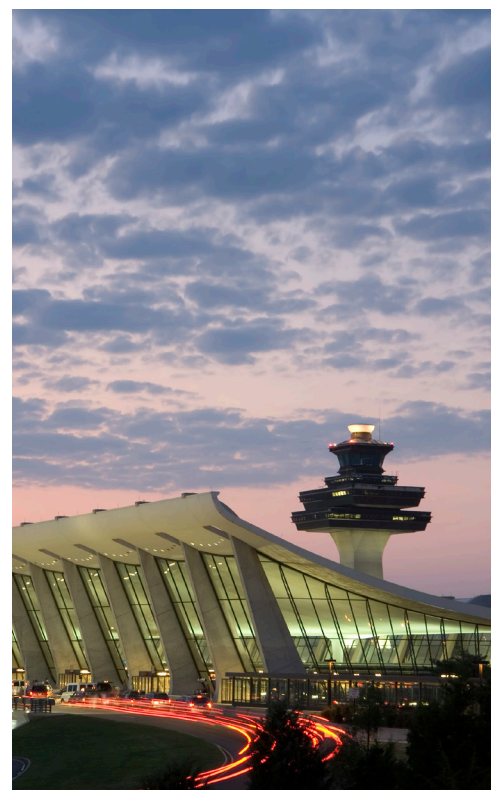


ACRP

AIRPORT
COOPERATIVE
RESEARCH
PROGRAM

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2015 ANNUAL REPORT OF PROGRESS



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AIRPORT COOPERATIVE RESEARCH PROGRAM

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

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

ACRP was authorized in December 2003 as part of the Vision 100—Century of Aviation Reauthorization Act. The primary participants in the ACRP are (1) an independent governing board, the ACRP Oversight Committee (AOC), appointed by the Secretary of the U.S. Department of Transportation with representation from airport operating agencies, other stakeholders, and relevant industry organizations such as the Airports Council International-North America (ACI-NA), the American Association of Airport Executives (AAAE), the National Association of State Aviation Officials (NASAO), Airlines for America (A4A), and the Airport Consultants Council (ACC) as vital links to the airport community; (2) TRB as program manager and secretariat for the governing board; and (3) the FAA as program sponsor. In October 2005, the FAA executed a contract with the National Academy of Sciences formally initiating the program.

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

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

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

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

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The National Academies of SCIENCES • ENGINEERING • MEDICINE

The **National Academy of Sciences** was established in 1863 by an Act of Congress, signed by President Lincoln, as a private, non-governmental institution to advise the nation on issues related to science and technology. Members are elected by their peers for outstanding contributions to research. Dr. Ralph J. Cicerone is president.

The **National Academy of Engineering** was established in 1964 under the charter of the National Academy of Sciences to bring the practices of engineering to advising the nation. Members are elected by their peers for extraordinary contributions to engineering. Dr. C. D. Mote, Jr., is president.

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Learn more about the National Academies of Sciences, Engineering, and Medicine at www.national-academies.org.

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

Learn more about the Transportation Research Board at www.TRB.org.

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Letter From the AOC Chair

This year marks the 10th anniversary of the Airport Cooperative Research Program (ACRP), which continues its mission to convene the best minds from across the nation to cooperatively investigate and address the most difficult challenges facing the airport industry.

Since the first airplane ascended more than a century ago, aviation has been among the most fast-paced industries in the world. It continues to evolve at a swift pace into the 21st Century as airport operators face mounting pressure to meet consumer expectations, environmental requirements, and safety regulations while maintaining profitability and smooth operations. For decades, individual airports and airport operators often faced these challenges alone.

Since 2005, ACRP has been a forum for convening subject-matter experts around common challenges facing the airport industry, for formulating best practices based on past success, and for synthesizing cutting-edge innovation with boots-on-the-ground, first-hand experience.

As a result of the important research conducted at ACRP—made possible by the valuable contributions of airport industry leaders and experts from organizations across the nation—airport operators are now equipped with nearly 400 ACRP resources to help them improve operations and respond to critical challenges. As the industry evolves, ACRP continues to diversify and build upon its suite of research products and tools.

In this report, we reflect on the achievements of the past 10 years, as well as ACRP's strategic outlook on the next 10 years of providing quality, responsive, highly relevant, and innovative solutions to the ever-changing challenges and opportunities within the airport industry. Look for your ACRP to improve its usefulness and value to airports.

Sincerely,



Kitty Freidheim



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AIRPORT COOPERATIVE RESEARCH PROGRAM

Annual Report of Progress

December 31, 2015

Celebrating 10 Years of the Airport Cooperative Research Program

This year marks the 10th anniversary of the Airport Cooperative Research Program (ACRP), which continues its mission to convene the best minds from across the nation to cooperatively investigate and address the most difficult challenges facing the airport industry.

Aviation is among the most fast-paced industries in the world. It continues to evolve at a swift pace into the 21st Century as airport operators face mounting pressure to meet consumer expectations, environmental requirements, and safety regulations while maintaining profitability and smooth operations. In the early decades of the industry, individual airports and airport operators faced these challenges on a case-by-case basis.

In December 2003, the Airport Cooperative Research Program (ACRP) was authorized by Congress as part of the Vision 100-Century of Aviation Reauthorization Act. ACRP was conceived as a forum for convening subject matter experts around common challenges facing the airport industry, for formulating best practices based on past success, and for synthesizing cutting-edge innovation with boots-on-the-ground, first-hand experience. In 2005, the Federal Aviation Administration (FAA) executed a contract delegating the administration of ACRP to the Transportation Research Board (TRB) of the National Academies of Sciences, Engineering, and Medicine.

As a result of the important research conducted at ACRP—made possible by the valuable contributions of industry leaders and experts from organizations across the nation—airport operators are now equipped with more than 370 ACRP resources, including reports, syntheses, *Impacts on Practice*, research digests, webinars, informative videos, and more to help them improve and respond to critical challenges. As the industry evolves, ACRP continues to diversify and build upon its suite of research products and tools.

In this report, we reflect on the achievements of the past 10 years, as well as ACRP's strategic outlook on the next 10 years of providing responsive, highly relevant, and innovative solutions to the ever-changing challenges and opportunities within the airport industry.

ACRP has the unique ability to quickly identify and then form a panel of industry professionals to address the current topics that are critical to the future growth of aviation. I am honored to have been part of this group and look forward to participation in future committees.

Ralph Tamburro

*Traffic Management
Officer, Federal Aviation
Administration*

As the ACRP seeks to continue providing solutions to practical problems faced by airport practitioners, the program needs to be ever more responsive to the changing needs of the industry. Positioning the ACRP at the forefront of future airport trends is a critical step to continue meeting the research needs of airport practitioners. The organization's Strategic Plan for years 2015 through 2020 describes how we see the program pushing boundaries and embracing opportunities....

ACRP Strategic Plan

"Foreword," Mike Salamone, Senior Program Officer and Manager, ACRP

Looking Ahead to the Future of ACRP

Remaining Responsive to Emerging Trends

ACRP is only as relevant as the research and products it generates, so staying abreast of the latest trends is crucial to the program's success. For this reason, ACRP routinely convenes airport practitioners to discuss current and anticipated challenges and opportunities. Topics in these collaborative discussions include issues such as domestic passenger growth, air service challenges at smaller airports, among many others.

Some issues, like stagnant passenger growth, remain perennial challenges for practitioners. Others emerge more suddenly. For instance, global aviation demand has shifted dramatically within the past decade from being concentrated mainly in North American and Europe to now being more evenly distributed across the globe, with aviation demand increasing rapidly across Asia, Latin America, Mexico, and the Middle East. Things are also changing at home. Funding for capital improvement projects has been significantly reduced in recent years—the historic growth in capital grants awarded to airports has slowed due to shrinking budgets. Passenger facility charges (PFCs) have also faced significant pressure, leading to tighter reins on funding for infrastructure and other improvement projects. The challenging combination of economic shocks, high fuel prices, air carrier mergers, and industry consolidation has injected threat and uncertainty into daily operations at domestic airport operations.

Given the dynamism of today's airport industry, the need for informed leadership remains urgent. ACRP strives to meet this need, and has made a name for itself by diligently monitoring the most relevant problems facing the industry. ACRP's audience is well aware of the potential impacts of the economy, the proliferation of new players like ultra-low cost carriers, infrastructure requirements, partnership opportunities between carriers, the role of airports in the digital world, and many other factors.

In 2014, ACRP identified five Hot Topics that pose challenges to airports today:

- The changing aviation industry and airports,
- New models of airport and aviation industry engagement,
- Airports in the transportation system and the customer experience,
- The future of airports, and
- Next Generation Air Transportation System (NextGen) technology.

The first Hot Topic that ACRP aims to address is NextGen and its impacts on flight paths, aircraft types, formation flying, and flight capacity. ACRP is preparing for the rollout of NextGen and its anticipated industry effects, and has already started or completed the following projects, with publications and products expected throughout 2016:

- **NextGen—A Primer.** The objectives of this research are to develop a

resource guide for airport practitioners, a primer for airport decision makers, and a public information toolkit that can be used by airport operators to communicate high-level, universal facts about NextGen and airports to local pilots, community members, local leaders, and the flying-public. *Principal Investigator: Robert Hemm, Logistics Management Institute*

- **NextGen—Guidance for Engaging Airport Stakeholders.** The objective of this research is to develop guidance for airports to engage with the FAA and other airport stakeholders on NextGen development and implementation lifecycle, including but not limited to planning, environmental review, design, and deployment. *Principal Investigator: Randy Murphy, Grafton Technologies, Inc.*
- **NextGen—Airport Planning and Development.** The objective of this research is to develop a guidebook to help airport industry practitioners understand and incorporate NextGen capabilities into planning for all categories of airports. *Principal Investigator: Bill Dunlay, LeighFisher*
- **NextGen—Understanding the Airport’s Role in Performance-Based Navigation (PBN).** The objective of this research is to prepare a user-friendly “Airport PBN Resource Guide” that presents essential, relevant material for use by airport operators, planners, managers, and others. *Principal Investigator: Sebastian Timar, Saab Sensis Corporation*
- **NextGen—Leveraging NextGen Spatial Data to Benefit Airports.** The objective of this research is to develop a guidebook for airport operators that identifies the benefits that can be derived from spatial data that is to be collected in support of the FAA’s NextGen effort and provides guidance on how airports can maximize use of this data. *Principal Investigator: Mark Ricketson, Woolpert, Inc.*

ACRP recognizes that NextGen is poised to significantly impact the future of airport operations by unlocking new efficiencies, thus enabling airports to accommodate growing traveler demand safely and effectively. NextGen exemplifies the kind of cutting-edge developments that ACRP is committed to tackling head-on to help airport practitioners continue adapting to industry changes.

Continuing to Align ACRP’s Strategy with Industry Needs

Through applied research on the latest trends affecting airport operations, ACRP and its constituents continue to lead the industry in providing airport operating agencies with research products on current and emerging issues facing airport operators. Since its inception in 2005, ACRP continues to identify the highest priority projects, assembles capable research teams to conduct thorough investigations, and disseminates the results into the hands of stakeholders. This proven formula has produced invaluable materials for practitioners.

To secure its future in this rapidly changing industry, ACRP requires a unified vision and “roadmap” to guide the program’s priorities and activities. In 2014, ACRP engaged in a strategic planning process of introspective analyses and

The Next Generation Air Transportation System (“NextGen”) is a term used to describe a pervasive and critical component of the National Airspace System (NAS). ACRP’s NextGen initiative is composed of five distinct projects, which are being conducted simultaneously and in coordination with one another.

NextGen is modernizing our national airspace system for improved safety, efficiency, and environmental impact. The ACRP research being conducted will help airports fulfill the important role they play highlighting steps they can take and the benefits they stand to receive.

Randy Murphy

*Grafton Technologies,
Principal Investigator of
ACRP 01-28, “NextGen—
Guidance for Engaging
Stakeholders”*

consultation with ACRP Oversight Committee (AOC) members and ex-officio representatives. ACRP's new Strategic Plan describes how the program will continue to push boundaries and embrace opportunities, focusing on four key strategic priorities that will guide ACRP's decision making for the next five years:

1. Ensure that problem statements are of the highest quality and greatest relevance to the airport industry;
2. Align program products with the interests of key audiences;
3. Expand and diversify product dissemination; and
4. Implement processes to monitor product quality, relevance, and timeliness.

As part of its strategic priorities, ACRP is committed to developing new ways of generating research problem statements. These include an expanded outreach to the airport community and the aviation industry, encouraging problem statement authors to recruit airports as co-signers, and recruiting topic experts to assist with developing the statements. Additionally, ACRP will develop new processes for building upon previous research, such as a thorough examination of previous research work and identification of gaps in existing research. Taken together, these new methods will allow ACRP to better respond in real time to the most pressing issues.

Shaping the Future Aviation Workforce with ACRP Champions

This year, ACRP launched a new initiative to help shape and engage the future workforce of airport practitioners at the early stages of their careers. The ACRP Champion program invites young professionals in the airport industry to attend industry events, develop career skills, and hone their professional networks while introducing them to ACRP's research products—all in a self-paced, fun, supportive, and rewarding environment. These early to mid-career airport professionals, many of whom will go on to become leaders in their fields, will gain first-hand knowledge of and access to ACRP research, engagement opportunities, and a broad network of airport industry professionals.

Facilitating the Research Process

10 Years of ACRP Research

ACRP's success is rooted in its collaboration with airport practitioners to identify and address gaps in knowledge and practice. This cooperative approach—which invites practitioners to submit research ideas and problem statements; serve on project panels; prepare research proposals; and respond to requests for information—has been used successfully by ACRP for 10 years and by other TRB programs for decades. Since 2006, ACRP has used this approach to authorize more than 469 projects resulting in a diverse set of practical research products covering a wide range of topics relevant to the airport industry. It has authorized more than \$106 million in project funding—including nearly \$10 million this year alone (Figure 1).

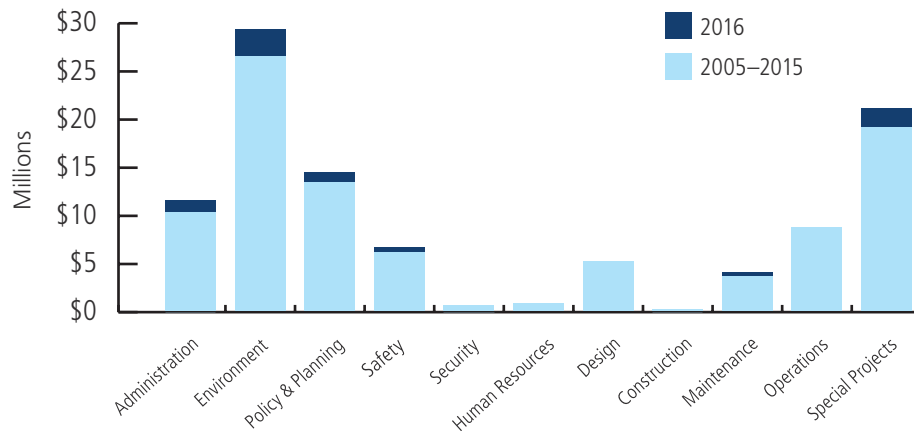


Figure 1: Funding Across ACRP Research Fields

What's Next for ACRP Research

Based on its success to date, ACRP is investigating ways to respond more immediately and nimbly to the urgent challenges of the swiftly evolving airport industry. The Strategic Plan includes taking steps to enhance the research gathering and reporting process. Greater engagement with the airport community and aviation industry combined with new efforts to expand and diversify product dissemination amount to greater benefit for the industry (Figure 2).

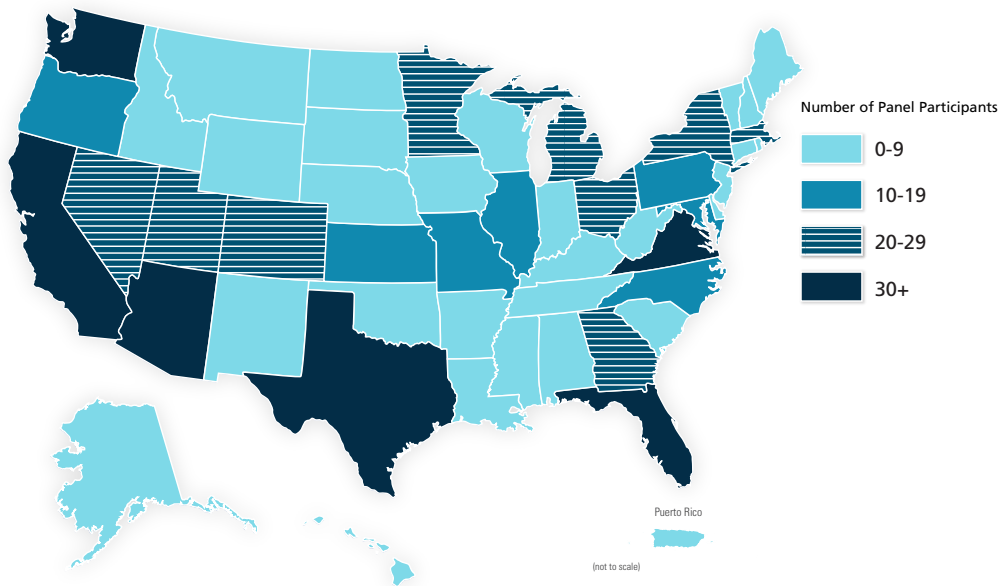


Figure 2: 2015 ACRP Research Panel Participants by State

The program is looking at opportunities to provide more of the necessary resources, both internal and external, to increase the response to trending industry issues. In addition to the possibility of creating new staff positions dedicated to implementing the most pressing strategic priorities, ACRP will explore the ways it can diversify dissemination techniques, tailor product dissemination to key audience segments, improve ACRP search capabilities, and expand its outreach program.

ACRP Insight Events constitute one example of new outreach strategies. At these events, ACRP convenes subject-matter experts to discuss in real-time the most urgent issues. Insight Events create communal spaces for stakeholders to discuss these issues across sectors, institutions, and industries. These events result in key building blocks to developing subsequent crucial research products from ACRP.

