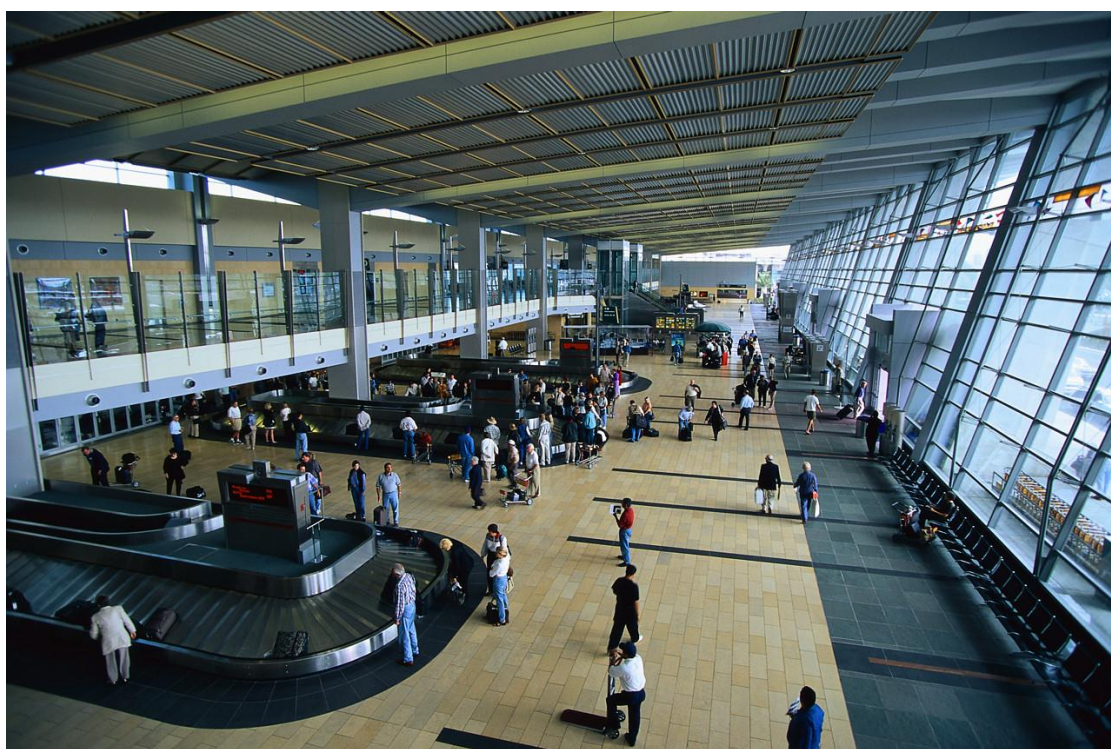# TSA'S SECURITY PLAYBOOK

RESULTS OF A NATIONAL SURVEY OF PLAYBOOK AND SECURITY IMPLEMENTATION AT CATEGORY X, I, AND II AIRPORTS

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TSA'S SECURITY PLAYBOOK

**PHASE 2 TECHNICAL REPORT:
RESULTS OF A NATIONAL SURVEY OF PLAYBOOK AND SECURITY
IMPLEMENTATION AT CATEGORY X, I, AND II AIRPORTS**

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RESULTS OF A NATIONAL SURVEY OF PLAYBOOK AND SECURITY IMPLEMENTATION AT CATEGORY X, I, AND II AIRPORTS

The Project

One of the recent developments in airport security has been the call for a more coordinated security apparatus. In December 2008, the Transportation Security Administration (TSA) revised and re-implemented its Security Playbook to supplement and coordinate security at airports. The Department of Homeland Security, at the request of the TSA, tasked George Mason University's Center for Evidence-Based Crime Policy (CEBCP) with carrying out the first comprehensive, independent assessment of the Playbook. This analysis, to occur over two years, includes four phases:

(1) **Phase I: Analysis of existing program documentation.** Determine the evidence-base of the Playbook using existing criminological research.
(2) **Phase II: Assessment of the operational perspective.** Survey all Category X, I and II airports to examine how Playbook is implemented.
(3) **Phase III: Direct observation of program implementation.** Conduct site visits of a selection of airports to gain further information about implementation of the Playbook.
(4) **Phase IV: Recommendations for future research.** Use information gained in Phases I, II, and III to design a large systematic experimental evaluation of the Playbook.

Contained herein is the Final Report for **Phase II** of this project. We report on the findings of the national survey (n=136 Category X, I and II airports), and also include supplemental analysis of Playbook implementation using data on personnel hours dedicated to Playbook activity provided by the Playbook program office.

The Phase II Research Study

In Phase I of this study, the research team reported on an evidence-based examination of all ▬ plays in TSA's Playbook. We compared the prevention and deterrence dimensions of the plays against research evidence about the effectiveness of similar types of interventions in crime prevention and criminal justice, and categorized plays into a Matrix based on commonly shared mechanisms and locations of prevention. This exercise indicated that there were parallels between the underlying mechanisms of Playbook and other crime prevention interventions, and that some of the common mechanisms were supported by existing evidence. However, examining the plays "on paper" does not offer any insight into the complex interaction between environment, personnel constraints, supervision, resource allocation, and other conditions that drive the reality of implementation of security measures in practice. Phase II, through a national survey and assessment of personnel hours, documents this reality and the variability in the use of Playbook strategies across the nation's airports.

We sent a first-of-its-kind survey to senior TSA personnel at all Category X, I, and II airports in the United States and its overseas territories (N=167). The survey contained a combination of

factual and perceptual questions to be completed by key TSA employees. The goal of these questions was to examine how Playbook is implemented in practice; how well airports understand the purpose and intent of Playbook; the nature and extent of TSA's collaboration with other agencies; and how those involved with or affected by Playbook activities may perceive the program. Requests for completion of the surveys by either Federal Security Directors or their designated representatives were sent out in four waves in both paper and online formats. We received a strong response, with over 81 percent (N=136) of these airports completing a survey during the four months of the research.

TSA also provided the research team with extensive data on logged personnel hours received from all airports as part of their Playbook performance management reporting. Using the airport security Matrix we developed in Phase I, we analyzed these data to determine how Playbook resource allocation mapped onto different prevention and deterrence strategies in the various areas of the airport, and to indicate where resources are concentrated. This analysis illustrates which elements of Playbook are most emphasized in practice, and how this varies across types of airport.

Key Findings

(1) **The Playbook primarily arises from and is implemented by TSA; collaboration with other airport entities is limited.**
(2) **When collaboration between TSA and other airport entities does occur, respondents felt exchanges were generally positive.**
(3) **Play implementation is less random than intended.**
(4) **Playbook implementation tends to be concentrated at ███████████████.**
(5) **Despite the intention of Playbook to focus more attention on the '███████████,' ████████████████████████████████**
(6) **The majority of airports believe Playbook has improved overall security.**

Next Steps

Phase III of the research will build upon the findings of the survey through in-depth qualitative data collection at a number of selected airports that participated in the survey. We will interview senior TSA management, Transportation Security Officers, Behavior Detection Officers, and supervisors, as well as law enforcement and airport authority personnel who collaborate with TSA in Playbook activities. This phase will build on the numbers presented here to further our understanding of the variability in Playbook implementation at a range of different airports operating under different conditions.

GEORGE MASON UNIVERSITY

Center for Evidence-Based Crime Policy

TSA'S SECURITY PLAYBOOK

PHASE 2 TECHNICAL REPORT:
RESULTS OF A NATIONAL SURVEY OF PLAYBOOK AND SECURITY
IMPLEMENTATION AT CATEGORY X, I, AND II AIRPORTS

1   INTRODUCTION

Security at U.S. airports has become a major priority in United States homeland security since the events of September 11, 2001. Not only was the Transportation Security Administration (TSA) established in response to the attacks of 9/11, but in the last ten years security at airports has seen dramatic changes. These changes are reflected in the way individuals are screened, the new and increased use of multiple detection and scanning technologies, the increased use and sharing of information, and greater coordination between various law enforcement, security, and civilian agencies. Like many large and semi-enclosed hubs and spaces (e.g., train and bus depots, amusement parks, schools, malls, and parks), airports present interesting challenges to implementing security measures. Consequentially, their size, complexity, use, and multiple functions present a range of opportunities for criminal and terrorist activities, as well as crime prevention, deterrence, and detection efforts.

One effort by TSA to address these growing security concerns was to systematize, organize and deploy various security measures around the airport to strengthen its "Layers of Security" approach.[1] Thus, in December 2008, TSA revised and re-implemented its **Security Playbook.** Generally, Playbook seeks to enhance existing security structures by providing a holistic security apparatus for air transportation. It consists of a myriad of situational tactics and strategies which span various domains, sectors, and environs of the airport and are designed to prevent, detect, deter, and protect against crime committed by airport visitors and employees. The purpose of Playbook, as described by TSA, is "to create a transportation security system that increases unpredictability, thereby frustrating terrorist plans and potentially deterring attacks" (U.S. Transportation Security Administration, 2010).

Prior to our study, there has been no independent assessment of either the implementation or effectiveness of the Playbook program, or of airport security as a whole. Yet, given the priority, money, and time spent on airport security, and given its impact on the general public at large,

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[1] See http://www.tsa.gov/what_we_do/layers/index.shtm.

such assessment is necessary Both the U.S. Government Accountability Office (see e.g., U.S. Government Accountability Office, 2007, 2009, 2010) and the Transportation Research Board of the National Academies (2003) have formally called for more evaluation, assessment, and research cooperation in airport security. The demand for more information recognizes that research and analysis by third parties can greatly benefit government agencies. Rigorous evaluation can play a crucial role in providing objective assessments of the nature and effectiveness of airport security, which encompasses prevention, control, and deterrence of many types of crime, from the most "ordinary" to the most severe. Agencies that regularly engage in independent assessments have successfully used research findings to focus their program management and policy-making efforts. Additionally, in times of economic austerity evaluation research plays an important role in identifying best practices for smart investment.

To address this call for assessment, the Department of Homeland Security (DHS) Science & Technology Directorate, at the request of the TSA, tasked the Center for Evidence-Based Crime Policy (CEBCP) at George Mason University (GMU) with carrying out a comprehensive four-phase assessment of Playbook. Phase I of this project used a "translational criminology" approach to assess the evidence-base for Playbook's prevention and deterrence mechanisms, using existing knowledge from crime prevention research. The research team compared the prevention and deterrence dimensions of all ███ plays against research evidence about the effectiveness of similar types of interventions in crime prevention and criminal justice, and categorized plays into a Matrix based on commonly shared mechanisms and locations of prevention. By deciphering these common dimensions of prevention, deterrence and guardianship, the research team could draw some parallels with existing research knowledge about these dimensions, making a rough assessment of Playbook's potential as an effective security strategy, and the evidence base underlying it.

In concluding the Phase I study, the research team discovered that there were parallels between prevention and deterrence mechanisms of Playbook plays and other crime prevention interventions and that some of the common mechanisms were supported by existing evidence. Additionally, the team discovered that most plays were tactical as opposed to strategic, focusing on the prevention of a specific concern or threat. The majority of plays were discovered to be deterrent in nature, while a minority of plays concentrated on increased guardianship or reducing passenger and target vulnerabilities. Many of the plays, as written, were intended to be carried out by TSA-only teams and personnel. In general, there were a number of airport security measures that shared the same prevention and deterrence mechanisms as already-evaluated and effective crime prevention mechanisms.

This first analysis examined the plays as they appeared in their totality in the Playbook. Yet, security measures are rarely implemented in totality, and the implementation of Playbook at various airports necessarily involves a complex interaction between environment, personnel constraints, supervision, resource allocation, and other conditions that drive the reality of implementation of security measures in practice. An assessment of airport security and Playbook,

therefore, requires an understanding of how plays are chosen and implemented, and ultimately, the consequences and effects of these practices. Thus, Phases II and III of this project document the implementation of Playbook in practice, from the perspectives of TSA and non-TSA personnel at airports. These perspectives will be obtained through a national survey and assessment of personnel timesheets (Phase II), and in-depth focus groups and interviews of airport personnel at multiple airports (Phase III).

Phase II, which is reported here, involved an in-depth survey of TSA personnel at all Category X, I, and II airports in the United States to gain an understanding of how Playbook is implemented in practice. In addition to the Phase II survey findings, this report also examines Playbook management data provided by TSA Headquarters. Airport personnel engaged in Playbook activities are required to report back on key performance measures such as the number of personnel hours, referred to by TSA as Full Time Equivalencies (FTEs) dedicated to Playbook activities. We use these data to supplement our survey findings and provide an alternative picture of how Playbook operates in practice.

Phase III, which is under way at the time of this report, builds on the Phase II survey findings through a series of site visits at a smaller sample of airports that answered the survey, with the purpose of collecting qualitative data on the implementation of Playbook in practice from the perspective of airport personnel. Finally, Phase IV will utilize data collected through the documentation analysis, operational perspective assessment, and direct observation phases to develop proposals for rigorous evaluations of Playbook. The CEBCP team was additionally tasked with analyzing incident data from TSA to better understand the nature of problems faced by law enforcement and TSA officers daily, and ultimately, to assist with developing targets for intervention and outcome measures for Phase IV. Given that the findings from our airport site visits in Phase III will enrich our survey findings from Phase II, we provide a technical, rather than a full narrative report for Phase II here. Survey findings are reported in Section 2 of this report, and the discussion of the hourly data appears in Section 3.

2   FINDINGS FROM A NATIONAL SURVEY OF CATEGORY X, I, AND II AIRPORTS

The purpose of Phase II of this research study was to gain a more realistic and detailed understanding of how the Playbook program is implemented across U.S. airports. To accomplish this task, we developed and distributed a 53-question national organizational survey of TSA personnel at all Category X, I, and II airports in the United States. The survey is the first to provide DHS and TSA with a comprehensive understanding of the implementation of Playbook, and the context in which future evaluations of Playbook will occur. The results also provide DHS, TSA, and airport authorities with a better understanding of the strengths and vulnerabilities in security and cooperation at airports.

Survey Methodology and Implementation

The survey instrument was developed by the research team in collaboration with two experienced survey researchers at George Mason University, Professors Devon Johnson and Linda Merola, and personnel at DHS and TSA. Building off of our Phase I analysis of the Playbook and also preliminary interviews and focus groups with personnel at TSA Headquarters and two airports, we developed both factual questions and organizational opinion questions to gauge perceptions of senior TSA personnel at airports.

In our Phase I analysis, the CEBCP-GMU team discovered various implementation aspects of the Playbook. Most notable were the use of a computerized randomization program (known to TSA personnel as "the Randomizer") to allocate and deploy plays in unpredictable ways, as well as the reliance on a "layers of security" philosophy, in which security measures were implemented across a wide array of locations and situations. Additionally, Playbook documentation, as well as key TSA personnel, emphasized that Playbook required and engendered cooperation from multiple airport entities to successfully implement some security measures. Further, like all security measures at public places, we anticipated that implementation of Playbook might impact the public. Given these implementation aspects of Playbook, we developed survey questions around these issues. The key themes of the survey were:

1. Purpose and process of Playbook
2. Selection and implementation of plays
3. Use of the Randomizer
4. The nature of locally developed plays
5. Cooperation and collaboration with non-TSA agencies
6. Perceptions of Playbook
7. Effectiveness of Playbook

Through a variety of questions within each section, we gleaned from respondents the context in which Playbook is implemented, the extent of its use, the extent to which agencies must

collaborate and share information, the benefits and challenges of the program and how these might advance or impede successful implementation. The findings provide insight into which elements of Playbook are most successful, and which factors contribute to strong, moderate, or weak implementation of the program in different environments. Questions about relationships with other agencies and specific details of deployment were also designed as preliminary information-gathering tools to identify themes and talking points for the Phase III site visits and qualitative data collection. The survey instrument is included as Appendix A of this report.

Our target sample for the survey was all Category X (N=29), I (N=59), and II (N=79) airports in the United States – 167 airports in total. Airport categories are designated by TSA and reflect a number of characteristics of airports related to security, structure and business including domestic passenger volume, international passenger volume, and other specific security attributes designated by Federal law (see Appendix B for the formal definitions). Category X, I, and II airports include the nation's medium to large, and often busiest, airports. ██████████████ ██ ██ ██ ██ ██

The survey therefore targeted only TSA personnel at Category X, I and II airports. We did not send surveys to representatives from other organizations that may be involved in Playbook operations, such as the airport authority or local law enforcement, because of the wide variation across airports in the types of external entities involved in Playbook and how they are structured. Further information about cooperation and interpersonal relationships with other agencies will be collected through in-depth interviews of these individuals during Phase III.

Appendix C of this report provides a detailed description of the survey design and implementation processes.

Survey Results

Our multi-method approach, consistent follow-up, and the letters of endorsement from DHS and TSA resulted in a very high overall response rate of 81.4 percent. Compared to other organizational surveys conducted by independent researchers, this is an excellent response rate (e.g., Baruch & Holtom, 2008; Tomaskovic-Devey, Leiter, & Thompson, 1994). Figure 1 below shows the variation in response rates by airport category (X, I, and II).

Figure 1. Response rates by airport category

	Percent of airports contacted who responded to the survey				
	Category X (N=29)	Category I (N=59)	Category II (N=79)	Category Unknown	All Categories (N=167)
Responses received	19 (65.5%)	48 (81.4%)	52 (65.8%)	17	136 (81.4%)

Figure 1 indicates that Category I airports were somewhat more likely to respond *and* report their airport code than airports in Categories X and II. Because the survey and all of its questions were voluntary, respondents from 17 airports chose not to identify themselves in the area of the survey that asked for their airport "IATA" code. Thus, we do not know the airport category of these anonymous respondents.

