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**REGIONAL COOPERATION, COORDINATION, AND COMMUNICATION
AMONG AIRPORTS DURING DISASTERS**

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Abstract

Intensive workshops in South Florida (December 15, 2008), New England (May 7, 2009), and Minnesota (June 12, 2009) explored how regional cooperation, coordination, and communication among airports can promote preparedness and continuity of operations during disasters and catastrophes of all types. Previous site visits and on-site interviews at 20 U.S. airports ranging from the smallest commercial airports to major international airports provided background information to build the workshops, where representatives of airports, airlines, local responders, state agencies, and federal agencies gathered to discuss needs, opportunities, gaps, and barriers to increasing regional cooperation, coordination, and communication. The South Florida workshop led to the creation of a multimedia presentation on the Southeast Airport Disaster Operations Group (SEADOG) and Western Airport Disaster Operations Group (WESTDOG) which was used to open the New England and Minnesota workshops by presenting a functioning, organized model of regional cooperation.

Analysis of the interview results and workshop discussions, clarified through review and correction by study participants, led to a number of recommendations. Starting with the consensus that increasing regional cooperation, coordination, and communication among airports and between regional groups of airports and other responding or regulatory agencies are highly desirable goals, it was found that different regions of the country employ different methods, but none are fully optimized. Interstate mutual aid among airports (SEADOG and WESTDOG, for example) has different issues than intrastate arrangements; the Emergency Management Assistance Compact (EMAC) among the states gives liability and reimbursement cover for interstate efforts, but intrastate arrangements may need new state legislation or expansion of scope of existing state programs. New England's airports have extensive cooperation in place and seem interested in a New England Airport Disaster Operations Group

(NEWDOG?); similarly, the Minnesota airports and Kansas City International Airport support a renewed effort to establish a Midwest Airport Disaster Operations Group (MADDOG?). In Florida, the Florida Emergency Management Agency already provides strong coordination among counties and local agencies, including airports. In New England, the primary interest is interstate, not intrastate. A yet-unformed national umbrella organization (AIRDOG?) could coordinate assistance requests and volunteer responses among the regional DOGs; it could also serve as EMAC's aviation coordination function. Within Minnesota, considerable interest exists in an intrastate mutual aid system among airports, perhaps based on the Minnesota Council of Airports and an extended application of existing Minnesota state statutes.

Of particular interest in the workshops were comments by federal agencies regarding evolving policies to cooperate with airports, airlines, and local agencies in disaster preparedness, response, and recovery involving airports. TSA, FAA, CDC, and the National Guard contributed significantly to the workshops.

On June 19, 2009, the FAA issued Advisory Circular 150/2300-31C revising airport emergency plans to require full implementation of the National Incident Management System (NIMS) and much enhanced two-way relationships with communities and their emergency response agencies, opening a strong opportunity to expand regional airport cooperation and airport(s)-community preparedness.

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I. Introduction

Airports are a central element of the national aviation critical infrastructure, essential to normal economic activities of their regions. They become even more important during the response and recovery phases after regional disasters or catastrophes. However, unlike other elements such as planes or the air traffic control system, they are more vulnerable in crisis situations, as airports are large, publicly accessible, immovable facilities. This study examines how the airports in a region can cooperate among themselves and as a group with local, state, federal, and nongovernmental agencies to promote disaster preparedness, mitigation, response, and recovery.

No one has heretofore rigorously or critically examined the concept of communication, coordination, and cooperation among airports; such examination promises to yield useful ideas for improved prevention, mitigation, response, and recovery. Determining the present status and future potential for regional cooperation and coordination among airports can help deal effectively, economically, and safely with continuity of operations, continuity of business, and continuity of government during a major disaster or catastrophe.

Due to their histories with major hurricanes, South Florida and Louisiana were obvious areas to examine both the realities of and possibilities for regional airport cooperation in disasters. South Florida is notable for its mix of very large airports, medium-sized airports, and small airports, and for the state's well-regarded statewide emergency management system. South Florida faced the devastation of Hurricane Andrew in 1992, along with four hurricanes in 2004, and of course, Louisiana experienced the most taxing demands ever put on U.S. airports for disaster response and recovery during Katrina and her aftermath.

Discussions with Robert Donahue, MASSPORT Fire Chief, during late 2008 suggested that the Boston airports would be suitable and probably willing participants for a workshop-based study. Boston Logan (BOS) is a large, non-hub, origination-and-termination airport in the middle of many medium- and

small-sized airports. Literature already exists on multi-airport management in the Boston area, but it is entirely from the perspective of physical limitations at Logan and using the outlying airports for commuter flights and very light jets (VLJs). New England does have an active organization of airport managers and a growing system of mutual aid pacts among airports, but the nature of the mutual aid is currently very limited.

Similarly, Jeffrey Hamiel, Executive Director of the Minneapolis-St. Paul Metropolitan Airports Commission, suggested that Minnesota would be a highly suitable study area for regional cooperation and coordination among airports. Minnesota, like New England, is dominated by a single very large airport (MSP), but it is a major hub airport. Minnesota has an existing history of cooperation among airports on many funding and regulatory issues and an active statewide organization of airports.

A separate thread leading to this proposed study arose during the Airport Cooperative Research Program (ACRP) workshop in Washington on November 13, 2008. The workshop brought together over 100 airport industry officials to consider a list of 58 proposed study projects for 2009. One new topic was regional cooperation and coordination among airports; a small, quick project on this topic could help inform the design of a more comprehensive study.

Two existing models for regional airport cooperation during disasters, the Southeast Airport Disaster Operations Group (SEADOG) and the Western Airport Disaster Operations Group (WESTDOG), are used throughout this study to demonstrate possible solutions and generate discussion. These disaster operations groups (DOGs) are airport-to-airport mutual aid organizations that work through the state-to-state Emergency Management Assistance Compact (EMAC) to provide specific sorts of manpower and equipment to airports damaged by disasters.

A. Purpose and goals of research

This study examines the following dimensions of regional airport arrangements for disasters:

- Extent of present cooperation, coordination, and communication

- Potential for additional cooperation, coordination, and communication
- Effects of outside, non-airport agencies and entities that must be partners in disaster preparedness, response, and recovery
- Special issues related to disasters and catastrophes
- Legal issues
- Effects of competitive pressure among airports
- Benefits of airport cooperation and coordination

The study will summarize winning strategies and suggest new solutions or further research to further cooperation, coordination, and communication among airports, as well as between airports and other agencies, during disasters.

B. Problem statement

Even though several promising models exist, fully functioning cooperation among airports for routine operations and for the unusual operational modes created by disasters lacks coherent organizational framework in many parts of the country. The issues are different for interstate cooperation and airport-to-airport mutual aid compared to intrastate approaches. Organizational structure, airport ownership, legal mechanisms, liability, and funding, including reimbursement for disaster-related efforts, bear on both interstate and intrastate cooperation.

C. Hypotheses

1. Hypothesis

Regional cooperation, coordination, and communication among airports and between airports and non-airport agencies promote regional preparedness and resilience in the face of disasters and catastrophes. The preparedness and resilience of a region depend on the continuity of operations

(COOP) or return to normal operations of its airports. Various arrangements currently in place promote regional airport COOP and resilience, but some regions do not have any structure in place.

2. Research hypotheses

Examining the hypothesis gives five research hypotheses:

1. Regional stakeholders (potential partners) are amenable to enhanced regional cooperation.
2. Past barriers to cooperation are surmountable.
3. Research regions are amenable to an approach to an interstate structure that enables airport-to-airport mutual aid.
4. Research regions are amenable to an approach to an intrastate structure than enables airport-to-airport mutual aid.
5. An Airport Disaster Operations Group (DOG) approach is workable.

D. Assumptions

The following assumptions characterize this study:

1. Disasters create unusual circumstances for airports that require unusual responses.
2. Airports know best how to help other airports.
3. A regional, decentralized approach speeds responses.
4. National standards are essential to ensure interoperability.
5. Coordination through existing organizations such as EMAC would be more efficient and effect than creating new organizations.
6. Interstate and intrastate procedures and barriers most likely differ.

7. National Incident Management System/Incident Command System (NIMS/ICS) implementation is the most suitable articulation structure for multi-agency disaster operations.

E. Limitations of study

This study includes commercial airports ranging in size from major airports such as Orlando, Miami, and Minneapolis-St. Paul international airports on the large end to such small airports as Martha's Vineyard, Bemidji, and International Falls. It does not fully cover general aviation airports, although two reliever airports belonging to the Metropolitan Airports Commission (MAC) and two currently non-commercial airports belonging to Massport participated. General aviation airports are a major asset during disaster response and recovery operations and deserve further attention on their own and as part of regional disaster networks.

The study is not quantitative, but rather qualitative, dealing with historical actions as well as current attitudes and intentions: a qualitative approach is necessary to examine opportunities and barriers to greater cooperation in complex challenges. The study is also regional, involving Florida, Louisiana, New England, and Minnesota. The Middle West outside Minnesota (and Kansas City), the Mid-Atlantic region, Hawaii, and Alaska are not included. The regional nature of the study is appropriate because for some of the issues addressed in this study there are working regional solutions in two other parts of the country.

II. Previous research

Extensive literature on airport preparedness exists for aviation-related disasters, that is, incidents that fall under 14 CFR Part 139² considerations and requirements. Furthermore, a growing literature addresses manmade incidents involving airports, that is, incidents that fall under 14 CFR Part 1542³ considerations; much of that literature is for official use only or classified. Since both aviation-related and terrorist-related incidents lie outside the scope of this study, this paper does not review those topics.

A. Regional airport cooperation for passenger operations

A series of papers addresses the regional coordination of airport passenger operations in limited geographic areas.^{4,5} DeNeufville's aviation research group at MIT examined utilizing a coordinated group of airports to surmount the space limitations at Boston Logan International Airport. Erie et al. looked at airport coordination in Southern California. Both studies only considered normal passenger operations and did not examine non-routine cooperation as might be involved in disasters.

