

AIRPORT COOPERATIVE RESEARCH PROGRAM

# ACRP

SPONSORED BY THE FEDERAL AVIATION ADMINISTRATION



Annual Report  
of Progress

**2007**

TRANSPORTATION RESEARCH BOARD  
OF THE NATIONAL ACADEMIES

HE  
9797.5  
.U5  
A377  
2007

HE  
9797.5  
.US  
A377  
2007

--- 35375

**OVERSIGHT COMMITTEE\***

**MAR 27 2008**

Fielding  
Independent Consultant

**CHAIR**

Michael  
Minneapolis-St. Paul  
Metropolitan Airports Commission

**MEMBERS**

**James Crites**  
Dallas-Fort Worth International Airport  
**Richard de Neufville**  
Massachusetts Institute of Technology  
**Kevin C. Dolliole**  
UCG Associates  
**John K. Duval**  
Beverly Municipal Airport  
**Angela Gittens**  
HNTB Corporation  
**Steve Grossman**  
Oakland International Airport  
**Tom Jensen**  
National Safe Skies Alliance  
**Catherine M. Lang**  
Federal Aviation Administration  
**Gina Marie Lindsey**  
Los Angeles World Airports  
**Carolyn Motz**  
Hagerstown Regional Airport  
**Richard Tucker**  
Huntsville International Airport

**EX OFFICIO MEMBERS**

**Sabrina Johnson**  
U.S. Environmental Protection Agency  
**Richard Marchi**  
Airports Council International—North America  
**John M. Meenan**  
Air Transport Association of America  
**Henry Ogrodzinski**  
National Association of State Aviation Officials  
**Melissa Sabatine**  
American Association of Airport Executives  
**Robert E. Skinner, Jr.**  
Transportation Research Board

**SECRETARY**

**Christopher W. Jenks**  
Transportation Research Board

\*Membership as of November 2007.

**TRANSPORTATION RESEARCH BOARD 2007 EXECUTIVE COMMITTEE\***

**OFFICERS**

**CHAIR:** Linda S. Watson, CEO, LYNX—Central Florida Regional Transportation Authority, Orlando  
**VICE CHAIR:** Debra L. Miller, Secretary, Kansas DOT, Topeka  
**EXECUTIVE DIRECTOR:** Robert E. Skinner, Jr., Transportation Research Board

**MEMBERS**

**J. Barry Barker**, Executive Director, Transit Authority of River City, Louisville, KY  
**Michael W. Behrens**, Executive Director, Texas DOT, Austin  
**Allen D. Biehler**, Secretary, Pennsylvania DOT, Harrisburg  
**John D. Bowe**, President, Americas Region, APL Limited, Oakland, CA  
**Larry L. Brown, Sr.**, Executive Director, Mississippi DOT, Jackson  
**Deborah H. Butler**, Vice President, Customer Service, Norfolk Southern Corporation and Subsidiaries, Atlanta, GA  
**Anne P. Canby**, President, Surface Transportation Policy Partnership, Washington, DC  
**Nicholas J. Garber**, Henry L. Kinnier Professor, Department of Civil Engineering, University of Virginia, Charlottesville  
**Angela Gittens**, Vice President, Airport Business Services, HNTB Corporation, Miami, FL  
**Susan Hanson**, Landry University Professor of Geography, Graduate School of Geography, Clark University, Worcester, MA  
**Adib K. Kanafani**, Cahill Professor of Civil Engineering, University of California, Berkeley  
**Harold E. Linnenkohl**, Commissioner, Georgia DOT, Atlanta  
**Michael D. Meyer**, Professor, School of Civil and Environmental Engineering, Georgia Institute of Technology, Atlanta  
**Michael R. Morris**, Director of Transportation, North Central Texas Council of Governments, Arlington  
**John R. Njord**, Executive Director, Utah DOT, Salt Lake City  
**Pete K. Rahn**, Director, Missouri DOT, Jefferson City  
**Sandra Rosenbloom**, Professor of Planning, University of Arizona, Tucson  
**Tracy L. Rosser**, Vice President, Corporate Traffic, Wal-Mart Stores, Inc., Bentonville, AR  
**Rosa Clausell Rountree**, Executive Director, Georgia State Road and Tollway Authority, Atlanta  
**Henry G. (Gerry) Schwartz, Jr.**, Senior Professor, Washington University, St. Louis, MO  
**C. Michael Walton**, Ernest H. Cockrell Centennial Chair in Engineering, University of Texas, Austin  
**Steve Williams**, Chairman and CEO, Maverick Transportation, Inc., Little Rock, AR