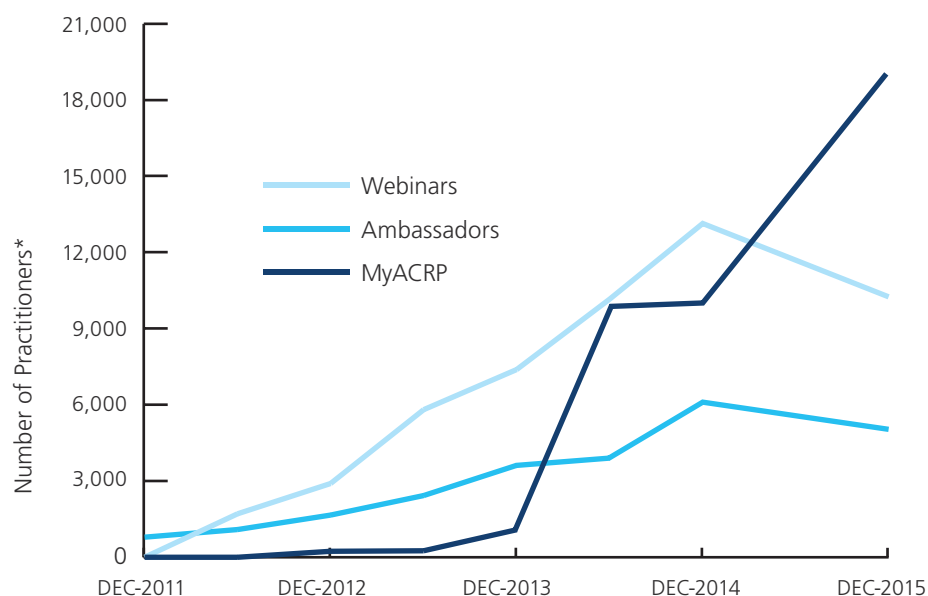
The updated Strategic Plan also includes direction on how to improve upon an already successful foundation. ACRP problem statements highlight how the program brings together its stakeholders to align research priorities with the issues they care most about. In order to keep ACRP relevant and useful, the program will ensure that problem statements are of the highest quality. This has been listed as Strategic Plan priority number one.

To build on our previous successes, ACRP continues to advance the quality and diversity of resources available for airport operators and to improve the overall functionality of the program. We are currently taking steps to implement key elements of the Strategic Plan, such as tracking implementation and its impacts, designing new collaborative processes for problem statement development, and exploring alternative product formats designed to reach new and more diverse audiences. These and other forward-thinking initiatives will continue to characterize future ACRP activity (Figures 3 and 4).

Engaging Airport Practitioners

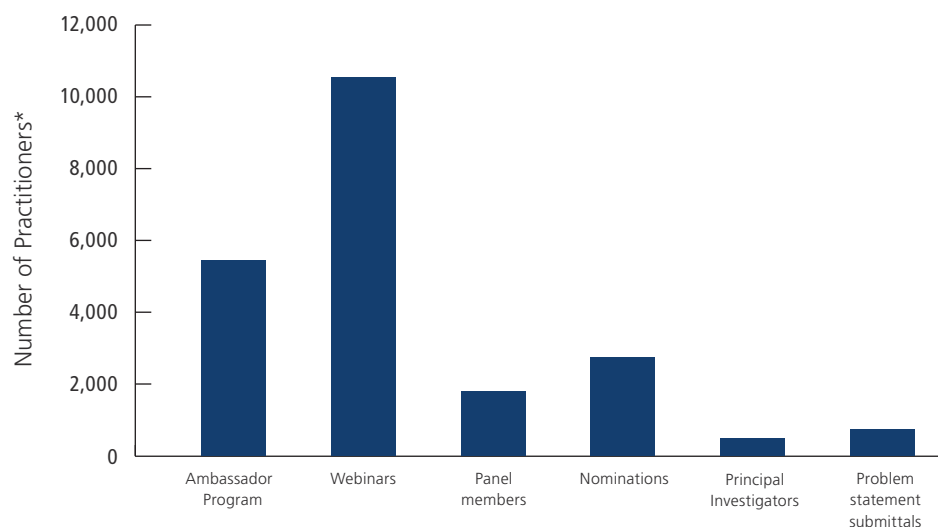
10 Years of Engaging Practitioners

Through face-to-face interactions, presentations at industry gatherings, and leveraging various media channels, ACRP makes sure that its research reaches airport practitioners, that they are using it, and that they are becoming more engaged with ACRP. Over the past 10 years, ACRP has made great efforts to actively engage more than 10,000 airport practitioners and industry stakeholders, representing diverse skillsets and areas of expertise, in order to bring the most holistic and most forward-thinking perspectives to its research. ACRP attends and delivers presentations at stakeholder events and conferences to maintain a presence in the airport and aviation communities. ACRP invites practitioners to submit problem statements, serve on project panels, join the Ambassador Program, and take other steps to get involved with ACRP and become familiar with its valuable research and products. These tried and true methods will continue to play a central role in ACRP's approach to engaging practitioners (Figures 3 and 4).



*Some practitioners are reached through multiple avenues.

Figure 3: Practitioners Reached Through ACRP Outreach



*Does not include practitioners engaged via attendance at conferences, which is estimated to be well over 20,000.

Figure 4: Practitioners Engaged by ACRP in the Past 10 Years

What's Next in Practitioner Engagement

In the coming years, ACRP will pursue several new avenues for engaging greater numbers of practitioners. For example, ACRP will begin encouraging problem statement authors to recruit airports as signatories, which will provide a new means of ensuring the problem statement's relevance and the validity of methods proposed. Additionally, ACRP plans to expand its communication of research impact to increase practitioner engagement.

Expanding ACRP's Reach Through the Ambassador Program

In 2015, in addition to having staff attend more than a dozen industry events and interacting with thousands of attendees over the course of the year, ACRP also strategically leveraged its important relationships with industry practitioners through the Ambassador Program to magnify its range of dissemination activities. Ambassadors, equipped with program knowledge and familiarity with ACRP research products, shared ACRP results at more than 30 airport industry events across the country in 2015, reaching approximately 5,700 practitioners through both formal presentations and direct interactions.

ACRP Champions

ACRP's Champions program launched in September 2015 with the intention of supporting early to mid-career airport practitioners in their careers, and encouraging them to spread the word about ACRP tools, resources, and guidance with their colleagues and professional contacts.

ACRP
Champion

Engaging the New Generation of Practitioners

ACRP's Champions program was introduced this year to further plant the seeds for lifelong, mutually beneficial working relationships with young professionals who will one day lead the industry. Intended specifically for entry-level, private-sector airport professionals and employees at large airports, the new ACRP Champions initiative is designed to help new airport practitioners get a head start in their career development, while laying the groundwork for many years of involvement with ACRP and its research activities. Champions become knowledge leaders within their organizations regarding ACRP's research cycle and current topics, and help encourage their colleagues to get involved through one of the many ACRP engagement channels. ACRP has already recruited 30 new Champions as of early December 2015—only the third month of the program—and is currently accepting Champion nominations.



Figure 5. Highlights of 2015 Webinar Series

Similarly, ACRP's Graduate Award Program continues to encourage applied research on airport and related aviation system issues and to foster the next generation of aviation community leaders. The program is intended to stimulate thought, discussion, and research by those who may become future airport managers, operators, designers, and policy makers in aviation.

Leveraging New Media

ACRP has continued to ramp up its use of online engagement methods such as live webinars, a growing social media presence, and real-time announcements of program activities through online newsletters. ACRP's outreach efforts in 2015 provided airport practitioners with opportunities to collaborate and share best practices with other industry stakeholders. Through its webinars, presentations, website, and social media outlets, ACRP provided reliable information and helped build relationships that are improving the way airports do business. Key highlights from 2015 include:

- Conducted 15 webinars (Figure 5);
- Nearly 30,000 web visitor sessions; and
- Continued growth in social media through Twitter, LinkedIn, and Facebook.

ACRP has successfully leveraged social media as an avenue for keeping the airport community up to date with announcements of new publications, events, and opportunities for engagement. ACRP's social media following has grown to more than 8,000 across platforms (Figure 6).

- **LinkedIn:** Started in late 2010, ACRP's LinkedIn discussion group includes more than 2,700 members, more than half of whom are at a senior or managerial level within their organizations. Additionally, ACRP staff maintains an expanding list of nearly 4,000 industry connections. ACRP group members have access to the latest updates from ACRP and the opportunity to communicate with colleagues in the field; request access to the group; and receive regular updates on the latest events, published materials, and other resources from ACRP.
- **Twitter:** The ACRP Twitter accounts (@ACRPAmbassadors and @mikesalamone) use conference, event, and industry hashtags to develop searchable ACRP content on Twitter and to publicize ACRP activities (see sample tweets in the sidebar). ACRP introduced two new hashtags this year: #ACRPImpact, which serves to call attention to the case studies in ACRP's *Impacts on Practice*; and #ACRPchampion, which enables ACRP to stay in contact with Champions via social media. By the end of 2015, the ACRP Ambassador Twitter account had grown to more than 770 followers.
- **Facebook:** With nearly 500 likes, ACRP keeps its Facebook audience current on the latest webinars, industry events, and opportunities for engagement with the program.

ACRP on Twitter



Is there a current airport management practice that deserves more attention/research? #ACRP accepting synthesis ideas: ow.ly/QzWds



Interested in what kinds of research #ACRP has been up to? Check out the publication archive: ow.ly/QTZUt



LAST CALL – DUE MONDAY: One day left to nominate you or someone else for #ACRP 2016 project-oversight panels: ow.ly/QzUZ5



#TRB's Annual Meeting is Jan 10-14, 2016. Interested in submitting a paper? Submissions due by 8/1/15 ow.ly/NLUrb

ACRP endows stakeholders with valuable exposure and access to innovative industry resources. ACRP promotes the pioneering of new mindsets, tools, and technologies to propel the aviation industry to the next level.

Surena Dolejsi

*Aviation Analyst,
Hattenburg Dilley and
Linnell*

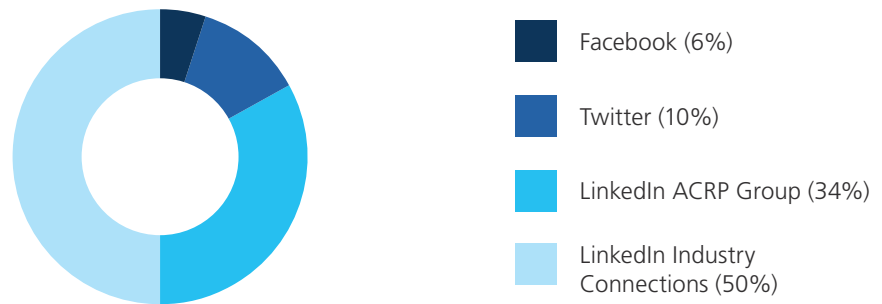


Figure 6: ACRP in Social Media

The ACRP Online Library

The ACRP Online Library in 2015, and What's Next

The ACRP Online Library features more than 370 publications that help practitioners and other stakeholders find best practices and lessons learned, meet environmental and sustainability goals, and operate safely and efficiently (Table 1). The Online Library receives an average of 94 visits each day from the web and through social media, and attracts visitors from all 50 states and many foreign countries, including Canada, India, the United Kingdom, Brazil, China, and France. Since the launch of the ACRP Online Library in 2007, visits overall have been increasing from year to year, and in 2015 total visits exceeded 30,000, of which about 42% were unique visits.

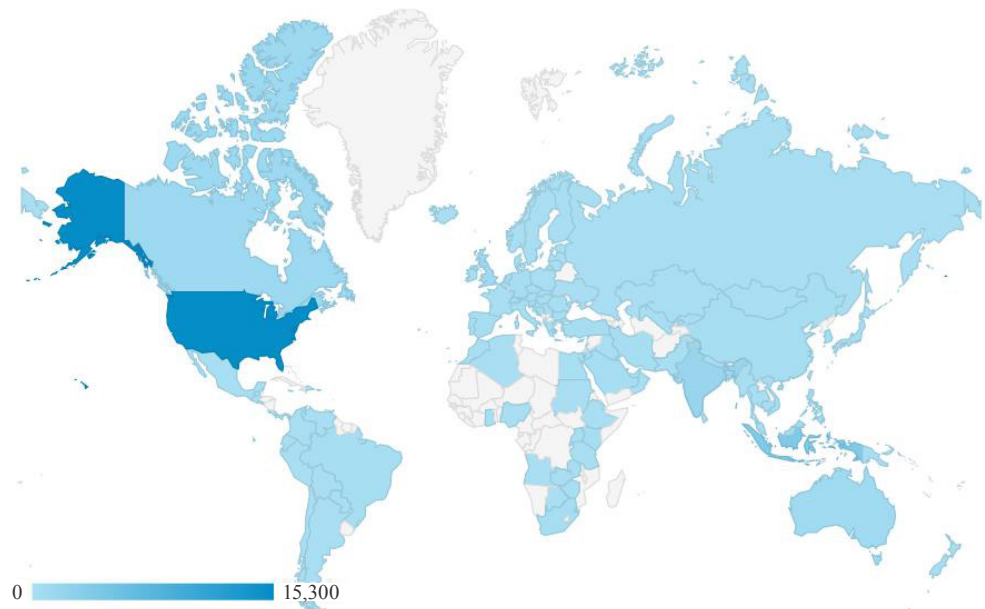


Figure 7: ACRP Web Sessions by Country

	2007	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
General Marketing	1	1	0	1	0	2	1	3	1	10
Reports	1	9	15	15	20	23	19	20	30	152*
Research Results Digests	3	0	4	4	1	4	1	4	1	22
Legal Research Digests	0	4	4	2	2	5	4	1	4	26
Syntheses	4	8	5	4	10	7	11	10	9	68
Web-only Documents	0	0	8	2	2	1	3	6	7	29*
CDs	0	1	2	5	10	12	9	9	13	61
Conference Proceedings	0	1	0	1	0	0	0	0	0	2
TOTAL	9	24	38	34	45	54	48	53	65	370

*Includes publications with multiple volumes.

Table 1: ACRP Publications

ACRP aims to build on this solid foundation to make the ACRP Online Library more accessible and user friendly. ACRP works through its various distribution channels to ensure the program's tools and resources are getting into the hands of airport practitioners who need them, and the program plans to expand and diversify its dissemination methods (Figure 7).

ACRP is also considering several new opportunities to increase ACRP reach through attendance at industry conferences and committees. With expanded participation at a greater number and more diverse range of events—made possible by the successful ACRP Ambassador Program—ACRP will gain a valuable platform for disseminating and sharing its research products with a growing number of practitioners in more diverse fields and disciplines.

2015 Publications

In 2015, ACRP continued to identify and address the most pressing new and ongoing issues facing the airport industry. Relying on its proven collaborative process, ACRP published dozens of industry reports, syntheses, and research digests, covering a diverse range of real-world challenges and topics critical to airport practitioners today, including environmental sustainability, cybersecurity, public health impacts of airport air quality, collaborative decision making, and much more. In 2015, ACRP produced dozens of publications, including 30 reports (nine reports include CD-ROMs containing tools, spreadsheets, videos, and more), nine synthesis reports, one research results digest, four legal research digests, and seven web-only documents.

The 30 Reports issued by ACRP in 2015 have included:

- *ACRP Report 135: Understanding Airport Air Quality and Public Health Studies Related to Airports* (June 2015) – This report explores the literature regarding air quality standards and regulations, health impacts and risks, and the industry’s current understanding of these issues. It provides airport industry stakeholders with an overview of what is known—and not known—regarding the impact of airport activity on air quality and public health.
- *ACRP Report 140: Guidebook on Best Practices for Cybersecurity* (July 2015) – This report provides information designed to help reduce or mitigate inherent risks of cyberattacks on technology-based systems. The guidebook also includes a CD-ROM of multimedia material that may be used to educate all staff at airports about the need, and how, to be diligent against cybersecurity threats.
- *ACRP Report 141: Renewable Energy as an Airport Revenue Source* (August 2015) – This guidebook covers the many topics airports must consider when they are evaluating renewable energy as a revenue source—including the airport’s geography and terrain, infrastructure, real estate, energy costs, public policy, regulatory and compliance requirements, tax credits, sponsor assurances, ownership, impacts to navigation and safety, security, staffing issues, and many others.

In addition to full research reports, in 2015 ACRP also prepared nine synthesis reports, each of which draws on multiple sources to provide practitioners with a single resource addressing a topic of interest for airport management. Synthesis reports issued in 2015 include:

- *ACRP Synthesis 62: Cell Phone Lots at Airports* (June 2015) – This synthesis report helps airports determine whether benefits of airport cell phone lots outweigh any operating and maintenance costs and forgone revenues.
- *ACRP Synthesis 60: Airport Emergency Post-Event Recovery Practices* (April 2015) – This synthesis explores approaches to improving the overall resiliency of airports through planning for the recovery phase of emergency response.
- *ACRP Synthesis 67: Airside Snow Removal Practices for Small Airports with Limited Budgets* (July 2015) – This synthesis covers challenges and successful strategies that airport operators use at small airports with significant budget and other constraints to coordinate and conduct snow removal operations.

In 2015, ACRP published six *Impacts on Practice* publications:

- *Addressing Aircraft Wildlife Hazards at General Aviation Airports* (June 2015) – Sterling Municipal Airport (KSTK) in Colorado used *ACRP Report 32: Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports* to manage a swallow population that had been causing aircraft strikes. The

airport successfully implemented a permanent, environmentally friendly technique to alleviate the issue.

- *Standardizing Airport Incident Management Practices* (May 2015) – Golden Triangle Airport (GTR) in Columbus, Mississippi, and Kissimmee Gateway Airport (KISM) in Kissimmee, Florida, have applied findings from *ACRP Report 103: A Guidebook for Integrating NIMS for Personnel and Resources at Airports*. The report helped these airports more fully integrate the National Incident Management System (NIMS) into airport response plans.
- *Improving Emergency Response at Airports* (April 2015) – Airports such as Grand Forks International Airport (GFK) in North Dakota have applied the findings from *ACRP Report 95: Integrating Community Emergency Response Teams (A-CERTs) at Airports*. Officials at GFK credit the direction provided in *ACRP Report 95* with enabling the airport to build, implement, and maintain a successful response team.
- *Airports and Aging Travelers* (March 2015) – Southwest Florida International Airport (RSW) provides aging passengers with an easier, safer, and more enjoyable experience in its terminals. Upon publication of *ACRP Synthesis 51: Impacts of Aging Travelers on Airports*, employees at RSW met to review its current projects and identified potential projects and service improvements to make traveling through the airport more enjoyable for the aging traveler.
- *Wayfinding and Signing Guidelines for Airports* (September 2015) – Philadelphia International Airport (PHL) based its new sign system design on the best practices found in *ACRP Report 52: Wayfinding and Signing Guidelines for Airport Terminals and Landside*. The new system serves the 30 million passengers who need to navigate PHL each year, and is based on the three Cs of wayfinding as outlined in *ACRP Report 52*: continuity, consistency, and connectivity.
- *Improving the Safety of Runway Safety Areas* (October 2015) – San Francisco International Airport (SFO) utilized *ACRP Report 50: Improved Models for Risk Assessment of Runway Safety Areas*—and the related earlier report, *ACRP Report 3: Analysis of Aircraft Overruns and Undershoots for Runway Safety Areas*—to identify cost-effective alternatives for improving runway safety areas and meet FAA safety requirements.

