many in the industry, inquiries and complaints from stakeholders who reside such a distance from the airport raise a variety of unanswered questions.

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Noise—continued

- Which stakeholders outside the 65DNL are voicing concerns about airport noise?
- What do these stakeholders want?
- What measures do these stakeholders want the airport to take?
- How do we help community stakeholders better understand the limitations we face in mitigating aircraft noise outside the 65DNL?

According to Dan Frazee, “*ACRP Synthesis 16* provides some answers.”

Whether at the state, regional or local level, both ACRP reports have aided Frazee in his work.

Dan was 1 of 5 airport representatives who testified recently before the California Legislature regarding airport noise issues. He utilized findings from *ACRP Report 15* and *ACRP Synthesis 16* to help inform and educate California’s legislators. “The results of these reports helped me convey that a cookie cutter approach to noise mitigation is not appropriate. California’s legislature now recognizes that each airport must customize their approach,” stated Frazee.

On a quarterly basis, Frazee joins 40 other airport noise specialists from California to identify and address airport noise issues. “The ACRP reports have been instrumental in validating that my colleagues and I are utilizing all measures available to effectively deal with airport noise issues in local communities. The reports also help me and my California colleagues improve our community outreach,” he said.

The San Diego County Regional Airport has an Airport Noise Advisory Committee which consists of individuals from various organizations, residential areas, and professional associations. The

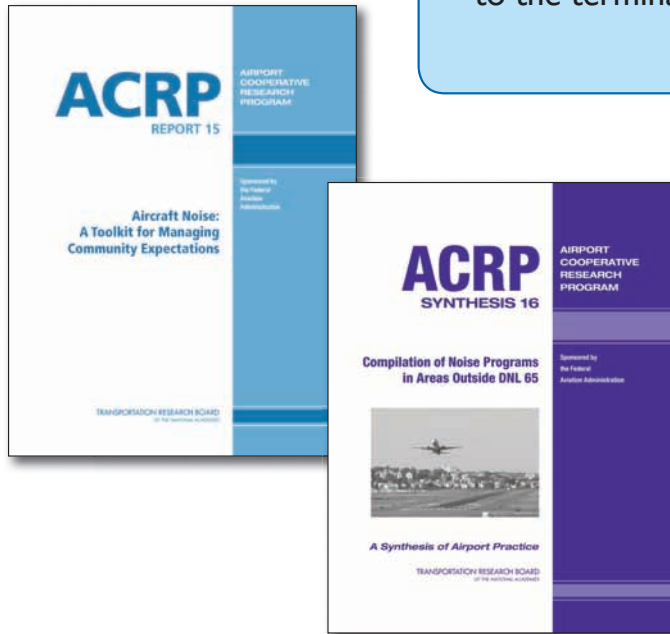
Committee—composed of 18 members, including Frazee—provides a forum for collaborative discussion of airport noise issues and other related matters.

Frazee shared the ACRP reports with Committee members to help them dispatch their duties more efficiently and creatively. “We have been doing this for 30 years and sometimes we need to step back and evaluate what we are doing,” Frazee said.

“These ACRP reports are of tremendous benefit to me and our community. They have impacted the way we address airport noise issues and they have helped us assess additional actions we can implement that we have not previously considered,” stated Frazee.

“This is a win-win for us and the community, as the technology saves us money and upgrades our capability while doing away with the inconvenience we cause when tunneling in the community to provide power and phone lines to the terminals.”

Dan Frazee



ACRP Report 15:
http://www.trb.org/Publications/Blurbs/Aircraft_Noise_A_Toolkit_for_Managing_Community_Ex_162800.aspx

ACRP Synthesis 16:
http://www.trb.org/Publications/Blurbs/Compilation_of_Noise_Programs_in_Areas_Outside_DNL_162086.aspx

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Strategic Planning at Toronto Pearson International Airport

Airports of all sizes are constantly challenged to manage complex and ever-changing issues, programs, and customer expectations. Strategic planning determines what airports can do to address these expectations and create their desired future.

Lloyd McCoomb, President and CEO of the Greater Toronto Airports Authority (GTAA) and his Board of Directors clearly “get it”. They understand strategic planning is a critical leadership process that will guide them to the future they desire.

The GTAA is governed by a 15 member board of directors who is responsible for the management, operation and maintenance of Lester B. Pearson International Airport (YYZ). According to McCoomb, “Most board members occupy senior (C-level) positions with private-sector companies. Every board member understands the importance of strategy and every board member recognizes her/his role and responsibility to formulate strategy for the airport authority,” he noted.

The GTAA board is similar to governing bodies at many airports; they possess excellent understanding of strategy. What many GTAA board members need, however, is a greater understanding of airport-specific issues to help formulate the strategies that will propel the Authority and YYZ toward its desired future. “Board members come from a wide variety of industries. While they are extremely knowledgeable about strategy and strategic planning, they need more information, data, and perspectives on airports,” observed McCoomb. “ACRP Report 20 *Strategic Planning in the Airport Industry* serves as a ready reference that clearly helps board members

pose the proper strategic questions within the context of airports. This report is an excellent piece of work,” McCoomb said.

One of the challenges facing Lloyd and the GTAA is board member transition. As is the case with airport boards and governing bodies throughout the airport industry, board membership ends and new members are welcomed on a regular basis. For many airports, this is an annual occurrence. According to McCoomb, “two or three board members are replaced every year.” This annual addition and subtraction of board members presents challenges to McCoomb, his leadership team, and other board members.

“Board education is an ongoing process,” noted McCoomb. *ACRP Report 20* provides us a ready primer for both new and current board members. In the absence of this report, we would be investing significantly more time, money, and energy in board education,” McCoomb said.

ACRP Report 20 provides a step-by-step process for developing the strategic plan. The report reinforces the concepts that strategic planning is a process of managing for results and focusing on the future; discusses the process of analysis, diagnosis, goal setting, and action; and provides information, tools, and techniques that can be used by



Above:
Lloyd McCoomb, Chief
Executive Officer,
Greater Toronto
Airports Authority

Photo courtesy of
Greater Toronto
Airports Authority

Right:
ACRP Report 20:
*Strategic Planning in
the Airport Industry*



airport professionals, airport policymakers, and related industry associations to develop and understand strategic plans that guide airport-related decisions and actions. Further, the report provides specific guidance that helps airport leaders allocate scarce resources—time, talent, and money—in optimal ways to achieve meaningful results.

In addition to helping McCoomb and his board preserve scarce resources “ACRP Report 20 serves as a ready reference

continued on page 2

Strategic Planning—continued

for board members, provides detailed information about airports and the airport strategic planning process, and empowers GTAA board members with necessary information to formulate the right strategic questions,” said McCoomb.

McCoomb and the GTAA board know that strategic planning is an adaptable process that emphasizes a long-range approach and requires regular reviews and updates. Perhaps more importantly, McCoomb and the GTAA board focus on implementing their strategies.

Evidence that YYZ is strategically creating its future is offered by the recognition Lester B. Pearson International Airport received early in 2010 from the International Air Transport Association, which represents airlines across the globe, as the Most Improved Airport.

This report “has been a boon to airport board members” McCoomb noted. A grateful and enthusiastic McCoomb candidly states, “There is a clear and direct link between the ACRP research work and the payoff.”

Since 2006, an industry-driven, applied research program that develops near-term, practical solutions to problems faced by airport operators.



Aerial view of Toronto Pearson International Airport
Photo courtesy of Greater Toronto Airports Authority

ACRP: SOLUTION CENTRAL

Whether formulating appropriate strategic direction for the future, maximizing safety, accommodating terminal expansion consistent with passenger growth, or maximizing revenue and customer care, every airport has challenges.

For Lloyd McCoomb, President and CEO at the Greater Toronto Airports Authority (GTAA), when he and his colleagues face challenges, they seek solutions from the ACRP. “There is a clear and direct link between the ACRP research work and the payoff to our airport,” said McCoomb.