**EX OFFICIO MEMBERS**

**Thad Allen** (Adm., U.S. Coast Guard), Commandant, U.S. Coast Guard, Washington, DC  
**Thomas J. Barrett** (Vice Adm., U.S. Coast Guard, ret.), Pipeline and Hazardous Materials Safety Administrator, U.S.DOT  
**Joseph H. Boardman**, Federal Railroad Administrator, U.S.DOT  
**Rebecca M. Brewster**, President and COO, American Transportation Research Institute, Smyrna, GA  
**Paul R. Brubaker**, Research and Innovative Technology Administrator, U.S.DOT  
**George Bugliarello**, Chancellor, Polytechnic University of New York, Brooklyn, and Foreign Secretary, National Academy of Engineering, Washington, DC  
**J. Richard Capka**, Federal Highway Administrator, U.S.DOT  
**Sean T. Connaughton**, Maritime Administrator, U.S.DOT  
**Edward R. Hamberger**, President and CEO, Association of American Railroads, Washington, DC  
**John H. Hill**, Federal Motor Carrier Safety Administrator, U.S.DOT  
**John C. Horsley**, Executive Director, American Association of State Highway and Transportation Officials, Washington, DC  
**J. Edward Johnson**, Director, Applied Science Directorate, National Aeronautics and Space Administration, John C. Stennis Space Center, MS  
**William W. Millar**, President, American Public Transportation Association, Washington, DC  
**Nicole R. Nason**, National Highway Traffic Safety Administrator, U.S.DOT  
**Jeffrey N. Shane**, Under Secretary for Policy, U.S.DOT  
**James S. Simpson**, Federal Transit Administrator, U.S.DOT  
**Carl A. Strock** (Lt. Gen., U.S. Army), Chief of Engineers and Commanding General, U.S. Army Corps of Engineers, Washington, DC  
**Robert A. Sturgell**, Acting Administrator, Federal Aviation Administration, U.S.DOT

\*Membership as of October 2007.

AIRPORT COOPERATIVE RESEARCH PROGRAM

ACRP

Annual Report  
of Progress  
**2007**

---

Research sponsored by the Federal Aviation Administration

---

**TRANSPORTATION RESEARCH BOARD**

WASHINGTON, D.C.

2007

[www.TRB.org](http://www.TRB.org)

## COOPERATIVE RESEARCH PROGRAMS STAFF

### **Director**

Christopher W. Jenks

### **Deputy Director**

Crawford F. Jencks

### **Senior Program Officers**

David B. Beal

Gwen Chisholm Smith

Robert E. David

B. Ray Derr

Lawrence D. Goldstein

Amir N. Hanna

Edward T. Harrigan

Christopher Hedges

Andrew C. Lemer

Charles W. Niessner

S. A. Parker

David A. Reynaud

William C. Rogers

Michael R. Salamone

Dianne S. Schwager

Nanda Srinivasan

Lori L. Sundstrom

### **Administrative Coordinator**

Brenda S. Douple

### **Administrative Assistant**

Cynthia E. Butler

### **Program Associate**

Sheila A. Moore

### **Senior Program Assistants**

Adrienne C. Blackwell

Joseph J. Brown-Snell

Rachel Diaz

Stella Dorn

Patricia Heard

Thu M. Le

Danna Powell

Charlotte Thomas

### **Program Assistant**

Megan Chamberlain

### **Director of Publications**

Eileen P. Delaney

### **Senior Editor**

Hilary Freer

### **Editors**

Natalie Barnes

Margaret Hagood

### **Assistant Editors**

Ellen M. Chafee

Maria Crawford

### **Financial and Contractual Officer**

Melissa N. Gollub

### **Financial Associates**

Sharon J. C. Greaver

Daniel R. B. Somerset

### **Senior Accounting/Financial Assistant**

Anthony T. Bailey

### **Accounting/Financial Assistant**

Kwame Obeng

### **Information Technology Specialist**

Roy N. Mesler

# THE NATIONAL ACADEMIES

## *Advisers to the Nation on Science, Engineering, and Medicine*

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](http://www.TRB.org)

[www.national-academies.org](http://www.national-academies.org)



## **CONTENTS**

### **Second Annual Report of Progress, 1**

- Background, 1
- Program Participants, 1
- Selection of Research, 2
- Program Management, 3
- Project Panels, 3
- Selection of Contractors, 3
- Funding, 4
- Products, 4
- Status, 4

### **ACRP Project Status, 9**

- Summary of Project Status Through December 31, 2007, 11

### **Address and Contact Information, 21**

\*\*\*

The cover photograph of security gates at Minneapolis–St. Paul International Airport is courtesy of the Metropolitan Airports Commission.





## AIRPORT COOPERATIVE RESEARCH PROGRAM

# Second Annual Report of Progress

December 31, 2007

### 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 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 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. 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.

