



THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

August 22, 2013

The Honorable John D. Rockefeller IV
Chairman
Committee on Commerce, Science
and Transportation
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

I am pleased to provide you the Report to Congress on the Airport Cooperative Research Program (ACRP), as required by the FAA Modernization and Reform Act of 2012, section 906.

The purpose of ACRP is to perform applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing Federal research programs. The ACRP undertakes research in a variety of airport subject areas including design, construction, environment, maintenance, safety, policy, planning, human resources, administration, and operations.

A similar letter has been sent to the Chairman of the House Committee on Transportation and Infrastructure and the Ranking Members of the Senate Committee on Commerce, Science and Transportation and the House Committee on Transportation and Infrastructure.

Sincerely,

A handwritten signature in blue ink, which appears to read "Anthony R. Foxx", is positioned above the printed name.

Anthony R. Foxx

Enclosure



THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

August 22, 2013

The Honorable Bill Shuster
Chairman
Committee on Transportation
and Infrastructure
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

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Anthony R. Foxx

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THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

August 22, 2013

The Honorable John Thune
Ranking Member
Committee on Commerce, Science
and Transportation
United States Senate
Washington, DC 20510

Dear Senator Thune:

I am pleased to provide you the report to Congress on the Airport Cooperative Research Program (ACRP), as required by the FAA Modernization and Reform Act of 2012, section 906.

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THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

August 22, 2013

The Honorable Nick J. Rahall, II
Ranking Member
Committee on Transportation
and Infrastructure
U.S. House of Representatives
Washington, DC 20515

Dear Congressman Rahall:

I am pleased to provide you the report to Congress on the Airport Cooperative Research Program (ACRP), as required by the FAA Modernization and Reform Act of 2012, section 906.

The purpose of ACRP is to perform applied research on problems that are shared by airport operating agencies and are not being adequately addressed by existing Federal research programs. The ACRP undertakes research in a variety of airport subject areas including design, construction, environment, maintenance, safety, policy, planning, human resources, administration, and operations.

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Anthony R. Foxx

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Federal Aviation Administration
Office of the Associate Administrator for Airports

Airport Cooperative Research Program (ACRP)

Report to Congress

Pursuant to
Title 49 United States Code,
Section 44511

August 2013

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Executive Summary

Airports are crucial elements of our national aviation system. Airports function in a complex environment with many, and often competing, requirements and expectations. To succeed in this environment, airport operators need access to high quality, reliable information, as well as technical guidance based on sound research.

In recognition of these needs, the Vision 100–Century of Aviation Reauthorization Act of 2003 (Vision 100) established the Airport Cooperative Research Program (ACRP) (Public Law 108-176, section 712, codified at title 49 United States Code (U.S.C.), section 44511(f), see Appendix D). The purpose of the ACRP is to carry out applied research on problems that are shared by airport operating agencies but may not be adequately addressed by existing Federal research programs. The ACRP undertakes research in a variety of airport subject areas, including design, construction, environment, maintenance, safety, policy, planning, human resources, administration, and operations.

The Federal Aviation Administration (FAA) submits this report on the ACRP in accordance with title 49 U.S.C., section 44511, as amended by the FAA Modernization and Reform Act of 2012, (Public Law 112-95, section 906, as amended and recodified at title 49 U.S.C., section 44511(f)(1) and (4), see Appendix E).

As called for in Vision 100, a Memorandum of Agreement (MOA) was developed to provide organizational structure for the administration of the ACRP (see Appendix B). The FAA funds the program while the Transportation Research Board (TRB) of the National Academies administers the program. The ACRP Oversight Committee (AOC), an independent governing board comprised of airport managers, appropriate Federal agencies, airport and airline associations, the aviation industry and academia, is appointed by the U.S. Secretary of Transportation (Secretary). The AOC oversees the ACRP in accordance with the MOA and selects research topics for funding (Table 2 on page 8 shows the current AOC membership).

ACRP Process

Each year, the TRB issues a solicitation for receipt of research topics in the form of “problem statements.” The AOC meets in July to review all submitted research problem statements and selects the most promising projects for funding.

Approximately 20 to 25 projects are initiated annually. Following the AOC selection meeting, the TRB administers the process of selecting a contractor to perform the research and prepare the research report.

Program Results

Since its inception, the ACRP has allocated over \$66 million for over 260 research studies. Two main types of research projects are usually initiated: “standard” research or “special” research. Standard research projects are relatively low-cost studies lasting 1 to 2 years and resulting in

original research that can be published as a report, guidebook, multimedia disk (CD or DVD), computer software, informational pamphlet, and/or a presentation. Special research projects are conducted in areas of specific interest to the aviation community, such as: legal aspects of airport programs, quick response studies for special needs, and synthesis of information related to airport problems.

To date, the ACRP has completed and published over 170 of the authorized projects. Each ACRP project report will be published after review and processing by TRB.

These and other ACRP research products are available, free of charge, on the TRB's Web site (<http://www.trb.org/ACRP>).

Airport operators around the world encounter a wide variety of complex and difficult issues. While every airport is unique, the problems that must be solved are often similar in nature. The aviation community has a great resource in solving these shared problems through the ACRP. Research within the ACRP covers many areas of interest, and the products can be tailored for delivery in many different formats for maximum effectiveness.

A number of conclusions can be drawn from the experience with the ACRP:

- The ACRP serves the aviation industry as a dynamic, well-designed vehicle for providing research, best practices, and information on a variety of issues of concern to airports.
- The ACRP MOA provides a strong foundation for the program.
- The composition of the program's governing board, the ACRP AOC, provides a balanced representation of the airport industry.
- The AOC provides excellent guidance and ensures projects are carefully considered during the selection process and funded according to the greatest needs of the industry.
- The FAA member on the AOC, Catherine M. Lang, ensures that the research projects selected do not duplicate ongoing work under the internal FAA research programs.
- The statute establishing the ACRP set its purpose as conducting research on problems shared by airports and not being addressed by other Federal research programs. The ACRP benefits both the Government and the public by providing practical research and best practices on airport issues including safety, capacity, administration, and environment.
- ACRP operating costs are contained and in line with similarly run cooperative research programs in other industries.
- The TRB staff provides effective program management and administration of the ACRP.
- There is significant involvement from aviation industry stakeholders in all phases of the ACRP research cycle.
- The volume of published research has increased dramatically within the last few years of the program due to timing of the research cycle.
- The utility of reports published has been very timely in many circumstances meeting demanding industry needs.
- The GAO conducted an audit of the ACRP. GAO-10-729 report, published July 2010, concluded that the ACRP addressed many needs but could enhance transparency and clarify the scope of its research role. It is available at: <http://www.gao.gov/assets/310/307204.html>.

CHAPTER 1: INTRODUCTION

The Nation's airport system is a complex, decentralized, and dynamic network of physical facilities, operations, and management practices. Within this rapidly changing environment, airport operators must confront an array of challenges. Emerging national problems, the changing economy, and resource constraints are just a few of the varied issues that airports must manage. Yet, despite all of these issues, airports must continue to operate at the very highest levels of safety and efficiency.

Systematic, well-designed, airport-related research provides an effective approach to solving many of the challenges facing airport operators.

The ACRP exists in order to help address some of the airport industry's most pressing problems. Through applied research, the ACRP aims to provide significant contributions and much needed guidance to airport operators nationwide.

ACRP Purpose

The purpose of the ACRP is to carry out applied research on complex problems that are shared by airport operators. In this capacity, the ACRP helps study issues that existing Federal research programs do not adequately address. The research studies provide useful guidance and best practices to support airport operators. The reports do not impact FAA operations or system acquisitions.

ACRP Research Areas and Categories

ACRP projects seek practical remedies for operational problems in a variety of different research areas. Table 1 displays the ACRP classification system, which divides airport research along the following broad areas:

Table 1: ACRP Research Areas

Standard	Special
1. Administration 2. Environment 3. Policy and Planning 4. Safety 5. Security 6. Human Resources 7. Design 8. Construction 9. Maintenance 10. Operations	11. Special Projects 11-01. Legal Studies 11-02. Quick Response 11-03. Synthesis Studies 11-04. Graduate Research Award 11-05. Dissemination of ACRP Research 11-06. Assessment of ACRP Processes

Research Categories

ACRP research projects conducted under areas 1 through 10 are considered “standard” projects, while those in area 11 contain the program’s “special” projects.

Standard research projects are studies lasting 1 to 2 years and resulting in original research that can be published as a report, a guidebook, a multimedia disk (CD or DVD), computer software, or an informational pamphlet.

Special research projects currently address six main areas: legal aspects of airport programs (11-01), quick response studies for special needs (11-02), synthesis of information related to airport problems (11-03), Graduate Research Award Program on public-sector aviation issues (11-04), dissemination of ACRP publications (11-05), and the assessment of the ACRP process (11-06). The products of this special research will generally be legal briefs or short reports intended to capture and consolidate information or practices currently in use by the airport industry.

The TRB publishes and distributes all ACRP research products and makes them available free of charge on the TRB Web site (<http://www.trb.org/ACRP>).

CHAPTER 2: BACKGROUND

Program Origin

Over the past decade, there has been growing recognition of the need for airport operators to pool their ideas and resources to develop practical solutions to their shared problems. Cooperative research programs have provided similar assistance to a variety of other industries and environments for quite some time. The National Cooperative Highway Research Program (NCHRP) and the Transit Cooperative Research Program (TCRP), both run by the National Academies, are two programs, in particular, that have proven to be very successful over the years.

Throughout the 1990s, many believed that a cooperative research program could similarly benefit airports and airport operators. Support for this idea was expressed by many groups and individuals, including airport trade associations that represent an overwhelming majority of the airport community. Included among these were the Airports Council International–North America (ACI-NA), the National Association of State Aviation Officials (NASAO), and the American Association of Airport Executives (AAAE).

Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR 21)

In 2000, AIR 21 called for a more detailed study of the cooperative research question (Public Law 106-181). AIR 21 required that:

“(a) IN GENERAL.-The Secretary, in consultation with the National Academy of Sciences and representatives of airports, shall evaluate the applicability of the techniques used to fund and administer research under the National Cooperative Highway Research Program and the National Transit [Cooperative] Research Program to the research needs of airports.

(B) REPORT.-The Secretary shall transmit to Congress a report on the results of the evaluation conducted under this section.”

In response, the FAA contracted with the National Academy of Sciences (NAS) to conduct the study.

TRB Special Report 272

The TRB assembled a committee with a range of expertise and a balanced perspective on issues related to the study topic. In March 2003, the committee published its findings in TRB Special Report 272: Airport Research Needs: Cooperative Solutions. Among other items, the report highlighted examples of airport research needs in areas such as operational safety, maintenance, design of infrastructure and equipment, finance and administration, planning, environment, and security. The committee concluded that such cooperative research is essential for ensuring

airport safety, efficiency, and environmental compatibility and urged Congress to establish a national cooperative research program for airports.

Vision 100

Vision 100 (Pub. L. No. 108-176, section 712, 117 Stat. 2490 (2003), codified at title 49 U.S.C., section 44511(f)) authorized the Secretary to establish the ACRP as a 4-year pilot program. Through the ACRP, applied research would be carried out on problems “that are shared by airport operating agencies and are not being adequately addressed by existing Federal research programs.”

Vision 100 directed that governance of the ACRP be similar to that of the National Academies’ other cooperative research programs. In keeping with these models and to ensure the independence and objectivity of the program’s research, Vision 100 called for the Secretary to select an independent governing board comprised of airport managers and other respected industry personnel to oversee the new program. Appointments would be made from candidates “nominated by national associations and representing public airport operating agencies, airport executives, State aviation officials, and the scheduled airlines.” Representatives from appropriate Federal agencies would also be expected to serve on the AOC.

MOA

To organize the ACRP, representatives from the FAA, the TRB, and national airport trade associations formulated an ACRP MOA. The Secretary, the FAA Administrator, and the President of the National Academy of Sciences signed the MOA.

In September 2005, the Secretary appointed the initial members of the AOC. The following month, ACRP operations officially began when the FAA provided the start-up funding of \$3 million in Fiscal Year (FY) 2005. Subsequently, funding was increased to \$10 million in FY 2006 and \$15 million in FY 2009.

Government Accounting Office (GAO) Report

The GAO conducted a study to assess the processes that the ACRP has in place to determine if they reflect established criteria for conducting a high quality research program to evaluate the ACRP results and how useful these results have been to the aviation community. The GAO found that the ACRP has generally produced high quality and useful products and that the ACRP provides airports with a unique source for research that airport neither have the time nor budget to fund.

The GAO also highlighted two areas in the ACRP that needed improvement. These were to improve transparency and to improve dissemination of the research studies. The GAO had two issues on transparency:

- The first was that the documented ACRP operating procedures did not provide for the Airport Consultants Council’s (ACC) involvement in the AOC meetings. The AOC, the

TRB, and the FAA believed the ACRP could benefit from the ACC's participation due to its role representing airport consultants -- the entities that perform much of ACRP's research. The GAO indicated that having the ACC participate in AOC meetings when the ACC was not identified in the ACRP MOA diminished the transparency of the ACRP. The AOC, the TRB, and the FAA acted to resolve this issue by formally nominating the president of the ACC to be added as an ex-officio (nonvoting) member of the AOC so that the ACC would have the same status on the AOC as the other airport associations. The Secretary subsequently formally appointed the president of the ACC to the AOC.

- The other issue of transparency raised by GAO was the fact that the AOC made decisions on project selection by consensus while the MOA states that the AOC should reach project decisions through an affirmative vote of a majority of the AOC voting members. The AOC subsequently changed its operating procedures so that project selection was made with an affirmative vote of the voting members.

The GAO expressed concern that there were gaps in the ACRP dissemination of research reports and that the reports may not be reaching some segments of the airport industry, including smaller airports. The AOC, the TRB, and the FAA were also concerned about improving dissemination, as everyone understands that the utility of the research studies depends upon users knowing about the reports and by having easy methods of accessing reports. The AOC approved a special project in 2009 to develop and implement a strategic dissemination process and increase awareness of the ACRP among airport operators and the aviation industry. The TRB also started collecting data so it could track the number of hits on the ACRP Web site for ACRP reports. The TRB established an ACRP ambassador program where volunteers are asked to attend airport conferences and events to discuss the ACRP and hand out information brochures. The FAA also put a link on its Web site to help the public find links to ACRP reports. For particularly useful reports, such as the Guidebook for Addressing Aircraft Wildlife Hazards, the FAA sent copies directly to general aviation airports. The AOC is pleased that dissemination of the ACRP reports and industry awareness of the ACRP has improved considerably since the 2010 GAO report.

FAA Modernization and Reform Act of 2012

The FAA Modernization and Reform Act of 2012 amends title 49 U.S.C., section 44511(f), to accomplish two things:

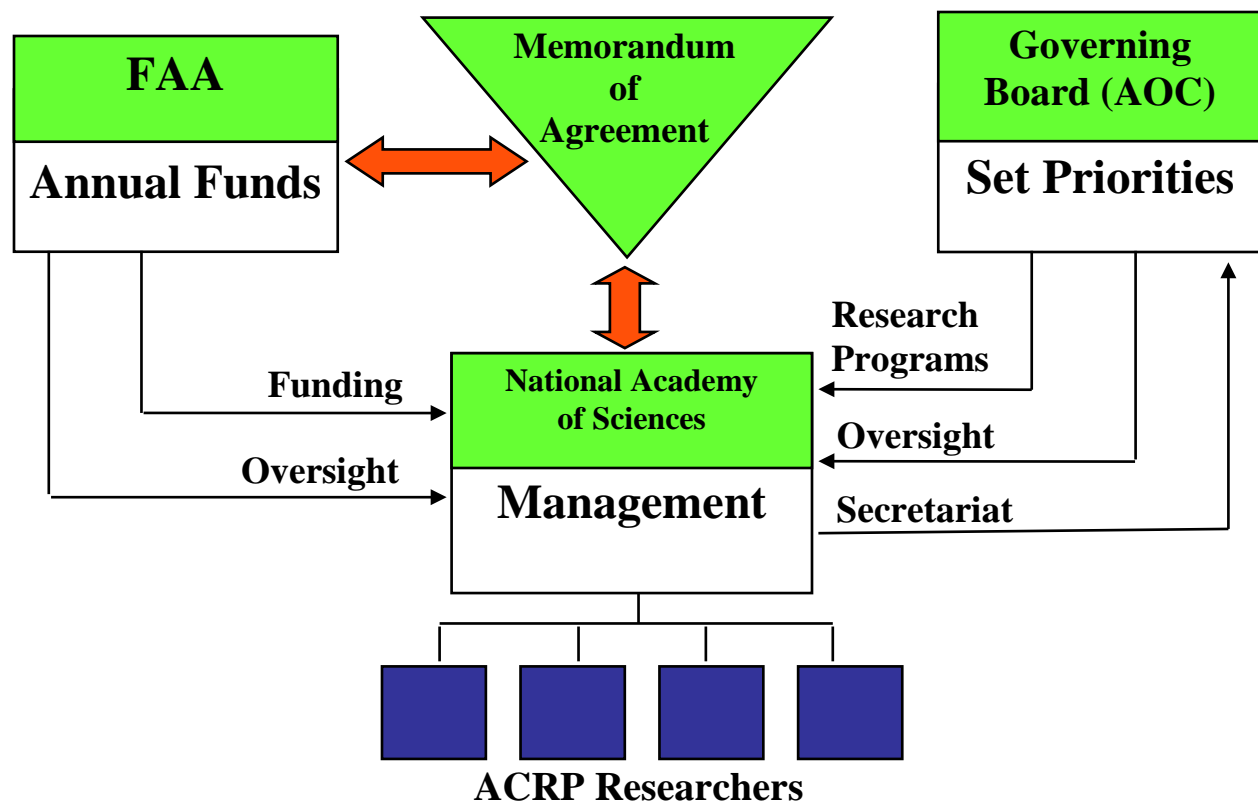
- It removed the pilot program designation and directed the ACRP to be a fixed program.
- It directed the Secretary to transmit a report to Congress not later than September 30, 2012 (Public Law 112-95, section 906, as amended and recodified at title 49 U.S.C., section 44511(f)(1) and (4)).

CHAPTER 3: ORGANIZATIONAL STRUCTURE

ACRP Structure

The primary entities involved with the ACRP are: (1) the AOC, an independent governing board appointed by the Secretary; (2) the TRB, which provides program management; and (3) the FAA, which sponsors and funds the program. Figure 1 illustrates the relationships among these organizations, as specified in the ACRP MOA. Although not shown in the figure, airport industry stakeholders are also important participants and are represented on the AOC on project panels and as researchers. Each of these groups has different interests and responsibilities, and each is an integral part of the cooperative research effort.

Figure 1: ACRP Organizational Structure



AOC

The AOC provides policy guidance and sets priorities for ACRP research. Additionally, it monitors program progress and recommends any corrective action to the FAA and the TRB. The ACRP MOA assigns the following responsibilities to the AOC:

- Reviewing research needs;
- Selecting research topics;

- Setting project priorities and funding levels;
- Approving budgets and financial statements of the ACRP;
- Adopting policies and procedures governing the AOC; and
- Evaluating program effectiveness.

AOC COMPOSITION

The MOA identifies 20 members to the AOC. Thirteen of the members have voting rights, while the remaining seven are nonvoting members. The total size and composition of the AOC may be adjusted at the discretion of the Secretary. The MOA delineates the AOC composition as follows:

Voting members (13):

- Seven members are chief executive officers, managers, or members of the governing boards of airports (three from large hubs; two from medium-size hubs; and two from small hubs, nonhubs, or general aviation airports);
- Five members are officers or officials of universities or private entities that are air carriers, shippers, suppliers, researchers, consultants, or others engaged in providing airport equipment or services; and
- The FAA Administrator or a designee (currently, the FAA's Deputy Associate Administrator for Airports).

Nonvoting members (7):

- Administrator of the Environmental Protection Agency (EPA);
- ACI-NA;
- AAAE;
- NASAO;
- Airlines for America (A4A);
- Airports Consultant Council (ACC); and
- Executive Director of the TRB.

The MOA specifically notes term limits for “voting” members of the AOC. These members are appointed for a period of 4 years and may serve for two successive 4-year terms (except for the FAA representative, who is a permanent member). To provide for staggered representation on the AOC, five of the initial AOC members were randomly selected and appointed for an initial 2-year term. However, at the conclusion of those terms in September 2007, those members were reappointed to full 4-year terms by the Secretary. After completing their initial terms, voting members must wait 4 years before becoming eligible for reappointment to the AOC.

Table 2 provides a list of the current AOC members.