Purpose and Process of Playbook (Questions 1-11)

Questions 1-11 of the survey (see Appendix A) asked respondents about the use of the Playbook at their airports, the personnel involved in implementing Playbook, and the extent to which they understood the program. Of the 136 airports that answered the survey, 135 (99.3%) reported that Playbook is currently used at their airport. One Category II airport reported that they had used Playbook in the past but did not currently have the resources to implement it. The majority of airports (62.7%) first implemented Playbook between October 2008 and March 2009, mostly in December 2008 when the program was officially rolled out (Figure 2).[2] Note that 18.2 percent of airports reported using Playbook prior to October 2008. There was a Playbook pilot prior to the national rollout, but only six airports (at most 4.4% of the airports that responded) were involved between September and November 2008. It is possible that some respondents merged the beginning of Playbook with a program that existed prior to Playbook known as the Aviation Direct Access Screening Program (ADASP), which was Playbook's predecessor and also emphasized the use of unpredictable plays in screening at direct access points.

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[2] The official national start date of the full Playbook program was December 15, 2008.

Figure 2. Date of Playbook implementation (Survey Question 4)

N=126 (10 respondents did not answer this question).

The Playbook program is intended to provide an additional layer of security at the airport in addition to other TSA security operations such as manning the checkpoint and screening checked bags. Question 5 of the survey asked respondents to estimate the proportion of the security structure at their airport that they perceived to be dedicated to Playbook as opposed to other security operations. ███
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Figure 3. Approximately what percentage of all security operations at your airport consist of Playbook activities? (Q5)

	Percent of reported security activities involving Playbook by airport categories				
	Category X (N=19)	Category I (N=42)	Category II (N=47)	Category Unknown (N=15)	All Categories (N=123)
1-10%					
11-20					
21-30					
31-40					
41-50					
51-60					
61-70					
71-80					
81-90					
91-100					
	100	100	100	100	100

N=123 (13 respondents did not answer this question).

Respondents were asked whether they held regular meetings to discuss Playbook operations, which may indicate the extent to which the collaborative intent of Playbook (both within TSA and with external agencies in the airport, such as law enforcement) is understood at the airport. Of the 136 airports responding, 73 (53.7%) stated that they hold regular meetings. The majority of personnel who attend these meetings are employed within TSA. Figure 4 shows that frontline TSA supervisors attend meetings most often, with 95.8 percent of the airports that held regular meetings reporting that supervisors attend frequently (i.e. more than half of the meetings, or response options 4 and 5 on the survey). The Assistant Federal Security Directors (AFSD) attended frequently at 76.1 percent of airports, and the Playbook Coordinators attended frequently at 62.9 percent. The responses suggest that very few airports involve non-TSA airport stakeholders in discussions about Playbook activity. Among external personnel who collaborate in Playbook implementation, respondents indicated that local law enforcement personnel were most likely to attend frequently; however, this was only the case at 22.1% of airports. No airports reported frequent representation from the airport authority, vendor representatives, or airline representatives.

Figure 4. Individuals attending Playbook meetings frequently (Q8)
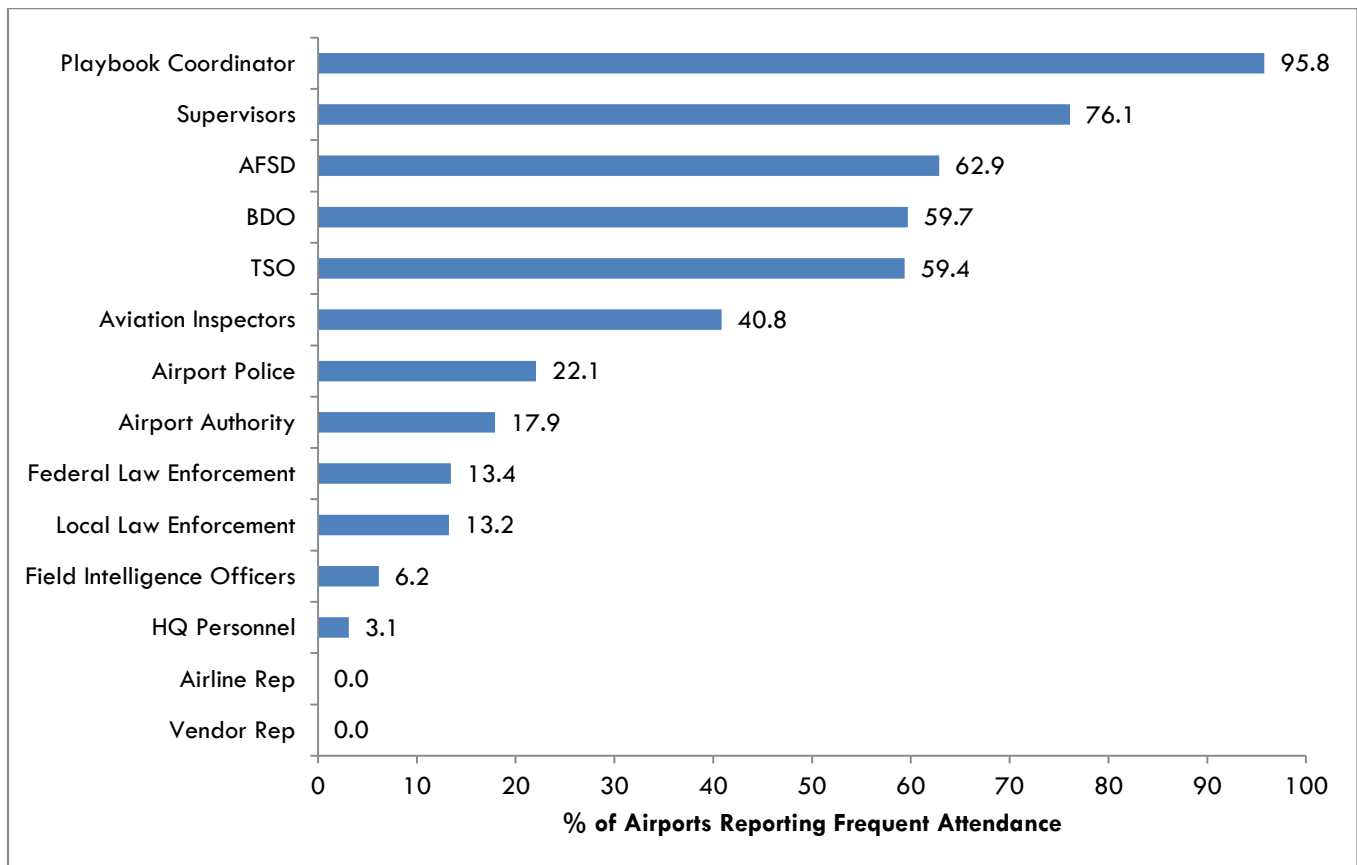
Figure 5 shows the personnel types that attend meetings least frequently (fewer than half the meetings, or survey response options 1 and 2).[3] As the previous graph suggests, most airports reported that non-TSA personnel such as law enforcement, vendors, airport authority and airline representatives rarely attend meetings. All respondents who answered this question rated vendor and airline representative attendance as rare.

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[3] Response option 3, "half of the meetings," is not displayed here as few respondents selected that option for each job title.

Figure 5. Individuals attending Playbook meetings rarely (Q8)

| Role	%
Airline Rep	100.0
Vendor Rep	100.0
HQ Personnel	96.9
Field Intelligence Officers	89.2
Local Law Enforcement	86.8
Federal Law Enforcement	83.6
Airport Authority	77.6
Airport Police	73.5
Aviation Inspectors	47.9
BDO	26.9
TSO	26.6
AFSD	22.9
Supervisors	10.4
Playbook Coordinator	1.4

% of Airports Reporting Rare Attendance
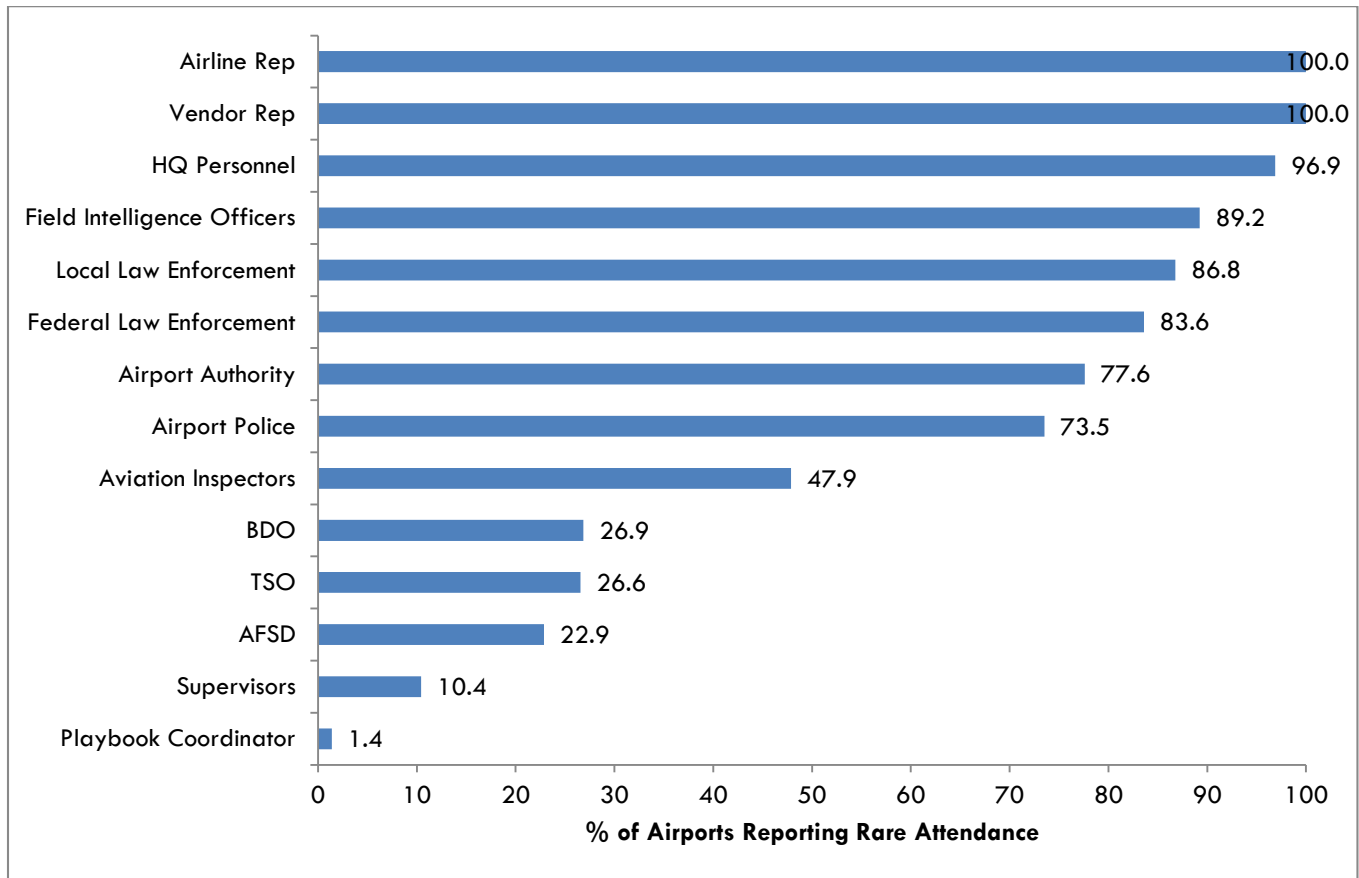
Another way to gauge external (non-TSA) collaboration in Playbook operations is to ask whether non-TSA entities received formal training related to the Playbook Program. While training for external stakeholders is not required by TSA HQ, the extent to which individual airports decide whether to include stakeholders in training exercises related to Playbook indicates the extent to which airport entities are likely to work together to produce security. The results of Question 9 are shown in Figure 6 below. Responses to this question were in line with the types of personnel who were more or less likely to attend meetings: TSA personnel were much more likely than non-TSA personnel to have received training. Eighty-six percent of respondents reported that their Playbook Coordinator had received training, and between 70 and 80 percent reported that TSOs, BDOs, supervisors and the AFSD received training. The responses provide further evidence of the limited collaboration between TSA and non-TSA entities with regard to Playbook implementation. Among the non-TSA personnel, airport police were most likely to have received training about the Playbook (28.7% of airports) and vendor representatives were least likely (3.7% of airports stated vendors had received training). It is surprising that proactive training of airport and local police officers has not occurred at more airports. While law enforcement assistance is not required to carry out the plays, a number of plays have the potential to uncover suspicious items, behavior, or other security breaches that require a police response (since TSOs

do not have law enforcement powers). Thus, it is important to ensure law enforcement personnel know about TSA strategies and response tactics to ensure a coordinated response and ensure that jurisdictional boundaries are clear in an emergency situation.

Figure 6. Which of the following individuals or groups at your airport received formal training about Playbook? (Q9)
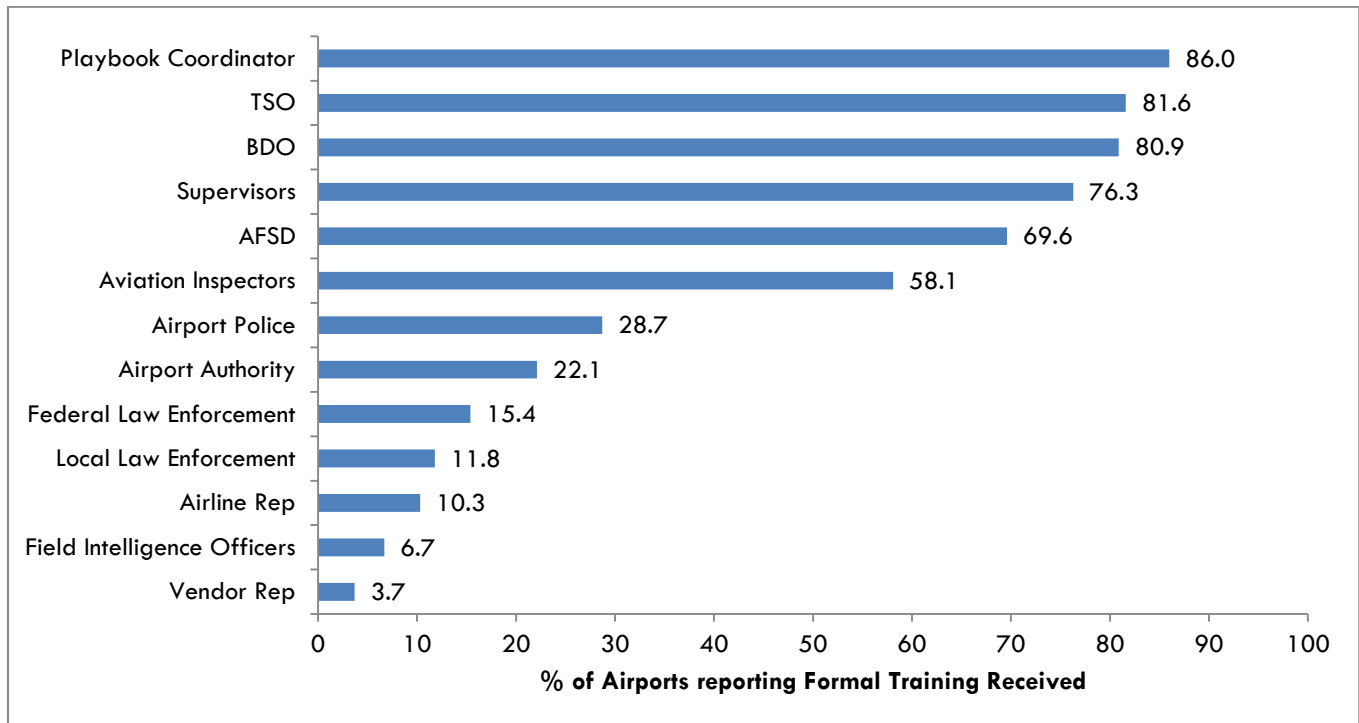
Questions 10 and 11 asked respondents about their understanding of the purpose of Playbook, and how well they thought the various TSA and non-TSA stakeholders in their airport understood what Playbook was about. Respondents stated the purpose of Playbook in their own words. A textual analysis of the responses revealed that the top five words or concepts stated were:

1. Unpredictability/randomness
2. Added layer of security
3. Awareness/command presence
4. Deterrence
5. Extend out from checkpoint

All 122 airports that answered the question cited at least one of these five concepts in their responses; some cited more than one. These statements closely align with the introductory material in the three Playbooks themselves, indicating that respondents were generally aware of the goals of the program. Just over 20 percent of the 122 airports that answered the question (N=25) specifically cited mitigation of insider or internal threats in their response. Other responses included enhanced secondary screening, flexibility, and increased visibility of the security structure.

TSA executives or representatives who answered the survey rated their perceptions of the level of understanding of Playbook in each group of stakeholders on a scale of 1 to 5, where 5 indicates respondents' belief that the group understands the Playbook very well and 1 indicates

that they do not understand it at all. Figure 7 shows the mean score within each group. Again, the results align with earlier questions about stakeholder involvement and training. TSA personnel received the highest ratings, although TSOs rated lower than other staff types. Among non-TSA personnel, airport police received the most favorable ratings, while airline and vendor representatives were considered least likely to understand the program.

