

**GAO**

Report to the Ranking Democratic  
Member, Committee on Transportation  
and Infrastructure, House of  
Representatives

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July 2006

# AVIATION SECURITY

## TSA Oversight of Checked Baggage Screening Procedures Could Be Strengthened





Highlights of [GAO-06-869](#), a report to the Ranking Democratic Member, Committee on Transportation and Infrastructure, House of Representatives

## Why GAO Did This Study

The Transportation Security Administration (TSA) is responsible for screening all checked baggage in U.S. airports for explosives and has deployed explosive detection systems and developed standard procedures for their use. TSA also allows alternative screening procedures to be used for short-term, special circumstances. This report addresses (1) how TSA prioritized the use of checked baggage screening procedures and identified trade-offs in security effectiveness and operational efficiencies; (2) how TSA reported use of the procedures and ensured that standard procedures are used whenever possible; and (3) what steps TSA took to reduce airports' need to use alternative screening procedures and to establish performance measures to monitor their use. To address these issues, GAO interviewed TSA officials, reviewed information from TSA's database on checked baggage screening operations; and conducted airport site visits.

## What GAO Recommends

GAO is recommending that TSA use information on airport usage of alternative screening procedures in conducting covert testing; strengthen TSA's monitoring and tracking of the use of alternative screening procedures; and develop performance measures and targets for the use of alternative screening procedures. DHS reviewed a draft of this report and generally concurred with GAO's findings and recommendations. [www.gao.gov/cgi-bin/getrpt?GAO-06-869](http://www.gao.gov/cgi-bin/getrpt?GAO-06-869).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Cathleen Berrick at (202) 512-3404 or [berrickc@gao.gov](mailto:berrickc@gao.gov).

## AVIATION SECURITY

# TSA Oversight of Checked Baggage Screening Procedures Could Be Strengthened

## What GAO Found

TSA has prioritized standard and alternative checked baggage screening procedures based on legislative requirements and TSA officials' judgment of the procedures' effectiveness. Use of various procedures to screen checked baggage has involved trade-offs in security effectiveness, which vary by the type of procedure used and the circumstances of its use. It is TSA's policy to use standard procedures whenever possible because TSA officials determined that these procedures provide the most effective detection of explosives. TSA policy also allows the use of alternative screening procedures when volumes of baggage awaiting screening pose security vulnerabilities or when TSA airport officials determine that there is a security risk associated with large concentrations of passengers in an area waiting for their baggage to be screened. Regarding operational efficiencies, TSA has not fully determined the throughput and costs of the various alternative screening procedures in part because it does not count the number of bags screened using these procedures. TSA has conducted covert tests (undercover, unannounced) of standard procedures, but has not conducted this testing for alternative screening procedures. TSA cited logistical difficulties in conducting covert tests for alternative screening procedures. However, by not doing so, TSA is not collecting data that could provide useful information in determining the security effectiveness of the procedures in an operational setting and how to improve their effectiveness.

TSA cannot identify the percentage of checked baggage screened using standard versus alternative screening procedures because TSA records standard procedures in terms of the number of bags screened in its management information system, but records alternative procedures in terms of the number of occasions and hours of use. However, TSA officials estimated that a low percentage of checked baggage is screened using alternative screening procedures. To assess the extent that standard screening procedures are used whenever possible, TSA has established internal controls to monitor the use of standard and alternative screening procedures; however, these controls were not always implemented to ensure the gathering of complete and accurate information. This may limit TSA managers' ability to assess the effect of using alternative screening procedures and determine what should be done to minimize the use of the procedures. TSA headquarters officials stated that they are working with TSA airport staff to correct such reporting problems.

TSA has taken steps to reduce the need to use alternative screening procedures at airports, including anticipating factors that could increase passenger and baggage volume and acting to address these factors. However, TSA has not developed performance measures and targets to assess its progress in minimizing the need to use the procedures. By creating performance measures, TSA could gauge whether it is making progress toward minimizing the need to use alternative screening procedures at airports. Performance targets for the procedures would be an indicator of how much risk TSA is willing to accept in using the procedures.

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## Abbreviations

ATSA	Aviation and Transportation Security Act
DHS	Department of Homeland Security
EDS	Explosive Detection System
ETD	Explosive Trace Detection
FAA	Federal Aviation Administration
FSD	Federal Security Director
GPRA	Government Performance and Results Act
OI	Office of Inspections
PMIS	Performance Management Information System
TSA	Transportation Security Administration
TSO	Transportation Security Officer

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United States Government Accountability Office  
Washington, DC 20548

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July 28, 2006

The Honorable James L. Oberstar  
Ranking Democratic Member  
Committee on Transportation and Infrastructure  
House of Representatives

Dear Mr. Oberstar:

Commercial U.S. aircraft have long been a target for terrorist attacks through the use of explosives carried in checked baggage, as demonstrated by the 1988 bombing of a U.S. aircraft over Lockerbie, Scotland. After the terrorist attacks of September 11, 2001, which further highlighted the vulnerability of U.S. aircraft to acts of terrorism, Congress passed and the President signed into law the Aviation and Transportation Security Act (ATSA), mandating, among other things, that all checked baggage at U.S. airports be screened using explosive detection systems by December 31, 2002.<sup>1</sup> In response to this mandate, the Transportation Security Administration (TSA) has deployed two types of systems and has established standard procedures for their use: (1) explosive detection systems (EDS) that use specialized X-rays to detect characteristics of explosives that may be contained in baggage as it moves along a conveyor belt and (2) explosive trace detection (ETD) systems, whereby an individual (i.e., a baggage screener) swabs a bag and then inserts the swab into the ETD machine, which, in turn, can detect chemical residues that may indicate the presence of explosives within a bag.<sup>2</sup> TSA also allows alternative screening procedures to be used when volumes of baggage awaiting screening pose security vulnerabilities or when TSA officials determine that there is a security risk associated with large concentrations of passengers in an area. These alternative screening procedures include the use of EDS and ETD machines in nonstandard ways,<sup>3</sup> and also include three procedures that do not use EDS or ETD—screening with explosives detection canines, physical bag searches, and matching baggage to

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<sup>1</sup>Congress subsequently extended this deadline by 1 year.

<sup>2</sup>TSA interpreted ATSA's reference to "explosive detection systems" to allow for the deployment of EDS and ETD to satisfy the mandate.

<sup>3</sup>The nonstandard ways that the machines are used is sensitive security information.

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passenger manifests to confirm that the passenger and his or her baggage are on the same plane. It is TSA's policy to use standard EDS and ETD screening procedures whenever possible and, when necessary, to use EDS or ETD-based alternative screening procedures before using non-EDS or ETD alternative screening procedures. TSA has also established operating procedures for checked baggage screening that instruct Transportation Security Officers (TSO—formerly known as screeners) in how to use these standard and alternative screening procedures.

In February 2004, we testified that TSA was unable to fully utilize explosive detection systems to satisfy the ATSA mandate to screen 100 percent of checked baggage for explosives because of TSO shortages and problems with screening equipment, among other factors.<sup>4</sup> Further, in February 2005, we reported that TSA considers one baggage screening method—the use of EDS machines—to be the superior baggage screening procedure in terms of efficiency compared to ETD because EDS automatically detects explosives without direct human involvement and screens more bags for explosives per hour. We also reported that at most smaller airports, where EDS machines are not installed, TSA screens solely with ETD machines. Finally, we reported that while TSA had made progress in deploying EDS and ETD machines, it had not conducted a systematic, prospective analysis of the optimal deployment of these machines to achieve long-term savings and enhanced efficiencies and security. In February 2006, TSA issued a report to Congress detailing its strategic planning framework for its checked baggage screening program. According to TSA, the framework, which focuses on identifying optimal checked baggage screening solutions for airports, will be used to establish a comprehensive strategic plan for TSA's checked baggage screening program. TSA expects to complete the strategic plan in early fall 2006.

You asked that we continue to assess TSA's progress in enhancing the effectiveness of checked baggage screening operations. In February 2006, we issued a report that contained sensitive security information regarding TSA's use of standard and alternative checked baggage screening procedures, including the extent to which the procedures were used by TSA and the trade-offs in security effectiveness of using standard and alternative screening procedures to screen checked baggage for

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<sup>4</sup>GAO, *Aviation Security: Challenges Exist in Stabilizing and Enhancing Passenger and Baggage Screening Operations*, [GAO-04-440T](#) (Washington, D.C.: Feb. 12, 2004).

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explosives.<sup>5</sup> We concurrently issued a classified correspondence on our analysis of the results of TSA's checked baggage screening covert testing.<sup>6</sup> This report provides the results of our February 2006 report with sensitive security information removed. In this report, we address the following questions: (1) How did TSA prioritize the use of standard and alternative checked baggage screening procedures and what security effectiveness trade-offs and operational efficiencies has TSA identified in using these procedures to screen checked baggage for explosives? (2) To what extent has TSA used standard and alternative screening procedures to screen checked baggage for explosives and how does TSA ensure that standard screening procedures are used whenever possible? (3) What steps has TSA taken to reduce airports' need to use alternative screening procedures and to establish performance measures and targets for the use of the procedures?

To address how TSA prioritized the use of checked baggage screening procedures and identified trade-offs in security effectiveness and operational efficiencies of using standard and alternative screening procedures to screen checked baggage for explosives, we assessed TSA's standard operating procedures, obtained and analyzed relevant legislation, and conducted a literature search to obtain information on screening procedures, technologies, and related aviation trends. We also reviewed studies conducted by TSA's Transportation Security Laboratory regarding checked baggage screening. We interviewed officials from various TSA offices as well as air carriers, explosive detection systems equipment manufacturers, and an airport industry association to obtain information regarding TSA's checked baggage screening procedures and the relative priority they were given. To determine the extent to which TSA used standard and alternative screening procedures to screen checked baggage and how TSA ensured that standard screening procedures are used whenever possible, we reviewed TSA's checked baggage standard operating procedures manual and its Performance Management Information System (PMIS) database, which contains information on checked baggage screening operations.<sup>7</sup> We compared TSA procedures for

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<sup>5</sup>GAO, *Aviation Security: TSA Management of Checked Baggage Screening Procedures Could Be Improved*, [GAO-06-291SU](#) (Washington, D.C.: Feb. 28, 2006).

<sup>6</sup>GAO, *Analysis of TSA's Covert Testing for Checked Baggage Screening*, [GAO-06-317C](#) (Washington, D.C.: Feb. 28, 2006).