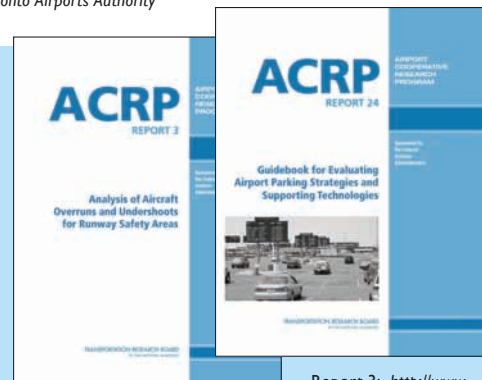
McCoomb enthusiastically talks about how he, his board, and his staff have made use of the findings and recommendations contained in a variety of ACRP research reports and he offers two specific examples of how he and his team at Toronto have used ACRP research results.

Toronto has 5 runways, 10 runway ends, urban development surrounding the

airport, limited resources, and a commitment to maximizing safety and has been searching for guidance regarding “what to do with end of runway issues.”

“ACRP Report 3: Analysis of Aircraft Overruns and Undershoots for Runway Safety Areas created a series of predictive formulae that helped us assess the likelihood of end of runway incidents and determine the most appropriate investments to address this likelihood. The research results provided us information necessary to make end of runway investments that generated optimal payoff. This research report generated big benefits for our community,” said McCoomb.

With over 10,000 parking spaces, Toronto offers a variety of customer options ranging from premium service valet parking to less personalized remote parking. With such a large inventory and a variety of service features, Toronto utilized ACRP Report 24: *Guidebook for Evaluating Air-*



Report 3: [http://www.trb.org/Aviation/Blurbs/](http://www.trb.org/Aviation/Blurbs/Analysis_of_Aircraft_Overruns_and_Undershoots_for_159849.aspx)

[Analysis_of_Aircraft_Overruns_and_Undershoots_for_159849.aspx](http://www.trb.org/Aviation/Blurbs/Analysis_of_Aircraft_Overruns_and_Undershoots_for_159849.aspx)

Report 24: http://www.trb.org/Publications/Blurbs/Guidebook_for_Evaluating_Airport_Parking_Strategie_162823.aspx

port Parking Strategies and Supporting Technologies to help determine how best to minimize costs, maximize revenue, and maximize service. “The Parking Strategies Guidebook is very useful. It is helping us optimize our pricing structure to best serve our many stakeholders,” noted McCoomb.

“We are extremely appreciative of the work ACRP has accomplished,” McCoomb stated.

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Table 4. Publications of the Airport Cooperative Research Program

REPORTS		
No.	Proj. No.	Title, Pages, Publication Year
1	11-02	Safety Management Systems for Airports, Vol. 1: Overview, 30 p. (2007)
1	04-05	Safety Management Systems for Airports, Vol. 2: Guidebook, 164 p. (2009)
2	11-02	Evaluation and Mitigation of Aircraft Slide Evacuation Injuries, 77 p. (2008)
3	04-01	Analysis of Aircraft Overruns and Undershoots for Runway Safety Areas, 50 p. (2008)
4	11-02	Ground Access to Major Airports by Public Transportation, 210 p. (2008)
5	11-02	Quarantine Facilities for Arriving Air Travelers: Identification of Planning Needs and Costs, 34 p. (2008)
6	02-04	Research Needs Associated with Particulate Emissions at Airports, 60 p. (2008)
7	02-03	Aircraft and Airport-Related Hazardous Air Pollutants: Research Needs and Analysis, 55 p. (2008)
8	04-02	Lightning-Warning Systems for Use by Airports, 72 p. (2008)
9	02-04A	Summarizing and Interpreting Aircraft Gaseous and Particulate Emissions Data, 90 p. (2008)
10	07-01	Innovations for Airport Terminal Facilities, 70 p. (2008)
11	02-06	Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories, 62 p. (2009)
12	05-01	An Airport Guide for Regional Emergency Planning for CBRNE Events, 52 p. (2009)
13	01-03	Integrating Airport Information Systems, 40 p. (2009)
14	02-02	Deicing Planning Guidelines and Practices for Stormwater Management Systems, 208 p. (2009)
15	02-05	Aircraft Noise: A Toolkit for Managing Community Expectations (+ CRP-CD-70), 162 p. (2009)
16	01-05	Guidebook for Managing Small Airports, 136 p. (2009)
17	10-04	Airports and the Newest Generation of General Aviation Aircraft, Vol. 1: Forecast, 36 p. (2009)
17	10-04	Airports and the Newest Generation of General Aviation Aircraft, Vol. 2: Guidebook, 122 p. (2009)
18	03-08	Passenger Air Service Development Techniques, 168 p. (2009)
19	01-06	Airport Performance Measurement, 154 p. (2010)
20	03-09	Strategic Planning in the Airport Industry, 200 p. (2009)
21	01-05	A Guidebook for Selecting Airport Capital Project Delivery Methods, 100 p. (2009)
22	06-01	Helping Airport and Air Carrier Employees Cope with Traumatic Events, 82 p. (2009)
23	03-02	Airport Passenger-Related Processing Rates Guidebook, 125 p. (2009)
24	10-03	Guidebook for Evaluating Airport Parking Strategies and Supporting Technologies, 162 p. (2009)
25	07-05	Airport Passenger Terminal Planning and Design, Vol. 1: Guidebook, 426 p. (2010)
25	07-04	Airport Passenger Terminal Planning and Design, Vol. 2: Spreadsheet Models and User's Guide (+ CRP-CD-75), 82 p. (2010)
26	03-04	Guidebook for Conducting Airport Users Surveys, 256 p. (2009)
27	03-03	Enhancing Airport Land Use Compatibility, Volume 1: Land Use Fundamentals and Implementation Resources, 316 p. (2010)
27	03-03	Enhancing Airport Land Use Compatibility, Volume 2: Land Use Survey and Case Study Summaries, 296 p. (2010)
28	01-04	Marketing Guidebook for Small Airports, 196 p. (2010)

Table 4 (continued)

REPORTS		
No.	Proj. No.	Title, Pages, Publication Year
29	07-03	Developing Improved Civil Aircraft Arresting Systems, 206 p. (2010)
30	10-05	Reference Guide on Understanding Common Use at Airports (+ CRP-CD-74), 244 p. (2010)
31	03-10	Innovative Approaches to Addressing Aviation Capacity Issues in Coastal Mega-regions, 178 p. (2010)
32	04-06	Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports, 192 p. (2010)
33	01-02	Guidebook for Developing and Managing Airport Contracts, pending
34	10-06	Handbook to Assess the Impacts of Constrained Parking at Airports (+ CRP-CD-80), 112 p. (2010)
35	10-02	Planning for Offsite Airport Terminals, 94 p. (2010)
36	01-07	Airport/Airline Agreements—Practices and Characteristics, 112 p. (2010)
37	03-06	Guidebook for Planning and Implementing Automated People Mover Systems at Airports (+ CRP-CD-82), 226 p. (2010)
38	03-13	Understanding Airspace, Objects, and Their Effects on Airports, 164 p. (2010)
39	09-01	Recommended Guidelines for the Collection and Use of Geospatially Referenced Data for Airfield Pavement Management, 108 p. (2010)
40	07-02	Airport Curbside and Terminal Area Roadway Operations, 81 p. (2010)
RESEARCH RESULTS DIGESTS		
No.	Proj. No.	Title, Pages, Publication Year
1	11-03	Synthesis of Information Related to Airport Practices, 4 p. (2007)
2	11-02	Model for Improving Energy Use in U.S. Airport Facilities, 20 p. (2007)
3	11-03	Synthesis of Information Related to Airport Practices, 4 p. (2007)
4	11-03	Synthesis of Information Related to Airport Practices, 4 p. (2009)
5	11-02/ Task 7	Current and Emerging Issues Facing the Airport Industry, 32 p. (2009)
6	04-03	Guidance for Identifying and Mitigating Approach Lighting System Hazards, 16 p. (2009)
7	11-02/ Task 11	A Summary of How Proposed Firefighting Standards Would Impact Airports, 20 p. (2009)
8	11-03	Synthesis of Information Related to Airport Practices, 4 p. (2010)
9	02-01	Alternative Aircraft and Pavement Deicers and Anti-Icing Formulations with Improved Environmental Characteristics, 12 p. (2010)
10	03-01	Light Detection and Ranging (LIDAR) Deployment for Airport Obstruction Surveys, 30 p. (2010)
11	11-02/ Task 14	Helping Airports Understand the Payment Card Industry Data Security Standard (PCI DSS), 30 p. (2010)
LEGAL RESEARCH DIGESTS (PROJECT 11-01)		
No.	Topic No.	Title, Pages, Publication Year
1	1-03	Compilation of Airport Law Resources, 38 p. (2008)
2	1-02	Theory and Law of Airport Revenue Diversion, 29 p. (2008)
3	1-04	Survey of Laws and Regulations of Airport Commercial Ground Transportation, 195 p. (2008)