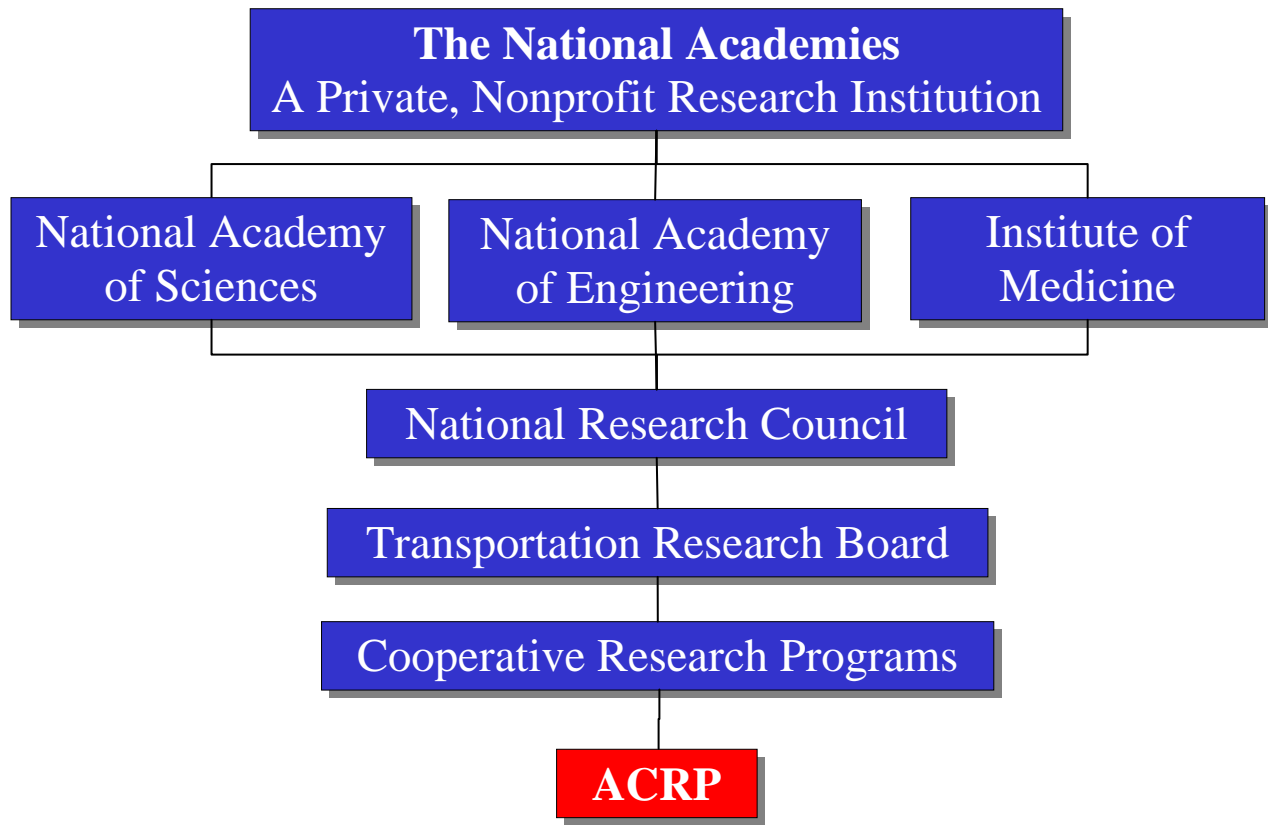
Table 2: ACRP AOC

Name	Title, Organization	Member Status (Term Limit Expiration)
AOC Chair James "Jim" Wilding	President (retired), Metropolitan Washington Airports Authority	Voting (2013)
AOC Vice-Chair Jeff Hamiel	Executive Director, Minneapolis-St. Paul Metropolitan Airports Commission	Voting (2013)
AOC Secretary Christopher W. Jenks	Director, Cooperative Research Programs, TRB	Nonvoting
James Crites	Executive Vice President for Airport Operations, Dallas/Fort Worth International Airport	Voting (2013)
Richard de Neufville	Professor of Engineering Systems and Civil and Environmental Engineering, Massachusetts Institute of Technology	Voting (2015)
Kevin C. Dolliole	Senior Vice President, UCG Associates	Voting (2015)
John K. Duval	National Aviation Director, Austin Commercial, L.P.	Voting (2013)
Steve Grossman	Executive Director/CEO, Jacksonville Aviation Authority	Voting (2015)
Kelly Johnson	Airport Director, NW Arkansas Airport Authority	Voting (2015)
Catherine M. Lang	Deputy Associate Administrator for Airports, FAA	Voting
Gina Marie Lindsey	Executive Director, Los Angeles World Airports	Voting (2013)
Carolyn Motz	Senior Consultant, Airport Design Consultants, Inc.	Voting (2013)
Richard "Rick" Tucker	Executive Director, Huntsville International Airport	Voting (2015)
Kitty Freidheim	President, Freidheim Consulting	Voting (2015)
Sabrina Johnson	Senior Policy Analyst, EPA	Nonvoting
Richard Marchi	Senior Advisor - Policy and Regulatory Affairs, ACI-NA	Nonvoting
Laura McKee	Managing Director, Airport Affairs, A4A	Nonvoting
Henry Ogradzinski	President/CEO, National Association of State Aviation Officials	Nonvoting
Melissa Sabatine	Vice President, Regulatory Affairs, AAAE	Nonvoting
Robert E. Skinner, Jr.	Executive Director, TRB	Nonvoting
Paula P. Hochstetler	President, ACC	Nonvoting

The National Academies

To provide a better sense of how the ACRP fits into the administrative scheme of the National Academies, Figure 2 provides a streamlined organizational structure.

Figure 2: The National Academies Organizational Structure



The National Academies perform a unique public service by bringing together committees of experts in all areas of scientific and technological endeavor. These experts serve *pro bono* to address critical national issues and give advice to the Federal Government and the public. Four organizations make up the National Academies:

- National Academy of Sciences;
- National Academy of Engineering;
- Institute of Medicine; and
- National Research Council (which is jointly administered by members of the three other organizations).

TRB

The mission of the TRB is to promote innovation and progress in transportation through research. In an objective and interdisciplinary setting, the TRB:

- Facilitates the sharing of information on transportation practice and policy by researchers and practitioners;
- Stimulates research and offers research management services that promote technical excellence;
- Provides expert advice on transportation policy and programs;
- Disseminates research results broadly; and
- Encourages their implementation.

The TRB fulfills this mission through the work of its standing committees and task forces.

TRB MANAGEMENT OF THE ACRP

Management of the research program is critical to ACRP's success. TRB manages the day-to-day operations of the program, a broad task encompassing ten major activities. Outlined below, each of these functions is necessary to formulate, manage, and administer research projects, and ultimately disseminate research results to the aviation community. The activities are:

- Serving as Secretariat to the AOC;
- Appointing and coordinating expert technical panels to guide research;
- Developing and distributing Requests for Proposals (RFPs);
- Processing and evaluating proposals to select the best-qualified research agency;
- Executing contracts with the selected researchers;
- Providing technical and financial oversight of research agencies;
- Coordinating review of research reports by project panels;
- Preparing research reports for publication and dissemination;
- Promoting the application of research results; and
- Closing out contracts.

The TRB supports the AOC and the FAA by performing these program management functions. A more detailed description of TRB program management responsibilities are outlined in Chapter 4: Research Process, as well as in the ACRP MOA.

TRB AS THE AOC SECRETARIAT

The TRB—or more specifically, the TRB Director of Cooperative Research Programs—serves as the Secretariat to the AOC. The Secretariat supports and works in consultation with the AOC Chair. The listing below shows just a few of the many responsibilities of the AOC Secretariat.

- Issuing announcements to solicit research needs statements for consideration by the ACRP;
- Conducting preliminary evaluation of research needs statements to determine whether the proposed research duplicates previous or ongoing studies;
- Making preliminary estimates of the cost of conducting each proposed research topic;
- Distributing material necessary for the AOC's prioritization of research for the ACRP;
- Recording AOC meeting decisions;

- Scheduling meetings and preparing and distributing agendas for AOC meetings;
- Preparing and distributing minutes following AOC meetings;
- Keeping records related to ACRP activities;
- Rendering to the AOC and the FAA quarterly reports on the progress and financial status of the ACRP; and
- Providing other necessary staff support.

Federal Aviation Administration

The FAA's Office of the Associate Administrator for Airports (Office of Airports) sponsors and funds the ACRP. The FAA's role as the steward of Federal funds necessitates that it provide program oversight to ensure achievement of ACRP technical objectives, budget adherence, and schedule milestones. The FAA also provides the TRB with timely guidance and information on emerging issues of national priority, new Federal program initiatives, and complementary FAA programs or projects that can enhance ACRP's effectiveness. The FAA and the TRB maintain close coordination in the development of detailed technical program plans, RFPs, and technical work statements. The close coordination among the AOC, the TRB, and the FAA provides fertile opportunities for developing creative and more cost-effective projects.

The FAA's responsibilities include the following activities:

- Providing funding for the ACRP;
- Participating with the AOC in developing the ACRP annual program;
- Selecting and assigning FAA staff to serve as liaisons to ACRP project panels;
- Supporting periodic program reviews; and
- Working closely with the TRB and industry associations to ensure dissemination, distribution, marketing, and promotion of the results of ACRP studies, with an emphasis on timely deployment and mainstreaming of products and practices resulting from the ACRP.

Aviation Industry Stakeholders

The ACRP benefits greatly from the cooperation and participation of aviation industry stakeholders. Industry trade groups, including the ACI-NA, the AAAE, the NASAO, the A4A (formerly the Air Transport Association of America, ATA), and the ACC represent a large portion of the professional airport and airline community.

As will be described in the following chapter, the main ways that members of the general public can participate in the ACRP are by:

- Submitting research needs for consideration in the form of problem statements;
- Serving as subject matter experts on ACRP project technical panels; and
- Submitting proposal responses to an ACRP RFP and performing the required research.

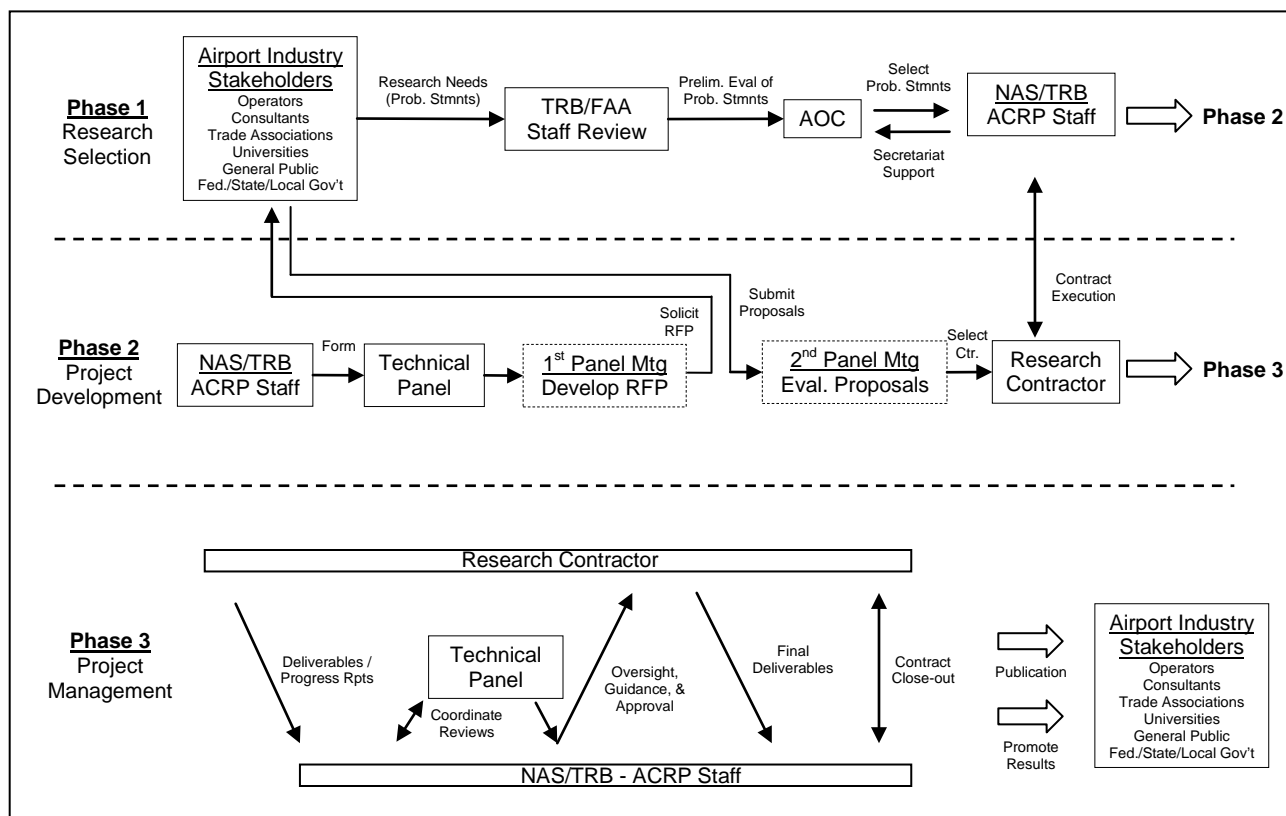
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CHAPTER 4: RESEARCH PROCESS

Research projects are the primary activity of the ACRP. Selected research projects are based on needs that have been identified by published literature, surveys, AOC members (including industry representatives), airport operators, and others. Research objectives are principally aimed at identifying solutions to immediate problems in the airport environment. They also focus on high-priority issues with a reasonably high expectation of producing results with practical applicability. The FAA has a member on the AOC to ensure projects selected do not duplicate other FAA internal research. Also, the FAA puts one FAA person on every ACRP panel to help ensure the panels are aware of any FAA issues or concerns related to specific research studies.

The annual research program selected by the AOC and managed by the TRB provides the ACRP's foundation. Each project follows an efficient and effective research process developed by the TRB based on over 40 years of successful cooperative research experience. This process includes three main phases: (1) Research Selection, (2) Project Development, and (3) Project Management. Figure 3 illustrates these phases.

Figure 3: Standard ACRP Research Process



Note: NAS is the National Academy of Sciences.

Phase 1 – Research Selection

ACRP research selection process follows established TRB procedures. They do not follow FAA acquisition processes. The ACRP research selection phase generally includes three components:

- Solicitation of research needs;
- Evaluation of problem statements; and
- Selection of problem statements.

1.1 SOLICITATION OF RESEARCH NEEDS

A sequence of events initiates each year's research activities. The process generally begins with the TRB's annual general solicitation for research needs. Although the ACRP will accept research ideas from anyone at any time, the program makes a call for research only once a year.

The AOC selects research projects on a year-to-year basis, focusing on emerging issues and current priorities. To identify research opportunity areas and corresponding problem statements, the program relies on the following methods:

- Annual problem solicitations;
- Recommendations from specially appointed panels or committees;
- Recommendations from workshops; and
- Recommendations from completed research.

The annual solicitation provides the most straightforward method for determining the problems to be researched; it can also result in a very large response. When problem statements are solicited, ACRP staff provides specific instructions on how they must be written. This guidance results in submissions in a standard TRB format known as a "problem statement." This standardization is important because potential submitters may not have experience writing research problem statements. However, the success of the ACRP and the benefits to the airport industry depend on good ideas being clearly presented.

The annual solicitation goes to airport operators, as well as to other members of the broad airport community. Suppliers of equipment and services, universities, other research organizations, and consultants might all want to offer input to the ACRP.

The AOC can also ask the TRB to conduct workshops to gather specific problems for research. This method can both help identify individual problems and develop emphasis areas. Workshops are effective tools for bringing together the thinking of many experts and practitioners within a short period of time. The product of a workshop is usually a prioritized list of research needs in a well-defined emphasis area.

Lastly, in addition to requesting problem statements, the AOC can refer to previously completed ACRP projects where investigations or other efforts result in the identification of specific airport-related problems.

1.2 EVALUATION OF PROBLEM STATEMENTS

Problem statements are evaluated based on need, urgency, probability of success, and funds available. Once research problem statements are received, the TRB forms screening panels composed of TRB staff, the FAA, and the industry associations on the AOC. The screening panel reviews each statement, identifying related research, making suggestions about the probability of success of the effort, and commenting on the technical content and relevance of the problem to be solved. Problem statements that are recommended by the screening panel are then provided to each member of the AOC to review and numerically score.

1.3 SELECTION OF PROBLEM STATEMENTS

After the initial evaluation and scoring, the AOC considers the problem statements and relevant supplemental information. It then selects the problem statements to be included in the annual program. The AOC has the opportunity to select either specific subjects with narrow focus or broader research of strategic importance. Each annual program may include both new and continuing research and has a unique composition based on the most important issues and problems at the time.

After problem statements are selected, the AOC provides the TRB with guidance on the technical content and scope of work for each item, effectively transforming the “problem statement” into a “research project.”

Table 3 provides a sample schedule for Phase 1.

Table 3: Sample Phase 1 Schedule

Time	Event
Week 1	Announcement of problem statement solicitation
Week 12	Due date for problem statements
Week 17	Evaluation of problem statements by ACRP and FAA staff
Week 19	Distribution of research candidate list and project selection ballots to the AOC
Week 24	The AOC meets to select research topics and set funding levels for new projects
Week 26	Announcement of new ACRP projects
Total Time: Approximately 26 weeks	

Phase 2 – Project Development

The second phase of the ACRP research process develops the foundation upon which each individual research project operates. Principal activities in this phase include:

- 2.1 Technical Panel Selection;
- 2.2 Development of a scope of work and subsequent RFPs;

- 2.3 Evaluation of project proposals and researcher selection; and
- 2.4 TRB and researcher contract execution.

Every AOC-approved project is assigned to a TRB Senior Program Officer (SPO), who provides project management throughout the research process. The SPOs perform all manners of administrative and operational project support and must often coordinate these tasks for a number of projects simultaneously (typically 25 to 35 at a time).

Once assigned a project, the SPOs must assemble a technical panel of subject matter experts for the given research area. The appointed panel provides technical guidance and counsel throughout the life of a project. Each project panel has the responsibility for developing the project's objectives, selecting the researcher, monitoring and guiding project output, and reviewing and approving the final research report. While panel size varies depending on the expertise required by the project, each panel includes at least six-to-eight voting members.

The panel drives the technical direction and conduct of the research project. The credibility of ACRP research findings and recommendations will be based, to a great degree, on the program's ability to reach consensus among technical professionals through the ACRP advisory panel system. Supporting the panels throughout the process, the SPOs serve as the secretariat for panel meetings and act as technical coordinators, meeting facilitators, and full-time project managers.

2.1 TECHNICAL PANEL SELECTION

The SPOs select panel members by reaching out to a wide variety of people and organizations having the desired expertise. Panels include individuals from airports; Federal, State, and local Government agencies; universities; national associations; institutions with related interests; consultant firms; industry; and other agencies. Various sectors of the airport industry might be included. For example, an airport executive, a maintenance manager, an information systems manager, a computer vendor, a government official, a member of the AOC, and a university researcher might serve together on a panel. Where possible, the person primarily responsible for preparing the original project statement will be included as a panel member because the insight of potential users of the research is vital to the successful implementation of the final products.

The panels also have nonvoting liaison members from the staffs of the FAA and the TRB to provide lines of communication with those organizations about ongoing and completed research. In this way, the ACRP can address pertinent needs without duplicating existing efforts. Liaison members participate fully in all panel deliberations but do not vote on issues before the panel.

The SPOs solicit nominations for panel membership for each new round of projects. In developing panels, the TRB makes great effort to avoid conflicts of interest. Because it is rarely possible to secure panel members with the required knowledge and judgment who are completely devoid of technical bias, the SPOs pay particular attention to maintaining a balance of such biases. Further, panel members are appointed as individuals possessing expertise in specialized areas and not as representatives of the organizations by which they are employed. Emphasis is also placed on considering women and minorities for panel membership as a means of increasing opportunities for participation by these traditionally under-represented groups.

After compiling a list of appropriate and willing panelists, the SPO submits the proposed panel membership list to the National Research Council for approval, according to standard TRB procedures. If the panelists are acceptable, the TRB Executive Director confirms the panel appointments.

Project panelists are appointed for the duration of individual projects and are expected to provide technical guidance and counsel throughout the research and reporting phases. As in other TRB activities, ACRP project panel members serve voluntarily without compensation and cannot act as individual consultants or advisors to the researchers. Also, as a condition for accepting appointment to a panel, members cannot submit proposals on research projects under their jurisdiction.

The ACRP MOA identifies the following specific responsibilities of project panels:

- Developing project objectives and an estimate of the total cost and time to achieve the objectives;
- Drafting definitive statements of scope and requests for proposals;
- Reviewing proposals submitted by research agencies and making decisions about selection of research agencies;
- Reviewing the progress of research;
- Providing counsel and advice to researchers about technical aspects of projects;
- Reviewing and evaluating project reports as to the accomplishment of objectives and suitability for publication; and
- Making recommendations to the AOC about the need for continuation of projects included in prior fiscal year programs.

2.2 DEVELOPMENT OF A SCOPE OF WORK AND SUBSEQUENT RFPs

After project panels are formed, the first panel meeting takes place, marking the start of the project. Held in Washington, DC, at the National Academies, the initial panel meeting lasts for 2 days. At this meeting, the panel reviews and refines the problem statement originally selected by the AOC.