<sup>7</sup>PMIS is a Web-based application used by TSA field staff to submit data to headquarters on operations and performance.

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use of standard and alternative screening procedures with the Comptroller General's Standards for Internal Control in the Federal Government. We interviewed TSA officials to determine the reliability of the information contained in the PMIS database and reviewed selected database records. Although we determined that the database did not always contain accurate data on the duration of each occurrence of alternative baggage screening procedures, we nonetheless considered the database to be sufficiently reliable for purposes of this report since the data identified overall trends in the use of alternative screening procedures. To assess the steps TSA has taken to reduce airports' need to use alternative screening procedures and the measures and targets TSA has set for alternative screening procedures, we analyzed TSA directives regarding use of the procedures, PMIS data, standard operating procedures for checked baggage, and the inventory of explosive detection systems. When we found discrepancies in the inventory data of explosive detection systems, we worked with TSA to resolve the discrepancies. TSA also completed a reconciliation of the inventory database with data collected manually by TSA officials. We also examined TSA's checked baggage screening performance measures and targets as they relate to the Government Performance and Results Act of 1993 (GPRA) requirements. We visited nine airports during this review to observe baggage screening operations. We chose these airports based on reporting in PMIS, selecting some airports that had used alternative screening procedures and some that had not used the procedures. We also conducted structured interviews with TSA Federal Security Directors (FSD)<sup>8</sup> and their staffs who were responsible for the security of 29 randomly selected airports. Because we selected a nonprobability sample of airports to visit, the information we obtained during these visits cannot be generalized to all airports nationwide.<sup>9</sup> Also, while the interviews we conducted with FSDs were random samples of airports, the samples were too small to generalize the interview results with a high degree of statistical confidence to all airports nationwide.

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<sup>8</sup>The Federal Security Director is the ranking TSA authority responsible for the leadership and coordination of TSA security activities at the nation's commercial airports.

<sup>9</sup>Nonprobability sampling is a method of sampling where observations are selected in a manner that is not completely random, usually using specific characteristics of the population as criteria. Results from nonprobability samples cannot be used to make inferences about a population because in a nonprobability sample, some elements of the population being studied have no chance or an unknown chance of being selected as part of the sample.



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We conducted our work from August 2004 through July 2006 in accordance with generally accepted government auditing standards. A more detailed discussion of our scope and methodology is contained in appendix I.

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## Results in Brief

TSA prioritized the use of standard and alternative checked baggage screening procedures based on legislative requirements and TSA officials' judgment of the effectiveness of the procedures, and TSA's use of these procedures has involved trade-offs in security effectiveness. It is TSA's policy to use standard EDS and ETD screening procedures whenever possible because of legislative requirements to do so and because TSA has concluded that these procedures provide the most effective detection of explosives at a checked baggage screening station. TSA considers screening with EDS to be superior to screening with ETD because EDS machines process more bags per hour and automatically detect explosives without direct human involvement. Given the high volumes of checked baggage processed at some airports and unforeseen events such as equipment failures and severe weather, TSA has determined that it will have to continue to at times use alternative screening procedures to screen checked baggage for explosives. TSA officials prioritized the use of these procedures based on their professional judgment of the effectiveness of the procedures and the classified probabilities of detection of EDS and ETD machines obtained from the TSA Transportation Security Laboratory. Alternative screening procedures include physical bag searches; alternative hybrid procedures, which involve a combination of the standard checked baggage procedures for EDS and ETD;<sup>10</sup> matching checked bags to passenger manifests to deter bombers who try to load a bag on a plane without boarding; explosive detection canines; and another screening method TSA has determined to be sensitive security information. With regard to operational efficiencies, TSA has not determined the throughput (number of checked bags screened per hour) and costs of the various alternative screening procedures in part because it does not count the number of bags screened using these procedures. While TSA has used alternative screening procedures for more than 3 years and expects to continue to use them, it has not tested the security effectiveness of these procedures in an

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<sup>10</sup>Alternative hybrid procedures use a combination of EDS and ETD at a screening station that is usually configured only for EDS. At some screening stations, TSA has also allowed the use of a hybrid configuration as a standard screening procedure.

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operational environment. TSA has conducted national covert (undercover, unannounced) testing of standard screening procedures since September 2002 to assess checked baggage screening technologies and procedures, and TSO performance in detecting explosives in an operational environment. TSA has also authorized FSDs and their designates to conduct local covert testing on standard screening procedures at airports since March 2005 to determine if TSOs can detect simulated improvised explosive devices hidden in checked baggage. However, TSA has not conducted national or local covert testing specifically focused on alternative screening procedures. TSA officials stated that conducting national testing of alternative screening procedures would be challenging, particularly since testing is planned ahead of time and it is difficult to predict when an airport might use alternative screening procedures. While it may be logistically difficult to conduct national covert testing on alternative screening procedures, TSA data on which airports most frequently use the procedures and the reasons for the usage could provide TSA with information to use in selecting airports for covert testing as part of the risk-based approach to covert testing that it is developing. TSA officials also cited challenges in conducting local covert testing of alternative screening procedures, including the difficulty in predicting the need to use the procedures and the lack of available federal staff to conduct the testing, particularly at smaller airports. Because FSDs and their staffs authorize and initiate the use of alternative screening procedures, they could schedule some of their ongoing local covert testing for checked baggage screening to coincide with the use of these procedures. In not assessing the alternative screening procedures through covert testing, TSA is not collecting data that could help determine how effective the procedures are in an operational setting or how to improve the security effectiveness of the procedures.

TSA reported using both standard and alternative screening procedures in PMIS but could not identify the percentage of all checked baggage screened using EDS and ETD with standard or alternative screening procedures. TSA could not identify the percentage of usage of standard or alternative screening procedures because for standard screening procedures, PMIS contains data on the number of bags screened; whereas for alternative screening procedures, it contains data on the number of occasions and hours of use. However, TSA officials estimated that a high percentage of checked baggage is screened using EDS and ETD machines

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with standard screening procedures<sup>11</sup> and a low percentage is screened using alternative screening procedures.<sup>12</sup> TSA also established internal controls to monitor and track the use of standard and alternative screening procedures, including requiring FSDs to report the use of alternative screening procedures into PMIS and to call headquarters for permission to use the alternative screening procedures for more than 2 hours. According to the Comptroller General's Standards for Internal Control, all transactions and other significant events need to be completely and accurately documented. However, we identified several areas where TSA's information on its use of standard and alternative screening procedures was not complete or accurate for the period covered by our review. First, TSA's method for estimating the number of bags screened with ETD using standard screening procedures led to inaccurate counts of baggage screened. Improved counting of bags would provide TSA management with better information to use in making decisions related to its baggage screening operations including where to deploy screening equipment. Second, FSDs and their staffs did not always accurately report the occurrences when a particular alternative baggage screening procedure was used, impeding TSA's ability to reliably determine how often and for how long the alternative screening procedures were used. Third, FSDs and their staffs did not always report the use of alternative screening procedures as required. Inaccurate and incomplete reporting on how often alternative screening procedures are used or for how long, combined with not tracking the number of bags screened using the procedures, may limit TSA managers' ability to assess the effect of using alternative screening procedures on aviation security and to determine the types of actions that should be taken at airports to help minimize the use of these procedures. TSA officials stated they are working with FSDs to correct these reporting problems and have issued guidance clarifying requirements for reporting alternative screening procedures.

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<sup>11</sup>TSA does not require airports to report information on the number of bags screened using alternative screening procedures. To derive its estimate of use of alternative screening procedures across the system, TSA used alternative screening procedures baggage counts only from those airports that voluntarily reported the information in order to calculate the average number of bags screened per hour. TSA then used this calculation of the average bags per hour and the total number of screening hours using the procedures to make this estimate. Because TSA did not have baggage counts for all of the occurrences of alternative screening procedures, this estimate may be inaccurate.

<sup>12</sup>TSA determined that the estimated use of alternative screening procedures is sensitive security information.

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TSA has taken steps to reduce airports' need to use alternative screening procedures, but has not established performance measures or targets regarding the use of these procedures. According to our review of PMIS data, the use of alternative screening procedures between October 2004 and September 2005—measured in terms of the total hours of use reported by FSDs—initially increased and then declined.<sup>13</sup> TSA attributed the reported overall decline in the use of alternative screening procedures to a number of factors, including better coordination with groups such as tour operators; deploying “optimization teams” to airports that were frequently using alternative screening procedures to determine why the procedures were being used so often and to suggest remedies; and deploying additional EDS machines.<sup>14</sup> As we reported in March 2005, additional EDS systems integrated into the airport baggage handling system (“in-line” EDS systems) could reduce by 78 percent the number of baggage TSOs and supervisors needed to screen checked baggage at airports with the systems.<sup>15</sup> TSA’s February 2006 checked baggage screening planning framework includes a prioritization of which additional airports should receive new funding for in-line systems and a description of how stand-alone EDS machines from those airports should be redistributed to other airports. After in-line EDS systems are installed and any staffing reductions are achieved, redistributing the screening positions to other airports with staffing shortages could also reduce the need to use alternative screening procedures at these airports. While TSA data indicate that the use of alternative screening procedures is declining, the strategic planning framework states that at some airports alternative screening procedures will increasingly be used because of rising passenger traffic. TSA has projected that the number of originating domestic and international passengers will rise by about 127 million passengers over current levels by 2010, which could increase airports’ need to rely on alternative screening procedures in the future in the absence of additional or more efficient EDS machines. Furthermore, while TSA has taken steps to reduce the need to use alternative screening procedures at airports, it

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<sup>13</sup>The specific details on the number of hours alternative screening procedures were used are sensitive security information.

<sup>14</sup>At 46 airports, a combined total of 154 EDS machines were added; at 22 airports, a combined total of 62 EDS machines were removed; and 47 airports maintained the same number of EDS machines. One airport with two EDS machines in inventory in 2005 was not on the 2004 or 2002 inventory lists.

<sup>15</sup>GAO, *Aviation Security: Systematic Planning Needed to Optimize the Deployment of Checked Baggage Screening Systems*, [GAO-05-365](#) (Washington, D.C.: Mar.15, 2005).

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has not created performance measures or targets regarding its progress in minimizing the need to use alternative screening procedures at airports. By creating performance measures for the use of alternative screening procedures and corresponding targets, TSA could gauge whether it is making progress in working to minimize the need to use alternative screening procedures at airports and to consider the necessity to take further steps to minimize the need for their use.