This report [*ACRP Report 103*] was an exceptional tool to gain additional information concerning the value and application of NIMS and one of its operational components, ICS.

Kimberly Castro

*Operations Coordinator,
Kissimmee Gateway Airport*

Legal and Research Results Digests published in 2015 include:

- *ACRP Research Results Digest 22: Synthesis of Information Related to Airport Practices* (January 2015) – This is a digest of the progress and status of ACRP Project 11-03, “Synthesis of Information Related to Airport Practices.”
- *ACRP Legal Research Digest 23: A Guide for Compliance with Grant Agreement Obligations to Provide Reasonable Access to an AIP-Funded Public Use General Aviation Airport* (February 2015) – This digest describes the assurances made by airport sponsors that receive grants from the FAA, and how these assurances

Top 5 Downloaded Reports in 2015

ACRP Report 25: Airport Passenger Terminal Planning and Design, Volume 1: Guidebook

ACRP Report 132: The Role of U.S. Airports in the National Economy

ACRP Report 130: Guidebook for Airport Terminal Restroom Planning and Design

ACRP Report 144: Unmanned Aircraft Systems (UAS) at Airports: A Primer

ACRP Report 141: Renewable Energy as an Airport Revenue Source

limit the sponsor from unreasonably restricting access for aeronautical activity at general aviation airports.

For more information about ACRP reports and publications issued in 2015, visit: www.trb.org/Publications/PubsACRPPublications.aspx

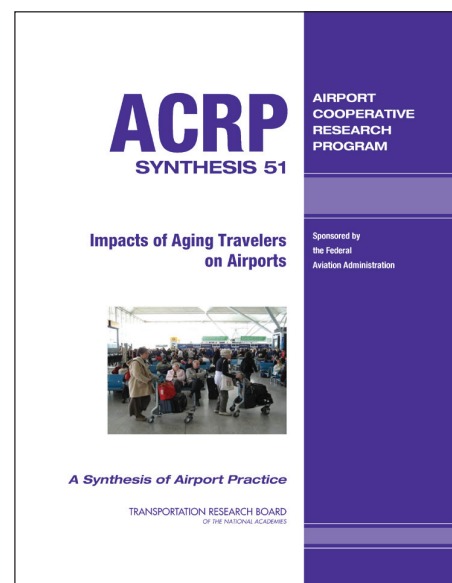
Airports and Aging Travelers

Where are the restrooms? Where is baggage claim? How do I locate my rental car? How do I access Wi-Fi? These are questions most travelers ask when navigating an unfamiliar airport. Even experienced air travelers have moments when locating a service or facility within an airport becomes a challenge.

Imagine how much more challenging these issues become if the traveler is dealing with musculoskeletal problems that may limit the ability to walk through an airport terminal. Or deteriorating sight and hearing that limit the ability to read terminal signage or understand recorded announcements. Or the psychological challenges of anxiety if running late for a flight and a limited ability to adapt to change.

These are some of the challenges faced by a growing number of air travelers defined as “aging”—persons 65 years or older. The U.S. Census Bureau Age and Sex Composition Report (2010) showed the growth in the percentage of persons over 65 changed from 9 percent in 1960 to 13 percent in 2010 and is projected to be 19 percent in 2030. Additionally, the number of persons between 45 and 65 years old—the future elderly, so to speak—has increased from 20.3 percent to 26.4 percent compared to the same period.

The U.S. Travel Association notes older travelers account for 21 percent of all leisure travelers and 14 percent of all business passengers. It is also expected that the proportion of older travelers choosing to fly will increase as a result of more affluence and higher



education levels. Although healthier in some respects than earlier generations, today’s older traveler is still subject to a variety of chronic illnesses that could negatively impact their ability to navigate airport terminals confidently and safely. The challenge for airports and airlines is how best to respond to the physical and psychological needs of the increasing number of aging and elderly travelers.

So, what’s an airport to do? Tom Nichols, director of operations at Southwest Florida International Airport (RSW) in Fort Myers, Fla. strongly suggests part of the answer resides in the contents of the report *ACRP Synthesis 51: Impacts of Aging Travelers on Airports*.

“A large number of the passengers who travel through Southwest Florida International Airport are more than the 65 years of age,” said Nichols. “Subsequently, we have worked to make the terminal experience easier, safer, and



Above: Southwest Florida International Airport (RSW) added electronic signage (left) in its ticketing lobby to help guide passengers to the airline check-in area. Signs added to direct passengers away from escalators and toward elevators (right) help create a safer environment for aging travelers. Images courtesy of RSW.

more enjoyable for all travelers, especially the older traveler.”

The way Nichols and his RSW colleagues utilized *ACRP Synthesis 51* demonstrates one of the many value propositions of ACRP research—confirming what an airport has done is the appropriate course of action.

“During the past five years, we have implemented a wide variety of facility and service improvements designed with the older traveler in mind,” Nichols said. “We pick up and drop off long-term surface lot parking customers using airport shuttle buses that position right at the automobile and assist with luggage. When using this lot, departing customers are given a parking spot location note so they can tell the shuttle bus driver their car’s location upon return. Customers are also provided transportation from the long-term surface parking lot to the terminal door closest to a passenger’s departure gate to minimize walking for our older passengers. In addition, passengers who make advance reservations for commercial pre-arranged transportation can be picked up on the front curb closest to their bag carousel and on-demand taxi service is allowed to approach the front curb upon the customer’s request.”

“In the terminal,” Nichols continued, “we integrated visual paging into our new Flight Information Display System (FIDS) to accommodate passengers with hearing challenges. We added electronic digital signage in the ticketing lobby to more efficiently guide our passengers to the airline check-in area. We upgraded our free Wi-Fi service to accommodate demands from our more tech-savvy older passengers. Signs were added to direct passengers away from escalators and toward elevators, which creates a safer environment, particularly for older travelers. We increased the width of the aisles, added wheelchair storage and specially marked seats for handicapped and wheelchair travelers in airline gate areas. When the terminal was built in 2005, flat-plate baggage claim carousels were installed. As it turned out, the *ACRP Synthesis 51* confirmed that was the right decision for making it easier for passengers—particularly older ones—to acquire their checked bags.”

Once *ACRP Synthesis 51* was published, Nichols met with his team to evaluate each of the aforementioned projects vis-à-vis the guidance offered in the report and identify potential projects and/or service improvements to make travelling through

ACRP Synthesis 51 identifies these key issues faced by aging air travelers and the efforts currently being made to address them:

- **Wayfinding**—difficulties in negotiating the complex environment presented by airport roadways, parking facilities, and terminal buildings;
- **Fatigue**—the physical effort involved in standing, waiting in line, lifting heavy bags, and walking long distances;
- **Technology and equipment**—coping with the increasing use of automation, self-service machines, TSA passenger screening process, and using escalators and moving walks; and
- **Amenities**—the challenges of using congested concessions area and constricted toilet facilities.



Above: Low profile flat-plate baggage claim carousels at Southwest Florida International Airport (RSW) allow easier retrieval of bags, particularly for aging travelers. Bags can be slid off the device to the floor rather than using a lifting motion as required for sloped plate baggage carousels installed at many airports. Image courtesy of RSW.

RSW a more enjoyable experience for the “aging” traveler.

“The *ACRP Synthesis 51* has confirmed and affirmed our approach to projects and service improvements is consistent with industry “best practices” and has helped us ensure the airport experience for older travelers at RSW is the best it can be,” concluded Nichols.

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Improving Emergency Response at Airports

Few cities in the United States deal with the ever-present threat of disasters on the scale of Los Angeles, California. In 1985, the Los Angeles Fire Department (LAFD) identified the need for a community-driven response to aid emergency service personnel in disaster situations. After studying examples of disaster preparedness and response in Japan and Mexico City, LAFD developed a pilot program in 1986 to train the first group of civilian volunteers on basic fire suppression, light search and rescue, and first aid.

In October 1987, the Whittier Narrows earthquake in southern California dramatically underscored the need to expedite training of volunteers, prompting the City of Los Angeles to begin developing a network of Community Emergency Response Teams (CERT). In 1993, the CERT program was adopted on a national level by the Federal Emergency Management Agency (FEMA) under its Citizen Corps program. Since late 2011, communities in all 50 U.S. states and three territories have conducted CERT training.

security personnel by serving as escorts for construction projects. Volunteers for an Airport Community Response Team, or A-CERTs, receive supplemental training specific to the local airport and may also undergo background checks.

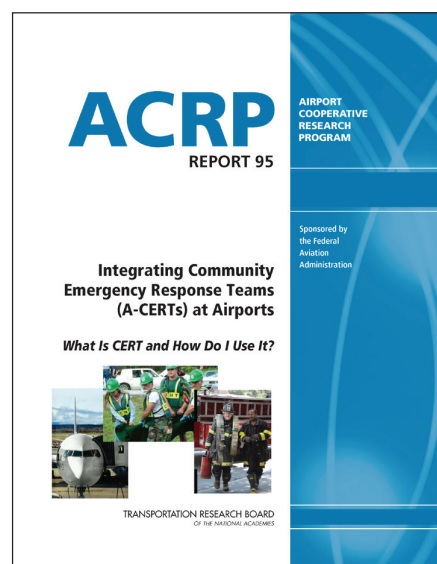
Robert Sims, on staff at Grand Forks International Airport (GFK) in North Dakota, was tasked in 2014 to integrate CERT into the airport's emergency management plan. Sims relied on guidance in *ACRP Report 95* to accomplish this task. When Sims first made contact with local CERTs, he unexpectedly found that many of the teams were no longer active. *ACRP Report 95* recommends regular training as one safeguard against letting a CERT program becoming inactive.

Basic training for the A-CERT at GFK started in October 2014. Sims, and co-facilitator Gunnar Larson, hold a mandatory training every quarter with an emphasis on decision making in a disaster scenario. A-CERT training at GFK emphasizes familiarizing volunteers with the layout of the airport, such as identifying where hazards are located and which buildings contain the most personnel.

The program at GFK is now composed of about eight core volunteers and eight more who come for periodic trainings. All of the volunteers come from outside of the airport. Volunteers at the GFK A-CERT have not received additional security clearance, though it may be part of the program in the future in order to move the program forward.

Sims found *ACRP Report 95*, together with less airport-specific guidance from FEMA on CERT, to be an important asset while establishing an A-CERT program. "ACRP Report 95 was one of the main

ACRP Report 95: Integrating Community Emergency Response Teams (A-CERTs) at Airports, describes the process of integrating CERTs to specifically meet the needs of airports. These teams may be composed of airport employees typically unaffiliated with emergency response, existing outside CERT teams, or some combination of the two. Although these teams are trained to fill a critical need during disaster response, the teams may also be used for a host of other purposes, including traffic control support, staffing informational centers during holidays, and assist airport law enforcement and



Right: Rodney Carstens, U.S. Customs and Border Protection, instructing A-CERT volunteers at Grand Forks International Airport. Image courtesy of GFK.





Above: Grand Forks International Airport holds mandatory A-CERT training every quarter. The A-CERT team includes about eight core and eight additional volunteers. All volunteers come from outside of the airport. Image courtesy of GFK.

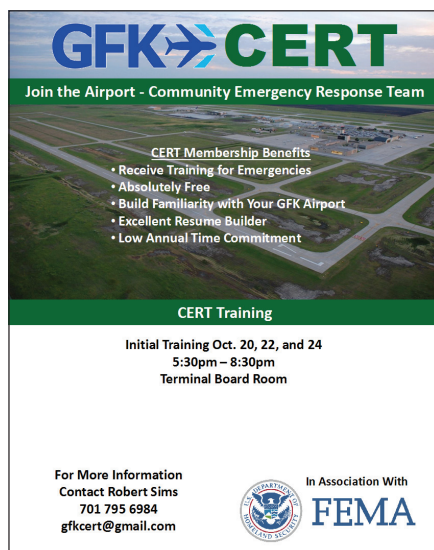
resources we used to see what a successful A-CERT program looked like and how to implement it,” said Sims. “It synthesized a lot of information that gave us direction and helped orient us. Once we had the clear vision of how an A-CERT should operate, it became much easier to move forward.”

ACRP Report 95 provides guidance to A-CERT program coordinators looking to facilitate the development of a healthy, growing program. The report guides facilitators to identify core personnel, including administrative assistance, instructors, and volunteers who take charge of part of the program. These people, as well as future A-CERT volunteers, will take charge of key program responsibilities. The report includes suggestions for securing grant money from FEMA and for identifying other sources, such as establishing a non-profit organization or requesting a line-item in the airport’s budget. The report also directs the program coordinator to additional guidance on the FEMA website on CERT training.

Appendices in the report contain documents with examples of fliers used to market A-CERTs, checklists for program facilitators to use, sign-in sheets, evaluation forms, participant feedback forms, and periodic evaluation forms. All of these documents can be modified for use at interested airports, reducing the time burden on the program facilitator which helps to ensure that the program remains active. The appendices also include a sample A-CERT

full scale exercise, with notes on important considerations for organizing the event, staff roles in the exercise, schedule, and list of materials.

Reaching beyond the airport property into the larger community, ACRP Report 95 also highlights several examples of CERT members providing community service outside of disaster situations. CERT volunteers have staffed first aid booths, spoken at PTA meetings, handled donations during disaster situations, and even supplemented fire staff during fire season. The guidance provided by ACRP Report 95 provides basic guidance to enable airports to make use of A-CERT programs as an invaluable community resource.



During airport training, A-CERTs learn to:

- Prepare for specific known hazards that threaten the airport;
- Apply size-up and safety principles;
- Assist trades personnel in terminating utilities;
- Extinguish small fires;
- Set up a medical treatment area;
- Conduct searches and rescues in lightly and moderately damaged structures;
- Understand the psychological impact of a disaster on themselves and others;
- Organize CERT members and spontaneous volunteers for an effective and safe response;
- Assist in pedestrian and vehicle traffic control; and
- Apply response skills in a disaster simulation.

ACRP Report 95:
*Integrating Community Emergency
Response Teams (A-CERTs) at Airports*

Left: Cover page of a promotional flyer produced by Grand Forks International Airport to help recruit volunteers for A-CERT training. Image courtesy of GFK.

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Improving the Safety of Runway Safety Areas

Runway safety areas (RSAs) surround the area of an airport's runway and should, under normal conditions, be capable of supporting aircraft without causing damage to the vehicle or injury to the passengers. In the 1960s, the FAA increased the regulated size of RSAs in order to reduce the severity of aircraft incidents. However, because many airports were built before the 1960s, many runways did not comply with the new dimensions.

Airports in the United States are required by law to improve RSAs and comply with new FAA design standards by the end of 2015. For some airports, terrain and environmental challenges make it impractical to extend RSAs, so these facilities seek to improve runway safety in other ways. In many cases, it is impossible to achieve 100% of the new requirements that apply to runways constructed since the regulations went into effect. The FAA works closely with airports to achieve as much of the required safety area that is physically, economically, and politically possible.

the likelihood of common accidents at airports and to help inform airports' efforts to improve the safety of RSAs. *ACRP Report 50* expands on the earlier report to incorporate several additional methodologies for improving RSAs.

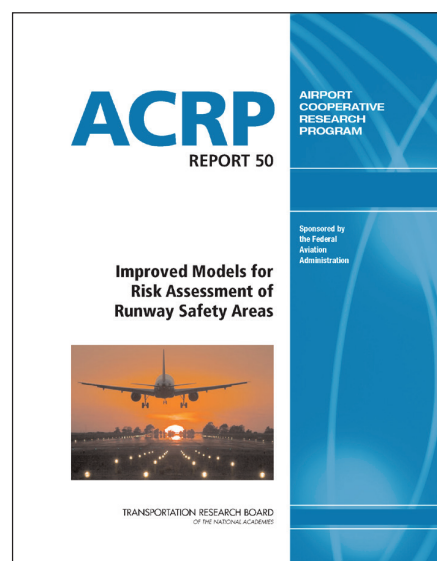
Four primary alternatives to improve an RSA are identified in *ACRP Report 50*, including:

- Extend the RSA laterally and longitudinally;
- Modify or relocate the runway to expand the RSA;
- Reduce the declared distance available for sudden stops or takeoffs; and
- Install an engineered material arresting system (EMAS).

The report analyzes these alternatives, individually and in combination, to provide guidance to airport operators looking to improve the safety of their RSAs.

ACRP Report 50 authors completed a functional hazard analysis for the type of incidents that relate to an airport's RSA, including landing overruns, landing veer-offs, landing undershoots, takeoff veer-offs, and takeoff overruns. Analyzing more than 1,400 accidents and incidents that occurred since 1980, the team developed a three-part risk model that evaluates the probability of the event given certain operating conditions including aircraft performance and weather conditions; the probability of occurrence at a given location given RSA characteristics, geometry, and presence of EMAS; and the consequences of the event.

The report includes a user's guide to software called RSARA, developed as part of the project, which can perform a full risk assessment for individual or multiple runways. Users enter the airport's



Above: Aerial view of runways at San Francisco International Airport. SFO utilized ACRP Report 3 and ACRP Report 50 to help identify cost-effective alternatives for achieving 97% of FAA safety requirements to improve its runway safety areas. Image by Sam Wheeler (commons.wikimedia.org/wiki/File:SFO_Aerial_View.jpg), licensed under CC-BY-SA-3.0: (creativecommons.org/licenses/by-sa/3.0/us/).

historical operations data, historical weather data, characteristics of runways, characteristics of the RSAs, and general information about the airport. From this data the software generates the average risk for each type of incident by runway, by RSA section, and the airport's total risk. The model was validated against the actual historic accident rate at a sampling of airports that were representative of conditions across the United States.

San Francisco International Airport (SFO) had several runways that fell within FAA requirements for improved safety. A SFO task force charged with studying the improvements identified approximately 30 alternatives that would improve the airport's level of safety, but possibly at great cost. On one side, the airport is bounded by a major highway, and on the other, it is bounded by the San Francisco Bay. Furthermore, the airport had very little data to help determine the best alternative. At the time of the study, the airport had experienced no accidents.