The first major task of each project panel is to translate its assigned problem statement into a fully detailed project statement or RFP that will be used to solicit proposals from the research community. Project statements include:

- (1) A statement of the background on the problem and associated needs;
- (2) A statement of the research desired to satisfy the needs, including a clear and specific statement of the objectives to be met; and
- (3) Statements of the funds available for the agreement, the project's performance period, and the deadline for proposal submission.

The project statements also can provide policy and procedural guidance and general information.

The TRB distributes project statements using an email list that includes individual researchers, private and public research institutions, transportation study centers, university researchers, and consulting firms. In coordination with the FAA, the SPOs will continue to expand the existing RFP mailing list for a broad distribution of the project statements to the airport research community. The current mailing list includes contacts at historically black colleges and universities and women- and minority-owned firms. Anyone who requests to be added to the list will be included. Special efforts have been made, particularly in the early years of the ACRP, to ensure that opportunities for participation are well known to all potential researchers.

2.3 EVALUATION OF PROJECT PROPOSALS AND RESEARCHER SELECTION

The TRB uses the same process for selecting ACRP researchers that it has used in managing the NCHRP for more than 50 years and the TCRP for more than 20 years. This open process:

- Allows all potential research agencies to compete on the basis of technical merit;
- Ensures that all proposers are treated fairly; and
- Provides the program with access to the best talent available for each project.

The TRB continues to expand its researcher base by identifying additional Disadvantaged Business Enterprises (DBE) that might be interested in participating and adding them to the ACRP email list for RFP notification.

The ACRP SPOs maintain a web-based brochure, “Information and Instructions for Preparing Proposals,” to assist proposing organizations. The SPOs are available to discuss the specifics of each research project and the instructions for preparing proposals but will not generally schedule preproposal briefing meetings for proposing organizations. Proposers are allowed at least 45 days to respond to the project statements.

When evaluating proposals submitted to the TRB in response to an RFP, the ACRP staff and project panels consider the following factors:

- The proposer’s demonstrated understanding of the problem;
- The merit of the proposed research approach and experiment design;
- The experience, qualifications, and objectivity of the research team in the same or closely related areas;
- The plan for promoting application of results;
- The proposer’s plan for participation by DBEs—small firms owned and controlled by minorities or women; and
- The adequacy of the research facilities.

The project statement specifies the level of available funding, and the proposers submit responses outlining their technical plans for spending these funds to complete the project. The project panel evaluates proposals entirely on the basis of technical merit and the probability of success, an approach that is well received by panel members and proposing researchers.

Upon receipt of proposals, the SPOs review them for completeness and conformity to TRB's standard requirements. Proposals received after the submission deadline are rejected without further review. Accepted proposals are then forwarded to the appropriate panels for evaluation within 1 week. At the same time, submitters of any rejected proposals are informed of the reasons for their rejection.

The technical panel selects the researcher at the second panel meeting held at least 25 days after the panel has received the proposals. Prior to the meeting, the panel is instructed to (1) evaluate and rate each proposal in accordance with the criteria discussed at the first meeting; and (2) be prepared to discuss the strengths and weaknesses of each proposal. A panel's first and second (contingency backup) choice for contract award requires a two-thirds consensus and is based on technical merit. The panel's specific reasons for selection are fully documented. Strict confidentiality is applied to all panel deliberations.

2.4 TRB AND RESEARCHER CONTRACT EXECUTION

Research contract negotiations begin when the first choice proposer receives notification of the project panel's decision. At this stage, the project's SPO must:

- (1) Notify the first choice organization of its tentative selection;
- (2) Provide the necessary documentation for the organization to complete the contracting procedure; and
- (3) Request that the National Academies' Office of Contracts and Grants begin a precontract financial investigation.

Each selected organization must provide documentation to support its proposed indirect cost rates and forward information about its travel policy and salary and wage schedules. The notification to the first choice proposer also refers the selected organization to an online "Procedural Manual for Agencies Conducting Research in the Airport Cooperative Research Program," which provides detailed guidance on policy and procedural matters.

The ACRP SPOs must also notify unsuccessful (including the second choice) proposers of the results of the second project panel meeting and debrief these organizations upon request. The oral debriefings indicate the technical areas in which specific proposals were judged to be weak or deficient and how the weaknesses or deficiencies resulted in their not having been selected. The SPOs dispose of the unsuccessful proposals in accordance with the National Academies' policy.

Table 4 includes a sample schedule for Phase 2.

Table 4: Sample Phase 2 Schedule

Time	Event
Week 26	The SPOs solicit panel nominations
Week 40	Project panels meet to write RFPs
Week 41	The TRB issues RFPs
Week 48	Proposals due
Week 54	Project panels meet to select researchers
Week 60	Contracts are executed with selected agencies
Total Time: Approximately 34 weeks	

Phase 3 – Project Management

Research officially begins when the TRB and the research contractor finalize their contract. The project panel and the SPOs then start the process of monitoring the administrative and technical progress of the project. Drawing on the contents of the approved proposal and working plan, the SPOs maintain a close but unobtrusive watch over the researcher's activities to ensure conformance with contractual obligations.

The main elements of this phase include:

- 3.1 Monitoring research progress;
- 3.2 Reviewing/approving research deliverables; and
- 3.3 Closing out the research contract.

3.1 MONITORING RESEARCH PROGRESS

The project panel maintains control over the research process during execution of the study. Initially, the panel reviews and approves the researcher's detailed working plan. This revised research plan is created upon contract execution and contains a detailed update of the plan included in the researcher's original proposal. Its purpose is to assist the panel and the SPOs in monitoring activities.

The panel receives copies of quarterly reports directly from the researcher and is encouraged to comment on them. The researcher is required to respond in writing to the panel's comments; correspondence, both to and from the researcher, must pass through the responsible SPO. Panel approval is required for any changes in the conduct of the research plan, any change in principal investigators, and any interim reports required in the work plan.

During the project, the TRB maintains frequent telephone and mail/email contact with the principal investigators. The SPOs regularly check researcher invoices to ensure use of project funds is consistent with the approved plan. Researchers are required to budget for two trips to Washington, DC, to discuss research progress.

Usually an initial site visit is made soon after panel approval of the project's working plan. At this visit, the SPO provides all liaison actions necessary to maintain the project panel's awareness of research progress and to acquire panel guidance and counsel in technical matters. The SPOs work with panel chairs to coordinate all panel actions (e.g., additional meetings or mail ballots) that may be necessary for major changes to adjust for promising new leads or unproductive lines of study, interim or final report reviews, and related activities.

The SPOs are responsible for producing quarterly progress reports to the AOC and the FAA. In addition to keeping project status reports up to date on the ACRP Web site, the TRB prepares annual reports to discuss ACRP progress in general and the status of each project. Annual reports include a narrative on the overall operation of the ACRP; a summary table of projects and their status, a list of ACRP publications; and brief summaries of all ACRP projects. The annual report is submitted before February 15th of each year. The SPOs are available, at the request of the FAA, to make presentations to selected audiences summarizing ACRP activities and progress.

3.2 REVIEWING/APPROVING RESEARCH DELIVERABLES

All ACRP projects conclude with a final report prepared by the researcher. The ACRP contracts require submission of preliminary drafts documenting the research effort. Panels review draft final reports to assess fulfillment of objectives, adequacy of documentation, and clarity of presentation. Each panel member is asked to recommend publication or nonpublication of the research report on a form accompanying the draft final reports. The project SPO reviews each report at the same time it is undergoing panel review and summarizes and transmits all reviewer comments to the principal investigator. Based on reviews by the panel and the SPO, decisions are made concerning publication in the report series. On receipt of the revised final report, the SPO performs a review to determine compliance with panel recommendations and then forwards the revised report and researcher's point-by-point response to the panel.

3.3 CLOSING OUT RESEARCH CONTRACTS

After receipt of each project final report, the closeout of the project contract begins. The TRB begins by obtaining and evaluating the researcher's inventory of data and equipment. Generally, National Academies' policy requires researchers to retain data for 3 years, following which the researchers can notify the National Academies of their intent to destroy the data unless otherwise directed. Capital equipment purchased or fabricated by researchers using project funds is retained by the researchers until the National Academies determines its disposition. If a decision is made that the equipment is to be sold rather than delivered for further use in the ACRP, the researchers credit its fair and reasonable price to the ACRP. The SPOs are also responsible for notifying the National Academies and the FAA of the status of the closeout activities and disbanding the technical panels.

Table 5 provides a sample schedule for Phase 3.

Table 5: Sample Phase 3 Schedule

Time	Event
Week 60	Research begins
Week 61	Site visit by ACRP staff
Week 63	Technical Panel reviews/approves working plan
Monthly/Quarterly	Researcher submits progress reports
Month 20	Researcher submits final report
Month 22	Technical Panel reviews/approves final report
Month 24	The TRB closes out contract
Total Time: Approximately 24 months	

Special Projects

The general ACRP research process described thus far refers primarily to standard projects (areas 1 through 10). However, there often arises an airport need that requires other research methods available through ACRP special projects research (area 11). In order to conduct special projects research, the AOC appoints specific panels comprised of subject matter experts for a given topic area.

To begin special projects research in the ACRP, the AOC assigns a funding level to one of the designated ACRP special project areas. The respective panel is then entrusted with selecting the specific projects within that area. Such is the case with the legal studies (11-01) and synthesis studies (11-03) programs. On occasion, the AOC will recommend that a specific topic be studied as a legal research digest or synthesis project, in which case the respective panel will further refine the scope of work.

Conversely, the AOC may designate that certain funds be placed in the ACRP quick response area (11-02), which acts as a reserve account that can only be utilized on an ad hoc basis by the AOC to study urgent airport needs. Quick response projects are only initiated if an urgent need is discovered between AOC meetings. The AOC can increase, decrease, or reallocate funds within the 11-02 account to other areas of the ACRP research portfolio at the discretion of the AOC members.

TYPES OF ACRP RESEARCH PRODUCTS

There are advantages to customizing research approaches to fit the nature of the problem to be solved. Therefore, the results are suitable; the ACRP makes use of seven different types of research formats.

- Standard research projects;
- Synthesis studies;
- Legal studies;

- Continuation studies;
- Quick response projects;
- Workshops on research results; and
- Graduate research award projects.

A few of the most useful ACRP reports include:

- ACRP report 65, Guidebook for Airport Irregular Operations (IROPS) Contingency Planning. This report provides a template for improving communications, cooperation, and collaboration between airports, airlines, the FAA, the TSA, and the U.S. Customs and Border Protection to improve airports contingency planning for irregular operations such as response to major snow events.
- Project 02-28, Airport Sustainability Practices. This report provides airport operators best practice guidelines for improving airport sustainability.
- Project 04-05, A Guidebook for Airport Safety Management Systems. This report provided airport operators an overview of implementation of Safety Management Systems.

STANDARD RESEARCH PROJECTS

The form of research described throughout this chapter has been that of a standard research project. These types of projects tend to be complex and require a budget of more than \$300,000 and 18 to 24 months to accomplish the stated objective. The other project formats vary from this standard format in one way or another.

SYNTHESIS STUDIES

Reports on the state of the practice in critical areas are an important part of a well-rounded research program. Synthesis studies examine what airports have done about specific problems and the findings are collected into a readable, useful form for the practicing professional. Given the decentralized nature of the airport industry where hundreds of airports face many similar problems, transferring information on practical experiences can be extremely valuable.

Synthesis reports present case studies based on an extensive examination of current and recent activity on the topic and often include results of surveys of practitioners. Synthesis studies produced by the ACRP strive to inform airport managers about innovations that are being used by others to solve problems. In this manner, a broad implementation of successful innovation can be achieved by effectively communicating the current state of practice for a given topic.

General funding amounts are determined by the AOC, although specific synthesis studies topics are selected by a panel appointed to oversee this portion of the program.

LEGAL STUDIES

Legal research has proven to be an important area of research in the NCHRP and the TCRP, so a vehicle for legal studies has been included in the ACRP. Problems in transportation law are so specific that general solicitations for research needs are not effective and a special mechanism is

used to generate legal research problem statements. An ACRP legal panel, composed of experts in airport law, reviews these legal issues and recommends problems to be researched. The need for legal studies continues from year to year, and the emphasis areas will be determined by the ACRP panel on a periodic basis. These emphasis areas will change over time, depending on conditions in the airport industry. Legal studies have proved to be highly cost-effective in producing timely information on legal findings, conclusions, and precedent-setting cases.

CONTINUATION STUDIES

Some research projects may take 2 years or more to complete. During the course of some projects, the ACRP panel may identify an expanded scope of work that requires additional funding. Each annual program may include funds for projects that started in an earlier year and have a need to continue. The AOC decides the amount of funding to be allocated to continuation projects as a regular part of the annual programming and funding process.

QUICK RESPONSE PROJECTS

Research is needed for problems that demand a near-term response. Such studies are of short duration with concentrated levels of effort. The flexibility to perform such research is an important asset for the ACRP. The normal process for cooperative research requires lead time to define the scope of work, solicit proposals, and select the researcher. On the other hand, rapid response studies can complement research that is undertaken through this normal process.

For each ACRP quick response task, an informal working group is formed to:

- Develop the final scope;
- Determine the appropriate mechanism to procure the needed technical assistance (this mechanism can include sole source, limited solicitation, or fully open solicitation);
- Select the research agency based on the procurement process used; and
- Review task deliverables.

Quick response projects may provide a more timely response to new or emerging regulatory requirements or may produce answers to a problem where help is needed urgently. Such projects may be carried out in collaboration with committees of airport-related associations or other organizations to enable groups of volunteers to accomplish more than they could accomplish without the help of paid consultants.

Research Completion: Publishing and Disseminating Products

Research results are of little value if they are not disseminated. Therefore, it is the normal practice of the TRB to make every reasonable attempt to publish and widely distribute the reports submitted for each project. The TRB encourages researchers to write clear and succinct reports that make it easy for readers to determine their applicability to daily airport operations. More technical details are included as appendices in each report.

Rights to publish and distribute project reports, digests, technical articles, computer software, slides, and audiovisual aids for presenting research findings are reserved by the National Academies and the FAA and are exercised according to its policy for broad dissemination of all publications and ancillary materials through the TRB, the FAA, and other appropriate distribution processes. Permission to use copyrighted materials that are to be included in ACRP research reports must be obtained by the ACRP contractor in writing from both the author and the publisher. Documents granting permission must be transmitted to the ACRP where they become part of the permanent file on the particular report. Researchers may not copyright or cause or permit to be copyrighted any article, data, written materials, computer software, or other information prepared under an ACRP contract, whether published directly or by others, in book form or in a scientific or technical journal. Material contained in interim or final reports that have been reviewed by the ACRP may be published by the researcher, provided that credit is given to the individuals and organizations that conducted and sponsored the work.

PROMOTING APPLICATION OF RESEARCH RESULTS

The success of an applied research program like the ACRP depends on getting research results into the hands of airport practitioners in formats that are easy for them to use and apply. From the start, the AOC and the TRB staff have worked to ensure ACRP products are disseminated to the right people, in a timely manner, and in the most useful formats. This includes widely sharing reports via the distribution systems of the TRB and select airport associations. As standard practice, copies go to approximately 100 libraries, more than 150 universities, appropriate TRB panels and committees, and practitioners who have signed up to receive publications in particular subject areas. The FAA and airport association staffs also receive copies of each published report.

To further encourage the use of ACRP research, the TRB makes ACRP publications available free of charge on the ACRP Web site. This ensures on-demand access to research whenever and wherever it is needed. The TRB announces the availability of these online publications to airport industry press, to thousands of individuals who subscribe to the TRB e-Newsletter, and to thousands more who connect with the program via social media sites like LinkedIn, Twitter, and Facebook. The FAA and certain partner organizations further publicize reports through syndicated feeds on their own Web sites that automatically update whenever the TRB releases a new ACRP publication.

Despite the program's growing reach, the AOC and TRB staff know the existing distribution system might miss some segments of the airport industry or fail to fully grab the attention of busy airport professionals. As a result, the AOC authorized ACRP special project 11-05, Dissemination of ACRP Research, to systematically evaluate distribution options and develop a plan for promoting application of ACRP research.

First convened in the summer of 2010, the Dissemination of ACRP Research Project has three objectives:

- (1) Increase awareness of and engagement with the ACRP among targeted airport practitioner audiences and foster a group of practitioner advocates who will help the TRB disseminate research results throughout the aviation industry;
- (2) Increase readership and encourage practical application of ACRP research among industry practitioners and their organizations; and
- (3) Obtain feedback from practitioners to determine if and how ACRP research results meet their needs and then examine notable positive and negative exceptions.

The project includes four distinct tasks. The first expands existing dissemination methods and initiates new ones to ensure the program reaches targeted audiences. The second task involves developing targeted surveys to assess the program. The third task focuses on identifying and customizing critical support tools, including online surveys, webinar tools, and an outreach database. The final task, still being defined, will assess the program's Web site to ensure ACRP products are easy to access.

The ACRP has already made notable progress on these dissemination tasks. Thus far, the program has:

- **Launched the ACRP Practitioners Database (beta version).** Promoting ACRP research relies on a robust and current contact list. The database creates a self-service portal that provides practitioners with online resources and services as incentives to encourage them to keep their contact information up to date and engage with the program. The new database not only consolidates ACRP contacts, which were previously tracked in three separate systems, but it doubles the number of contacts from 3,000 to 6,000. Further, by associating contacts with specific organizations, airports, and fields of interest, it allows the program to more effectively and efficiently target publication, panel solicitation, and other program announcements.
- **Significantly increased use of the ACRP Web site and downloads of ACRP publications.** Views of ACRP webpages have increased by 250 percent since the first part of 2010. This suggests that dissemination efforts to raise awareness of the program and increase use of research results are having their intended effect. Further, a review of popular downloads in the first half of 2012 suggests ACRP publications have long-term value. For instance, three of the most popular publications in the first half of 2012—Report 25: Airport Passenger Terminal Planning and Design, Volume 1; and Report 1: Safety Management System for Airports, Volumes 1 and 2—were originally published in April 2010, September 2007, and November 2009, respectively.
- **Initiated an ACRP Ambassador Program.** Based on similar programs offered by other cooperative research programs, the Ambassador Program strengthens ACRP's connections to industry by bringing trained, regionally assigned practitioner-advocates to events that TRB staff cannot attend. Current ambassadors range from airport directors and researchers to state aviation representatives, current and former airport staff, and consultants. As a testament to the perceived value of this program, interested individuals submitted more than 100 inquiries and 44 applications for eight initial 2-year ambassador slots.

- **Piloted two successful and popular series of ACRP webinars.** Through careful planning and promotion, the program quadrupled those registering for and attending webinars and, based on participant feedback, increased the number of participants who described themselves as “satisfied” and “very satisfied” with the content. Further, the ACRP began providing webinars for free and archiving them for later viewing, extending both their value and utility. For some webinars, registrants can now earn professional credits, which further increase the usefulness of webinars for busy participants.

Table 6: ACRP Webinar Attendance

ACRP Webinars	Registrants per Webinar (average)	Attending Registrants per Webinar (average)	Estimated Audience per Webinar (average)
Before Dissemination Project	58	31	109
Fall 2011 Series	258	167	272
Spring 2012 Series	231	144	256

- **Revamped the existing Speakers Bureau,** which puts outside organizations in touch with ACRP researchers. Through the ACRP Web site, event organizers can easily identify potential speakers and the projects they are willing to speak about. Further, interested speakers can use the site to nominate themselves as potential speakers.
- **Developed an assessment methodology and assessment tools for formally measuring ACRP’s impact and utility.** Surveys have been distributed for the fall 2011 and spring 2012 webinar series and to individuals who applied to become program ambassadors. Several additional assessments are planned for 2012 and beyond to evaluate research publications, the program as a whole, and other program elements.
- **Published six issues of “Impacts on Practice,”** which highlight how individual airports have applied ACRP research. These case studies have demonstrated how airports like San Diego International, Austin-Bergstrom International, and Aspen-Pitken County/Sardy Field have benefited from research on strategic planning, mitigating airport noise, greenhouse gas emissions, traumatic events, and lightning strikes.
- **Created ACRP’s social media presence.** The ACRP’s presence on Facebook (since 2011), Twitter (since 2010), and LinkedIn (since 2010) provides alternate venues for promoting the program and research, soliciting problem statements and panel nominations, and announcing program news. Since their inception, the ACRP’s social media channels have gained more than 3,300 connections/followers combined.
- **Developed ACRP’s first eVideo.** Featuring industry professionals, the eVideo will be shared online and via email and social media channels. The eVideo, first of several planned, strengthens the ACRP’s connection to the industry by demonstrating to airport practitioners the value their peers have found in the research and participating in the program.

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CHAPTER 5: ACRP PROGRESS

Program Finance

Since the inception of the ACRP, over \$66 million in program funds have been invested directly in over 260 independent projects.

Beginning in 2005, the first allocation of \$3 million was set to launch the pilot ACRP. This initial allocation was followed by \$10 million in 2006. The program maintained funding at \$10 million per year for 2007 and 2008, respectively. Recognizing the importance of research in the airport environmental area, the FAA budget request sought to increase the ACRP from \$10 million to \$15 million per year in 2009. The additional \$5 million was to be used for airport environmental projects. This increased funding was appropriated and has been maintained since 2009. The AOC continues to target \$5 million toward problem statements on airport environmental issues.