Table 4 (continued)

LEGAL RESEARCH DIGESTS (PROJECT 11-01)		
No.	Topic No.	Title, Pages, Publication Year
4	1-01	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 31, 2007 (stand-alone <i>CRP-CD-68</i>) 3,000 p. (2008)
5	1-05	Responsibility for Implementation and Enforcement of Airport Land-Use Zoning Restrictions, 68 p. (2009)
6	1-07	The Impact of Airline Bankruptcies on Airports, 62 p. (2009)
7	1-08	Airport Governance and Ownership, 72 p. (2009)
8	1-06	The Right to Self-Fuel, 82 p. (2009)
9	02-03	Case Studies on Community Challenges to Airport Development, 60 p. (2010)
10	02-40	Analysis of Federal Laws, Regulations, and Case Law Regarding Airport Proprietary Rights, 50 p. (2010)
SYNTHESES (PROJECT 11-03)		
No.	Topic No.	Title, Pages, Publication Year
1	1-01	Innovative Finance and Alternative Sources of Revenue for Airports, 43 p. (2007)
2	3-01	Airport Aviation Activity Forecasting, 32 p. (2007)
3	4-01	General Aviation Safety and Security Practices, 44 p. (2007)
4	10-01	Counting Aircraft Operations at Non-Towered Airports, 33 p. (2007)
5	3-02	Airport Ground Access Mode Choice Models, 104 p. (2008)
6	10-03	Impact of Airport Pavement Deicing Products on Aircraft and Airfield Infrastructure, 58 p. (2008)
7	3-03	Airport Economic Impact Methods and Models, 67 p. (2008)
8	10-02	Common Use Facilities and Equipment at Airports, 121 p. (2008)
9	2-01	Effects of Aircraft Noise: Research Update on Selected Topics, 98 p. (2008)
10	02-02	Airport Sustainability Practices, 120 p. (2008)
11	09-01	Impact of Airport Rubber Removal Techniques on Runways, 111 p. (2008)
12	04-02	Preventing Aircraft–Vehicle Incidents during Weather Operations and Periods of Low Visibility, 70 p. (2008)
13	03-05	Effective Practices for Preparing Airport Improvement Program Benefit-Cost Analysis, 74 p. (2009)
14	03-04	Airport System Planning Practices, 80 p. (2009)
15	04-03	Identification of the Requirements and Training to Obtain Driving Privileges on Airfields, 52 p. (2009)
16	02-03	Compilation of Noise Programs in Areas Outside DNL 65, 112 p. (2009)
17	02-04	Approaches to Integrating Airport Development and Federal Environmental Review Process, 44 p. (2009)
18	06-01	Aviation Workforce Development Practices, 44 p. (2010)
19	01-02	Airport Revenue Diversification, 64 p. (2010)
20	08-01	Airport Terminal Facility Activation Techniques, 136 p. (2010)
21	10-04	Airport Energy Efficiency and Cost Reduction, 82 p. (2010)

Table 4 (continued)

WEB-ONLY DOCUMENTS		
No.	Proj. No.	Title, Pages, Publication Year
1	01-03	Analysis and Recommendations for Developing Integrated Airport Information Systems, 80 p. (2009)
2	02-06	Appendices to ACRP Report 11: Guidebook on Preparing Airport GHG Emissions Inventories, 87 p. (2009)
3	02-01	Formulations for Aircraft and Airfield Deicing and Anti-Icing: Aquatic Toxicity and Biochemical Oxygen Demand, 121 p. (2009)
4	04-03	Guidance for Identifying and Mitigating Approach Lighting System Hazards, 88 p. (2009)
5	01-01	Development of a Guidebook for Managing Small Airports, 124 p. (2009)
6	01-05	Evaluation and Selection of Airport Capital Project Delivery Methods, 213 p. (2009)
7	11-02/ Task 11	How Proposed ARFF Standards Would Impact Airports, 115 p. (2009)
8	02-01	Alternative Aircraft Anti-Icing Formulations with Reduced Aquatic Toxicity and Biochemical Oxygen Demand, 141 p. (2010)
9	11-02/ Task 8	Enhanced Modeling of Aircraft Taxiway Noise—Scoping, 153 p. (2009)
ACRP CD-ROM		
No.	Proj. No.	Title, Publication Year
CRP-CD-68	11-01	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 31, 2007 (2008)
CRP-CD-70	02-05	ACRP Report 15 Toolkit (2009)
CRP-CD-73	03-09	Workbook for ACRP Report 20: Strategic Planning in the Airport Industry (2009)
CRP-CD-74	10-05	Supplemental Materials for ACRP Report 30 (2010)
CRP-CD-75	07-04	Airport Passenger Terminal Planning Spreadsheet Models for ACRP Report 25, Volume 2 (2010)
CRP-CD-79	01-06	Workbook for ACRP Report 19: Developing an Airport Performance-Measurement System Project (2010)
CRP-CD-80	10-06	Parking Forecast Model and Instructions for Use: Supplemental Materials for ACRP Report 34 (2010)
CRP-CD-82	03-06	Database of APM Systems for ACRP Report 37 (2010)
TRB CONFERENCE PROCEEDING		
No.	Proj. No.	Title, Publication Year
41	11-02/ Task 6	Interagency–Aviation Industry Collaboration on Planning for Pandemic Outbreaks (2008)
47	11-02/ Task 13	Research on the Transmission of Disease in Airports and on Aircraft (2010)