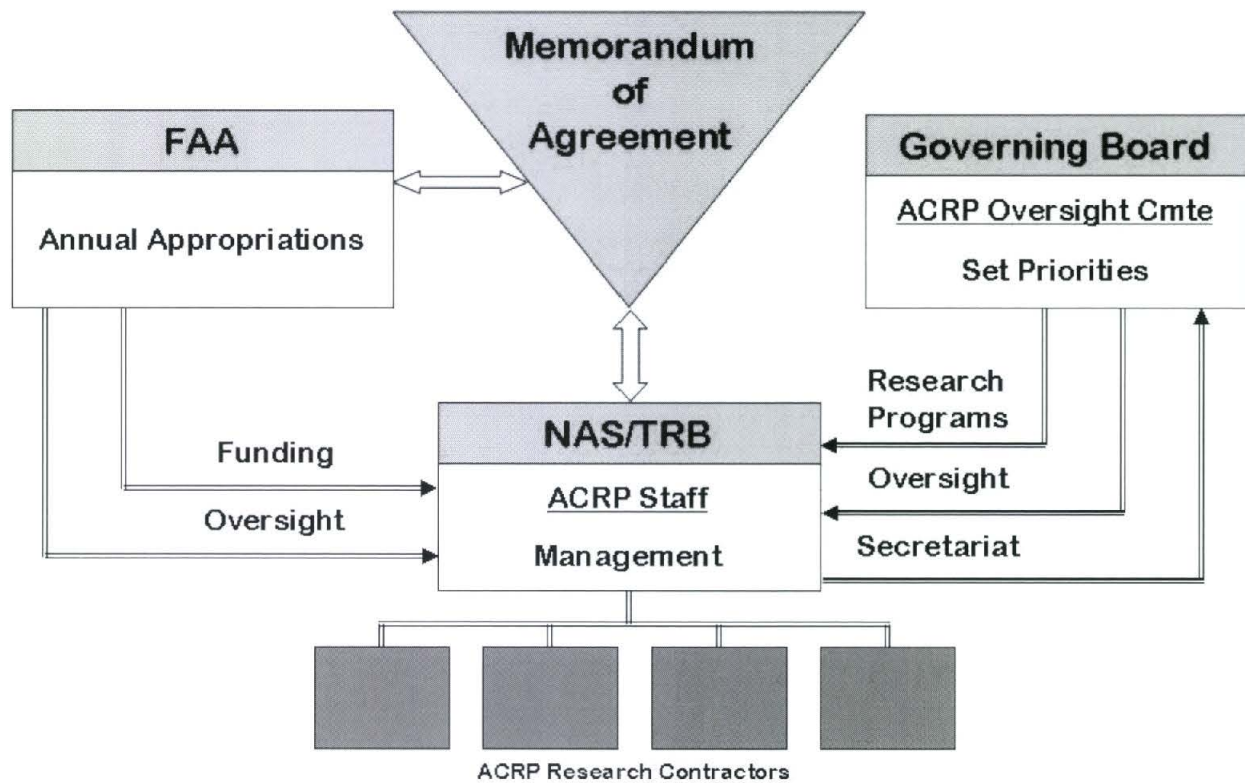
### PROGRAM PARTICIPANTS

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), 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  
Airport Cooperative Research Program  
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 Transit 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 (FY) 2004 through 2007. 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 and FY 2007, \$10 million was appropriated for each. An additional \$10 million is anticipated for FY 2008. Funding beyond FY 2007, 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.

A total of 85 projects have been authorized to date in the ACRP (54 regular projects, 12 syntheses, 9 legal research projects, and 10 “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 2007 is shown in Table 1.

**Table 1. Distribution of Projects and Syntheses by Research Field Through December 31, 2007**

Research Fields	Number of Projects	Number of Syntheses
1. Administration	8	1
2. Environment	10	2
3. Policy and Planning	14	3
4. Safety	6	2
5. Security	1	0
6. Human Resources	1	0
7. Design	6	0
8. Construction	0	0
9. Maintenance	1	1
10. Operations	6	3

Table 2 shows the origin of potential research topics (i.e., problem statements) submitted through the FY 2008 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 2005/2006		FY 2007		FY 2008		SELECTED TO DATE	
	NO.	%	NO.	%	NO.	%	NO.	%
Airport Operator	23	20.0	9	13.2	16	11.5	9	16.6
State DOT	13	11.3	5	7.4	8	5.8	3	5.6
FAA	0	0.0	0	0.0	8	5.8	6	11.1
Industry Association Staff/Committee	13	11.3	2	2.9	11	7.9	10	18.5
TRB Committee	1	0.9	0	0.0	6	4.3	4	7.4
Industry	1	0.9	6	8.8	23	16.5	2	3.8
University	30	26.1	15	22.1	22	15.8	6	11.1
Consultant	29	25.2	26	38.2	30	21.6	9	16.6
Other	5	4.3	5	7.4	15	10.8	5	9.3
Totals	115	100	68	100	139	100	54	100

Table 3 displays project panel composition by affiliation, race, and gender through the FY 2007 research program (FY 2008 project panels have not yet been formed as of this writing). Over 265 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**  
(40 Project Panels, 267 Members)

	No.	%
<b>AFFILIATION</b>		
Airport Operator	128	47.9
State Gov't	9	3.4
Local Gov't/MPO	6	2.3
Federal Gov't	8	3.0
Industry/Consultants/Private Sector	89	33.3
University	22	8.2
Association	5	1.9
<b>RACE *</b>	Members/Chairs	Members/Chairs
White	168/33	80.0/82.5
Minorities	42/7	20.0/17.5
<b>GENDER</b>	Members/Chairs	Members/Chairs
Male	174/30	76.7/75.0
Female	53/10	23.3/25.0

\*17 not responding

The following ACRP activities of particular interest were completed during 2007. Table 4 provides a summary of all ACRP research projects selected, along with their status as of December 31, 2007.

