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Are We Secure? Surveying FAA FAR 139
Class IV General Aviation Airports

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Abstract

After the infamous attacks of September 11 in 2001, air transportation security has been made the top priority of policymaking agenda by government agencies, particularly the Department of Homeland Security (DHS). While security measures of commercial airports have been improved dramatically, FAA FAR 139 Class IV non-commercial airports remain somewhat ignored, as there is a minimal security requirement. In fact, the security of non-commercial or general aviation airports is equally critical because large transport category aircraft (TCA), such as Boeing 737- 800, intermittently operate out of some of these airports. For instance, many NCAA member universities charter large TCA at GA airports carrying athletics, staff, luggage and equipment to and from various destinations. While terrorist attacks on a large TCA at a Class IV non-commercial airport has never happened, the lack of adequate security measures could invite potential terrorists to take advantage of an airport's insufficient security measure. This project uses Delphi methodology in conjunction with a series of surveys and observations on GA airports that do not serve commercial air carriers but, from time to time, accommodate large TCA for NCAA member universities. This research yields a list of possible airport vulnerabilities when large aircraft are present, followed by security recommendations to mitigate the potential risk.

Introduction

Aviation security has changed significantly since 9/11. Before 9/11, security checkpoints and equipment were in place to primarily look for bombs, not hijackers. Passenger screening allowed small sharp articles like cardboard cutters or nail clippers to be carried onboard aircraft. Inspections fell upon the airport and airlines to hire and staff security personnel for screening luggage and passengers. These duties were often contracted out to private security firms. The FAA's main role was to provide information concerning threats, establish policies, conduct audits of the airports and airlines, develop new technologies, supervise new equipment installation at airports, etc. On aircraft, only a small thin door secured the cockpit. Federal air marshals were rarely onboard and thus could not effectively intervene in the event of a severe disturbance once airborne. The FAA approved Common Strategy tactic dealt with disruptive behavior, physically abusive behavior, life-threatening behavior, and attempted or actual breach of flight deck, and was used by the airlines as a means of assessing threats while crews were trained to comply with the demands of the hijackers (Harrison 2008).

Literature Review

On the fateful day of September 11th, 2001, four aircraft were hijacked successfully by men with small box cutters. These terrorists were able to make their way into the cockpit by sheer force and the flight crew's offered minimal resistance based on the FAA's Common Strategy guidance. Three of those planes were used as large missiles to crash into the World Trade Center and Pentagon. The National Commission on Terrorist Attacks upon the United States (i.e. the 9/11 Commission) was tasked with determining what exactly occurred on that fateful day and to provide recommendations to prevent another tragedy from occurring again. As suggested by the

report, the TSA must implement a multi-layered security system that takes into consideration the full array of possible terrorist tactics. The 9/11 Commission noted that these, “various layers of security must each be effective in their own right and must be coordinated with other layers in a manner that creates redundancies to catch possible security lapses” (Elias 2004, p. 3). As a result, new security rules and programs were introduced to the industry.

Commercial Airport Security

The security laws and associated mechanisms for commercial or major airports are practical and have been dramatically improved since 9/11. In the U.S., commercial airports operate routine revenue flights for passengers, cargo or both and are regulated by Title 49 Code of Federal Regulations (CFR) Chapter XII, part 1540– 1562. The FAA FAR Part 139, Class IV non-commercial airports are exempt due to only serving unscheduled passenger operations of large air carrier aircraft (GAO 2009). There are also other recommended security programs in addition to the aforementioned security rules for airports and air carriers to conduct passenger and cargo security checks. For instance, Aviation Direct Access Screening Program (ADASP) requires all employees to possess an identification badge for access to secured/sterile areas and properties, Air Operations Areas (AOAs), aircraft, or cargo. The Visual Intermodal Prevention and Response (VIPR) based on the 9/11 Commission Act of 2007 expands security power outside airport terminals, mainly for the detection of explosives, weapons or possible terrorist activities (DHS OIG 2007; Price and Forrest 2009).

Pursuant to security rules, Title 49 CFR 1542 Airport Security, CFR 1544 Security for Air Carriers and Scheduled Operators and CFR 1546 Security for Foreign Air Carriers are the primary sections for air commerce safety. Title 49 CFR 1542, 1544, and 1546 regulate

commercial airports, scheduled and charter air carriers using aircraft weighted of more MTOW 12,500 lbs. must possess security measures and screenings on passengers, luggage, and cargo. Each airport that regularly provides service for scheduled commercial aircraft operators must enact CFR 1542 airport security program in conjunction with CFR 1544 for US-based air carriers/commercial operators and CFR 1546 for foreign air carriers. Airports and individual who receive a Security Directive or Information Circular must also comply with the security rules of CFR 1542 including: 1) qualified airport security coordinator(s) (ASCs), 2) allowing TSA's security inspection, and 3) all general security measures upon cargo and passengers. For aircraft with a maximum takeoff weight (MTOW) greater than 100,000 lbs., the security measures for air carriers include: metal detection devices, x-Ray system, security coordinators, law enforcement personnel accessible weapons, criminal history background checks, training for security coordinators, training for individuals with security duties, bomb or air piracy threats security directives and the compliance of subpart E of Title 49 CFR Part 149 Screener Qualifications.