TABLE 5 SUMMARY OF PROJECT STATUS THROUGH DECEMBER 31, 2010

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
1: Administration									
01-01	Guidebook for Managing Small Airports	\$400,000(06)	\$397,230	University of Minnesota	1/24/2007	3/31/2009	Completed - Published as Report 16 and Web-Only Document 5		
01-02	Guidebook for Developing and Managing Airport Contracts	\$400,000(07)	\$315,000	HNTB	4/24/2007	2/28/2010	Completed - Publication Pending	K. Willis	T. Schatz
01-03	Integrating Airport Information Systems	\$300,000(07)	\$300,000	Aero Tech Consulting	8/10/2007	11/22/2008	Completed - Published as Report 13 and Web-Only Document 1		
01-04	Marketing Guidebook for Small Airports	\$200,000(07)	\$200,000	Eclat Consulting	10/26/2007	9/30/2009	Completed - Published as Report 28		
01-05	Guidebook for Airport Capital Project Delivery Systems	\$100,000(07) \$25,000 (08) \$70,000 (10)	\$194,994	Northeastern University	4/4/2007	7/30/2009	Completed - Published as Report 21		
01-06	A Guidebook for Developing an Airport Performance Measurement System	\$400,000(08)	\$400,000	Infrastructure Management Group	5/6/2008	4/2/2010	Completed - Published as Report 19		
01-07	Airport/Airline Agreements - Practices and Characteristics	\$400,000(08)	\$393,005	Ricondo & Associates	5/30/2008	4/5/2010	Completed - Published as Report 36		
01-08	Guidebook on Best Management Practices for Leasing and Developing Airport Property	\$400,000(08)	\$350,000	R.W. Armstrong and Associates	6/24/2008	9/30/2010	Completed - Publication Pending	K. Willis	J. Navarrete
01-09	Airport Performance Indicators	\$400,000(09)	\$400,000	Oliver Wyman, Inc.	5/8/2009	12/31/2010	Completed - Publication Pending	E. Novak	M. Salamone
01-10	A Handbook for Developing, Implementing and Overseeing Airport Capital Plans	\$400,000(09)	\$399,955	HNTB Corp.	7/10/2009	12/31/2010	Completed - Publication Pending	L. Loarte	M. Greenberger
01-11	Understanding Airport In-Terminal Concession Programs	\$350,000(09)	\$350,000	Jacobs Consultancy	6/17/2009	12/16/2010	Completed - Publication Pending	A. Jan	T. Schatz

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
01-12	A Primer for Information Technology Systems at Airports	\$350,000(09)	\$348,843	Faith Group, LLC	7/7/2009	3/31/2011	Research in progress	P. Friedman	M. Salamone
01-13	Developing a Database-Driven Web Application for Benchmarking Airport Performance	\$500,000(09A) \$100,000(10)	\$549,727	Amadeus Consulting	9/30/2010	6/8/2012	Research in progress	E. Novak	M. Salamone
01-14	Considering and Evaluating Airport Privatization	\$500,000(09A)	\$500,000	LeighFisher	5/10/2010	11/9/2011	Research in progress	K. Willis	T. Schatz
01-15	Assessing and Implementing Innovative Revenue Strategies - A Guide for Airports	\$400,000(10)	\$400,000	Kramer Aerotech, Inc.	5/14/2010	11/14/2011	Research in progress	G. Fahnestock	L. Goldstein
01-16	Asset and Infrastructure Management for Airports	\$400,000(10)	\$400,000	GHD Consulting	6/16/2010	10/16/2011	Research in progress	K. Willis	M. Greenberger
01-17	Guidebook for Developing General Aviation Airport Business Plans	\$400,000(10)	\$398,350	Aviation Management Consulting Group	6/28/2010	12/28/2011	Research in progress	C. Hugunin	M. Greenberger
01-18	Application of Enterprise Risk Management at Airports	\$350,000(10)	\$350,000	Marsh, USA	6/30/2010	9/30/2011	Research in progress	W. Schuller	M. Greenberger
01-19	Airport Improvements: Developing a Cost Model and Database	\$400,000(11)					In Development		L. Goldstein
01-20	Procuring and Managing Professional Services at Airports	\$350,000(11)					In Development		T. Schatz
2: Environment									
02-01	Alternative Aircraft and Pavement Deicers and Anti-Icing Formulations with Improved Environmental Characteristics	\$600,000(06)	\$600,000	University of South Carolina	11/1/2006	2/28/2010	Completed - Interim report published as Web-Only Document 3; summary of final report published as Research Results Digest 9; full final report published as Web-Only Document 8		

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-02	Deicing Planning Guidelines and Practices for Stormwater Management Systems	\$300,000(06)	\$300,000	CH2M Hill	10/9/2006	9/12/2008	Completed - Published as Report 14 and Deicing Practices 1-41		
02-03	Aircraft and Airport-Related Hazardous Air Pollutants: Research Needs and Analysis	\$100,000(06)	\$100,000	Aerodyne Research, Inc.	12/19/2006	12/18/2007	Completed - Published as Report 7		
02-03A	Measurement of Gaseous HAP Emissions from Idling Aircraft as a Function of Engine and Ambient Conditions	\$500,000(06)	\$499,741	Aerodyne Research, Inc.	1/12/2009	1/12/2011	Research in progress	M. Gupta	L. Goldstein
02-04	Research Needs Associated with Particulate Emissions at Airports	\$100,000(06)	\$99,897	Environmental Consulting Group, Inc.	1/2/2007	3/1/2008	Completed - Published as Report 6		
02-04A	Summarizing and Interpreting Aircraft Gaseous and Particulate Emissions Data	\$350,000(07)	\$349,470	University of Missouri-Rolla	4/12/2007	7/11/2008	Completed - Published as Report 9		
02-05	Aircraft Noise: A Toolkit for Managing Community Expectations	\$500,000(07)	\$399,982	Landrum & Brown	4/20/2007	3/31/2009	Completed - Published as Report 15		
02-06	Guidebook on Preparing Airport Greenhouse Gas (GHG) Emissions Inventories	\$200,000(07)	\$199,403	Wyle Laboratories	10/9/2007	9/8/2008	Completed - Published as Report 11 and Web-Only Document 2		
02-07	Handbook for Analyzing the Costs and Benefits of Alternative Turbine Engine Fuels at Airports	\$500,000(07)	\$499,960	CSSI, Inc.	10/22/2007	10/29/2010	Completed - Publication Pending	L. Maurice	L. Goldstein
02-08	Quantifying Contributions to Local Air Quality Impacts from Airport-Related Emissions	\$600,000(08)	\$599,970	Wyle Laboratories, Inc.	6/4/2008	3/31/2011	Research in progress	M. Gupta	L. Goldstein
02-09	Developing a Comprehensive Work Plan for a Multimodal Noise and Emissions Model	\$200,000(08)	\$199,630	Wyle Laboratories, Inc.	7/7/2008	10/29/2010	Completed - Publication Pending	L. Maurice	L. Goldstein
02-10	Practical Greenhouse Gas Emission Reduction Strategies for Airports	\$500,000(09)	\$499,921	CDM Federal Programs Corp	6/9/2009	9/9/2011	Research in progress	N. Brown J. Unland	T. Schatz

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-11	A Handbook for Addressing Water Resource Issues Affecting Airport Capacity Enhancement Planning	\$150,000(09)	\$150,000	Gresham, Smith and Partners	5/11/2009	1/15/2011	Research in progress	E. Melisky M. Washington	L. Goldstein
02-12	Environmental Optimization of Aircraft Departures: Fuel Burn, Emissions, and Noise	\$300,000(09)	\$300,000	Wyle Laboratories, Inc.	4/20/2009	4/15/2011	Research in progress	R. Cointin	L. Goldstein
02-13	A Guidebook for Improving Environmental Performance at Small Airports	\$200,000(09) \$ 75,000(08)	\$200,000	Gresham, Smith and Partners	6/16/2009	8/20/2010	Completed - Publication Pending	D. Perkins	M. Greenberger
02-14	Guidebook for Selecting Methods to Monitor Airport and Aircraft Deicing Materials	\$200,000(09A)	\$150,000	Gresham, Smith and Partners	6/3/2010	9/2/2011	Research in progress	E. Melisky L. Wedande	J. Navarrete
02-15	Recycling Strategies for the Airport Industry	\$300,000(09A)	\$300,000	Cascadia Consulting Group	9/22/2010	9/22/2012	Research in progress	J. Barrow S. Urlass	G. Staba
02-16	Airport Ground Support Equipment (GSE) Inventory and Emission Reduction Strategies	\$600,000(09A)	\$599,717	CDM Federal Programs Corp.	6/18/2010	12/17/2011	Research in progress	R. Iovinelli J. Plante	T. Schatz
02-17	Measuring PM Emissions from Auxiliary Power Units, Tires and Brakes	\$500,000(09A)	\$500,000	Missouri University of Science and Technology	9/3/2010	9/2/2012	Research in progress	C. Ma	J. Navarrete
02-18	Guidelines for Integrating Alternative Jet Fuel Into the Airport Setting	\$250,000(09A)	\$249,982	Metron Aviation	6/17/2010	10/16/2011	Research in progress	N. Brown C. Hugunin	T. Schatz
02-19	Winter Design Storm Factors for Airports	\$300,000(09A)	\$249,999	CH2M Hill	6/24/2010	10/24/2011	Research in progress	E. Melisky	M. Greenberger
02-20	The Role of Air Travel in the Transmission and Spread of Insect-Borne Diseases	\$250,000(10)	\$249,995	University of Florida	9/7/2010	3/6/2012	Research in progress	S. Jones C. Ruehle	J. Navarrete
02-20a	Evaluating the Risk of Disease at Airports and on Airlines	\$200,000(11)					In development		J. Navarrete