John Bergener, with the SFO Bureau of Planning and Environmental Affairs, was directed to the two ACRP reports by the

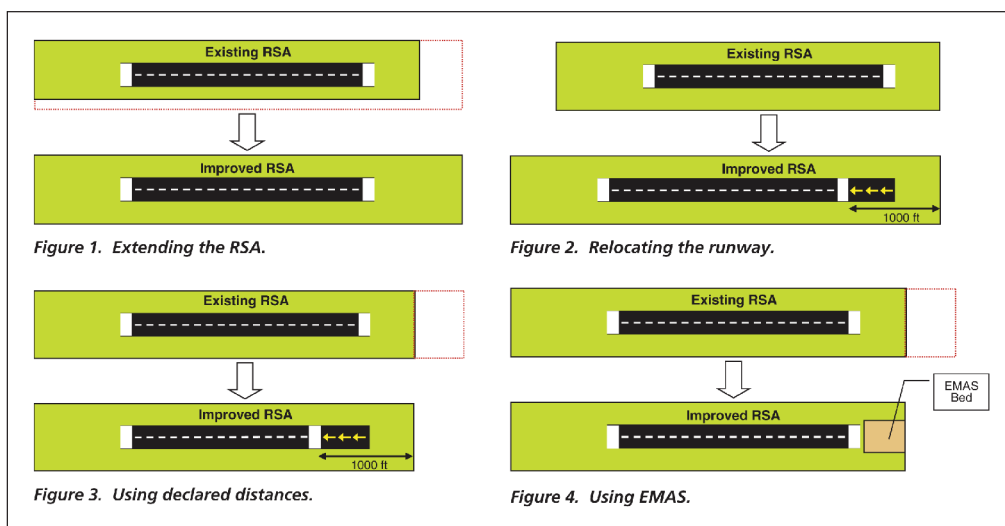
FAA. Using tools and guidance from the reports, with consultation from report author Applied Research Associates, SFO was able to identify two cost-effective alternatives for achieving 97% of the FAA safety requirements. Ultimately, the airport chose to shift the location of runways and to use EMAS.

Bergener explained that, "Achieving the full 100% of the safety standard would have cost the airport at least several hundred million dollars. The methodology helped us to come to the decision we ultimately did. The airport was safe before we made the improvements, and now the airport is even more safe."

Michael Lawrance, former SFO airport planner and now a senior aviation planning specialist with the FAA, recalls that the SFO project team worked hard to consider every alternative. "The information we received [from the ACRP reports] helped give us confidence that we were doing what we thought we should do," Lawrance recalled. "It gave the project team more confidence that we were making the right decision."

**Landing and takeoff
overruns, undershoots,
and veer-offs account
for most of the accidents
that occur on or near the
runway. Conditions at the
airport may contribute
significantly to the
probability and severity
of the accidents. The
runway safety area (RSA)
improves the safety of
airplanes and has helped
turn potential accidents
into minor incidents.**

—ACRP Report 50: Improved Models for
Risk Assessment of Runway Safety Areas



Above: Figures from ACRP Report 50 illustrating the four basic alternatives available to airports for improving a runway safety area when it does not meet current FAA design standards. The report describes the advantages and disadvantages of each alternative specific to an airport's situation that need to be assessed.

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APPENDIX A. Publications of the Airport Cooperative Research Program

Reports		
No.	Proj. No.	Title, Pages, Publication Year
1	11-02/Task 04	Safety Management Systems for Airports, Vol. 1: Overview, 40 p. (2007)
1	04-05	Safety Management Systems for Airports, Vol. 2: Guidebook, 174 p. (2009)
2	11-02/Task 03	Evaluation and Mitigation of Aircraft Slide Evacuation Injuries, 86 p. (2008)
3	04-01	Analysis of Aircraft Overruns and Undershoots for Runway Safety Areas, 58 p. (2008)
4	11-02/Task 02	Ground Access to Major Airports by Public Transportation, 214 p. (2008)
5	11-02/Task 05	Quarantine Facilities for Arriving Air Travelers: Identification of Planning Needs and Costs, 34 p. (2008)
6	02-04	Research Needs Associated with Particulate Emissions at Airports, 64 p. (2008)
7	02-03	Aircraft and Airport-Related Hazardous Air Pollutants: Research Needs and Analysis, 64 p. (2008)
8	04-02	Lightning-Warning Systems for Use by Airports, 80 p. (2008)
9	02-04A	Summarizing and Interpreting Aircraft Gaseous and Particulate Emissions Data, 90 p. (2008)
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33	01-02	Guidebook for Developing and Managing Airport Contracts (& CD 81), 82 p. (2011)
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35	10-02	Planning for Offsite Airport Terminals, 94 p. (2010)

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No.	Proj. No.	Title, Pages, Publication Year
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37	03-06	Guidebook for Planning and Implementing Automated People Mover Systems at Airports (& CD 82), 226 p. (2010)
37A	03-07	Guidebook for Measuring Performance of Automated People Mover Systems at Airports, 134 p. (2012)
38	03-13	Understanding Airspace, Objects, and Their Effects on Airports, 164 p. (2010)
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40	07-02	Airport Curbside and Terminal Area Roadway Operations, 40 p. (2010)
41	10-07	Guide to the Decision-Making Tool for Evaluating Passenger Self-Tagging (& CD 83; & WOD 10), 70 p. (2011)
42	08-01	Sustainable Airport Construction Practices (& CD 88), 320 p. (2011)
43	02-13	Guidebook of Practices for Improving Environmental Performance at Small Airports (& CD 89), 364 p. (2011)
44	03-11	A Guidebook for the Preservation of Public-Use Airports (& CD 102), 62 p. (2011)
45	10-01	Optimizing the Use of Aircraft Deicing and Anti-Icing Fluids, 180 p. (2011)
46	02-07	Handbook for Analyzing the Costs and Benefits of Alternative Aviation Turbine Engine Fuels at Airports (& CD 91), 78 p. (2011)
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49	01-10	Collaborative Airport Capital Planning Handbook, 136 p. (2011)
50	04-08	Improved Models for Risk Assessment of Runway Safety Areas (& CD 98), 182 p. (2011)
51	04-09	Risk Assessment Method to Support Modification of Airfield Separation Standards, 136 p. (2011)
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53	02-11	A Handbook for Addressing Water Resource Issues Affecting Airport Development Planning, 170 p. (2011)
54	01-11	Resource Manual for Airport In-Terminal Concessions, 268 p. (2011)
55	03-05	Passenger Level of Service and Spatial Planning for Airport Terminals, 70 p. (2011)
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57	11-02/Task 18	The Carbon Market: A Primer for Airports, 80 p. (2011)
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59	01-12	Information Technology Systems at Airports: A Primer, 108 p. (2012)
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63	02-03A	Measurement of Gaseous HAP Emissions from Idling Aircraft as a Function of Engine and Ambient Conditions, 112 p. (2012)
64	02-25	Handbook for Evaluating Emissions and Costs of APUs and Alternative Systems (& CD 113), 90 p. (2012)
65	10-10	Guidebook for Airport Irregular Operations (IROPS) Contingency Planning, 258 p. (2012)
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67	03-14	Airport Passenger Conveyance Systems Planning Guidebook (& CD 110), 68 p. (2012)
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71	02-08	Guidance for Quantifying the Contribution of Airport Emissions to Local Air Quality (& CD 115), 76 p. (2012)

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149	02-46	Improving Ground Support Equipment Operational Data for Airport Emissions Modeling, 152 p. (2015)

Research Results Digests

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1	11-03	Synthesis of Information Related to Airport Practices, 4 p. (2007)
2	11-02/Task 01	Model for Improving Energy Use in U.S. Airport Facilities, 20 p. (2007)
3	11-03	Synthesis of Information Related to Airport Practices, 4 p. (2007)
4	11-03	Synthesis of Information Related to Airport Practices, 4 p. (2009)
5	11-02/Task 07	Current and Emerging Issues Facing the Airport Industry, 32 p. (2009)
6	04-03	Guidance for Identifying and Mitigating Approach Lighting System Hazards, 16 p. (2009)
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8	11-03	Synthesis of Information Related to Airport Practices, 4 p. (2010)
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11	11-02/Task 14	Helping Airports Understand Payment Card Industry Data Security Standard (PCI DSS), 30 p. (2010)
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22	11-03	Synthesis of Information Related to Airport Practices, 12 p. (2015)

Legal Research Digests (Project 11-01)

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1	01-03	Compilation of Airport Law Resources, 38 p. (2008)
2	01-02	Theory and Law of Airport Revenue Diversion, 30 p. (2008)
3	01-04	Survey of Laws and Regulations of Airport Commercial Ground Transportation, 186 p. (2008)
4	01-01	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 31, 2007 (CD 68), 0 p. (2008)
5	01-05	Responsibility for Implementation and Enforcement of Airport Land-Use Zoning Restrictions, 68 p. (2009)
6	01-07	The Impact of Airline Bankruptcies on Airports, 62 p. (2009)
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9	02-03	Case Studies on Community Challenges to Airport Development, 64 p. (2010)
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11	03-03	Survey of Minimum Standards: Commercial Aeronautical Activities at Airports, 60 p. (2011)
12	03-01	Fair Disclosure and Airport Impact Statements in Real Estate Transfers, 70 p. (2011)
13	03-06	An Index and Digest of Decisions: Compilation of Airport Law Resources (CD 108), 0 p. (2012)

Legal Research Digests (Project 11-01)

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14	02-05	Achieving Airport-Compatible Land Uses and Minimizing Hazardous Obstructions in Navigable Airspace, 74 p. (2012)
15	03-02	Compilation of State Airport Authorizing Legislation, 108 p. (2012)
16	04-07	Procurement of Airport Development and Planning Contracts, 50 p. (2012)
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20	04-01	Airport Responsibility for Wildlife Management, 162 p. (2013)
21	04-05	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 2012 (CD 141), 0 p. (2013)
22	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, 62 p. (2014)
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Syntheses (Project 11-03)

No.	Topic No.	Title, Pages, Publication Year
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16	S02-03	Compilation of Noise Programs in Areas Outside DNL 65, 112 p. (2009)
17	S02-04	Approaches to Integrating Airport Development and Federal Environmental Review Process, 44 p. (2009)
18	S06-01	Aviation Workforce Development Practices, 44 p. (2010)
19	S01-02	Airport Revenue Diversification, 64 p. (2010)
20	S08-01	Airport Terminal Facility Activation Techniques, 136 p. (2010)
21	S10-04	Airport Energy Efficiency and Cost Reduction, 82 p. (2010)

Syntheses (Project 11-03)

No.	Topic No.	Title, Pages, Publication Year
22	S09-02	Common Airport Pavement Maintenance Practices, 112 p. (2011)
23	S04-05	Bird Harassment, Repellent, and Deterrent Techniques for Use on and Near Airports, 40 p. (2011)
24	S02-05	Strategies and Financing Opportunities for Airport Environmental Programs, 228 p. (2011)
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1	01-03	Analysis and Recommendations for Developing Integrated Airport Information Systems, 80 p. (2009)
2	02-06	Appendices to ACRP Report 11: Guidebook on Preparing Airport GHG Emissions Inventories (& Rep. 11), 87 p. (2009)
3	02-01	Formulations for Aircraft and Airfield Deicing and Anti-Icing: Aquatic Toxicity and Biochemical Oxygen Demand, 121 p. (2009)
4	04-03	Guidance for Identifying and Mitigating Approach Lighting System Hazards, 88 p. (2009)
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7	11-02/Task 11	How Proposed ARFF Standards Would Impact Airports, 115 p. (2009)
8	02-01	Alternative Aircraft Anti-Icing Formulations With Reduced Aquatic Toxicity and Biological Oxygen Demand, 141 p. (2010)
9	11-02/Task 08	Enhanced Modeling of Aircraft Taxiway Noise, Vol. 1: Scoping, 153 p. (2009)
9	02-27	Enhanced Modeling of Aircraft Taxiway Noise, Vol. 2: Aircraft Taxi Noise Database and Development Process, 138 p. (2013)
10	10-07	Appendix to ACRP Report 41 (self-tagging) (& CD 83; & Rep. 41), 85 p. (2011)
11	02-09	A Comprehensive Development Plan for a Multimodal Noise and Emissions Model, 296 p. (2010)
12	11-02/Task 17	Risk Assessment of Proposed ARFF Standards, 105 p. (2011)
13	02-23	Alternative Fuels as a Means to Reduce PM2.5 Emissions at Airports, 175 p. (2012)
14	03-12	Guidelines for Preparing Peak Period and Operational Profiles (& CD 126; & Rep. 82), 316 p. (2013)
15	03-25	Data Supporting the Impact of Regulatory Compliance on Small Airports, Vol. 1: Appendixes A, B, & C (& Rep. 90), 121 p. (2013)
15	03-25	Data Supporting the Impact of Regulatory Compliance on Small Airports, Vol. 2: Technical Appendixes (& Rep. 90), 151 p. (2013)
16	02-26	Assessing Aircraft Noise Conditions Affecting Student Learning, Vol. 1: Final Report, 71 p. (2014)
16	02-26	Assessing Aircraft Noise Conditions Affecting Student Learning, Vol. 2: Appendixes, 143 p. (2014)
17	02-35	Research Methods for Understanding Aircraft Noise Annoyance and Sleep Disturbance, 174 p. (2014)
18	01-19	Airport Capital Improvements: Developing a Cost-Estimating Model and Database (& CD 158; & Rep. 120), 45 p. (2014)
19	02-37	Integrated Noise Model Accuracy for General Aviation Aircraft, 92 p. (2014)
20	03-16	Guidebook for Estimating the Economic Impact of Air Cargo Operations at Airports, 360 p. (2014)
21	02-34	Quantifying Aircraft Lead Emissions at Airports (& Rep. 133), 218 p. (2015)
22	03-19	Passenger Value of Time, Benefit-Cost Analysis, and Airport Capital Investment Decisions, Vol. 1: Guidebook for Valuing User Time Savings in Airport Capital Investment Decision Analysis, 50 p. (2015)
22	03-19	Passenger Value of Time, Benefit-Cost Analysis, and Airport Capital Investment Decisions, Vol. 2: Final Report, 113 p. (2015)
22	03-19	Passenger Value of Time, Benefit-Cost Analysis, and Airport Capital Investment Decisions, Vol. 3: Appendix A: Background Research and Appendix B: Stated Preference Survey, 345 p. (2015)
23	09-05	Guidance on Successful Computer Maintenance Management Systems (CMMS) Selection and Practices, 166 p. (2015)
24	03-24	Air Cargo Facility Planning and Development—Contractor's Final Report (& Rep. 143), 395 p. (2015)
25	10-16	Commercial Ground Transportation at Airports: Best Practices, Appendixes C through H (& Rep. 146), 822 p. (2015)

CDs		
No.	Proj. No.	Title, Publication Year
68	11-01/Topic 01-01	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 31, 2007 (LRD 4) (2008)
70	02-05	ACRP Report 15 Toolkit (& Rep. 15) (2009)
73	03-09	Workbook for ACRP Report 20: Strategic Planning in the Airport Industry (& Rep. 20) (2009)
74	10-05	Supplemental Materials for ACRP Report 30 (& Rep. 30) (2010)
75	07-04	Airport Passenger Terminal Planning Spreadsheet Models for ACRP Report 25, Volume 2 (& Rep. 25 Vol. 2) (2010)
79	01-06	Workbook for ACRP Report 19: Developing an Airport Performance-Measurement System (& Rep. 19) (2010)
80	10-06	Parking Forecast Model and Instructions for Use: Supplemental Materials for ACRP Report 34 (& Rep. 34) (2010)
81	01-02	Appendixes to ACRP Report 33 (& Rep. 33) (2011)
82	03-06	Database of APM Systems for ACRP Report 37 (& Rep. 37) (2010)
83	10-07	Decision-Making Tool for Evaluating Passenger Self-Tagging (& Rep. 41; & WOD 10) (2011)
88	08-01	Collection of Practices for ACRP Report 42 (& Rep. 42) (2011)
89	02-13	Practices That Enhance Environmental Stewardship (& Rep. 43) (2011)
91	02-07	The Alternative Fuels Investigation Tool (AFIT) for ACRP Report 46 (& Rep. 46) (2011)
93	03-15	Airport Forecasting Risk Assessment Program for ACRP Report 48 (& Rep. 48) (2011)
94	01-09	Interactive Resource Guide for ACRP Report 19A (& Rep. 19A) (2011)
95	02-10	AirportGEAR and Supplemental Material (& Rep. 56) (2011)
98	04-08	Runway Safety Area Risk Analysis Tool for ACRP Report 50 (& Rep. 50) (2011)
102	03-11	Supplemental Materials for ACRP Report 44 (& Rep. 44) (2011)
108	11-01/Topic 03-06	An Index and Digest of Decisions: Compilation of Airport Law Resources (LRD 13) (2012)
109	01-14	Appendices for ACRP Report 66 (& Rep. 66) (2012)
110	03-14	Resource CD for ACRP Report 67 (& Rep. 67) (2012)
112	07-07	Analysis Templates for ACRP Report 68 (& Rep. 68) (2012)
113	02-25	Tools for Evaluating Emissions and Costs of APUs and Alternative Systems (TEECAAS) for ACRP Report 64 (& Rep. 64) (2012)
114	10-08	Applying Intelligent Transportation Systems to Improve Airport Traveler Access Information (& Rep. 70) (2012)
115	02-08	Appendixes to ACRP Report 71 (& Rep. 71) (2012)
117	01-18	Airport ERM Tool for ACRP Report 74 (& Rep. 74) (2012)
119	01-17	Digital Files for ACRP Report 77: Guidebook for Developing General Aviation Airport Business Plans (& Rep. 77) (2012)
123	02-16	Airport Ground Support Equipment: Tutorial and Database (& Rep. 78) (2012)
124	03-17	Supplemental Material to ACRP Report 79: Prototype Airfield Capacity Spreadsheet Model (& Rep. 79) (2012)
125	02-22	Evaluation Tool to Supplement ACRP Report 80 (& Rep. 80) (2012)
126	03-12	Guidebook and Toolboxes for ACRP Report 82 (& Rep. 82; & WOD 14) (2013)
129	02-36	Toolkit for Evaluating Alternative Fuel Distribution Programs and Appendixes to ACRP Report 83 (& Rep. 83) (2013)
131	02-21	Airport Emissions Estimator Tool and Other Support Material for ACRP Report 84 (& Rep. 84) (2013)
133	06-02	Supplemental Materials for ACRP Report 75: Airport Leadership Development Program (& Rep. 75) (2013)
136	02-12	Departure Optimization Investigation Tool (DOIT) (& Rep. 86) (2013)
137	02-20	The Vector-Borne Disease Airport Importation Risk Tool (2013)
139	04-11	Tool Set for Integrating GIS in Emergency Management at Airports (& Rep. 88) (2013)
140	03-18	Airport Business Continuity Planning Software Tool (& Rep. 93) (2013)

CDs		
No.	Proj. No.	Title, Publication Year
141	11-01/Topic 04-05	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 2012 (LRD 21) (2013)
142	02-33	Airport Construction Emissions Inventory Tool (ACEIT) (& Rep. 102) (2014)
144	10-14	IROPS Investment Support Tool (IRIS) (& Rep. 106) (2014)
145	04-14	Lateral Runway Safety Area Risk Analysis (LRSARA) Tool (& Rep. 107) (2014)
149	09-06	Evaluation Process and Cost-Benefit Tool (& Rep. 110) (2014)
150	09-02	Supplemental Materials for ACRP Report 101 (& Rep. 101) (2014)
151	04-15	Airport Terminal Incident Response Plan (TIRP) Tool (& Rep. 112) (2014)
156	07-11	Supplemental Material to ACRP Report 117 (& Rep. 117) (2014)
157	03-23	Air/Rail Diversion Model (& Rep. 118) (2015)
158	01-19	ACCE: Airport Capital Cost Estimation Tool (& Rep. 120; & WOD 18) (2014)
159	09-08	Bird Strike Risk Analysis and Stormwater Management Decision Tool (& Rep. 125) (2015)
160	11-02/Task 21	Airport Toolbox for ACRP Report 122 (& Rep. 122) (2014)
161	02-41	Estimating Takeoff Thrust Settings for Airport Emissions Inventories (2015)
164	07-12	Appendixes for the Guidebook for Airport Terminal Restroom Planning and Design (& Rep. 130) (2015)
167	02-34	Emissions Inventory Analysis Tool (& Rep. 133) (2015)
168	10-17	Integrated Self-Service Tools for ACRP Report 136 (& Rep. 136) (2015)
169	09-04	Spreadsheet Tool and Appendices to ACRP Report 139 (& Rep. 139) (2015)
170	10-18	Checklists and PowerPoint Template for ACRP Report 138 (& Rep. 138) (2015)
171	05-02	Multimedia Materials Supporting the Guidebook on Best Practices for Airport Cybersecurity (& Rep. 140) (2015)
173	04-17	WHaMRAT Tool, User Guide, and Quick-Start Guides (& Rep. 145) (2015)
174	03-24	Air Cargo Facility Planning Model (& Rep. 143) (2015)
175	02-40	ACROS Tool and Other Resources to Accompany ACRP Report 147 (& Rep. 147) (2015)

Conference Proceedings		
No.	Proj. No.	Title, Pages, Publication Year
41	11-02	Interagency-Aviation Industry Collaboration on Planning for Pandemic Outbreaks, 52 p. (2008)
47	11-02/Task 13	Research on the Transmission of Disease in Airports and on Aircraft, 70 p. (2010)

Note

Publications in parentheses with an ampersand (&) are companion publications.