In addition, in Title 49 CFR 1550 Aircraft Security under General Operating and Flight Rules, part 1550.3 allows TSA security inspection in compliance with 49 CFR 1520 (for Air Carriers and Commercial Operators) and 49 U.S.C. Subtitle VII (rules of Air Commerce and Safety). Title 49 CFR 1550.5 regulates the activities around the Airport Sterile Area. This requires an aircraft search and passenger, crewmember, other individuals and their accessible property (carry-on items) to be screened before boarding in accordance with security procedures approved by TSA. CFR 1550.5 affects non-commercial carriers or aircraft operators that are more likely to be corporate operators or private aircraft owners (GPO 2008, p. 377). According to CFR 1550.5(b) operations not falling into the rules of CFR 1544 and 1546 must follow CFR 1550 if passengers, crewmembers, or other individuals are enplaned from or deplaned into a

sterile area. Air carriers are required to complete this security requirement. Specifically, they must conduct a search of the aircraft, screen passengers, crewmembers, and other individuals and their accessible property (carry-on items) before boarding in accordance with security procedures approved by TSA. CFR 1550 also extends to aircraft of 12,500 lbs. or more and states: “(a) ... each aircraft operation conducted in an aircraft with a maximum certificated takeoff weight of 12,500 lbs. or more except for those operations specified in CFR 1550.5 and those operations conducted under a security program under part 1544 or 1546 of this chapter” should “conduct a search of the aircraft before departure and screen passengers, crewmembers, and other persons and their accessible property (carry-on items) before boarding in accordance with security procedures approved by TSA” (GPO 2008, p.377). Therefore, if an aircraft with a MTOW of greater than 12,500 lbs. is operated at a Sterile Area of an airport, it is the air carrier, not the airport, who should also comply with the security rules of 1544 and 1546 for commercial operators. Most interestingly, FAA FAR 139 Class IV non-commercial airports do not necessarily need to define Sterile Areas or AOAs and therefore there is no need for GA airports to comply with the aforementioned laws.

Current GA Mandatory Security Programs

While there are safety considerations at GA airports to minimize the risk of inadvertent access to the runway and AOA in order to separate the public from aircraft there is no security rules for FAR 139 Class IV airports. Although there is no security requirement for GA airports, there are several mandatory security programs for airport users such as charter carriers, or corporate aviation operators as regulated in CFR 1544.101(d) Twelve-Five Standard Security Program, part 1544.101(f) Private Charter Program (GPO 2008, p. 333), DCA Access Standard Security Program, and the Maryland-Three Program.

Private Charter Security Safety Program (PCSSP)

The PCSSP is applicable to private charters for passenger service using aircraft with MTOW of 45,500 kg (100,309.3 lbs.), or with a passenger-seating configuration of 61 or more. The security requirements are similar to scheduled air carriers, which include metal detection devices, X-ray systems, security coordinators, law enforcement personnel, accessible weapons, criminal history record checks, training for security coordinators and crewmembers, training for individuals with security-related duties, bomb or air piracy threats, security directives, and all of subpart E of 49 CFR Part 1544. The PCSSP includes the mandatory security items under 1544.201, .207, .209, .211, .215, .217, .219, .225, .229, .230, .233, .235, 303, and 305. Yet, aircraft weighing more than 12,500 lbs. are required to follow Twelve-Five Security Standard Program (GPO 2008, p.333; NBAA 2005). These security requirements are done by air carriers not the airports.

Twelve-five Security Standard Program (TFSSP)

The TFSSP was initially published by the TSA in 2002 in the hope to regulate scheduled air carriers and charters operating aircraft of more than 12,500 lbs. MTOW per se. The TFSSP “is applicable to scheduled and charter (passenger and cargo) operations to, from, within, or outside the United States that use aircraft with a maximum certificated takeoff weight (MTOW) of more than 12,500 lbs.” (GPO 2008, p.332). Security measures under TFSSP include: flight crews’ criminal history check (CHRC), baggage screening, passenger identification, restricted access to flight deck etc. (GPO 2008, p.333). The TFSSP contains security items under 1544.217, .219, .223, .230, .235, .237, .301(a)(b), .303, .305 (p.333). In 2004, aircraft weighing

12,500 lbs. or less were excluded from TFSSP (DHS OIG 2009; NBAA 2005). Again, air carriers, not the airports, fulfill these security requirements.