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-21	Evaluation of Airport Emissions Within State Implementation Plans	\$500,000(10)	\$499,805	KB Environmental Sciences	8/31/2010	2/29/2012	Research in progress	J. Byers R. Iovinelli	G. Staba
02-22	Incorporating Sustainability into Traditional Airport Projects	\$300,000(09A)	\$300,000	Landrum & Brown	7/12/2010	10/12/2011	Research in progress	M. Hoven S. Urlass	M. Greenberger
02-23	Alternative Fuels as a Means to Reduce PM2.5 Emissions at Airports	\$500,000(10)	\$499,798	Project Performance Corp/AEA Group	7/6/2010	11/5/2011	Research in progress	W. Gillette	J. Navarrete
02-24	Guidelines for Airport Sound Insulation Programs	\$200,000(10)	\$200,000	Jones Payne Group	8/27/2010	11/26/2011	Research in progress	R. Etter B. He	T. Schatz
02-25	Evaluating Alternatives for Aircraft Ground Power, Heating and Air Conditioning	\$200,000(10)	\$199,773	ESA Airports, Inc.	7/7/2010	8/6/2011	Research in progress	L. Butler-Guttilla R. Jefferies	M. Greenberger
02-26	Assessing Aircraft Noise Conditions Affecting Student Learning	\$450,000(10)	\$449,672	Wyle Laboratories, Inc.	6/26/2010	2/25/2012	Research in progress	V. Catlett J. DiPardo	L. Goldstein
02-27	Aircraft Taxi Noise Database for Airport Noise Modeling	\$150,000(10)	\$149,779	Wyle Laboratories, Inc.	6/11/2010	10/11/2011	Research in progress	J. Byers B. He	L. Goldstein
02-28	Sustainability for Airports: Best Practices and Success Metrics	\$800,000(11)					In Development		J. Navarrete
02-29	Evaluating Treatment of Runoff from Deicing at Airports	\$600,000(11)					In Development		J. Navarrete
02-30	Enhancing the Airport-Industry Database of Sustainable Practices	\$500,000(11)					In Development		G. Staba
02-31	Assessing Acoustical Materials Used in Airport Residential Sound Insulation Programs	\$350,000(11)					In Development		M. Greenberger
02-32	Understanding and Controlling Nuisance Bacteria in Airport Storm Water Outfalls	\$400,000(11)					In Development		J. Navarrete

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-33	Understanding Emissions from Airport Construction	\$350,000(11)					In Development		T. Schatz
02-34	Qualifying and Monitoring Lead Emissions from Leaded Aviation Gasoline	\$500,000(11)					In Development		M. Greenberger
02-35	Understanding Public Perception of Aircraft Noise and Noise-Induced Sleep Disturbance	\$600,000(11)					In Development		J. Navarrete
02-36	Airports Exploring Multi-modal Opportunities for the Use of Alternative Fuels	\$500,000(11)					In Development		T. Schatz
02-37	Evaluating the Predictive Precision of Integrated Noise Model for General Aviation Jet Aircraft	\$400,000(11)					In Development		J. Navarrete
3: Policy and Planning									
03-01	Light Detection and Ranging (LIDAR) Deployment for Airport Obstructions Surveys	\$350,000(06)	\$350,000	University of Mississippi	1/30/2007	12/31/2009	Completed - Published as Research Results Digest 10		
03-02	Airport Passenger-Related Processing Rates Guidebook	\$200,000(06)	\$200,000	HNTB	1/16/2007	6/30/2009	Completed - Published as Report 23		
03-03	Enhancing Airport Land Use Compatibility	\$500,000(06)	\$500,000	Mead & Hunt, Inc.	12/28/2006	9/15/2009	Completed - Published as Report 27, Volumes 1 and 2		
03-04	Guidebook for Airport-User Survey Methodology	\$250,000(06)	\$249,350	Jacobs Consultancy	1/16/2007	8/31/2009	Completed - Published as Report 26		
03-05	Passenger Space Allocation Guidelines for Planning and Design of Airport Terminals	\$400,000(07)	\$399,928	TransSolutions	6/28/2007	12/31/2010	Completed - Publication Pending	E. Novak	L. Goldstein

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
03-06	Guidebook for Planning and Implementing Automated People Mover Systems at Airports	\$500,000(07)	\$395,341	Lea & Elliott	6/12/2007	3/30/2010	Completed - Published as Report 37		
03-07	A Guidebook for Measuring Performance of People Mover Systems at Airports	\$300,000(07)	\$300,000	Lea & Elliott	6/13/2007	4/30/2011	Research in progress	G. Neumann A. Jan	L. Goldstein
03-08	Passenger Air-Service Development Techniques	\$300,000(07)	\$300,000	InterVISTAS-ga2 Consulting	6/21/2007	5/15/2009	Completed - Published as Report 18		
03-09	Guidebook for Strategic Planning in the Airport Industry	\$425,000(07)	\$321,049	Ricondo & Associates	6/27/2007	6/15/2009	Completed - Published as Report 20		
03-10	Innovative Approaches to Addressing Aviation Capacity Issues in Coastal Mega-Regions	\$300,000(07)	\$300,000	Resource Systems Group, Inc.	2/6/2008	9/30/2009	Completed - Published as Report 31		
03-11	Preservation of Public-Use Airports	\$600,000(08)	\$522,430	L. Robert Kimball & Associates	6/23/2008	1/15/2011	Research in progress	S. Glasgow	L. Goldstein
03-12	Guidebook for Preparing Peak Period and Operational Profiles to Improve Airport Facility Planning and Environmental Analyses	\$350,000(08)	\$347,044	HNTB Corporation	8/13/2008	12/31/2010	Completed - Publication Pending	T. Diana	L. Goldstein
03-13	Understanding Airspace, Objects, and Their Effects on Airports	\$200,000(08)	\$199,938	Jacobs Consultancy	7/11/2008	4/30/2010	Completed - Published as Report 38		
03-14	Airport Passenger Conveyance System Usage/Throughput	\$300,000(08)	\$300,000	Trans Solutions, LLC	8/26/2008	1/15/2011	Research in progress	G. Neumann	L. Goldstein
03-15	Impact of Jet Fuel Price Uncertainty on Airport Planning and Development	\$400,000(09)	\$399,970	GRA, Inc.	3/4/2009	12/31/2010	Completed - Publication Pending	C. Burleson J. Webert C. Lang	L. Goldstein
03-16	Guidebook for Estimating the Economic Impact of Air Cargo at Airports	\$500,000(09)	\$499,860	Battelle Memorial Institute	6/5/2009	2/5/2011	Research in progress	J. Herbert R. Samis	L. Goldstein
03-17	Evaluating Airfield Capacity	\$525,000(09)	\$525,000	LeighFisher	6/29/2009	8/28/2011	Research in progress	A. McCormick	T. Schatz