To help strengthen TSA's management of checked baggage screening operations, including screening with alternative screening procedures, we are recommending that the Secretary of the Department of Homeland Security (DHS) direct the Assistant Secretary, TSA, to use PMIS data on the use of alternative screening procedures at airports to help determine which airports to conduct national covert testing at and when to conduct such testing, to conduct local covert testing of alternative screening procedures, to strengthen its monitoring and tracking of the use of alternative screening procedures, and to develop performance measures and performance targets for the use of alternative screening procedures.

We provided a draft copy of this report to DHS for review. DHS, in its written comments, generally concurred with our findings and recommendations and stated that the recommendations and findings will help strengthen TSA's management of checked baggage screening operations. The full text of DHS's comments is included in appendix II.

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## Background

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### Standard Procedures for Using EDS and ETD

ATSA mandated that the screening of all checked baggage at commercial airports be done using explosive detection systems by December 31, 2002. To satisfy this mandate, TSA deployed two types of screening equipment to all airports in the United States where screening is required: (1) explosive detection systems, which use computer-aided tomography<sup>16</sup> X-rays adapted from the medical field to automatically recognize the characteristic signatures of threat explosives, and (2) explosives trace detection systems, which use chemical analysis to detect traces of

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<sup>16</sup>Computer-aided tomography is a method of producing a three-dimensional image of the internal structures of a solid object by the observation and recording of the differences in the effects on the passage of waves of energy impinging on those structures.

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explosive materials' vapors and residues. As we reported in February 2004, largely because of shortages of equipment and insufficient time to modify airports to accommodate EDS machines, TSA was unable, at certain airports, to meet this deadline. Recognizing the obstacles encountered by TSA, the Homeland Security Act of 2002, in effect, subsequently extended the deadline for screening all checked baggage for explosives until December 31, 2003, for airports at which TSA was unable to meet the earlier deadline established by ATSA. We also reported that TSA fell short of fully satisfying the extended 2003 mandate and continued to face challenges in screening checked baggage because of (1) an insufficient number of TSOs to operate the EDS and ETD machines, TSO absenteeism, and a lack of TSO training in how to operate the machines and (2) a lack of EDS and ETD equipment and inoperable equipment.<sup>17</sup>

By taking the equivalent of hundreds of X-ray pictures of a bag from different angles, the EDS machine examines the objects inside of the baggage to identify the characteristic signatures of threat explosives such as density and atomic number. TSA has certified, acquired, and deployed EDS machines manufactured by three companies. EDS machines can be installed in airports either in stand-alone mode (not integrated with baggage handling systems) or in-line (integrated with baggage handling systems). TSA has developed standard procedures for using EDS. Figure 1 shows EDS machines in use at an airport.

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<sup>17</sup>[GAO-04-440T](#).

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**Figure 1: EDS Machines In a Stand-alone Configuration Used by TSA to Screen Checked Baggage**



Source: GAO.

At airports that do not have EDS machines and at airports where certain screening stations do not have EDS—for example at curbside check-in stations—TSA uses ETD machines to conduct primary screening. ETD machines are also used for secondary screening, which resolves alarms from EDS machines that indicate the possible presence of explosives inside a bag. TSA has certified, acquired, and deployed ETD machines from three manufacturers. Figure 2 shows an ETD machine in use at an airport.

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**Figure 2: ETD Machine Used by TSA to Screen Checked Baggage**



Source: GAO.

At some screening stations, TSA has also allowed primary screening with both EDS and ETD machines simultaneously. In this hybrid configuration, the EDS machine is used to maximum capacity before the ETD machines are used. Additionally, when the EDS machine alarms, the ETD machines are also used for secondary screening.

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## Alternative Screening Procedures

TSA also uses alternative screening procedures to screen checked baggage for explosives under certain short-term special circumstances, when the standard procedures using EDS and ETD are not used. Two of these procedures involve the use of EDS and ETD. The first of these is an alternative hybrid procedure that is used at a screening station configured only for EDS primary screening. Under this procedure, the EDS is to be used to capacity and the remainder of the bags are screened with ETD.



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The specifics of the second procedure that involves the use of EDS and ETD are sensitive security information.<sup>18</sup> If one of these EDS- or ETD-based alternative screening procedure is not available, TSA will resort to one of the procedures that does not use EDS or ETD—canine screening; physical inspections of baggage; and positive passenger bag match, which requires that passengers be on the same aircraft as their checked baggage.<sup>19</sup>

FSDs and their designates not lower than the Assistant FSD for Screening may authorize the use of alternative screening procedures under two circumstances: (1) when the FSD or his or her designate determines that there is a security threat created by large concentrations of passengers waiting to have their baggage screened or (2) volumes of baggage awaiting screening in a confined baggage screening area pose an explosive or other security vulnerability. These circumstances may arise for reasons such as high passenger volumes, screening machine breakdowns, or unusual weather events such as hurricanes. After alternative screening procedures have been used, TSA requires that information on each occurrence be recorded by FSD staff into the PMIS database, including circumstances leading to the use of the procedure, type of procedure used, and duration. This information on the use of alternative screening procedures from PMIS is to be included in daily briefing reports for TSA senior management.

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<sup>18</sup> TSA also moved additional ETD machines to screening stations to allow for ETD screening. Prior to March 2005, TSA had categorized this procedure, “additional ETDs,” as an alternative screening procedure. Beginning in March 2005, TSA began to categorize this procedure as a standard screening procedure. We did not include this procedure in our analysis of PMIS data on alternative screening procedures.

<sup>19</sup> ATSA, as codified at 49 U.S.C. §44901(d)-(e), authorizes TSA to screen checked baggage using canine screening, physical inspection, or a bag match program if explosive detection equipment is unavailable.

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## TSA Prioritized Screening Procedures Based on Legislative Requirements and Judgment of Effectiveness but Has Not Tested the Security Effectiveness of Alternative Screening Procedures in an Operational Environment

TSA prioritized standard and alternative checked baggage screening procedures based on legislative requirements and TSA officials' judgment of the security effectiveness of the procedures. TSA's use of these various procedures has involved trade-offs in security effectiveness. TSA officials determined that in general, standard screening procedures are more effective than alternative screening procedures. TSA has estimated that in terms of efficiency, EDS processes more bags per hour than ETD. With regard to operational efficiencies, TSA has not determined the throughput and costs of the various alternative screening procedures, in part because it does not count the number of bags screened using the procedures. Additionally, while TSA has assessed the security effectiveness of screening with standard procedures in an operational environment through covert testing, it has not conducted similar testing of alternative screening procedures.

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## TSA Prioritized Standard and Alternative Screening Procedures Based on Legislative Requirements and TSA Officials' Judgment of Security Effectiveness

TSA is required by legislation to screen all checked baggage using explosive detection systems, and TSA officials concluded that standard screening procedures that use EDS or ETD provided the most effective detection of explosives at a baggage screening station and that alternative screening procedures should be used only for short-term, special circumstances. These circumstances include times when security targets are created by large volumes of passengers awaiting baggage screening or when security vulnerabilities are created by volumes of bags awaiting screening. According to TSA, a group of officials from its Chief Technologist, Chief Counsel, Aviation Operations, and Operations Policy offices met to prioritize the use of standard and alternative screening procedures. TSA officials stated that this group did not use formal criteria to prioritize the procedures but instead prioritized them based on their professional judgment of the effectiveness of the procedures, including the classified probabilities of detection of EDS and ETD machines obtained from the Transportation Security Laboratory. This prioritization was subsequently included in TSA's standard operating procedures for checked baggage screening. TSA has determined that details on the prioritization of alternative screening procedures constitute sensitive security information.

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## Standard Baggage Screening Procedures Vary in Operational Efficiency

TSA has estimated that, in terms of efficiency, EDS processes more bags per hour than ETD—EDS ranges from a minimum of 80 bags per hour for one model of a stand-alone machine up to 500 bags per hour for an in-line system, compared to 36 bags per hour by the operator of an ETD machine.<sup>20</sup> Whenever EDS machines have been installed at a screening station, TSA requires airports to use them as the primary method to screen checked baggage. At some screening stations, TSA has also allowed the use of a hybrid configuration as a standard screening procedure that involves colocated EDS and ETD machines for primary screening, with the EDS machine used to maximum capacity before the ETD machines are used. When the EDS machine alarms, the ETD machines are also used for secondary screening. Table 1 shows the bags per hour screened by EDS and ETD machines.

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<sup>20</sup>TSA officials stated that two TSOs can use an ETD machine at the same time, raising the baggage screened throughput to 72 bags per hour

**Table 1: Bags per Hour Screened Using Standard Screening Procedures for Stand-alone and In-line EDS Machines and ETD Machines**

Type of equipment	Maximum bags per hour	
	Stand-alone	In-line
<b>EDS machines</b>		
CTX 2500—stand-alone only	120	NA <sup>a</sup>
CTX 5500	180	250
CTX 9000—in-line only	NA	500
L3 6000	140	500
CT-80—stand-alone only	80	NA
ETD machines—stand-alone only	36	MA

Source: TSA.

<sup>a</sup>NA: Not applicable.

At 312 mostly smaller airports and at some airport screening stations such as curbside check-in stations, TSA has installed ETD instead of EDS for primary screening because of the configuration of screening stations, the costs associated with procuring EDS, and the low passenger volume at smaller airports. In our March 2005 report, we recommended that TSA assess the feasibility, expected benefits, and cost to replace ETD machines with stand-alone EDS machines for the primary screening of checked baggage at those airports where in-line EDS systems would not be either economically justified or justified for other reasons.<sup>21</sup> DHS stated that TSA was conducting an analysis of the airports that rely heavily on ETD machines as the primary checked baggage screening technology in order to identify airports that would benefit from replacing ETD machines with stand-alone EDS equipment.<sup>22</sup> In February 2006, in response to GAO’s recommendation and a legislative requirement to submit a schedule for expediting the installation and use of in-line systems and replacement of ETD equipment with EDS machines,<sup>23</sup> TSA provided its strategic planning framework for its checked baggage screening program to Congress. This framework introduces a strategy intended to increase efficiency through

<sup>21</sup>GAO-05-365.