DCA Access Standard Security Program (DASSP)

The DCA Access Standard Security Program (DCASSP) was announced by the TSA on July 19, 2005 to allow general aviation access to DC Ronald Reagan Airport via application and TSA's approval. There are three formats of GA operations that can apply to access DCA including: Aircraft with passenger seats more than 31 but less than 60 can apply under 49 CFR 1544.101(b), heavy operators under TSA's approval based on 49 CFR 1544.101(f), operators under 49 CFR 1544.101(d) with TSA's approval of TFSSP, and corporate aircraft owned and operated by the company (DHS OIG 2009; GPO 2005; NBAA 2009a, b).

Maryland-three Program

Because Washington D.C. Air Defense Identification Zone (ADIZ) and Flight Restricted Zone (FRZ) are mandatory for all aircraft, the Maryland-Three Program was established to allow pilots to fly to or from these general aviation airports within the ADIZ (TSA 2010). These airports include: College Park (CGS), Potomac Airfield (VKX) and Hyde Executive Field (W32). Not only do these airports conduct flight training, but also provide corporate aviation and charter services. In this case, PCSSP and DASSP are mandatory (DHS OIG 2009; TSA 2010).

Non-commercial Airport Security

There currently is no security rules associated with GA or FAA FAR 139 Class IV non-commercial airports (no scheduled commercial services for cargo or passengers). From the list of TSA's GA security priorities, smuggling (illegal drugs, goods, and immigrants), flight training

and aircraft theft are their three main concerns. The Aircraft Owners and Pilots Association (AOPA) and the TSA collaboratively designed and currently promote the Airport Watch program. This program not only provides security education to airport personnel and aircraft operators, but also equips warning signs and conducts student pilot background checks. The GA Aviation Vulnerability Identification Self-Assessment Tool (GA-VISAT) allows GA airports to discover internal security weaknesses. Yet GA-VISAT is a voluntary online evaluation tool and is not available as the time of this study. Depending on the category of operation, GA airport security relies completely on air carriers or charters. Even though FAA FAR 139 Class IV non-commercial airports do not have any mandatory security programs, they are encouraged to provide their own suitable security program such as TSA's Security Guidelines for GA Airports.

Security Guidelines for GA Airports

The Security Guidelines for GA Airports provides security information about personnel, aircraft, airport facilities, surveillance equipment, security plan items and designs, and special security events. The Aviation Security Advisory Committee (ASAC) believes aircraft operated around GA airports present low-level threats to the National Airspace System (NAS) due to the size, payload and characteristics of the aircraft. Therefore, the security plans imposed on large commercial airports are not appropriate for GA airport use. Their economic feasibility could not support such an intensive security requirement (TSA 2004). Although this guideline suggests basic security measures for GA airports, the Executive Summary states: "The document does not contain regulatory language nor is it intended to suggest that any recommendations or guidelines should be considered a mandatory requirement" (TSA 2004, p. iii). This statement simply shows a list of possible security options for the GA airports, however, there is no punishment for noncompliance.

Secure GA

This security program contains basic information and Security Assessment Items (SAIs) that helps GA operators and FBOs to identify potential security threats to their operation. For operators, the SAIs includes aircraft security, hangar security, visitors, and suspicious personnel activities. The GA Airport Watch and Security Hotline 1866-GA-SECURE are also introduced. For FBOs, the SAIs includes: hangar security measures (ramps, lights and cameras), transit pilots, suspicious activities and personnel, security coordinator, coordinator security training, and aircraft security (AOPA 2010).

Secure fixed base operators program (SFBOP)

The voluntary SFBOP program was initiated as an international collaboration between USA and Ireland for public-private fixed-base operators to check passenger and crew identification against manifests or eAPIS, providing another layer of security. The information for the flight includes the flight itinerary, names of flight crewmembers and aircraft operator, aircraft tail number and model (excluding the identification of the passengers onboard) (DHS OIG 2009).

Large aircraft security program (LASP)

The LASP was proposed under the TSA's Notice of Proposed Rulemaking (NPRM) outlined in the Federal Register Vol. 73, issue 211 on October 30, 2008 wanting to mandate airports, private charter or corporate aircraft weighing more than 12,500 lbs. to install TSA-approved security programs. The security program for aircraft, if MTOW is more than 12,500 lbs., security should include: 1) flight crew's CHRC, 2) Watch-List matching, and 3) biennial audit via third-party groups. For aircraft weighing more than 100,309 MTOW, additional

security checks should include passenger check. This program was under the NPRM announcement soliciting external comments. Airports conducting regular charter services in this area should provide security programs helping air carriers conduct a thorough security check using Aircraft Operator Standard Security Program (AOSSP) (TSA 2008).