Figure 7. How well do the following groups understand the purpose of Playbook? (Q11)
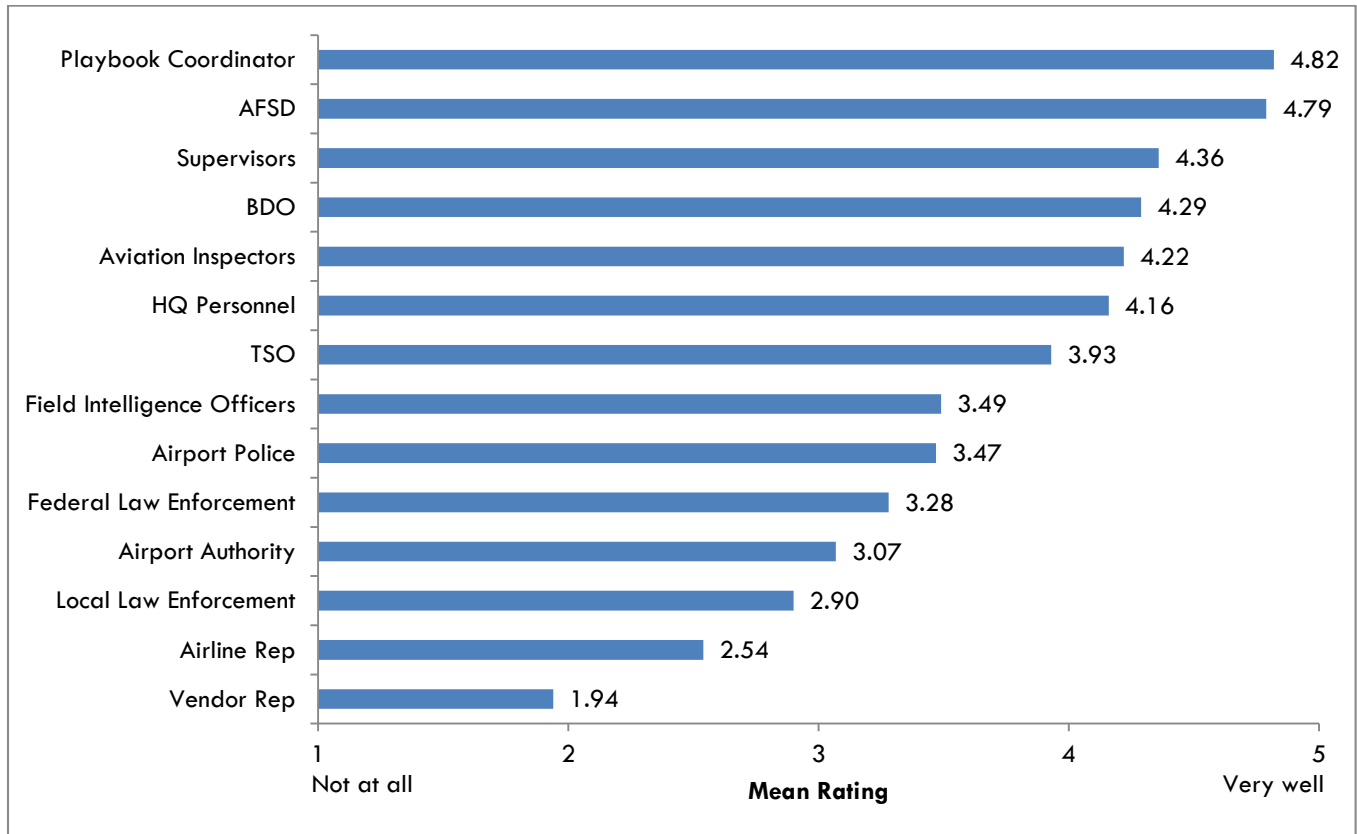
Selection and Implementation of Plays (Questions 12-16)

Questions 12-16 asked respondents for details about how Playbook is implemented at their airports on a daily basis. Of the 136 respondents, ███████████████████████████

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Figure 8. During an average week, approximately how many plays are used per day? (Q13)
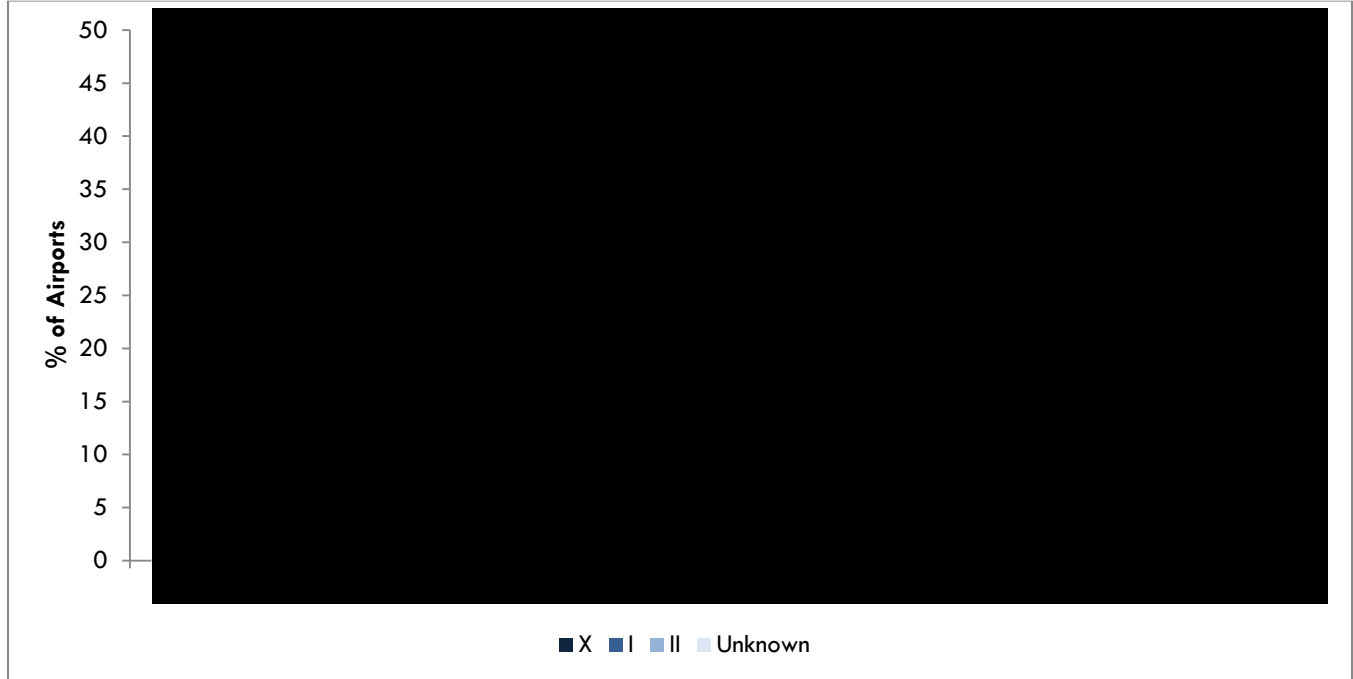
N=129 (7 respondents did not answer this question).

Respondents were asked to indicate the top three areas of the airport in which plays usually occur (Figure 9) and the three areas in which plays occur least frequently (Figure 10), using the locations from the Airport Security Matrix developed in Phase I. Figure 9 provides some indication that Playbook is achieving its purpose in emphasizing ███████████████████████
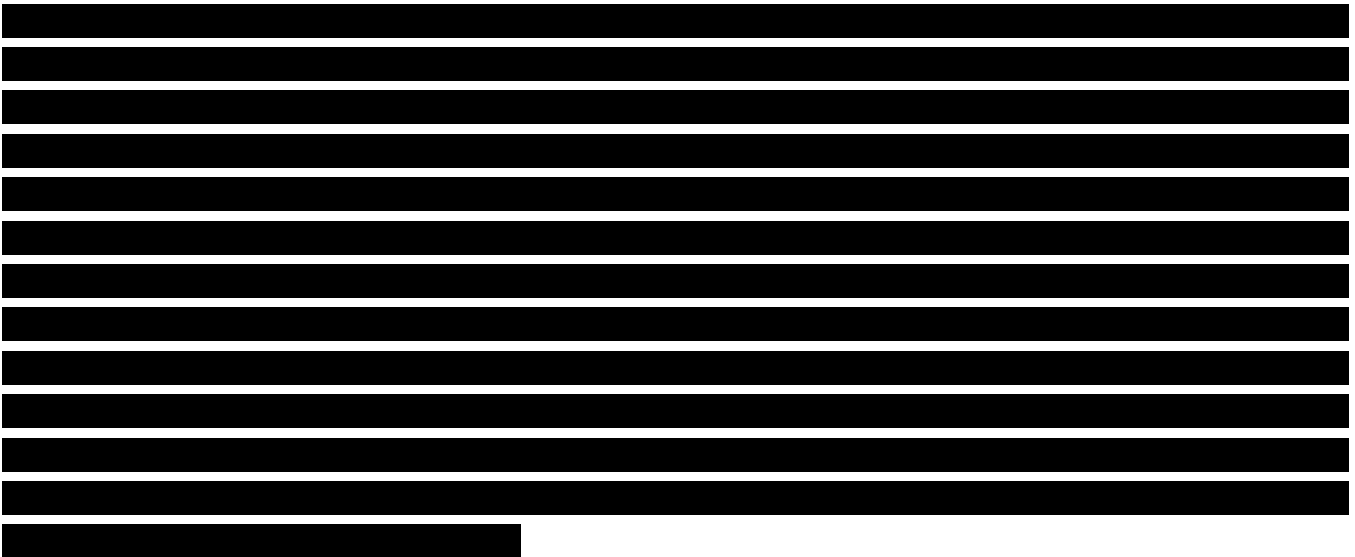██
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Figure 9. In which areas of the airport do plays occur most frequently? (Q14)

% of airports

■ X ■ I ■ II ■ Unknown

Figure 10. In which areas of the airport do plays occur least frequently? (Q15)

■ X ■ II ■ I □ Unknown
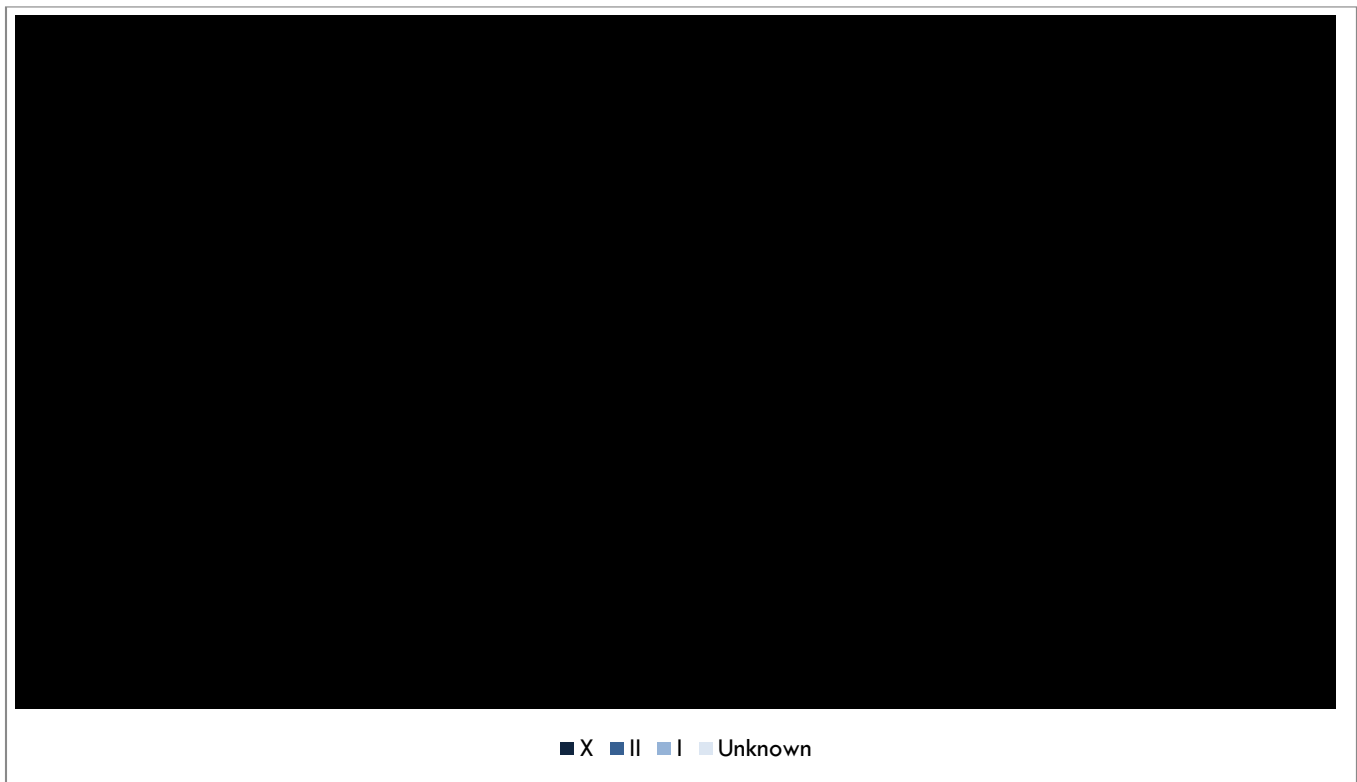
Use of the Randomizer (Questions 17-25)

Unpredictability is one of the key features of the Playbook program. To ensure that security operations do not become predictable, allowing potential offenders to identify vulnerabilities, plays for a given day are selected at random using a computerized system ("the Randomizer") and supplemented with non-randomized plays and directives from Headquarters to account for immediate threats and intelligence. Playbook coordinators have some discretion over the randomized plays. They can deselect certain categories of plays prior to running the Randomizer (for example, airports with no cargo operations can set the parameters of the Randomizer to prevent cargo plays being selected), and can drop plays after they are selected depending on available resources on the day. This section of the survey asked respondents about their use of the Randomizer and the extent to which TSA personnel in their airport exercise discretion in implementing the randomly-selected plays.

Respondents reported how frequently they run the Randomizer to select new plays (Figure 11). The majority of airports (55%) run the Randomizer every week, while a further 20 percent obtain randomized plays on a biweekly basis. Nine percent of airports use the Randomizer every day. These responses support preliminary findings from the Phase III site visits, in which several supervisors have reported that they plan program activities on a weekly rather than daily basis, pulling plays from the Randomizer for a full week and then allocating play hours per day according to staffing levels and other resources.

Figure 11. Approximately how often is the Randomizer run? (Q18)
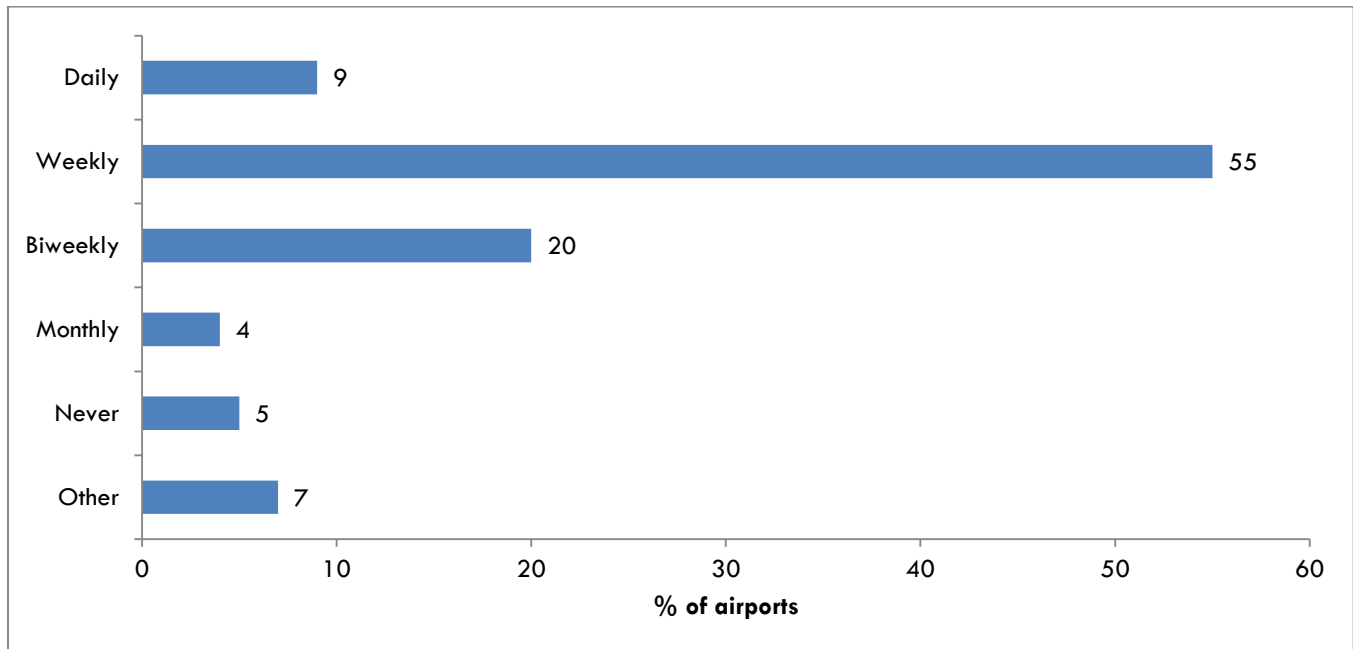
N=126 (10 respondents did not answer this question).

Respondents were asked whether any categories of plays were deselected prior to running the Randomizer. Most airports stated that they did deselect plays (74.4%, N=121). The top three categories most commonly deselected were ▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇ ▇▇▇▇   Most of the airports deselecting plays did so because they were not relevant to the airport (for example, the airport did not have cargo operations), lacked resources, or did not perceive the plays as being effective.