### **Innovative Airport Financing and Revenue Sources**

*ACRP Synthesis 1: Innovative Finance and Alternative Sources of Revenue for Airports* describes alternative financing options and revenue sources currently available or that could be available in the United States. It provides a brief overview of common capital funding sources used by airport operators, a review of capital financing mechanisms used by airports, descriptions of various revenue sources developed by airport operators, and a review of privatization options available to U.S. airport operators.

### **Airport Safety Management Systems**

*ACRP Report 1, Volume 1: Safety Management Systems for Airports: Overview* provides a brief description of a safety management system (SMS) and is intended to be an easy-to-read, quick introduction to SMS for airport directors and their governing boards. It describes the advantages associated with instituting such a system and explains the four components or pillars (safety policy, safety risk management, safety assurance, and safety promotion) that are part of an SMS. The report also provides background information on the International Civil Aviation Organization's requirements for SMS at airports and relates the experiences of airports located outside the United States in implementing SMS.

This report represents Step 1 of a two-step process that ACRP is undertaking regarding SMS. The second step is to develop for airport operators *A Guidebook for Airport Safety Management Systems* under ACRP Project 04-05. This guidebook will provide detailed information on how to develop SMS at an airport. This guidebook is expected to be completed in the last quarter of 2008 and published in 2009.

### **Energy Use in U.S. Airports**

*ACRP Research Results Digest 2: Model for Improving Energy Use in U.S. Airport Facilities* describes industry best practices for airport managers to help curb energy expenses in airport facilities. The digest provides the results of a nationwide survey of airport energy-related operations and maintenance (O&M), building recommissioning, and energy conservation improvement practices for airports of various sizes.

## **Airport Planning**

*ACRP Synthesis 2: Airport Aviation Activity Forecasting* reviews current practices and methods in airport activity forecasting in the United States. The synthesis addresses how airport forecasts are used and identifies common aviation metrics, aviation data sources, issues in data collection and preparation, and special data issues at non-towered airports. It includes an overview and discussion of available forecasting methods, including primary statistical methods, market share analysis, econometric modeling, and time series modeling. The synthesis focuses on appropriate forecasting methods, providing examples of actual airport forecasting studies. Evaluation of forecasts is also provided, including assessments of forecast uncertainty, accuracy, issues of optimism bias, and options for resolving differences when multiple forecasts are available.

*ACRP Synthesis 4: Counting Aircraft Operations at Non-Towered Airports* identifies and evaluates the different methods used by states, airports, and metropolitan planning agencies to count and estimate aircraft operations at non-towered airports with the goal of identifying best practices. The synthesis also identifies new technologies that can be used for these counts and estimates.

## **General Aviation Airports**

*ACRP Synthesis 3: General Aviation Safety and Security Practices* identifies current practices in safety and security at general aviation airports. It reviews resources used by the general aviation community in the development of safety and security programs, funding sources and issues that determine the amount of money spent on such programs, and describes current practices that general aviation airports use to keep their facilities safe and secure.



AIRPORT COOPERATIVE RESEARCH PROGRAM

**ACRP**  
Project Status



**TABLE 4 SUMMARY OF PROJECT STATUS THROUGH DECEMBER 31, 2007**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
<b>1: Administration</b>									
01-01	Guidebook for Managing Small Airports	\$400,000(06)	\$397,230	University of Minnesota	9/19/2006	10/23/2008	Research in Progress	P. Friedman S. Glasgow	M. Salamone
01-02	Guidebook for Developing and Managing Airport Contracts	\$400,000(07)	\$315,000	HNTB	4/24/2007	6/23/2008	Research in Progress	K. Willis	M. Salamone
01-03	Analysis and Recommendations for Developing Integrated Airport Information Systems	\$300,000(07)	\$300,000	Aero Tech Consulting	8/10/2007	9/10/2008	Research in Progress	D. Suomi	M. Salamone
01-04	Marketing Techniques for Small Airports	\$200,000(07)	\$200,000	Eclat Consulting	10/26/2007	10/25/2008	Research in Progress	S. Glasgow	M. Salamone
01-05	Guidebook for Airport Capital Delivery Systems	\$100,000(07) \$25,000 (08)		Northeastern University	4/4/2007	7/4/2008	Research in Progress	K. Jacobs	R. David
01-06	A Guidebook for Developing an Airport Performance Measurement System	\$400,000(08)					In development	D. Fish	M. Salamone
01-07	Airport - Airline Agreements and Rate Methodologies - Trends and Characteristics	\$400,000(08)					In development	A. Toney	M. Salamone
01-08	Developing Best Management Practices - Airport Leasing Policy Metrics for Evaluating Private Investments on Airports	\$400,000(08)					In development	K. Willis	L. Goldstein
<b>2: Environment</b>									
02-01	Alternative Aircraft and Airfield Deicing and Anti-Icing Formulations with Reduced Aquatic Toxicity and Biological Oxygen Demand	\$600,000(06)	\$600,000	University of South Carolina	11/1/2006	10/31/2008	Research in Progress	G. Legarreta P. Friedman	E. Harrigan