B. 2007

² [2008 CFR Title 14, Volume 2](#), Chapter I--Federal Aviation Administration, Department of Transportation (Continued). Part 139--Certification Of Airports. Retrieved February 7, 2009, from www.access.gpo.gov/nara/cfr/waisidx_08/14cfr139_08.html.

³ 2008 CFR Title 14 PART 1542--AIRPORT SECURITY. Retrieved February 7, 2009, from ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&tpl=/ecfrbrowse/Title49/49cfr1542_main_02.tpl.

⁴ See Richard de Neufville and Amedeo R. Odoni, *Airport Systems: Planning, Design, and Management* (New York: McGraw-Hill, 2003); de Neufville, *Planning Multi-Airport Systems in Metropolitan Regions in the 1990s: Final Draft Report* (April 2000), prepared for the Federal Aviation Administration; de Neufville, *Multi-Airport Systems in the Era of No-Frills Airlines* (unpublished paper, n.d.); Philippe A. Bonnefoy and Prof. R. John Hansman, *Factors Influencing the Emergence of Secondary Airports in the United States* (MIT International Center for Air Transportation, November 2004), prepared for the MIT-Global Airline Industry Program; Bonnefoy and Hansman, *Emergence and Impact of Secondary Airports in the United States* (American Institute of Aeronautics and Astronautics, 2004). Richard de Neufville, "Management of Multi-Airport Systems: A Development Strategy," Working Paper, Massachusetts Institute of Technology, 1995.

⁵ Erie, S.P., Mckenzie, A., MacKenzie, S., & Shaler, S. (2005). *Regional Airport Management Study*. Los Angeles: Southern California Association of Governments. Retrieved February 7, 2009, from <http://www.scag.ca.gov/aviation/pdf/AirportStudy/RegionalAirportManagementStudy.pdf>.

In 2007, research focused on non-aviation, non-intentional disasters addressed airports, emergency management agencies, continuity of operations, continuity of business, and the application of NIMS at airports and resulted in a series of papers that laid the basis for follow-up studies in 2008 and 2009.^{6,7,8,9,10,11} The 2007 research used case studies at 17 airports and one naval aviation task force to examine how airport operations interacted with disaster relief operations during extraordinary circumstances such as 9/11, Hurricane Katrina, or the Indian Ocean Tsunami. The final paper proposed solutions in the form of structural, policy, organizational, operational, and defensive measures to enhance or protect individual airport COOP in the face of disasters.¹²

C. ACRP

The first Airport Cooperative Research Program (ACRP) report addressing regional cooperation dealt with the case of a chemical, biological, radiological, nuclear, or explosive (CBRNE) attack on an airport.¹³

D. 2008

Research in 2008 sought to generalize the findings from the 2007 case studies. Survey results from 37 U.S. airports, including most of the largest, examined the current state of cooperation among

⁶ Smith, James Fielding, Sandra S. Waggoner and Gwendolyn Hall. (2007) "Building Sound Emergency Management into Airports," *IATC 2007 Proceedings*: 47-60.

⁷ Smith, James Fielding, Sandra S. Waggoner and Gwendolyn Hall. (2007) "Memphis Airport as a Model for Disaster Response." *Crisis Response Journal* 3(3): 30-32.

⁸ Smith, James Fielding, Sandra S. Waggoner, Arthur Rabjohn, and Avi Bachar. (2007) "Protecting Airport Functionality during Disaster Responses: Natural Disasters, Accidents, and Pandemics." *J. Emergency Mgt.* 5(6): 29-40.

⁹ Smith, James Fielding, Sandra S. Waggoner, Arthur Rabjohn, and Avi Bachar. (2008a) "Protecting Airport Functionality during Disaster Responses: Terrorism, War, Civil War, and Riots." *J. Emergency Mgt.*, 6(3), 53-62.

¹⁰ Smith, James Fielding, Sandra S. Waggoner, Arthur Rabjohn, and Avi Bachar. (2008b) "Protecting Airport Functionality during Disaster Responses: Solutions." *J. Emergency Mgt.*, 6(4), 57-64.

¹¹ Smith, James Fielding. "Maintaining Airport Continuity of Business and Operations during Disaster Response: The Role of Command and Control Relationships with Emergency Management Agencies." *J. Bus. Continuity & Emerg. Planning*, 3(1), 66-74.

¹² Smith, Waggoner, Rabjohn & Bachar, (2008b).

¹³ ACRP (2008) *Guidance for Developing Regionally Coordinated Airport Emergency Plans for CBRNE Events*. Report 05-01. Washington: TRB/ACRP.

airports and their partners. The resulting data and follow-up interviews led to suggestions about ways to strengthen and develop existing bonds to ensure community preparedness along with the protection and promotion of both airport operations and business continuity. Cooperation and coordination can be strengthened through building personal relationships, and succession planning can ensure relationship continuity over time. Surge capacity during disaster response can be enhanced through wise mutual aid agreements made effective through intensive joint training, drilling, and exercising.

Indeed, regional cooperation and coordination among airports and EMAs is a powerful and cost-effective form of mitigation against all types of hazards. The 2008 study described best management practices, innovative preparedness measures, and gaps in preparedness for non-aviation disasters. Airports and their surrounding communities can effectively enhance preparedness by minimizing or eliminating weaknesses, developing benefits, and building on existing strengths.¹⁴ Documented benefits of cooperation between airports and EMAs include efficiency of communications; leveraging personal relationships; mutual trust and mutual respect; rapid response; minimization of red tape; shared experiences building shared expertise; and interoperability and interchangeability of skills and equipment. A lack of “diagonal” awareness is an issue, where "diagonal" refers to information that jumps organizational levels between different agencies. Such a lack can create the potential for poor coordination within an airport or an agency and a potential for mixed signals and crossed communications. The 2008 research also included a preliminary substudy of regional cooperation among airports during disasters. This substudy's results have been repeated in this 2009 final report, and reanalysis in conjunction with information from New England, Minnesota, and Louisiana allows significant extension and generalization of the original conclusions.

¹⁴ Smith, J. F. (2009). Airport disaster preparedness in a community context. Available at www.airportstudy2008.com.

III. Materials and methods

A. Research design

A simple study design gathered data for qualitative analysis to examine the five research hypotheses. The South Florida workshop was completed at the end of a national study in 2008 and benefitted from the results of quantitative and qualitative analysis of data from 37 airports, giving confidence that the general approach suited the 2009 regional studies.

This study and its final report result from an iterative process. The research design involved a series of airport site visits and interviews leading up to a regional workshop with much broader agency participation. After the workshops, all workshop participants, 2008 study participants,¹⁵ and interested outside parties reviewed the draft report to suggest corrections and additions. After that review, the final report was published on the study's dedicated website, www.airportstudy2009.com. Throughout the process, telephone and email contacts clarified and to identified additional experts or sources of information.

The primary analytical method applied in this study is SWOT (strengths, weaknesses, opportunities, and threats) analysis. The primary test of validity is the expert and content validity provided through the iterative review of each stage of the study, including the final report.

B. Selection of study regions and airports

Four regions of interest emerged during the course of the 2008 study: South Florida, New England, Minnesota, and Louisiana. South Florida selected itself when several of the airports in the region offered to host a workshop to examine issues concerning airport cooperation during natural disasters. Chief Robert Donahue of Massport Fire Rescue suggested that New England's airports had a strong history of cooperation in some narrow areas and would probably welcome a broader look at the

¹⁵ *Ibid.*

situation along the lines of the South Florida substudy in the 2008 final report.¹⁶ At an ACRP scoping session in November 2008,¹⁷ Metropolitan Airports Commission Executive Director Jeff Hamiel suggested that Minnesota would be an excellent second region for the study because of the strong Minnesota Council of Airports (MCOA), which could facilitate the field visits and workshop. Lastly, opportunities for intrastate cooperation in Louisiana arose in discussions with Anthony Marino and Ralph Hennessey of Baton Rouge Metropolitan Airport.

Selection of airports within the study regions sought to gain a good cross-section of airport sizes and types. In South Florida, the eight largest airports were invited to participate; Orlando, Miami, Ft. Lauderdale/Hollywood, Tampa, Southwest Florida, West Palm Beach, Naples, and Key West participated in the workshop in separate on-site interviews, or through telephone interviews.¹⁸ In New England, Chief Donahue provided introductions to Manchester, Providence, Bradley, Martha's Vineyard, Nantucket, Hyannis, Bar Harbor, Portland, Portsmouth, Worcester, Hanscom Field, Pease, and Otis in addition to Boston Logan.¹⁹ In Minnesota, all commercial airport members of MCOA were invited to participate-Bemidji, Brainerd, Duluth, Hibbing, International Falls, Minneapolis-St. Paul, Rochester, St. Cloud-plus the MAC reliever airports at Flying Cloud and St. Paul Downtown.²⁰ In Louisiana, Baton Rouge self-selected during the 2008 research project. Figure 1 shows the airports that contributed to this study.

C. Development of regional contact and invitation lists

Upon initial contact, each airport was asked to identify key agency and community partners to be invited to the workshop. Responses to the 2008 study's final report suggested other invitees. In the

¹⁶ Ibid.

¹⁷ Salamone, M. R. (2009, January). *Airport Cooperative Research Program Research Digest 5*. Washington: Transportation Research Board. Available at onlinepubs.trb.org/onlinepubs/acrp/acrp_rrd_005.pdf.

¹⁸ See Appendix 2.

¹⁹ See Appendix 4.

²⁰ See Appendix 6.

case of each workshop, additional agencies and personnel heard about the impending workshop and asked to be invited. The invitation and attendance lists for all three workshops are appended to this report.



Figure 1. Participating Airports

D. Use of web sites

As in 2008, a dedicated website (www.airportstudy2009.com) allowed efficient and rapid communication among the researcher and all of the participants. All background information, including the papers that resulted from the 2007 research, the 2008 research final report, and the newly created SEADOG/WESTDOG PowerPoint²¹, was posted to the website, and most workshop participants read the materials beforehand.