Just under half of the airports stated that they chose only some plays from the Randomizer list for implementation (47.1%, N=121). The slight majority of airports implement every play on the list. As with the plays deselected prior to randomization, airports mainly chose only some plays from the randomized list because others were not relevant to the airport, there was a lack of resources to run the plays, or the plays were not seen as effective.

Respondents were asked to indicate how often Playbook supervisors implemented plays that were not selected by the Randomizer, such as plays from the ▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇▇ ▇▇▇▇▇▇▇▇, or locally-developed plays, on a scale of 1 to 5 (5 = very often; 1 = rarely/never). Just over 35 percent of airports reported using non-randomized plays often (response options 4 and 5; N=125). Twenty-eight percent used them sometimes (response option 3) and 36.8 percent used them infrequently or rarely (response options 1 and 2). However, of the 123 airports that responded to the question, 80.4 percent reported that most of the plays implemented at the airport are selected by the Randomizer, rather than by other means.

The Nature of Locally Developed Plays (Questions 25-29)

In addition to the randomized and non-randomized plays, airports also have the option of creating their own plays to reflect strategies, tactics, and locations that are of particular relevance to their local conditions. Questions 25 to 29 asked airports about the extent to which they used locally-developed plays. Of the 124 airports that responded to the question, 16 percent stated that they had created and implemented their own plays. Category X airports were slightly more likely than Category I and II airports to create their own plays, which may reflect greater availability of resources or greater variability in local conditions. Thirty-five percent of airports that used locally developed plays were Category X, 30 percent were Category I and 25 percent were Category II (the remaining 10 percent were unidentified airports). Locally developed plays were created in all areas of the airport, but the airports that used them were most likely to report that they occurred in ▮▮▮▮▮▮▮▮ This is interesting considering that ▮▮▮▮▮▮ plays were one of the most frequently deselected categories (see above). However, among the airports that created their own plays, only one listed ▮▮▮▮▮▮ plays among the categories frequently deselected prior to running the Randomizer. It appears these airports prefer to supplement the existing ▮▮▮▮▮▮ plays with their own strategies, although only 20 airports reported using locally developed plays at all so this should be interpreted with caution.

Cooperation and Collaboration with Non-TSA Agencies (Questions 31-32)

One of the stated principles within Playbook is the establishment of a "networked and collaborative model"[4] that seeks to build links with local security partners, such as the airport authority, airlines, vendors, and local law enforcement to broaden security coverage and increase efficiency. To understand how this model operates in practice, we asked survey respondents to indicate how often TSA collaborates with external agencies in carrying out Playbook activities, and the quality of cooperation with each one. Respondents rated the frequency of cooperation with non-TSA organizations within the airport on a scale of 1 to 5, with 5 indicating that TSA cooperated with the organization "very often" and 1 indicating no cooperation. Figure 12 shows the mean rating for each non-TSA group. Across all categories, the frequency of cooperation with each agency was considered relatively low, with mean ratings ranging from 1 (never) to just less than 3 (sometimes). Collaboration with outside agencies occurred least frequently (mean=1.10) and collaboration with airport police occurred most often (mean=2.89). These findings reflect the earlier responses about the involvement of non-TSA agencies in Playbook meetings and training programs. A higher level of collaboration with the police compared to other non-TSA agencies is to be expected, since the police can provide law enforcement assistance when breaches are detected, and at some airports provide K-9 support on certain plays. Among the airports that identified themselves, collaboration appears to occur slightly more often in Category X airports, followed by Categories I and II. A question for our Phase III site visits is whether large or busy Category X airports have more complex environments in which there is a greater need to draw on external resources.

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[4] Transportation Security Administration Federal Security Director Security Playbook, version 1.3 (December 13, 2010), p. 2.

Figure 12. How often do the following organizations/agencies at your airport collaborate with TSA to implement plays? (Q31)

	Mean rating: Frequency of collaboration
Airport Authority	
Airport Police	
Local Law Enforcement	
Federal Law Enforcement	
Vendors	
Airlines	
Outside Contractors	
Entities Outside the Airport	

Respondents also rated the level of cooperation, i.e. the quality of TSA's collaboration with external agencies, on a scale of 1 to 5, with 5 representing "excellent" and 1 representing "poor." Figure 13 shows the mean ratings by airport category. Across all categories the quality of cooperation was generally considered to be moderate to good, with mean ratings ranging from just over 2.5 to just less than 4. Cooperation with airport police was rated highest (mean=3.76) and cooperation with entities outside the airport was rated the lowest (mean=2.63), reflecting the extent to which collaboration actually occurs with these organizations (see Figure 12). There is little variation between airport categories, although it appears that Category X airports rated their cooperation with certain agencies slightly higher than Category I and II airports, especially with regard to the airport authority and Federal law enforcement. Again, it may be that larger airports have greater experience in working with non-TSA agencies.

Figure 13. How would you rate the cooperation between TSA and other agencies at your airport when it comes to Playbook activities? (Q32)

	Mean rating: Quality of cooperation				
	Category X	Category I	Category II	Category Unknown	All Categories
Airport Authority	4.00	3.58	3.48	3.88	3.63
Airport Police	3.89	3.83	3.62	3.88	3.76
Local Law Enforcement	3.47	3.22	3.37	3.29	3.32
Federal Law Enforcement	4.32	3.73	3.45	4.00	3.74
Vendors	2.76	2.93	3.07	3.86	3.02
Airlines	3.67	3.26	3.29	3.57	3.35
Outside Contractors	2.69	2.78	2.82	3.00	2.79
Entities Outside the Airport	2.79	2.35	2.91	2.25	2.63

Perceptions of Playbook (Questions 30, 33-37)

Respondents were asked a series of questions to measure their opinions regarding how Playbook is perceived – positively or negatively – among TSA and non-TSA airport personnel and passengers. These questions ultimately examine the perceived legitimacy of Playbook among those implementing it. Legitimacy refers to the acceptance of institutional activity, such as Playbook, as valid by those subject to it (Tyler, 1990; 2003; 2004). Unfavorable attitudes toward such activity may reduce legitimacy, which in turn can lower individuals' willingness to cooperate with authority (Lum et al., 2007; Hasisi & Weisburd, 2011). Since the Playbook relies on the involvement of both TSA and non-TSA staff and the cooperation of passengers and airport employees for its effectiveness, its perceived legitimacy among airport stakeholders is critical.

We asked respondents to indicate whether they believed TSA personnel in charge of selecting and implementing plays took into account the interests of other stakeholders as part of their work, in terms of negative effects on vendor business, flight times, and effects on passengers (Figure 14). Responses were measured on a scale of 1 to 5, with 5 indicating a perception that TSA personnel take into account potential negative effects very often, and 1 indicating that they never take such effects into account. Overall, respondents were of the opinion that Playbook coordinators and supervisors were most likely to consider negative effects on airline departure and arrival times when planning plays, with nearly 50 percent stating that departure and arrival times were always or almost always taken into account. However, 20 percent said that they never accounted for effects on flight times. Business at airport vendors was perceived to receive the least consideration in the scheduling of Playbook activity. This factor was rarely or never taken into account at nearly two-thirds of airports. Negative effects on passenger views of security were also a low priority for over 57 percent of airports.

Figure 14. When selecting and implementing plays, how often do those in charge take into account how plays might negatively affect the following factors? (Q30)
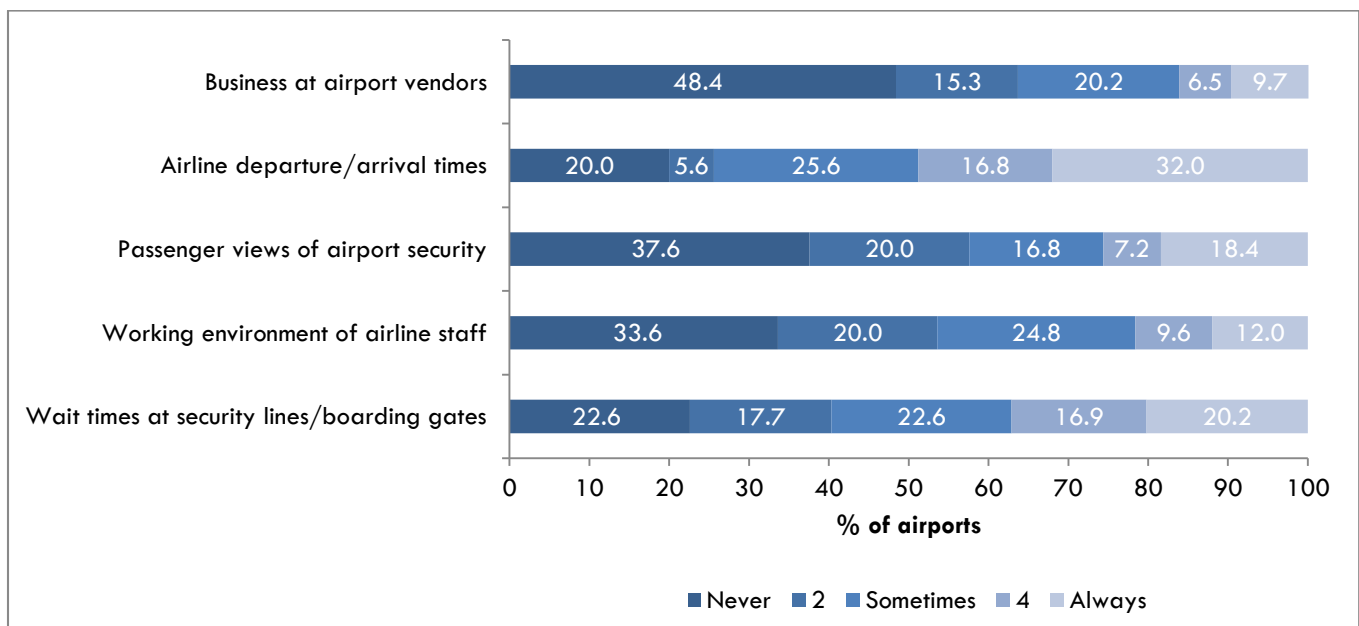
N=124 (12 respondents did not answer this question).

Respondents were also asked to indicate whether they thought various Playbook stakeholders, including TSA personnel, non-TSA personnel, and passengers, had a positive or negative perception of Playbook (Figure 15). Responses were based on a rating scale of 1 to 5, with 5 representing a very positive perception and 1 representing a very negative perception. Respondents could also indicate whether they thought the group would be unaware of Playbook and therefore have no opinion. The results in Figure 15 are as we would expect: senior TSA staff, including the AFSD and Playbook Coordinator, were believed to have the most positive view of Playbook (72% and 77% "very positive," respectively), while TSOs and BDOs were believed to be more equivocal, although generally still positive. A slight majority (54%) of airports believed that airport police viewed Playbook positively or very positively, and almost half of the airports (49%) selected "positive" or "very positive" for the airport authority. Although 25 percent of respondents did not believe passengers would be aware of Playbook, 20 percent of airports perceived that passengers would view Playbook positively or very positively. Vendors, airline personnel, and contractors were considered least likely to have positive views, although few were considered to have very negative views. Between one-quarter and one-half of these airports did not think these groups would be aware of Playbook at all.

Figure 15. In your opinion, do the following groups have a positive or negative perception of Playbook activities at your airport? (Q33)

| | Percent of respondents rating perceptions as positive or negative | | | | | |
	Very Positive 5	4	3	2	Very Negative 1	Not Aware
AFSD	72%	21%	4%	2%	1%	0%
Playbook Coordinator	77	20	2	1	0	0
BDO	53	31	14	2	0	0
TSO	40	27	28	6	0	0
Aviation Inspectors	41	28	17	6	2	6
Federal LEO	24	19	20	3	0	35
FAM	25	17	10	4	0	44
Field Intelligence Officers	25	9	12	4	1	49
Airport Authority	21	28	28	10	5	8
Airport Police	22	32	22	10	4	9
Local LEO	8	12	18	5	2	2
Airport Personnel	8	16	32	23	7	13
Airport Vendor	4	7	29	23	8	29
Airport Contractors	3	7	24	20	6	41
Airline Passengers	3	17	36	13	7	25
Other Members of Public	1	12	22	6	1	58

Respondents were also asked whether their airport had a formal complaint system where individuals can report concerns about Playbook. Just over 66 percent reported that they did have a system, 30.4 percent did not, and 3.2 percent did not know (N=125; 11 respondents did

not answer the question). There was no indication from these respondents that Playbook increased passenger complaints at the airports – of those airports that had a complaint system, 67.5 percent stated that the number of complaints stayed the same and an additional 24.7 percent said complaints had decreased since the implementation of Playbook (Figure 16).

Figure 16. Have complaints from the public about TSA activities in your airport increased, decreased, or stayed about the same since the introduction of Playbook? (Q37)
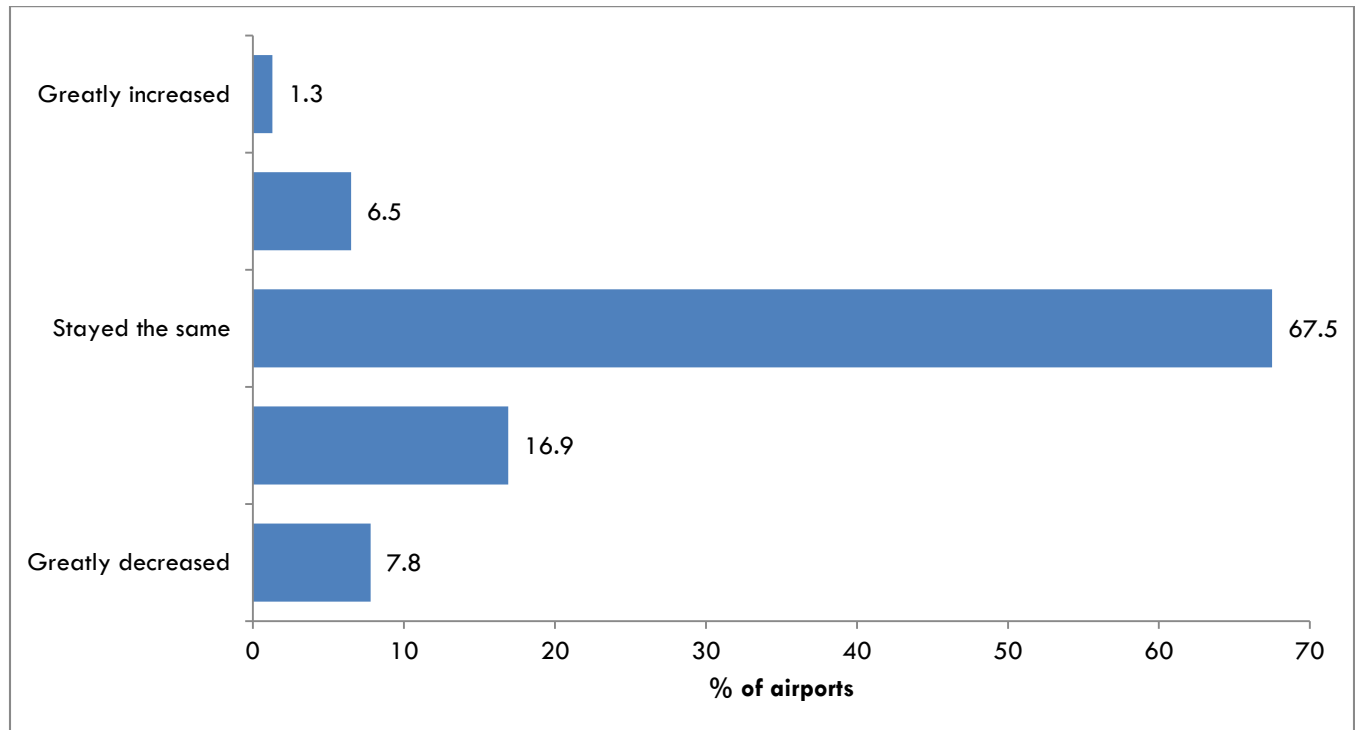
N=77 (59 respondents did not answer the question).

Effectiveness of Playbook (Questions 39-44)

The final set of survey questions asked respondents whether Playbook was effective at uncovering security breaches, and the extent to which detection can be attributed to Playbook rather than other security structures. "Security breach" in this context is defined broadly: any event that the respondent considered to be a security threat. Some examples of breaches that have been raised in our Phase III focus groups include employees entering secure areas with invalid badges and prohibited items being uncovered during open-and-look bag searches. ██ ██ ██ ██ ████████████████████████   This suggests that Playbook is achieving its goal of improving security operations in areas beyond screening to some extent, but that screening of both passengers and employees remains a focus. However, the frequency of detection may also be related to the large number of people passing through these areas whose behavior and belongings are subject to regulation.

Figure 17. Generally, how often do Playbook plays uncover security breaches (even minor ones) in the following areas? (Q39)

Respondents were then asked whether most of the breaches were discovered as a result of Playbook or other security structures. Responses were on a scale of 1 to 5, where 5 indicated "almost all Playbook activities" and 1 indicated "almost all other security." Figures 18, 19, and 20 show the results broken out by airport category. ██████████████████████

██

██

██

Figure 18. Were most breaches detected as a result of Playbook activities, or based on other structures at your airport? [Category X] (Q40)

Figure 19. Were most breaches detected as a result of Playbook activities, or based on other structures at your airport? [Category I] (Q40)

Figure 20. Were most breaches detected as a result of Playbook activities, or based on other structures at your airport? [Category II] (Q40)

This is likely due to variations in passenger throughput at the different airport categories: we would expect to see more detection at busier airports simply

because the population at risk is larger. We should also note that the primary purpose of Playbook is to prevent and deter security threats, not detect them, so the frequency of breach detections should not be construed as an indication of ineffectiveness. However, deterrence-based programs present challenges for evaluation because of the difficulties in measuring crimes or breaches prevented, so evaluators must be creative in assessing the effectiveness of such programs. Studying breaches does not provide a good indication of crime prevention effectiveness, but it can act as a proxy for certain measures of process effectiveness, such as the extent of penetration of the program to particular areas of the airport. If breaches are frequently detected at certain locations it may also be the case that breaches are frequently deterred at those locations too, since a higher number of detections likely indicates a higher frequency of breaches overall.