**TABLE 4 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-02	Managing Runoff from Aircraft and Airfield Deicing and Anti-Icing Operations	\$300,000(06)	\$265,000	CH2M Hill	10/9/2006	2/29/2008	Research in Progress	G. Legarreta P. Friedman	M. Salamone
02-03	Aircraft and Airport-Related Hazardous Air Pollutants Research Needs and Analysis	\$600,000(06)	\$100,000	Aerodyne Research, Inc.	12/19/2006	12/18/2007	Completed - Publication Pending	M. Gupta	C. Gerencher
02-04	Research Needs Associated with Particulate Emissions at Airports	\$100,000(06)	\$99,897	Environmental Consulting Group, Inc.	12/1/2007	12/15/2007	Completed - Publication Pending	C. Ma	C. Gerencher
02-04A	Summarizing and Interpreting Aircraft Gaseous and Particulate Emissions Data	\$350,000(07)	\$349,470	University of Missouri-Rolla	4/12/2007	4/11/2008	Research in Progress	C. Ma	C. Gerencher
02-05	Guidebook on Community Responses to Aircraft Noise	\$500,000(07)	\$399,982	Landrum & Brown	4/20/2007	10/19/2008	Research in Progress	M. Marson J. Plante	M. Salamone
02-06	Airport Implications of Climate Change Issues	\$200,000(07)	\$199,403	Wyle Laboratories	10/9/2007	9/8/2008	Research in Progress	M. Locke	R. David
02-07	Handbook for Analyzing the Costs and Benefits of Alternative Turbine Engine Fuels at Airports	\$500,000(07)	\$499,960	CSSI, Inc.	11/1/2007	5/1/2009	Research in Progress	L. Maurice	R. David
02-08	Quantifying Contributions to Local Air Quality Impacts from Airport-Related Emissions	\$600,000(08)					In development	M. Gupta J. Plante	L. Goldstein
02-09	Developing a Comprehensive Work Plan for a Multimodel Noise and Emissions Model	\$200,000(08)					In development	L. Maurice	L. Goldstein
<b>3: Policy and Planning</b>									
03-01	Light Detection and Ranging (LIDAR) Deployment for Airport Obstructions Surveys	\$350,000(06)	\$350,000	University of Mississippi	12/8/2006	1/29/2009	Research in Progress	E. Hunnicutt	A. Lemer
03-02	U.S. Airport Passenger-Related Processing Rates	\$200,000(06)	\$200,000	HNTB	9/19/2006	1/15/2008	Research in Progress	E. Novak	M. Salamone

TABLE 4 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
03-03	Enhancing Airport Land Use Compatibility	\$500,000(06)	\$500,000	Mead & Hunt, Inc.	12/28/2006	12/27/2008	Research in Progress	P. Friesenhahn A. Jan L. Pagnanelli	M. Salamone
03-04	Guidebook for Airport-User Survey Methodology	\$250,000(06)	\$249,350	Jacobs Consultancy	1/16/2007	6/15/2008	Research in Progress	L. Pagnanelli	M. Salamone
03-05	Passenger Space Allocation Guidelines for Planning and Design of Airport Terminals	\$400,000(07)	\$399,928	TransSolutions	6/28/2007	9/28/2008	Research in Progress	E. Novak	R. David
03-06	Guidebook for Planning and Implementing Automated People Mover Systems at Airports	\$500,000(07)	\$395,341	Lea & Elliott	6/12/2007	6/11/2009	Research in Progress	G. Neumann A. Jan	L. Goldstein
03-07	A Guidebook for Measuring Performance of People Mover Systems at Airports	\$300,000(07)	\$300,000	Lea & Elliott	6/13/2007	7/12/2009	Research in Progress	G. Neumann A. Jan	L. Goldstein
03-08	Passenger Air-Service Development Techniques	\$300,000(07)	\$300,000	Inter VISTAS-ga2 Consulting	6/21/2007	12/20/2008	Research in Progress	S. Glasgow	M. Salamone
03-09	Guidebook for Strategic Planning in the Airport Industry	\$425,000(07)	\$321,049	Ricondo & Associates	10/3/2007	4/2/2009	Research in Progress	C. Everett B. Rakoff	M. Salamone
03-10	Innovative Approaches to Addressing Aviation Capacity Issues in Coastal Mega-Regions	\$300,000(07)	\$300,000	Resource Systems Group, Inc.	11/15/2007	11/15/2008	Research in Progress	C. Everett	R. David
03-11	Preservation of Public-Use Airports	\$600,000(08)					In development	S. Glasgow	R. David
03-12	Guidelines for Preparing Peak Period and Operational Profiles to Improve Airport Facility Planning and Environmental Analyses	\$350,000(08)					In development	T. Diana	L. Goldstein
03-13	Understanding Airspace Analysis Tools for Airport Planning	\$200,000(08)					In development	E.C. Hunnicut L. Pagnanelli	R. David
03-14	Airport Passenger Conveyance System Usage/Throughput	\$300,000(08)					In development	G. Neumann	L. Goldstein