While there is no security requirement for the FAA FAR 139 Class IV non- commercial airports, it does not say that there is no vulnerability associated with GA airport operations that could lead to mishaps, fatalities, or accidents. In 2007, Jeremy Rogalski published a report concerning Houston area GA airport security. In his report, he outlined numerous GA security gaps. Mr. Rogalski was able to freely access the airport ramp through a secured gate via the intercom. He then walked up and touched a Comair regional jet located on an unsecured ramp. The airport was also found to have no fence in a section of the perimeter (Rogalski 2009). These regional jets may not be used to crash into large buildings due to their diminutive size, but could be used to crash into chemical plants and their respective storage tanks causing massive damage, casualties or injuries (Rogalski 2009).

Research Questions

Although there are no mandatory security programs for FAA FAR 139 Class IV non-commercial airports, large aircraft do use these airports for charter services, such as NCAA member universities who use GA airports nearby universities to transport athletics and equipment. While the H.R. 3093 General Aviation Security Enhancement Act 2009 has been introduced by Congress and the Notice of Proposed Rulemaking (NPRM) of Large Aircraft Security Program (LASP) is under discussion as of the date of this study, the purpose of this study aims to answer two important questions:

1. Without mandatory security enforcement, what is (are) the security measure(s) implemented by the FAA FAR 139 Class IV non-commercial airports when a large charter airliner is present?
2. While there is no mandatory security program or rule for FAA FAR 139 Class IV non-commercial airports, what could be the vulnerability affecting airport security when a large charter airliner is present?

Research Methodology

This study applies a two-stage process: Stage-1 onsite field study, observations and a personal interview and Stage-2 an online survey to selected airports for inputs and verification. To discover the possible security vulnerabilities of GA airports accommodating large aircraft, a field study and several onsite observations on a GA airport used by a NCAA University during passenger boarding/deplaning process was conducted. The finding from Stage-1 yielded a basis of questionnaire (See Appendix A) in conjunction with the findings extracted from Transportation Research Board (TRB) Airport Cooperation Research Program (ACRP) Synthesis Report 3 (TRB 2007) and related literature reviews. During the Stage-2 survey, the FAA FAR 139 Class IV non-commercial airports used by NCAA member universities chartering large airliners are selected as the research sample. To find all National Collegiate Athletic Association (NCAA) Division I teams throughout the United States, ESPN and NCAA websites were utilized to retrieve a list of twelve conferences totaling 120 teams. NCAA's website also provides the location of each member university. This information was then used in Google maps to determine the proximity of airports nearby the colleges. For an airport to be listed it must be within 25 miles of a college and have a minimum runway length of 5,000 feet. Skyvector website was then used to search for any additional airports around the area of the college by means of a

sectional aeronautical map. Next, FlightAware and airport websites were used to determine if the selected airports had routine commercial or only large charter operations. This was an extremely time-consuming task as FlightAware only had around 2 weeks worth of data available. To finalize the research sample providing no routine commercial service but occasionally accommodating large charter aircraft for NACC member universities, airport services were reviewed during the height of the college football season (September to November) as many NCAA Division I teams travelled via chartered aircraft. For instance, Pennsylvania State University uses University Park Airport, which also provides routine commercial operations. In this case, University Park Airport is not selected, as the security rules of 49 CFR 1544 must be complied. A total of seven airports were confirmed to have used charters for recent away NCAA football games in addition to fifteen airports classified as FAR 139 Class IV GA airports without scheduled airline services. Airport contact information was retrieved from the FAA including airport manager and owner address, telephone, and airport classification information. Delphi Technique for data creditability was used.

Findings

To answer the two proposed questions, this section provides two reports including results of Stage-1 field study and Stage-2 survey.

Stage-1 Findings

Q1. Without mandatory security enforcement, what is (are) the security measure(s) implemented by FAA FAR 139 Class IV non-commercial airports when a large charter airliner is present?

From the Stage-1 process, the authors audited and conducted onsite observations between August 2008 and November 2009 when large charter aircraft were present. As it stands, the