Figure 21. How often would you estimate that Playbook operations have uncovered security breaches that other security measures did not detect? [Category X] (Q41)

Figure 22. How often would you estimate that Playbook operations have uncovered security breaches that other security measures did not detect? [Category I] (Q41)

Figure 23. How often would you estimate that Playbook operations have uncovered security breaches that other security measures did not detect? [Category II] (Q41)
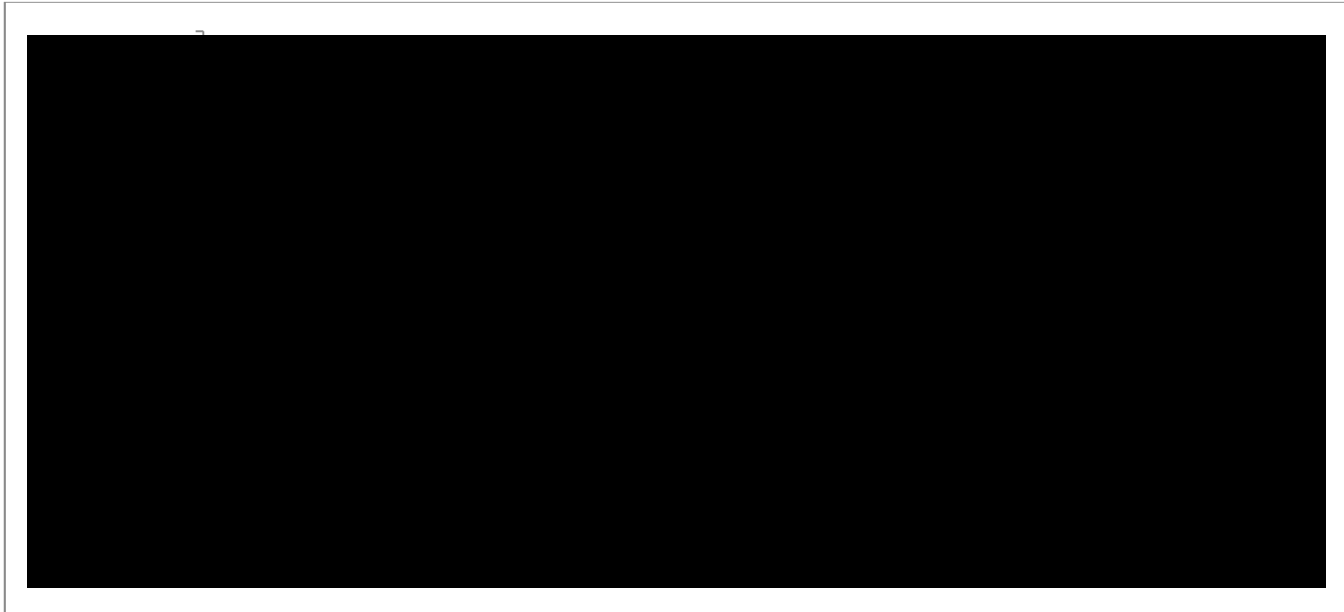
Overall, there was a very positive response from airports regarding Playbook's overall influence on security (Question 42). No airports felt that Playbook had diminished security. Of the 125 airports that answered the question, 13.6 percent (N=17) believed security had stayed about the same and the overwhelming majority (86.4%) felt it had improved (N=71, 56.8%) or significantly improved (N=37, 29.6%) as a result of Playbook.

We also used ordered logistic regression to explore which factors may have influenced airports' responses to this question. The variables in the model were airport category, how long the airport

had been using Playbook, what percentage of operations at the airport are Playbook related, whether TSOs had received formal training, whether plays were most frequently used at the checkpoint or elsewhere, the number of TSO hours dedicated to Playbook, and the airport's average monthly passenger enplanements. Among the 111 respondents who provided answers to all these questions, only airport category (X, I, or II) was significantly related to respondents' beliefs about the effect of Playbook on security, controlling for all other factors. Smaller airports perceived less improvement than larger ones ($z = -2.33$, $p \leq .020$). Airports that had been using Playbook for longer were also more likely to say it improved security, all else being equal, but this factor was not statistically significant ($z = 1.01$, $p \leq .313$). Figure 24 shows the relationship between airport category and time for the "average" airport on all other factors. Although Category I and II airports were less likely to report a significant improvement in security overall, those who had been using Playbook longer were more likely to perceive a significant improvement than those who had been using it for less time.

Figure 24. Probability of reporting that Playbook significantly improved security, by airport category and length of time using Playbook
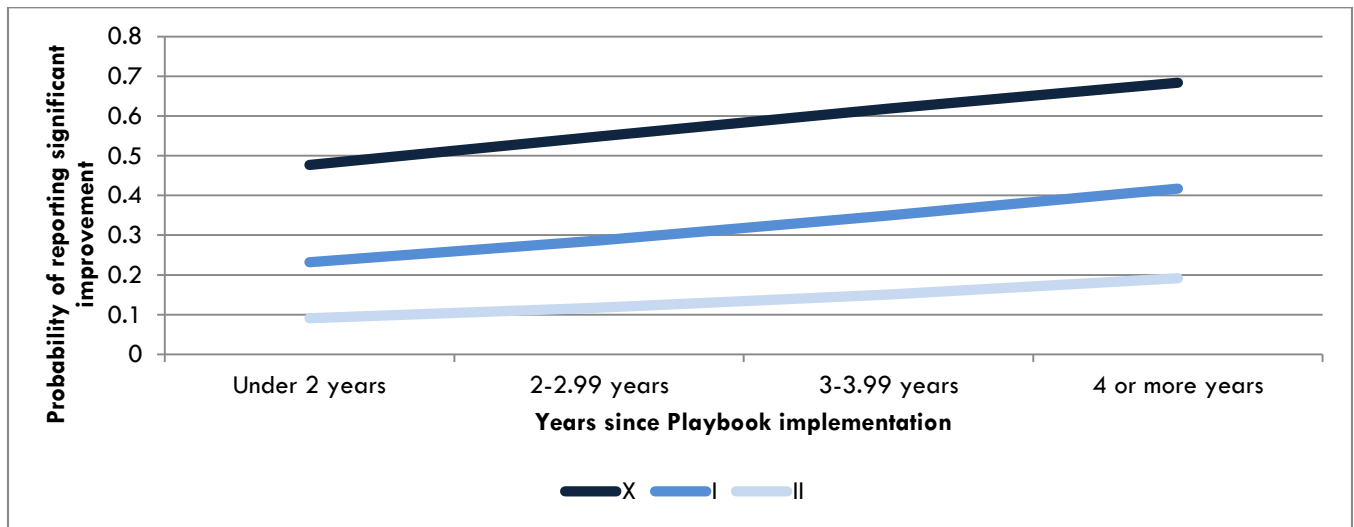
Finally, respondents were asked to list the top three specific plays they thought were most effective from a security perspective. We ranked the selections and found the three plays most commonly listed were:

- ███████████████████████████████████████
- ██
- ███
  █████

It is interesting to note that airports found two of the ████████ plays most effective, but ██████ ██████ plays were often deselected by some airports. It is possible that the perceived utility of these plays depends on the local conditions and environment ███████████████ at airports. Playbook activity may depend on ██ ██

3   ANALYSIS OF HOURLY IMPLEMENTATION DATA

In addition to the airport survey, we assessed Playbook implementation by examining the distribution of reported work hours as logged by TSA employees across Category X, I and II airports. The hours data were obtained from the TSA PIMS system in a series of text files (one containing the actual data and four containing information on variable codes), which were converted into Microsoft Access format for analysis.

TSA operations at each airport receive a specific allocation of employee hours (FTE), a set proportion of which are dedicated to Playbook activity. Supervising officers log the number of employee hours used for each play. Although this information has some limitations because it is potentially subject to reporting variability across airports, it provides a realistic understanding of the amount of time employees spend on plays, thus enhancing our assessment of Playbook implementation. The original hours file contained 4,065,916 employee working hours logged from January 3, 2008 to November 2, 2011 for activities that were associated with Playbook plays.[5]   Each entry in the dataset contains detailed information about the play, including the airport, play code, allocation of employee hours, the date and time the information was logged and the person entering the data.

We used the airport security Matrix developed in Phase I of our study to assess the hours spent on Playbook across airports. In Phase I, we categorized plays as they appeared in official Playbook documentation according to common characteristics derived from the situational crime prevention, deterrence, and interagency cooperation literatures. Following the premise of the *Evidence-Based Policing Matrix©*, a visual tool developed by Lum, Koper and Telep (2011) for summarizing and displaying evaluation evidence, we mapped all plays from the ████████ of the Playbook onto a hypothetical matrix to make generalizations to the broader crime prevention literature. The three dimensions of prevention we identified in the airport security matrix were the location within the airport in which a play was implemented (X-axis), which followed the 'layers of security' as set out in the Playbook; the primary mechanism of prevention (Y-axis), and the extent to which collaboration with a non-TSA entity is recommended by the play as it appears in the Playbook documentation (Z-axis). The mechanisms of prevention were defined as follows:

Deter offenders/increase their effort: These involve plays that primarily focus on blocking offenders by increasing the effort they would have to use in order to succeed in a specific activity. Examples include keypad locks on secure doors, screening at entrances to secured areas, and hand swabs to test for explosive traces.

Increase guardianship: These plays generally attempt to increase the level of general watchfulness and oversight to detect criminal activity. Broadly, this classification is used for plays

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[5] The original hours data contained data that was entered as early as February 16, 2000; however this information was sporadic and only accounted for a total of 19 cases.

that intend to increase the risk of being apprehended through increasing surveillance (for example, directed security patrols, identification checks of employees, watching the airfield).

Reduce vulnerability of passengers and other targets: These plays are designed to decrease the vulnerability of targets (both people and places) or to make criminal activity less worthwhile for the offenders by making passengers, employees, or other targets more alert or less available. Such plays are designed to protect people and locations even in the presence of a motivated offender. Examples include internal and external inspections of aircraft or audio warnings.

For ease of understanding, we presented two separate matrices, divided by the two levels of the Z-axis as follows (see Figures 25 and 29 below).

Independent or TSA-Primary: These are plays that are primarily conducted by TSA officers/employees. Cooperation of other agencies (such as law enforcement) may be sought or needed for arrest but is not necessary to initiate or carry out the play.

Cooperative: These plays emphasize cooperation between TSA and another agency, such as law enforcement. The Playbook specifically suggests agencies whose cooperation is strongly encouraged. However, because the Playbook arises from TSA, there are no plays in which the TSA does not take a lead or cooperative role.

Thus, the Phase I report provided a theoretical layout of the Playbook's key areas of focus, with each play mapped into the Matrix to show how plays cluster along intersecting dimensions of location and mechanism of prevention. In the current analysis, we map the hours spent on each play into the same Matrix to examine the number of hours allocated to plays concentrates in the same intended areas of focus of Playbook that we identified in the Phase I report.[6]

To assess the distribution of Playbook hours within the Matrix, we selected data that fell within a one year time frame between January 1, 2010 and December 31, 2010. Within this period, there were 1,469,750 entries for employee hours dedicated to Playbook activity. These data were aggregated by play code (████████████) to reflect the number of employee hours spent on each play during the year. We then coded each play according to its location in the Matrix. As with the survey data, we examined the total hours for Playbook by each airport classification (X, I, and II) separately. The analysis is also separated by independent and cooperative plays as defined above.

Independent (TSA-Only) Plays

The Independent Plays Matrix, we developed in Phase I (Figure 25) shows that most plays that do not intend for TSA to collaborate with non-TSA agencies are focused on deterrence and increasing effort at ███████████████████ (29 of the 126 independent plays, or 23%) and ████████████████████████ (N=22, 17.5%). To a lesser extent, plays also cluster

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[6] This analysis follows the work of Veigas (2011), who mapped hours logged by police for various deployment strategies into the Evidence-Based Policing Matrix (Lum, Koper, & Telep, 2011) to obtain a realistic view of the extent of deployment for each measure and assess the number of hours spent on evidence-based strategies.

around deterrence at the gate (N=13, 10.3%) and reducing vulnerability ████████████ (N=13, 10.3%).

Figure 25. Independent plays Matrix

Plays taking place in employee areas

Plays taking place in public areas

X: LOCATION

██

██
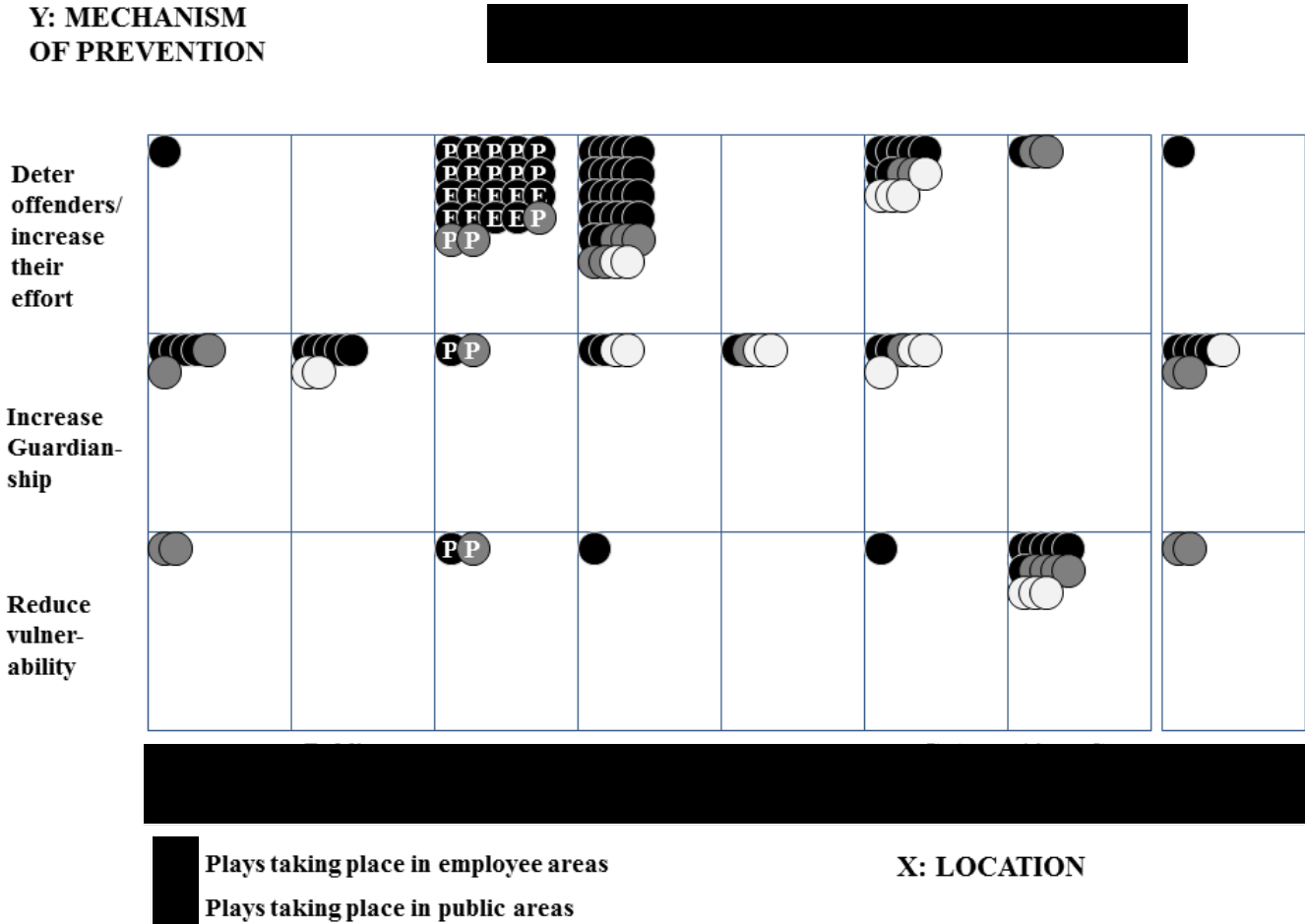
██ utilize deterrence tactics ████████████████, employee hours are thus disproportionately concentrated in those areas. This is in line with preliminary data from our site visits, where some TSA personnel have indicated that since large numbers of employees can be deployed to the ███████████ ███████████ are often run to ensure FTE allocations are met. However, we should note that the concentration of hours at ████████████ could simply be because more employees, and thus employee hours, are required to ████████████████████

The second highest number of employee hours was allocated to plays that focused TSA efforts on strategies that are meant to deter offender efforts ████████ This finding was consistent across all airport categorizations (Category X = ████████; Category I = ████████; Category II= ████████). Only