E. Development of the SEADOG/WESTDOG PowerPoint

As will be noted in the results for the South Florida workshop, SEADOG played an instrumental role in the recovery of Louis Armstrong New Orleans International Airport (MSY), Gulfport Airport (GPT), Lake Charles Airport (LCH), and East Texas Regional (Beaumont-Port Arthur) Airport (BPT) after

²¹ SEADOG/WESTDOG PowerPoint is available at www.airportstudy2009.com/id76.html.

hurricanes. Furthermore, SEADOG provided a model for an analogous organization, WESTDOG, in the U.S. west of Colorado and New Mexico. Thus, two major regions of the country have functional organizations to promote and deliver regional cooperation. Three regions--New England, the Middle West, and the Mid-Atlantic--currently have no such organizations, and Alaskan and Hawaiian airports do not participate in WESTDOG. Some New England (BOS and MHT), Midwestern (MSP and MCI), and Mid-Atlantic airports sent volunteers through SEADOG's coordination to help the Gulf Coast airports. The South Florida workshop made it clear that a strong presentation about airport disaster operations groups (DOGs) would be an effective tool in the upcoming workshops in New England and Minnesota.

A group effort with the airport managers who created SEADOG and WESTDOG and dispatched aid to the stricken Gulf Coast airports compiled a new presentation of SEADOG's and WESTDOG's functions and histories. In addition, the new presentation spelled out how to establish a new DOG and maintain one. Managers from Boston Logan, Dallas-Ft. Worth, Las Vegas, Kansas City, Minneapolis-St. Paul, Orlando, Portland, and Savannah/Hilton Head international airports contributed generously, providing ideas, facts, slides, and criticism. The resulting collaboration as presented at Boston and the slightly modified version presented at Minneapolis-St. Paul are available at www.airportstudy2009.com/id76.html. The original .ppt files are downloadable so that anyone may use the slides.

F. Site visits and interviews

1. South Florida

Detailed site visits and on-site interviews took place at Tampa International Airport (TPA) and Orlando International Airport (MCO) on December 12, 2009. Senior airport management and ARFF chiefs participated in roundtable discussions that lasted about two hours. These discussions were guided

by the agenda²² used in the South Florida workshop three days later in Miami. In addition to conversations with participants at the Miami workshop (see below), telephone or email interviews were conducted during the first two weeks of December 2008 with Key West International Airport (EYW), Palm Beach International Airport (PBI), and Naples Regional Airport (APF), again following the Miami workshop agenda.

2. New England

Between May 4 and May 7, 2009, site visits and interviews took place at Boston Logan International Airport (BOS), Martha's Vineyard Airport (MVY), T. F. Green Airport (PVD) in Providence, Bradley International Airport (BDL) in Hartford, Manchester-Boston Regional Airport (MHT), and Pease International Tradeport (PSM). At each airport, conversations focused on opportunities and barriers for extending regional airport cooperation beyond the already very high level of cooperation on ARFF issues.²³ Visits to Otis AFB/Massachusetts ANG and Portland International Jetport (PWM) were scheduled but not completed. In addition to these airports, Nantucket Memorial Airport (ACK), Bar Harbor Airport (BHB), and Westover Air Reserve Base/Metropolitan Airport (Springfield/Chicopee, CEF) were contacted but were unable to participate in the study.

3. Minnesota

Between June 7 and June 12, 2009, site visits and interviews took place at Minneapolis-St. Paul International Airport (MSP), Flying Cloud Airport (FCM),²⁴ St. Cloud Regional Airport (STC), Bemidji Airport (BJI), Falls International Airport (INL), Chisholm-Hibbing Airport (HIB), Duluth International Airport (DLH), and Rochester International Airport (RST). Brainerd Lakes Regional Airport (BRD) was originally part of the study but could not participate because of scheduling conflicts. As in New England,

²² See Appendix 1.

²³ See Appendix 3.

²⁴ Reliever general aviation airport belonging to Metropolitan Airport Commission; located in Eden Prairie, MN.

exchanges focused on opportunities and barriers for extending regional airport cooperation beyond the already very high level of cooperation on flight scheduling and facility issues.

4. Louisiana

Baton Rouge Metropolitan Airport (BTR) was visited in October 2008 and again in May 2009. The 2009 visit occurred between the New England and Minnesota workshops and site visits. The 2009 discussions in Baton Rouge first alerted the researcher to the entirely different nature of intrastate airport-to-airport mutual aid compared to interstate aid. This allowed adjustment of the research plan and workshop agenda for Minnesota to address both types of aid. The Boston workshop agenda²⁵ guided the discussions at Baton Rouge.

In addition to the airport visits and interviews, the researcher was able to present the purpose and rationale of the study to the monthly board meeting of the Minnesota Council of Airports (MCOA). The ensuing discussion dealt mostly with questions of intrastate airport-to-airport mutual aid, especially questions of liability and reimbursement. There was also a lively series of questions about what benefits and costs, if any, there are for general aviation airports in regional cooperation.

G. Workshops

1. South Florida

The South Florida workshop took place at Miami International Airport on December 15, 2008. Representatives participated from Fort Lauderdale-Hollywood, Miami, and Southwest Florida international airports; Miami-Dade County Emergency Management & Homeland Security, Police, and Fire Rescue departments; Lee County Emergency Management; Santa Rosa County Emergency Management; Florida Department of Emergency Management; Florida Department of Health; the Centers for Disease Control; the University of South Florida; and American Public University System. The

²⁵ See Appendix 3.

agenda and list of invitees/participants are appended to this report.^{26,27} There was no SEADOG/WESTDOG presentation in this workshop; rather, the workshop participants educated the researcher about SEADOG's structure and achievements.

2. New England

The New England workshop took place at Boston Logan International Airport on May 7, 2009. Massport and American Public University System hosted the workshop, and the researcher served as moderator. Fred McCosby from Savannah/Hilton Head International Airport (SAV) helped present the SEADOG/WESTDOG PowerPoint presentation used to start the discussion regarding potential modes of cooperation. The following organizations had participants at the workshop: Massport, Massport Aviation Business Unit, Massport Fire Rescue, Boston Logan International Airport (BOS), Bradley International Airport (BDL), Hanscom Field (BED), Manchester-Boston Regional Airport (MHT), Martha's Vineyard Airport (MVY), Pease Airport Management (PSM), Savannah/Hilton Head International Airport (SAV), T. F. Green Airport (PVD), Worcester (ORH) Airport, Centers for Disease Control (CDC), Federal Aviation Administration (FAA), Federal Bureau of Investigation (FBI), National Transportation Safety Board (NTSB, retired board member), Transportation Security Administration (TSA), U.S. Air Marshals, British Airways, JetBlue, Massachusetts Convention and Visitors Bureau, Massachusetts Department of Fire Services, Massachusetts Emergency Management Agency (MEMA), Massachusetts State Police - Logan, National Guard of Massachusetts Civil Support Team, Rhode Island Air National Guard Quonset Point (QUO) Fire Department, Boston Mayor's Office of Emergency Preparedness (MOEP), ENAC, and American Public University System. The Boston and Massachusetts head agencies had planned to participate but were

²⁶ South Florida workshop agenda is Appendix 1.

²⁷ South Florida workshop invitation and attendance list is Appendix 2.

addressing the H1N1 flu situation at the time of the workshop. The agenda and list of invitees/participants are appended to this report.^{28,29}

3. Minnesota

The Minnesota workshop took place at Minneapolis-St. Paul International Airport on June 12, 2009. The Metropolitan Airport Commission (MAC) and American Public University System hosted the workshop, and the researcher served as moderator. Steve Wareham of MSP, assisted by Ian Redhead (MCI) presented the SEADOG/WESTDOG PowerPoint presentation to start the discussion about potential modes of cooperation. The following organizations had participants at the workshop: MAC Operations, MAC Police, MAC Fire, Kansas City International Airport, Chisholm-Hibbing Airport Authority, Duluth International Airport, Rochester International Airport, St. Cloud Regional Airport, CDC, FAA, TSA, American Airlines, Delta/Northwest Airlines, Southwest Airlines, Sun Country Airlines, Minnesota Department of Health, Minnesota Air National Guard, Minnesota Army National Guard, Minnesota Department of Human Services, Minnesota Department of Transportation - Emergency Management, Hennepin County Human Services & Public Health Department, Minnesota Department of Homeland Security and Emergency Management, Emergency Management Assistance Compact (EMAC), American Public University System, and Smith-Woolwine Associates. The agenda and list of invitees/participants are appended to this report.^{30,31}

H. Draft report development

Comments and minutes from the three workshops were compared and analyzed to produce conclusions and suggestions of concepts meriting further development or additional research.

²⁸ New England workshop agenda is Appendix 3.

²⁹ New England workshop invitation and attendance list is Appendix 4.

³⁰ Minnesota workshop agenda is Appendix 5.

³¹ Minnesota workshop invitation and attendance list is Appendix 6.

I. Iterative review process

The initial draft final report was circulated to all participants in the 2009 research program as well as those who participated in the 2007 and 2008 programs or who made substantive comments on the two earlier programs. Stakeholder-reviewers' criticisms, corrections, additions, and amendments from this review were incorporated in the final report, or an annotation was made of a difference of opinion. The resulting final report was published at www.airportstudy2009.com with abstracts submitted to AAAE, ACI-NA, TRB, and ACRP publications for wider notice of its availability.

IV. Results

A. South Florida

(This section substantially repeats material from the 2008 final report, "Airport Disaster Preparedness in a Community Context.")

Healthy, well-maintained relationships are critical to airport-airport, airport-emergency management agency (EMA), and airports-EMAs cooperation. Peer-to-peer, airport-to-airport, and agency-to-agency relationships are currently strong, but need to be further fostered to ensure preparedness. In addition, succession planning is critical to ensure that connections outlast personal relationships. Sound succession planning practices include managers demonstrating open-mindedness, understanding that they will have successors, practicing mentorship, identifying key talent early, and "wicking in" senior managers (i.e. placing managers in the role of observers) so that watch standers and middle managers have to take initiative in real incidents, drills, and exercises.