observed airport is a FAA Part 139, Class IV non-commercial airport that is not required to arrange a sterile area for the embarking/disembarking of its passenger or to define Air Operations Areas (AOAs) when large charter aircraft are present. Large aircraft like Boeing 737- 800, Boeing 757, and Airbus 320 aircraft were observed readily accessible from both the airport terminal and ramp upon arrival and subsequent departure later in the evening from the observed airport. A private security firm was hired by charter carriers to provide physical screening of passengers and associated carry- on items by hand-held metal detectors. There was no observance of large luggage check-in or over-size equipment being screened before being loaded onto the aircraft cargo bay. There was one police officer in attendance during the operation; however, no firearms were observed on the officer's person. It was later learned that one police officer travels on all flights with the football team for security reasons. It is understood that this officer did not need to have the prerequisite training to carry a loaded weapon inside the aircraft cabin per CFR 1544.219 Carriage of Accessible Weapons. Another important observation of the charter operation shows that athletic players and team managers taking luggage off the conveyor belt. This is in direct violation of CFR 1544.203," Each aircraft operator must use the procedures in its security program to control checked baggage that it accepts for transport on an aircraft, in a manner that: Prevents access by persons other than an aircraft operator employee or its agent (GPO 2008)." Also a chartered B737 was left unattended on the ramp overnight. Air stairs were located approximately 20 feet from the forward left aircraft door. As understood, the B737 does not have a lock to exterior doors, but does lock the Kevlar cockpit door to prevent unauthorized access. Catering trucks came through the entrance of the local FBO freely and loaded food and drinks to the aircraft without inspection. This unsupervised access to the aircraft may allow the opportunity for unspecified weapons or dangerous substances to be introduced to the aircraft.

Furthermore, sabotage to aircraft equipment or potential could have occurred. Without a systematic risk management or regulatory enforcement of security programs, each FAR 139 Class IV airport possesses its own security format to mitigate its particular security challenges. Although without a regulatory enforcement of security programs, each GA airport possesses its own security characteristics that may only apply to that particular entity. The authors also interviewed the airport manager to understand the security measures of the observed airport. Based on the feedback of the airport manager, the authors had summarized that:

1. The primary activity of the observed towered GA airport is student flight training and corporate aviation services;
2. NCAA athletic teams like basketball, football, baseball, volleyball, and marching band chartered Boeing 737-500 (MTOW $\geq$ 133,500 lbs.), Boeing 757 (MTOW $\geq$ 220,000 lbs.), Airbus 320 series (MTOW $\geq$ 130,000 lbs.), Dornier 328Jet (MTOW $>$ 34,500 lbs.) and Embraer 145 (MTOW $\geq$ 44,000 lbs.) to commute to their destinations for sports conferences from this airport;
3. Military aircraft such as F-18 and T-35 were invited to the airport on a variety of occasions and remained overnight;
4. A local FBO provides aircraft rental, fuel, catering services and ground supports during the operation of large charter flights;
5. There is no mandatory security measure enforcing FAA FAR 139 Class IV non-commercial airports;
6. Charter carriers were responsible for flight operation and security measures (TFSSP and PCSSP), while the university provided ground transportation to and from the sports complex;

7. Passengers were identified by air carriers with the manifest provided by their group leader and then checked by pilots; &
8. Private contractors hired by air carriers to conduct passenger screenings;
9. Airport Watch program and a direct monitoring by airport personnel, tower controllers and tenants were embraced to secure airport operations;
10. The airport is secured by fences around airport perimeters, control of main gate and doors, and personal observation based on Airport Watch program;
11. There is no emerging security vulnerability at the observed airport;
12. The chance of security breach at the observed airport is very remote; and
13. Additional security efforts and measures would incur extra cost associated with future operations.

Q2 While there is no mandatory security program or rule for FAA FAR 139 Class IV non-commercial airports, what could be the vulnerability affecting airport security when a large charter airliner is present?

1. There was no x-ray screening mechanism at the observed airport while loading luggage and equipment;
2. Airport gates or doors were not properly secured which allowed un-authorized personnel entering into airport apron when large aircraft were operating on the airside;

3. Access control system is dissimilar at each entrance to the airport property, which makes access control complicated;
4. Warning signs attached to airport gates or doors were not in clear view to the public;
5. Passenger manifests were found scattered around the terminal with names of all persons onboard and their respective seat assignments.
6. Often visiting charter aircraft were unattended and unguarded during periods of darkness;
7. No surveillance system present for the airport grounds or entrances;
8. Security measure was based on routine visual surveillances done by airport staff and air traffic controllers;
9. Control tower cannot monitor every corner of the airport due to buildings blocking line of sight;
10. Airport emergency numbers are not posted visibly around all facilities
11. There is no hazardous/suspicious person reporting system for an early security alert; and
12. There is no airport security committee.

Stage-2 findings

The Stage-2 survey result not only concurs with the findings extracted from Stage-1 study but also provides more insights for readers to understand the status of security measures and vulnerabilities among FAR 139 Class IV airports when accommodating large aircraft.

Q1. Without mandatory security enforcement, what is (are) the security measure(s) implemented by the FAA FAR 139 Class IV non-commercial airports when a large charter airliner is present?