Publications in parentheses without an ampersand are reports or digests published as stand-alone CDs.

APPENDIX B - SUMMARY OF PROJECT STATUS THROUGH DECEMBER 31, 2015

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
01: Administration									
01-01	Guidebook for Managing Small Airports	\$400,000(06)	\$397,230	University of Minnesota	1/24/2007	3/31/2009	Completed - Published as Report 16 and Web-Only Document 5		
01-02	Guidebook for Developing and Managing Airport Contracts	\$400,000(07)	\$315,000	HNTB	4/24/2007	2/28/2010	Completed - Published as Report 33		
01-03	Integrating Airport Information Systems	\$300,000(07)	\$300,000	Aero Tech Consulting	8/10/2007	11/22/2008	Completed - Published as Report 13 and Web-Only Document 1		
01-04	Marketing Guidebook for Small Airports	\$200,000(07)	\$200,000	Eclat Consulting	10/26/2007	9/30/2009	Completed - Published as Report 28		
01-05	Guidebook for Airport Capital Project Delivery Systems	\$100,000(07) \$25,000(08) \$70,000(10)	\$194,994	Northeastern University	4/4/2007	7/30/2009	Completed - Published as Report 21		
01-06	A Guidebook for Developing an Airport Performance Measurement System	\$400,000(08)	\$400,000	Infrastructure Management Group	5/6/2008	4/2/2010	Completed - Published as Report 19		
01-07	Airport/Airline Agreements - Practices and Characteristics	\$400,000(08)	\$393,005	Ricondo & Associates	5/30/2008	4/5/2010	Completed - Published as Report 36		
01-08	Guidebook for Developing and Leasing Airport Property	\$400,000(08)	\$350,000	R.W. Armstrong and Associates	6/24/2008	9/30/2010	Completed - Published as Report 47		
01-09	Resource Guide to Airport Performance Indicators	\$400,000(09)	\$400,000	Oliver Wyman, Inc.	5/8/2009	12/31/2010	Completed - Published as Report 19A		
01-10	A Handbook for Developing, Implementing and Overseeing Airport Capital Plans	\$400,000(09)	\$399,955	HNTB	7/10/2009	12/31/2010	Completed - Published as Report 49		
01-11	Understanding Airport In-Terminal Concession Programs	\$350,000(09)	\$350,000	Leigh Fisher	6/17/2009	5/31/2011	Completed - Published as Report 54		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
01-12	A Primer for Information Technology Systems at Airports	\$350,000(09)	\$348,843	Faith Group, LLC	7/7/2009	5/31/2011	Completed - Published as Report 59		
01-13	Developing a Database-Driven Web Application for Benchmarking Airport Performance	\$500,000(09A) \$100,000(10)	\$549,727	Amadeus Consulting	9/30/2010	1/31/2016	Research in Progress	D. Duchow	M. Salamone
01-14	Considering and Evaluating Airport Privatization	\$500,000(09A)	\$500,000	Leigh Fisher	5/10/2010	12/31/2011	Completed - Published as Report 66		
01-15	Innovative Revenue Strategies - An Airport Guide	\$400,000(10)	\$400,000	Kramer Aerotech, Inc.	5/14/2010	12/31/2014	Completed - Published as Report 121		
01-16	Asset and Infrastructure Management for Airports	\$400,000(10)	\$400,000	GHD Consulting	6/16/2010	12/1/2011	Completed - Published as Report 69		
01-17	Guidebook for Developing General Aviation Airport Business Plans	\$400,000(10)	\$398,350	Aviation Management Consulting Group	6/28/2010	6/1/2012	Completed - Published as Report 77		
01-18	Application of Enterprise Risk Management at Airports	\$350,000(10)	\$350,000	Marsh, USA	6/30/2010	3/30/2012	Completed - Published as Report 74		
01-19	Airport Capital Improvements: A Business Planning and Decision-Making Approach	\$400,000(11)	\$400,000	MCR Federal, LLC	7/13/2011	7/31/2014	Completed - Published as Report 120 and Web-Only Document 18		
01-20	Procuring and Managing Professional Services for Airports	\$350,000(11)	\$350,000	HNTB	6/15/2011	1/20/2013	Completed - Published as Report 87		
01-21	A Guidebook for Airport-Airline Consortiums	\$400,000(12)	\$387,642	AVAirPros	6/1/2012	4/1/2014	Completed - Published as Report 111		
01-22	Guidebook for Successfully Assessing and Managing Risks for Airport Capital and Maintenance Projects	\$300,000(12)	\$300,000	Direct Effect Solutions, Inc.	8/14/2012	5/14/2014	Completed - Published as Report 116		
01-23	A Guidebook for Mitigating Disruptive WiFi Interference at Airports	\$350,000(13)	\$349,489	System Planning Corp.	5/2/2013	8/1/2014	Completed - Published as Report 127		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
01-24	Renewable Energy as an Airport Revenue Source	\$400,000(13)	\$399,612	Harris Miller Miller & Hanson	8/13/2013	3/31/2015	Completed - Published as Report 141		
01-25	A Guidebook for Increasing Diverse and Small Business Participation in Airport Business Opportunities	\$250,000(13)	\$250,000	Exstare Federal Services, LLC	8/13/2013	9/6/2014	Completed - Published as Report 126		
01-26	Improving the Airport Customer Experience	\$400,000(14)	\$400,000	Leigh Fisher	7/11/2014	2/15/2016	Research in Progress	J. Raymond	T. Schatz
01-27	NextGen - A Primer	\$750,000(14)	\$750,000	Logistics Management Institute	6/16/2014	2/15/2016	Research in Progress	T. Diana B. White	M. Salamone
01-28	NextGen - Guidance for Engaging Airport Stakeholders	\$300,000(14)	\$300,000	Grafton Technologies, Inc.	6/4/2014	2/8/2016	Research in Progress	D. Scata	T. Schatz
01-29	Design and Development of a State Aviation Information Database	\$150,000(16)					In Development		J. Navarrete
01-30	Airport Management Guide for Providing Aircraft Fuel Services	\$350,000(16)					In Development		T. Schatz
01-31	Innovative Solutions to Facilitate Accessibility for Airport Travelers with Disabilities	\$350,000(16)					In Development	R. Bornhorst L. Miller	T. Schatz
01-32	Update Guidebook for Managing Small Airports	\$350,000(16)					In Development	G. Mahns A. Velayos	T. Schatz
01-33	Preparing for the Connected Airport and the Internet of Things	\$400,000(16)					In Development	X. Lee	M. Greenberger
01-34	Supporting Aviation Education at the State and Local Level	\$400,000(16)					In Development		J. Navarrete

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02: Environment									
02-01	Alternative Aircraft and Pavement Deicers and Anti-Icing Formulations with Improved Environmental Characteristics	\$600,000(06)	\$600,000	University of South Carolina	11/1/2006	2/28/2010	Completed - Interim report published as Web-Only Document 3; summary of final report published as Research Results Digest 9; full final report published as Web-Only Document 8		
02-02	Deicing Planning Guidelines and Practices for Stormwater Management Systems	\$300,000(06)	\$300,000	CH2M Hill	10/9/2006	9/12/2008	Completed - Published as Report 14 and Deicing Practices 1-41		
02-03	Aircraft and Airport-Related Hazardous Air Pollutants: Research Needs and Analysis	\$100,000(06)	\$100,000	Aerodyne Research, Inc.	12/19/2006	12/18/2007	Completed - Published as Report 7		
02-03A	Measurement of Gaseous HAP Emissions from Idling Aircraft as a Function of Engine and Ambient Conditions	\$500,000(06)	\$499,741	Aerodyne Research, Inc.	1/12/2009	3/30/2012	Completed - Published as Report 63		
02-04	Research Needs Associated with Particulate Emissions at Airports	\$100,000(06)	\$99,897	Environmental Consulting Group, Inc.	1/2/2007	3/1/2008	Completed - Published as Report 6		
02-04A	Summarizing and Interpreting Aircraft Gaseous and Particulate Emissions Data	\$350,000(07)	\$349,470	University of Missouri-Rolla	4/12/2007	7/11/2008	Completed - Published as Report 9		
02-05	Aircraft Noise: A Toolkit for Managing Community Expectations	\$500,000(07)	\$399,982	Landrum & Brown	4/20/2007	3/31/2009	Completed - Published as Report 15		
02-06	Guidebook on Preparing Airport Greenhouse Gas (GHG) Emissions Inventories	\$200,000(07)	\$199,403	Wyle Laboratories, Inc.	10/9/2007	9/8/2008	Completed - Published as Report 11 and Web-Only Document 2		
02-07	Handbook for Analyzing the Costs and Benefits of Alternative Turbine Engine Fuels at Airports	\$500,000(07)	\$499,960	CSSI, Inc.	10/22/2007	10/29/2010	Completed - Published as Report 46		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-08	Quantifying Contributions to Local Air Quality Impacts from Airport-Related Emissions	\$600,000(08)	\$599,970	Wyle Laboratories, Inc.	6/4/2008	4/30/2012	Completed - Published as Report 71		
02-09	A Comprehensive Development Plan for a Multimodal Noise and Emissions Model	\$200,000(08)	\$199,630	Wyle Laboratories, Inc.	7/7/2008	10/29/2010	Completed - Published as Web-Only Document 11		
02-10	Handbook for Considering Practical Greenhouse Gas Emission Reduction Strategies for Airports	\$500,000(09)	\$499,921	CDM	6/9/2009	6/9/2011	Completed - Published as Report 56		
02-11	A Handbook for Addressing Water Resource Issues Affecting Airport Capacity Enhancement Planning	\$150,000(09)	\$150,000	Gresham, Smith and Partners	5/11/2009	5/31/2011	Completed - Published as Report 53		
02-12	Environmental Optimization of Aircraft Departures: Fuel Burn, Emissions, and Noise	\$300,000(09)	\$300,000	Wyle Laboratories, Inc.	4/20/2009	3/29/2013	Completed - Published as Report 86		
02-13	Guidebook of Practices for Improving Environmental Performance at Small Airports	\$200,000(09) \$75,000(08)	\$200,000	Gresham, Smith and Partners	6/16/2009	8/20/2010	Completed - Published as Report 43		
02-14	Guidebook for Selecting Methods to Monitor Airport and Aircraft Deicing Materials	\$200,000(09A)	\$150,000	Gresham, Smith and Partners	6/3/2010	2/28/2012	Completed - Published as Report 72		
02-15	Recycling Best Practices - A Guidebook for Advancing Recycling from Aircraft Cabins	\$300,000(09A)	\$300,000	Cascadia Consulting Group	9/22/2010	7/15/2013	Completed - Published as Report 100		
02-16	Airport Ground Support Equipment (GSE) Inventory and Emission Reduction Strategies	\$600,000(09A)	\$599,717	CDM	6/18/2010	6/30/2012	Completed - Published as Report 78		
02-17	Measuring PM Emissions from Aircraft Auxiliary Power Units, Tires and Brakes	\$500,000(09A)	\$500,000	Missouri University of Science and Technology	9/3/2010	5/31/2013	Completed - Published as Report 97		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-18	Guidelines for Integrating Alternative Jet Fuel Into the Airport Setting	\$250,000(09A)	\$249,982	Metron Aviation	6/17/2010	10/16/2011	Completed - Published as Report 60		
02-19	Winter Design Storm Factor Determination for Airports	\$300,000(09A)	\$249,999	CH2M Hill	6/24/2010	12/1/2012	Completed - Published as Report 81		
02-20	The Role of Air Travel in the Transmission and Spread of Insect-Borne Diseases	\$250,000(10)	\$249,995	University of Florida	9/7/2010	9/30/2013	Completed - Published as CRP-CD-137		
02-20A	Infectious Disease Mitigation in Airports and on Aircraft	\$200,000(11)	\$200,000	Environmental Health & Engineering	7/6/2011	5/31/2013	Completed - Published as Report 91		
02-21	Guidebook for Preparing Airport Emissions Inventories for State Implementation Plans	\$500,000(10)	\$499,805	KB Environmental Sciences	8/31/2010	2/28/2013	Completed - Published as Report 84		
02-22	Incorporating Sustainability into Traditional Airport Projects	\$300,000(09A)	\$300,000	Landrum & Brown	7/12/2010	5/31/2012	Completed - Published as Report 80		
02-23	Alternative Fuels as a Means to Reduce PM2.5 Emissions at Airports	\$500,000(10)	\$499,798	Project Performance Corp.	7/6/2010	4/30/2012	Completed - Published as Web-Only Document 13		
02-24	Guidelines for Airport Sound Insulation Programs	\$200,000(10)	\$200,000	Jones Payne Group	8/27/2010	3/8/2013	Completed - Published as Report 89		
02-25	Handbook for Evaluating Emissions and Costs of APU's and Alternative Systems	\$200,000(10)	\$199,773	Environmental Science Associates	7/7/2010	12/31/2011	Completed - Published as Report 64		
02-26	Assessing Aircraft Noise Conditions Affecting Student Learning	\$450,000(10)	\$449,672	Wyle Laboratories, Inc.	6/26/2010	11/30/2013	Completed - Published as Web-Only Document 16		
02-27	Aircraft Taxi Noise Database for Airport Noise Modeling	\$150,000(10)	\$149,779	Wyle Laboratories, Inc.	6/11/2010	3/29/2013	Completed - Published as Web-Only Document 9, Volume 1		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-27A	Developing a Generic Commercial Jet Taxi Noise Directivity Pattern for AEDT	\$75,000(12)	\$74,767	Wyle Laboratories, Inc.	2/22/2012	3/29/2013	Completed - Published as Web-Only Document 9, Volume 2		
02-28	Prototype Airport Sustainability Rating System - Characteristics, Viability, and Implementation Options	\$800,000(11) \$87,104(14)	\$687,103	Vanasse Hangen Brustlin, Inc.	6/27/2011	12/31/2014	Completed - Published as Report 119		
02-29	Guidance for Treatment of Airport Stormwater Containing Deicers	\$600,000(11)	\$500,000	Gresham, Smith and Partners	5/31/2011	9/30/2013	Completed - Published as Report 99		
02-30	Enhancing the Airport-Industry Database of Sustainable Practices	\$500,000(11) \$196,320(14) \$224,823(15)	\$846,320	CDM	7/18/2011	1/31/2016	Research in Progress	P. Magnotta	J. Navarrete
02-31	Guidelines for Ensuring Longevity in Airport Sound Insulation Programs	\$350,000(11)	\$349,980	Wyle Laboratories, Inc.	7/8/2011	9/15/2013	Completed - Published as Report 105		
02-32	Understanding Microbial Biofilms in Receiving Waters Impacted by Airport Deicing Activities	\$400,000(11)	\$300,000	CH2M Hill	7/20/2011	5/30/2014	Completed - Published as Report 115		
02-33	Guidance for Estimating Airport Construction Emissions	\$350,000(11)	\$349,980	Wyle Laboratories, Inc.	7/1/2011	9/30/2013	Completed - Published as Report 102		
02-34	Best Practices Guidebook for Preparing Lead (Pb) Emission Inventories from Piston-Powered Aircraft	\$500,000(11)	\$500,000	Sierra Research, Inc.	6/3/2011	10/21/2014	Completed - Published as Report 133; and Web-Only Document 21		
02-35	Research Methods for Understanding Aircraft Noise Annoyance and Sleep Disturbance	\$600,000(11)	\$599,993	Harris Miller Miller & Hanson	9/20/2011	6/30/2014	Completed - Published as Web-Only Document 17		
02-36	Assessing Opportunities for Alternative Fuel Distribution Programs	\$500,000(11)	\$400,000	Metron Aviation	5/26/2011	12/6/2012	Completed - Published as Report 83		
02-37	Integrated Noise Model Accuracy for General Aviation Aircraft	\$400,000(11)	\$350,000	Harris Miller Miller & Hanson	6/13/2011	9/30/2014	Completed - Published as Web-Only Document 19		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-38	Guidebook for Energy Facilities Compatibility with Airports and Aerospace	\$450,000(12)	\$449,850	Harris Miller Miller & Hanson	5/2/2012	11/2/2013	Completed - Published as Report 108		
02-39	Applying Whole Effluent Toxicity Testing to Aircraft Deicing Runoff	\$500,000(12)	\$339,603	NewFields Government Services, LLC	10/5/2012	1/30/2015	Completed - Published as Report 134		
02-40	Climate Change Adaptation Planning: Risk Assessment for Airports	\$500,000(12)	\$491,923	Dewberry & Davis, LLC	11/20/2012	3/20/2015	Completed - Published as Report 147		
02-41	Estimating Takeoff Thrust Settings for Airport Emissions Inventories	\$450,000(12)	\$449,998	The Cadmus Group	9/1/2012	10/31/2014	Completed - Published as CD-161		
02-42	Understanding Air Quality and Public Health Studies Related to Airports	\$200,000(12)	\$199,675	Wyle Laboratories, Inc.	9/25/2012	2/28/2015	Completed - Published as Report 135		
02-43	Development of NOx Chemistry Module for EMDS/AEDT to Predict NO2 Concentrations	\$400,000(13)	\$399,577	KB Environmental Sciences	7/10/2013	3/31/2016	Research in Progress		J. Navarrete
02-44	Helicopter Noise Modeling Guidelines	\$250,000(13)	\$249,811	Wyle Laboratories, Inc.	5/2/2013	9/30/2015	Completed - Publication Pending	B. He F. Smigelski	J. Navarrete
02-45	Methodology to Improve EDMS/AEDT Quantification of Aircraft Taxi/Idle Emissions	\$250,000(13)	\$249,959	KB Environmental Sciences	7/8/2013	1/29/2016	Research in Progress	M. Majeed	J. Navarrete
02-46	Improving Ground Support Equipment (GSE) Operational Data for Airport Emissions Modeling	\$275,000(13)	\$275,000	KB Environmental Sciences	7/5/2013	12/15/2015	Completed - Published as Report 149		
02-47	Assessing Aircraft Noise Conditions Affecting Student Achievement--Case Studies	\$600,000(14)	\$599,939	Harris Miller Miller & Hanson, Inc.	5/22/2014	3/21/2016	Research in Progress	J. Beyers J. Dipardo	L. Goldstein
02-48	Assessing Community Annoyance of Helicopter Noise	\$700,000(14)	\$699,778	Landrum & Brown, Inc.	6/3/2014	6/2/2016	Research in Progress	N. Sizov	J. Navarrete