██ ████████   of Playbook plays ██████) are deterrence-based ████ ████. Again, the disproportionate number of hours to run these plays may be due to an increased need for resources at ████████ but it also suggests that the "layers of security" model is being at least partially implemented. Alternatively, this might also reflect a preference by TSA Playbook supervisors or Coordinators to provide more plays at ████████, as we have discovered in one of our site visits.
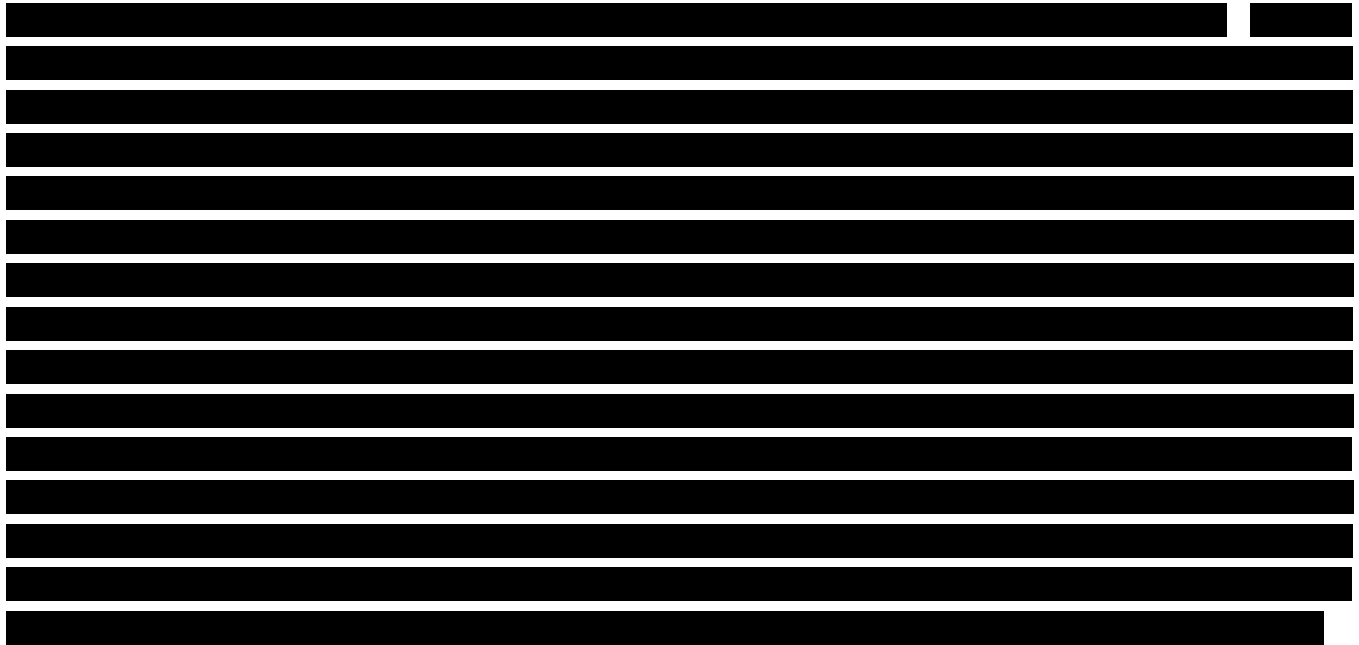
Figure 26: Hours spent on independent plays (Category X)
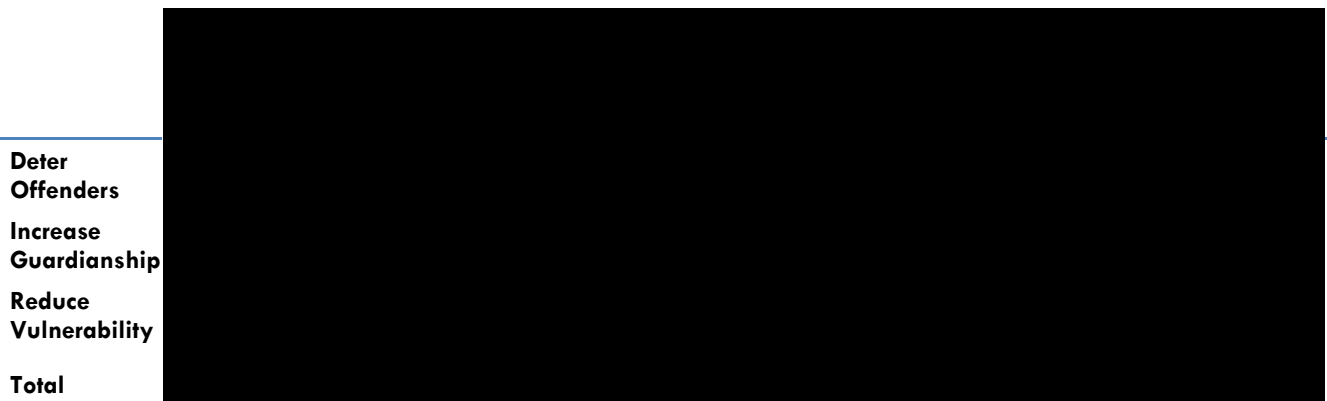
Deter Offenders

Increase Guardianship

Reduce Vulnerability

Total

Dark blue : Greatest proportion of hours. Medium blue : Second largest proportion of hours. Light blue : Third largest proportion of hours.

Figure 27: Hours spent on independent plays (Category I)
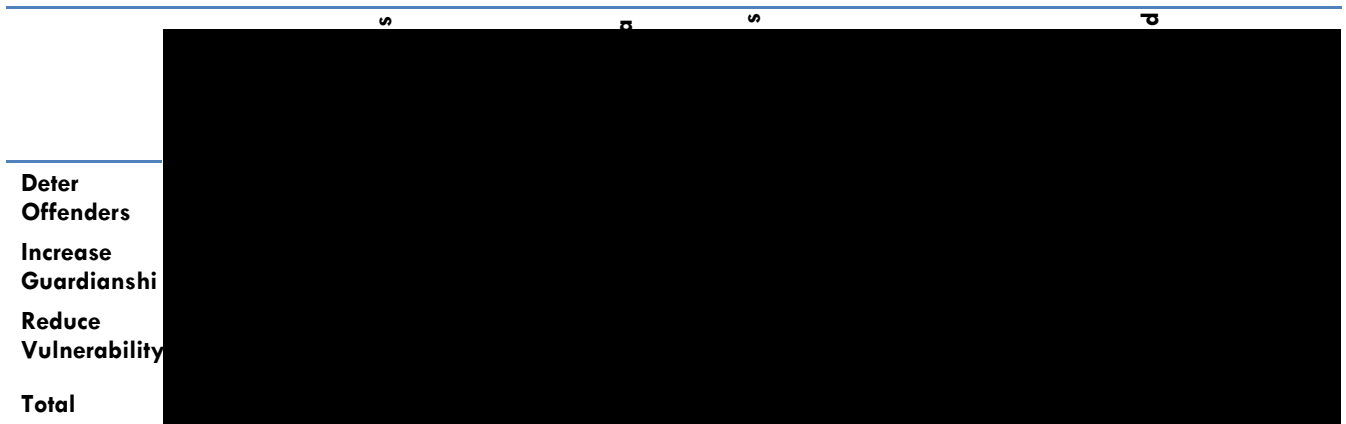
Dark blue : Greatest proportion of hours.   Medium blue : Second largest proportion of hours.   Light blue : Third largest proportion of hours.

Figure 28: Hours spent on independent plays (Category II)
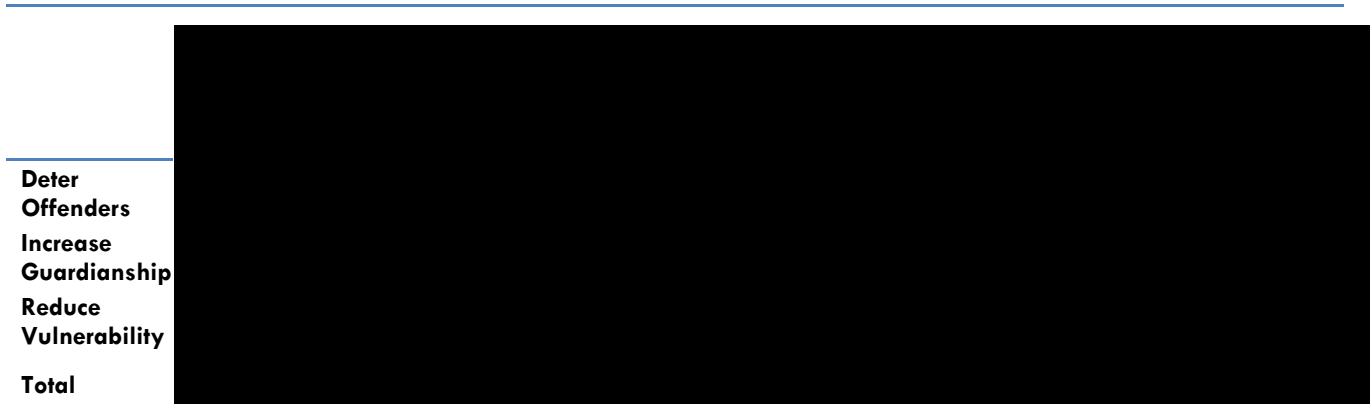
Dark blue : Greatest proportion of hours.   Medium blue : Second largest proportion of hours.   Light blue : Third largest proportion of hours.

Plays that Require Cooperation with External Entities

The Cooperative Plays Matrix (Figure 29) shows how the 16 Playbook plays that recommended TSA collaboration with other entities cluster along common dimensions of location and prevention mechanism. The largest cluster of cooperative plays (N=8, 50%) focuses on strategies to deter offenders in areas ████████████████

Figure 29. Cooperative plays Matrix
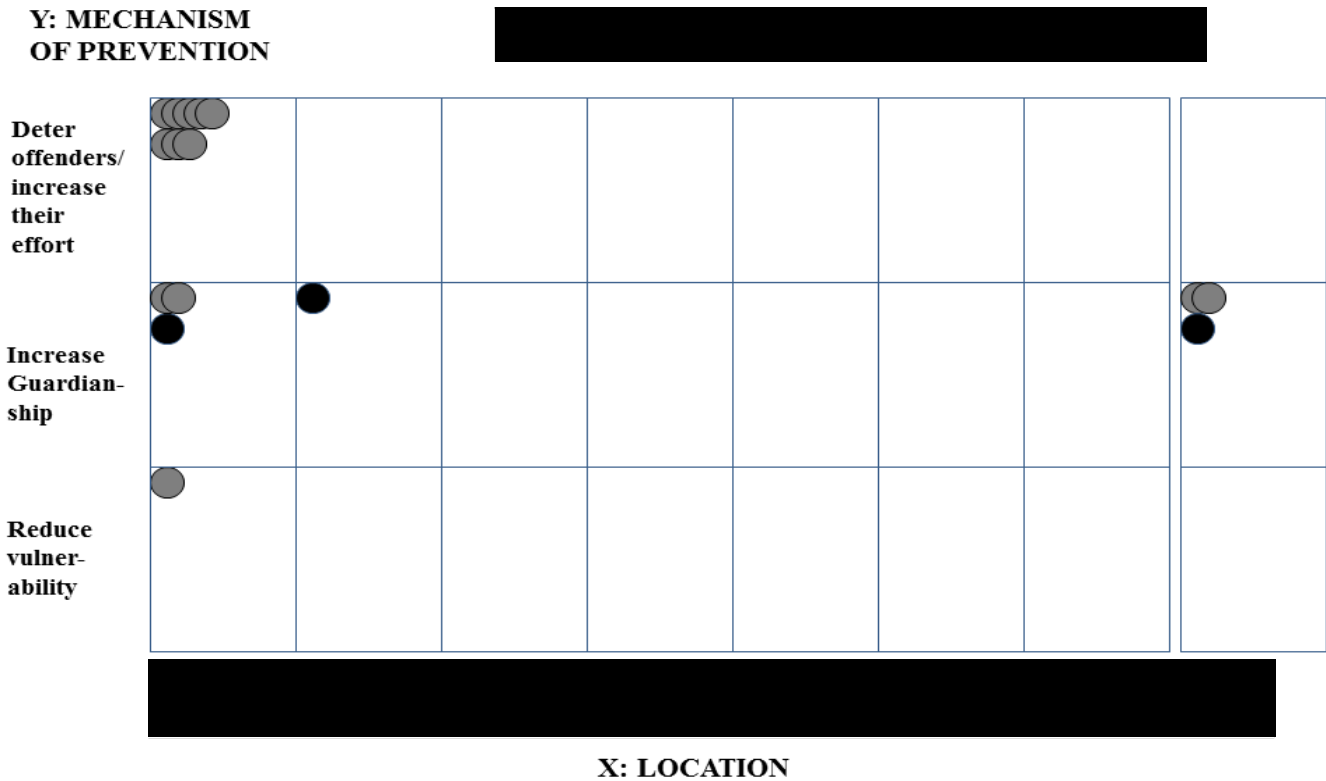
However, most employee hours spent on cooperative plays are dedicated to activities that aim to increase guardianship (Category X=████; Category I=████   Category II =████ see Figures 30, 31, and 32). Less than ████ of cooperative hours are actually used on deterrence-based plays████████ (Category X=████; Category ████; Category II=████ . Across all areas, half the cooperative plays are designed to deter offenders and just under half (████ are intended to increase guardianship, so the concentration of employee hours on guardianship plays is highly disproportionate.

Across all three mechanisms of prevention, employee hours for cooperative plays seem to be concentrated at two primary locations: ████████████████████████ Overall, slightly more than ████ of the total employee hours are spent on plays that focus ████████████. This trend aligns with the clustering of the cooperative plays in the Matrix. The second most common location ████████ in which over ████ of cooperative play hours are spent in all three categories of airports. This is interesting considering there is only one cooperative play that occurs in ████████████████████████████████████

The cells that contain the highest proportion of employee hours, (1) increase guardianship ██ ██, account for over ████████ of hours at all airports, but these cells house only ████████ of all cooperative plays. These four plays include two ██ ██ ██ ████████████████████████████████████. Note that the large discrepancy between the intended target of cooperative plays and their actual deployment is likely due to the fact that most ██ As such, they are not selected by airports themselves but sent down as directives from HQ in response to a specific threat. The concentration of cooperative play hours among the two ████████████ reflects the fact that these plays would be available to airports through the Randomizer and therefore deployed more frequently. ████ ██ ██ ████████████████████.

Figure 30: Hours spent on cooperative plays (Category X)

Deter
Offenders
Increase
Guardianship
Reduce
Vulnerability

Total

Dark blue : Greatest proportion of hours. Medium blue : Second largest proportion of hours. Light blue : Third largest proportion of hours.
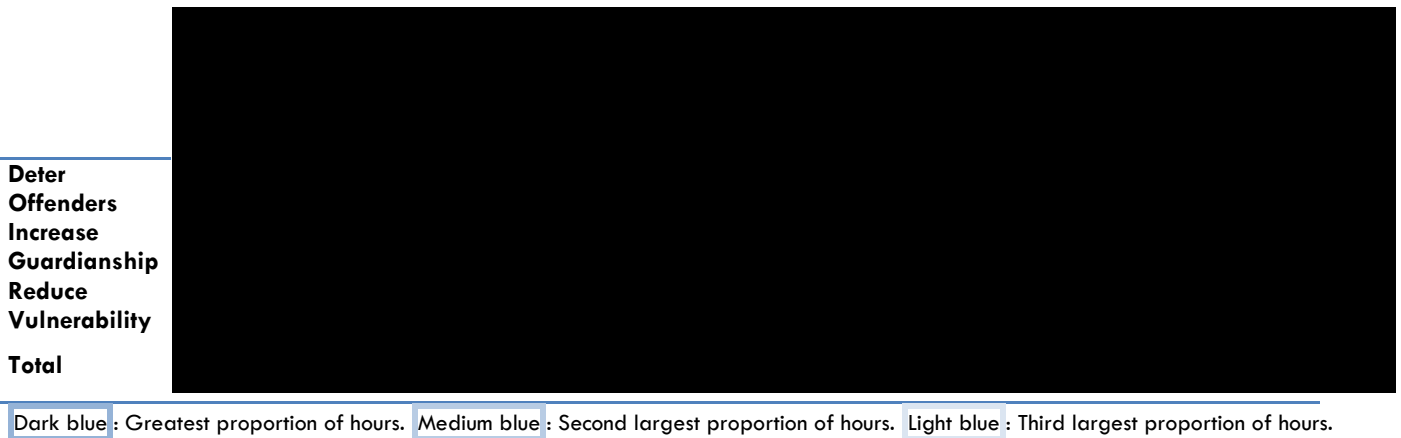
Figure 31: Hours spent on cooperative plays (Category I)

Deter
Offenders
Increase
Guardianship
Reduce
Vulnerability

Total

Dark blue : Greatest proportion of hours. Medium blue : Second largest proportion of hours. Light blue : Third largest proportion of hours.

Figure 32: Hours spent on cooperative plays (Category II)
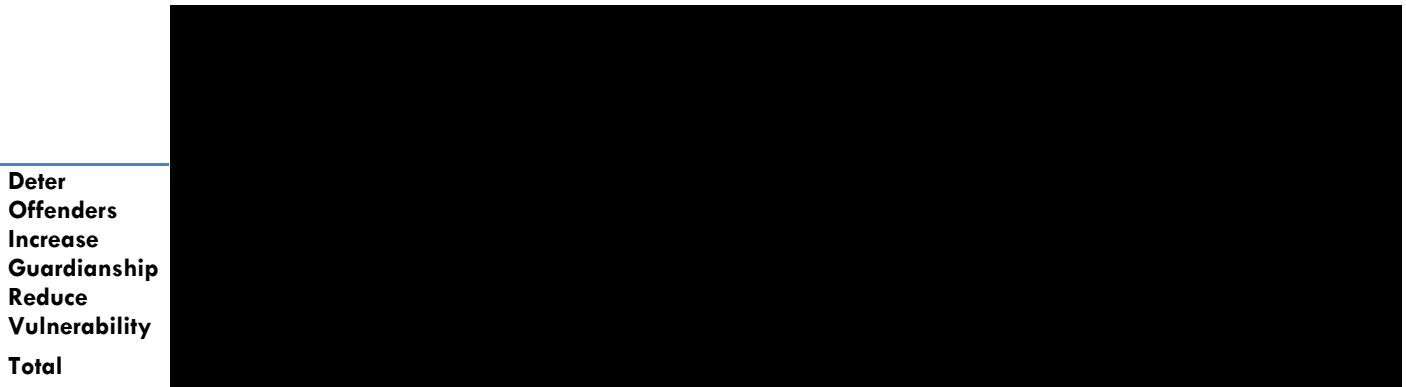
Deter
Offenders

Increase
Guardianship

Reduce
Vulnerability

Total

Dark blue : Greatest proportion of hours.   Medium blue : Second largest proportion of hours.   Light blue : Third largest proportion of hours.