Many parallel information and assistance request links operate during normal operations, during unusual aviation operations (e.g., diversions or special security situations), and during all phases of disaster and catastrophe preparedness, response, and recovery. These links typically connect horizontally, i.e. peer-to-peer, or vertically within agencies. For example, airport operations chiefs or

operational watch standers routinely communicate with each other, as do fire chiefs, police chiefs, emergency managers, security coordinators, TSA officers, CDC officers, and Customs and Border Protection officers. These parallel links have many benefits and drawbacks that need to be reconciled to enhance efficacy of operations. Benefits include efficiency of communications; leveraging personal relationships; mutual trust and mutual respect; rapid response; minimization of red tape; shared experiences building shared expertise; and interoperability and interchangeability of skills and equipment. Drawbacks include lack of “diagonal” awareness, a potential for poor coordination within an airport or an agency, and a potential for mixed signals and crossed communications. Airports and communities can enhance preparedness by developing these benefits, building on existing strengths, and minimizing or eliminating these drawbacks.

Communication problems can be solved as they arise by anticipating breakdowns and focusing on common sense approaches. Reducing red tape may lead to fiscal issues, but fiscal issues can normally be avoided by the “good neighbor” approach to mutual assistance, which is the prevalent approach among all players in South Florida. Linking parallel information flows during disasters is a crucial element, as was seen during Orlando’s assistance through SEADOG (Southeast Airports Disaster Operations Group) aid to Louis Armstrong New Orleans International Airport after Hurricane Katrina. SEADOG’s conference calls were being used without coordination with DHS’s and TSA’s briefings on national leadership, which led to misunderstandings regarding the situation and aid requirements; this situation was resolved during 2008 hurricane season.³² In Florida, however, Florida Department of Emergency Management, operating through county emergency operations centers (EOCs), provides exactly such parallel coordination and link. The primary difficulty in reconciling these information flows may stem from SEADOG and the airports using bottom-up communications practices while TSA and most federal agencies use top-down links. This situation could be ameliorated by creating a standing link

³² Tom Draper, email, February 17, 2009.

among airports in regions that would facilitate simultaneous horizontal and vertical aid requests and situational awareness. Regional WebEOC that will roll out shortly in Palm Beach, Broward, Miami-Dade, and Monroe counties will offer exactly this capability as the airports and EMAs will all have their EOCs as nodes in the system. FL-Regions 5 and 6 already have E-Team Incident Management software in place, and it is available to the airports within the region should they want to use it. Indeed, some airports such as Orlando already have seats on both city and county E-Team systems. Troubleshooting communications issues would be a fruitful area for further discussion among the regional players and for other regions.

SEADOG's critical partnerships among airports in the southeast U.S. and the nation are growing and maturing, and could conceivably operate internationally. Based on pro bono mutual aid, each member airport supplies personnel or equipment as requested by a member airport. SEADOG itself does not have dedicated SEADOG personnel or equipment, except for a mobile command center. Expanding these resources and/or conducting a feasibility study could be constructive.

WESTDOG is modeled on SEADOG for the region from Denver to the West Coast, and a similar system is being established in New England (NEWDOG?). The success of SEADOG could serve as a model for the rest of the country, particularly the mid-Atlantic and Midwestern regions. Joint U.S.-Canada, U.S.-Mexico, and U.S.-Caribbean groups might also be beneficial.

Another asset in building synergy among airports is the Index E Air Rescue Fire Fighter (ARFF) Chiefs' Association, a leader in airport-to-airport communication and cooperation. Of the 29 Index E airports, 18 chiefs participate actively in this association, which could serve as a model for other peer-to-peer relationships. The fire chiefs' relationships cut across fire, EMS, emergency management, special situations, and operations, demonstrating very strong relationships within their airports. One current initiative of the Index E chiefs is building stronger relationships with the CDC over EMS roles in pandemic incidents.

Florida airports typically have equipment and qualified personnel in excess of the FAA Part 139 minimum operating requirements so that they can effectively accomplish their ever-changing missions. This also means that they can often give as well as receive aid from their EMA partners. In addition, Florida's statewide emergency management mutual aid agreement (based on FC Statute 252) has great power and flexibility to respond in general to coordinate state and local actions, to use and protect airport assets wisely, and to coordinate communications. Combined with enlightened statutes and funding, it has created an effective preparedness posture, and this posture clearly includes the airports and their emergency management partners.

In Florida during a disaster or catastrophe, county EOCs (emergency operations centers) are the key link between airports and their EM partners. Airport, agency, and city EOCs link directly to the county EOC and, through the county EOC, to the state EOC. As noted above, forthcoming technological innovations such as WebEOC and E-Team will facilitate the execution of these roles. However, the use of different multi-EOC connection software may create compatibility issues when adjacent regions are involved in the same incident, and these issues must be addressed. Clearly, this scope of this issue extends beyond the physical environment of airports.

NIMS and ICS are the operational standard at all Florida airports and EMAs, which facilitates cooperation, coordination, and communication. Aviation cooperation is outstanding among airports, and this level of cooperation clearly transfers to disaster situations. Managers at all eight airports emphasized this point and gave concrete examples.

The Federal Aviation Administration (FAA) plays an essential role in any situation involving operations at two or more airports through airport closures or flight diversions, so the FAA must be a key member in any regional emergency management planning for airports and their EMA partners. Airlines are key players in that they decide when and where to fly within the limits set by the FAA. Like the FAA, airlines also need to be involved in regional contingency planning.

In Florida, federal agencies have been active partners with airports in preparedness activities. The Transportation Security Administration (TSA) has been highly cooperative when non-routine operations have been required, as is evidenced by the success of short-notice screening responses in conjunction with airports during flight diversions due to weather and hurricane preparations involving cruise ships and airlines. TSA actively participates with airports in planning and exercising. In Florida, USDOT, DHS including TSA, and HHS including CDC have just developed a Risk-Based Border Strategy that was exercised for the first time in fall 2008 in South Florida. Like TSA and FAA, CDC works cooperatively with the airports in the region.

The Florida Department of Health is working with CDC and the airports to expand the pool of fully qualified health personnel to deal with pandemic incidents. Also in conjunction with CDC, Florida is in the lead in domestic reporting of communicable diseases. These two initiatives combine to optimize the thoroughness and timeliness of response to health issues initially reported by airlines, airports, or federal agency personnel.

The four largest airports (FLL, MCO, MIA, and TPA) all report training, drilling, and exercising at levels above the basic requirements. (The four smaller airports were not questioned on this point.) Their drills and exercises improve readiness by focusing on realism, succession training, EOC operations, involvement of EMA partners, and strong after action reviews and procedural changes. MCO noted that when an issue surfaces in after action reviews, it is built into the scenario for the next tabletop exercise (TTX).

Some issues of credentialing EMA personnel for airport access during disasters remain unresolved. In most cases, EMA personnel must be escorted within airports. This undoubtedly varies from airport to airport and probably depends on the ownership of the airport and the terms of mutual aid agreements with EMAs. Airports sometimes have to deal with self-appointed volunteers who arrive

to help with disaster response or recovery. Airports and EMAs, like everyone else, would benefit from credentialing, control methods, and staging procedures to handle such volunteers.

In summary, the South Florida workshop found a pattern of strong cooperation among airports and between airports and other agencies that contributes to regional preparedness and resilience in the face of hurricanes, pandemics, or other disasters. The workshop also highlighted a number of areas that can be improved, including fiscal concerns, policies, and procedures.

B. New England

The introduction of the airport disaster operations group concept using the SEADOG/WESTDOG PowerPoint led to a wide-ranging discussion of a number of related topics. These included the essential role of EMAC when interstate mutual aid is involved, the roles of the FAA when a DOG is activated to assist an airport damaged by a disaster, liability issues, administrative structures, funding methods, reimbursement concerns, the role of TSA, the role of the National Guard, and non-disaster functions within New England in which a NEWDOG could serve, either as the organization or a model.

Representatives present from airports that sent assistance to the Gulf Coast through SEADOG--BOS, MHT, and SAV--described in detail the essential role that EMAC plays in enabling a DOG to function. EMAC and the state EMAC coordinators provide the FEMA mission number that is the key to reimbursement for the assisting airports' out-of-pocket expenses and that provides a liability umbrella for interstate assistance. EMAC's role is limited to these functions; once they are fulfilled, the DOG functions as the go-between and coordinator of need requests from the damaged airport and aid provision from the assisting airports. The DOG concept worked very well in its real-world applications.

As noted in the South Florida workshop, the FAA plays a crucial role when the aviation-critical infrastructure, including airports, is perturbed by an impending or actual disaster. In New England, discussion addressed how the FAA approves backfilling, supplementing, and providing relief to the staff of an impacted airport by importing skilled professionals from other airports, as through SEADOG in

2004 and 2006. The FAA Senior Inspector for the New England Region addressed these questions by saying that unexpected situations would call for case-by-case decisions by the FAA Regional Director, and that Part 139 standards must be maintained regardless of the circumstances. She specifically included standards pertaining to local orientation and qualification of persons filling various specialized functions at the damaged airport. Representatives from BOS, MHT, and SAV noted that this standard had been addressed at the four Gulf Coast airports by pairing incoming assistants with local managers in an initial period. This appears to be an area that would benefit from greater clarity.

A discussion ensued regarding alternative management of an impacted airport's Part 139 status during a disaster and the ensuing response and recovery efforts. The alternatives mentioned were complete closure of the airport until all Part 139 requirements could be fully met, closure of the airport to commercial traffic until all Part 139 requirements could be fully met, limited airport operations under an FAA waiver, operation of the airport by the Air National Guard or DOD, or indefinite closure of the airport. No consensus was reached, suggesting that this will have to be a case-by-case decision. Consensus was reached, however, that airports are essential to regional relief and recovery after a disaster and to regional continuity of business beyond the airport itself. Decisions on the readiness and mode of an airport for renewed or continuing operations should perhaps be taken by a NIMS/ICS Unified Command, which might include the local airport, the FAA, and an airline representative.