<sup>22</sup>The stand-alone EDS equipment TSA is considering for these airports includes surplus machines no longer needed once airports installed in-line EDS machines and a newly certified EDS machine appropriate for baggage screening operations that require a lower throughput (bags screened per hour).

<sup>23</sup>Intelligence Reform and Terrorism Prevention Act of 2004, Pub. L. No. 108-458, § 4019, 118 Stat. 3638, 3721-22.

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deploying EDS to as many airports as practicable, lower life-cycle costs for the program, minimize impacts to TSA and airport/airline operations, and provide a flexible security infrastructure for accommodating growing airline traffic and potential new threats.<sup>24</sup> The framework is an initial step in addressing the following areas:

- optimized checked baggage screening solutions—finding the ideal mix of higher-performance and lower-cost alternative screening solutions for the 250 airports with the highest checked baggage volumes and
- funding prioritization schedule by airport—identifying the top 25 airports that should first receive federal funding for projects related to the installation of explosive detection systems based on quantitative modeling of security, economic, and other factors.

TSA's strategic plan for the checked baggage screening program, which TSA expects to complete by early fall 2006, is to include funding and cost-sharing strategies for the installation of in-line baggage screening systems.

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### Use of Alternative Baggage Screening Procedures Involves Trade-offs in Security Effectiveness, while Trade-offs in Operational Efficiencies Have Not Been Determined

TSA has determined that the use of alternative screening procedures at airports has created trade-offs in security effectiveness, but it has not determined the operational efficiencies of these procedures in terms of throughput and costs.<sup>25</sup> TSA based its prioritization of the alternative screening procedures on its judgment of the procedures' security effectiveness and classified probabilities of detection of EDS and ETD machines obtained from the TSA Transportation Security Laboratory. TSA has not determined the operational efficiencies of the various alternative screening procedures in terms of throughput and costs in part because it does not count the number of bags screened using the procedures. If the higher-prioritized alternative screening procedure is not available at a screening station, the FSD may authorize a lower-prioritized procedure.<sup>26</sup>

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<sup>24</sup>TSA has determined that the details of its analysis of the optimal checked baggage screening solutions are sensitive security information.

<sup>25</sup>The specifics of the trade-offs in security effectiveness have been determined to be sensitive security information.

<sup>26</sup>One alternative screening procedure that involves the use of EDS and ETD is not discussed in this report because TSA designated the procedure as sensitive security information.

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### Positive Passenger Bag Match

Under the positive passenger bag match alternative screening procedure, TSA coordinates with airlines to ensure that passengers are on the same aircraft as their checked baggage. If a passenger checks a bag but does not board the airplane, the bag is removed before departure. This procedure was first implemented based on the premise that a terrorist would seek to place a bomb on an airplane without sacrificing his or her life by boarding the airplane. In light of the suicide terrorist attacks of September 11, this premise is now considered flawed. An airline trade association and airline officials representing two airlines we interviewed also stated that the procedure creates operational inefficiencies for airlines. According to these officials, the process of matching bags with passengers can delay flights because the flight cannot take off until all baggage is matched to an on-board passenger. These officials also stated that implementing the procedure increases the workload of airline personnel, who are responsible for conducting the procedures at the direction of TSA.

### Canine Screening

TSA also uses canine units as an alternative screening procedure. These units are composed of trained explosives detection canines and handlers. In terms of efficiency, TSA officials reported that it can be difficult to mobilize canine units in sufficient time to screen checked baggage when alternative screening procedures are needed, especially since the need to use the procedures can arise without warning. Officials also reported that screening checked baggage using canines requires enough open floor space to lay out the baggage as well as a sufficient number of personnel to move the bags into position for canine screening.

### Physical Inspection

The physical inspection alternative screening procedure requires human intervention to detect explosives, weapons, and improvised explosive devices and their components, and does not involve use of EDS or ETD machines. While TSOs are trained to detect improvised explosive devices and their components and to detect signs of tampering, the success of the TSOs in finding these items depends on their skill in detecting such items through manual searches and their adherence to TSA's standard operating procedures for checked baggage regarding physical inspection. Since human TSOs are involved, the efficiency of physical inspection in terms of baggage throughput rate can vary depending on the contents of the bag and how quickly the TSO conducts the search.

### Alternative Hybrid Procedures

Alternative hybrid procedures involve using a combination of EDS and ETD at a screening station normally configured only for EDS. The efficiency of alternative hybrid procedures can vary because each use of the procedure can involve a different proportion of EDS and ETD

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screening, with greater use of EDS leading to more efficient screening in terms of number of bags screened per hour.

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### TSA Has Not Tested the Operational Security Effectiveness of Alternative Screening Procedures through Covert Testing

While TSA has reported using alternative screening procedures for more than 3 years, it has not tested the security effectiveness of the procedures in detecting explosives in an operational environment. TSA has conducted national covert testing of standard screening procedures since September 2002, and local covert testing of standard screening procedures since March 2005. However, it has not specifically focused national or local covert testing on alternative screening procedures to determine the security effectiveness of the procedures. TSA's Office of Inspections (OI—formerly the Office of Internal Affairs and Program Review) conducts national covert tests at airports to assess the security effectiveness of checked baggage screening technology, procedures, and TSO performance in detecting explosives in an operational environment. These tests, in which undercover inspectors attempt to pass threat objects through passenger screening checkpoints and in checked baggage, are designed to identify vulnerabilities in passenger and checked baggage screening systems and to identify systematic problems affecting screening in the areas of training, procedures, and technology.<sup>27</sup> The schedule for this testing called for inspectors to test all category X airports once a year, category I and II airports once every 2 years, and category III and IV airports at least once every 3 years.<sup>28</sup> In August, 2005, TSA suspended this cycle of testing. In April 2006, TSA officials stated that OI was moving to a testing schedule to include observations of screening stations and concentrated testing for improvised explosive devices at the screening checkpoint. The schedule is based on risk-based factors such as current intelligence information, high-vulnerability airports, procedural changes, training initiatives, and introduction of new technologies. According to Office of Inspections officials, during the 3-year testing cycle, inspectors tested the procedures being used by TSOs at the time of the test; alternative screening procedures were tested only if inspectors coincidentally conducted a test at a screening station while one of the procedures was in use. Office of Inspections officials stated that they did

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<sup>27</sup>GAO, *Aviation Security: Screener Training and Performance Measurement Strengthened, but More Work Remains*, [GAO-05-457](#) (Washington, D.C.: May 2, 2005).

<sup>28</sup>TSA classifies the over 400 airports in the United States into one of five categories—X, I, II, III, and IV. Generally, category X airports have the largest number of passenger boardings and category IV airports have the smallest number.

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not schedule tests of alternative screening procedures because their resources were dedicated to conducting testing on standard screening procedures. Furthermore, the officials stated that since covert testing visits are planned in advance of the tests and the need to use alternative screening procedures is not always known in advance, it would be logistically difficult to plan a covert testing visit to coincide with an airport's use of alternative screening procedures because of airports' intermittent and often short-term use of the procedures. While it may be logistically difficult to conduct national covert testing on alternative screening procedures, PMIS data on which airports most frequently use the procedures and the reasons for the usage could provide the Office of Inspections with information to select airports for covert testing as part of the risk-based approach to covert testing that it is developing.

In addition to its national covert testing program, in March 2005, TSA also began an airport-based local covert testing program to determine if TSA checked baggage TSOs can detect a simulated improvised explosive device that is hidden in a test bag. Participation in this program is at the discretion of the FSD. FSD staff test screening at EDS stations by placing simulant explosives in baggage and surreptitiously running the bags through the machines. According to TSA, between March 2005 and February 2006, 2,526 local tests of EDS screening were conducted at 108 airports. When we asked TSA headquarters officials in charge of the local covert testing program about the feasibility and usefulness of testing the use of alternative screening procedures, they stated that they had not previously considered testing the procedures through the local covert testing program. These officials also cited challenges in conducting such testing, including the difficulty in predicting the need to use the procedures and the lack of available federal staff to conduct the testing, particularly at smaller airports. Because FSDs and their staffs authorize and initiate the use of alternative screening procedures, they could schedule some of their ongoing local covert testing for checked baggage screening to coincide with the use of these procedures. In not testing the alternative screening procedures through national or local covert testing, TSA is not collecting data that could provide useful information on how to improve the security effectiveness of these procedures in detecting explosives.



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## The Full Extent of the Usage of Alternative Screening Procedures Is Not Known, and Internal Controls for Monitoring the Usage of Baggage Screening Procedures Could Be Improved

TSA Does Not Collect Consistent Data on the Use of Standard and Alternative Screening Procedures to Enable an Accurate Determination of the Full Extent of Their Use

TSA reported using both standard and alternative screening procedures in PMIS but could not identify the percentage of all checked baggage screening using EDS and ETD with standard or alternative screening procedures. TSA cannot identify the percentage of usage of standard or alternative screening procedures because for standard screening procedures, PMIS contains data on the number of bags screened, whereas for alternative screening procedures it contains data on the number of occasions and hours of use.<sup>29</sup> However, TSA officials estimated that a high percentage of checked baggage is screened using EDS and ETD machines with standard screening procedures<sup>30</sup> and a low percentage is screened using alternative screening procedures.<sup>31</sup> TSA determined that the number of bags screened using EDS and ETD with standard screening procedures

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<sup>29</sup> Although FSDs and their staffs are not required to report the number of bags screened with alternative screening procedures into PMIS, some FSDs and staff from airports that reported using alternative screening procedures reported this information in comment fields on occurrences of use of alternative screening procedures between October 2004 and September 2005. The number of FSDs and the number of occurrences have been determined to be sensitive security information.

<sup>30</sup> TSA does not require airports to report information on the number of bags screened using alternative screening procedures. To derive an estimate of use of alternative screening procedures across the system, TSA used alternative screening procedures baggage counts only from those airports that voluntarily reported the information in order to calculate the average number of bags screened per hour. TSA then used this calculation of the average bags per hour and the total number of screening hours using the procedures to make this estimate. Because TSA did not have baggage counts for all of the occurrences of alternative screening procedures, this estimate may be inaccurate.

<sup>31</sup> TSA determined that its estimate of the use of alternative screening procedures is sensitive security information.

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between October 2004 and September 2005 as well as data on the use of alternative screening procedures reported into PMIS during this same period are sensitive security information.