Plays Not Classified in the Matrix

A number of employee hours in the data were associated with plays that did not appear in the Playbook documentation used by the research team during the Phase I analysis. Some are locally developed plays, while others are plays that have been discontinued, or plays that were added by newer versions of the Playbook. These plays and their associated hours by airport category are listed in Figure 33.

Most employee hours for plays outside of the Matrix at both Category X and Category I airports were logged for ███████ This play was related to TSA's BDO Validation Study, and was only available for a short period of time while that study was under way. The largest concentration of employee hours at Category II airports was ████████████████████ play that was not added until the summer of 2011 (the Phase I study was based on documentation from February 2010).

Other plays that were allocated significant employee hours include ████████████████
██
██
██
███████ █ ██████ ████ ██████ ███████ ██████ ██████ ██████
██
██
██
█████████████████████████

Figure 33. Play hours not in Playbook Matrix

Play	% Total – Cat X	% Total- Cat I	% Total – Cat II

Dark blue : Greatest proportion of hours. Medium blue : Second largest proportion of hours. Light blue : Third largest proportion of hours.

4   CONCLUSION

This report describes the findings of the second phase of the GMU-TSA project to assess TSA's comprehensive strategy to security at airports, the Security Playbook. It includes an in-depth, national organizational survey of Playbook operations at Category X, I, and II airports in the United States, and an analysis of performance management data collected by the Playbook Program Office at TSA Headquarters. While there has been a significant expenditure on counterterrorism and airport security measures since 9/11, very few evaluations of the efficiency and effectiveness of these strategies exist. The research presented here and in our Phase I report shows that assessment research at airports is possible, and interesting findings can be discovered. The survey and PMIS data analysis detail a more realistic picture of the implementation of Playbook, and also a better understanding of the perceptions of those implementing it. The feasibility of such a survey is also reflected in the high response rate – over 81 percent of those contacted returned a completed survey. In addition to the rich data obtained from the airports, we assessed nearly one and a half million performance management reports of TSA personnel hours dedicated to Playbook activities, providing a strong basis for drawing conclusions from our dataset.

From this analysis, the following conclusions can be drawn:

(1) The Playbook primarily arises from, and is implemented by, TSA rather than through collaboration between TSA and other airport entities. While one of Playbook's stated aims is to enhance cooperation and collaboration between TSA and the various other security stakeholders in the airport, such as the airport authority and law enforcement, our survey results suggest that little cooperation with external agencies occurs in practice (and many plays do not require cooperation). TSA personnel rate both perceived knowledge of and actual involvement in Playbook among non-TSA entities to be generally low. This is consistent with what we found in the first phase of our study – the vast majority ████████████ of plays are designed to be implemented by TSA personnel only. In our Phase I report, we discuss from an evidence-based perspective the possible benefits to security that may be derived from cooperation. Increasing the degree of collaboration between TSA and other agencies within the airport will enhance Playbook's potential for effectiveness.

(2) When collaboration between TSA and other airport entities does occur, respondents felt exchanges were generally positive. This suggests that Playbook does have the potential to facilitate working relationships with other stakeholders, a finding anecdotally supported in some of our site visits. From this starting point, TSA may consider strengthening and increasing the number of information-sharing plays, and extending opportunities for collaboration, as we suggested above and in our Phase I report.

(3) Play implementation is less random than intended. One important aspect of Playbook, according to the TSA Playbook managers at TSA Headquarters, is the Randomizer. They

reported in interviews with us that a random scheme of play selection and implementation can help to increase the unpredictability of security measures, thus improving security. Our literature review in Phase I suggested that random allocation of security patrols could be an effective deterrent mechanism if targeted in high risk areas. TSA is currently moving toward more risk-based deployment, including the REFS (Risk Emphasized Flight Screening) program that is already reflected in Playbook. Our findings here indicate that while the Randomizer is used, a number of discretionary actions are taken before and after it is implemented. Our survey indicates that many airports tailor Playbook activity to the specific environment of their airport. This is positive from the perspective of place-based crime prevention, because tailored, place-specific strategies have been shown to be effective, but it also undermines the purpose of randomization to some extent. Furthermore, airports believe that some plays are either not relevant to their airport or are not effective from their perspective, attitudes that may be related to one another. Moreover, the hourly data analysis shows that considerable employee resources are dedicated to locally developed plays, even though a small proportion of airports reported developing their own plays. This finding highlights a need for further investigation into incorporating key elements of unpredictability and randomness into strategies that are tailored to maximizing security in the specific local conditions of each airport.

(4) Playbook implementation tends to be ███████████████████████████████. Playbook emphasizes the "layers of security" approach of extending security out beyond ████████ ███ However, the survey and the hours data, as well as our initial Phase I mapping of the plays themselves, suggest that there is much concentration of Playbook operations in ██████████████. This is partly due to the fact that the ██ ██████████████████████████. Preliminary findings from our qualitative data collection in Phase III suggest some airports may therefore use ██████████████ to ensure FTE allocation quotas are met. Additionally, these findings suggest that at small airports it was necessary to ██ ██████████████████████. To ensure that Playbook activity is focused at areas other than ██████████████, TSA should consider revising Playbook performance measures and FTE allocations to distribute them between specific locations within Playbook, rather than across Playbook as a whole. These allocations should also be tailored to airport size. Evaluation findings can help determine where the highest risk areas are within the airport, and how to optimize the deployment of resources to those locations.

(5) ███ ███ ███ ███ ███ ██████████ However, the survey and hourly data analysis suggest that there is still much more emphasis on ███ ███████████████████████████ Further, the survey results suggest that Playbook's ███. If insider threat

is of specific interest for TSA security, and more generally, if TSA wishes to establish a broader approach to security, reevaluation of the amount of focus ████████████████████████ ████████ is crucial. In our qualitative research in Phase III, we will provide further information about TSA employees' views of the extent of the insider threat compared to external threats. It could be the case that over time, security emphasis has ███████████████████████████ ██████

(6) The majority of airports believe Playbook has improved overall security. The overwhelming majority of airports stated that Playbook had improved or significantly improved their security, regardless of the extent to which Playbook is used at the airport, how much TSO time is dedicated to the program and the degree of training they receive and so on. Larger airports (in terms of airport category) were more likely to perceive a significant improvement than smaller airports, but among all airport categories respondents' positive impressions of Playbook increased the longer the program was in place.

Future Directions

Phase II of this study confirms that there is considerable variation across airports and airport categories in the implementation of Playbook. While airports appear to understand the purpose and intent of Playbook, there is variability in how this is interpreted and put into practice. Understanding the implementation of Playbook in the field, and identifying the prospects and challenges to its use are crucial to judging what works in airport security. This knowledge will strengthen the basis for future research and evaluation in airports, and will also help TSA to further refine the Playbook program in practice. The next step in this study – the collection of detailed qualitative data through site visits and interviews at selected airports that participated in the survey – will build on the results presented here to further increase our understanding of Playbook in action. Our site visits will enable us to observe some of the key challenges to Playbook implementation – especially collaboration with external agencies and improving detection and prevention of insider threats – in action and develop detailed recommendations for enhancing these goals of Playbook in our next report.

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APPENDIX A: SURVEY INSTRUMENT AND COVER LETTERS

U.S. Department of Homeland Security
Office of Security Operations
601 South 12th Street
Arlington, VA 22202

**Transportation
Security
Administration**

Dear TSA Colleagues,

Thank you for taking part in this unclassified research survey. The focus of this research is on understanding your experiences, perceptions, and insights as they relate to your airport's implementation of Playbook. Your participation is vital in helping to determine the ways in which your airport uses Playbook, as well as the ways in which you believe it has been an effective tool or where there may be room for improvement. This survey is funded by TSA via the Human Factors/Behavioral Sciences Division of DHS' Science & Technology Directorate (DHS S&T), and was developed by researchers at the George Mason University's Center for Evidence Based Crime Policy.

Frequently asked questions:

- **What is the goal of the survey?** The goal of the survey is to understand the extent of implementation and facets of how airports use Playbook. The lessons learned from the survey will be used to develop an evaluation framework that can measure the effectiveness of Playbook.

- **Will my answers be confidential?** Yes. The survey is **anonymous.** Aggregated responses will be shared with DHS S&T and with TSA, but no individual answers will be shared. Any identifying information provided will be kept separate from your survey and will be kept strictly confidential. Identifying information will only be used by the research team for follow up purposes. At the end of the study all identifying information will be destroyed.

- **Is this survey applicable to my airport?** Yes. The research team would like to obtain information from all Category X, I and II airports.

Your experience, knowledge, and perceptions are instrumental to furthering insight into the use of Playbook. We are charged with protecting the Nation's transportation systems to ensure freedom of movement for people and commerce, and it is of utmost importance that we use the right tools to accomplish this mission. Your input is vital in making this determination.

Thank you for your invaluable support,

Jeff Holmgren
General Manager, Office of Security Operations, Operational Performance

www.tsa.gov

U.S. Department of Homeland Security
Washington, DC 20528

Homeland Security

July 1, 2010

To Whom It May Concern,

The Transportation Security Administration has asked the DHS/ Science and Technology Directorate and the Center for Evidence-Based Crime Policy of George Mason University (GMU) to conduct an independent survey of the implementation of the Playbook program. This survey is intended to understand the realities, benefits and challenges to implementing the TSA's "Playbook" as part of the overall approach to assessing and improving current security measures in major U.S. airports.

The cooperation of the Federal Security Director and Playbook Coordinator of each Category X, I, and II airport is essential in understanding the overall variation of Playbook operations. Please answer each question as accurately as possible. We encourage FSDs and Playbook Coordinators to consult with appropriate personnel to confirm the accuracy of responses.

The survey may be completed manually using the attached form, or through a secure website located at: https://www.surveymonkey.com/s/DHS_TSA_GeorgeMason_Survey. Mailed surveys should be sent back in the self-addressed stamped envelope enclosed.

All responses from this survey will be treated as strictly confidential, and no individual survey or airport information will be disclosed to *any* TSA personnel. Rather, surveys will be collected, coded and in totality analyzed for trends. All reports using data collected from the survey will be vetted by DHS prior to publication, and the reports will be made available to the airport FSDs. The survey is conducted under the guidelines of Sensitive Security Information (SSI), and follows the DHS security measures. The survey has been approved by both DHS and the Institutional Review Board of GMU. All GMU researchers associated with this project have been trained in the handling of SSI.

If you have any questions regarding this survey, please feel free to contact Dr. Richard Legault, the DHS S&T Program Manager, directly at richard.legault@dhs.gov or 202.254.6829.

Thank you very much for your time.

Best Regards,

Dr. Richard Legault, PhD
Senior Program Manager
Human Factors/Behavioral Sciences Division
Science & Technology Directorate
Department of Homeland Security

AVIATION SECURITY ENHANCEMENT PARTNERSHIP:
EVALUATING THE TRANSPORTATION SECURITY ADMINISTRATION'S
COMPREHENSIVE AIRPORT SECURITY PLAYBOOK

INFORMED CONSENT FORM

RESEARCH PROCEDURES
This research is being conducted at the request of Department of Homeland Security, Science and Technology Directorate, to conduct an independent survey of the implementation of the Playbook program at Category X, I, and II airports. We are requesting the participation of the Federal Security Director or Playbook Coordinator in answering this survey (or other relevant representative). This survey is voluntary and will take 30 minutes to complete. Your assistance is much appreciated.

RISKS
There are no foreseeable risks or discomforts in participating in this research. Data will be collected and aggregated, and no individual airport or individual person filling out this survey will be identified in any report about the survey results.

BENEFITS
There are no benefits to you as a participant other than to assist George Mason University in furthering research regarding improving airport security.

CONFIDENTIALITY
All responses and results from this survey will be treated as confidential information under DHS rules, and no individual survey or airport information will be disclosed in the reporting of results. No personal information about any specific individual is collected. The airport code will be requested, but only for purposes of data collection and follow-up; however, the airport code will be kept in a separate table, attached to a random unique identifier so that answers are kept separate from the airport code. The survey is conducted under the guidelines of SSI, and follows the DHS security measures. The survey has also been approved by both DHS and the Institutional Review Board of George Mason University. All GMU researchers associated with this project have been trained in the handling of Sensitive Security Information (SSI).

PARTICIPATION
Your participation is voluntary, and you may withdraw from the study at any time and for any reason. If you decide not to participate or if you withdraw from the study, there is no penalty or loss of benefits to which you are otherwise entitled. There are no costs or compensation to you or any other party in conducting this research.

CONTACT
This research is being conducted by the Center for Evidence-Based Crime Policy at George Mason University under its Director, David Weisburd and Deputy Director, Cynthia Lum. They may be reached at 703-993-3421 for questions or to report a research-related problem. You may contact the George Mason University Office of Research Subject Protections at 703-993-4121 if you have questions or comments regarding your rights as a participant in the research. This research has been reviewed according to George Mason University procedures governing your participation in this research.

Thank you for your willingness to participate in this survey. As a reminder, individual answers to this survey will not be shared with anyone, including TSA. If you are unsure about an answer, please consult with someone who knows. If you need more space for an answer, please continue on the back of the questionnaire. This survey is also available online at: https://www.surveymonkey.com/s/DHS_TSA_GeorgeMason_Survey

1. Has the Playbook ever been used at your airport? Please mark one answer below.
_____Yes, it is currently used **(Please skip to Question 4)**
_____No, it is not used currently, but has been used in the past
_____No, it has never been used

2. Why isn't Playbook currently in use at your airport? _____
_____

3. Do you think Playbook will be used at your airport within the next 18 months?   ___Yes ___No
Please explain why or why not: _____
_____

Note: If Playbook is not currently used at your airport, please skip directly to Question 46.

4. When did your airport begin implementing the Playbook? __ __ / __ __ (Month/Year)

5. Consider the overall security structure at your airport. Approximately what percentage of all security operations at your airport consists of Playbook activities? _____%

6. What is the job title of the main coordinator for Playbook operations at your airport? _____
Please also list the job title(s) of the person(s) in charge of selecting and planning Playbook plays in each of the following areas of your airport:

███████████████████████   ███████████████████████
███████████████████████   ███████████████████████
██████████████████████   ███████████████████████
███████████████████████   ███████████████████████
██

7. Do those responsible for Playbook operations at your airport have a regularly scheduled meeting(s) to discuss Playbook operations? ___Yes   ___No **(If no, please skip to Question 9)**

8. How often do the following individuals attend these meetings? Please mark one box on each row.

	Almost every meeting		Half of the meetings		Rarely attends
(Assistant) Federal security directors	☐	☐	☐	☐	☐
TSA Playbook coordinator	☐	☐	☐	☐	☐
TSA front line supervisors or managers	☐	☐	☐	☐	☐
TSA security officers (TSO)	☐	☐	☐	☐	☐
TSA behavioral detection officers (BDO)	☐	☐	☐	☐	☐
TSA aviation inspectors	☐	☐	☐	☐	☐
TSA headquarters personnel	☐	☐	☐	☐	☐
Airline representatives	☐	☐	☐	☐	☐
Airport Authority representatives	☐	☐	☐	☐	☐
Airport police representatives	☐	☐	☐	☐	☐
Field intelligence officers	☐	☐	☐	☐	☐
Local law enforcement representatives	☐	☐	☐	☐	☐
Federal law enforcement representatives	☐	☐	☐	☐	☐
Vendor representatives	☐	☐	☐	☐	☐
Other (please specify):	☐	☐	☐	☐	☐

9. Which of the following individuals or groups at your airport have received <u>formal</u> training about Playbook?

___ (Assistant) Federal security
    directors
___ TSA Playbook coordinator
___ TSA front line supervisors
    or managers
___ TSA security officers (TSO)

___ TSA behavioral detection officers
    (BDO)
___ TSA aviation inspectors
___ Airline representatives
___ Airport Authority representative
___ Airport police representatives

___ Field intelligence officers
___ Local law enforcement
    representatives
___ Federal law enforcement
    representatives
___ Vendor representatives

10. To the best of your knowledge, what is the overall purpose of Playbook?
_____
_____
_____

11. In your experience, how well do the following groups understand the overall purpose of the Playbook?
Please mark one box on each row.