The Assistant Federal Security Director at BOS described TSA's disaster go-team initiative in which pre-designated and specially trained teams of TSA managers and workers would be on standby for immediate dispatch to a disaster-stricken airport. TSA at Logan International Airport (BOS) is one of 41 airports that have committed to participate in a Headquarters driven program called Transportation Security Support Team (TSST). TSSTs (managed by the Office of Security Operations, Contingency Preparedness program) were developed to respond to national disasters; helping a specific location quickly respond, recover, and restore the affected TSA operations. Each airport, based on its size, has

committed to provide a specific number of people to respond within 24-hour notice; BOS has committed 25 people. Each team has training requirements to complete, is self-sufficient for up to 14 days, is immediately ready to assume duties upon arrival at the affected airport and relieve the home team. They are deployed as a package, which enhances unit cohesion, command and control, accountability, administrative support, and streamlines reach-back to home airport needs. Each TSST will be supplied with basic support equipment and supplies to include clothing, bedding, and sustenance for the entire deployment. TSST members are told to expect a 14-day deployment, but they must be prepared to remain deployed for up to 3 weeks. To maximize preparedness planning for each individual and airport management, each of the 41 participating airports are given specific months that they should be prepared to respond. As an example, BOS was on standby for the month of June 2009. This allows the team members to be adequately prepared and to make plans around those months. Although the entire BOS TSST has not deployed yet, TSA at BOS has been asked to provide Transportation Security Officers (TSOs) to support non-natural disaster missions with very little notice. Because TSST officers are already trained and prepared to deploy on short notice, TSA was able to support this request.³³

This indicates a heightened proactive stance by TSA and a willingness to engage in regional response during disaster recovery. Several speakers pointed out that any agency sending aid to a damaged airport must use the same sorts of self-sustainment measures for housing, food, and fuel that SEADOG uses. The second line of questioning involved how best to incorporate TSA's go-teams into the receiving airports' security plans.

The extreme case of Gulfport (GPT) after Katrina allowed examination of potential and actual roles of the Air National Guard and National Guard in protecting and reviving a seriously damaged airport. Issues of law enforcement, aviation operations area security, and even a temporary tower arose as illustrating the need for coordination among airport operators, SEADOG-coordinated assistance, the

³³ Robert Snyder, pers. comm., July 27, 2009.

National Guard, and the FAA. NIMS/ICS is the obvious mechanism for coordinating such joint responses, but it was not yet in place in aviation in 2005 and probably still is not fully implemented where agencies and organizations overlap regarding airport disaster preparedness, response, and recovery.

Consideration of the airport in the community as a general issue led to a lively and wide-ranging discussion of how airports communicate with their communities and region, and how regional continuity of business (COB) and airport COB are linked through two-way mutuality of interest. Loss of links to aviation critical infrastructure can cripple a region's economy, and just-in-time manufacturing exacerbates the damage. The COB link is essential for many other community components such as regional medical research and treatment complexes and regional technical-academic entities such as universities and corporations that drive innovation and attract personnel from around the world.

The station manager for British Airways pointed out that if BOS were disrupted for weeks or months, maintenance of international traffic in New England would be essential for the economic well-being of the region, its businesses and universities, and the airlines. He suggested that NEWDOG, if formed, could coordinate planning among the airports, ARFFs, airlines, and federal agencies (FAA, CBP, TSA, CDC, FBI, and U.S. Marshals) to use the transoceanic jetliner-capable airports in a coordinated manner to maintain service to New England. This would include BDL, PVD, MHT, PSM, and PVM. This type of use of a DOG would be a major enhancement of the SEADOG or WESTDOG missions thus far.

The smoothness of Boston Logan's communicable disease plan was also briefly noted. It had had a real-world workout less than a week before the workshop and functioned admirably. The plan was offered by Massport and CDC as a potential model both regionally and nationally, and its development exemplified the draft procedures in CDC's latest guidance.³⁴

The final portion of the workshop dealt with a number of practical questions of a potential DOG for New England. The strong level of fire rescue (ARFF) cooperation among New England airports lays

³⁴ CDC. (2009, March 13). U.S. Public Health Entry Screening of Arriving International Travelers at Airports during an Influenza Pandemic: Standard Operating Procedure. Atlanta: CDC.

the foundation for broadening cooperation to include aviation operations and coordination of disaster response mutual aid within New England and elsewhere. Although the historical focus of SEADOG has been on large disasters such as hurricanes, a NEWDOG could serve "village level" needs. That is, it could be the mechanism for cross-training and familiarization to help smaller airports, MVY for example, when unusual surge capabilities are necessary or assistance is needed to free up staff for a short period for another event. The New England resort airports such as MVY, ACK, and BHB may offer special equipment that can be made seasonably available as backfill when larger airports need to perform maintenance on ARFF equipment. Thus, NEWDOG could provide a spectrum of services within New England in addition to being a coordinator of airport-to-airport mutual aid on regional and national scales.

The moderator pointed out the slight differences in structure between SEADOG (very informal, with several geographic and function-specific coordinators who do not rotate, at least not often) and WESTDOG (much more formal, with a membership list and a single-point coordinator with one backup coordinator who rotate annually). Either structure or a new, New England-specific variation would work for NEWDOG, given clarity about responsibilities and contact procedures. SEADOG and WESTDOG worked well together during the 2008 fire and hurricane seasons despite their slight organizational variations.

There were many concerns about liability and reimbursement since an airport participating in a DOG must pay its own way and then seek reimbursement. The answer lies in EMAC, which provides the FEMA mission number that is essential for Stafford Act reimbursement and liability protection during interstate mutual aid in a declared disaster. A highly interesting, novel idea would be to organize a DOG as a foundation or non-profit that could serve as a conduit for administrative fundraising and control property belonging to the DOG. The precise proposal was to make the DOG a 501(3)(c) entity, but other sorts of entities are simpler and have greater advantages. One of the largest advantages of this sort of

legal structure is that it allows all the different sorts of airport owners and operators to participate more freely.

If NEWDOG is created, it should be incorporated into the AEPs, airport COOP plans, and airport COB plans, both with the airport sending volunteers to other airports and with the airport receiving volunteers during a local disaster that affects the airport.

The final topic of discussion dealt with steps needed to establish and maintain a DOG in New England. Figure 2 (copied from the SEADOG/WESTDOG PowerPoint) lists the actions to develop and establish a DOG, and Figure 3 lists the actions to maintain a DOG after it has been established. The next step for New England should be a meeting of the airports, state aeronautics office heads, and state EMAC coordinators to consider the feasibility of NEWDOG and its relationships to the six states.

Steps to Create a New DOG

- *Establish desire & need* ✓
- *Develop support by senior airport management*
- *Analyze threats*
- *Conduct a conference exploring opportunities and needs*
- *Discuss feasibility*
- *Identify organizational structure*
- *Establish a steering committee*
- *Identify coordinators*
- *Gain FEMA and EMAC recognition as official partner with authorization to work across state lines*
- *Generate publicity for group and services*

Steps to Sustain a DOG

- *Maintain communication year round*
- *Include partners in exercises*
- *Track expenses*
- *Perform after action reviews of assistance efforts*
- *Review and update plans periodically*
- *Maintain dedicated web site*
- *Publicize success stories*

From these results, it is obvious that opening the New England workshop with the SEADOG/WESTDOG PowerPoint channeled the discussion into specific matters regarding practical barriers and potentialities related to a DOG as a model for regional airport cooperation, coordination, and communication in New England. Since most workshop participants read the 2008 research final report, which included a summary and analysis of the South Florida workshop, they may have been predisposed to be more curious and open about DOGs.

C. Minnesota

The Minnesota workshop essentially picked up where South Florida and New England left off, its participants having previewed the SEADOG-WESTDOG PowerPoint, the South Florida workshop summary, and the notes from New England prior to the Minnesota workshop. The moderator opened by asking for special attention to barriers to cooperation among airports during disasters, the special case of intrastate cooperation, and the desirability of a Midwestern DOG (MADDOG). He suggested that regional flooding would be the Midwestern hazard most analogous to hurricanes as a potential stressor of airports and their capabilities.

Steve Wareham of MSP presented the SEADOG/WESTDOG Presentation with graphic, specific details from the MSP volunteers' experiences at Gulfport (GPT). Ian Redhead (MCI) helped answer initial questions about DOGs and noted that Minnesota and the Midwest could benefit from Florida's growing pains and lessons learned about airport disaster preparedness and airport-to-airport mutual aid.

To the question "Is there a real issue?", there was a strong affirmative answer. MAC (MSP) and MCI noted that they are already on record supporting formation of MADDOG. The chairman-elect of the national EMAC Executive Task Force (ETF) strongly emphasized that GPT was Gulfport's only access for days, and that SEADOG made a profound contribution to reopening and sustaining that airport.

The moderator's question whether asking MADDOG to give more than it would ever receive from airports elsewhere in the nation was a "fairness question" elicited laughter. Good neighborliness is

as strong a factor in Minnesota as it is in New England or South Florida, and is ultimately the primary principle underlying any DOG.

The manager of a class I commercial airport noted that airports with small staffs quickly come under extraordinary stress during a disaster such as a nearby crash. MADDOG or an intrastate version or subset of the same could ease airport-to-airport mutual aid in ways that would particularly benefit small airports. These points echo the small airport contribution and need discussion in the New England workshop. Such aid would involve prior familiarization with the facilities in addition to the close working relationships already existing through MCOA. Airport managers and the state EMAC coordinator agreed that there are currently no formal emergency mutual aid agreements between airports in Minnesota.

All airports in Minnesota use NIMS/ICS as their emergency and disaster organizing principle, but many of them are so small that many of the command, staff, and other duties devolve onto just one or two persons at a time at an airport, emphasizes the need for backfill and supplemental staff during prolonged response and recovery.