Within the past 12 months, there were twelve surveyed airports that hosted large aircraft (MTOW > 100,309 lbs.) chartered by universities. The aircraft included; B727, B737, B757, B767, A319, A320, A330, DC-9, MD-83, and C130. While embarking and disembarking passengers and freight, only eight airports provide surveillance by law enforcement personnel, TSA officers, airport/FBO staffers, security contractors, or security cameras. The security process also covers luggage screening; however, only 50% of all screened luggage was kept in a sterile environment before being placed on the aircraft. Pilots and flight attendants, FBO workers, airport employees, or passengers themselves moved the luggage and freight. Most surveyed airports are fenced with gated access controls and do have an official security program. When security programs were developed, the resources were obtained from government (DoT, TSA, and FAA), trade organizations (AAAE, NBAA, AOPA, and NATA), local law enforcement and fire department. The airport security program is shared with or supported by airport tenants such as FBOs, local fire department, State DoT, ATC, TSA, etc. Most surveyed airports participate in AOPA's Airport Watch program; yet four surveyed airports do not. The AOPA Airport Watch program is also shared by all airport tenants, FBOs, pilots, law enforcement, emergency response groups or fire department, and ATC. Only eight of the fifteen airports with the security program indicated increased security response to DHS threat escalation. Only 35% of the security programs had been audited within a year. 20% of the programs had never been audited since their implementation. Most surveyed airports do have security coordinator, but seven surveyed respondents do not. While being the airport security coordinator, most also carry different duties such as emergency medical associate (EMA), an airport manager, airfield operations and

maintenance, a part of ARFF, or management and administration staff. There are only two security coordinators serving in the sole capacity. There are fifteen surveyed airports that do have a security committee, with six surveyed airports having none. The security committee members are selected from airports, FBO, local law enforcement, TSA and FAA. Only 28% of airports had a security committee that met regularly. 60% of all airports spent less than \$100,000 on security since September 11th, 2001. In the last 2 years that number increased to 85%. For an emerging security measure requirement for GA airports accommodating large charter aircraft, the respondents suggested: 1) high tensile electrical security gate, 2) security cameras, 3) Internet-based surveillance equipment, and 4) full-time security officers. Most airports indicated the need for CCTV systems at all access points and throughout the airfield.

Q2. While there is no mandatory security program or rule for FAA FAR 139 Class IV non-commercial airports, what could be the vulnerability affecting airport security when a large charter airliner is present?

1. Some surveyed airports have never completed a security program audit;
2. Four surveyed airports do not participate in any Airport Watch program;
3. Six surveyed airports do not have a security committee;
4. Some surveyed airports' security response do not increase along with DHS's threat escalation;
5. Three surveyed airports do not have perimeter fences;
6. While embarking and disembarking passengers, not all surveyed airports provide surveillance by law enforcement personnel, TSA officers, airport/FBO staffers, security contractors, or surveillance cameras;

7. Only five surveyed airports have done screening when loading luggage;
8. Occasionally, luggage and freight are moved by passengers themselves;
9. Nine surveyed airports also provide services and facilities to incumbent collegiate aviation programs. Most educational facilities receive no security audit; and
10. It is almost impossible for charter carriers to implement PCSSP and TWSSP at FAR 139 Class IV airports.

Security Comments

Based on the identified vulnerabilities, the following recommendations should be enacted with financial assistance from the government:

1. Immediately develop, revise, and audit security programs;
2. Inspect and renew perimeter fences to a regulatory standard;
3. Replace and enlarge warning signs around airport;
4. Form an airport security committee, empowered with sufficient authority and responsibility;
5. All access doors and gates to airside or restricted areas must be immediately controlled and monitored allowing only authorized personnel to enter;
6. Develop a low-cost metal detector, x-ray machine or screening procedures for luggage and cargo avoiding hazardous materials (HAZMAT) or prohibited items;

7. Provide airport security education (hijack history, threat theories, security programs: PCSSP, TFSSP, SFBOP, and LASP trainings) to local FBOs, catering providers, contractors, airport workers, passengers, related employees and incumbent collegiate aviation programs;
8. Incorporate municipal or campus police force for passenger protection, ID check, and ground safety when boarding/deplaning passengers, loading equipment or carry-on luggage using large jet charters;
9. Ensure security program implementation conducted by charter carriers;
10. Develop aircraft ground monitor or surveillance system that can identify unauthorized intrusion of an aircraft when unattended;
11. Publish a digital bulletin board broadcasting security information to airport users, workers, and visitors;
12. Based on Security Management System (SeMS) concept, an airport vulnerability reporting system should be developed as a proactive security tool;
13. Develop a real-time safety and security protocol based on the risk analysis result from airport SeMS program;
14. Allocate internal funding to initiate airport security guidelines, measures or programs; and consult FAA airport district office for possible funding based on Airport Improvement Program (AIP).