Because program funding is an integral part of the ACRP, a summary of the budgets for each ACRP operational year is provided in Tables 6 through 11.

Table 7: ACRP FY 2005/2006 Program Budget
ACRP is a separate budget line item in the annual FAA AIP appropriation

	FRINGE BENEFITS =	33.43%	
	RESEARCH TOPICS FUNDED =	70.88%	
	GENERAL & ADMINISTRATIVE =	19.81%	
	FLOW THROUGH =	3.62%	
ACRP Program Appropriation	13,000,000		
FAA Administrative Takedown ¹	<u>174,000</u>		
FUNDS AVAILABLE			12,826,000
Technical Direction*			
Salaries & Wages	682,300		
Fringes	228,093		
Overhead	645,259		
Travel	450,000		
Publications	250,000		
Technology	80,000		
Other	10,000		
Printing & Duplicating	40,000		
General & Administrative Expenses	<u>472,622</u>		
SUBTOTAL			(2,858,274)
Balance Available for Research + Flow Through			9,967,726
Flow Through (Subcontract)			(348,226)
BALANCE AVAILABLE FOR RESEARCH			9,619,500
AMOUNT PROGRAMMED BY THE AOC IN JANUARY 2006			(7,090,000)
AMOUNT PROGRAMMED BY THE AOC IN JULY 2006			<u>(2,529,500)</u>
BALANCE AVAILABLE FOR PROGRAMMING			0

* Note: For clarification purposes, the amounts budgeted for indirect costs are determined by the indirect cost rates established and adjusted each year by Government auditing agencies. These costs are used to support rent, utilities, accounting, contracts and grants, personnel administration, and other services.

¹ The FAA Administrative takedown cost includes the salary of the FAA ACRP engineer coordinating the ACRP and travel for FAA liaisons to ACRP project technical panel meetings. The TRB appoints a volunteer technical panel of experts to oversee each research study.

Table 8: ACRP FY 2007 Program Budget

	FRINGE BENEFITS =	33.43%	
	RESEARCH TOPICS FUNDED =	70.88%	
	GENERAL & ADMINISTRATIVE =	19.81%	
	FLOW THROUGH =	3.62%	
ACRP Program Appropriation	10,000,000		
FAA Administrative Takedown	<u>150,000</u>		
FUNDS AVAILABLE			9,850,000
Technical Direction			
Salaries & Wages	524,040		
Fringes	175,187		
Overhead	495,591		
Travel	345,735		
Publications	192,075		
Technology	61,084		
Other	7,561		
Printing & Duplicating	30,840		
General & Administrative Expenses	<u>362,960</u>		
SUBTOTAL			(2,195,073)
Balance Available for Research + Flow Through			7,654,928
Flow Through (Subcontract)			(267,428)
BALANCE AVAILABLE FOR RESEARCH			7,387,500
AMOUNT PROGRAMMED BY THE AOC IN JULY 2006			(4,845,500)
AMOUNT PROGRAMMED BY THE AOC IN JANUARY 2007			(2,542,000)
BALANCE AVAILABLE FOR PROGRAMMING			0

Table 9: ACRP FY 2008 Program Budget

	FRINGE BENEFITS =	33.00%	
	RESEARCH TOPICS FUNDED =	71.62%	
	GENERAL & ADMINISTRATIVE =	19.77%	
	FLOW THROUGH =	4.34%	
ACRP Program Appropriation	10,000,000		
FAA Administrative Takedown	200,000		
Funds Available	<u>9,800,000</u>		
FUNDS AVAILABLE			9,800,000
Adjustment for 2007 Increased Administrative Takedown			50,000
Technical Direction			
Salaries & Wages	526,500		
Fringes	173,745		
Overhead	501,533		
Travel	331,120		
Publications	192,601		
Technology	61,569		
Other	8,525		
Printing & Duplicating	27,159		
General & Administrative Expenses	<u>360,282</u>		
SUBTOTAL			(2,183,034)
Balance Available for Research + Flow Through			7,616,966
Flow Through (Subcontract)			(316,966)
BALANCE AVAILABLE FOR RESEARCH			7,300,000
AMOUNT PROGRAMMED BY THE AOC IN JULY 2007			<u>(7,300,000)</u>
BALANCE AVAILABLE FOR PROGRAMMING			0

Table 10: ACRP FY 2009 Program Budget

	FRINGE BENEFITS =	32.65%	
	RESEARCH TOPICS FUNDED =	72.47%	
	GENERAL & ADMINISTRATIVE =	20.10%	
	FLOW THROUGH =	4.63%	
ACRP Program Appropriation	15,000,000		
FAA Administrative Takedown	200,000		
Funds Available	<u>14,800,000</u>		
FUNDS AVAILABLE			14,800,000
Technical Direction			
Salaries & Wages	704,583		
Fringes	230,094		
Overhead	676,344		
Travel	600,000		
Publications	323,000		
Technology	65,300		
Other	24,767		
Printing & Duplicating	28,250		
General & Administrative Expenses	<u>533,006</u>		
SUBTOTAL			(3,185,344)
Balance Available for Research + Flow Through			11,614,656
Flow Through (Subcontract)			(514,656)
BALANCE AVAILABLE FOR RESEARCH			11,100,000
AMOUNT PROGRAMMED BY THE AOC IN JULY 2008			<u>(11,100,000)</u>
BALANCE AVAILABLE FOR PROGRAMMING			0

Table 11: ACRP FY 2010 Program Budget

	FRINGE BENEFITS =	32.60%	
	RESEARCH TOPICS FUNDED =	74.10%	
	GENERAL & ADMINISTRATIVE =	20.81%	
	FLOW THROUGH =	5.20%	
ACRP Program Appropriation	15,000,000		
FAA Administrative Takedown	200,000		
Funds Available	<u>14,800,000</u>		
FUNDS AVAILABLE			14,800,000
Technical Direction			
Salaries & Wages	753,499		
Fringes	245,641		
Overhead	740,388		
Travel	500,000		
Publications	222,700		
Technology	85,000		
Other	8,000		
Printing & Duplicating	30,000		
General & Administrative Expenses	<u>537,950</u>		
SUBTOTAL			(3,123,178)
Balance Available for Research + Flow Through			11,676,822
Flow Through (Subcontract)			(576,822)
BALANCE AVAILABLE FOR RESEARCH			11,100,000
AMOUNT PROGRAMMED BY THE AOC IN JULY 2009			<u>(11,100,000)</u>
BALANCE AVAILABLE FOR PROGRAMMING			0

Table 12: ACRP FY 2011 Program Budget

	FRINGE BENEFITS =	31.71%	
	RESEARCH TOPICS FUNDED =	63.24%	
	GENERAL & ADMINISTRATIVE =	21.03%	
	FLOW THROUGH =	3.43%	
ACRP Program Appropriation	15,000,000		
FAA Administrative Takedown	200,000		
Funds Available	<u>14,800,000</u>		
FUNDS AVAILABLE			14,800,000
Technical Direction			
Salaries & Wages	856,400		
Fringes	271,564		
Overhead	713,336		
Travel	423,798		
Publications	317,179		
Technology	100,150		
Other	27,211		
Printing & Duplicating	32,532		
General & Administrative Expenses	<u>576,577</u>		
SUBTOTAL			(3,318,747)
Balance Available for Research + Flow Through			11,481,253
Flow Through (Subcontract)			(381,253)
BALANCE AVAILABLE FOR RESEARCH			11,100,000
AMOUNT PROGRAMMED BY THE AOC IN JULY 2010			<u>(11,100,000)</u>
BALANCE AVAILABLE FOR PROGRAMMING			0

Table 13: ACRP FY 2012 Program Budget

	FRINGE BENEFITS =	31.71%	
	RESEARCH TOPICS FUNDED =	63.24%	
	GENERAL & ADMINISTRATIVE =	21.03%	
	FLOW THROUGH =	3.43%	
ACRP Program Appropriation	15,000,000		
FAA Administrative Takedown	200,000		
Funds Available	<u>14,800,000</u>		
FUNDS AVAILABLE			14,800,000
Technical Direction			
Salaries & Wages	827,907		
Fringes	262,529		
Overhead	689,603		
Travel	542,475		
Publications	277,767		
Technology	97,652		
Other	17,959		
Printing & Duplicating	26,279		
General & Administrative Expenses	<u>576,577</u>		
SUBTOTAL			(3,318,748)
Balance Available for Research + Flow Through			11,481,252
Flow Through (Subcontract)			(381,252)
BALANCE AVAILABLE FOR RESEARCH			11,100,000
AMOUNT PROGRAMMED BY THE AOC IN JULY 2011			<u>(8,681,000)</u>
BALANCE AVAILABLE FOR PROGRAMMING			2,419,000

An important contribution to the ACRP that is not reflected in the ACRP budgets above is the value of volunteer time contributed by ACRP panel members. All panel members serve as volunteers; they are reimbursed only for travel expenses. There are currently over 700 airport professionals working on project panels, each for an average of at least 3 days per year. The value of time spent by volunteers is estimated to be more than \$1.5 million annually, representing significant savings for the ACRP budget.

Progress Summary

Tables 12 through 15 summarize key indicators representing the ACRP progress since its inception.

Table 14: ACRP Fact Sheet

Authorization:	Vision 100: FY 2004 – 2011 FAA Modernization and Reform Act of 2012: FY 2012 – Indefinitely
Funding:	FY 2005: \$ 3 Million FY 2006: \$10 Million FY 2007: \$10 Million FY 2008: \$10 Million FY 2009: \$15 Million FY 2010: \$15 Million FY 2011: \$15 Million FY 2012: \$15 Million
Total Studies Authorized:	Over 260
Total Allocated to Research:	\$66,417,000
Studies Completed:	167
Studies Published:	170
Number of Panel Slots (Active Projects):	590
Panel Meetings:	500 (through 12/31/2011)
Problem Statements Considered To Date:	1000 (through FY 2013)
Proposals Received:	702 (average 6.51 per project)

Table 15: Allocation of ACRP Funds Through 2012

Research Field	Allocated (\$)	With Special Projects (%)	Without Special Projects (%)
1. Administration	\$8,195,000	12	15
2. Environment	\$17,550,000	26	32
3. Policy/Planning	\$10,150,000	15	18
4. Safety	\$5,325,000	8	10
5. Security	\$250,000	0.3	0.3
6. Human Resources	\$400,000	0.6	0.6
7. Design	\$4,450,000	7	8
8. Construction	\$150,000	0.1	0.1
9. Maintenance	\$2,450,000	4	4
10. Operations	\$6,250,000	10	12
11. Special Projects	\$11,247,000	17	-
TOTAL	\$66,417,000	100	100

Table 16: Origin of Problem Statements

Organization	FY 2005-2008		FY 2009		FY 2010		FY 2011		FY 2012		Selected to Date (Thru FY 2012)	
	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)	Number	Percentage (%)
Airport Operator	48	14.9	29	19.7	27	12.3	12	11.5	35	27.8	30	19.5
State DOT	26	8.1	4	2.7	4	1.8	0	0	3	2.4	4	2.6
FAA	8	2.4	8	5.4	23	10.5	5	4.8	5	4	19	12.4
Industry Associations Staff/Committee	26	8.1	13	8.8	10	4.6	7	6.7	3	2.4	21	13.7
Airlines/Airline Associations	1	0.3	0	0	9	4.1	5	4.8	1	0.7	5	3.3
TRB Committee	7	2.2	6	4.1	9	4.1	5	4.8	4	3.2	12	7.8
Industry	29	9	19	12.9	8	3.6	7	6.7	10	7.9	10	6.5
University	67	20.8	30	20.4	47	21.5	12	11.5	9	7.1	13	8.4
Consultant	85	26.4	37	25.2	80	36.5	50	48.2	53	42.1	27	17.5
Other	25	7.8	1	0.8	2	1	1	1	3	2.4	9	5.8
TOTAL	322	-	147	-	219	-	104	-	126	-	150	-

Table 17: Panel Composition of Active Projects

		Number	Percentage (%)
Affiliation	Airline	28	5
	Airport Operator	229	37
	State Government	26	4
	Local Government/Metropolitan Planning Organization/Transit	31	5
	Federal Government	11	2
	Industry/Private Sector	67	11
	Consultants	169	27
	University	36	6
	Association	19	3
		Members/Chairs	Members/Chairs
Race	White	459/92	75.2/88.5
	Minorities	72/8	11.8/7.7
	Undisclosed	79/4	13.0/3.8
		Members/Chairs	Members/Chairs
Gender	Male	446/73	70.9/70.2
	Female	164/31	26.1/29.8

CHAPTER 6: CONCLUSION

A number of conclusions can be drawn from the progress of the ACRP throughout its initial years.

- **The ACRP serves the aviation industry as a dynamic, well-designed vehicle for providing research, best practices, and information on a variety of issues of concern to airports.**

The operating foundation provided by the FAA and the TRB allows the ACRP to function smoothly and efficiently. Research needs submitted to the ACRP cover a wide range of interests, and the program is able to deliver a variety of research products needed to solve identified needs. The current ACRP research portfolio contains a combination of long- and short-term, broad- and narrow-scoped projects covering the full spectrum of airport problems.

- **The ACRP MOA provides a strong foundation for the program.**

The main tenets of the MOA regarding organization, direction, management, and funding have provided a strong foundation for running the program as it was envisioned during the drafting of the original guidance documents. Because the TRB has successfully operated other cooperative research programs for many years, TRB staff was able to draw upon and refine both the lessons and most successful elements of those programs when managing the ACRP.

- **The composition of the program's governing board, the ACRP AOC, provides a balanced representation of the airport industry.**

The AOC is meant to represent a microcosm of the U.S. airport industry. Members come from a good mix of large-, medium-, and small-hub airports, as well as nonhubs and general aviation airports. Members also come from academia, private industry, airport and airline associations, and the Federal agencies.

- **The AOC provides excellent guidance and ensures projects are carefully considered during the selection process and funded according to the greatest needs of the industry.**

The AOC has responded admirably to the responsibility and challenge of selecting projects for the ACRP research portfolio.

- **ACRP operating costs are contained and in line with similarly run cooperative research programs in other industries.**

When compared to the two other long-standing cooperative research programs at the TRB, the cost structure for the ACRP is reasonable.

- **The TRB staff provides effective program management and administration of the ACRP.**

The TRB staff—including the Director of Cooperative Research, who serves as the AOC's Secretariat, and the many SPOs, who manage the day-to-day operations of individual projects—work diligently and professionally to carry out the mission of the ACRP. They

provide notable support to the AOC, including logistical support for meetings and problem statement collection and review. The duties required to manage and support the resulting individual projects are significant, and the SPOs must do so while managing a number of projects simultaneously.

- **There is significant involvement from aviation industry stakeholders in all phases of the ACRP research cycle.**

There are three primary ways to participate in the ACRP, and the initial statistics showing how airport industry stakeholders participate in the program are very promising. For the purposes of this report, airport industry stakeholders include airport operators; the general/flying public; consultants; trade associations; universities; and Federal, state, and local Government officials. These stakeholders participate in the following ways:

- **Identifying research needs and submitting problem statements.**

Through the submission of problem statements, concerned stakeholders have provided the ideas for virtually every research project currently underway in the ACRP, except for the few that have been suggested by AOC members. To date, the ACRP has received over 1,000 problem statements, covering all areas of interest in the airport industry (see Table 14).

- **Serving as subject matter experts on technical panels.**

The number of volunteers for project panels indicates strong support for the program. Of the over 600 individuals currently serving on ACRP panels, almost half are airport operators. They are also a diverse group with minorities and women panelists (see Table 15).

- **Submitting proposals in response to the RFPs and conducting research on selected projects.**

Industry members both capable and qualified to perform ACRP research have shown significant interest in the program. Proposers from different backgrounds and organizations have taken the time and energy to develop and submit over 702 project proposals, yielding an average of over 6.5 submissions per project.

- **The volume of published research has increased dramatically within the last few years of the program due to timing of the research cycle.**

Due to the nature of the research cycle and its timing, the amount of resources being published has been continually increasing. Typically, from start to finish research will take about 2 years to publish. This has caused the program to be at point where research is continually being published throughout the year.

- **The utility of reports published has been very timely in many circumstances meeting demanding industry needs.**

The timing and content of many publications have been valuable resources to the industry.

- **Clarifying the role of the ACRP in conducting security research.**

The FAA and the TRB go to great lengths to ensure that ACRP studies support research efforts that are complementary to, and not duplicative of, existing research within other Federal research programs. The FAA provides \$5 million per year to the National Safe Skies Alliance (NSSA) to conduct airport-related security research. The FAA and the TSA signed a MOA whereby the TSA provides technical direction to the NSSA for security projects and assigns security research projects to the NSSA (see Appendix C). Security problem statements received by the ACRP are forwarded to the TSA for consideration of inclusion in the research the TSA conducts through the NSSA.

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Appendix A: Research Project Details

Appendix A provides more detailed descriptions of ongoing and completed ACRP research projects (through June 2012).

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
1:Administration						
01-01	Guidebook for Managing Small Airports	University of Minnesota	1/24/2007	3/31/2009	Completed - Published as Report 16 and Web-Only Document 5	\$400,000(06)
01-02	Guidebook for Developing and Managing Airport Contracts	HNTB	4/24/2007	2/28/2010	Completed - Published as Report 33	\$400,000(07)
01-03	Integrating Airport Information Systems	Aero Tech Consulting	8/10/2007	11/22/2008	Completed - Published as Report 13 and Web-Only Document 1	\$300,000(07)
01-04	Marketing Guidebook for Small Airports	Eclat Consulting	10/26/2007	9/30/2009	Completed - Published as Report 28	\$200,000(07)
01-05	Guidebook for Airport Capital Project Delivery Systems	Northeastern University	4/4/2007	7/30/2009	Completed - Published as Report 21	\$100,000(07) \$25,000 (08) \$70,000 (10)
01-06	A Guidebook for Developing an Airport Performance Measurement System	Infrastructure Management Group	5/6/2008	4/2/2010	Completed - Published as Report 19	\$400,000(08)
01-07	Airport/Airline Agreements - Practices and Characteristics	Ricondo & Associates	5/30/2008	4/5/2010	Completed - Published as Report 36	\$400,000(08)
01-08	Guidebook for Developing and Leasing Airport Property	R.W. Armstrong and Associates	6/24/2008	9/30/2010	Completed - Published as Report 47	\$400,000(08)
01-09	Resource Guide to Airport Performance Indicators	Oliver Wyman, Inc.	5/8/2009	12/31/2010	Completed - Published as Report 19A	\$400,000(09)
01-10	A Handbook for Developing, Implementing, and Overseeing Airport Capital Plans	HNTB Corp.	7/10/2009	12/31/2010	Completed - Published as Report 49	\$400,000(09)
01-11	Understanding Airport In-Terminal Concession Programs	LeighFisher, Inc.	6/17/2009	5/31/2011	Completed - Published as Report 54	\$350,000(09)
01-12	A Primer for Information Technology Systems at Airports	Faith Group, LLC	7/7/2009	5/31/2011	Completed - Published as Report 59	\$350,000(09)
01-13	Developing a Database-Driven Web Application for Benchmarking Airport Performance	Amadeus Consulting	9/30/2010	6/30/2013	Research in Progress	\$500,000(09A) \$100,000(10)
01-14	Considering and Evaluating Airport Privatization	LeighFisher, Inc.	5/10/2010	12/31/2011	Completed - Publication Pending	\$500,000(09A)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
01-15	Assessing and Implementing Innovative Revenue Strategies - A Guide for Airports	Kramer Aerotech, Inc.	5/14/2010	8/31/2012	Research in Progress	\$400,000(10)
01-16	Asset and Infrastructure Management for Airports	GHD Consulting	6/16/2010	12/1/2011	Completed Published as Report 69	\$400,000(10)
01-17	Guidebook for Developing General Aviation Airport Business Plans	Aviation Management Consulting Group	6/28/2010	6/1/2012	Completed - Publication Pending	\$400,000(10)
01-18	Application of Enterprise Risk Management at Airports	Marsh, USA	6/30/2010	3/30/2012	Completed - Publication Pending	\$350,000(10)
01-19	Airport Capital Improvements: Developing a Cost-Estimating Model and Database	MCR Federal	7/13/2011	3/13/2013	Research in Progress	\$400,000(11)
01-20	Procuring and Managing Professional Services for Airports	HNTB	6/15/2011	12/14/2012	Research in Progress	\$350,000(11)
01-21	A Guidebook for Airport-Airline Consortiums	AVAirPros	6/1/2012	12/1/2013	Research in Progress	\$400,000(12)
01-22	Guidebook for Successfully Assessing and Managing Risks in Airport Capital and Maintenance Projects				In Development	\$300,000(12)