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### TSA Established Internal Controls to Monitor the Usage of Standard and Alternative Screening Procedures, but Some Controls Have Not Been Adequately Implemented

TSA established internal controls to monitor and track the usage of standard and alternative screening procedures, but has not adequately implemented some of these controls. An internal control is an integral component of an organization's management and is designed to provide reasonable assurance that agencies achieve effectiveness and efficiency of operations and compliance with applicable laws and regulations. The Comptroller General's Standards for Internal Controls require that transactions and events be completely and accurately recorded in order to ensure that information is available for management to guide operations and make decisions.<sup>32</sup> While TSA has established internal controls to monitor and track use of baggage screening procedures, such as requiring FSDs and their designates to report the use of alternative screening procedures into PMIS and to call TSA headquarters for permission to use the procedures for more than 2 hours, some of the controls have not been adequately implemented because events have not been completely and accurately recorded. Consequently, TSA does not have complete information on the extent of the use of alternative screening procedures that would be helpful for TSA management in making decisions on actions to minimize the need to use alternative screening procedures at airports, such as deploying screening equipment.

### Recording of ETD Baggage Screening in PMIS

Information that FSDs and their staffs report in PMIS regarding the number of bags screened using ETD machines may not be accurate because of the way in which the number of bags screened is estimated. While EDS machines automatically count each bag screened, ETD machines count each swab analyzed, rather than each bag screened. TSA uses this count of analyses to estimate the number of bags screened using ETD. The number of analyses for a bag screened using ETD may vary depending on how many times the machine alarms during the screening process and other factors, which may lead to overreporting of baggage screened. TSA officials stated that they are aware of these discrepancies and are working to improve counting of baggage screened using ETD.<sup>33</sup>

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<sup>32</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO/AIMD-00-21.3.1](#) (Washington, D.C.: November 1999).

<sup>33</sup>TSA determined that the other factors that may influence the number of analyses completed for a bag screened using ETD are sensitive security information.

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Recording Occurrences of  
Alternative Screening  
Procedures

Improved counting of bags would provide TSA management with better information to use in making decisions related to its baggage screening operations, including where to deploy screening equipment.

FSDs and their staffs did not always completely and accurately record information in PMIS on the use of various alternative screening procedures. On the basis of our review of PMIS data from October 2004 through September 2005, we found that FSDs and their designates did not always accurately report the occurrences when a particular baggage screening procedure was used. For example, some of the airports that reported using alternative screening procedures voluntarily reported in a PMIS comments field that they used the procedures intermittently over the course of several hours, even though in PMIS they reported only one occurrence that lasted several hours.<sup>34</sup> FSD staff at one of these airports reported in PMIS one occurrence of using alternative screening procedures for 15.5 hours straight but reported in the comments field that the procedures were used during 24 different occurrences during the 15.5 hours. According to TSA guidance, these data should have been recorded as 24 separate occurrences in the PMIS database, not simply noted in the comments field. TSA officials stated that they were aware that many airports were reporting the use of alternative screening procedures for extended periods of time rather than recording each time the use of the procedures was started and stopped within the reported time. In May 2005, the TSA Assistant Administrator for Aviation Programs sent a memo to FSDs noting that the start and stop time of each individual use of an alternative screening procedure at each screening station should be reported into PMIS. In our analysis of PMIS data from May 2005 through September 2005, subsequent to the issuance of this memo, some of the airports continued to report intermittent use of alternative screening procedures in the comments fields.

The design of PMIS also contributed to incomplete and inaccurate recording of information because it does not allow FSDs and their designates to report two or more alternative screening procedures used during the same occurrence. TSA officials have instructed FSDs and their designates to record the alternative screening procedure that is used the most during the occurrence. One airport voluntarily reported in the PMIS

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<sup>34</sup>The comments field is a PMIS database field used to add descriptive data on the alternative screening procedures occurrence. TSA determined that the exact number of airports that voluntarily reported intermittent use of alternative screening procedures in the comments field is sensitive security information.

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comments field that it used three alternative screening procedures throughout the occurrence. However, the PMIS database only allowed reporting of the use of one of the procedures during this time. Because of these reporting limitations, TSA managers do not receive complete information on how often or for how long the various alternative screening procedures are actually used—information that could affect their decisions on what actions to take to minimize the need to use alternative screening procedures at airports.

Another factor that could contribute to incomplete and inaccurate reporting of alternative screening procedures in PMIS is that although FSDs and their staffs are required to report every occurrence of the procedures in PMIS, they may not have always done so. Until August 2005, when this requirement was eliminated, FSDs and their staffs were required to report to the Transportation Security Operations Center—TSA’s command, control, communications and intelligence center—whenever they were about to begin using alternative screening procedures or to switch back to standard EDS or ETD screening after using alternative screening procedures.<sup>35</sup> While TSA officials stated that they did not keep formal records of the calls, they kept what TSA termed “informal notes” on sheets that included times when the use of the alternative screening procedures began and ended and the type of procedure used. When we compared a select number<sup>36</sup> of these sheets completed between February and March 2005 to PMIS reporting for the same period, we found that 21 percent of the occurrences of use of alternative screening procedures recorded on the sheets were not recorded into PMIS as required by TSA’s standard operating procedures.<sup>37</sup> Inaccurate reporting on the frequency of use of alternative screening procedures may hinder management decision making on how best to minimize airport need to use these procedures.

### Permission to Use Alternative Screening Procedures for More than 2 Hours

While TSA’s standard operating procedures require FSDs or their designates to call headquarters for permission to use alternative screening procedures that are used for more than 2 hours in order to ensure that the

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<sup>35</sup>TSA officials stated that they eliminated this requirement because headquarters could get information on use of alternative screening procedures through PMIS.

<sup>36</sup>TSA classified the number of sheets that we reviewed as sensitive security information.

<sup>37</sup>We selected sheets to analyze based on the completeness of the information contained on the sheets. Each sheet selected had a date, an airport code or name, a beginning and end time of use of alternative screening procedures, type of alternative screening procedure used, and reason for using the alternative screening procedure.

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procedures are used only for short-term, special circumstances, TSA does not require headquarters to maintain a record of these calls. Because these calls are not recorded, TSA management is not able to ensure that the requirement in the standard operating procedures is being followed. Recording these calls would enable TSA to compare the records to the hours of use of alternative screening procedures data maintained in PMIS. This comparison would provide TSA with information to help provide reasonable assurance that FSDs and their staffs are complying with the standard operating procedures' requirement to call for permission to exceed 2 hours' use of the procedures. TSA headquarters officials stated that there had not been any instances in which airports were denied permission to exceed 2 hours' use of alternative screening procedures. However, without records of the calls, we were not able to verify that permission was granted for the occurrences that exceeded 2 hours.<sup>38</sup>

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## TSA Has Taken Action to Reduce the Need to Use Alternative Screening Procedures, but Has Not Implemented Performance Measures or Targets

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### TSA Has Taken Steps to Reduce the Need to Use Alternative Screening Procedures at Airports

TSA has taken steps to reduce airports' need to rely on the use of alternative baggage screening procedures and is working to minimize the need to use these procedures. According to our review of PMIS data, the use of alternative screening procedures between October 2004 and September 2005—measured in terms of the total hours these procedures were employed—initially increased and then declined. TSA attributed the reported overall decline in the usage of alternative screening procedures

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<sup>38</sup>TSA classified the number of occurrences that were more than 2 hours as sensitive security information.

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in part to improved coordination among FSDs, airlines, and local organizations. According to TSA officials, this coordination helps FSDs and their staffs anticipate surges in passenger traffic so that they can adequately staff screening stations. In our structured interviews with FSDs and their staffs responsible for 29 airports, several FSDs also cited the importance of coordination with local organizations and how this reduced their need to use alternative screening procedures. For example, the FSD for one airport said that he coordinated with local summer camps to have campers' baggage screened the day before their flights to reduce the amount of baggage that has to be screened when campers arrive at the airport. The FSD for another airport communicated with cruise ship management about the scheduling of cruises in order to anticipate any surges in passenger traffic that may have created the need to use alternative screening procedures.

TSA officials have also taken action to reduce airports' need to use alternative screening procedures through the use of "optimization team" visits to airports. These visits are conducted at the request of TSA senior leadership or an FSD with the goal to observe screening operations and maximize efficiencies by applying practices learned at other airports. According to TSA officials, recurring use of alternative screening procedures triggered some of the optimization team visits TSA has conducted, and the optimization team visits may have led to a reduction in the number of occasions in which these procedures needed to be used.<sup>39</sup> For example, on May 18-19, 2005, an optimization team visited one airport and recommended procuring one ETD machine and changing the location of another to reduce the airport's need to use alternative screening procedures. On July 6-7, 2005, another optimization team visited another airport. The team suggested reconfiguring EDS machines at the airport's screening stations, which resulted in an increase in baggage throughput from 120 to 150 bags per hour. At both of these airports, alternative screening procedures were used more frequently prior to the optimization team visit than they were after the visit.

TSA officials also stated that as additional equipment is deployed and enhanced to enable TSA to increase checked baggage screening throughputs—bags screened per hour—TSA will be in a better position to

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<sup>39</sup>The optimization visits are also used to improve the design of passenger and baggage checkpoints, validate the TSO staffing model at the airport, evaluate staffing and scheduling practices, and determine compliance with the standard operating procedures.

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reduce the need for use of alternative screening procedures. We reported in March 2005 that as of June 2004, TSA had deployed 1,228 EDS machines.<sup>40</sup> Between June 2004 and June 2006, TSA had deployed 399 additional EDS machines in both in-line (integrated into the airport baggage system) and stand-alone (in airport lobbies or baggage makeup areas) configurations. EDS machines in an in-line configuration are able to screen up to 500 bags per hour, as compared to EDS machines in a stand-alone configuration that screen between 80 and 180 bags per hour. The superior efficiency of screening with in-line EDS compared to screening with stand-alone EDS may have been a factor in reducing the need to use alternative screening procedures at airports where in-line systems were installed. TSA reported that, as of June 2006, 25 airports had operational in-line EDS systems and an additional 24 airports had in-line systems under construction. Although in-line EDS systems can create improvements in operational efficiencies of an airport's checked baggage screening system, baggage volumes that exceed the system's capacity and equipment breakdowns still sometimes occur, necessitating the use of alternative screening procedures. For example, some of the airports that have installed airportwide in-line systems reported using alternative screening procedures because of equipment failures and high passenger and baggage volumes after their systems were operational.<sup>41</sup> Since stand-alone EDS machines screen between 80 and 180 bags per hour compared to ETD machines, which allow for screening of 36 bags per hour, additional stand-alone EDS machines also may have helped the airports where they were installed to screen baggage with standard screening procedures rather than alternative screening procedures. Additionally, in May 2005, TSA certified software and hardware upgrades for 519 out of 1,322 EDS machines, which are used in both in-line and stand-alone configurations. These upgrades are being tested in a pilot program. TSA officials anticipate that the upgrades could lead to increased baggage throughput for the machines, which could further reduce need to use alternative screening procedures.