TABLE 4 (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
<b>4: Safety</b>									
04-01	Aircraft Overrun and Undershoot Analysis for Runway Safety Areas	\$250,000(06)	\$249,986	Applied Research Associates, Inc.	9/19/2006	10/17/2007	Completed - Publication Pending	K. Jacobs	M. Salamone
04-02	Lightning-Warning Systems for Use by Airports	\$200,000(06)	\$199,937	MDA Federal, Inc.	11/7/2006	11/7/2008	Research in Progress	T. Mai	C. Niessner
04-03	Guidebook for Approach Light System Hazard Assessment and Mitigation	\$300,000(07)	\$300,000	Virginia Tech	10/3/2007	11/2/2008	Research in Progress	H. Cyrus D. Evans deMaria	R. David
04-04	Simulation-Based Training and Exercise of Civil Aviation Emergency Response Personnel	\$500,000(07)	\$399,067	Applied Research Associates	9/12/2007	12/11/2009	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	9/23/2008	Research in Progress	D. Adams	R. David
04-06	Analysis and Best Management Practices for the Prevention of Wildlife Strikes at Small Airports	\$300,000(08)					In development	M. Hovan	R. David
<b>5: Security</b>									
05-01	Guidance for Developing Regionally Coordinated Airport Emergency Plans for CBRNE Events	\$250,000(06)	\$248,464	System Planning Corp.	11/19/2008	1/31/2008	Research in Progress	P. Friedman	S. Parker
<b>6: Human Resources</b>									
06-01	Airport and Air Carrier Resource Manual: Employees Coping with Traumatic Events	\$300,000(07)	\$299,416	University of North Dakota	12/1/2007	1/1/2009	Research in Progress	E. Dorsett	M. Salamone

**TABLE 4 (continued)**

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
<b>7: Design</b>									
07-01	New Concepts for Airport Terminal Landside Facilities	\$400,000(06)	\$400,000	Corgan Associates, Inc.	12/8/2006	7/8/2008	Research in Progress	P. Sullivan	M. Salamone
07-02	Airport Curbside and Terminal-Area Roadway Operations	\$400,000(06)	\$400,000	Jacobs Consultancy	11/15/2006	7/9/2008	Research in Progress	P. Sullivan	R. Derr
07-03	Developing Improved Civil Aircraft Arresting Systems	\$500,000(07)	\$499,455	Protection Engineering Consultants	5/23/2007	4/23/2009	Research in Progress	M. Hovan R. King	R. David
07-04	Spreadsheet Models for Airport Terminal Planning and Design	\$400,000(07)	\$400,000	Landrum and Brown	6/6/2007	12/5/2008	Research in Progress	T. Wade E. Novak	R. David
07-05	Airport Passenger Terminal Planning Guidebook	\$400,000(07)	\$400,000	Landrum and Brown	6/28/2007	2/28/2009	Research in Progress	K. Hudson E. Novak	R. David
07-06	Airport Signage and Wayfinding Information Guidelines	\$250,000(08)					In development	E. Novak	R. David
<b>9: Maintenance</b>									
09-01	Guidelines for the Collection and Use of Geospatially Referenced Data for Airfield Pavement Management	\$350,000(06)	\$149,998	Applied Research Associates, Inc.	11/6/2006	4/5/2008	Research in Progress	R. Joel	A. Hanna
<b>10: Operations</b>									
10-01	Optimizing the Use of Aircraft Deicing and Anti-Icing Fluids	\$300,000(06)	\$288,792	APS Aviation, Inc.	3/20/2007	1/18/2009	Research in Progress	G. Legarreta	E. Harrigan
10-02	Planning Guide for Offsite Terminals	\$350,000(06)	\$350,000	MarketSense	12/18/2006	1/15/2008	Research in Progress	P. Friedman	M. Salamone
10-03	Evaluating Airport Parking Strategies and Supporting Technologies	\$300,000(07)	\$300,000	Jacobs Consultancy	9/14/2007	11/13/2008	Research in Progress	P. Friedman	M. Salamone