2:Environment

02-01	Alternative Aircraft and Pavement Deicers and Anti-Icing Formulations With Improved Environmental Characteristics	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	\$600,000(06)
02-02	Deicing Planning Guidelines and Practices for Stormwater Management Systems	CH2M Hill	10/9/2006	9/12/2008	Completed - Published as Report 14 and Deicing Practices 1-41	\$300,000(06)
02-03	Aircraft and Airport-Related Hazardous Air Pollutants: Research Needs and Analysis	Aerodyne Research, Inc.	12/19/2006	12/18/2007	Completed - Published as Report 7	\$100,000(06)
02-03A	Measurement of Gaseous HAP Emissions from Idling Aircraft as a Function of Engine and Ambient Conditions	Aerodyne Research, Inc.	1/12/2009	3/30/2012	Completed - Published as Report 63	\$500,000(06)
02-04	Research Needs Associated With Particulate Emissions at Airports	Environmental Consulting Group, Inc.	1/2/2007	3/1/2008	Completed - Published as Report 6	\$100,000(06)
02-04A	Summarizing and Interpreting Aircraft Gaseous and Particulate Emissions Data	University of Missouri-Rolla	4/12/2007	7/11/2008	Completed - Published as Report 9	\$350,000(07)
02-05	Aircraft Noise: A Toolkit for Managing Community Expectations	Landrum & Brown	4/20/2007	3/31/2009	Completed - Published as Report 15	\$500,000(07)
02-06	Guidebook on Preparing Airport Greenhouse Gas (GHG) Emissions Inventories	Wyle Laboratories	10/9/2007	9/8/2008	Completed - Published as Report 11 and Web-Only Document 2	\$200,000(07)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
02-07	Handbook for Analyzing the Costs and Benefits of Alternative Turbine Engine Fuels at Airports	CSSI, Inc.	10/22/2007	10/29/2010	Completed - Published as Report 46	\$500,000(07)
02-08	Quantifying Contributions to Local Air Quality Impacts From Airport-Related Emissions	Wyle Laboratories, Inc.	6/4/2008	4/30/2012	Completed - Published as Report 71	\$600,000(08)
02-09	A Comprehensive Development Plan for a Multimodal Noise and Emissions Model	Wyle Laboratories, Inc.	7/7/2008	10/29/2010	Completed - Published as Web-Only Document 11	\$200,000(08)
02-10	Handbook for Considering Practical Greenhouse Gas Emission Reduction Strategies for Airports	CDM Federal Programs Corp.	6/9/2009	6/9/2011	Completed - Published as Report 56	\$500,000(09)
02-11	A Handbook for Addressing Water Resource Issues Affecting Airport Capacity Enhancement Planning	Gresham, Smith and Partners	5/11/2009	5/31/2011	Completed - Published as Report 53	\$150,000(09)
02-12	Environmental Optimization of Aircraft Departures: Fuel Burn, Emissions, and Noise	Wyle Laboratories, Inc.	4/20/2009	7/31/2012	Research in Progress	\$300,000(09)
02-13	Guidebook of Practices for Improving Environmental Performance at Small Airports	Gresham, Smith and Partners	6/16/2009	8/20/2010	Completed - Published as Report 43	\$200,000(09) \$ 75,000(08)
02-14	Guidebook for Selecting Methods to Monitor Airport and Aircraft Deicing Materials	Gresham, Smith and Partners	6/3/2010	2/28/2012	Completed - Publication Pending	\$200,000(09A)
02-15	Recycling Strategies for the Airport Industry	Cascadia Consulting Group	9/22/2010	9/22/2012	Completed - Publication Pending	\$300,000(09A)
02-16	Airport Ground Support Equipment (GSE) Inventory and Emission Reduction Strategies	CDM Federal Programs Corp.	6/18/2010	6/30/2012	Completed - Publication Pending	\$600,000(09A)
02-17	Measuring PM Emissions from Auxiliary Power Units, Tires, and Brakes	Missouri University of Science and Technology	9/3/2010	9/2/2012	Research in Progress	\$500,000(09A)
02-18	Guidelines for Integrating Alternative Jet Fuel Into the Airport Setting	Metron Aviation	6/17/2010	10/16/2011	Completed - Published as Report 60	\$250,000(09A)
02-19	Winter Design Storm Factors for Airports	CH2M Hill	6/24/2010	12/1/2012	Research in Progress	\$300,000(09A)
02-20	The Role of Air Travel in the Transmission and Spread of Insect-Borne Diseases	University of Florida	9/7/2010	9/28/2012	Research in Progress	\$250,000(10)
02-20A	Evaluating and Mitigating the Risk of Disease Transmission at Airports and on Aircraft	Environmental Health & Engineering	7/6/2011	1/6/2013	Research in Progress	\$200,000(11)
02-21	Evaluation of Airport Emissions Within State Implementation Plans	KB Environmental Sciences	8/31/2010	6/29/2012	Research in Progress	\$500,000(10)
02-22	Incorporating Sustainability into Traditional Airport Projects	Landrum & Brown	7/12/2010	5/31/2012	Completed - Publication Pending	\$300,000(09A)
02-23	Alternative Fuels as a Means to Reduce PM2.5 Emissions at Airports	Project Performance Corp./AEA Group	7/6/2010	4/30/2012	Completed - Publication Pending	\$500,000(10)
02-24	Guidelines for Airport Sound Insulation Programs	Jones Payne Group	8/27/2010	10/17/2012	Research in Progress	\$200,000(10)
02-25	Handbook for Evaluating Emissions and Costs of APU's and Alternative Systems	ESA Airports, Inc.	7/7/2010	12/31/2011	Completed - Published as Report 64	\$200,000(10)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
02-26	Assessing Aircraft Noise Conditions Affecting Student Learning	Wyle Laboratories, Inc.	6/26/2010	8/31/2012	Research in Progress	\$450,000(10)
02-27	Aircraft Taxi Noise Database for Airport Noise Modeling	Wyle Laboratories, Inc.	6/11/2010	9/30/2012	Research in Progress	\$150,000(10)
02-27A	Developing a Generic Commercial Jet Taxi Noise Directivity Pattern for AEDT		2/22/2012	9/30/2012	Research in Progress	\$75,000(12)
02-28	Airport Sustainability Practices: Tools for Evaluating, Measuring, and Implementing	Vanasse Hangen Brustlin, Inc.	6/27/2011	12/26/2012	Research in Progress	\$800,000(11)
02-29	Guidance for Treatment of Deicing-Impacted Airport Stormwater	Gresham, Smith and Partners	5/31/2011	2/5/2013	Research in Progress	\$600,000(11)
02-30	Enhancing the Airport-Industry Database of Sustainable Practices	CDM Federal Programs Corp.	7/18/2011	1/18/2014	Research in Progress	\$500,000(11)
02-31	Assessment of Sound Insulation Treatments	Wyle Laboratories, Inc.	7/8/2011	10/8/2012	Research in Progress	\$350,000(11)
02-32	Understanding Nuisance Microbial Biofilms in Receiving Waters Impacted by Airport Deicing Activities	CH2M Hill	7/20/2011	3/19/2013	Research in Progress	\$400,000(11)
02-33	Guidance for Estimating Airport Construction Emissions	Wyle Laboratories, Inc.	7/1/2011	12/31/2012	Research in Progress	\$350,000(11)
02-34	Quantifying Aircraft Lead Emissions at Airports	Sierra Research, Inc.	6/3/2011	12/3/2012	Research in Progress	\$500,000(11)
02-35	Research Methods for Understanding Aircraft Noise Annoyance and Sleep Disturbance	Harris Miller Miller & Hanson	9/20/2011	9/19/2013	Research in Progress	\$600,000(11)
02-36	Assessing Opportunities for Alternative Fuel Distribution Programs	Metron Aviation, Inc.	5/26/2011	12/6/2012	Research in Progress	\$500,000(11)
02-37	Integrated Noise Model Accuracy for General Aviation Aircraft	Harris Miller Miller & Hanson	6/13/2011	2/13/2013	Research in Progress	\$400,000(11)
02-38	Guidance for Energy Facilities Compatibility With Airports and Airspace	Harris Miller Miller & Hanson	5/2/2012	11/2/2013	In Development	\$450,000(12)
02-39	Applying Whole Effluent Toxicity Testing to Evaluate Airport Runoff				In Development	\$500,000(12)
02-40	Climate Change Risk Assessment and Adaptation Planning at Airports				In Development	\$500,000(12)
02-41	Estimating Takeoff Thrust Setting Estimates for Airport Emissions Inventories				In Development	\$450,000(12)
02-42	Understanding Air Quality and Public Health Studies Related to Airports				In Development	\$200,000(12)
3:Policy and Planning						
03-01	Light Detection and Ranging (LIDAR) Deployment for Airport Obstructions Surveys	University of Mississippi	1/30/2007	12/31/2009	Completed - Published as Research Results Digest 10	\$350,000(06)
03-02	Airport Passenger-Related Processing Rates Guidebook	HNTB	1/16/2007	6/30/2009	Completed - Published as Report 23	\$200,000(06)
03-03	Enhancing Airport Land Use Compatibility	Mead & Hunt, Inc.	12/28/2006	9/15/2009	Completed - Published as Report 27, Volumes 1 & 2	\$500,000(06)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
03-04	Guidebook for Airport-User Survey Methodology	Jacobs Consultancy	1/16/2007	8/31/2009	Completed - Published as Report 26	\$250,000(06)
03-05	Passenger Space Allocation Guidelines for Planning and Design of Airport Terminals	TransSolutions	6/28/2007	5/31/2011	Completed - Published as Report 55	\$400,000(07)
03-06	Guidebook for Planning and Implementing Automated People Mover Systems at Airports	Lea & Elliott	6/12/2007	3/30/2010	Completed - Published as Report 37	\$500,000(07)
03-07	Guidebook for Measuring Performance of Automated People Mover Systems at Airports	Lea & Elliott	6/13/2007	1/31/2012	Completed - Published as Report 37A	\$300,000(07)
03-08	Passenger Air-Service Development Techniques	InterVISTAS-ga2 Consulting	6/21/2007	5/15/2009	Completed - Published as Report 18	\$300,000(07)
03-09	Guidebook for Strategic Planning in the Airport Industry	Ricondo & Associates	6/27/2007	6/15/2009	Completed - Published as Report 20	\$425,000(07)
03-10	Innovative Approaches to Addressing Aviation Capacity Issues in Coastal Mega-Regions	Resource Systems Group, Inc.	2/6/2008	9/30/2009	Completed - Published as Report 31	\$300,000(07)
03-11	A Guidebook for the Preservation of Public-Use Airports	L. Robert Kimball & Associates	6/23/2008	1/15/2011	Completed - Published as Report 44	\$600,000(08)
03-12	Guidebook for Preparing Peak Period and Operational Profiles to Improve Airport Facility Planning and Environmental Analyses	HNTB Corporation	8/13/2008	4/30/2012	Research in Progress	\$350,000(08)
03-13	Understanding Airspace, Objects, and Their Effects on Airports	Jacobs Consultancy	7/11/2008	4/30/2010	Completed - Published as Report 38	\$200,000(08)
03-14	Airport Passenger Conveyance System Usage/Throughput	Trans Solutions, LLC	8/26/2008	3/30/2012	Completed - Published as Report 67	\$300,000(08)
03-15	Impact of Jet Fuel Price Uncertainty on Airport Planning and Development	GRA, Inc.	3/4/2009	2/28/2011	Completed - Published as Report 48	\$400,000(09)
03-16	Guidebook for Estimating the Economic Impact of Air Cargo at Airports	Battelle Memorial Institute	6/5/2009	9/30/2012	Research in progress	\$500,000(09)
03-17	Evaluating Airfield Capacity	LeighFisher	6/29/2009	6/30/2012	Completed - Publication Pending	\$525,000(09)
03-18	Operational and Business Continuity Planning for Prolonged Airport Disruptions	Risk Solutions International, LLC	6/3/2010	10/31/2012	Research in Progress	\$350,000(10)
03-19	Passenger Value of Time, Benefit-Cost Analysis, and Capital Investment Decisions	Economic Development Research Group	7/26/2010	9/1/2012	Research in Progress	\$350,000(10)
03-20	Defining and Measuring Aircraft Delay and Airport Capacity Thresholds	Trans Solutions, LLC	8/30/2010	9/28/2012	Research in Progress	\$250,000(10)
03-21	Developing and Maintaining Support for New Airport Capacity	Mead & Hunt	6/3/2010	9/28/2012	Research in Progress	\$300,000(10)
03-22	Addressing Uncertainty About Future Airport Activity Levels in Airport Decision Making	Inter VISTAS Consulting, LLC	7/15/2010	7/31/2012	Completed - Publication Pending	\$350,000(10)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
03-23	Integrating Aviation and Passenger Rail Planning	Resource Systems Group	7/29/2010	9/30/2012	Research in Progress	\$400,000(10)
03-24	Guidelines for Air Cargo Facility Planning and Development	CDM/Wilbur Smith	7/17/2011	5/13/2013	Research in Progress	\$400,000(11)
03-25	Regulatory Compliance Costs and the Impact on Small Airports	Unison Consulting, Inc.	6/3/2011	11/9/2012	Research in Progress	\$300,000(11)
03-26	Understanding Airline and Passenger Choice in Regions with Multiple Airports	InterVISTAS	8/4/2011	1/4/2013	Research in Progress	\$250,000(11)
03-27	Evaluating Methods for Counting Aircraft Operations at Non-Towered Airports	Woolpert	11/21/2011	11/20/2013	Research in Progress	\$400,000(11)
03-28	Economic Impact of U.S. Airports				In Development	\$400,000(12)
4:Safety						
04-01	Analysis of Aircraft Overruns and Undershoots for Runway Safety Areas	Applied Research Associates, Inc.	9/19/2006	1/31/2008	Completed - Published as Report 3	\$250,000(06)
04-02	Lightning-Warning Systems for Use by Airports	MDA Federal, Inc.	11/7/2006	11/7/2008	Completed - Published as Report 8	\$200,000(06)
04-03	Guidance for Identifying and Mitigating Approach Lighting System Hazards	Virginia Tech	10/3/2007	2/2/2009	Completed - Published as Research Results Digest 6 and Web-Only Document 4	\$300,000(07)
04-04	Simulation-Based Training and Exercise of Civil Aviation Emergency Response Personnel	Applied Research Associates	9/12/2007	12/31/2011	Completed - Results to 04-04A	\$500,000(07)
04-04A	Simulation-Based Training and Exercise of Civil Aviation Emergency Response Personnel				Pending	\$300,000(12)
04-05	A Guidebook for Airport Safety Management Systems	Applied Research Associates	5/24/2007	5/15/2009	Completed - Published as Report 1, Volume 2	\$300,000(07)
04-06	A Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports	Biozone	6/2/2008	1/15/2010	Completed - Published as Report 32	\$300,000(08)
04-07	Airport Apron Management and Control Programs	Ricondo & Associates	5/8/2009	8/30/2011	Completed - Published as Report 62	\$300,000(08)
04-07A	Use of Towbarless Tractors at Airports - Best Practices	Ricondo & Associates	4/20/2009	8/30/2011	Completed - Published as Research Results Digest 15	\$300,000(08)
04-08	Improved Models for Risk Assessment of Runway Safety Areas (RSA)	Applied Research Associates	6/8/2009	3/31/2011	Completed - Published as Report 50	\$400,000(09)
04-09	Risk Assessment Method to Support Modification of Airfield Separation Standards	Applied Research Associates	6/10/2009	2/16/2011	Completed - Published as Report 51	\$250,000(09)
04-10	Airport-to-Airport Mutual Aid Programs	Innovative Emergency Management	7/6/2010	3/1/2012	Completed - Published as Report 73	\$300,000(09A)
04-11	Integrating GIS in Emergency Management at Airports	Barich, Inc.	7/12/2011	11/11/2013	Research in Progress	\$350,000(11)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
04-12	Integrating Web-Based Emergency Management Collaboration Tools into Airport Operations	Innovative Emergency Management	7/15/2011	11/14/2012	Research in Progress	\$400,000(11)
04-13	Integrating Community Emergency Response Teams at Airports	Innovative Emergency Management	7/26/2011	7/26/2013	Research in Progress	\$400,000(11)
04-14	Runway Veer-Off Location Models Distribution Risk Assessment Model	Airport Safety Management Consultants	6/6/2012	12/5/2013	Research in Progress	\$200,000(12)
04-15	Tool for Developing Airport Terminal Incident Response Plans				In Development	\$325,000(12)
5:Security						
05-01	An Airport Guide for Regional Emergency Planning for CBRNE Events	System Planning Corp.	11/15/2006	10/31/2008	Completed - Published as Report 12	\$250,000(06)
6:Human Resources						
06-01	Airport and Air Carrier Resource Manual: Employees Coping with Traumatic Events	University of North Dakota	12/5/2007	5/31/2009	Completed - Published as Report 22	\$300,000(07)
06-02	Airport Leadership Development Program	Ohio State University	9/29/2010	5/31/2012	Completed - Publication Pending	\$100,000(10)
7:Design						
07-01	Innovations for Airport Terminal Facilities	Corgan Associates, Inc.	12/8/2006	7/8/2008	Completed - Published as Report 10	\$400,000(06)
07-02	Airport Curbside and Terminal Area Roadway Operations	Jacobs Consultancy	11/15/2006	5/19/2010	Completed - Published as Report 40	\$400,000(06) \$150,000(09)
07-03	Developing Improved Civil Aircraft Arresting Systems	Protection Engineering Consultants	5/23/2007	10/31/2009	Completed - Published as Report 29	\$500,000(07)
07-04	Airport Passenger Terminal Planning and Design: Spreadsheet Models and User's Guide	Landrum and Brown	6/6/2007	10/31/2009	Completed - Published as Report 25, Volume 2	\$400,000(07)
07-05	Airport Passenger Terminal Planning and Design: Guidebook	Landrum and Brown	6/28/2007	10/31/2009	Completed - Published as Report 25, Volume 1	\$400,000(07)
07-06	Airport Signage and Wayfinding Information Guidelines	Gresham, Smith and Partners	8/21/2008	3/1/2011	Completed - Published as Report 52	\$250,000(08)
07-07	Evaluating Terminal Renewal Versus Replacement Options	Ricondo & Associates	8/16/2010	3/15/2012	Completed - Publication Pending	\$400,000(10)
07-08	Improving Terminal Design to Increase Revenue Generation and Customer Satisfaction	Landrum & Brown, Inc.	6/3/2011	12/8/2012	Research in Progress	\$500,000(11)
07-09	Apron Parking and Design Guidebook				In Development	\$250,000(12)
07-10	General Aviation Facility Planning	Delta Airport Consultants	5/17/2012	11/16/2013	Research in Progress	\$300,000(12)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
07-11	Evaluation Cost-Saving and Energy Reduction Technologies for Escalators and Moving Walks at Airports				In Development	\$250,000(12)
07-12	Planning and Design of Public Lavatories in Airport Terminals				In Development	\$250,000(12)
8:Construction						
08-01	Sustainable Airport Construction Practices	Ricondo & Associates	6/1/2009	6/22/2010	Completed - Published as Report 42	\$150,000(09)
9:Maintenance						
09-01	Recommended Guidelines for the Collection and Use of Geospatially Referenced Data for Airfield Pavement Management	Applied Research Associates, Inc.	11/6/2006	4/30/2010	Completed - Published as Report 39	\$350,000(06)
09-02	Best Practices for Working in or Near Airport Movement Areas	Ricondo & Associates	8/31/2011	2/3/2013	Research in Progress	\$500,000(11)
09-03	Airport Parking Garage Lighting Solutions	Virginia Polytechnic Institute & State University	6/4/2012	9/3/2013	Research in Progress	\$300,000(12)
09-04	Airport Building Operations and Maintenance (O&M) Optimization and Recommissioning: A Whole Systems Approach				In Development	\$250,000(12)
09-05	Guidance to Successful Computer Maintenance Management Systems (CMMS) Selection and Practices				In Development	\$300,000(12)
09-06	Evaluating Impacts of Sustainability Practices on Airport Operations Maintenance				In Development	\$300,000(12)
09-07	Airport Maintenance Roles in Planning, Design, Construction, Commissioning, and Activation				In Development	\$200,000(12)
09-08	Balancing Airport Stormwater and Wildlife Management: Analysis Tools and Guidance				In Development	\$250,000(12)
10:Operations						
10-01	Optimizing the Use of Aircraft Deicing and Anti-Icing Fluids	APS Aviation, Inc.	3/20/2007	7/31/2010	Completed - Published as Report 45	\$300,000(06) \$ 50,000(08) \$100,000(08)
10-02	Planning for Offsite Airport Terminals	MarketSense	12/18/2006	9/1/2009	Completed - Published as Report 35	\$350,000(06)
10-03	Guidebook for Evaluating Airport Parking Strategies and Supporting Technologies	Jacobs Consultancy	9/14/2007	9/1/2009	Completed - Published as Report 24	\$300,000(07)
10-04	Airports and the Newest Generation of General Aviation Aircraft	GRA, Inc.	6/27/2007	5/31/2009	Completed - Published as Report 17, Volumes 1 & 2	\$500,000(07)
10-05	Reference Guide on Understanding Common Use at Airports	Barich, Inc.	5/30/2008	9/29/2009	Completed - Published as Report 30	\$500,000(08)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
10-06	Handbook to Assess the Impacts of Constrained Parking at Airports	Ricondo & Associates	6/16/2008	3/8/2010	Completed - Published as Report 34	\$400,000(08)
10-07	Current Status and Future Implications of Passenger Self-Tagging	Barich, Inc.	6/16/2009	7/30/2010	Completed - Published as Report 41 and Web Only Document 10	\$350,000(09)
10-08	Applying Intelligent Transportation Systems to Improve Airport Traveler Access Information	Gresham, Smith and Partners	4/13/2009	4/30/2012	Completed - Publication Pending	\$350,000(09)
10-09	Elimination or Reduction of Baggage Recheck for Arriving International Passengers	InterVISTAS-ga2 Consulting	7/22/2009	10/31/2011	Completed - Published as Report 61	\$400,000(09)
10-10	Guidebook for Airport Irregular Operations (IROPs) Contingency Planning	Mead & Hunt	8/26/2010	2/24/2012	Completed - Published as Report 65	\$600,000(10)
10-10A	Guidebook for Airport Irregular Operations (IROPs) Contingency Planning	Mead & Hunt	2/24/2012	8/31/2012	Research in Progress	\$300,000(12)
10-11	Creating a Collaborative Environment Between Airport Operations and Maintenance Departments	Amadeus Consulting	7/27/2011	7/27/2013	Research in Progress	\$500,000(11)
10-12	Guidebook for Managing Through the Fence (TTF) Operations at Airports				In Development	\$350,000(12)
10-13	Integrating NIMS for Personnel and Resources at Airports	Systems Planning Corporation	5/23/2012	8/24/2013	Research in Progress	\$200,000(12)
10-14	Being Prepared for IROPs: A Business Planning and Decision-making Approach				In Development	\$300,000(12)
10-15	Guidebook for Airport Winter Operations	Gresham, Smith and Partners	6/25/2012	12/24/2013	In Development	\$400,000(12)