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
03-18	Operational and Business Continuity Planning for Prolonged Airport Disruptions	\$350,000(10)	\$348,292	Risk Solutions International, LLC	6/3/2010	9/2/2011	Research in progress	L. Valero	T. Schatz
03-19	Passenger Value of Time, Benefit-Cost Analysis, and Capital Investment Decisions	\$350,000(10)	\$349,944	Economic Development Research Group	7/26/2010	11/26/2011	Research in progress	R. Samis D. Walsh	L. Goldstein
03-20	Defining and Measuring Aircraft Delay and Airport Capacity Thresholds	\$250,000(10)	\$250,000	Trans Solutions, LLC	8/30/2010	11/29/2011	Research in progress	E. Hernandez	J. Navarrete
03-21	Developing and Maintaining Support for New Airport Capacity	\$300,000(10)	\$299,980	Mead & Hunt	6/3/2010	9/2/2011	Research in progress	L. Loarte	J. Navarrete
03-22	Addressing Uncertainty About Future Airport Activity Levels in Airport Decision Making	\$350,000(10)	\$350,000	Inter VISTAS Consulting, LLC	7/15/2010	1/14/2012	Research in progress	D. Bhadra P. Devote	L. Goldstein
03-23	Integrating Aviation and Passenger Rail Planning	\$400,000(10)	\$399,452	Resource Systems Group	7/29/2010	1/28/2012	Research in progress	A. Jan	T. Schatz
03-24	Air Cargo Facility Planning and Development	\$400,000(11)					In Development		L. Goldstein
03-25	Analysis of Cumulative Cost Associated with Regulatory Compliance and Its Impact on Small Airport Viability	\$300,000(11)					In Development		T. Schatz
03-26	Airport Choice in Regions with Multiple Airports	\$250,000(11)					In Development		J. Navarrete
03-27	Tools and Techniques for Accurately Counting Aircraft Operations at Airports	\$400,000(11)					In Development		J. Navarrete
4: Safety									
04-01	Analysis of Aircraft Overruns and Undershoots for Runway Safety Areas	\$250,000(06)	\$249,986	Applied Research Associates, Inc.	9/19/2006	1/31/2008	Completed - Published as Report 3		

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
04-02	Lightning-Warning Systems for Use by Airports	\$200,000(06)	\$199,937	MDA Federal, Inc.	11/7/2006	11/7/2008	Completed - Published as Report 8		
04-03	Guidance for Identifying and Mitigating Approach Lighting System Hazards	\$300,000(07)	\$300,000	Virginia Tech	10/3/2007	2/2/2009	Completed - Published as Research Results Digest 6 and Web-Only Document 4		
04-04	Simulation-Based Training and Exercise of Civil Aviation Emergency Response Personnel	\$500,000(07)	\$499,093	Applied Research Associates	9/12/2007	12/31/2011	Research in progress	M. Tonnacliff	S. Parker
04-05	A Guidebook for Airport Safety Management Systems	\$300,000(07)	\$300,000	Applied Research Associates	5/24/2007	5/15/2009	Completed - Published as Report 1, Volume 2		
04-06	A Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports	\$300,000(08)	\$299,905	Biozone	6/2/2008	1/15/2010	Completed - Published as Report 32		
04-07	Comparison of Airport Apron Management and Control Programs With and Without Regulatory Oversight	\$300,000(08)	\$300,000	Ricondo & Associates	5/8/2009	2/7/2011	Research in progress	E. Jarvis R. Moseng	M. Salamone
04-07A	Best Practices for Managing the Use of Towbarless Tractors at Airports	\$300,000(08)	\$38,795	Ricondo & Associates	4/20/2009	1/19/2011	Research in progress	E. Jarvis R. Moseng	M. Salamone
04-08	Improved Models for Risk Assessment of Runway Safety Areas (RSA)	\$400,000(09)	\$400,000	Applied Research Associates	6/8/2009	1/7/2011	Research in progress	M. Hoven	T. Schatz
04-09	Risk Assessment Method to Support Modification of Airfield Separation Standards	\$250,000(09)	\$250,000	Applied Research Associates	6/10/2009	2/16/2011	Research in progress	J. Dermody	M. Greenberger
04-10	Airport-to-Airport Mutual Aid Programs	\$300,000(09A)	\$300,000	Innovative Emergency Management	7/6/2010	1/6/2012	Research in progress	R. Moseng	M. Greenberger
04-11	Integrating Geographic Information Systems into Communications Among Airport and Community EMS Partners	\$350,000(11)					In Development		M. Greenberger

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
04-12	Using Integrated Emergency Data Communication Systems at Airports	\$400,000(11)					In Development		T. Schatz
04-13	Integrating Community Emergency Response Teams at Airports	\$350,000(11)					In Development		M. Greenberger
5: Security									
05-01	An Airport Guide for Regional Emergency Planning for CBRNE Events	\$250,000(06)	\$248,464	System Planning Corp.	11/15/2006	10/31/2008	Completed - Published as Report 12		
6: Human Resources									
06-01	Airport and Air Carrier Resource Manual: Employees Coping with Traumatic Events	\$300,000(07)	\$299,416	University of North Dakota	12/5/2007	5/31/2009	Completed - Published as Report 22		
06-02	Airport Leadership Development Program	\$100,000(10)	\$100,000	Ohio State University	9/29/2010	11/29/2011	Research in Progress	R. Joel	M. Salamone
7: Design									
07-01	Innovations for Airport Terminal Facilities	\$400,000(06)	\$400,000	Corgan Associates, Inc.	12/8/2006	7/8/2008	Completed - Published as Report 10		
07-02	Airport Curbside and Terminal Area Roadway Operations	\$400,000(06) \$150,000(09)	\$528,000	Jacobs Consultancy	11/15/2006	5/19/2010	Completed - Published as Report 40		
07-03	Developing Improved Civil Aircraft Arresting Systems	\$500,000(07)	\$499,455	Protection Engineering Consultants	5/23/2007	10/31/2009	Completed - Published as Report 29		
07-04	Airport Passenger Terminal Planning and Design: Spreadsheet Models and User's Guide	\$400,000(07)	\$400,000	Landrum and Brown	6/6/2007	10/31/2009	Completed - Published as Report 25, Volume 2		

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
07-05	Airport Passenger Terminal Planning and Design: Guidebook	\$400,000(07)	\$400,000	Landrum and Brown	6/28/2007	10/31/2009	Completed - Published as Report 25, Volume 1		
07-06	Airport Signage and Wayfinding Information Guidelines	\$250,000(08)	\$250,000	Gresham, Smith and Partners	8/21/2008	3/1/2011	Research in progress	E. Novak	M. Greenberger
07-07	Evaluating Terminal Renewal Versus Replacement Options	\$400,000(10)	\$400,000	Ricondo & Associates	8/16/2010	11/15/2011	Research in progress	E. Novak	T. Schatz
07-08	Airport Terminal Design for Revenue Generation and Customer Satisfaction	\$500,000(11)					In Development		T. Schatz
8: Construction									
08-01	Sustainable Airport Construction Practices	\$150,000(09)	\$150,000	Ricondo & Associates, Inc.	6/1/2009	6/22/2010	Completed - Publication Pending		
9: Maintenance									
09-01	Guidelines for the Collection and Use of Geospatially Referenced Data for Airfield Pavement Management	\$350,000(06)	\$299,636	Applied Research Associates, Inc.	11/6/2006	4/30/2010	Completed - Published as Report 39		
09-02	Airport Maintenance Research	\$500,000(11)					In Development	T. Mai	M. Greenberger
10: Operations									
10-01	Optimizing the Use of Aircraft Deicing and Anti-Icing Fluids	\$300,000(06) \$ 50,000(08) \$100,000(08)	\$349,030	APS Aviation, Inc.	3/20/2007	7/31/2010	Completed - Publication Pending	G. Legarreta	E. Harrigan
10-02	Planning for Offsite Airport Terminals	\$350,000(06)	\$350,000	MarketSense	12/18/2006	9/1/2009	Completed - Published as Report 35		
10-03	Guidebook for Evaluating Airport Parking Strategies and Supporting Technologies	\$300,000(07)	\$300,000	Jacobs Consultancy	9/14/2007	9/1/2009	Completed - Published as Report 24		