Conclusion

While concealed explosives could be possibly introduced into an aircraft (e.g. Megrahi's bombs on Pan Am Flight 103 on December 21, 1988 or Abdulmutallab's underwear explosives on Northwest Flight 253 on December 25, 2009) at a large commercial airport where security measures are intensive, it could be much easier for al-Qaeda to bypass security checkpoints at a FAR 139 Class IV airport as security measures are basically non-existing. From time to time, the operational nature of a FAR 139 Class IV airport is similar to that of FAR 139 Class I, II, and III airports which provide passenger service and cargo transportation by flying large charter aircraft such as Boeing 737, 757, 767 and Airbus 330. While potential threats could breach security measures at FAR 139 Class I, II, and III airports, Class IV airports should also be protected whenever short-term-high-capacity activities exist. Not only should the implementation of PCSSP and TFSSP be thoroughly and collaboratively conducted by air carriers, airports, and FBOs, the low-cost advanced security measures securing airports must be in place. Gate/entrance control and surveillance systems are urgently required to restrict and screen unauthorized personnel to access to AOA/restricted areas. Unattended aircraft at unmonitored GA apron (both day and night) simply presents an easy target for vandalism, theft, or sabotage. Airport security could not be achieved without the synergy from government, airport authority, airport tenants, airline operators, passengers and the public and needs to be integrated into the overall safety/security fabric of the airport professional oversight plan. When large charter aircraft fly in and out of FAR 139 Class IV airports periodically taking important passengers to and from their destinations, security measures must be efficiently and effectively elevated and funded by AIP or possible financial sources. In addition to the short-term-high-capacity activities at FAR 139 Class IV airports often associated with sporting events, the major commercial airports might also use these airports for safety or security divert airports, so the preplanning for special events

security enhancements would also facilitate such commercial operation divert planning. The utilization of GA airports could become more attractive and cost effective. Proactively planning for the increase in FAR 139 Class IV airport utilization, along with acknowledging the potential security challenges is a valid business practice as well as a liability and security responsibility. The potential of security breach leading to a passenger's injury/fatality, aircraft hijack or facility damage at a GA airport is remote, but certain peak high value operations significantly increase their vulnerability and highlight their likelihood. Where security vulnerability exists the industry must take action to proactively mitigate the threat.

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APPENDIX A
Survey Questionnaire

General Aviation Airport Security Practices

The following questions pertain specifically to general aviation airport security. Please answer all questions, if able, that are applicable to your airport.

Does the airport have a security program in place?

- ☐ Yes
- ☐ No
- ☐ Unsure

If “yes,” does the security response escalate with DHS threat escalation?

- ☐ Yes
- ☐ No
- ☐ Unsure

If “yes,” who is the plan shared with? (Please check all that apply)

- ☐ Fixed base operators (FBO)
- ☐ Local law enforcement
- ☐ Local fire department
- ☐ TSA
- ☐ Unsure
- ☐ Other (please explain): _____

Which of the following resources were used to help to develop your program? (Please check all that apply)

- ☐ None
- ☐ TSA
- ☐ DOT
- ☐ Aircraft Owners and Pilots Association (AOPA)
- ☐ National Business Aviation Association (NBAA)
- ☐ National Air Transportation Association (NATA)
- ☐ American Association of Airport Executives (AAAE)
- ☐ Hired consultant
- ☐ Other (please specify): _____

Is the airport perimeter fenced?

- ☐ Yes
- ☐ No
- ☐ Unsure

If “yes,” how is access within this perimeter granted? (Please check all that apply)

- ☐ Card readers
- ☐ Lock and key

- ☐ Staffed checkpoints
- ☐ Escorted access only
- ☐ No restrictions
- ☐ Other (please specify): _____

Does the airport have in place an AOPA Airport Watch type of program?

- ☐ Yes
- ☐ No
- ☐ Unsure of that program

If “yes,” who is the plan shared with?

Does your organization have an individual designated as the security coordinator?

- ☐ Yes
- ☐ No
- ☐ Unsure

If “yes”, are they assigned other duties?

- ☐ Yes
- ☐ No
- ☐ Unsure

If “yes”, what kind of duties?

-
- ☐ Unsure

Is there a security committee that meets regularly in place?

- ☐ Yes
- ☐ No
- ☐ Unsure

If “yes”, which of the list below are represented on the committee?

(Please check all that apply)

- ☐ Airport staff
 - ☐ FBO
 - ☐ Other tenants
 - ☐ Local police
 - ☐ TSA representatives
 - ☐ FAA officials
 - ☐ Other (please specify): _____
-

When was the airport security programs last audited?

- ☐ Less than 1 year
- ☐ 2-3 years
- ☐ Greater than three years
- ☐ Never
- ☐ Unsure

Please estimate the amount that the airport has spent, in total, on security since September 11, 2009?

- ☐ Less than \$100,000
- ☐ \$100,000 to \$500,000
- ☐ \$500,000 to \$1 million
- ☐ More than \$1 million

Please estimate the amount that the airport has spent, in total, on security the last two years?