11: Special Projects

11-01	Legal Aspects of Airport Programs	Transportation Research Board	2/1/2006		Continuing Project: See 11-01 Table	\$200,000(06) \$475,000(07) \$300,000(08) \$600,000(09) \$500,000(10) \$ 50,000(11) \$200,000(12)
11-02	Quick Response for Special Needs	Various	2/1/2006		Continuing Project: See 11-02 Table	\$590,000(06) \$467,000(07) \$1,000,000(08) \$25,000(09) \$250,000(10) \$100,000(11) \$140,000(12)

Project	Title	Subcontractor	Inception	Expiration	Status	Allocation
11-03	Synthesis of Information Related to Airport Practices	Transportation Research Board	2/1/2006		Continuing Project: See 11-03 Table	\$500,000(06)
						\$700,000(07)
						\$500,000(08)
						\$500,000(09)
						\$900,000(10)
						\$700,000(11)
						\$1,270,000(12)
11-04	Graduate Research Award Program on Public - Sector Aviation Issues				Continuing Project: Papers Published as TRB TRR 2184; Status Report Published as Research Results Digest 14	\$100,000(08)
						\$100,000(09)
						\$100,000(10)
						\$140,000(11)
						\$140,000(12)
11-05	Dissemination of ACRP Research Results				Continuing Project	\$600,000(10)
						\$148,947(11)
						\$200,000(12)
11-06	Evaluating ACRP Processes				Completed	\$250,000(10)

ACRP Project 11-01
Legal Aspects of Airport Programs

Project	Title	Subcontractor	Inception	Status
01-01	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 31, 2007	Spiegel & McDiarmid	12/2006	Completed - Published as Legal Research Digest 4 (CDROM 68)
01-02	Theory and Law of Airport Revenue Diversion	Paul Dempsey	1/2007	Completed - Published as Legal Research Digest 2
01-03	Compilation/List of Airport Law Resources	McGill University	1/2007	Completed - Published as Legal Research Digest 1
01-04	Survey of Airport Laws and Regulation of Commercial Ground Transportation	SmithAmundsen	4/2007	Completed - Published as Legal Research Digest 3
01-05	Responsibility for Implementation and Enforcement of Airport Land-Use Zoning Restrictions	William V. Cheek & Associates	4/2007	Completed - Published as Legal Research Digest 5
01-06	The Right to Self-Fuel	C. Daniel Prather Ph.D.	1/2008	Completed - Published as Legal Research Digest 8
01-07	The Impact of Airline Bankruptcies on Airports	Jocelyn Waite	10/2007	Completed - Published as Legal Research Digest 6
01-08	Airport Governance and Ownership	Daniel S. Reimer	2/2008	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 Navigable Airspace	Cheek & Associates	7/2008	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	6/2008	Incorporated into 02-05
02-03	Case Studies on Community Challenges to Airport Development	Jaye Pershing Johnson	10/2008	Completed - Published as Legal Research Digest 9
02-04	Analysis of Federal Laws, Regulations, and Case Law Regarding Airport Proprietary Rights	Jodi Howich, Esq.	10/2008	Completed - Published as Legal Research Digest 10
02-05	Obstructions Affecting Navigable Airspace and the Use and Success of Avigation Easements	Jocelyn Waite	8/2010	Completed - Published as Legal Research Digest 14
03-01	Fair Disclosure and Airport Impact Statements in Real Estate Transfers	Larry Thomas, Esq.	7/2009	Completed - Published as Legal Research Digest 12
03-02	Compilation of State Aviation Authorizing Legislation	Jodi Howick, Esq.	8/2009	Completed - Publication Pending
03-03	Survey of Minimum Standards: Commercial Aeronautical Activities at Airports	Kaplan, Kirsh, Rockwell	7/2009	Completed - Published as Legal Research Digest 11
03-04	Airport Rates and Charges: Law and Policy	Spiegel & McDiarmid	11/2009	Completed - 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	11/2009	Research in Progress

Project	Title	Subcontractor	Inception	Status
03-06	An Index and Digest of Decisions: Compilation of Airport Law Resources	Kaplan, Kirsh, Rockwell	12/2009	Completed - Published as Legal Research Digest 13
04-01	Airport Liability for Wildlife Management	Broad and Cassell	4/2011	Research in Progress
04-02	Legal Issues Related to Developing SMS and SMRD Documents Which May be Available to the Public	Foley & Lardner	12/2012	Research in Progress
04-03	Analysis of Federal Laws, Regulations, Case Law, and Survey of Existing Airport NPDES Permits Regarding Tenant-Operator Responsibilities Under NPDES and Stormwater Management BMP's Under Owner/Airport's Operating Permits	CDM	10/2012	Research in Progress
04-04	Buy America Requirements for Federally Funded Airports	Conner Gwyn Schenck	3/2011	Completed - Publication Pending
04-05	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 2011	Spiegel & McDiamid	2/2012	Research in Progress
04-06	The Role of the Airport Sponsor in Airport Planning and Environmental Reviews of Proposed Development Projects Under the National Environmental Policy Act (NEPA) and State Mini-NEPA Laws	Conner Gwyn Schenck	3/2012	Research in Progress
04-07	Airport Contracting Survey of Federal and State Standards	Broad and Cassell	4/2011	Completed - Publication Pending
05-01	The First Amendment and Airport Activities			In Development
05-02	Sovereign Immunity and Applicability to Airports			In Development
05-03	The Fourth Amendment and Airports			In Development
05-04	Airport Grant Assurances: General Requirements and Economic Nondiscrimination			In Development

ACRP Project 11-02
Quick Response for Special Needs

Project	Title	Subcontractor	Inception	Expiration	Status
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, Inc.	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, Inc.	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	8/30/2011	Completed - Results to FAA
Task 13	Research Symposium on the Transmission of Disease in Airports and on Aircraft				Completed - Symposium Held - Results Published as Conference Proceedings 47
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 - Published as Report 58
Task 16	Analysis, Scoping, and Prioritizing ACRP Deicing Problem Statements				Cancelled
Task 17	Risk Assessment of Proposed ARFF Standards	Robert David & Associates	2/19/2010	1/4/2011	Completed - Published as Web-Only Document 12

Project	Title	Subcontractor	Inception	Expiration	Status
Task 18	The Carbon Market: A Primer for Airports	Pace Global Energy Services	11/2/2010	8/30/2011	Completed - Published as Report 57
Task 19	Symposium on Air Travel and the Spread of Disease				In Development
Task 20	Developing Problem Statements on Information Technology Issues at Airports	Workshop conducted	12/1/2011	12/1/2011	Completed
Task 21	Innovative Airport Response to Threatened/Endangered Species				In Development

ACRP Project 11-03
Synthesis of Information Related to Airport Practices

Project	Title	Subcontractor	Inception	Status
1:Administration				
S01-01	Innovative Finance and Alternative Sources of Revenue for Airports	Jacobs Consultancy	7/2006	Completed - Published as Synthesis 1
S01-02	Airport Revenue Diversification	Lois Kramer, Kramer Aerotek	3/2009	Completed - Published as Synthesis 19
S01-03	Airport Insurance Coverage and Risk Management Practices	Ron Rakich & Associates	4/2010	Completed - Published as Synthesis 30
S01-04	Airline and Airline-Airport Consortiums to Manage Terminals and Equipment	AvAir Pros	4/2010	Completed - Published as Synthesis 31
S01-05	Synthesis of Airport Organizational Structures	Kim Kenville Consulting	2/2012	Research in Progress
S01-06	Airport Customer Service Performance Metrics	Kramer Aerotek	2/2012	Research in Progress
S01-07	Conducting Airport Peer Reviews	CTC & Associates	2/2012	Research in Progress
2:Environment				
S02-01	Effects of Airport Noise: Research Update on Selected Topics	Mestre Greve Associates	3/2007	Completed - Published as Synthesis 9
S02-02	Airport Sustainability Practices	Arup	3/2007	Completed - Published as Synthesis 10
S02-03	Compilation of Noise Programs in Areas Outside DNL 65	HMMH	4/2008	Completed - Published as Synthesis 16
S02-04	Approaches to Integrating Airport Development and Federal Environmental Review Processes	RS & H / Synergy	4/2008	Completed - Published as Synthesis 17
S02-05	Funding Opportunities for Airport Environmental Projects	Unison Consulting	4/2010	Completed - Published as Synthesis 24
S02-06	Airport Climate Adaptation and Resilience	AEA Group	4/2011	Completed - Published as Synthesis 33
S02-07	Using Airport Contracts to Enhance Environmental Performance	LeighFisher, Inc.	3/2012	Research in Progress
S02-08	Environmental Assessments of High Speed Rail in Air Corridors	Arizona State University	3/2012	Research in Progress
S02-09	Airport Environmental Management System Development Processes and Knowledge Gaps	First Environment, Inc.	3/2012	Research in Progress
3:Policy and Planning				
S03-01	Aviation Forecasting Methodologies	GRA, Inc.	8/2006	Completed - Published as Synthesis 2
S03-02	Airport Ground Access Mode Choice Models	Aviation Systems Consulting	10/2006	Completed - Published as Synthesis 5
S03-03	Airport Economic Impact Methods and Models	Hoyle Tanner & Associates	3/2007	Completed - Published as Synthesis 7
S03-04	Airport System Planning Practices	Wilbur Smith Associates	4/2008	Completed - Published as Synthesis 14
S03-05	Effective Practices for Preparing Airport Improvement Program Benefit Cost Analysis	EDRG	4/2008	Completed - Published as Synthesis 13

Project	Title	Subcontractor	Inception	Status
S03-06	Strategies for Reuse of Underutilized or Vacant Airport Facilities	Kramer Aerotek, Inc.	4/2010	Completed - Published as Synthesis 25
4:Safety				
S04-01	General Aviation Safety and Security Practices	Reynolds, Smith and Hills, Inc.	10/2006	Completed - Published as Synthesis 3
S04-02	Preventing Aircraft-Vehicle Incidents During Winter Operations and Periods of Low Visibility	Bowling Green State University	6/2007	Completed – Published as Synthesis 12
S04-03	Identification of the Requirements and Training to Obtain Driving Privileges on Airfields	Airport Safety Consultants	5/2008	Completed - Published as Synthesis 15
S04-05	Bird Repellant Techniques on Airports	Mississippi State University	4/2010	Completed - Published as Synthesis 23
S04-06	Current Airport Inspection Practices Regarding FOD	Prather Airport Solutions	4/2010	Completed - Published as Synthesis 26
S04-07	Lessons Learned from Airport Safety Management Systems Pilot Study	Landry Consultants	4/2011	Research in Progress
S04-08	Managing Aerial Firefighting Activities on Airports	Critical Path International	5/2011	Completed - Published as Synthesis 32
S04-09	Emergency Management and Mutual Aid Agreements for Airports	Smith-Woolwine Associates	3/2012	Research in Progress
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	3/2009	Completed - Published as Synthesis 18
S06-02	Airport Self-Inspection Practices	Prather Airport Solutions	5/2010	Completed - Published as Synthesis 27
S06-03	Exploring Airport Employee Commuting and Parking Strategies	DMR Consulting	5/011	Research in progress
S06-04	Adapting New Maintenance Hires to the Airport Environment	SMQ Airport Services	3/2012	Research in Progress
8:Construction				
S08-01	Airport Terminal Facility Activation Techniques	Arup	3/2009	Completed - Published as Synthesis 20
9:Maintenance				
S09-01	Impact of Rubber Removal Techniques on Runways	University of Oklahoma	6/2007	Completed - Published as Synthesis 11
S09-02	Common Airport Pavement Maintenance Practices	Applied Research Associates	3/2009	Completed - Published as Synthesis 22
S09-03	Subsurface Utility Engineering Information Management for Airports	J. H. Anspach Consulting	5/2011	Completed - Published as Synthesis 34
S09-04	Issues With Use of Airfield LED Light Fixtures	RPI University	5/2011	Research in Progress

Project	Title	Subcontractor	Inception	Status
S09-05	Repairing and Maintaining Airport Parking Structure While in Use	Walker Parking Consultants	2/2012	Research in Progress
10:Operations				
S10-01	Counting Aircraft Operations at Non-Towered Airports	Aerofinity	10/2006	Completed - Published as Synthesis 4
S10-02	Common-Use Facilities and Equipment at Airports	Barich, Inc.	3/2007	Completed - Published as Synthesis 8
S10-03	Impact of Airport Deicing Products on Aircraft and Airfield Infrastructure	Montana State University, Western Transportation Institute	3/2007	Completed - Published as Synthesis 6
S10-04	Airport Energy Efficiency and Cost Reduction	Miller Dunwiddie Architecture	3/2009	Completed - Published as Synthesis 21
S10-05	Ramp Safety Practices	Landry Consultants, LLC	5/2010	Completed - Published as Synthesis 29
S10-06	Investigating Safety Impacts of Energy Technologies on Airports and Aviation	Harris, Miller, Miller & Hanson	5/2010	Completed - Published as Synthesis 28
S10-07	Expediting Aircraft Recovery at Airports	Prather Airport Solutions, Inc.	5/2011	Research in Progress
S10-08	Conducting Aeronautical Events at Airports	Prather Airport Solutions, Inc.	2/2012	Research in Progress
S10-09	Wildlife Deterrents Using Population Management at Airports	Savannah River Ecological Laboratory	2/2012	Research in Progress

Appendix B: ACRP Memorandum of Agreement (MOA)

MEMORANDUM OF AGREEMENT ON OPERATING PROCEDURES FOR AN AIRPORT COOPERATIVE RESEARCH PROGRAM

I. INTRODUCTION

The Vision 100-Century of Aviation Reauthorization Act (Vision 100), enacted in December 2003, authorized, in Section 712, establishment of a 4-year pilot Airport Cooperative Research Program (ACRP).

Vision 100 calls for the ACRP to carry out applied research on problems "... that are shared by airport operating agencies and ... are not being adequately addressed by existing Federal research programs...." The mission of the ACRP is to produce research results that will be used to improve the planning, design, and operation of airports in the United States. Specific research projects will be selected by a board composed of airport managers and others committed to the success of the Nation's airport system. ACRP studies will be managed by the Transportation Research Board of the National Academy of Sciences using procedures designed to ensure that the research is objective and productive.

Airports are vital national resources. There are approximately 500 commercial-service airports and 2,800 smaller general aviation airports that make up the national airport system. These airports operate in a complex environment with many and often competing requirements and expectations. To succeed in this environment, airport operators need access to good information and technical guidance based on sound research.

Over the past decade, there has been growing recognition of the need for a mechanism for airports to pool their ideas and resources to develop and disseminate practical solutions to shared problems by creating an airport cooperative research program, modeled partly on existing cooperative research programs for highways and transit. The Airports Council International-North America (ACI-NA), the National Association of State Aviation Officials (NASAO), and the American Association of Airport Executives (AAAE) have expressed support for the ACRP. In 2000 legislation (Public Law 106-181) reauthorizing the Federal Aviation Administration (FAA), Congress requested a formal study of the concept by the U.S. Department of Transportation. The study request (in Section 906 of the Act) reads as follows:

The Secretary of Transportation (the Secretary), in consultation with the National Academy of Sciences and representatives of airports, shall evaluate the applicability of the techniques used to fund and administer research under the National Cooperative Highway Research Program and the ... Transit (Cooperative) Research Program to the research needs of airports. The Secretary shall transmit to Congress a report on the results of the evaluation conducted under this section.

In response, FAA contracted with the Transportation Research Board (TRB), under the auspices of the National Research Council (NRC) of the National Academy of Sciences (NAS), to conduct the study.

Following established NRC procedures, TRB assembled a committee with a range of expertise and a balance of perspectives on issues related to the study topic; the committee met three times, and in June 2003, the committee's findings were published in TRB Special Report 272: Airport Research Needs: Cooperative Solutions. The committee concluded that such cooperative research is essential for ensuring airport security, efficiency, safety, and environmental compatibility and urged Congress to establish a national airport cooperative research program (ACRP).

Following enactment of Vision 100, the Secretary wishes to enter into an agreement with NAS to manage the ACRP, under the direction of an independent board, to be appointed by the Secretary as provided herein. This Memorandum of Agreement establishes operating procedures for the ACRP and delineates the roles of the cooperating organizations.

II. ORGANIZATION

This Memorandum of Agreement provides a conceptual framework for the establishment and conduct of the ACRP as approved by the cooperating organizations.

1. In accordance with 49 U.S.C. Section 44511, the ACRP shall be governed by an independent board charged with recommending airport research, development, and technology transfer activities to be carried out by NAS in accordance with the terms and conditions of grants or cooperative agreements awarded by FAA.
2. The cooperating organizations participating in this Agreement to establish and administer the ACRP are: (a) the FAA of the United States Department of Transportation, hereinafter referred to as "FAA"; and (b) the National Academy of Sciences, hereinafter referred to as "NAS" acting through its Transportation Research Board, hereinafter referred to as "TRB." TRB is a major operating unit of NAS and is not a separate legal entity.

III. DIRECTION

The participating parties agree that the Secretary will appoint an independent governing board, to be designated the ACRP Oversight Committee (AOC). The membership of AOC shall be consistent with the composition of the governing board specified in the legislation authorizing the ACRP, and the initial board members ("members") shall be appointed by the Secretary, in consultation with TRB and national associations representing the airport industry.

AOC shall operate as follows:

1. The AOC shall be responsible for: (a) reviewing the research needs that are solicited by TRB from airport operators, industry associations, FAA, and

other interested entities; (b) evaluating and selecting research topics; (c) setting project priorities and recommending funding levels; and (d) evaluating program effectiveness. The AOC shall be supported in these efforts by NAS, through the staff of TRB providing administrative support to AOC, with the responsibilities enumerated below in Paragraph IV.2.