CDC emphasized the strong role of the state health department in communicable disease planning and response in Minnesota. The state department is the link between CDC and local health departments and medical facilities. It is also the primary link between the airports and local health departments and medical facilities. MSP's communicable disease planning process conformed with CDC's draft guidance.³⁵

All airports of all sizes in Minnesota participate actively in regional land use and economic development planning, especially long-range planning. Two-way incorporation of COB and COOP plans will be facilitated by this existing relationship.

Representatives from FAA, TSA, and CDC commented briefly on their roles and willingness to participate in disaster preparedness, mitigation, response, and recovery at airports. Unified Command

³⁵ CDC. *Op. cit.*

under NIMS/ICS is not a problem except in the most extreme conditions when paramount agency legal authority will take over. The FAA spokesperson put it best: "We would all talk together and quickly do what was needed." Flooding and pandemics are the main natural hazards³⁶ that shape agency plans and policies in the Midwest. TSA, as in Boston, noted that the agency learned many lessons from Hurricane Katrina and has well-defined teams for national emergencies.

Exploration of the roles of the National Guard regarding airports during disasters led to a discussion of some conflicts between the Guard and the FAA at St. Paul Downtown Airport during the St. Paul floods. As in Gulfport after Katrina, these conflicts illustrate the need for advanced planning and preparedness activities that involve both the Guard and FAA when airports are involved. The state EMAC coordinator noted that the Guard can be used through state active duty using state funds but then transition suddenly to federal funding if a national disaster is declared. Minnesota is unusual in that 87 county sheriffs and three cities "of the first class" can appeal directly to the governor for National Guard assistance.

The moderator introduced the special issues of liability and reimbursement for intrastate airport-to-airport mutual aid. The airports could tap into interstate sources through EMAC for the same sort of assistance, but intrastate airport mutual aid would probably need an expansion of Minnesota legislation that covers governmental and quasi-governmental agencies.³⁷ Kim Ketterhagen noted, "We need to make the circle bigger to include airport planning in existing programs" and to strengthen existing programs.³⁸ After this happens, all the airports will need to rescrub their AEPs to incorporate intrastate mutual aid including the thorny issues of access and credentialing. Nationally speaking, small airports are left out of planning, but they should definitely be included. MCOA's success in other types of cooperation suggests a model for including both large and small airports in Minnesota.

³⁶ Only natural hazards and pandemics are considered in this study. Intentional disasters lie outside the TSA Findings Letter that authorized the 2008-2009 research program.

³⁷ 2008 Minnesota Statutes Section 12.331. Available at <https://www.revisor.leg.state.mn.us/statutes/?id=12.331>.

³⁸ Kim Ketterhagen, pers. comm., June 12, 2009.

An outstanding discussion of the role of airlines in non-aviation disasters followed with the four present airlines participating. Airlines are major players in logistics in unusual situations, as shown by AirTran's immediate assistance as soon as Gulfport reopened.³⁹ They are a full partner in airport COOP and especially in airport COB. Their involvement is based on both selfish and unselfish reasons: public safety, public health, public service, and the need to be profitable again as quickly as possible. Airline participation needs careful case-by-case tailoring as no two fleets or presence at any given airport are identical. This individual tailoring can best be achieved by giving an airline representative a desk in the airport EOC and maybe at regional EOCs and multiagency coordination entities. The state EMAC coordinator noted that INFRAGARD/HSEM P2CAT (Private/Public Coordination Action Team)⁴⁰ recognizes that most resources are privately held and will be a useful conduit for airline involvement in disaster operations. This suggests a modification of the DOG concept to add airlines to the structure, at least for awareness. The workshop concluded with a discussion of what steps are needed to establish MADDOG. Tim Anderson and Ian Redhead noted that MAC and MCI are prepared to spearhead the process.

D. Louisiana

Discussions with the leadership at Baton Rouge Metropolitan Airport⁴¹ allowed development of many of the concepts that were pursued at the workshops. The most pertinent points involved the special issues that affect intrastate cooperation and airport-to-airport mutual aid. The discussions highlighted issues of communication, organization, liability, and reimbursement, and they included a request for further investigation of any necessary state legislation or policy-making to enable activities in these areas.

³⁹ Steve Wareham, pers. comm., June 12, 2009.

⁴⁰ Minnesota P2CAT is a national pilot program. Details are available at <http://www.p2cat.org/>.

⁴¹ Anthony Marino and Ralph Hennessey, pers. comm., October 31, 2008, and May 19, 2009.

V. Conclusions

The greatest strength found in the South Florida, New England, and Minnesota workshops was the willingness of all parties to consider ways to improve cooperation. A second major strength in each region is a history of good-neighborliness among the airports as well as among the various jurisdictions and agencies. The airports in all three regions seem to be tightly managed, strongly led, and willing to innovate.

South Florida has a powerful hurricane-driven state emergency management system based on state statute and funding with counties as the primary nodes where airports communicate with the overall disaster system. Florida airports cooperate easily regarding routine weather diversions and specialized CDC-related diversions, so they have a great deal of operational practice in cooperation. The county emergency managers are linked through electronic emergency operations center software, and the airports are already or soon will be nodes in that system.

New England's airports have a very strong history of cooperation on ARFF (aviation rescue and fire fighting) issues. The region is geographically compact, and the senior and middle managers at the airports and other organizations know each other well.

Minnesota has MCOA, which has a long history of cooperation on the usually thorny issues of funding allocations and feeder flight scheduling. All of the airports in Minnesota have good relationships with each other and with MSP.

The key federal agencies involved in aviation—FAA, TSA, CDC, and CBP—show responsiveness and flexibility in working with airports in unusual operational situations. They can probably also be expected to work with the existing and possible new DOGs to coordinate airport-to-airport mutual assistance with federal agency actions.

Intensive and realistic training, drilling, and exercising pay off, especially when combined with aggressive use of after action reports (AARs) and consistent implementation of lessons learned. Personal

relationships are essential in cooperation and coordination, and their continuity should be the goal of succession planning. NIMS/ICS works, but it works even better when sound relationships and trust have been established prior to an actual disaster.

The workshop discussions identified a number of weaknesses:

1. Lack of specific pre-existing regional response plans by federal and state agencies
2. Lack of a fully integrated formal rapid communications involving airports, other aviation stakeholders, state EMAC coordinators, and federal agencies; however, there is a rapid informal network at various levels among the airports
3. Lack of an aviation wing in EMAC
4. Perhaps a weak regional consensus in New England and Minnesota as to what constitutes a major hazard to the airports or regions comparable to hurricanes in South Florida or Louisiana
5. Still evolving local and regional pandemic planning, training, drilling, and exercising, especially as a Risk-Based Border Strategy template is introduced, except at airports where there is a CDC Quarantine Office
6. Surge capacity for various types of incidents
7. Credentialing and rapid access of SEADOG or other appropriate professionals who arrive at an impacted airport⁴²
8. Clarification or coordination of airport roles in evacuation prior to hurricanes, especially in the time after airlines withdraw their aircraft
9. Unpredictability and complexity involving reimbursement to airports for relief and recovery activities in disasters

⁴² This was first raised as a research issue by Bonnie Wilson at Jackson-Evers International Airport (JAN) during a site visit in October 2008. She posited that it would emerge as the most critical emergency and disaster issue at airports. Advisory Circular AC 150/5200-31C seems likely to elevate this issue even higher as airport emergency plans are written to incorporate NIMS/ICS and expand community partnerships.

One of the greatest opportunities in all three regions is to clarify and expand the role of the airlines. Some view the role of airports as the passive recipients of whatever planes the FAA and the airline choose to send them, but this narrow Part 139-centric view breaks down during disasters and catastrophes, at least in the current system. For example, in South Florida, all commercial aircraft will be relocated out of the hurricane danger area at least 24 hours prior to the storm's projected landfall. This means that the airlines will not be involved in the last stages of hurricane evacuation. However, the airlines still have a strong interest in other equipment and facilities, and they may be able to contribute in many ways to preparedness, mitigation, response, and recovery planning. Certainly, the airlines become central players in the decision to reopen a damaged airport to commercial traffic. As such, they should participate in non-aviation disaster planning and NIMS implementation. Airlines present in Boston and the Twin Cities seemed very interested in exploring this avenue. Similarly, airlines are central to CDC's proposed procedures for screening incoming international passengers during a pandemic.⁴³

Intrastate airport-to-airport coordination is very different than interstate coordination and needs new enabling legislation state-by-state. There is no EMAC-type function to cover liability and reimbursement.

NEWDOG and MADDOG are needed and workable in New England and the Middle West, and there is strong support for them among airports, state agencies, and federal agencies. SEADOG and WESTDOG may want to consider expansion beyond airports to agencies and airlines. It is probably highly desirable for the Mid-Atlantic Airports (New York, New Jersey, Delaware, Maryland, Virginia, and West Virginia) to affiliate themselves with an existing DOG or form their own DOG (MIDDOG?). Airports in Alaska and Hawaii could reasonably join WESTDOG; however, their isolation makes intrastate airport-to-airport a highly desirable option in addition to DOG membership.

⁴³ CDC. *Op cit.*

AIRDOG is a desirable candidate for EMAC's national aviation coordination entity and as the umbrella for SEADOG, WESTDOG, NEWDOG, MADDOG, and any other DOGs that are formed.

FAA Advisory Circular AC 150/5200-31C opens the door for airports to institutionalize all these changes locally as they update AEPs. It requires the full implementation of NIMS/ICS as the organizational method within airport emergency management and between airports and their communities. Regional airport cooperation, coordination, and communication can gradually be written into AEPs. After all, AEPs are intended to guide airports' and their emergency partners' actions in unusual operational situations.

VI. Recommendations

A. NIMS/ICS implementation

NIMS/ICS is not only now required for all federal agencies and any organization receiving federal funding,^{44,45} but it is also the best way to organize regional cooperation, coordination, and communication among airports, their aviation partners, and their community partners. Relationships must be built and nurtured prior to need; multiagency, realistic training, drilling, and exercising can create such relationships. All the airports in this study--without exception--practice this approach, and all of them have implemented NIMS/ICS in forms appropriate to their size, complexity, and risks.