TABLE 4 (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.	8/18/2007	2/18/2009	Research in Progress	L. Pagnanelli P. LeBoff D. Taylor	M. Salamone
10-05	Improved Understanding of Common Use Facilities at Airports	\$500,000(08)					In development	G. Neumann	M. Salamone
10-06	Effects of Constrained Public and Employee Parking on Airport Access	\$400,000(08)					In development	P. Sullivan	R. David
<b>11: Special Projects</b>									
11-01	Legal Aspects of Airport Programs	\$200,000(06) \$475,000(07) \$300,000(08)		Transportation Research Board	2/1/2006		Continuing Project: See 11-01 Table	B. Molar	G. Chisholm
11-02	Quick Response for Special Needs	\$590,000(06) \$467,000(07) \$1,475,000(08)		Various	2/1/2006		Continuing Project: See 11-02 Table	P. Friedman	C. Jenks
11-03	Synthesis of Information Related to Airport Practices	\$500,000(06) \$700,000(07) \$500,000(08)		Transportation Research Board	2/1/2006		Continuing Project: See 11-03 Table	L. Pagnanelli	R. David
11-04	Graduate Research Award Program on Public - Sector Aviation Issues	\$100,000(08)					In development	J. Wharff	L. Goldstein



**TABLE 4 (continued)****ACRP PROJECT 11-01  
Legal Aspects of Airport Programs**

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
01-01	Compilation of Digest of Parts 13, 16 Determinations and Related Documents, and FAA Chief Counsel and DOT General Counsel Opinions Related to Airports	Spiegel & McDiarmid	December 2006	April 2008	J. McDaniel
01-02	Theory and Law of Airport Revenue Diversion	Paul Dempsey	January 2007	Completed - Publication Pending	J. McDaniel
01-03	Compilation/List of Airport Law Resources	McGill University	January 2007	Completed - Publication Pending	J. McDaniel
01-04	Survey of Airport Laws and Regulation of Commercial Ground Transportation	Smith Armundsen	April 2007	April 2008	J. McDaniel
01-05	Responsibilities for Implementation and Enforcement of Airport Land-Use Zoning Restrictions	William V. Cheek & Associates	April 2007	April 2008	J. McDaniel
01-06	Who is the Owner or Operator for Purposes of the Right to Self-Fuel?			In development	J. McDaniel
01-07	The Impact of Airline Bankruptcies on Airports	Jocelyn Waite	October 2007	October 2008	J. McDaniel
01-08	The Law and Regulation of Airport Ownership			In development	J. McDaniel
01-09	Survey of Elements of Disparity Studies for Airport Disadvantaged Business Enterprise Programs			In development	J. McDaniel
02-01	Obstructions Affecting Navigatable Airspace			In development	J. McDaniel
02-02	Use and Success of Avigation Easement and Other Tools for Airport - Compatible Land Use and Development of Model Language			In development	J. McDaniel
02-03	Case Studies on Community Challenges to Airport Development			In development	J. McDaniel
02-04	Analysis of Federal Law, Regulations, and Case Law Regarding Airport Proprietary Rights			In development	J. McDaniel

**TABLE 4 (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 RRD 2	
Task 02	Airport Ground Access: Updating and Building Upon the Work of TCRP Reports 62 and 83	Matthew Coogan	8/16/2006	9/30/2007	Completed - Publication Pending	D. Schwager
Task 03	Improving Stabilization and Use of Aircraft Evacuation Slides at Airports	George Washington University	10/9/2006	12/15/2007	Completed - Publication Pending	C. Gerencher
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 - Publication Pending	S. Parker
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	
Task 07	Strategic Process for Developing ACRP Research Problem Statements	TRB Staff	8/1/2007	1/30/2008	Research in Progress	M. Salamone
Task 08	Enhanced Modeling of Aircraft Taxiway Noise - Scoping				In development	L. Goldstein
Task 09	Visibility of Airfield Signs and Markings from Aircraft and Ground Vehicles				On Hold Pending Needs Assessment	R. David
Task 10	Estimate of National Use of Aircraft and Airfield Deicing Materials	CH2M Hill	10/16/2007	4/15/2008	Research in Progress	M. Salamone

**TABLE 4 (continued)**

**ACRP PROJECT 11-03  
Synthesis of Information Related to Airport Practices**

No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
<b>1: Administration</b>						
S01-01	Innovative Finance and Alternative Sources of Revenue for Airports	Jacobs Consultancy	July 2006	Completed - Published as Synthesis 1		
<b>2: Environment</b>						
S02-01	Effects of Airport Noise	Mestre Greve Associates	March 2007	February 2008	J. Plante	G. Staba
S02-02	Airport Sustainable Facilities and Practices	Arup	March 2007	February 2008	E. Melisky	G. Staba
<b>3: Policy and Planning</b>						
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 6		
S03-03	Airport Economic Impact Methods and Models	Hoyle Tanner & Associates	March 2007	February 2008	D. Fish	G. Staba
<b>4: Safety</b>						
S04-01	General Aviation Safety and Security Practices	Reynolds, Smith and Hills, Inc.	October 2006	Completed - Published as Synthesis 3		
S04-02	Preventing Vehicle/Aircraft Incidents During Winter Operations	Bowling Green State University	June 2007	May 2008	L. Legarretta	G. Staba
<b>9: Maintenance</b>						
S09-01	Rubber Removal Techniques to Minimize Damage on Grooved Runways	University of Oklahoma	June 2007	May 2008	R. Joel	G. Staba
<b>10: Operations</b>						
S10-01	Counting Aircraft Operations at Non-Towered Airports	Aerofinity	October 2006	Completed - Published as Synthesis 4		
S10-02	Airport Common-Use Facilities and Equipment at Airports	Barich, Inc.	March 2007	February 2008	G. Neumann	G. Staba