	Very well 5	4	3	2	Not at all 1
(Assistant) Federal security directors	☐	☐	☐	☐	☐
TSA Playbook coordinator	☐	☐	☐	☐	☐
TSA front line supervisors or managers	☐	☐	☐	☐	☐
TSA security officers (TSO)	☐	☐	☐	☐	☐
TSA behavioral detection officers (BDO)	☐	☐	☐	☐	☐
TSA aviation inspectors	☐	☐	☐	☐	☐
TSA headquarters personnel	☐	☐	☐	☐	☐
Airline representatives	☐	☐	☐	☐	☐
Airport Authority representatives	☐	☐	☐	☐	☐
Airport police representatives	☐	☐	☐	☐	☐
Field intelligence officers	☐	☐	☐	☐	☐
Local law enforcement representatives	☐	☐	☐	☐	☐
Federal law enforcement representatives	☐	☐	☐	☐	☐
Vendor representatives	☐	☐	☐	☐	☐

The following questions ask about when and how plays are run at your airport. For these questions, ▮▮▮▮▮
▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮
▮▮▮▮▮▮▮▮▮▮▮▮▮▮

12. During an average week . . . ?
. . . on how many days are Playbook plays run at your airport? _____
. . . approximately how much personnel time (in FTE) is dedicated to Playbook plays? _____

13. On days that you run Playbook plays, approximately how many <u>plays</u> are used per day? _____

14. In which areas of the airport do plays occur <u>most</u> frequently? Please mark with an X <u>three</u> areas from this list:

▮▮▮▮▮▮▮▮▮▮▮▮   ▮▮▮▮▮▮▮▮▮▮   ▮▮▮▮▮▮▮▮▮▮▮
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15. In which areas of the airport do plays occur <u>least</u> frequently? Please mark with an N areas where plays have NEVER been run. Then, please mark with an X <u>three</u> areas where plays occur least frequently.

16. Overall, which plays are used most frequently at your airport? Please list the <u>three</u> plays that are used most frequently on the first line below. Then, please give a reason or reasons why each play is often used by marking the appropriate boxes in the column below each choice (you may mark more than one reason for each play).

List play names here:	1.	2.	3.
Have the type of resources necessary to run the play	☐	☐	☐
Play best matched to characteristics of airport	☐	☐	☐
Play best matched to characteristics of passengers	☐	☐	☐
Play perceived to be effective	☐	☐	☐
Usually have the cooperation of other organizations/agencies needed to run the play	☐	☐	☐
Other (please explain):	☐	☐	☐

The next set of questions asks about the selection of plays using the Randomizer.

17. Please list the job title of the person(s) responsible for generating a list of plays using the Randomizer:
_____

18. Approximately how often is the Randomizer run?
___ Daily   ___ Weekly   ___ Bi-Weekly   ___ Monthly   ___ Never   ___ Other: _____

19. Prior to running the Randomizer, are any categories of plays <u>de-selected</u> to prevent them from being chosen?
___ Yes   ___ No **(If no, please skip to Question 21)**

20. Please list the three categories of plays that are most often <u>de-selected</u> on the first line below. Then, please give a reason or reasons why each category is de-selected by marking the appropriate boxes in the column below that choice (you may mark more than one reason in each column).

List play categories here:	1.	2.	3.
Plays are not relevant to the airport	☐	☐	☐
Not enough resources to run plays	☐	☐	☐
Plays are not perceived as effective	☐	☐	☐
Lack of training/knowledge to run plays	☐	☐	☐
Lack of cooperation with other agencies needed to run plays	☐	☐	☐
Other reason (Please explain):	☐	☐	☐

21. Once the Randomizer has produced a list of plays, do Playbook supervisors then implement every play on this list or do they choose only some plays for implementation?
 _____ Implement every play **(Please skip to Question 23)**   _____ Choose only some plays

22. At this point in the process, why are some plays <u>not</u> selected for implementation? Please mark all that apply.
_____ Certain plays are not relevant to the airport
_____ Do not have enough resources to run certain plays
_____ Certain plays are not perceived as effective
_____ Lack of training/knowledge to run certain plays
_____ Lack of cooperation with agencies needed to run certain plays
_____ Other (Please explain):_____

The next set of questions asks about plays that are <u>not</u> selected using the Randomizer.

23. Overall, how often would you say that Playbook supervisors implement plays that were *not* selected by the Randomizer? For example, these plays ███
████████████████████. Please circle a number on the scale below:

Very often 5	4	Sometimes 3	2	Rarely/Never 1

(If you answered Rarely/Never to Question 23, please skip to Question 25.)

24. When Playbook supervisors implement plays that were *not* chosen by the Randomizer, which plays are most frequently selected? On the first line below, please list the three plays that are most frequently selected by supervisors. Then, please give a reason or reasons why each play is selected by marking the appropriate boxes in the column below (you may mark more than one reason for each play).

List play names here:	1.	2.	3.
Availability of extra resources	☐	☐	☐
Period of a heightened security threat	☐	☐	☐
Play perceived as effective	☐	☐	☐
Required by TSA HQ	☐	☐	☐
Regularly used as part of daily security	☐	☐	☐
Personnel have specialized knowledge of play tactic	☐	☐	☐
Other (please explain):	☐	☐	☐

25. In an average week, are most of the plays implemented at your airport selected by the Randomizer or are most plays selected by other means? ___ Most plays from the Randomizer   ___ Most plays selected by other means

The following questions ask about locally-developed plays.

26. Have TSA employees at your airport created and implemented locally-developed plays (that is, plays that do not appear in any Playbook)?   ___ Yes   ___ No **(If no, please skip to Question 30)**

27. Please estimate how many plays your airport has developed: _____

28. In what area(s) of the airport do most of the locally-developed plays occur? Please mark up to three areas where most of these plays occur:

████████████████████   ████████████████   ████████████████
████████████████████   ████████████████   ██████████
████████████████   ████████████████   ████████████████████

29. Please briefly describe the locally-developed play(s) that are most frequently used:

_____
_____

30. Overall, when selecting and implementing plays at your airport, how often do those in charge take into account how plays might negatively affect …? Please mark one box on each row.

	Very often 5	4	Sometimes 3	2	Never 1
…business at airport vendors?	☐	☐	☐	☐	☐
…airline arrival/departure times?	☐	☐	☐	☐	☐
…passenger views of airport security?	☐	☐	☐	☐	☐
…the working environment of airline staff?	☐	☐	☐	☐	☐
…wait times at security lines/boarding gates?	☐	☐	☐	☐	☐

31. Many plays in the Playbook encourage collaboration between TSA and other non-TSA units, organizations, and agencies. How often do the following organizations/agencies at your airport collaborate with TSA to implement plays? Please mark one box on each row.

	Very often 5	4	Sometimes 3	2	Never 1
Airport Authority employees	☐	☐	☐	☐	☐
Airport police	☐	☐	☐	☐	☐
Local law enforcement (not airport police)	☐	☐	☐	☐	☐
Federal law enforcement	☐	☐	☐	☐	☐
Vendors	☐	☐	☐	☐	☐
Airlines	☐	☐	☐	☐	☐
Outside contractors	☐	☐	☐	☐	☐
Entities outside of the airport	☐	☐	☐	☐	☐
Other (Please specify):	☐	☐	☐	☐	☐

32. When it comes to Playbook activities, how would you rate the cooperation between the TSA and other agencies or organizations at your airport? Please mark one box on each row.

	Excellent 5	4	3	2	Poor 1
Airport Authority employees	☐	☐	☐	☐	☐
Airport police	☐	☐	☐	☐	☐
Local law enforcement	☐	☐	☐	☐	☐
Federal law enforcement	☐	☐	☐	☐	☐
Vendors	☐	☐	☐	☐	☐
Airlines	☐	☐	☐	☐	☐
Outside contractors	☐	☐	☐	☐	☐
Entities outside the airport	☐	☐	☐	☐	☐

Other (please specify):   ☐   ☐   ☐   ☐   ☐

33. Whenever any new program is launched, there can be variation in how the program is viewed. In your opinion, do the following groups have a positive or a negative perception of Playbook activities at your airport? Please mark one box on each row. If a group mentioned is generally not aware of Playbook, please mark the last box in the row.

	Very positive 5	4	3	2	Very Negative 1	Not aware
(Assistant) Federal security directors	☐	☐	☐	☐	☐	☐
TSA Playbook coordinator	☐	☐	☐	☐	☐	☐
TSA behavioral detection officers (BDOs)	☐	☐	☐	☐	☐	☐
TSA security officers (TSOs)	☐	☐	☐	☐	☐	☐
TSA aviation inspectors	☐	☐	☐	☐	☐	☐
Federal law enforcement officers	☐	☐	☐	☐	☐	☐
Federal air marshals	☐	☐	☐	☐	☐	☐
Field intelligence officers	☐	☐	☐	☐	☐	☐
Airport authority	☐	☐	☐	☐	☐	☐
Airport police	☐	☐	☐	☐	☐	☐
Local law enforcement officers (not airport police)	☐	☐	☐	☐	☐	☐
Airline personnel	☐	☐	☐	☐	☐	☐
Airport vendors	☐	☐	☐	☐	☐	☐
Airport contractors	☐	☐	☐	☐	☐	☐
Airline passengers	☐	☐	☐	☐	☐	☐
Other members of the public who visit the airport	☐	☐	☐	☐	☐	☐

34. Is there a formal complaint system at your airport where individuals can report concerns about Playbook activities?   ___ Yes   ___ No   ___ I don't know

(If you answered No or Don't Know to Question 34, please skip to Question 38.)

35. Please specify the play that most frequently leads to complaints *from the public*: _____
_____

36. Please specify the play that most frequently leads to complaints *from airport personnel*: _____
_____

37. In your experience, have complaints from the public about TSA activities at your airport increased, decreased or stayed about the same since the introduction of Playbook? Please circle one number on the scale below:

Greatly increased 5	4	Stayed the same 3	2	Greatly decreased 1

38. Generally, how often do Playbook plays…? Please mark one box in each row:

	Daily	Weekly	Monthly	Every 6 months	Yearly	Never
. . . prompt TSA employees to question an individual in the airport?	☐	☐	☐	☐	☐	☐
. . . prompt TSA employees to search an individual in the airport?	☐	☐	☐	☐	☐	☐
. . . prompt TSA employees to request assistance from airport police or other law enforcement?	☐	☐	☐	☐	☐	☐
. . . directly result in an arrest?	☐	☐	☐	☐	☐	☐
. . . uncover legal but prohibited items (e.g. non-hazardous liquids and gels)?	☐	☐	☐	☐	☐	☐
. . . uncover illegal contraband (e.g. drugs, guns, smuggling)?	☐	☐	☐	☐	☐	☐

39. Generally, how often do Playbook plays uncover security breaches (even minor ones) in the following areas? Please mark one box on each row:

	Daily	Weekly	Monthly	Every 6 Months	Yearly	Never
██████████████	☐	☐	☐	☐	☐	☐
█████████████████	☐	☐	☐	☐	☐	☐
███████████	☐	☐	☐	☐	☐	☐
█████████	☐	☐	☐	☐	☐	☐
████████████	☐	☐	☐	☐	☐	☐
████████████	☐	☐	☐	☐	☐	☐
███████	☐	☐	☐	☐	☐	☐
███████████	☐	☐	☐	☐	☐	☐
█████	☐	☐	☐	☐	☐	☐
█████████	☐	☐	☐	☐	☐	☐

40. Please think about the security breaches detected at your airport during the year 2010. Were most of these breaches detected as a result of Playbook activities, or were most detected based on other security structures at your airport? Please circle one number on the scale below:

Almost all detected by Playbook activities 5	4	3	2	Almost all detected by other security structures 1

41. How often would you estimate that Playbook operations have uncovered security breaches that other security measures did not detect? Please circle an answer:

Daily	Weekly	Monthly	Every 6 Months	Yearly	Never

42. In your view, has the introduction of Playbook improved or diminished the level of security at your airport? Please circle one number on the scale below:

7

Significantly improved 5	4	Stayed about the same 3	2	Significantly diminished 1

43. In your opinion, which three plays are <u>most</u> effective from a security perspective? Please list the three plays you believe are most effective and provide a brief explanation as to why.
Name of Play 1: _____ Reason:_____
Name of Play 2: _____ Reason:_____
Name of Play 3: _____ Reason: _____

44. In your opinion, which three plays are <u>least</u> effective from a security perspective? Please list the three plays you believe are least effective and provide a brief explanation as to why.
Name of Play 1: _____ Reason: _____
Name of Play 2: _____ Reason: _____
Name of Play 3: _____ Reason: _____

45. Do you agree or disagree with the following statement? Any questions or concerns I have had about Playbook have been adequately addressed by TSA headquarters. Please circle one number on the scale below:

Strongly agree 5	4	3	2	Strongly disagree 1

Thank you for your participation. In order to complete the survey, please answer a few brief factual questions about your airport. As a reminder, individual answers to this survey will not be shared with anyone, including TSA. Any identifying information you provide will be kept confidential and will only be used by the research team to follow up if we have any questions.

46. Please list the 3 digit ICAO/IATA code of your airport: ____ ____ ____

47. Approximately how many total flights depart from your airport each month? _____

48. Which types of flights operate from your airport? Please check all that apply:
___ Domestic commercial flights   ___ International commercial flights   ___ Cargo flights

49. What is the monthly count of departing commercial airline passengers at your airport? _____

50. What is the monthly volume of cargo (in tons) enplaned and deplaned at your airport? _____

51. How many TSA employees work at your airport? _____

52. If we need to clarify an answer to the survey, may we contact you? If so, please provide your contact information below (name, job title, telephone number, email address). Again, all contacts will be kept confidential.
_____
_____

53. If you have any concerns or comments about Playbook that you feel have not been addressed on this survey, please describe them here: _____
_____
_____
_____ _____
_____
_____
_____
_____ _____

APPENDIX B: AIRPORT CATEGORY DEFINITIONS

- Category X
  - Airport is subject to the security program requirements of 49 CFR 1542.103(a) (full security program)
  - Aircraft operators are subject to 49 CFR 1544.101(a)(1) or 1546.101(a) (provisions for aircraft with 61 or more seats, or aircraft with 60 or fewer seats when passengers are enplaned and deplaned in a sterile area)
  - Annual enplanements are 5 million or more
  - International enplanements are 1 million or more
- Category I
  - Airport is subject to the security program requirements of 49 CFR 1542.103(a) (full security program)
  - Aircraft operators are subject to 49 CFR 1544.101(a)(1) or 1546.101(a) (provisions for aircraft with 61 or more seats, or aircraft with 60 or fewer seats when passengers are enplaned and deplaned in a sterile area)
  - Number of annual enplanements is more than 1.25 million but less than 5 million, or 5 million or more but the number of international enplanements is less than 1 million
- Category II
  - Airport is subject to the security program requirements of 49 CFR 1542.103(a) (full security program)
  - Aircraft operators are subject to 49 CFR 1544.101(a)(1) or 1546.101(a) (provisions for aircraft with 61 or more seats, or aircraft with 60 or fewer seats when passengers are enplaned and deplaned in a sterile area)
  - Number of annual enplanements is 250,000 or more, but less than 1.25 million
- Category III
  - Airport is subject to the security program requirements of 49 CFR 1542.103(a) (full security program)
  - Aircraft operators are subject to 49 CFR 1544.101(a)(1) or 1546.101(a) (provisions for aircraft with 61 or more seats, or aircraft with 60 or fewer seats when passengers are enplaned and deplaned in a sterile area)
  - The number of annual enplanements is less than 250,000
- Category IV
  - Airport is subject to the security program requirements of 49 CFR 1542.103(b) or (c) (supporting or partial security program)
  - Aircraft operators are subject to 49 CFR 1544.101(a)(2), (b), or (f) or 1546.101(b), (c), or (d) (provisions for with 60 or fewer seats when passengers are not enplaned and deplaned in a sterile area)

APPENDIX C: RESEARCH METHODOLOGY

Due to the finite number of airports available in our sample, it was crucial to obtain the highest response rate possible. Response rates can be low in organizational surveys because an appropriate individual within the organization is not targeted to fill out the survey; survey distributions are not followed up; and/or the organization is unaware of the research and does not see it as a priority. To overcome these difficulties, we sent surveys to an identified individual within TSA at each airport, usually the FSD or other TSA lead executive, or the Playbook coordinator. TSA provided us with a list of names, mailing and email addresses, and direct contact numbers for these individuals. In our introductory material we made it clear to FSDs that they could pass the survey along to other relevant individuals within TSA at their airport. We also included letters of support from a senior executive from TSA's Office of Security Operations and the DHS Science and Technology Directorate to emphasize the legitimacy of the survey while still maintaining that the data collection was independent of TSA (see Appendix A). Finally, respondents were given the option of completing the survey on paper or online through a secure website controlled by the CEBCP-GMU team. Each paper survey was sent out with a self-addressed, stamped envelope for airports to return their responses. Providing these flexible options helped to ensure that airports would be willing to participate. The survey instrument and accompanying consent letter (see Appendix A) were reviewed and approved by George Mason University's Human Subjects Review Board in accordance with Federal regulations governing the participation of human subjects in research and data collection.

The survey implementation and data collection occurred in four waves across a four-month period. The first wave of surveys was mailed out on July 5, 2011, accompanied by an email to all FSDs introducing the project and explaining their options for responding to the survey. The email contained a link to the online version of the survey, and the link was also included on the paper survey sent via U.S. mail. On August 2, 2011, we followed up with a second wave of mailings and emails to those who had not yet responded. On September 6, 2011, graduate research assistants working with the CEBCP team personally called each FSD whose airport had not yet responded and encouraged them to fill out the survey. A second round of telephone follow-up took place on October 11, and online data collection officially ended on October 31. The multi-wave strategy and personal contacts with airports helped to ensure a high response rate.

Between the final round of telephone calls and the closing date, project staff entered the paper surveys returned by mail into the same online survey instrument provided to airports to maintain a consistent data structure. The final dataset was downloaded into SPSS format. Graduate research assistants also contacted respondents by telephone during these final weeks to clarify certain questions or duplicate responses from airports as we prepared the data for analysis.