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-49	Addressing Significant Weather Impacts on Airports	\$550,000(14)	\$550,000	ICF Incorporated, LLC	5/22/2014	1/21/2016	Research in Progress	T. Cuddy	T. Schatz
02-50	Deriving Benefits from Alternative Aircraft-Taxi Systems	\$300,000(14)	\$300,000	Cadmus Group, Inc.	7/15/2014	1/14/2016	Research in Progress	C. Dorbian	M. Salamone
02-51	Evaluating Methods for Determining Interior Noise Levels Used in Airport Sound Insulation Programs	\$300,000(14)	\$299,678	CSDA Design Group	6/9/2014	10/30/2015	Completed - Publication Pending	B. He	J. Navarrete
02-52	Improving AEDT Noise Modeling of Hard, Soft and Mixed Ground Surfaces	\$250,000(14)	\$249,603	Wyle Laboratories, Inc.	6/11/2014	10/31/2016	Research in Progress	B. Tong	J. Navarrete
02-53	Interpreting Airport Water Monitoring Results	\$250,000(14)	\$250,000	Gresham, Smith and Partners	8/8/2014	2/29/2016	Research in Progress	C. Pociask	M. Salamone
02-54	Measuring and Understanding Emission Factors for General Aviation (GA) Aircraft	\$500,000(14)	\$499,971	Aerodyne Research, Inc.	5/20/2014	3/19/2016	Research in Progress	C. Ma	M. Greenberger
02-55	Enhanced AEDT Modeling of Aircraft Arrival and Departure Profiles	\$350,000(14)	\$349,921	ATAC Corporation	6/9/2014	7/29/2016	Research in Progress	J. DiPardo	J. Navarrete
02-56	Developing a Business Case for Renewable Energy at Airports	\$300,000(14)	\$299,903	Harris Miller Miller & Hanson, Inc.	5/27/2014	10/26/2015	Completed - Publication Pending	R. Solomon	T. Schatz
02-57	Reducing the Impact of Lead Emissions at Airports	\$200,000(14)	\$199,971	Sierra Research, Inc.	7/28/2014	6/8/2016	Research in Progress	P. Wade	M. Greenberger
02-58	Dispersion Modeling Guidance for Airports Addressing Local Area Quality Health Concerns	\$400,000(14)	\$399,999	University of North Carolina	6/10/2014	5/31/2016	Research in Progress	C. Sequeira	J. Navarrete
02-59	Water Efficiency Management Strategies at Airports	\$450,000(14)	\$449,999	The Cadmus Group, Inc.	6/4/2014	2/5/2016	Research in Progress	T. Cuddy	T. Schatz
02-60	Managing Perfluorocarbon Impacts at Airports	\$480,000(15)	\$299,995	Dillon Consulting Limited	7/29/2015	7/28/2016	Research in Progress	M. Tonnacliff	J. Navarrete

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-61	Airport Stormwater Management: Electronic Resource Library	\$450,000(15)	\$450,000	Mead & Hunt, Inc.	5/11/2015	11/10/2016	Research in Progress	G. Legarretta	J. Navarrete
02-62	Green Stormwater Infrastructure Strategies for Airports	\$350,000(15)	\$299,970	The Cadmus Group, Inc.	4/30/2015	3/29/2016	Research in Progress	J. Barrilleaux	M. Greenberger
02-63	Quantifying Airport Ground Access Vehicle Activity for Emissions Modeling	\$300,000(15)	\$299,874	KB Environmental Services	5/11/2015	11/10/2016	Research in Progress	M. Majeed	J. Navarrete
02-64	Guidance for Usage of Pervious Pavement at Airports	\$200,000(15)	\$199,906	Applied Pavement Technology, Inc.	6/19/2015	9/18/2016	Research in Progress	D. Johnson	T. Schatz
02-65	Tracking Alternative Jet Fuel	\$250,000(15)	\$249,961	Metron Aviation	6/19/2015	6/18/2016	Research in Progress	A. Jardines	T. Schatz
02-66	Commercial Spaceport Noise and Sonic Boom	\$600,000(15)	\$600,000	Wyle Laboratories, Inc.	7/29/2015	5/29/2017	Research in Progress	N. Sizov	M. Greenberger
02-67	Air Quality Management Toolbox, Research Compilation, Gap Analysis and Training Materials	\$400,000(15)	\$399,944	Booz-Allen & Hamilton	8/7/2015	2/6/2017	Research in Progress	N.Didyk P. Wade	M. Greenberger
02-68	Addressing Local Stormwater Utilities and MSAs for Airports	\$350,000(16)					In Development	R. Zulauf	J. Navarrete
02-69	Integrating Airport Sustainability Plans with Environmental Analyses	\$400,000(16)					In Development	J. Barrilleaux R. Solomon	J. Navarrete
02-70	Wetland Mitigation: An In-depth Look for Airports	\$400,000(16)					In Development	M. Lamprecht J. Weller	L. Goldstein
02-71	Update Deicing Planning Guidelines for Airport Stormwater Management Systems and Alternative Deicing/Anti-Icing	\$500,000(16)					In Development	S. Brown	J. Navarrete
02-72	Developing a Renewable Resource Strategy at Airports	\$300,000(16)					In Development	J. MacFarlane J. Weller	M. Greenberger
02-73	Guidebook for NEPA and Environmental Reviews at General Aviation Airports	\$250,000(16)					In Development	K.R. Bassarab F. Smigelski	M. Greenberger

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
02-74	Integrating Climate Resiliency Into Airport Management Systems	\$400,000(16)					In Development	T. Cuddy A. Freeburg	T. Schatz
02-75	Benefit-Cost Analyses for Airport Stormwater Infrastructure Improvements	\$450,000(16)					In Development	M. Lamprecht	J. Navarrete
03: Policy and Planning									
03-01	Light Detection and Ranging (LIDAR) Deployment for Airport Obstructions Surveys	\$350,000(06)	\$350,000	University of Mississippi	1/30/2007	12/31/2009	Completed - Published as Research Results Digest 10		
03-02	Airport Passenger-Related Processing Rates Guidebook	\$200,000(06)	\$200,000	HNTB	1/16/2007	6/30/2009	Completed - Published as Report 23		
03-03	Enhancing Airport Land Use Compatibility	\$500,000(06)	\$500,000	Mead & Hunt	12/28/2006	9/15/2009	Completed - Published as Report 27, Volumes 1 and 2		
03-04	Guidebook for Airport-User Survey Methodology	\$250,000(06)	\$249,350	Jacobs Consultancy	1/16/2007	8/31/2009	Completed - Published as Report 26		
03-05	Passenger Space Allocation Guidelines for Planning and Design of Airport Terminals	\$400,000(07)	\$399,928	Trans Solutions, LLC	6/28/2007	5/31/2011	Completed - Published as Report 55		
03-06	Guidebook for Planning and Implementing Automated People Mover Systems at Airports	\$500,000(07)	\$395,341	Lea & Elliott	6/12/2007	3/30/2010	Completed - Published as Report 37		
03-07	Guidebook for Measuring Performance of Automated People Mover Systems at Airports	\$300,000(07)	\$300,000	Lea & Elliott	6/13/2007	1/31/2012	Completed - Published as Report 37A		
03-08	Passenger Air-Service Development Techniques	\$300,000(07)	\$300,000	InterVISTAS Consulting	6/21/2007	5/15/2009	Completed - Published as Report 18		
03-09	Guidebook for Strategic Planning in the Airport Industry	\$425,000(07)	\$321,049	Ricondo & Associates	6/27/2007	6/15/2009	Completed - Published as Report 20		

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
03-10	Innovative Approaches to Addressing Aviation Capacity Issues in Coastal Mega-Regions	\$300,000(07)	\$300,000	Resource Systems Group	2/6/2008	9/30/2009	Completed - Published as Report 31		
03-11	A Guidebook for the Preservation of Public-Use Airports	\$600,000(08)	\$522,430	L. Robert Kimball & Associates	6/23/2008	1/15/2011	Completed - Published as Report 44		
03-12	Preparing Peak Period and Operational Profiles - Guidebook	\$350,000(08)	\$347,044	HNTB	8/13/2008	10/30/2012	Completed - Published as Report 82		
03-13	Understanding Airspace, Objects, and Their Effects on Airports	\$200,000(08)	\$199,938	Jacobs Consultancy	7/11/2008	4/30/2010	Completed - Published as Report 38		
03-14	Airport Passenger Conveyance System Planning Guidebook	\$300,000(08)	\$300,000	Trans Solutions, LLC	8/26/2008	3/30/2012	Completed - Published as Report 67		
03-15	Impact of Jet Fuel Price Uncertainty on Airport Planning and Development	\$400,000(09)	\$399,970	GRA, Inc.	3/4/2009	2/28/2011	Completed - Published as Report 48		
03-16	Guidebook for Estimating the Economic Impact of Air Cargo at Airports	\$500,000(09)	\$499,860	Battelle Memorial Institute	6/5/2009	7/15/2014	Completed - Published as Web-Only Document 20		
03-17	Evaluating Airfield Capacity	\$525,000(09)	\$525,000	Leigh Fisher	6/29/2009	6/30/2012	Completed - Published as Report 79		
03-18	Operational and Business Continuity Planning for Prolonged Airport Disruptions	\$350,000(10)	\$348,292	Risk Solutions International, LLC	6/3/2010	6/28/2013	Completed - Published as Report 93		
03-19	Passenger Value of Time, Benefit-Cost Analysis, and Capital Investment Decisions	\$350,000(10)	\$349,944	Economic Development Research Group	7/26/2010	3/15/2015	Completed - Published as Web-Only Document 22		
03-20	Defining and Measuring Aircraft Delay and Airport Capacity Thresholds	\$250,000(10)	\$250,000	Trans Solutions, LLC	8/30/2010	12/31/2013	Completed - Published as Report 104		
03-21	Developing and Maintaining Support for Your Airport Capacity Project	\$300,000(10)	\$299,980	Mead & Hunt	6/3/2010	3/29/2013	Completed - Published as Report 85		

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
03-22	Addressing Uncertainty About Future Airport Activity Levels in Airport Decision Making	\$350,000(10)	\$350,000	InterVISTAS Consulting	7/15/2010	7/31/2012	Completed - Published as Report 76		
03-23	Integrating Aviation and Passenger Rail Planning	\$400,000(10)	\$399,452	Resource Systems Group	7/29/2010	6/30/2014	Completed - Published as Report 118		
03-24	Guidelines for Air Cargo Facility Planning and Development	\$400,000(11)	\$400,000	CDM/Wilbur Smith	7/17/2011	5/31/2015	Completed - Published as Report 143		
03-25	Impact of Regulatory Compliance Costs on Small Airports	\$300,000(11)	\$299,987	Unison Consulting, Inc.	6/3/2011	1/31/2013	Completed - Published as Report 90 and Web-Only Document 15		
03-26	Understanding Airline and Passenger Choice in Multi-Airport Regions	\$250,000(11)	\$250,000	InterVISTAS Consulting	8/4/2011	9/30/2013	Completed - Published as Report 98		
03-27	Evaluating Methods for Counting Aircraft Operations at Non-Towered Airports	\$400,000(11)	\$400,000	Woolpert	11/21/2011	11/28/2014	Completed - Published as Report 129		
03-28	The Role of U.S. Airports in the National Economy	\$400,000(12)	\$399,984	Economic Development Research Group	7/17/2012	1/30/2015	Completed - Published as Report 132		
03-29	Effects of Airline Industry Changes on Small- and Non-Hub Airports	\$300,000(13)	\$299,972	GRA, Inc.	7/22/2013	4/30/2015	Completed - Published as Report 142		
03-30	Unmanned Aircraft Systems (UAS) at Airports: A Primer	\$150,000(13) \$50,000(14)	\$199,000	Futron Corporation	8/7/2013	6/19/2015	Completed - Published as Report 144		
03-31	Aligning Community Expectations with Airport Roles	\$500,000(14)	\$500,000	Mead & Hunt	6/16/2014	4/15/2016	Research in Progress	K. Erhard	L. Goldstein
03-32	Guidance for Preparing and Using Airport Design Day Flight Schedules	\$400,000(14)	\$349,966	HNTB Corporation	7/17/2014	2/29/2016	Research in Progress	D. Rinsler	M. Greenberger
03-33	NextGen - Airport Planning and Development	\$500,000(14)	\$500,000	Leigh Fisher	7/11/2014	3/31/2016	Research in Progress	K. Duffy B. McGray	J. Navarrete

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
03-34	NextGen - Understanding the Airport's Role in Performance Based Navigation	\$500,000(14)	\$500,000	Saab Sensis Corporation	6/9/2014	2/8/2016	Research in Progress	H. Callon	L. Goldstein
03-35	Improving Airport Services for International Customers	\$600,000(14)	\$600,000	Landrum & Brown, Inc.	6/6/2014	4/30/2016	Research in Progress	L. Miller	T. Schatz
03-36	Using Disaggregated Socioeconomic Data in Air Passenger Demand Studies	\$500,000(15)	\$499,747	GRA Incorporated	6/19/2015	9/18/2016	Research in Progress	P. Devoti	J. Navarrete
03-37	Using GIS for Collaborative Land Use Compatibility Near Airports	\$350,000(15)	\$350,000	Grafton Technologies	8/26/2015	11/25/2016	Research in Progress	M. Lawrance	J. Navarrete
03-38	Understanding FAA Grant Assurance Obligations	\$150,000(15)	\$150,000	Unison Consulting, Inc.	7/28/2015	7/27/2016	Research in Progress	D. Brooks	L. Goldstein
03-39	Generating Revenue from Commercial Development On or Adjacent to Airports	\$375,000(15)	\$375,000	Mead & Hunt, Inc.	5/11/2015	11/10/2016	Research in Progress	R. Hendricks	T. Schatz
03-40	Air Demand in a Dynamic Competitive Context with the Automobile	\$500,000(16)					In Development	D. Anderson	L. Goldstein
03-41	Airport Metrics and Impacts of Air Traffic Control Restrictions	\$400,000(16)					In Development	K. Duffy	T. Schatz
04: Safety									
04-01	Analysis of Aircraft Overruns and Undershoots for Runway Safety Areas	\$250,000(06)	\$249,986	Applied Research Associates	9/19/2006	1/31/2008	Completed - Published as Report 3		
04-02	Lightning-Warning Systems for Use by Airports	\$200,000(06)	\$199,937	MDA Federal, Inc.	11/7/2006	11/7/2008	Completed - Published as Report 8		
04-03	Guidance for Identifying and Mitigating Approach Lighting System Hazards	\$300,000(07)	\$300,000	Virginia Tech	10/3/2007	2/2/2009	Completed - Published as Research Results Digest 6 and Web-Only Document 4		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
04-04	Simulation-Based Training and Exercise of Civil Aviation Emergency Response Personnel	\$500,000(07)	\$499,093	Applied Research Associates	9/12/2007	12/31/2011	Completed - Results to 04-04A		
04-04A	Evaluating the Airport Emergency Response Operations Simulation (AEROS) Tool	\$300,000(12)	\$290,000	Futron Corporation	6/18/2013	9/17/2014	Terminated		
04-04B1	Exercising Command-Level Decision Making for Critical Incident at Airports	\$125,000(15)	\$25,000	Engineering and Computer Simulations, Inc.	3/30/2015	8/31/2015	Completed		
04-04B2	Exercising Command-Level Decision Making for Critical Incident at Airports	\$125,000(15)					In Development		M. Greenberger
04-05	A Guidebook for Airport Safety Management Systems	\$300,000(07)	\$300,000	Applied Research Associates	5/24/2007	5/15/2009	Completed - Published as Report 1, Volume 2		
04-06	A Guidebook for Addressing Aircraft/Wildlife Hazards at General Aviation Airports	\$300,000(08)	\$299,905	Biozone	6/2/2008	1/15/2010	Completed - Published as Report 32		
04-07	Airport Apron Management and Control Programs	\$300,000(08)	\$300,000	Ricondo & Associates	5/8/2009	8/30/2011	Completed - Published as Report 62		
04-07A	Use of Towbarless Tractors at Airports - Best Practices	\$300,000(08)	\$38,795	Ricondo & Associates	4/20/2009	8/30/2011	Completed - Published as Research Results Digest 15		
04-08	Improved Models for Risk Assessment of Runway Safety Areas (RSA)	\$400,000(09)	\$400,000	Applied Research Associates	6/8/2009	3/31/2011	Completed - Published as Report 50		
04-09	Risk Assessment Method to Support Modification of Airfield Separation Standards	\$250,000(09)	\$250,000	Applied Research Associates	6/10/2009	2/16/2011	Completed - Published as Report 51		
04-10	Airport-to-Airport Mutual Aid Programs	\$300,000(09A)	\$300,000	Innovative Emergency Management	7/6/2010	3/1/2012	Completed - Published as Report 73		