**TABLE 4 (continued)**

No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
S10-03	Impact of Airport Deicing Products on Aircraft and Airfield Infrastructure	Montana State University, Western Transportation Institute	March 2007	Completed - Published as Synthesis 5		

## ADDRESS AND CONTACT INFORMATION

Transportation Research Board  
500 Fifth Street, NW  
Washington, D.C. 20001  
202-334-3224

<http://www.trb.org>

Address Inquiries to:  
Christopher W. Jenks  
Director, Cooperative Research Programs  
202-334-3089  
[cjenks@nas.edu](mailto:cjenks@nas.edu)



HE 9797.5 .U5 A377 2007  
Airport Cooperative...  
Annual report of progress ...

DATE DUE			

**MTA LIBRARY**  
ONE GATEWAY PLAZA, 15th Floor  
LOS ANGELES, CA 90012

--- 35375

GAYLORD M2G

MTA DOROTHY GRAY LIBRARY & ARCHIVE



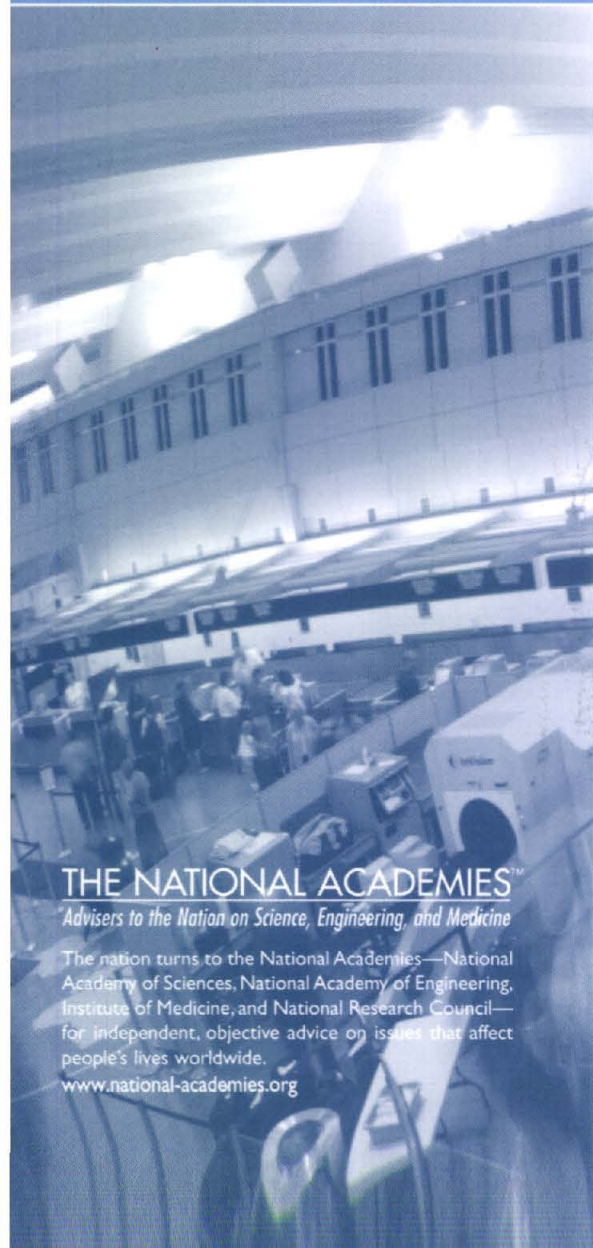
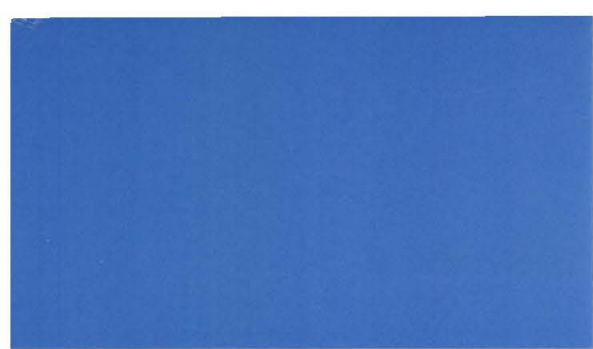
100000400372

ION RESEARCH BOARD

reet, NW

, DC 20001

VICE REQUESTED



# THE NATIONAL ACADEMIES™

*Advisers to the Nation on Science, Engineering, and Medicine*

The nation turns to the National Academies—National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council—for independent, objective advice on issues that affect people's lives worldwide.

[www.national-academies.org](http://www.national-academies.org)

NON-PROFIT ORG.  
U.S. POSTAGE  
**PAID**  
WASHINGTON, D.C.  
PERMIT NO. 8970