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
10-04	Airports and the Newest Generation of General Aviation Aircraft	\$500,000(07)	\$496,390	GRA, Inc.	6/27/2007	5/31/2009	Completed - Published as Report 17, Volumes 1 and 2		
10-05	Reference Guide on Understanding Common Use at Airports	\$500,000(08)	\$399,981	Barich, Inc.	5/30/2008	9/29/2009	Completed - Published as Report 30		
10-06	Handbook to Assess the Impacts of Constrained Parking at Airports	\$400,000(08)	\$398,563	Ricondo & Associates	6/16/2008	3/8/2010	Completed - Published as Report 34		
10-07	Current Status and Future Implications of Passenger Self-Tagging	\$350,000(09)	\$350,000	Barich, Inc.	6/16/2009	6/16/2010	Completed - Publication pending	R. Henry	M. Greenberger
10-08	Applying Intelligent Transportation Systems to Improve Airport Traveler Access Information	\$350,000(09)	\$350,000	Gresham, Smith and Partners	4/13/2009	4/6/2011	Research in progress	R. Nicosia-Rusin	L. Goldstein
10-09	Elimination of Baggage Recheck for Arriving International Passengers	\$400,000(09)	\$400,000	InterVISTAS-ga2 Consulting	7/22/2009	1/21/2011	Research in progress	P. Lo	T. Schatz
10-10	Guidebook for Airport Irregular Operations (IROPS) Contingency Planning	\$600,000(10)	\$599,976	Mead & Hunt	8/26/2010	2/24/2012	Research in progress	L. Chapman	T. Schatz
10-11	Airport Operations Research	\$500,000(11)					In Development	M. Hovan	M. Greenberger
11: Special Projects									
11-01	Legal Aspects of Airport Programs	\$200,000(06) \$475,000(07) \$300,000(08) \$600,000(09) \$500,000(10) \$ 50,000(11)		Transportation Research Board	2/1/2006		Continuing Project: See 11-01 Table	B. Molar	G. Chisholm

TABLE 5 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
11-02	Quick Response for Special Needs	\$590,000(06) \$467,000(07) \$1,000,000(08) \$25,000(09) \$250,000(10) \$100,000(11)		Various	2/1/2006		Continuing Project: See 11-02 Table	P. Friedman	M. Salamone
11-03	Synthesis of Information Related to Airport Practices	\$500,000(06) \$700,000(07) \$500,000(08) \$500,000(09) \$900,000(10) \$700,000(11)		Transportation Research Board	2/1/2006		Continuing Project: See 11-03 Table		M. Salamone
11-04	Graduate Research Award Program on Public - Sector Aviation Issues	\$100,000(08) \$100,000(09) \$100,000(10) \$140,000(11)					Continuing Project	J. Wharff	L. Goldstein
11-05	Dissemination of ACRP Research Results	\$600,000(10)					In development	J. Showalter	M. Salamone
11-06	Evaluating ACRP Processes	\$250,000(10)					Research in Progress		M. Salamone

TABLE 5 (continued)
ACRP PROJECT 11-01
Legal Aspects of Airport Programs

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
01-01	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters through December 31, 2007	Spiegel & McDiarmid	December 2006	Completed - Published as Legal Research Digest 4 (CD ROM 68)	
01-02	Theory and Law of Airport Revenue Diversion	Paul Dempsey	January 2007	Completed - Published as Legal Research Digest 2	
01-03	Compilation/List of Airport Law Resources	McGill University	January 2007	Completed - Published as Legal Research Digest 1	
01-04	Survey of Airport Laws and Regulation of Commercial Ground Transportation	Smith Armundsen	April 2007	Completed - Published as Legal Research Digest 3	
01-05	Responsibility for Implementation and Enforcement of Airport Land-Use Zoning Restrictions	William V. Cheek & Associates	April 2007	Completed - Published as Legal Research Digest 5	
01-06	The Right to Self-Fuel	C. Daniel Prather Ph.D.	January 2008	Completed - Published as Legal Research Digest 8	
01-07	The Impact of Airline Bankruptcies on Airports	Jocelyn Waite	October 2007	Completed - Published as Legal Research Digest 6	
01-08	Airport Governance and Ownership	Daniel S. Reimer	February 2008	Completed - Published as Legal Research Digest 7	
01-09	Survey of Elements of Disparity Studies for Airport Disadvantaged Business Enterprise Programs			Terminated	
02-01	Obstructions Affecting Navigatable Airspace	Cheek & Associates	July 2008	Incorporated into 02-05	
02-02	Use and Success of Avigation Easement and Other Tools for Airport - Compatible Land Use and Development of Model Language	Lemongrass Consulting	June 2008	Incorporated into 02-05	
02-03	Case Studies on Community Challenges to Airport Development	Jaye Pershing Johnson	October 2008	Completed - Published as Legal Research Digest 9	
02-04	Analysis of Federal Laws, Regulations, and Case Law Regarding Airport Proprietary Rights	Jodi Howich, Esq.	October 2008	Completed - Published as Legal Research Digest 10	

TABLE 5 (continued)

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
02-05	Obstructions Affecting Navigatable Airspace and the Use and Success of Avigation Easements	Jocelyn Waite	August 2010	December 2011	J. McDaniel
03-01	Fair Disclosure of Airport Impacts in Real Estate Transfers	Larry Thomas, Esq.	July 2009	March 2011	J. McDaniel
03-02	Compilation of State Aviation Authorizing Legislation	Jodi Howick, Esq.	August 2009	April 2011	J. McDaniel
03-03	Survey of Minimum Standards for Airport Commercial Operations	Kaplan, Kirsh, Rockwell	July 2009	January 2011	J. McDaniel
03-04	Airport Rates and Charges: Law and Policy	Speigel & McDiarmid	November 2009	Incorporated into 4-05	
03-05	Analyses of State and Federal Regulations that May Impede State Initiatives to Reduce an Airport's Carbon Footprint	Kaplan, Kirsh, Rockwell	November 2009	March 2011	J. McDaniel
03-06	An Index and Digest of Decisions in LRD 1	Kaplan, Kirsh, Rockwell	December 2009	June 2011	J. McDaniel
04-01	Airport Liability for Wildlife Management			In development	G. Chisholm
04-02	Legal Issues Related to Developing SMS and SMRD Documents Which May be Available to the Public			In development	G. Chisholm
04-03	Analysis of Federal Laws, Regulations, Case Law, and Survey of Existing Airport NPDES Permits Regarding Tenant-Operator Responsibilities Under NPDES and Storm Water Management BMP's Under Owner/Airport's Operating Permits			In development	G. Chisholm
04-04	Buy America Requirements for Federally Funded Airports			In development	G. Chisholm
04-05	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters, through December 2009			In development	G. Chisholm
04-06	Legal Requirements for Purpose and Need			In development	G. Chisholm
04-07	Airport Contracting Survey of Federal and State Standards			In development	G. Chisholm