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
04-11	Guidebook on Integrating GIS in Emergency Management at Airports	\$350,000(11)	\$274,949	Barich, Inc.	7/12/2011	2/28/2013	Completed - Published as Report 88		
04-12	Integrating Web-Based Emergency Management Collaboration Tools into Airport Operations - A Primer	\$400,000(11)	\$400,000	Innovative Emergency Management	7/15/2011	7/31/2013	Completed - Published as Report 94		
04-13	Integrating Community Emergency Response Teams (A-CERTs) at Airports	\$400,000(11)	\$400,000	Innovative Emergency Management	7/26/2011	7/26/2013	Completed - Published as Report 95		
04-14	Development of a Runway Veer-Off Location Distribution Risk Assessment Model and Reporting Template	\$200,000(12)	\$200,000	Airport Safety Management Consultants	6/6/2012	12/5/2013	Completed - Published as Report 107		
04-15	Airport Terminal Incident Response Planning	\$325,000(12)	\$325,000	Innovative Emergency Management	7/10/2012	4/2/2014	Completed - Published as Report 112		
04-16	A Guidebook for Safety Risk Management for Airports	\$300,000(13)	\$299,992	Futron Corporation	6/18/2013	11/14/2014	Completed - Published as Report 131		
04-17	Applying an SMS Approach to Wildlife Hazard Management	\$250,000(13)	\$250,000	BASH Incorporated	1/17/2014	6/15/2015	Completed - Published as Report 145		
04-18	Runway Protection Zone (RPZ) Risk Assessment Tool	\$400,000(14)	\$400,000	Applied Research Associates	6/4/2014	3/31/2016	Research in Progress	S. Debban	M. Greenberger
04-19	Airport Emergency Planning Template: NIMS - Incident Command System Compliance	\$300,000(15)	\$300,000	FTI Consulting, Inc.	12/3/2015	12/2/2017	Research in Progress	M. Tonnaccliff	M. Salamone
04-20	Airport Emergency Operations Centers Design Guide	\$400,000(16)					In Development	P. Brace M. Tonnaccliff	M. Greenberger
05: Security									
05-01	An Airport Guide for Regional Emergency Planning for CBRNE Events	\$250,000(06)	\$248,464	System Planning Corp.	11/15/2006	10/31/2008	Completed - Published as Report 12		

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
05-02	Guidebook on Best Practices for Airport Cybersecurity	\$350,000(13)	\$350,000	Grafton Technologies, Inc.	8/21/2013	3/31/2015	Completed - Published as Report 140		
06: Human Resources									
06-01	Airport and Air Carrier Resource Manual: Employees Coping with Traumatic Events	\$300,000(07)	\$299,416	University of North Dakota	12/5/2007	5/31/2009	Completed - Published as Report 22		
06-02	Airport Leadership Development Program	\$100,000(10)	\$100,000	Ohio State University	9/29/2010	10/30/2012	Completed - Published as Report 75		
06-03	Establishing a Coordinated Local Family Assistance Program for Airports	\$300,000(15)	\$300,000	Tetra Tech, Inc.	5/8/2015	9/7/2016	Research in Progress	K. Lyons	T. Schatz
06-04	Identifying and Evaluating Airport Workforce Requirements	\$250,000(15)	\$249,996	ICF Incorporated	6/4/2015	5/3/2016	Research in Progress	R. Moseng	L. Goldstein
07: Design									
07-01	Innovations for Airport Terminal Facilities	\$400,000(06)	\$400,000	Corgan Associates, Inc.	12/8/2006	7/8/2008	Completed - Published as Report 10		
07-02	Airport Curbside and Terminal Area Roadway Operations	\$400,000(06) \$150,000(09)	\$528,000	Jacobs Consultancy	11/15/2006	5/19/2010	Completed - Published as Report 40		
07-03	Developing Improved Civil Aircraft Arresting Systems	\$500,000(07)	\$499,455	Protection Engineering Consultants	5/23/2007	10/31/2009	Completed - Published as Report 29		
07-04	Airport Passenger Terminal Planning and Design: Spreadsheet Models and User's Guide	\$400,000(07)	\$400,000	Landrum & Brown	6/6/2007	10/31/2009	Completed - Published as Report 25, Volume 2		
07-05	Airport Passenger Terminal Planning and Design: Guidebook	\$400,000(07)	\$400,000	Landrum & Brown	6/28/2007	10/31/2009	Completed - Published as Report 25, Volume 1		
07-06	Airport Signage and Wayfinding Information Guidelines	\$250,000(08)	\$250,000	Gresham, Smith and Partners	8/21/2008	3/1/2011	Completed - Published as Report 52		

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
07-07	Evaluating Terminal Renewal Versus Replacement Options	\$400,000(10)	\$400,000	Ricondo & Associates	8/16/2010	3/15/2012	Completed - Published as Report 68		
07-08	Improving Terminal Design to Increase Revenue Generation and Customer Satisfaction	\$500,000(11)	\$496,888	Landrum & Brown	6/3/2011	11/30/2013	Completed - Published as Report 109		
07-09	Apron Planning and Design Guidebook	\$250,000(12)	\$250,000	Ricondo & Associates	6/15/2012	7/31/2013	Completed - Published as Report 96		
07-10	General Aviation Facility Planning	\$300,000(12)	\$300,000	Delta Airport Consultants	5/17/2012	2/28/2014	Completed - Published as Report 113		
07-11	Airport Escalators and Moving Walkways - Cost-Savings and Energy Reduction Technologies	\$250,000(12)	\$249,947	Project Performance Corp.	9/18/2012	7/31/2014	Completed - Published as Report 117		
07-12	Guidebook for Airport Terminal Restroom Planning and Design	\$250,000(12)	\$249,986	Architectural Alliance	3/25/2013	9/30/2014	Completed - Published as Report 130		
07-13	Enhancing Airport Wayfinding for the Elderly and Persons with Disabilities	\$450,000(14)	\$450,000	Gresham Smith & Partners	6/9/2014	9/30/2016	Research in Progress	R. Hendricks	T. Schatz
07-14	Improving Intelligibility of Airport Terminal Public-Address Systems	\$350,000(15)	\$350,000	Wilson Ihrig & Associates	7/7/2015	1/7/2017	Research in Progress	H. Cyrus	T. Schatz
07-15	Airport Passenger Terminal Design: Electronic Resource Library	\$300,000(15)	\$300,000	Intermodal Logistics Consulting, Inc.	7/7/2015	10/6/2016	Research in Progress	W. Reinhardt	T. Schatz
08: Construction									
08-01	Sustainable Airport Construction Practices	\$150,000(09)	\$150,000	Ricondo & Associates	6/1/2009	6/22/2010	Completed - Published as Report 42		

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
09: Maintenance									
09-01	Recommended Guidelines for the Collection and Use of Geospatially Referenced Data for Airfield Pavement Management	\$350,000(06)	\$299,636	Applied Research Associates	11/6/2006	4/30/2010	Completed - Published as Report 39		
09-02	Best Practices Manual for Working in or Near Airport Movement Areas	\$500,000(11)	\$325,000	Ricondo & Associates	8/31/2011	11/30/2013	Completed - Published as Report 101		
09-03	Airport Parking Garage Lighting Solutions	\$300,000(12)	\$300,000	Virginia Polytechnic Institute & State University	6/4/2012	10/31/2014	Completed - Published as Report 124		
09-04	Optimizing Airport Building Operations and Maintenance Through Retrocommissioning: A Whole Systems Approach	\$250,000(12)	\$249,835	Sebesta Blomberg & Associates	12/14/2012	12/31/2014	Completed - Published as Report 139		
09-05	Guidance on Successful Computer Maintenance Management Systems (CMMS) Selection and Practices	\$300,000(12)	\$300,000	Ross & Barrunzini	7/12/2012	10/17/2014	Completed - Published as Web-Only Document 23		
09-06	Evaluating Impacts of Sustainability Practices on Airport Operations and Maintenance	\$300,000(12)	\$312,000	Booz Allen	9/27/2012	4/25/2014	Completed - Published as Report 110		
09-07	Airport Maintenance Roles in Planning, Design, Construction, Commissioning, and Activation	\$200,000(12)	\$200,000	Michigan State University	11/13/2012	10/31/2014	Completed		
09-08	Balancing Airport Stormwater and Bird Hazard Management	\$250,000(12)	\$249,209	Environmental Resource Solutions	10/1/2012	8/29/2014	Completed - Published as Report 125		
09-09	LED Airfield Lighting System Operation and Maintenance	\$340,000(13)	\$340,000	Burns Engineering	8/9/2013	9/30/2015	Completed - Publication Pending	A. Logan T. Mai	J. Navarrete
09-10	Benchmarking and Profiling Airport Terminal Energy End Uses	\$400,000(13)	\$399,331	Texas A&M University	9/16/2013	9/30/2015	Completed - Publication Pending	P. Magnotta	M. Greenberger

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
09-11	Pavement Maintenance Guidelines for General Aviation Airport Management	\$350,000(14)	\$350,000	Texas A&M University Transportation Institute	6/16/2014	3/31/2016	Research in Progress	G. Cline	M. Greenberger
09-12	NextGen - Leveraging NextGen Spatial Data to Benefit Airports	\$200,000(14)	\$200,000	Woolpert, Inc.	6/13/2014	3/31/2016	Research in Progress	M. McNerney R. Solomon	M. Greenberger
09-13	Considering Life Cycle Costs in Airport Asset Procurement	\$350,000(15)	\$349,897	CH2M	5/19/2015	11/18/2016	Research in Progress	R. Hendricks	M. Greenberger
09-14	Advanced Computer Maintenance Management System (CMMS) Integration for Airports	\$375,000(16)					In Development	T. Mai R. Zee	M. Greenberger
10: Operations									
10-01	Optimizing the Use of Aircraft Deicing and Anti-Icing Fluids	\$300,000(06) \$50,000(08) \$100,000(08)	\$349,030	APS Aviation, Inc.	3/20/2007	7/31/2010	Completed - Published as Report 45		
10-02	Planning for Offsite Airport Terminals	\$350,000(06)	\$350,000	MarketSense	12/18/2006	9/1/2009	Completed - Published as Report 35		
10-03	Guidebook for Evaluating Airport Parking Strategies and Supporting Technologies	\$300,000(07)	\$300,000	Jacobs Consultancy	9/14/2007	9/1/2009	Completed - Published as Report 24		
10-04	Airports and the Newest Generation of General Aviation Aircraft	\$500,000(07)	\$496,390	GRA, Inc.	6/27/2007	5/31/2009	Completed - Published as Report 17, Volumes 1 and 2		
10-05	Reference Guide on Understanding Common Use at Airports	\$500,000(08)	\$399,981	Barich, Inc.	5/30/2008	9/29/2009	Completed - Published as Report 30		
10-06	Handbook to Assess the Impacts of Constrained Parking at Airports	\$400,000(08)	\$398,563	Ricondo & Associates	6/16/2008	3/8/2010	Completed - Published as Report 34		
10-07	Current Status and Future Implications of Passenger Self-Tagging	\$350,000(09)	\$350,000	Barich, Inc.	6/16/2009	7/30/2010	Completed - Published as Report 41 and Web-Only Document 10		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
10-08	Applying Intelligent Transportation Systems to Improve Airport Traveler Access Information	\$350,000(09)	\$350,000	Gresham, Smith and Partners	4/13/2009	4/30/2012	Completed - Published as Report 70		
10-09	Elimination or Reduction of Baggage Recheck for Arriving International Passengers	\$400,000(09)	\$400,000	InterVISTAS Consulting	7/22/2009	10/31/2011	Completed - Published as Report 61		
10-10	Guidebook for Airport Irregular Operations (IROPS) Contingency Planning	\$600,000(10)	\$599,976	Mead & Hunt	8/26/2010	2/24/2012	Completed - Published as Report 65		
10-10A	Guidebook for Airport Irregular Operations (IROPS) Contingency Planning - Training Sessions	\$300,000(12)	\$151,053	Mead & Hunt	2/24/2012	1/31/2013	Completed - Training Sessions Held		
10-11	Guidebook to Creating a Collaborative Environment Between Airport Operations and Maintenance	\$500,000(11)	\$399,840	Amadeus Consulting	7/27/2011	4/30/2013	Completed - Published as Report 92		
10-12	Guidebook for Through-the-Fence (TTF) Operations	\$350,000(12)	\$350,000	Mead & Hunt	7/30/2012	2/28/2014	Completed - Published as Report 114		
10-13	A Guidebook for Integrating NIMS for Personnel and Resources at Airports	\$200,000(12)	\$200,000	System Planning Corp.	5/23/2012	8/24/2013	Completed - Published as Report 103		
10-14	Being Prepared for IROPS: A Business Planning and Decision Making Approach	\$300,000(12)	\$299,395	MCR Federal, LLC	8/2/2012	11/4/2013	Completed - Published as Report 106		
10-15	Guidebook for Airport Winter Operations	\$400,000(12)	\$400,000	Gresham, Smith and Partners	6/25/2012	8/29/2014	Completed - Published as Report 123		
10-16	Ground Transportation at Airports: Best Practices	\$300,000(13)	\$300,000	Leigh Fisher	7/10/2013	5/8/2015	Completed - Published as Report 146		
10-17	Implementing Integrated Self-Service at Airports	\$450,000(13)	\$449,980	Barich, Inc.	8/5/2013	2/4/2015	Completed - Published as Report 136		

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
10-18	Preventative Maintenance at General Aviation Airports: Primer and Guidebook	\$400,000(13)	\$299,496	Delta Airport Consultants	9/18/2013	2/18/2015	Completed - Published as Report 138		
10-19	Guidebook for Advancing Collaborative Decision Making (CDM) at Airports	\$300,000(13)	\$299,783	Mosaic ATM, Inc.	9/3/2013	12/3/2014	Completed - Published as Report 137		
10-20	Guidance for Planning, Design, and Operations of Airport Communications	\$300,000(13)	\$299,281	TranSecure, Inc.	8/9/2013	1/15/2015	On Hold	F. James	M. Greenberger
10-21	Complying with Federal Regulations: An Integrated Approach	\$350,000(14)	\$350,000	Aviation Management Consulting	6/27/2014	12/31/2015	Completed - Publication Pending		M. Greenberger
10-22	Improving Stakeholder Engagement in Aircraft Accident Planning	\$500,000(14)	\$499,988	Futron Corporation	4/18/2014	6/30/2016	Research in Progress	M. Tonnaciff	M. Greenberger
10-23	IROPS Stakeholder Communication and Coordination	\$400,000(14)	\$399,930	Metron Aviation, Inc.	6/9/2014	12/8/2015	Completed - Publication Pending	L. Miller	T. Schatz
10-24	Guidance for Developing Ramp Control Facilities	\$400,000(15)	\$399,997	Metron Aviation	4/24/2015	7/23/2016	Research in Progress	F. James M. Lawrence	M. Greenberger
10-25	Public-Notification Programs at Airports	\$200,000(15)	\$194,600	SSI, Inc.	7/1/2015	8/31/2016	Research in Progress	T. Carter S. Raman	M. Salamone
11: Special Projects									
11-01	Legal Aspects of Airport Programs	\$200,000(06) \$475,000(07) \$300,000(08) \$600,000(09) \$500,000(10) \$50,000(11) \$200,000(12) \$50,000(13) \$200,000(14) \$350,000(15) \$200,000(16)		Transportation Research Board	2/1/2006		Continuing Project: See 11-01 Table	D. Fuller F. SanMartin	M. Greenberger

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No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
11-02	Quick Response for Special Needs	\$590,000(06)		Various	2/1/2006		Continuing Project: See 11-02 Table	L. Miller	M. Salamone
		\$467,000(07)							
		\$1,000,000(08)							
		\$25,000(09)							
		\$250,000(10)							
		\$100,000(11)							
		\$40,000(12)							
		\$216,000(13)							
		\$123,576(14)							
		\$250,000(15)							
11-03	Synthesis of Information Related to Airport Practices	\$500,000(06)		Transportation Research Board	2/1/2006		Continuing Project: See 11-03 Table: Annual Status Reports Published as Research Results Digests 1,3,4,8,12,13, 17, 18, and 22	P. Devoti	M. Salamone
		\$700,000(07)							
		\$500,000(08)							
		\$500,000(09)							
		\$900,000(10)							
		\$700,000(11)							
		\$1,270,000(12)							
		\$1,160,000(13)							
		\$1,053,000(14)							
		\$1,170,000(15)							
		\$1,220,000(16)							
11-04	Graduate Research Award Program on Public-Sector Aviation Issues	\$100,000(08)		Transportation Research Board (08-13)			Continuing Project: Papers published as TRB TRR 2184, 2206, 2266, 2325, 2400, and 2471: Status Reports Published as Research Results Digests 14 and 19	R. Samis	L. Goldstein
		\$100,000(09)							
		\$100,000(10)							
		\$140,000(11)		Old Dominion University Research Foundation (14)					
		\$140,000(12)							
		\$140,000(13)							
		\$140,000(14)							
		\$568,779(15)							
		\$551,000(16)							
11-04A	Airport Research Competition for Universities	included in 11-04 (15)(16)		Old Dominion University Research Foundation	5/9/2014	5/8/2016	Research in Progress	R. Samis	L. Goldstein
11-05	Implementation of ACRP Strategic Plan	\$600,000(10)		Various			Continuing Project	J. Showalter	M. Salamone
		\$148,947(11)							
		\$200,000(12)							
		\$600,000(13)							
		\$600,000(14)							
		\$650,000(15)							
		\$1,250,000(16)							

APPENDIX B (continued)

No.	Title	Allocation	Contract Amount	Contractor	Start Date	End Date	Status	FAA Liaison(s)	Staff Officer
11-06	Evaluating ACRP Processes	\$250,000(10)		Transportation Research Board			Completed - Results to AOC		
11-07	ACRP Problem Statement Development	\$500,000(13) \$300,000(14)		Transportation Research Board			Research in Progress; status published as Research Results Digest 20		M. Salamone
11-08	ACRP Insight Events - Discussions on Critical Issues in the Airport Industry	\$600,000(16)		Transportation Research Board			In Development		M. Salamone

APPENDIX B (continued)

ACRP PROJECT 11-01 Legal Aspects of Airport Programs

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

APPENDIX B (continued)