Installation of in-line EDS systems at airports that currently use stand-alone EDS and ETD for primary screening has further potential to reduce

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<sup>40</sup> [GAO-05-365](#).

<sup>41</sup> Each of the airports' in-line systems became operational on a different date. The number of airports that reported using alternative screening procedures due to equipment failures and high passenger and baggage volumes after their systems were operational has been determined to be sensitive security information.

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the need for alternative screening procedures to be used at these airports. In March 2005, we reported that TSA had estimated that in-line checked baggage systems would reduce by 78 percent the number of baggage TSOs and supervisors required to screen checked baggage at nine airports that had signed agreements to develop the systems.<sup>42</sup> Under the congressionally imposed 45,000 TSO full-time-equivalent limit, when staff requirements are reduced at one airport through increased efficiencies, full-time equivalent positions will become available to address TSO shortages at other airports.<sup>43</sup> TSA's February 2006 checked baggage strategic planning framework included a prioritization of which additional airports should receive funding for in-line systems and a description of how stand-alone EDS machines from those airports should be redistributed to other airports.<sup>44</sup> In the framework, TSA also reported that many of the initial in-line systems had produced a level of TSO labor savings insufficient to offset up-front capital costs of constructing the systems. According to TSA, the facility and baggage handling system modifications have been higher than expected at the nine airports that have signed agreements to fund the systems. TSA stated that the keys to reducing future costs are establishing guidelines outlining best practices and a set of efficient design choices and using newer EDS technology that best matches each optimally scaled design solution. In February 2006, TSA reported that recent improvements in the design of the in-line EDS checked baggage screening systems and the EDS screening technology now offer the opportunity for higher-performance and lower-cost screening systems. The final strategic plan will include the results of TSA's cost sharing study that it is currently conducting in consultation with airport operators, airlines, and other key stakeholders to identify ways to fund in-line EDS systems.<sup>45</sup> After in-line

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<sup>42</sup>[GAO-05-365](#).

<sup>43</sup>Section 4023 of the Intelligence Reform and Terrorism Prevention Act of 2004 requires TSA to develop and submit to the appropriate congressional committees, standards for determining aviation security staffing at commercial airports no later than 90 days after December 17, 2004, the date of the act's enactment, and GAO to conduct an analysis of these standards. These standards were submitted to Congress on June 22, 2005, and GAO is currently reviewing these standards.

<sup>44</sup>The details of the strategic planning framework for the checked baggage screening program constitute sensitive security information.

<sup>45</sup>Section 4019(d) of the Intelligence Reform and Terrorism Prevention Act of 2004 requires TSA to complete a cost-sharing study in collaboration with industry stakeholders to review the benefits and cost of in-line checked baggage screening systems, innovative financing approaches, formulas for cost sharing between different government entities and the private sector, and potential cost-saving approaches.



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EDS systems are installed and staffing reductions are achieved, redistributing the TSO positions to other airports with staffing shortages may reduce airport need to use alternative screening procedures.

Technology developments may also help TSA to reduce the use of alternative screening procedures. In March 2005, we reported that TSA was working to develop a computer-aided tomography explosives detection system that is smaller and lighter than systems currently deployed in airport lobbies and that the new system was intended to replace systems currently in use, including larger and heavier EDS machines and ETD equipment.<sup>46</sup> The smaller size of the system would create opportunities for TSA to transfer screening operations to other locations, such as airport check-in counters. The machine would also be an option for airports that currently rely on ETD machines since it would be cheaper than other certified machines and it would have higher baggage throughput than screening using ETD machines, potentially reducing the need to use alternative screening procedures at airports where it is installed. In March 2005, TSA began to pilot this machine at three airports. At one of these pilot airports, the FSD stated that he anticipates that the smaller EDS machine will reduce staffing needs, reduce workers compensation claims, and ultimately enable the airport to incorporate the machines in-line behind the ticket counters. TSA reported that the machine achieved throughput rates of up to 80 bags per hour, higher than the throughput rate of up to 36 bags per hour for an ETD operated by one TSO or up to 72 bags per hour for an ETD operated by two TSOs. In September 2005, TSA entered into a \$24.8 million contract to purchase 72 of these machines that will be installed at 24 airports.

While TSA data indicate that the use of alternative screening procedures is declining, TSA reported in its February 2006 framework that at some airports alternative screening procedures will increasingly be used because of rising passenger traffic. TSA has projected that the number of originating domestic and international passengers will rise by about 127 million passengers over current levels by 2010. If TSA's current estimate of an average of 0.76 checked bags per passenger were to remain constant through 2010, TSA would be screening about 96 million more bags than it now screens. This could increase airports' need to rely on alternative screening procedures in the future in the absence of additional or more efficient EDS machines. TSA headquarters officials stated that

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<sup>46</sup> [GAO-05-365](#).

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while TSA is working to minimize the need to use alternative screening procedures, it intends to maintain the procedures as part of its standard operating procedures so that FSDs will have options to respond to events such as unforeseen equipment failures, surges in passenger traffic, and weather-related incidents such as hurricanes. Additionally, some of the FSDs that we interviewed stated that they anticipate continuing to need to use alternative screening procedures because of screening capacity limits and rising passenger volume, and some of these FSDs anticipated increasing their use of the procedures as their airport passenger traffic rises because of limitations in the physical layout of their airports that contribute to overcrowding.<sup>47</sup>

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### TSA Has Not Established Performance Measures or Targets Related to the Use of Alternative Screening Procedures

Although TSA is working to minimize the need to use alternative screening procedures at airports, it has not established performance measures or targets related to the use of these procedures. The Government Performance and Results Act of 1993 provides, among other things, that federal agencies establish program performance measures, including the assessment of relevant outputs and outcomes of measures.<sup>48</sup> Performance measures are meant to cover key aspects of performance and help decision makers to assess program accomplishments and improve program performance. A performance target is a desired level of performance expressed as a tangible, measurable objective, against which actual achievement will be compared. By analyzing the gap between target and actual levels of performance, management can target those processes that are most in need of improvement, set improvement goals, and identify appropriate process improvements or other actions.

TSA has established four performance measures for the checked baggage screening program. Three of these measures make up TSA's checked baggage screening performance index. This index measures the overall performance of the system through a composite of indicators that are derived by combining specific performance measures related to checked

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<sup>47</sup>TSA determined that the exact number of FSDs that anticipate continued or increased use of alternative screening procedures is sensitive security information.

<sup>48</sup>According to the Government Performance and Results Act, the Office of Management and Budget, and GAO, outcomes assess actual results as compared with the intended results that occur from carrying out a program or activity. Outcomes are the results of a program or activity. For further information, see GAO, *Results-Oriented Government: GPRA Has Established a Solid Foundation for Achieving Greater Results*, [GAO-04-38](#) (Washington, D.C.: Mar. 10, 2004).

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baggage screening. Specifically, this index measures the effectiveness of screening systems through machine probability of detection and covert testing results, efficiency through a calculation of dollars spent per bag screened, and customer complaints at both airports and TSA's national call center. TSA considers the final performance measure—compliance with the ATSA requirement to screen all checked baggage using explosive detection systems (EDS and ETD)—to be obsolete since it reported all airports as capable of screening with EDS or ETD in January 2005. The use of alternative screening procedures is not included in the index, nor does TSA have stand-alone measures or targets for the use of alternative screening procedures.

TSA officials stated that they did not want to implement performance measures or targets for alternative screening procedures because they are already working to minimize the need to use the procedures at airports. However, TSA officials also acknowledged that they will continue to rely on alternative screening procedures because of unforeseen circumstances such as high baggage volumes or weather-related incidents. By creating a performance measure for the use of alternative screening procedures as part of the checked baggage screening index or as a stand-alone measure, TSA could gauge whether it is making progress toward minimizing the need to use these procedures at airports and have more complete information on how well the overall checked baggage screening system is performing. Furthermore, performance targets for the use of alternative screening procedures would provide an indicator of how much risk TSA is willing to accept in using these procedures, and TSA's monitoring of this indicator would identify when it has exceeded the level of risk that it has determined is acceptable. For example, if TSA were to determine the percentage of checked baggage that should be screened using alternative screening procedures, and if its performance data showed that it was currently screening a higher percentage than the target, TSA would be able to decide whether to take steps to bring the use of these procedures into line with its desired level of use.

Finally, the extent to which performance measures and targets will assist TSA in minimizing the need to use these procedures at airports is dependent upon the accuracy and completeness of the reporting of alternative screening procedures in PMIS, including the percentage of bags screened using the procedures, as previously discussed.

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## Conclusions

It has been over 4 years since Congress issued the mandate for TSA to screen all checked baggage at commercial airports using explosive

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detection systems. During this time, TSA has deployed EDS or ETD machines at more than 400 commercial airports and reported achieving the capability to screen 100 percent of checked baggage using these machines. As part of this effort, TSA developed standard and alternative checked baggage screening procedures. While TSA acknowledges that screening with alternative screening procedures is less effective than screening with standard screening procedures, it has also recognized the need for continued use of alternative screening procedures because of high passenger and baggage volumes resulting from unpredictable and unforeseen circumstances, such as equipment breakdowns and unusual weather events. Given TSA's plans to continue to use alternative screening procedures and the trade-offs in security effectiveness involved in their use, it will be important for TSA to test the effectiveness of these procedures in an operating environment. One such way for TSA to test the security effectiveness of the various alternative screening procedures is through the covert testing conducted by the Office of Inspections. While we recognize the logistical challenges that the Office of Inspections faces in conducting checked baggage covert testing on alternative screening procedures, using PMIS data on the use of these procedures—including data on the airports that use the procedures the most frequently or for extended periods of time—could help the Office of Inspections in selecting airports for testing as part of the risk-based approach to covert testing that it is currently developing. By not assessing alternative screening procedures through national or local covert testing, TSA is missing an opportunity to gather information to help determine the security effectiveness of alternative screening procedures in an operational setting.