2. The AOC shall be led by a Chair, selected by a majority of the voting members, and shall meet at the call of the Chair, but not less than one time per year. The voting members shall also select, by majority vote, a Vice Chair who shall assume the duties of the Chair if the Chair is unavailable.
3. The AOC shall have the responsibility for determining the technical objectives of all ACRP projects.
4. The NAS will have legal, financial, and technical responsibility for the award and administration of research contracts to achieve project objectives, subject to Paragraph III.6 below and the terms of this Agreement.
5. The AOC will carry out the following functions:
 - a. Determine if the proposed topics (resulting from the TRB solicitation of research needs) represent important research needs in the airport field;
 - b. Determine, on the basis of evaluation provided by NAS, acting through TRB and other information sources, whether the proposed research topic does or does not, to its knowledge, duplicate any similar effort undertaken currently or previously in which the results were considered adequate and sufficiently conclusive; and
 - c. Formulate an annual program with recommended project funding consisting of new projects and, when appropriate, continuation of projects established in prior fiscal year programs. In formulating the annual program, AOC may form and utilize such subcommittees as it deems appropriate. Membership on such subcommittees is not limited to AOC members.
6. The annual program of the ACRP will be adopted after a vote by AOC and transmitted to FAA and NAS. NAS reserves the right to object to any proposed research determined to be inappropriate for conduct by NAS. NAS will explain its reason for objecting in writing to AOC. In addition, NAS may petition the Secretary in writing to reconsider the appropriateness of any proposed research. Subcommittee decisions are subject to acceptance by AOC.
7. The AOC is responsible for monitoring the progress of the ACRP and recommending to FAA and TRB any corrective action that it may deem necessary and appropriate.
8. The AOC shall be governed by the following rules:

- a. The AOC shall initially be composed of thirteen (13) voting members and shall include seven (7) members who are chief executive officers, managers, or members of the governing boards of airports (3 from large hubs, 2 from medium-size hubs, and 2 from small hubs, non-hubs, or general aviation airports); five (5) members who are officers or officials of universities, or private entities that are air carriers, shippers, suppliers, researchers, or consultants engaged in providing airport equipment or services; and the Administrator of the FAA or his/her designee. Any such entity shall have no more than one member on AOC. The size of AOC may be adjusted at the discretion of the Secretary.
- b. Upon the request of the Secretary, the following individuals shall serve as “ex-officio,” non-voting, members of AOC:
 - i. The Administrator of the Environmental Protection Agency (EPA) or his/her designee.
 - ii. The Administrator of the National Aeronautics and Space Administration (NASA) or his/her designee.
 - iii. The chief executive of the Airports Council International–North America (ACI-NA) or his/her designee.
 - iv. The chief executive of the American Association of Airport Executives (AAAE) or his/her designee.
 - v. The chief executive of the National Association of State Aviation Officials (NASAO) or his/her designee.
 - vi. The chief executive of the Air Transport Association (ATA) or his/her designee.
 - vii. The Executive Director of the Transportation Research Board or his/her designee.
- c. Excluding the Administrator of FAA or his/her designee, voting members of AOC shall be appointed for a period of 4 years, and may serve for two successive full 4-year terms. To provide for staggered representation on AOC, certain of the initial members of AOC shall be appointed for an initial 2-year term.
- d. Members to fill expired terms shall be appointed by the Secretary. Any voting members having served two successive full 4-year terms shall be ineligible for reappointment to AOC for a period of 4 years.
- e. Members may voluntarily withdraw from AOC during their term by notification in writing to the Chair. Any member whose employment

changes during his/her term in such a way that he/she no longer represents an organization qualified to be represented on AOC, shall be considered to have voluntarily withdrawn. If an individual leaves AOC prior to the completion of his or her term of office, his or her replacement will be appointed to complete the term of office and may be chosen from an organization different from that of the replaced Member.

- f. Unless otherwise provided by statute, any member of AOC may be removed, either with or without cause, and a successor appointed, by the Secretary.
- g. The AOC shall meet at the call of the Chair, not less than one time per year. The Chair may call such additional meetings as it deems necessary and appropriate, and shall provide members of AOC at least 14 days prior notice of such meeting (which notice may be waived by a member).
- h. The presence of 50 percent of the total number of members of AOC entitled to vote shall be necessary and sufficient to constitute a quorum for the transaction of any business at any duly called meeting. Members may participate in AOC meetings by teleconference provided each member can hear all other members.
- i. In the absence of a quorum at any meeting of AOC, the members present and entitled to vote thereat may adjourn the meeting without further notice until a quorum is present. At any such adjourned meeting at which a quorum is present, any business may be transacted which might have been transacted at the meeting as originally called, if a quorum had been present.
- j. The affirmative vote of a majority of the members of AOC present and entitled to vote at a meeting shall be necessary and sufficient to decide such question or matter. With the exception of those individuals serving as "ex-officio" non-voting members of AOC, each member present at meetings shall have one vote. Voting shall be either by voice vote or by written ballot at the discretion of the Chair. Proxy votes shall not be permitted.
- k. Any action to be taken at a meeting of AOC may be taken without a meeting if, prior to such action, a consent in writing, setting forth the action taken, shall be signed by all of the members of AOC, and such written consent is filed with the minutes of the proceedings of AOC with the Chair.
- l. The AOC shall have the following powers and duties:
 - i. To approve the annual budget and financial statements of the ACRP.

- ii. To prioritize research needs and approve funding for the selected research proposals.
- iii. To adopt general policies and procedures governing the operations of AOC.
- m. No member of AOC may receive compensation for serving in such office but may be reimbursed reasonable and necessary expenses in connection with carrying out the business of AOC.
- n. To the extent commercially available, NAS shall purchase and maintain a separate insurance policy on behalf of members of AOC intended to cover liability asserted against him/her and arising out of his/her status as a member of AOC. NAS shall disclose the general terms of any such insurance to AOC members, or if such insurance is not commercially available, shall so inform AOC members. Any funds received by NAS pursuant to such insurance shall be promptly provided to the appropriate AOC member pursuant to the terms and conditions of such insurance.

IV. MANAGEMENT

The FAA will work cooperatively with AOC, NAS, and others as may be appropriate in the management of the ACRP. This cooperative effort is designed to ensure the effectiveness and success of the overall ACRP process and is consistent with sound fiscal and resource management.

1. The FAA's responsibilities will include the following activities:
 - a. Participating with AOC in developing the ACRP annual program;
 - b. When practicable, selecting and assigning FAA staff personnel to serve on project panels;
 - c. Supporting periodic program reviews;
 - d. Participating in planning, developing, and conducting conferences, workshops, seminars, and other technical meetings associated with ACRP activities; and
 - e. Working closely with NAS, through TRB and industry associations, to ensure dissemination, distribution, marketing, and promotion of the results of ACRP studies, with an emphasis on timely deployment and mainstreaming of products and practices resulting from the ACRP.
2. The TRB will provide administrative support for AOC. The TRB's responsibilities will include the following activities to be carried out in consultation with the Chair of the AOC.

- a. Issuing announcements to solicit research needs statements for consideration by the ACRP;
 - b. Conducting preliminary evaluation of proposed research needs statements to determine whether the proposed research duplicates previous or ongoing studies;
 - c. Making preliminary estimates of the cost of conducting each proposed research topic;
 - d. Providing necessary staff support;
 - e. Distributing material necessary for AOC's prioritization of research for the ACRP;
 - f. Recording AOC meeting decisions on matters related to the ACRP;
 - g. Scheduling meetings and preparing and distributing agendas for AOC meetings;
 - h. Preparing and distributing minutes following AOC meetings;
 - i. Keeping records related to ACRP activities; and
 - j. Rendering to AOC and FAA quarterly reports on the progress and financial status of the ACRP.
3. The NAS is the responsible body for technical review and acceptance of research projects that are referred by AOC to NAS for acceptance and action.
4. Following approval by AOC and acceptance by NAS, NAS shall administer, conduct, and monitor, as appropriate, individual research projects.
5. Administration of ACRP activities shall be the responsibility of NAS, acting through the TRB Executive Director.
6. The NAS shall be responsible for the operational management of the ACRP, and shall enter into contracts necessary to obtain technical and administrative services in support of the ACRP.
7. The NAS will prepare annual ACRP progress reports that will be distributed to AOC and FAA.
8. The NAS shall cooperate with and fully use the skills and experience, as appropriate, of organizations represented on AOC and other potential users of the research.
9. The NAS shall select and be responsible for the management of program staff, subject to the general policies of NAS and specific policies of the TRB Executive Director.

10. The NAS shall administer ACRP project panels to bring experience, expertise, and counsel from government, university, industry, and other sources to the ACRP.
11. Project panels, with the support of NAS staff, will be responsible for the following.
 - a. Developing plans for the attainment of problem objectives, including an estimate of the total cost and time to achieve the objectives;
 - b. Drafting definitive statements of scope and objectives for projects;
 - c. Reviewing proposals submitted by research agencies and making decisions regarding selection of research agencies;
 - d. Reviewing the progress of research;
 - e. Providing counsel and advice to researchers regarding technical aspects of projects;
 - f. Reviewing and evaluating project reports as to the accomplishment of objectives and suitability for publication; and
 - g. Cooperating with AOC and FAA in decisions regarding the continuation of projects included in prior fiscal year programs.
12. The TRB will furnish periodic financial information to the NAS, AOC, and FAA on the progress of the ACRP.

V. FUNDING

Participation in and financing of the ACRP shall be in accordance with the following.

1. The FAA will provide funding in support of this Agreement through execution of agreements or modifications thereto with NAS. In no event is FAA obligated for any amount above these funding commitments, whether to NAS (including TRB) or to any contractors, grant or cooperative agreement recipients, or employees of the NAS.
2. The FAA will annually notify NAS of the funds available for continuing the ACRP in accordance with 49 U.S.C. Section 44511 and paragraph 1 above.
3. The NAS may, with prior concurrence of AOC, enter into agreements with other entities to cooperatively fund specific ACRP projects.
4. The NAS will submit annual applications to FAA for funding of the ACRP to include its estimate of costs for administration of the ACRP, including program formulation costs, costs of publications, information dissemination, and funds

available for research projects. Total costs for the ACRP as submitted will not exceed the total funds made available by FAA and other ACRP contributors for any fiscal year. Funds in the NAS account for the ACRP shall roll over to the next fiscal year.

5. The NAS shall be reimbursed for the allowable direct and indirect costs of administering the ACRP in accordance with the provisions of Office of Management and Budget Circular A-122 or grants or cooperative agreements awarded by FAA, and shall obtain advance payment of such costs through a letter of credit or other payment mechanism to be coordinated with FAA. Indirect rates shall be reimbursed in accordance with the annual rate negotiation agreement entered into with the Office of Naval Research.
6. To the extent consistent with grants or cooperative agreements awarded by FAA, NAS will provide auditing, contracting, accounting, personnel, and legal support in connection with the ACRP. The ACRP also shall have reasonable access to other standard services of NAS, such as library and archives and committee membership files.
7. The ACRP shall be subject to normal NAS overhead and general and administrative expenses consistent with NAS's established cost accounting practices.
8. It is anticipated that 75 percent of the funds provided by FAA to the ACRP shall be directly expended to fund research.
9. Members of AOC traveling to AOC meetings shall be reimbursed by NAS using ACRP administrative funds, pursuant to Federal Travel Regulations to the extent consistent with grants or cooperative agreements awarded by FAA.
10. Except as provided herein or as approved in writing by FAA, no FAA funds shall be used to indemnify any member or representative of AOC for payment arising under or resulting from any claim or suit, action, or proceeding of any kind whatsoever. This restriction does not preclude the FAA from providing funds to purchase appropriate liability insurance which shall be an allowable direct expense under this Agreement.

VI. INTELLECTUAL PROPERTY

1. Rights in Data

The FAA retains Government Purpose Rights in all data developed under this agreement with FAA funds.

"Data" means recorded information, regardless of form or method of recording, which includes but is not limited to, technical data, computer software, trade secrets, and mask works. The term does not include financial, administrative, cost, pricing, or management information.

"Government Purpose Rights" means the rights to:

- a. Use, modify, reproduce, release, perform, display, or disclose data within the Government without restriction; and
- b. Release or disclose technical data outside the Government and authorize persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose those data for Government purposes.

“Government Purpose” means any activity in which the United States Government is a party, including cooperative agreements with international or multi-national defense organizations, or sales or transfers by the United States Government to foreign Governments or international organizations. Government purposes include competitive acquisition by or on behalf of the Government but do not include the rights to use, modify, reproduce, release, perform, display, or disclose data for commercial purposes or authorize others to do so.

The NAS shall own the data and may copyright any work that is subject to copyright and was developed, or for which ownership was purchased, in connection with NAS’s administration of the ACRP.

2. Patent Rights – Retention by the Contractor

The rights in any patents under the ACRP shall be in accordance with FAA Clause 3.5-10 Patent Rights--Retention by the Contractor (Short Form) (October 1996), which is set out in Exhibit A hereto, and incorporated into this Agreement as if fully set forth herein. “Contractor” under the foregoing clause shall mean NAS or any of NAS’s contractors or subcontractors under the ACRP. The parties acknowledge that NAS does not intend to assert any patent rights on its own behalf in an invention made by one of its contractors or subcontractors.

- 3. All agreements and contracts entered into under this Agreement by NAS shall contain the provisions substantially in conformance with 1 and 2. above.

VII. DISSEMINATION OF INFORMATION AND RESEARCH RESULTS

- 1. The TRB may enter into cooperative arrangements, contractual or other, with ACI-NA, AAAE, or NASAO to ensure early dissemination and adoption of ACRP research findings by airport professionals.
- 2. The TRB will publish, furnish, and disseminate such technical reports as are necessary and desirable for reporting on the results of research and accomplishing the objectives of the ACRP, in accordance with appropriate NAS review and publication policies.

VIII. AUDITS

The FAA shall have the right to examine or audit the records of NAS under this Agreement in accordance with FAA Clause 3.2.2.3-8 Audit and Records

(January 2004), which is set out in Exhibit B hereto and incorporated into this MOA as if fully set forth herein.

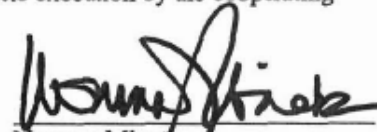
IX. REVISION OR TERMINATION OF THIS AGREEMENT

This Agreement is subject to mutually acceptable written revision or written modification at the request of any subscriber hereto. Participation by any signatory Party hereto may be terminated on six month's notice to the other signatories, provided such termination shall not impair any obligations or commitments already validly incurred.

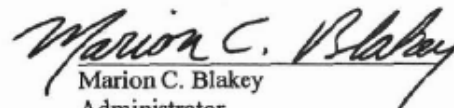
X. EFFECTIVE DATE

This Agreement shall be effective upon complete execution by the cooperating organizations.

Date: SEP 26 2005


Norman Mineta
Secretary
Department of Transportation

Date: APR 14 2005


Marion C. Blakey
Administrator
Federal Aviation Administration

Date: OCT 14 2005



Ralph J. Cicerone
President
National Academy of Sciences

Exhibit A

3.5-10 Patent Rights--Retention by the Contractor (Short Form) (October 1996)

(a) Definitions.

(1) "Invention" means any invention or discovery which is or may be patentable or otherwise protectable under Title 35 of the United States Code, or any novel variety of plant which is or may be protected under the Plant Variety Protection Act (7 U.S.C. 2321, et seq.).

(2) "Made" when used in relation to any invention means the conception of first actual reduction to practice of such invention.

(3) "Nonprofit organization" means a university or other institution of higher education or an organization of the type described in section 501(c)(3) of the Internal Revenue Code of 1954 (26 U.S.C. 501(c)) and exempt from taxation under section 501(a) of the Internal Revenue Code (26 U.S.C. 501(a)) or any nonprofit scientific or educational organization qualified under a state nonprofit organization statute.

(4) "Practical application" means to manufacture, in the case of a composition of product; to practice, in the case of a process or method, or to operate, in the case of a machine or system; and, in each case, under such conditions as to establish that the invention is being utilized and that its benefits are, to the extent permitted by law or Government regulations, available to the public on reasonable terms.

(5) "Small business firm" means a small business concern as defined in the Federal Aviation Administration (FAA) Acquisition Management System. For the purpose of this clause, the size standards for small business concerns involved in Government procurement and subcontracting at 13 CFR 121.3-8 and 13 CFR 121.3-12, respectively, will be used.

(6) "Subject invention" means any invention of the contractor conceived or first actually reduced to practice in the performance of work under this contract, provided that in the case of a variety of plant, the date of determination (as defined in section 41(d) of the Plant Variety Protection Act, 7 U.S.C. 2401(d)) must also occur during the period of contract performance.

(b) Allocation of principal rights. The Contractor may retain the entire right, title, and interest throughout the world to each subject invention subject to the provisions of this clause and 35 U.S.C. 203. With respect to any subject invention in which the Contractor retains title, the Federal Government shall have a nonexclusive, nontransferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the United States the subject invention throughout the world.

(c) Invention disclosure, election of title, and filing of patent application by contractor.

(1) The Contractor will disclose each subject invention to the Federal agency within 2 months after the inventor discloses it in writing to Contractor personnel responsible for patent matters. The disclosure to the agency shall be in the form of a written report and shall identify the contract under which the invention was made and the inventor(s). It shall be sufficiently complete in technical detail to convey a clear understanding to the extent known at the time of the disclosure, of the nature, purpose, operation, and the physical, chemical, biological

or electrical characteristics of the invention. The disclosure shall also identify any publication, on sale or public use of the invention and whether a manuscript describing the invention has been submitted for publication and, if so, whether it has been accepted for publication at the time of disclosure. In addition, after disclosure to the agency, the contractor will promptly notify the agency of the acceptance of any manuscript describing the invention for publication, or of any on sale or public use planned by the Contractor.

(2) The Contractor will elect in writing whether or not to retain title to any such invention by notifying the Federal agency within 2 years of disclosure to the Federal agency. However, in any case where publication, on sale or public use has initiated the 1 year statutory period wherein valid patent protection can still be obtained in the United States, the period for election of title may be shortened by the agency to a date that is no more than 60 days prior to the end of the statutory period.

(3) The Contractor will file its initial patent application on a subject invention to which it elects to retain title within 1 year after election of title, or, if earlier, prior to the end of any statutory period wherein valid patent protection can be obtained in the United States after a publication, on sale, or public use. The Contractor will file patent applications in additional countries or international patent offices within either 10 months of the corresponding initial patent application or 6 months from the date permission is granted by the Commissioner of Patents and Trademarks to file foreign patent applications where such filing has been prohibited by a Secrecy Order.

(4) Requests for extension of the time for disclosure election, and filing under subparagraphs (c) (1), (2), and (3) of this clause may, at the discretion of the agency, be granted.

(d) Conditions when the Government may obtain title. The Contractor will convey to the Federal agency, upon written request, title to any subject invention-

(1) If the Contractor fails to disclose or elect title to the subject invention within the times specified in paragraph (c) of this clause, or elects not to retain title; provided, that the agency may only request title within 60 days after learning of the failure of the Contractor to disclose or elect within the specified times.

(2) In those countries in which the Contractor fails to file patent applications within the times specified in paragraph (c) of this clause; provided, however, that if the Contractor has filed a patent application in a country after the times specified in paragraph (c) of this clause, but prior to its receipt of the written request of the Federal agency, the Contractor may continue to retain title in that country.

(3) In any country in which the Contractor decides not to continue the prosecution of any application for, to pay the maintenance fees on, or defend in reexamination or opposition proceeding on, a patent on a subject invention.

(e) Minimum rights to Contractor and protection of the Contractor right to file.

(1) The Contractor will retain a nonexclusive royalty-free license throughout the world in each subject invention to which the Government obtains title, except if the Contractor fails to disclose the invention within the times specified in paragraph (c) of this clause. The Contractor's license extends to its domestic subsidiary and affiliates, if any, within the corporate structure of which the Contractor is a party and includes the right to grant sublicenses of the same scope to the extent the Contractor was legally obligated to do so at the time the contract was awarded. The license is transferable only with the approval of the Federal Agency,

except when transferred to the successor of that part of the Contractor's business to which the invention pertains.

(2) The Contractor's domestic license may be revoked or modified by the funding Federal agency to the extent necessary to achieve expeditious practical application of subject invention pursuant to an application for an exclusive license submitted in accordance with applicable provisions at 37 CFR part 404 and agency licensing regulations (if any). This license will not be revoked in that field of use or the geographical areas in which the Contractor has achieved practical application and continues to make the benefits of the invention reasonably accessible to the public. The license in any foreign country may be revoked or modified at the discretion of the funding Federal agency to the extent the Contractor, its licensees, or the domestic subsidiaries or affiliates have failed to achieve practical application in that foreign country.

(3) Before revocation or modification of the license, the funding Federal agency will furnish the Contractor a written notice of its intention to revoke or modify the license, and the Contractor will be allowed 30 days (or such other time as may be authorized by the funding Federal agency for good cause shown by the Contractor) after the notice to show cause why the license should not be revoked or modified. The Contractor has the right to appeal, in accordance with applicable regulations in 37 CFR part 404 and agency regulations, if any, concerning the licensing revocation or modification of the license.

(f) Contractor action to protect the Government's interest.

(1) The Contractor agrees to execute or to have executed and promptly deliver to the Federal agency all instruments necessary to (i) establish or confirm the rights the Government has throughout the world in those subject inventions to which the Contractor elects to retain title, and (ii) convey title to the Federal agency when requested under paragraph (d) of this clause and to enable the Government to obtain patent protection throughout the world in that subject invention.

(2) The Contractor agrees to require, by written agreement, its employees, other than clerical and nontechnical employees, to disclose promptly in writing to personnel identified as responsible for the administration of patent matters and in a format suggested by the Contractor each subject invention made under contract in order that the Contractor can comply with the disclosure provisions of paragraph (c) of this clause, and to execute all papers necessary to file patent applications on subject inventions and to establish the Government's rights in the subject inventions. This disclosure format should require, as a minimum, the information required by subparagraph (c)(1) of this clause. The Contractor may instruct such employees, through employee agreements or other suitable educational programs, on the importance of reporting inventions in sufficient time to permit the filing of patent applications prior to U.S. or foreign statutory bars.

(3) The Contractor will notify the Federal agency of any decisions not to continue the prosecution of a patent application, pay maintenance fees, or defend in a reexamination or opposition proceeding on a patent, in any country, not less than 30 days before the expiration of the response period required by the relevant patent office.

(4) The Contractor agrees to include, within the specification of any United States patent application and any patent issuing thereon covering a subject invention, the following statement, "The invention was made with Government support under (identify the contract) awarded by (identify the Federal agency). The Government has certain rights in the invention."