TABLE 5 (continued)
ACRP PROJECT 11-02
Quick Response for Special Needs

No.	Title	Contractor	Start Date	End Date	Status	Staff Officer
Task 01	Model for Improving Energy Use in U.S. Airport Facilities	Texas A&M Energy Systems Laboratory	10/13/2006	7/31/2007	Completed - Published as Research Results Digest 2	
Task 02	Ground Access to Major Airports by Public Transportation	Matthew Coogan	8/16/2006	9/30/2007	Completed - Published as Report 4	
Task 03	Evaluation and Mitigation of Aircraft Slide Evacuation Injuries	George Washington University	10/9/2006	12/15/2007	Completed - Published as Report 2	
Task 04	Airport Safety Management Systems for Airports: Overview	MITRE Corporation	1/2/2007	11/2/2007	Completed - Published as Report 1, Volume 1	
Task 05	Quarantine Facilities for Arriving Air Travelers: Identification of Planning Needs and Costs	System Planning Corp.	3/28/2007	11/3/2007	Completed - Published as Report 5	
Task 06	Interagency-Industry Collaboration on Pandemic Planning for Aviation: A Workshop	TRB Technical Activities Division	2/15/2007	9/15/2007	Completed - Workshop Held - Results Published as TRB Conference Proceedings 41	
Task 07	Current and Emerging Issues Facing the Airport Industry	TRB Staff	8/1/2007	1/31/2009	Completed - Published as Research Results Digest 5	
Task 08	Enhanced Modeling of Aircraft Taxiway Noise - Scoping	Wyle Laboratories	2/14/2008	8/31/2009	Completed - Published as Web-Only Document 9	
Task 09	Visibility of Airfield Signs and Markings from Aircraft and Ground Vehicles				Cancelled	
Task 10	Estimate of National Use of Aircraft and Airfield Deicing Materials	CH2M Hill	10/16/2007	6/15/2008	Completed - Results to ACI-NA, AAAE, ATA	
Task 11	A Summary of How Proposed Firefighting Standards Would Impact Airports	GRA	12/23/2008	6/15/2009	Completed - Published as Web Document 7 and Research Results Digest 7	
Task 12	Ramp Incident Data from Selected Large and Medium Hub Airports	Ricondo & Associates	4/17/2009	1/16/2011	Research in Progress	M. Salamone
Task 13	Research Symposium on the Transmission of Disease in Airports and on Aircraft				Completed - Symposium Held - Results Published as Conference Proceedings 47	

TABLE 5 (continued)

No.	Title	Contractor	Start Date	End Date	Status	Staff Officer
Task 14	Helping Airports Understand the Payment Card Industry Data Protection Standard (PCI DSS)	Barich, Inc.	10/15/2009	5/15/2010	Completed - Published as Research Results Digest 11	
Task 15	Aviation Industry Familiarization and Training for Part-Time Airport Policymakers	Delta Aviation Consultants	1/19/2010	11/18/2010	Completed - Publication Pending	M. Salamone
Task 16	Analysis, Scoping, and Prioritizing ACRP Deicing Problem Statements				Cancelled	
Task 17	Risk Assessment of Proposed ARFF Standards	Robert David & Assoc.	2/19/2010	11/15/2010	Completed - Publication Pending	M. Greenberger
Task 18	Primer on Carbon Credits and Revenue Opportunities for Airports				In Development	J. Navarrete
Task 19	Symposium on Air Travel and the Spread of Disease				In Development	J. Navarrete

TABLE 5 (continued)**ACRP PROJECT 11-03
Synthesis of Information Related to Airport Practices**

No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
1: Administration						
S01-01	Innovative Finance and Alternative Sources of Revenue for Airports	Jacobs Consultancy	July 2006	Completed - Published as Synthesis 1		
S01-02	Airport Revenue Diversification	Lois Kramer, Kramer Aerotek	March 2009	Completed - Published as Synthesis 19		
S01-03	Airport Insurance Coverage and Risk Management Practices	Ron Rakich & Assoc.	April 2010	Research in progress	T. Felix	G. Staba
S01-04	Airline and Airport-Airline Consortiums	AvAir Pros	April 2010	Research in progress	A. Toney	G. Staba
2: Environment						
S02-01	Effects of Airport Noise: Research Update on Selected Topics	Mestre Greve Associates	March 2007	Completed - Published as Synthesis 9		
S02-02	Airport Sustainability Practices	Arup	March 2007	Completed - Published as Synthesis 10		
S02-03	Compilation of Noise Programs in Areas Outside DNL 65	HMMH	April 2008	Completed - Published as Synthesis 16		
S02-04	Approaches to Integrating Airport Development and Federal Environmental Review Processes	RS & H / Synergy	April 2008	Completed - Published as Synthesis 17		
S02-05	Funding Opportunities for Airport Environmental Projects	Unison Consulting	April 2010	Research in progress	T. Bennett S. Urlass	G. Staba
3: Policy and Planning						
S03-01	Aviation Forecasting Methodologies	GRA, Inc.	August 2006	Completed - Published as Synthesis 2		
S03-02	Airport Ground Access Mode Choice Models	Aviation Systems Consulting	October 2006	Completed - Published as Synthesis 5		
S03-03	Airport Economic Impact Methods and Models	Hoyle Tanner & Associates	March 2007	Completed - Published as Synthesis 7		

TABLE 5 (continued)

No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
S03-04	Airport System Planning Practices	Wilbur Smith Associates	April 2008	Completed - Published as Synthesis 14		
S03-05	Effective Practices for Preparing Airport Improvement Program Benefit Cost Analysis	EDRG	April 2008	Completed - Published as Synthesis 13		
S03-06	Adaptive Reuse of Vacated On-Airport Facilities	Kramer Aerotek, Inc.	April 2010	Research in progress	D. Cushing	G. Staba
4: Safety						
S04-01	General Aviation Safety and Security Practices	Reynolds, Smith and Hills, Inc.	October 2006	Completed - Published as Synthesis 3		
S04-02	Preventing Aircraft-Vehicle Incidents During Winter Operations and Periods of Low Visibility	Bowling Green State University	June 2007	Completed - Published as Synthesis 12		
S04-03	Identification of the Requirements and Training to Obtain Driving Privileges on Airfields	Airport Safety Consultants	May 2008	Completed - Published as Synthesis 15		
S04-05	Bird Repellant Techniques on Airports	Mississippi St. Univ.	April 2010	Research in progress	J. Weller	G. Staba
S04-06	Current Airport Practices Regarding FOD and Wildlife Hazard Inspection	Prather Airport Solutions	April 2010	Research in progress	T. Halpin	G. Staba
5: Security						
S05-01	Intelligent Transportation System (ITS) Sensor Technology for General Aviation			CANCELLED		
6: Human Resources						
S06-01	Aviation Workforce Development Practices	International Aviation Management Group	March 2009	Completed - Published as Synthesis 18		
S06-02	Airport Self Inspection Conditions Reporting Training Practices	Prather Airport Solutions	May 2010	Research in progress	D. Cushing	G. Staba
8: Construction						
S08-01	Airport Terminal Facility Activation Techniques	Arup	March 2009	Completed - Published as Synthesis 20		

TABLE 5 (continued)

No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
9: Maintenance						
S09-01	Impact of Rubber Removal Techniques on Runways	University of Oklahoma	June 2007	Completed - Published as Synthesis 11		
S09-02	Common Airport Pavement Maintenance Practices	Applied Research Associates	March 2009	Research in progress	P. Friedman	G. Staba
10: Operations						
S10-01	Counting Aircraft Operations at Non-Towered Airports	Aerofinity	October 2006	Completed - Published as Synthesis 4		
S10-02	Common-Use Facilities and Equipment at Airports	Barich, Inc.	March 2007	Completed - Published as Synthesis 8		
S10-03	Impact of Airport Deicing Products on Aircraft and Airfield Infrastructure	Montana State University, Western Transportation Institute	March 2007	Completed - Published as Synthesis 6		
S10-04	Airport Energy Efficiency and Cost Reduction	Miller Dunwiddie Architecture	March 2009	Completed - Published as Synthesis 21		
S10-05	Ground Handling Training and Practices	Landry Consultants, LLC	May 2010	Research in progress	B. Landry	G. Staba
S10-06	Developing Energy Technologies and Their Effects on Airports	Harris, Miller, Miller & Hanson	May 2010	Research in progress	D. Cushing T. Mai	G. Staba

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