B. FAA role in airport-to-airport mutual aid

Given the FAA's paramount role in aviation safety, the agency must continue to be built into disaster planning for the aviation critical infrastructure including airports, and its roles during disasters need to be clarified. Tracking changes in 31C issued June 19, 2009, the FAA should expand its activities into regional disaster planning. This may be facilitated if DOGs are created for the rest of the country,

⁴⁴ Homeland Security Presidential Directive 8 (HSPD-8). (2003, December 17).

⁴⁵ Department of Homeland Security. (2008, January 22). *National Response Framework*.

and if a national AIRDOG becomes the aviation wing of EMAC. Representatives of FAA should be in the NIMS Unified Command whenever an airport has been closed or had restricted operations due to a disaster and is approaching a decision to reopen.

C. Close coordination with FEMA, EMAC, and state EMAC coordinators

Although there have been major improvements in obtaining FEMA mission numbers since 2005, continued effort is needed to speed and streamline the process. This will require continued efforts by FEMA, EMAC, and state EMAC coordinators to work more closely together. It will also require the DOGs to do a better job of educating state emergency planners on the capabilities and limitations of airport-to-airport mutual aid through the DOGs.

D. Administrative and funding mechanisms for DOGs

To be effective, any DOG needs to remain a non-governmental organization (NGO). Past experience showed that rigid organizational structures such as memoranda of agreement will undercut the voluntary nature of the DOGs, which makes them work so effectively, and will be hard, if not impossible, to obtain legal agreement all the different governing bodies who own or operate airports. As an NGO, a DOG can fulfill the existing functions and the expanded functions proposed in this report.

Simplified reimbursement procedures are a high priority for the existing and possible new DOGs, as is a way to fund continuous administrative and communications infrastructure at a relatively low level. The foundation or non-profit corporation approach should be investigated fully. Funding will become a more serious issue if AIRDOG is created as the aviation wing of EMAC.

E. Create NEWDOG

The next step for New England should be a meeting of the airports, state aeronautics office heads, and state EMAC coordinators to consider the feasibility of NEWDOG and its relationships to the

six states. The slightly more formal WESTDOG organizational structure seems likelier to serve New England better than the looser SEADOG structure.

F. Create MADDOG

MADDOG could serve the Midwest. The initial step should be for MAC and MCI to approach the other airports in the region with this report, seeking a feasibility review session (See Figure 2).

MADDOG's coverage most logically would include ND, SD, IA, MO, KS, NE, MN, WI, MI, IL, IN, OH, KY, and Western PA.

G. Fill in the gaps

Airports in the Mid-Atlantic states, Hawaii, and Alaska should investigate affiliation with an existing or proposed new DOG, or they should form a new regional DOG.

H. Reexamine SEADOG and WESTDOG for added types of affiliates

The DOG concept should be modified to add airlines, federal agencies, and EMAC to the structure, as least for awareness.

I. Incorporate all-hazards approach for DOGs

DOGs, like any other responders, should look hard at the all-hazards approach, not just locally or regionally most likely hazards. The best example of this is the pandemic flu outbreak scenario in which a regional epidemic could cause severe staff attrition at airports. A DOG could send reinforcements to maintain airport COOP, but this would require close cooperation among the airports, the DOGs, CDC, and CDC's health partners.⁴⁶

J. Create AIRDOG

⁴⁶ Greg Kelly, pers. comm., July 21, 2009.

A national umbrella disaster airport operations group with a small staff and a permanent office (AIRDOG?) should be created to coordinate and advocate for the regional DOGs. It could serve as EMAC's aviation-specific wing and as a clearinghouse for best management practices, specialized equipment, and specialized skills.

K. Legislation to enable intrastate airport-to-airport mutual aid

In states in which intrastate airport-to-airport mutual aid is desired and in which there is not a strong centralized emergency management control system, as there is in Florida, there needs to be a review of existing legislation to enable such mutual aid while ensuring liability protection and reimbursement.

L. Further study

The Airport Cooperative Research Program (ACRP) of the Transportation Research Board is considering two major new research topics for its 2010⁴⁷ program that directly relate to this research:

Topic 14: Communication and Collaboration among Airports. Describe intra-industry collaboration techniques, with and without technology, available to airports. Examine benefits of communication and collaboration in a dynamic environment. Suggest methods and techniques.

Topic 36: Emergency Planning and Disaster Response Best Practices. Compare, contrast, and evaluate emergency planning practices and disaster response practices at airports. Develop best practices and performance measurement criteria for planning and implementation of emergency services. Scope: stay within federal regulatory guidelines; ensure flow of people and public safety resources; include military resources; consider movement of other goods and services; facilitate community coordination; promote effective communication; and survive by design considerations.

In addition to research sponsored by ACRP, the likeliest follow-on research will be applied research commissioned by TSA, CDC, or FAA on the accommodation of emergency and disaster management agency and airport cooperation in a community context, including multi-airport arrangements. Additional efforts may include developmental work on regional airport disaster

⁴⁷Salamone, *op cit.*

operations groups or the national umbrella, AIRDOG, perhaps including a possible role for AIRDOG as EMAC's aviation coordination entity. Examination of potential enhancement of the relationship among EMAC, DOGs, and FEMA may merit research unless it evolves more quickly than research can track.

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The Airport Disaster Operations Group presentation (SEADOG/WESTDOG PowerPoint) benefitted from the generously given expertise and experience of Greg Kelly and Fred McCosby (SAV); Parker McClellan, Tom Draper, and Cyrus Callum (MCO); Mark Crosby (PDX); Alan Black (DFW); Steve Wareham (MSP); Robert Donahue (BOS); and Jeanine D'Errico (LAS).

This study, like its 2007 and 2008 antecedents, depended on the generous and candid help of many airports, agencies, and airlines. As this study evolved, several people contributed invaluable guidance regarding its shape. Jim Crites of the Dallas-Ft. Worth Airport Authority suggested the general topic of regional airport cooperation as a topic needing research. Chief Robert Donahue of Massport, Jeff Hamiel of the Metropolitan Airports Commission, Lauren Stover of Miami International Airport, and Anthony Marino of Baton Rouge Metropolitan Airport urged consideration of their regions, helped develop contacts with neighboring airports and agencies, and allowed their gifted staffs to help with the workshop arrangements. Susan Feeney of MIA, Cathy Dalton and Catherine Obert at Massport Fire Rescue, and Nancy Schuster at MSP made the site visits and workshops possible. Mike Salamone's November 2008 Airport Cooperative Research Program (ACRP) workshop allowed fuller development of the research concept in conversations with industry leaders. Robert Metzler of TSA, Todd Wilson of CDC, and

Marc Tonnacliff of FAA advised on aspects of the study design and execution that fell within their agencies' purview.

The author particularly appreciates the company and assistance of his daughter Carolina Whitfield-Smith in Minnesota, who drove, took notes, and kept the study on schedule.

APPENDIX 1

SOUTH FLORIDA WORKSHOP AGENDA Miami, December 15, 2008

Context: Maintaining continuity of operations (COOP) and continuity of business (COB) during non-aviation disasters and catastrophes that are larger in scale than one airport and its mutual aid partners and smaller in scale than SEADOG or national.

Hypothesis: Cooperation and coordination between airports and EMAs is a powerful and cost-effective form of mitigation against hazards of all types (multihazards).

Agenda:

Introduction and purposes of study

Discussion of the following topics and any related topics that arise:

1. Is there a problem or real issue?
2. Status of airport-to-airport agreements in South Florida
 - a. Formal
 - b. Informal
 - c. Good neighbors
3. Status of multi-airport to emergency management agency (EMA) or groups of EMAs, or to multi-agency coordination entities (MACs)
4. Extent of NIMS/ICS application
5. Role of governments
 - a. Local
 - b. Multi-local (regional council of governments, generically speaking)
 - c. State
 - d. Federal
6. Unmet needs
7. Opportunities
8. Possible mechanisms for cooperation and coordination
9. Barriers to implementation
 - a. Competition vs. cooperation
 - b. Funding
 - c. Technology

Conclusions/wrap-up

APPENDIX 2

SOUTH FLORIDA WORKSHOP PARTICIPANTS Miami, December 12, 2008

Jerry Allen - Palm Beach International Airport (PBI)+
 Luis Bazo - Miami-Dade Police Department
 Robert Burr - Tampa International Airport (TPA)*
 Sherry Capers - Miami-Dade County Emergency Management
 Cyrus Callum - Greater Orlando Aviation Authority (MCO)*
 Jim Castleberry - FAA Southern Region+
 Robert Cotnoir - City of Tampa Fire Rescue*
 Tom Draper - Greater Orlando Aviation Authority (MCO)*
 Tony Drew - CDC
 Roy Dunn - Florida Department of Emergency Management+
 Rudy Espinosa - Miami-Dade Police Department
 Susan Feeney - Miami-Dade Aviation Department (MIA)
 Ricardo Fernandez - Miami-Dade Aviation Department – Security (MIA)
 Ryan Frost - Naples Municipal Airport#
 Dan Hahn - Santa Rosa County Emergency Management
 Norman Hegedus - Miami-Dade Aviation Department (MIA)
 Dirk Herberz - TSA#
 Peter Horton - Key West International Airport (EYW)+
 Mike Jackson - American Public University System#
 Duane Kann - Greater Orlando Aviation Authority (MCO)*
 Lisa Leblanc-Hutchings - Lee County Port Authority (RSW)
 Scott Loper - Tampa International Airport (TPA)*
 Felix Magliore - Miami-Dade Aviation Department – Airside Operations (MIA)
 Parker McClellan - Greater Orlando Aviation Authority (MCO)*
 Dennis Phillips - Tampa International Airport (TPA)*
 John Pokryfke - Broward County Aviation Department (FLL)
 Richard Pryor - TSA#
 Frank Reddish - Miami-Dade Office of Emergency Management
 Chris Reynolds - American Public University System#
 Jim Roberts - Florida Department of Emergency Management
 Brett Slocum - Florida Department of Health - Region 6
 Jim Smith - American Public University System (facilitator)
 J Stakenburg - Lee County Emergency Management
 Lauren Stover - Miami-Dade Aviation Department (MIA)
 Levi Thomas - Miami-Dade Fire Rescue – Aviation
 Danitza Tomianovic - CDC
 Yu Zhang - University of South Florida

*Did not attend workshop but addressed agenda in airport site visits and through subsequent emails and draft report reviews

+Discussed issues in separate discussions to workshop

#Email contacts prior to workshop

APPENDIX 3

NEW ENGLAND WORKSHOP AGENDA

Context: Maintaining continuity of operations (COOP) and continuity of business (COB) during non-aviation disasters and catastrophes that are larger in scale than one airport and its mutual aid partners and smaller in scale than national.