(g) Subcontracts.

(1) The Contractor will include this clause, suitably modified to identify the parties, in all subcontracts, regardless of tier, for experimental, developmental, or research work to be performed by a small business firm or domestic nonprofit organization. The subcontractor will retain all rights provided for the Contractor in this clause, and the Contractor will not, as part of the consideration for awarding the subcontract, obtain rights in the subcontractor's subject inventions.

(2) The Contractor will include in all other subcontracts, regardless of tier, for experimental, developmental, or research work the patent rights clause required to adequately protect the Government's interests consistent with section 3.5 of the FAA Acquisition Management System.

(3) In the case of subcontracts, at any tier, the agency, subcontractor, and the Contractor agree that the mutual obligations of the parties created by this clause constitute a contract between the subcontractor and the Federal agency with respect to the matters covered by the clause; provided, however, that nothing in this paragraph is intended to confer any jurisdiction under the FAA disputes resolution process, or any board or judicial proceeding, in connection with proceedings under paragraph (j) of this clause.

(h) Reporting on utilization of subject inventions. The Contractor agrees to submit, on request, periodic reports no more frequently than annually on the utilization of a subject invention or on efforts at obtaining such utilization that are being made by the Contractor or its licensees or assignees. Such reports may include information regarding the status of development, date of first commercial sale or use, gross royalties received by the Contractor, and such other data and information as the agency may reasonably specify. The Contractor also agrees to provide additional reports as may be requested by the agency in connection with any march-in proceeding undertaken by the agency in accordance with paragraph (j) of this clause. As required by 35 U.S.C. 202(c)(5), the agency agrees it will not disclose such information to persons outside the Government without permission of the Contractor.

(i) Preference for United States industry. Notwithstanding any other provision of this clause, the Contractor agrees that neither it nor any assignee will grant to any person the exclusive right to use or sell any subject invention in the United States unless such person agrees that any product embodying the subject invention or produced through the use of the subject invention will be manufactured substantially in the United States. However, in individual cases, the requirement for such an agreement may be waived by the Federal agency upon a showing by the Contractor or its assignee that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible.

(j) March-in rights. The Contractor agrees that, with respect to any subject invention in which it has acquired title, the Federal agency has the right in accordance with the procedures in 37 CFR 401.6 and any supplemental regulations of the agency to require the Contractor, an assignee or exclusive licensee of a subject invention to grant a nonexclusive, partially exclusive, or exclusive license in any field of use to a responsible applicant or applicants, upon terms that are reasonable under the circumstances, and if the Contractor, assignee, or exclusive licensee refuses such a request the Federal agency has the right to grant such a license itself if the Federal agency determines that--

(1) Such action is necessary because the Contractor or assignee has not taken, or is not expected to take within a reasonable time, effective steps to achieve practical application of the subject invention in such field of use;

(2) Such action is necessary to alleviate health or safety needs which are not reasonably satisfied by the Contractor, assignee, or their licensees;

(3) Such action is necessary to meet requirements for public use specified by Federal regulations and such requirements are not reasonably satisfied by the Contractor, assignee, or licensees;

(4) Such action is necessary because the agreement required by paragraph (i) of this clause has not been obtained or waived or because a licensee of the exclusive right to use or sell any subject invention in the United States is in breach of such agreement.

(k) Special provisions for contracts with nonprofit organizations. If the Contractor is a nonprofit organization, it agrees that--

(1) Rights to a subject invention in the United States may not be assigned without the approval of the Federal agency, except where such assignment is made to an organization which has as one of its primary functions the management of inventions, provided that such assignee will be subject to the same provisions as the Contractor;

(2) The Contractor will share royalties collected on a subject invention with the inventor, including Federal employee co-inventors (when the agency deems it appropriate) when the subject invention is assigned in accordance with 35 U.S.C. 202(e) and 37 CFR 401.10;

(3) The balance of any royalties or income earned by the Contractor with respect to subject inventions, after payment of expenses (including payments to inventors) incidental to the administration of subject inventions will be utilized for the support of scientific research or education; and

(4) It will make efforts that are reasonable under the circumstances to attract licensees of subject inventions that are small business firms, and that it will give a preference to a small business firm when licensing a subject invention if the Contractor determines that the small business firm has a plan or proposal for marketing the invention which, if executed, is equally as likely to bring the invention to practical application as any plans or proposals from applicants that are not small business firms; provided, that the Contractor is also satisfied that the small business firm has the capability and resources to carry out its plan or proposal. The decision whether to give a preference in any specific case will be at the discretion of the contractor. However, the Contractor agrees that the Secretary of Commerce may review the Contractor's licensing program and decisions regarding small business applicants, and the Contractor will negotiate changes to its licensing policies, procedures, or practices with the Secretary of Commerce when the Secretary's review discloses that the Contractor could take reasonable steps to more effectively implement the requirements of this subparagraph (k)(4).

(l) Communications. (Reserved)

(End of clause)

Exhibit B

3.2.2.3-8 Audit and Records (January 2004)

(a) 'Records' includes books, documents, accounting procedures and practices, and other data, regardless of type and form.

(b) Offerors (you, your) must maintain all records and other evidence that reflect direct or indirect real or anticipated costs you claim or anticipate incurring as part of this contract. You must also permit the CO to examine and audit any record or evidence you might rely on to support any claim for payment you might anticipate making, and to inspect during normal business hours the parts of your plant(s) where you are performing work under this contract.

(c) If you submitted cost or pricing data for this contract, you must permit the CO to examine and audit all of your records, including computations and projections, to evaluate the accuracy, completeness, and currency of your cost or pricing data. This includes information related to:

1. The proposal for the contract, subcontract, or modification;
2. Communicating about the proposal(s), including negotiating;
3. Pricing the contract, subcontract, or modification; or
4. Performing the contract, subcontract or modification.

(d) The Comptroller General of the United States, or an authorized representative, may examine your records involving transactions related to this contract or any subcontract. This does not mean you or your subcontractors must create or maintain records other than those you maintain in the ordinary course of business or required by law.

(e) If you must provide cost, funding, or performance reports, the CO may audit your supporting records and materials, and evaluate how effectively you produce data for these reports and present the data reported.

(f) You must make records, materials and other evidence described in paragraphs (a) through (e) of this clause available for FAA (us, we, our) inspection at your office during normal business hours for three (3) years after final payment under this contract, or for any longer period required by statute or by other clauses of this contract. You must allow us to examine, audit, or reproduce this information when we request to do so. When requested, you must also provide us--

(1) All records relating to any contract that is completely or partially terminated for three (3) years after any final termination or settlement, whichever is later; and

(2) Any records relating to appeals under a Contract Disputes clause, litigation, or to the settlement of contract disputes relating to this contract until any appeals, litigation, or contract disputes are finally resolved.

(g) You must include all the terms of this clause in subcontracts

- (1) that exceed \$1,000,000;
- (2) that are cost-reimbursement, incentive, time-and-materials, labor-hour, or price-redeterminable or any combination of these;
- (3) for which the FAA requires cost or pricing data; or
- (4) that require the subcontractor provide reports as described in paragraph (e) of this clause.

(h) Neither party may alter this clause except to identify the contracting parties properly.

Appendix C: FAA/TSA Memorandum of Agreement (MOA)

MEMORANDUM OF AGREEMENT
BETWEEN THE
FEDERAL AVIATION ADMINISTRATION
AND THE
TRANSPORTATION SECURITY ADMINISTRATION

ARTICLE 1. PARTIES

The parties to this Memorandum of Agreement (Agreement) are the Federal Aviation Administration (FAA) and the Transportation Security Administration (TSA).

ARTICLE 2. PURPOSE

The purpose of this Agreement is to identify and define responsibilities between the parties for managing and overseeing the Airport Security Research Program.

ARTICLE 3. BACKGROUND

The Airport Security Research Program was established on April 5, 2000 as part of the Wendell H. Ford Aviation Investment and Reform Act for the 21st Century (AIR 21), Public Law 106-181 (codified at 49 U.S.C., § 47137). Under this program, the FAA provides \$5 million from the Airport Improvement Program (AIP) to conduct airport security research in the United States. More specifically, the statute states that the Secretary of the U.S. Department of Transportation carry out not less than one project to test and evaluate innovative aviation security systems and related technology. The Secretary shall give highest priority to a request by an eligible sponsor, as defined in AIR 21, for a grant to undertake a project that:

1. evaluates and tests the benefits of innovative aviation security systems or related technology, including explosives detection systems, for the purpose of improving aviation and aircraft physical security, access control, and passenger and baggage screening; and
2. provides testing and evaluation of airport security systems and technology in an operational, testbed environment.

Three years later, in Vision 100—Century of Aviation Reauthorization Act, Public Law 108-176, Congress recognized the responsibility and expertise of the TSA concerning airport security and amended this section to require the FAA and TSA to cooperatively

administer this program. This Agreement establishes the framework through which both agencies shall administer this program.

ARTICLE 4. STATEMENT OF WORK

TSA shall:

- 4.1 Be responsible for reviewing grant applications and recommending to the FAA one or more grant recipients in accordance with the criteria established in 49 U.S.C., § 47137 and then administering the grant awarded by the FAA. As section 47137 requires the \$5 million to be used as a grant for conducting the research, TSA shall use the entire amount on the grant and not retain funds for TSA administration or oversight.
- 4.2 Designate a qualified person to perform the functions equivalent to that of a Contracting Officer's Technical Representative (COTR). The COTR will be responsible at a minimum for:
 - 4.2.1 Providing oversight of the grant to ensure funds are properly expended and work is performed per the grant statement of work;
 - 4.2.2 Reviewing and accepting project deliverables;
 - 4.2.3 Maintaining financial controls to track expenditures. If TSA adds additional TSA funds to the research program conducted by the grant recipient, then the additional TSA funds shall include a pro rata share of the grant recipient's administrative costs. The grant recipient's entire administrative cost shall not be borne by the funds provided under this Agreement.
 - 4.2.4 Developing a project management plan in coordination with the grant recipient;
 - 4.2.5 Approving monthly funding requests from the grant recipient;
 - 4.2.6 Reviewing all weekly and monthly reports, as provided by the grant recipient;
 - 4.2.7 Reviewing project plans, test plans, and final reports, as submitted by the grant recipient; and.
 - 4.2.8 Providing summary activity reports to the FAA on a quarterly basis. The summary report shall include the total of any additional TSA funds that are added to the research program beyond the FAA funds provided under this Agreement.

- 4.3 Developing a transparent process for identifying and selecting research projects that will help airports meet their security responsibilities and provide the FAA with a summary of the research projects approved. The TSA shall accept airport security research topic referrals from the Airport Cooperative Research Program (ACRP) and evaluate each topic for inclusion in the grant recipient's program. The TSA shall inform the Chair of the ACRP Oversight Committee if the submitted topics were included in the funded program or provide a short explanation of why they were not selected.
- 4.4 Develop a process to solicit airport security research topics each year from the airport community.
- 4.5 Widely distribute the research study reports to airports and airport consultants. As this research is funded by the AIP, it is important that the results of the research are available to airports. Reports should be made available electronically at no charge and be available for downloading from the Internet. Electronic copies shall be provided to the FAA, and the FAA will add them to the FAA Web site. The TSA must notify the FAA before a research project is initiated if they anticipate the project report will be labeled as Security Sensitive Information (SSI). As SSI information has limited distribution, the intent is to minimize the extent that reports are labeled as SSI.

ARTICLE 5. ROLES AND RESPONSIBILITIES

Transportation Security Administration

- Shall be responsible for the performance requirements specified in Article 4: Statement of Work.

Federal Aviation Administration

- Shall award and fund the grant as specified in 49 U.S.C., § 47137;
- Shall issue the grant statement of work and timely provide a copy to TSA;
- Shall provide a timely copy of the final grant to TSA; and
- Shall notify TSA (two notifications) within five days of when the FAA accepts or rejects TSA's recommendation for the grant recipient and when the grant is awarded and issued.

ARTICLE 6. EFFECTIVE DATE AND TERM

This Agreement is effective upon signature of both parties and shall continue in effect for five years or until earlier terminated by the parties as provided herein.

ARTICLE 7. LEGAL AUTHORITY

This Agreement is entered into under the authority of the Federal Aviation Act of 1958, 49 U.S.C., § 106(1); section 134 Air 21, 49 U.S.C., § 47137; and, section 101 of the Aviation and Transportation Security Act of 2001, as amended, 49 U.S.C., § 114.

ARTICLE 8. POINTS OF CONTACT

FAA Point of Contact:

James R. White
FAA Program Office/Technical Officer
Deputy Director of Airport Safety and Standards, AAS-2
Federal Aviation Administration
800 Independence Avenue, SW, Room 621
Washington, DC 20591
(202) 267-7605

TSA Points of Contact:

Patricia Masterson
TSA Contracting Officer (Grants and Assistance)
Office of Acquisition
Transportation Security Administration
701 South 12th Street
Arlington, VA 20598
(571) 227-1587

Franceen George
TSA Manager, Procurement Coordination Branch
Office of Security Technology, TSA-16
Transportation Security Administration
701 South 12th Street
Arlington, VA 20598
(571) 227-4256

ARTICLE 9. FUNDING AND PAYMENT

No funds are obligated on this Agreement. Each Agency shall absorb its respective cost of administering this program. The FAA shall provide the funding for the grant.

ARTICLE 10. LIMITATION OF FUNDS

The FAA's liability to make payments to the TSA is limited to the amount of funds obligated hereunder, including written modifications to this Agreement.

ARTICLE 11. CHANGES/MODIFICATIONS

1. Changes and/or modifications to this Agreement shall be in writing and signed by authorized FAA and TSA officials acting within the scope of their authority. No oral statement by any person shall be interpreted as modifying or otherwise affecting the terms of this Agreement. All requests for interpretation or modification shall be made in writing.
2. The FAA Technical Officer and the TSA Contracting Officer identified in Article 8 are jointly responsible for the technical administration of this Agreement. The FAA Technical Officer is not authorized to make any changes that impact the cost, schedule, or performance of this Agreement.

ARTICLE 12. TERMINATION

Either party may terminate this Agreement at any time prior to its expiration date, with or without cause, and without incurring any liability or obligation to the terminated party (other than payment of amounts due and owing and performance of obligations accrued, in each case on or prior to the termination date) by giving the other party at least 30 days prior written notice of termination. Upon receipt of a notice of termination, the receiving party shall take immediate steps to stop the accrual of any additional obligations, which might require payment.

ARTICLE 13. PROTECTION OF INFORMATION

The parties agree that they shall take appropriate measures to protect proprietary, privileged, sensitive, classified, or otherwise confidential information that may come into their possession as a result of this Agreement.

ARTICLE 14. DISPUTES

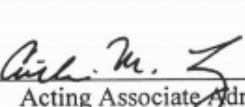
Where possible, disputes will be resolved by informal discussion between the parties. If the parties are unable to resolve any disagreement through good faith negotiations, the management of both parties will resolve the dispute.

AGREED:

Transportation Security Administration

Federal Aviation Administration

BY: 

BY: 
Acting Associate Administrator

TITLE: AA

TITLE: for Airports, ARP-1

DATE: 5/4/2011

DATE: 3/18/11

Appendix D: Vision 100–Century of Aviation Reauthorization Act of 2003

SEC. 712. AIRPORT COOPERATIVE RESEARCH PROGRAM.

Section 44511 is amended by adding at the end the following new subsection:

“(f) AIRPORT COOPERATIVE RESEARCH PROGRAM.—

“(1) ESTABLISHMENT.—The Secretary of Transportation shall establish a 4-year pilot airport cooperative research program to—

“(A) identify problems that are shared by airport operating agencies and can be solved through applied research but that are not being adequately addressed by existing Federal research programs; and

“(B) fund research to address those problems.

“(2) GOVERNANCE.—The Secretary of Transportation shall appoint an independent governing board for the research program established under this subsection. The governing board shall be appointed from candidates nominated by national associations representing public airport operating agencies, airport executives, State aviation officials, and the scheduled airlines, and shall include representatives of appropriate Federal agencies. Section 14 of the Federal Advisory Committee Act shall not apply to the governing board.

“(3) IMPLEMENTATION.—The Secretary of Transportation shall enter into an arrangement with the National Academy of Sciences to provide staff support to the governing board established under paragraph (2) and to carry out projects proposed by the governing board that the Secretary considers appropriate.

“(4) REPORT.—Not later than 6 months after the expiration of the program under this subsection, the Secretary shall transmit to the Congress a report on the program, including recommendations as to the need for establishing a permanent airport cooperative research program.”.

§ 44511. Aviation research grants

(a) **General Authority.**— The Administrator of the Federal Aviation Administration may make grants to institutions of higher education and nonprofit research organizations to conduct aviation research in areas the Administrator considers necessary for the long-term growth of civil aviation.

(b) **Applications.**— An institution of higher education or nonprofit research organization interested in receiving a grant under this section may submit an application to the Administrator. The application must be in the form and contain the information the Administrator requires.

(c) Solicitation, Review, and Evaluation Process.— The Administrator shall establish a solicitation, review, and evaluation process that ensures—

- (1) providing grants under this section for proposals having adequate merit and relevancy to the mission of the Administration;
- (2) a fair geographical distribution of grants under this section; and
- (3) the inclusion of historically black institutions of higher education and other minority nonprofit research organizations for grant consideration under this section.

(d) Records.— Each person receiving a grant under this section shall maintain records that the Administrator requires as being necessary to facilitate an effective audit and evaluation of the use of money provided under the grant.

(e) Annual Report.— The Administrator shall submit an annual report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on carrying out this section.

(f) Airport Cooperative Research Program.—

(1) Establishment.— The Secretary of Transportation shall establish a 4-year pilot airport cooperative research program to—

(A) identify problems that are shared by airport operating agencies and can be solved through applied research but that are not being adequately addressed by existing Federal research programs; and

(B) fund research to address those problems.

(2) Governance.— The Secretary of Transportation shall appoint an independent governing board for the research program established under this subsection. The governing board shall be appointed from candidates nominated by national associations representing public airport operating agencies, airport executives, State aviation officials, and the scheduled airlines, and shall include representatives of appropriate Federal agencies. Section 14 of the Federal Advisory Committee Act shall not apply to the governing board.

(3) Implementation.— The Secretary of Transportation shall enter into an arrangement with the National Academy of Sciences to provide staff support to the governing board established under paragraph (2) and to carry out projects proposed by the governing board that the Secretary considers appropriate.

(4) Report.— Not later than 6 months after the expiration of the program under this subsection, the Secretary shall transmit to the Congress a report on the program, including recommendations as to the need for establishing a permanent airport cooperative research program.

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Appendix E: FAA Modernization and Reform Act of 2012

SEC. 906. AIRPORT COOPERATIVE RESEARCH PROGRAM.

Section 44511(f) is amended—

(1) in paragraph (1) by striking “establish a 4-year pilot” and inserting “maintain an”; and

(2) in paragraph (4)—

(A) by striking “Not later than 6 months after the expiration of the program under this subsection,” and inserting “Not later than September 30, 2012,”; and

(B) by striking “program, including recommendations as to the need for establishing a permanent airport cooperative research program” and inserting “program”.

§ 44511. Aviation research grants

(a) General Authority.— The Administrator of the Federal Aviation Administration may make grants to institutions of higher education and nonprofit research organizations to conduct aviation research in areas the Administrator considers necessary for the long-term growth of civil aviation.

(b) Applications.— An institution of higher education or nonprofit research organization interested in receiving a grant under this section may submit an application to the Administrator. The application must be in the form and contain the information the Administrator requires.

(c) Solicitation, Review, and Evaluation Process.— The Administrator shall establish a solicitation, review, and evaluation process that ensures—

(1) providing grants under this section for proposals having adequate merit and relevancy to the mission of the Administration;

(2) a fair geographical distribution of grants under this section; and

(3) the inclusion of historically black institutions of higher education and other minority nonprofit research organizations for grant consideration under this section.

(d) Records.— Each person receiving a grant under this section shall maintain records that the Administrator requires as being necessary to facilitate an effective audit and evaluation of the use of money provided under the grant.

(e) Annual Report.— The Administrator shall submit an annual report to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate on carrying out this section.

(f) Airport Cooperative Research Program.—

(1) Establishment.— The Secretary of Transportation shall maintain an airport cooperative research program to—

(A) identify problems that are shared by airport operating agencies and can be solved through applied research but that are not being adequately addressed by existing Federal research programs; and

(B) fund research to address those problems.

(2) Governance.— The Secretary of Transportation shall appoint an independent governing board for the research program established under this subsection. The governing board shall be appointed from candidates nominated by national associations representing public airport operating agencies, airport executives, State aviation officials, and the scheduled airlines, and shall include representatives of appropriate Federal agencies. Section 14 of the Federal Advisory Committee Act shall not apply to the governing board.

(3) Implementation.— The Secretary of Transportation shall enter into an arrangement with the National Academy of Sciences to provide staff support to the governing board established under paragraph (2) and to carry out projects proposed by the governing board that the Secretary considers appropriate.

(4) Report.— Not later than September 30, 2012, the Secretary shall transmit to the Congress a report on the program.