Additionally, TSA headquarters has established internal controls to monitor and track the use of alternative screening procedures at airports and has taken steps to improve reporting of these procedures in the PMIS database. However, without strengthening its controls, such as providing a means for measuring the number of bags screened using alternative screening procedures and enabling TSA airport staff to report the concurrent use of more than one alternative screening procedure, TSA lacks reasonable assurance that it has complete and accurate information on the use of these procedures.

Furthermore, TSA has taken steps to reduce the need to use alternative screening procedures at airports, but does not expect to eliminate the use of these procedures. Increasing air travel and TSA's effort to operate within or below the current 45,000 TSO full-time-equivalent limit could add to the need for alternative screening procedures, unless more or more

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efficient EDS machines are deployed. Given TSA's continuing use of the procedures, performance measures and targets would provide TSA and Congress with objective information to assess TSA's progress in minimizing the need to use the procedures at airports, and would help inform TSA decision making on whether and when mitigating steps are needed to achieve its desired level of use.

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## Recommendations for Executive Action

To help inform TSA of the security effectiveness of alternative screening procedures in an operational setting, and to help TSA strengthen its monitoring of the use of alternative screening procedures, we recommend that the Secretary of the Department of Homeland Security direct the Assistant Secretary, Transportation Security Administration, to take the following four actions:

- Use PMIS data on use of alternative screening procedures in determining at which airports to conduct covert testing and when to conduct testing at these airports as part of the Office of Inspections' new risk-based approach to covert testing.
- Conduct local covert testing of alternative screening procedures to determine whether checked baggage TSOs can detect simulated improvised explosives when using these procedures.
- Strengthen the monitoring and tracking of the use of alternative screening procedures to help determine the progress the agency is making in minimizing its need to use these procedures. This effort would include continuing to address reporting problems in the PMIS database system, keeping a record of calls requesting permission to exceed 2 hours' use of the procedures, and providing a means for measuring the use of alternative screening procedures compared to the use of standard procedures, such as counting baggage screened with alternative screening procedures.
- Develop performance measures and performance targets for the use of alternative screening procedures in checked baggage screening, perhaps as part of the checked baggage screening program performance index, to help TSA measure its progress in working toward minimizing the need to use alternative screening procedures at airports and to have more complete information on the overall performance of the checked baggage screening system.

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## Agency Comments and Our Evaluation

We provided a draft of this report to DHS for review and comment. On July 25, 2006, we received written comments on the draft report, which are reproduced in full in appendix II. DHS concurred with our findings and recommendations and stated that the report will help strengthen TSA's management of checked baggage screening operations.

Regarding our recommendation that TSA use Performance Management Information System data on the use of alternative screening procedures in determining at which airports to conduct covert testing and when to conduct testing at these airports, DHS concurred and stated that TSA's Office of Inspections will consider PMIS information on alternative screening procedures as part of its new risk-based approach to covert testing and will develop new checked baggage screening testing protocols. Concerning our recommendation that TSA conduct local covert testing of alternative screening procedures, DHS concurred and stated that TSA is currently modifying its local covert testing program to strengthen the program and expects that these modifications will better prepare TSOs to detect simulated improvised explosives. We are pleased that TSA is making efforts to strengthen its local covert testing program. We continue to believe that testing of alternative screening procedures would provide TSA with an opportunity to gather information to help identify and improve the security effectiveness of alternative screening procedures in an operational setting.

DHS concurred with our recommendation to strengthen the monitoring and tracking of the use of alternative screening procedures to help determine the progress the agency is making in minimizing its need to use the procedures. In response to our recommendation that TSA address reporting problems in its PMIS database system, DHS stated that PMIS has been enhanced with both functionality and data quality-related processes to ensure data reliability. According to TSA, the system alerts the user when a data field is filled in with a value that falls outside the operational norms for a particular airport. Additionally, according to TSA, PMIS training and functionality reviews occur on a regular basis and user manuals and best practices are updated consistently. While these efforts should help improve the data reliability of PMIS, they will not fully address the reporting problems highlighted in our report. Specifically, the steps TSA has taken do not address inaccurate counts of baggage screened resulting from TSA's method for estimating the number of bags screened with ETD using standard screening procedures or inaccurate reporting of occurrences when a particular alternative screening procedure is used. Without addressing these reporting problems, TSA will continue to lack

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reasonable assurance that it has complete and accurate information on the use of these procedures.

In response to our recommendation on keeping a record of calls requesting permission to exceed 2 hours use of the procedures, DHS stated that because the amount of time that alternative screening procedures are used is recorded in PMIS, there is no further documentation required for exceeding the 2 hour threshold. However, while documentation is entered into PMIS on the amount of time the procedures are used, recording the length of time that the procedures are used does not allow TSA to verify that FSDs are actually requesting permission to use the procedures for more than 2 hours as required. In response to our recommendation on providing a means for measuring the use of alternative screening procedures compared to the use of standard procedures, such as counting baggage screened with alternative screening procedures, DHS stated that TSA will evaluate the necessity of requiring the recording of the number of bags screened by alternative screening procedures, and if it finds it to be a useful metric, it will require FSDs to include the number of bags in their report in PMIS. We are encouraged that TSA will undertake this evaluation, as we believe that it will allow TSA to have more assurance that it has complete and accurate information on the use of these procedures.

In response to our recommendation on developing performance measures and targets for the use of alternative screening procedures, DHS concurred and stated that TSA is currently meeting the intent of this recommendation by monitoring and tracking the use of alternative screening procedures through PMIS. DHS stated that using this system has assisted TSA in identifying areas for improvement nationwide and addressing local issues to minimize the need for alternative screening procedures. DHS also stated that TSA intends to continue monitoring and tracking the use of alternative screening procedures and to implement the recommendations in this report for refining the data and evaluating the need to make adjustments based on the current performance level. While we support TSA's efforts to ensure the use of alternative screening procedures is accurately reported in PMIS, given the security effectiveness trade-offs associated with alternative screening procedures, we do not believe that tracking the use of the procedures with PMIS is sufficient to provide congressional and other decision makers with an indication of the progress the agency expects to make in minimizing the need to use the procedures at airports. Performance measures and targets would provide this information and would help to reinforce accountability and to ensure that managers focus on the results they are striving to achieve regarding

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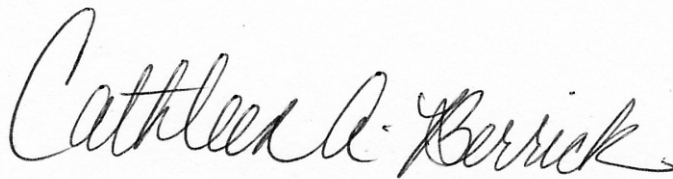
minimizing the use of alternative screening procedures in their day-to-day activities.

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We will send copies of the report to the Secretary of the Department of Homeland Security; the Assistant Secretary, TSA; and interested congressional committees as appropriate. We will also make copies available to others on request. In addition, the report will be available at no charge on GAO's Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-3404 or [berrickc@gao.gov](mailto:berrickc@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff that made major contributions to this report are listed in appendix III.

Sincerely yours,

A handwritten signature in black ink that reads "Cathleen A. Berrick". The signature is written in a cursive style with a large initial 'C'.

Cathleen A. Berrick  
Director, Homeland Security and  
Justice Issues



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# Appendix I: Objectives, Scope, and Methodology

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To assess the Transportation Security Administration's (TSA) efforts to screen all checked baggage using explosive detection systems (EDS) and explosive trace detection machines (ETD), we addressed the following questions: (1) How did TSA prioritize the use of standard and alternative checked baggage screening procedures and what security effectiveness trade-offs and operational efficiencies has TSA identified in using these procedures to screen checked baggage for explosives? (2) To what extent has TSA used standard and alternative screening procedures to screen checked baggage for explosives and how does TSA ensure that standard screening procedures are used whenever possible? (3) What steps has TSA taken to reduce airports' need to use alternative screening procedures and to establish performance measures and targets for the use of the procedures?

To assess how TSA prioritized the use of checked baggage screening procedures and to assess the trade-offs in security effectiveness and operational efficiencies associated with various baggage screening procedures, we analyzed TSA's standard operating procedures for using these procedures. We also obtained and analyzed relevant legislation and conducted a literature search to obtain information on screening procedures, technologies, and related aviation trends. This search identified various TSA reports, Department of Homeland Security Inspector General reports, and aviation industry reports. We also reviewed studies from the TSA Transportation Security Laboratory regarding checked baggage screening. We interviewed officials from various TSA offices, including the Chief Technologist's Office, Aviation Programs, the Transportation Security Operations Center, the Transportation Security Laboratory, Chief Operating Officer's Office, and Office of Planning to learn about checked baggage screening procedures and how they were given relative priority. We also interviewed officials from air carriers, explosive detection systems equipment manufacturers, and an airport industry association to obtain information regarding TSA's checked baggage screening procedures. We assessed the results from unannounced, undercover covert testing of checked baggage screening operations conducted by TSA's Office of Inspections and questioned TSA officials about the procedures used to ensure the reliability of the covert test data. On the basis of their answers, we believe that the covert test data are sufficiently reliable for the purposes of our review. We also reviewed results of unannounced, undercover covert testing of checked baggage screening operations conducted at airports by Federal Security Directors (FSD) and their staffs and collected as part of TSA's Screener Training Exercises and Assessments program. After reviewing documentation from TSA, we found the data from the Screener Training Exercises and

Assessments program were sufficiently reliable for the purposes of our review.

To assess the extent to which TSA has used standard and alternative screening procedures to screen checked baggage and how TSA ensures that standard checked baggage screening procedures are used whenever possible, we reviewed and analyzed TSA's Performance Management Information System (PMIS) database, which contains information on baggage screening operations and the use of alternative screening procedures. We found several issues with these data, including, in some cases, multiple occurrences of the use of alternative screening procedures recorded as one occurrence and also, in some cases, more than one procedure being used during an occurrence but the occurrence was entered into the database as only one procedure because of the constraints of the database. When we interviewed TSA officials about these data reliability issues, officials acknowledged that airports may have inaccurately reported some occurrences of the use of alternative screening procedures. However, the officials stated that they were working to correct the reporting problems and consider the data generally reliable. On the basis of these discussions and our review of the database, we found the data to be sufficiently reliable for the purposes of this report, since the data provide overall trends in the use of the procedures. To determine what controls are in place to track and report the use of baggage screening procedures, we analyzed the PMIS database and the PMIS user guide. We also analyzed TSA's operating procedures for checked baggage and policy guidance and compared TSA's procedures for ensuring that airports correctly report the use of alternative screening procedures to the Comptroller General's Standards for Internal Controls in the Federal Government. We also interviewed officials from TSA's Office of Planning, Chief Operating Office, Transportation Security Operations Center, and Inspections offices concerning checked baggage screening procedures.