No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
02-05	Achieving Airport-Compatible Land Uses and Minimizing Hazardous Obstruction in Navigable Airspace	Jocelyn Waite	August 2010	Completed - Published as Legal Research Digest 14	
03-01	Fair Disclosure and Airport Impact Statements in Real Estate Transfers	Larry Thomas, Esq.	July 2009	Completed - Published as Legal Research Digest 12	
03-02	Compilation of State Aviation Authorizing Legislation	Jodi Howick, Esq.	August 2009	Completed - Published as Legal Research Digest 15	
03-03	Survey of Minimum Standards: Commercial Aeronautical Activities at Airports	Kaplan Kirsch Rockwell, LLP	July 2009	Completed - Published as Legal Research Digest 11	
03-04	Airport Rates and Charges: Law and Policy	Spiegel & McDiarmid LLP	November 2009	Completed - Incorporated into 4-05	
03-05	State and Federal Regulations That May Affect Initiatives to Reduce Airports' GHG Emissions	Kaplan Kirsch Rockwell, LLP	November 2009	Completed - Published as Legal Research Digest 17	
03-06	An Index and Digest of Decisions: Compilation of Airport Law Resources	Kaplan Kirsch Rockwell, LLP	December 2009	Completed - Published as Legal Research Digest 13 (CRP-CD-108)	
04-01	Airport Responsibility for Wildlife Management	Broad and Cassell	April 2011	Completed - Published as Legal Research Digest 20	
04-02	Legal Issues Related to Developing Safety Management Systems and Safety Risk Management at U.S. Airports	Foley & Lardner	December 2011	Completed - Published as Legal Research Digest 19	
04-03	Analysis of Federal Laws, Regulations, Case Law, and Survey of Existing Airport NPDES Permits Regarding Tenant-Operator Responsibilities Under NPDES and Storm Water Management BMP's Under Owner/Airport's Operating Permits	CDM	September 2012	Completed - Published as Legal Research Digest 25	
04-04	Buy America Requirements for Federally Funded Airports	Conner Gwyn Schenk	March 2011	Completed - Published as Legal Research Digest 18	
04-05	Compilation of DOT and FAA Airport Legal Determinations and Opinion Letters Through December 2012	Spiegel & McDiarmid LLP	February 2012	Completed - Published as Legal Research Digest 21 (CRP-CD-141)	

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No.	Title	Consultant	Start Date	Estimated Completion Date	Staff Officer
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 Schenk	March 2012	Completed - Published as Legal Research Digest 22	
04-07	Procurement of Airport Development and Planning Contracts	Broad and Cassell	April 2011	Completed - Published as Legal Research Digest 16	
05-01	Regulations Affecting the Exercise of First Amendment Activities at Airports	Jodi Howick, Esq.	August 2013	Completed - Published as Legal Research Digest 26	
05-02	Sovereign Immunity for Public Airport Operators	Seay Law International, PA	November 2013	Completed - Published as Legal Research Digest 24	
05-03	The Fourth Amendment and Airports	Jodi Howick	August 2014	Completed - Publication Pending	M. Greenberger
05-04	A Guide for Compliance with Grant Agreement Obligations to Provide Reasonable Access to an AIP-Funded Public Use General Aviation Airport	Kaplan Kirsch Rockwell, LLP	July 2013	Completed - Published as Legal Research Digest 23	
06-01	Operational and Legal Issues with Fuel Farms	Kaplan Kirsch Rockwell, LLP	September 2014	Research in Progress	M. Greenberger
06-02	Contract Risk Management for Airport Agreements	Broad & Cassell	May 2015	Research in Progress	M. Greenberger
07-01	Impact of Firearms Laws on Airports	The Thomas Law Firm	March 2015	Research in Progress	M. Greenberger
07-02	Preemption of Worker Retention and Labor Peace Agreements at Airports	Kaplan Kirsch Rockwell, LLP	October 2015	Research in Progress	M. Greenberger
08-01	Legal Issues Related to the Implementation and Operation of Safety Management Systems at Airports			In Development	M. Greenberger
08-02	Legal Risks of Operating a Public Airport			In Development	M. Greenberger
08-03	Evolving Law on Airport Implications by Unmanned Aerial Systems Operations			In Development	M. Greenberger

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ACRP PROJECT 11-02
Quick Response for Special Needs

No.	Title	Contractor	Start Date	End Date	Status	Staff Officer
Task 01	Model for Improving Energy Use in U.S. Airport Facilities	Texas A&M University 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	Transportation Research Board	2/15/2007	9/15/2007	Completed - Workshop Held - Published as TRB Conference Proceedings 41	
Task 07	Current and Emerging Issues Facing the Airport Industry	Transportation Research Board	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, Volume 1	
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, A4A	
Task 11	A Summary of How Proposed Firefighting Standards Would Impact Airports	GRA, Inc.	12/23/2008	6/15/2009	Completed - Published as Web-Only 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	Transportation Research Board			Completed - Symposium Held - Published as TRB Conference Proceedings 47	

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No.	Title	Contractor	Start Date	End Date	Status	Staff Officer
Task 14	Helping Airports Understand the Payment Card Industry Data Protection Standard (PCI DSS)	Barich, Inc.	10/15/2009	5/15/2010	Completed - Published as Research Results Digest 11	
Task 15	Aviation Industry Familiarization and Training for Part-Time Airport Policymakers	Delta Airport 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 & Assoc.	2/19/2010	1/4/2011	Completed - Published as Web-Only Document 12	
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				Cancelled	
Task 20	Developing Problem Statements on Information Technology Issues at Airports	Transportation Research Board	12/1/2011	12/1/2011	Completed - Workshop Held - Results to AOC	
Task 21	Innovative Airport Response to Threatened and Endangered Species	Environmental Science Associates	4/22/2013	8/29/2014	Completed - Published as Report 122	
Task 22	Best Practices for General Aviation Aircraft Fuel-Tank Sampling	Hagerty Environmental LLC	8/14/2013	4/13/2014	Completed - Published as Research Results Digest 21	
Task 23	Alternative IT Delivery Methods and Best Practices for Small Airports	Barich, Inc.	8/5/2013	7/31/2014	Completed - Published as Report 128	
Task 24	ACRP Electronic Product Options	Grafton Technologies, Inc.	7/27/2015	1/26/2016	Research in Progress	M. Salamone
Task 25	Developing Environmental Problem Statements	Harris Miller Miller & Hanson	9/12/2014	4/23/2015	Completed	
Task 26	AOC Strategic Planning	Ricondo & Associates	9/12/2014	8/24/2015	Completed	

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

No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
01: Administration						
S01-01	Innovative Finance and Alternative Sources of Revenue for Airports	Jacobs Consultancy	July 2006	Completed - Published as Synthesis 1		
S01-02	Airport Revenue Diversification	Kramer Aerotech, Inc.	March 2009	Completed - Published as Synthesis 19		
S01-03	Airport Insurance Coverage and Risk Management Practices	Ron Rakich & Assoc.	April 2010	Completed - Published as Synthesis 30		
S01-04	Airline and Airline-Airport Consortiums to Manage Terminals and Equipment	AvAirPros	April 2010	Completed - Published as Synthesis 31		
S01-05	Issues with Airport Organization and Reorganization	Kim Kenville Consulting	February 2012	Completed - Published as Synthesis 40		
S01-06	How Airports Measure Customer Service Performance	Kramer Aerotech, Inc.	February 2012	Completed - Published as Synthesis 48		
S01-07	Conducting Airport Peer Reviews	CTC & Associates	February 2012	Completed - Published as Synthesis 46		
S01-08	Understanding the Value of Social Media at Airports for Customer Engagement	Leigh Fisher	March 2013	Completed - Published as Synthesis 56		
S01-09	Practices to Develop Effective Stakeholder Relationships at Smaller Airports	Delta Airport Consultants, Inc.	May 2014	Completed - Published as Synthesis 65		
S01-10	Strategies for Maintaining Air Service	Sixel Consulting Group, Inc.	May 2014	Completed - Published as Synthesis 68		
S01-11	Planning for Operational Recovery at Small Airports	North Dakota State University	April 2015	Research in Progress	A. Schwartz- Freeburg	G. Staba
S01-12	Airport Equity Participation in Mineral Development			In Development		G. Staba
S01-13	How Airports Document Costs for Non-Airline Tenant Rents and Charges			In Development		G. Staba

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No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
S01-14	Alternative Methods for Funding Infrastructure Investments at Airports			In Development		G. Staba
S01-15	Airport Operator Options for Delivery of FBO Services			In Development		G. Staba
02: Environment						
S02-01	Effects of Airport Noise: Research Update on Selected Topics	Mestre Greve Associates	March 2007	Completed - Published as Synthesis 9		
S02-02	Airport Sustainability Practices	Arup	March 2007	Completed - Published as Synthesis 10		
S02-03	Compilation of Noise Programs in Areas Outside DNL 65	Harris Miller Miller & Hanson	April 2008	Completed - Published as Synthesis 16		
S02-04	Approaches to Integrating Airport Development and Federal Environmental Review Processes	RS & H / Synergy	April 2008	Completed - Published as Synthesis 17		
S02-05	Funding Opportunities for Airport Environmental Projects	Unison Consulting, Inc.	April 2010	Completed - Published as Synthesis 24		
S02-06	Airport Climate Adaptation and Resilience	AEA Group	April 2011	Completed - Published as Synthesis 33		
S02-07	Integrating Environmental Sustainability into Airport Contracts	Leigh Fisher	March 2012	Completed - Published as Synthesis 42		
S02-08	Environmental Assessment of Air and High-Speed Rail Corridors	Arizona State University	March 2012	Completed - Published as Synthesis 43		
S02-09	Environmental Management System Development Process	First Environment, Inc.	March 2012	Completed - Published as Synthesis 44		
S02-10	Outcomes of Green Initiatives: Large Airport Experience	First Environment, Inc.	March 2013	Completed - Published as Synthesis 53		
S02-11	Lessons Learned from Airport Sustainability Plans	A Ripple Effect, PLC	May 2014	Completed - Published as Synthesis 66		

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No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
S02-12	Airport Sustainability Practices - Drivers and Outcomes of Green Initiatives for Small and GA Airports	D Prather Airport Solutions, LLC	May 2015	Research in Progress	P. Magnotta R. Solomon	G. Staba
S02-13	Helicopter Noise Information for Airport Noise Managers	Landrum & Brown	April 2015	Research in Progress	K. Andrus	G. Staba
S02-14	Airport Sustainability Practices	Haley & Aldrich, Inc.	March 2015	Research in Progress	P. Magnotta R. Solomon	G. Staba
S02-15	Airport Experience with Alternative Fuels for Ground Transport			In Development		G. Staba
S02-16	Airport Experience with Implementing Notification Required by Aircraft Drinking Water Rule			In Development		G. Staba
03: Policy and Planning						
S03-01	Aviation Forecasting Methodologies	GRA, Inc.	August 2006	Completed - Published as Synthesis 2		
S03-02	Airport Ground Access Mode Choice Models	Aviation Systems Consulting	October 2006	Completed - Published as Synthesis 5		
S03-03	Airport Economic Impact Methods and Models	Hoyle Tanner & Associates	March 2007	Completed - Published as Synthesis 7		
S03-04	Airport System Planning Practices	Wilbur Smith Associates	April 2008	Completed - Published as Synthesis 14		
S03-05	Effective Practices for Preparing Airport Improvement Program Benefit Cost Analysis	Economic Development Research Group	April 2008	Completed - Published as Synthesis 13		
S03-06	Strategies for Reuse of Underutilized or Vacant Airport Facilities	Kramer Aerotech, Inc.	April 2010	Completed - Published as Synthesis 25		
S03-07	Integrating Airport GIS Data with Public Agency GIS	Grafton Technologies	March 2013	Completed - Published as Synthesis 59		
S03-08	Backcountry Airstrip Preservation	T-O Engineering, Inc.	March 2013	Completed - Published as Synthesis 55		

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No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
S03-09	Cell Phone Lots at Airports	Kramer Aerotek, Inc.	May 2014	Completed - Published as Synthesis 62		
S03-10	Practices in Preserving and Developing Public-Use Seaplane Bases	Stephen Quilty	May 2014	Completed - Published as Synthesis 61		
S03-11	Transportation Network Companies (TNC's): Challenges and Opportunities for Airport Operators			In Development		G. Staba
S03-12	Arriving Flights and Passenger Quarantine Planning at Airports			In Development		G. Staba
S03-13	Estimating Truck Trip Generation for Airport Air Cargo Activity			In Development		G. Staba
04: Safety						
S04-01	General Aviation Safety and Security Practices	Reynolds, Smith and Hills, Inc.	October 2006	Completed - Published as Synthesis 3		
S04-02	Preventing Aircraft-Vehicle Incidents During Winter Operations and Periods of Low Visibility	Bowling Green State University	June 2007	Completed - Published as Synthesis 12		
S04-03	Identification of the Requirements and Training to Obtain Driving Privileges on Airfields	Airport Safety Consultants	May 2008	Completed - Published as Synthesis 15		
S04-05	Bird Repellant Techniques on Airports	Mississippi State University	April 2010	Completed - Published as Synthesis 23		
S04-06	Current Airport Inspection Practices Regarding FOD	Prather Airport Solutions	April 2010	Completed - Published as Synthesis 26		
S04-07	Lessons Learned from Airport Safety Management Systems Pilot Study	Landry Consultants, LLC	April 2011	Completed - Published as Synthesis 37		
S04-08	Managing Aerial Firefighting Activities on Airports	Critical Path International	May 2011	Completed - Published as Synthesis 32		
S04-09	Model Mutual Aid Agreements for Airports	Smith-Woolwine Associates	March 2012	Completed - Published as Synthesis 45		

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No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
S04-10	Safety Reporting Systems at Airports	Landry Consultants, LLC	February 2013	Completed - Published as Synthesis 58		
S04-11	Effective Cooperation Among Airports and Local and Regional Emergency Management Agencies for Disaster Preparedness and Response	Smith-Woolwine Associates, Inc.	February 2013	Completed - Published as Synthesis 50		
S04-12	Airport Emergency Post-Event Recovery Practices	Smith-Woolwine Associates, Inc.	June 2014	Completed - Published as Synthesis 60		
S04-13	Combining Mixed Use Flight Operations Safely at Airports	SMQ Airport Services	May 2015	Research in Progress	R. Hendricks	G. Staba
S04-14	Airport Safety Risk Management Panel Activities and Outcomes	Airport Safety Management Consultants, LLC	April 2015	Research in Progress	D.P. Carter K. Lyons	G. Staba
S04-15	Flight Operations Advisories at Non-Towered Airports	D Prather Aviation Solutions, LLC	May 2015	Research in Progress	R. Henry	G. Staba
S04-16	Emergency Communications Planning for Airports	Smith-Woolwine Associates, Inc.	May 2015	Research in Progress	M. Tonnaccliff	G. Staba
S04-17	Table Top and Full-Scale Exercises for Small Airports	Smith-Woolwine Associates, Inc.	May 2015	Research in Progress	M. Tonnaccliff	G. Staba
S04-18	Uses of Social Media to Inform Emergency Responders During an Airport Emergency			In Development		G. Staba
05: Security						
S05-01	Intelligent Transportation System (ITS) Sensor Technology for General Aviation			Cancelled		
06: Human Resources						
S06-01	Aviation Workforce Development Practices	International Aviation Management Group	March 2009	Completed - Published as Synthesis 18		
S06-02	Airport Self-Inspection Practices	Prather Airport Solutions	May 2010	Completed - Published as Synthesis 27		

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No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
S06-03	Exploring Airport Employee Commuting and Parking Strategies	DMR Consulting	May 2011	Completed - Published as Synthesis 36		
S06-04	Adapting New Maintenance Hires to the Airport Environment	SMQ Airport Services	March 2012	Completed - Published as Synthesis 49		
07: Design						
S07-01	Impacts of Aging Travelers on Airports	Corgan Associates, Inc.	February 2013	Completed - Published as Synthesis 51		
08: Construction						
S08-01	Airport Terminal Facility Activation Techniques	Arup	March 2009	Completed - Published as Synthesis 20		
09: Maintenance						
S09-01	Impact of Rubber Removal Techniques on Runways	University of Oklahoma	June 2007	Completed - Published as Synthesis 11		
S09-02	Common Airport Pavement Maintenance Practices	Applied Research Associates	March 2009	Completed - Published as Synthesis 22		
S09-03	Subsurface Utility Engineering Information Management for Airports	J. H. Anspach Consulting	May 2011	Completed - Published as Synthesis 34		
S09-04	Issues with Use of Airfield LED Light Fixtures	RPI University	May 2011	Completed - Published as Synthesis 35		
S09-05	Repairing and Maintaining Airport Parking Structures While in Use	Walker Parking Consultants	February 2012	Completed - Published as Synthesis 47		
S09-06	Airside Snow Removal Practices for Small Airports with Limited Budgets	Stephan Quilty	June 2014	Completed - Published as Synthesis 67		
S09-07	Building Information Modeling for Airports	Arbor Services	May 2015	Research in Progress	S. Debban	G. Staba

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No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
10: Operations						
S10-01	Counting Aircraft Operations at Non-Towered Airports	Aerofinity	October 2006	Completed - Published as Synthesis 4		
S10-02	Common-Use Facilities and Equipment at Airports	Barich, Inc.	March 2007	Completed - Published as Synthesis 8		
S10-03	Impact of Airport Deicing Products on Aircraft and Airfield Infrastructure	Montana State University, Western Transportation Institute	March 2007	Completed - Published as Synthesis 6		
S10-04	Airport Energy Efficiency and Cost Reduction	Miller Dunwiddie Architecture	March 2009	Completed - Published as Synthesis 21		
S10-05	Ramp Safety Practices	Landry Consultants, LLC	May 2010	Completed - Published as Synthesis 29		
S10-06	Investigating Safety Impacts of Energy Technologies on Airports and Aviation	Harris Miller Miller & Hanson	May 2010	Completed - Published as Synthesis 28		
S10-07	Expediting Aircraft Recovery at Airports	Prather Airport Solutions	May 2011	Completed - Published as Synthesis 38		
S10-08	Conducting Aeronautical Special Events at Airports	Prather Airport Solutions	February 2012	Completed - Published as Synthesis 41		
S10-09	Airport Wildlife Population Management	Savannah River Ecological Laboratory	February 2012	Completed - Published as Synthesis 39		
S10-10	Habitat Management to Deter Wildlife at Airports	Mississippi State University	March 2013	Completed - Published as Synthesis 52		
S10-11	Electric Vehicle Charging Stations at Airport Parking Facilities	Leigh Fisher	March 2013	Completed - Published as Synthesis 54		
S10-12	Airport Response to Special Events	Kramer Aerotech, Inc.	February 2013	Completed - Published as Synthesis 57		
S10-13	Overview of Airport Fueling System Operations	Stephan Quilty	May 2014	Completed - Published as Synthesis 63		

APPENDIX B (continued)

No.	Title	Topic Consultant	Start Date	Status	FAA Liaisons	Staff Officer
S10-14	Issues Related to Accommodating Animals Traveling through Airports	Smith-Woolwine Associates, Inc.	May 2014	Completed - Published as Synthesis 64		

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