- ☐ Less than \$100,000

- ☐ \$100,000 to \$500,000
- ☐ \$500,000 to \$1 million
- ☐ More than \$1 million

Please describe in the space below any unique security ideas, programs, or equipment that have been implemented/purchased by the organization that have made a positive impact on security at your airport.

Irregular Operations with Large Transport Category Aircraft (Maximum Takeoff Weight (MTOW) > 100,300 lbs.)

How many university chartered aircraft of MTOW > 100,300 lbs. (B737, B757, A320, etc.) have used the airport's facilities in the past 12 months? (Generally this is an aircraft with more than 61 passenger seats)

- ☐ 1-2
- ☐ 3-5
- ☐ More than 5
- ☐ Unsure

If any aircraft larger of MTOW > 100,300 lbs. have been used what type were they?

Did any of these aircraft remain at the airport overnight?

- ☐ Yes
- ☐ No
- ☐ Unsure

If "yes", what type of surveillance was used, if any? (Please check all the apply)

- ☐ Local law enforcement
- ☐ TSA
- ☐ Airport Staff
- ☐ External security agency
- ☐ Students
- ☐ Security Cameras
- ☐ Unsure
- ☐ None

Are there security personnel or surveillance equipment observing the deplaning/boarding of passengers?

- ☐ Yes
- ☐ No
- ☐ Unsure

If "yes", what type of surveillance was used, if any? (Please check all the apply)

- ☐ Local law enforcement
- ☐ TSA
- ☐ Airport Staff
- ☐ External security agency
- ☐ Students
- ☐ Security Cameras
- ☐ Unsure
- ☐ None

Is luggage screened prior to being place onboard the aircraft?

- ☐ Yes
- ☐ No
- ☐ Unsure

If “yes”, is the luggage kept in a sterile environment before being loaded on the aircraft?

- ☐ Yes
- ☐ No
- ☐ Unsure

Who is responsible for moving bags and/or cargo in/out of the aircraft?

- ☐ Pilots\Flight attendants
- ☐ FBO employees
- ☐ Airport Employees
- ☐ Passengers
- ☐ Unsure

Who is responsible for catering operations in/out of the aircraft?

- ☐ Pilots\Flight attendants
- ☐ FBO employees
- ☐ Airport Employees
- ☐ Unsure

University Practices

The questions listed below are intended specifically for those colleges or universities that have aviation management or flight programs. If you do not have any of the programs please continue to respondent information.

Since September 11, 2009 has the university made changes in the curriculum to incorporate changes to security regulations and operations?

- ☐ Yes
- ☐ No
- ☐ Unsure

If “yes”, does the program receive an audit?

- ☐ Yes
- ☐ No

If “yes”, how recently?

- ☐ Less than 1 year
- ☐ 2-3 years
- ☐ More than three years
- ☐ Unsure

Has the university developed classes tailored specifically to airport security?

- ☐ Yes
- ☐ No
- ☐ Unsure

Does the university have as part of its curriculum classes that are tailored specifically to the needs of general aviation airports?

- ☐ Yes
- ☐ No
- ☐ Unsure

Has the university worked with surrounding general aviation airports to develop security programs and awareness?

- ☐ Yes
- ☐ No
- ☐ Unsure

Does the university work with airports on internship programs promoting safety and security education?

- ☐ Yes
- ☐ No

☐ Unsure

Respondent Information

Name: _____

Title: _____

Airport: _____

Respondent telephone number: _____

Respondent e-mail address: _____

APPENDIX B

Consulted Airports

Airport	State	Airport	State
KAEG	NM	KLAF	IN
KAFW	TX	KLBX	TX
KAHN	GA	KLGU	UT
KAMW	IA	KLRU	NM
KARA	LA	KLWC	KS
KASG	AR	KMDH	IL
KAUO	AL	KMGW	WV
KAVQ	AZ	KMIE	IN
KAWM	AR	KMKC	MO
KBCT	FL	KMOP	MI
KBFM	AL	KMQY	TN
KBKL	OH	KNFW	TX
KBMG	IN	KNQA	TN
KBQR	NY	KOSU	OH
KBTL	MI	KOUN	OK
KBWG	KY	KOWD	MA
KCOE	ID	KPUW	WA
KCPS	IL	KPVU	UT
KCVO	OR	KRBD	TX
KDTO	TX	KRSN	LA
KFOE	KS	KSLE	OR
KFTY	GA	KSTJ	MO
KFYV	AR	KSWO	OK
KFTW	TX	KTCL	AL
KGON	CT	KTOI	AL
KHUF	IN	KUGN	IL
KIAG	NY	KUNV	PA
KIOW	IA	KUOX	MS
KJBR	AR	KVDF	FL
KJNX	NC	KVPZ	IN
		KYIP	MI