To assess the steps TSA has taken to reduce airports' need to use alternative screening procedures and the measures and targets TSA has set for alternative screening procedures, we analyzed TSA's PMIS data and its standard operating procedures for checked baggage screening and TSA's inventory of explosive detection systems. We found discrepancies in the inventory data of explosive detection systems and worked with TSA to resolve the discrepancies. TSA also completed a reconciliation of the inventory database with data collected manually by TSA officials. We also analyzed documentation from the TSA Transportation Security Operations Center and interviewed TSA officials from the Chief Operating Officer's Office, Office of Planning, the Office of Assistant Secretary, and Chief

Technology Office. Additionally, we examined TSA's checked baggage performance measures and targets in the context of the Government Performance and Results Act of 1993 (GPRA) requirements.

In addressing these objectives, we conducted site visits at nine airports—three category X, one category I, four category II, and one category IV airport. We chose these airports based on one or more of the following factors: use of alternative screening procedures at the airport as reported in PMIS, testing of screening equipment at the airport, proximity to another airport being visited by GAO, and size of airport. The results from our airport visits provided examples of checked baggage screening operations and issues but cannot be generalized beyond the airports visited because we did not use statistical sampling in selecting the airports. We also conducted structured interviews with FSDs and their staffs who were responsible for 29 randomly selected airports. One FSD we interviewed was responsible for two airports in our sample. We conducted all but one of these interviews over the telephone. Using information from PMIS, we selected airports that had reported using alternative screening procedures and airports that had not reported using alternative screening procedures between October 18, 2004, and December 21, 2004.<sup>1</sup> Although the interviews were conducted with FSDs and their staffs at random samples of airports, the samples are too small to generalize the interview results with a high degree of statistical confidence to all airports nationwide. The results from these interviews do provide information about checked baggage screening operations at the airports for which the FSDs and their staffs are responsible.

We conducted our work from September 2004 through July 2006 in accordance with generally accepted government auditing standards.

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<sup>1</sup>TSA has determined that the exact number of airports we selected is sensitive security information.

# Appendix II: Comments from the Department of Homeland Security

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



**Homeland  
Security**

July 25, 2006

Ms. Cathleen A. Berrick  
Director, Homeland Security and Justice Issues  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Dear Ms. Berrick:

Thank you for the opportunity to comment on the Draft Report, "Aviation Security: TSA Oversight of Checked Baggage Screening Procedures Could Be Strengthened," GAO-06-869, the public version of GAO-06-291SU, which was issued on February 28, 2006. The recommendations and findings of this report should help strengthen TSA's management of checked baggage screening operations.

We are pleased to report that TSA has already undertaken initiatives to improve checked baggage screening operations. For example, TSA has refined its definitions and requirements for using alternative screening procedures (ASP). As such, the amount of total checked baggage screening time using ASP is very low. In addition, TSA has deployed sufficient screening equipment to meet its requirement to screen all checked baggage using explosives detection equipment, refined staffing levels, and optimized screening procedures.

Covert checked baggage tests conducted by the TSA Office of Inspection (OI), formerly the Office of Internal Affairs and Program Review (OIAPR), are designed to identify vulnerabilities in the checked baggage screening system. OI covert checked baggage tests were originally designed to evaluate the effectiveness of TSA's newly hired and trained screener workforce and to assess the adequacy of security systems and controls at all airports nationwide. OI committed to complete covert checkpoint and checked baggage testing of all TSA and Screening Partnership Program airports in a 3-year timeframe. During the period of this review, OI did not focus on ASP. As part of TSA's new risk-based approach to covert testing, OI will consider new checked baggage screening testing protocols.

The following represents the Department of Homeland Security (DHS) and TSA's responses to the recommendations contained in the draft report.

[www.dhs.gov](http://www.dhs.gov)

**Recommendation 1: Use Performance Management Information System (PMIS) data on use of alternative screening procedures in determining at which airports to conduct covert testing and when to conduct testing at these airports as part of the Office of Inspection's new risk-based approach to covert testing.**

**Concur:** The Office of Inspection will consider PMIS information on alternative screening procedures as part of TSA's new risk-based approach to covert testing. Accordingly, we will develop new checked baggage screening testing protocols that will assist TSA in strengthening aviation security.

**Recommendation 2: Conduct local covert testing of alternative screening procedures to determine whether checked baggage Transportation Security Officers (TSO) can detect simulated improvised explosives when using these procedures.**

**Concur.** TSA is currently making modifications to strengthen the local covert testing programs. TSA expects these modifications will better prepare TSOs to detect simulated improvised explosives.

**Recommendation 3: Strengthen the monitoring and tracking of the use of alternative screening procedures to help determine the progress the agency is making in minimizing its need to use these procedures. This effort would include continuing to address reporting problems in the PMIS database system, keeping a record of calls requesting permission to exceed 2 hours' use of the procedures, and providing a means for measuring the use of alternative screening procedures compared to standard procedures, such as counting baggage screened with alternative screening procedures.**

**Concur:** The Performance Management Information System (PMIS) is enhanced with both functionality and data quality related processes to ensure data reliability. The system alerts the user when a data field is filled in with a value that falls outside of the operational norms for a particular airport. Additionally, PMIS training and functionality reviews occur on regular bases and user manuals and best practices are updated consistently.

As stated in the report, TSA requires all Federal Security Directors (FSD) to report any instance and type of alternative screening procedures. Currently, all instances, types, and length of time using alternative screening procedures are documented in PMIS. If the procedures are needed for more than 2 hours, the Assistant Administrator of Security Operations is notified and speaks to the FSD requesting permission to extend the procedures for more than 2 hours. Since the amount of time alternative screening procedures are used is recorded in PMIS, there is no further documentation required for exceeding the 2-hour threshold. TSA will evaluate the necessity of requiring the recording of the number of bags screened by ASP and if found to be a useful metric, will require FSD's to include the number of bags in their report in PMIS.

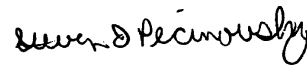
**Recommendation 4: Develop performance measures and performance targets for the use of alternative screening procedures in checked baggage screening, perhaps as part of the checked baggage screening program performance index, to help TSA measure its progress in working toward minimizing the need to use alternative screening procedures at airports and to have more complete information on the overall performance of the checked baggage screening system.**

**Concur:** TSA is currently meeting the intent of this recommendation by monitoring and tracking the use of alternative screening procedures through PMIS. Using this system has assisted TSA in identifying areas of improvement nationwide and addressing local issues to minimize the need for alternative screening procedures. Consequently, TSA is spending a very low percent of its total checked baggage screening time using alternative screening procedures.

TSA intends to continue monitoring and tracking the use of alternative screening procedures and to implement the recommendation in this report for refining the data we capture to assist us in evaluating the need to make adjustments based on our current performance level.

Thank you for the opportunity to provide comments on your draft report. The Department and TSA appreciate the amount of time and work invested in this type of study.

Sincerely,



Steven J. Pecinovsky  
Director Departmental GAO/OIG Liaison Office

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# Appendix III: GAO Contact and Staff Acknowledgments

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## GAO Contact

Cathleen A. Berrick (202) 512-3404

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## Acknowledgments

In addition to the contact named above, David Alexander, Leo Barbour, Chuck Bausell Jr., Amy Bernstein, Kevin Copping, Katherine Davis, Josh Diosomito, Christine Fossett, Richard Hung, Benjamin Jordan, Thomas Lombardi, Lisa Shibata, Maria Strudwick, and Alper Tunca made key contributions to this report.

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# Related GAO Products

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*Aviation Security: TSA Has Strengthened Efforts to Plan for the Optimal Deployment of Checked Baggage Screening Systems but Funding Uncertainties Remain* [GAO-06-875T](#), June 29, 2006

*Aviation Security: Enhancements Made in Passenger and Checked Baggage Screening, but Challenges Remain.* [GAO-06-371T](#). Washington, D.C.: April 4, 2006.

*Aviation Security: Transportation Security Administration Has Made Progress in Managing a Federal Security Workforce and Ensuring Security at U.S. Airports, but Challenges Remain.* [GAO-06-597T](#). Washington, D.C.: April 4, 2006.

*Aviation Security: Progress Made to Set Up Program Using Private-Sector Airport Screeners, but More Work Remains.* [GAO-06-166](#). Washington, D.C.: March 31, 2006.

*Aviation Security: Significant Management Challenges May Adversely Affect Implementation of the Transportation Security Administration's Secure Flight Program.* [GAO-06-374T](#). Washington, D.C.: February 9, 2006.

*Aviation Security: Federal Air Marshal Service Could Benefit from Improved Planning and Controls.* [GAO-06-203](#). Washington, D.C.: November 28, 2005.

*Aviation Security: Federal Action Needed to Strengthen Domestic Air Cargo Security.* [GAO-06-76](#). Washington, D.C.: October 17, 2005.

*Transportation Security Administration: More Clarity on the Authority of Federal Security Directors Is Needed.* [GAO-05-935](#). Washington, D.C.: September 23, 2005.

*Aviation Security: Flight and Cabin Crew Member Security Training Strengthened, but Better Planning and Internal Controls Needed.* [GAO-05-781](#). Washington, D.C.: September 6, 2005.

*Aviation Security: Transportation Security Administration Did Not Fully Disclose Uses of Personal Information during Secure Flight Program Testing in Initial Privacy Notes, but Has Recently Taken Steps to More Fully Inform the Public.* [GAO-05-864R](#). Washington, D.C.: July 22, 2005.



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*Aviation Security: Further Steps Needed to Strengthen the Security of Commercial Airport Perimeters and Access Controls.* [GAO-04-728](#). Washington, D.C.: June 4, 2004.

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*Aviation Security: Factors Could Limit the Effectiveness of the Transportation Security Administration's Efforts to Secure Aerial Advertising Operations.* [GAO-04-499R](#). Washington, D.C.: March 5, 2004.

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