Hypothesis: Cooperation and coordination between airports and EMAs is a powerful and cost-effective form of mitigation against hazards of all types (multihazards).

Agenda:

Introduction including short introduction to SEADOG/WESTDOG – Jim Smith

Discussion of the following topics and any related topics that arise:

1. Is there a real issue?
2. Status of airport-to-airport agreements in New England
 - a. Formal
 - b. Informal
 - c. Good neighbors
3. Status of multi-airport to emergency management agency (EMA) or groups of EMAs, or to multi-agency coordination entities (MACs)
4. Extent of NIMS/ICS application
5. Role of governments
 - a. Local
 - b. Multi-local (regional council of governments, generically speaking)
 - c. State
 - d. Federal
6. Unmet needs
7. Opportunities
8. Possible mechanisms for cooperation and coordination
9. Barriers to implementation
 - a. Competition vs. cooperation
 - b. Funding
 - c. Technology

Conclusions/wrap-up

APPENDIX 4

NEW ENGLAND WORKSHOP PARTICIPANTS Boston, May 12, 2009

Anita Barry - Boston Public Health Department+
Jody Bue- Emergency Liaison, JetBlue
Paul Callinan - Massport
James Carrier - Assistant Fire Chief, Manchester-Boston Regional Airport (MHT)
Jim Celeste - General Manager, JetBlue (BOS)
John G. Chamberlain - U.S. Air Marshals
SGT Francis Charette - National Guard of Massachusetts Civil Support Team; APUS student
Laurence E. Conway - ENAC (behavioral profiler from France, guest of TSA)
Cathy Dalton - Administrative Assistant, Massport Fire Rescue
Tim Darling - FBI
Andrew B. Davis - Worcester (ORH) Airport Director, Massport
Richard deNeufville - MIT+
Robert Donahue - Massport Fire Rescue Chief
John Duffy - ARFF Chief, Bradley International Airport (BDL)
Sean C. Flynn - Airport Manager, Martha's Vineyard Airport (MVY)
John J. Goglia -retired member, National Transportation Safety Board (NTSB), consultant to BOS
John Hardiman - Boston Mayor's Office of Emergency Preparedness (MOEP)
Jack Hemphill - Business General Manager, Aviation Business Unit, Massport,
Gary J. Hufnagle - FAA
Laurie Jane Hyman - FAA Chief Inspector, NE Region
David S. Ishihara - Director of Aviation Operations, Boston Logan International Airport (BOS),
Massport
Robert Jaffin - Associate Professor, American Public University System
Andrew Klevos - Public Health Officer, CDC/Quarantine
Emanuel Lagerberg - Fire Chief, Manchester-Boston Regional Airport Fire Department
James Lawler - TSA
Michael A. Legere - Airport Operations Superintendent, Manchester-Boston Regional Airport
(MHT)
Scott Libby - Massachusetts Air National Guard+
LT Bruce Lint - Massachusetts State Police - Logan
Robert Lynch - Massport
Fred C. McCosby - Security Programs Manager, Savannah/Hilton Head International Airport
(SAV) (co-presenter)
Enrico Miranda - British Airways (BOS)
George Naccara - Federal Security Director, TSA (BOS)+
SMSgt Anthony Novellino - Fire Chief, Massachusetts Air National Guard Quonset Point (QUO)
Fire Department*
Catherine Obert - Program Manager, Massport Fire Rescue
Mary Ellen O'Shea - CBP
John Palamaro - Operations Manager, JetBlue (BOS)
Kevin Partridge - Massachusetts Department of Fire Services

Barbara Patzner - Hanscom Field (BED) Airport Director, Massport
Allen Phillips - Massachusetts Emergency Management Agency (MEMA), State EMAC Coordinator
Andrew Pomeroy - Airport Operations Supervisor, Pease Airport Management (PSM)
Joe Reiter - Massport
Sherry Ricupero - Airports Manager, JetBlue (BOS)
Mike Shutts - Portland Fire Department+
Jim Smith - Professor, American Public University System (moderator)
Robert Snyder - Assistant Federal Security Director, TSA (BOS)
Walter Stecchi - Massachusetts Military Reservation/Otis AFB+
Rollin Tebbetts - Airport Operations Manager, Bradley International Airport (BDL)
Jack Thomas - Fire Chief, T. F. Green Airport (PVD)
James Tobin - TSA
Kevin Tully - Massachusetts Emergency Management Agency (MEMA)
Glen Valeri - FBI
CAPT Jim Watkins - Officer-in-Charge, CDC/Quarantine (BOS)
Adam Wehrenberg - Massachusetts Convention and Visitors Bureau
LTC Margaret White - Commanding Officer, National Guard of Massachusetts Civil Support Team

*Did not attend workshop but addressed agenda in airport site visits and through subsequent emails and draft report reviews

+Discussed issues in separate discussions to workshop

APPENDIX 5

MINNESOTA WORKSHOP AGENDA Minneapolis-St. Paul, June 12, 2009

Context: Maintaining continuity of operations (COOP) and continuity of business (COB) during non-aviation disasters and catastrophes that are larger in scale than one airport and its mutual aid partners and smaller in scale than national.

Hypothesis: Cooperation and coordination between airports and EMAs is a powerful and cost-effective form of mitigation against hazards of all types (multihazards).

Introduction & purposes of study

Airport Disaster Operating Groups (SEADOG/WESTDOG presentation) - Steve Wareham

Discussion of the following topics and any related topics that arise:

1. Is there a real issue?
2. Status of airport-to-airport agreements in Minnesota
 - a. Formal
 - b. Informal
 - c. Good neighbors
3. Status of multi-airport to emergency management agency (EMA) or groups of EMAs, or to multi-agency coordination entities (MACs)
4. Extent of NIMS/ICS application
5. Role of governments
 - a. Local
 - b. Multi-local (regional council of governments, generically speaking)
 - c. State
 - d. Federal
6. Unmet needs
7. Opportunities
8. Possible mechanisms for cooperation and coordination
 - a. Intrastate
 - b. Interstate
9. Barriers to implementation
 - a. Competition vs. cooperation
 - b. Funding
 - c. Technology
10. Airport Disaster Operations Group for Midwest?

Conclusions/wrap-up

APPENDIX 6

MINNESOTA WORKSHOP PARTICIPANTS Minneapolis-St. Paul, June 12, 2009

Tim Anderson - Deputy Executive Director - Operations, MAC
Mary Ann Blake - FAA
Kevin Bottemiller - Sun Country Airlines
Matt Christenson - MAC Police
Kurt Claussen - Assistant Airport Manager, Rochester International Airport
Kathy Como-Sabetti - Minnesota Department of Health
Diane DiCarlo - TSA
MAJ John Dotterer - Minnesota Air National Guard
Neil Doughty - Minnesota Department of Human Services
Thor Einarson - International Falls Airport*
Gary Fried - Minnesota Department of Transportation - Emergency Management
Mary Jo Fritz - Hennepin County Human Services & Public Health Department
Shaun Germolus - Executive Director, Chisholm-Hibbing Airport Authority
Allen Glass - Minnesota Air National Guard
Cheryl Gonzalez - American Airlines
Brian Grefe - Director of Operations, Duluth International Airport*
Mike Gregory - Southwest Airlines
Jeff Hamiel - General Manager, MAC+
Joe Harris - Reliever Airport Manager, MAC
Kim Ketterhagen - State Mutual-Aid and Logistics Coordinator, Minnesota Department of Homeland Security and Emergency Management; Chair-elect, Emergency Management Assistance Compact (EMAC) National Executive Task Force
Brenda Kremer - MAC Fire
Diane I. Langer - FAA
Steve Leque - Airport Manager, Rochester International Airport*
Franci Livingston - Minnesota Department of Health
Dr. Karen Marienau - CDC
Warren McVey - FAA
John Puckropp - Executive Director, Minnesota Council of Airports*
Ian Redhead - Kansas City International Airport
Michelle Russell - CDC
Brian Ryks - Duluth International Airport
Nancy Schuster - Manager of Emergency Programs, MSP
Lt Col Seiben - Minnesota Air National Guard
Steve Sievek - Brainerd Lakes Regional Airport+
Marguerite Slonine - Minnesota Department of Health
Jim Smith - American Public University System (Moderator)
Mark Starkey - TSA
Richard Swanson - Security Consultant, Duluth International Airport*
Bernie Tanski - Special Projects Coordinator, Duluth International Airport*
Brian Thompson - Airport Operations Manager, Rochester International Airport

Bill Towle - St. Cloud Regional Airport
Harold Van Leeuwen - Executive Director, Bemidji Regional Airport*
Steve Wareham - Director of MSP Operations, MAC
Melissa Warhol - Sun Country Airlines
David Whaley - Minnesota National Guard
Carolina Whitfield-Smith - Smith-Woolwine Associates (Recorder)
Doug Witt - Northwest/Delta Airlines

*Did not attend workshop but addressed agenda in airport site visits and through subsequent emails and draft report reviews

+Discussed issues in separate discussions from workshop