

May 2006

INFORMATION TECHNOLOGY

Customs Has Made Progress on Automated Commercial Environment System, but It Faces Long- Standing Management Challenges and New Risks



Highlights of [GAO-06-580](#), a report to Subcommittees on Homeland Security, Senate and House Committees on Appropriations

Why GAO Did This Study

The Department of Homeland Security (DHS) is conducting a multiyear, multibillion-dollar acquisition of a new trade processing system, planned to support the movement of legitimate imports and exports and strengthen border security. By congressional mandate, plans for expenditure of appropriated funds on this system, the Automated Commercial Environment (ACE), must meet certain conditions, including GAO review. This study addresses whether the fiscal year 2006 plan satisfies these conditions; it also describes the status of DHS's efforts to implement prior GAO recommendations for improving ACE management, and provides observations about the plan and DHS's management of the program.

What GAO Recommends

To help ensure the success of ACE, GAO recommends, among other things, that DHS develop realistic ACE performance measures and targets; align these with ACE program goals, benefits, and desired business outcomes; and minimize concurrent development of ACE releases. DHS agreed with GAO's recommendations and described actions that it has under way and planned to address them.

www.gao.gov/cgi-bin/getrpt?GAO-06-580.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Randolph C. Hite at (202) 512-3429 or hiter@gao.gov.

INFORMATION TECHNOLOGY

Customs Has Made Progress on Automated Commercial Environment System, but It Faces Long-Standing Management Challenges and New Risks

What GAO Found

The fiscal year 2006 ACE expenditure plan, including related program documentation and program officials' statements, either satisfied or partially satisfied the legislative conditions imposed by the Congress; however, more can be done to better address several aspects of these conditions. In addition, DHS has addressed some recommendations that GAO has previously made, but progress has been slow in addressing several recommendations aimed at strengthening ACE management. For example, DHS has more to do to implement the recommendation that it establish an ACE accountability framework that, among other things, ensures that expenditure plans report progress against commitments made in prior plans. Implementing a performance and accountability framework is important for ensuring that promised capabilities and benefits are delivered on time and within budget. In addition, describing progress against past commitments is essential to permit meaningful congressional oversight.

Among GAO's observations about the ACE program and its management are several related to the need to effectively set and use performance goals and measures. Although the program set performance goals, these targets were not always realistic. For example, in fiscal year 2005, the program set a target that 11 percent of all Customs and Border Protection (CBP) employees would use ACE. However, this target does not reflect the fact that many CBP employees will never need to use the system. Additionally, the program has established 6 program goals, 11 business results, 23 benefits, and 17 performance measures, but the relationships among these are not fully defined or adequately aligned with each other. For example, not every goal has defined benefits, and not every benefit has an associated performance measure. Without realistic ACE performance measures and targets that are aligned with the overall program goals and desired results, DHS will be challenged in its efforts to establish an accountability framework for ACE that will help to ensure that the program delivers its expected benefits.

In addition, DHS plans to develop several increments, referred to as "releases," concurrently; in the past, such concurrency has led to cost overruns and schedule delays because releases contended for the same resources, and resources that were to be used on later releases were diverted to earlier ones. However, because of DHS's belief that such concurrent development will allow it to deliver ACE functionality sooner, it is reintroducing the same problems that resulted in past shortfalls.

Contents

Letter		1
	Compliance with Legislative Conditions	3
	Status of Our Open Recommendations	3
	Observations about ACE Management	7
	Conclusions	9
	Recommendations for Executive Action	11
	Agency Comments	12
Appendix I	Briefing to Subcommittees on Homeland Security, House and Senate Committees on Appropriations	13
Appendix II	Comments from the Department of Homeland Security	143
Appendix III	Contact and Staff Acknowledgments	150

Abbreviations

ACE	Automated Commercial Environment
CBP	Customs and Border Protection
CBPMO	Customs and Border Protection Modernization Office
CIO	chief information officer
CMU	Carnegie Mellon University
DHS	Department of Homeland Security
EA	enterprise architecture
EVM	earned value management
IT	information technology
IV&V	independent verification and validation
OMB	Office of Management and Budget
ORR	operational readiness review
SA-CMM®	Software Acquisition Capability Maturity Model
SEI	Software Engineering Institute
US-VISIT	United States Visitor and Immigrant Status Indicator Technology

This is a work of the U.S. government and is not subject to copyright protection in the United States. It may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.



United States Government Accountability Office
Washington, DC 20548

May 31, 2006

The Honorable Judd Gregg
Chairman
The Honorable Robert C. Byrd
Ranking Minority Member
Subcommittee on Homeland Security
Committee on Appropriations
United States Senate

The Honorable Harold Rogers
Chairman
The Honorable Martin Olav Sabo
Ranking Minority Member
Subcommittee on Homeland Security
Committee on Appropriations
House of Representatives

In February 2006, U.S. Customs and Border Protection (CBP), within the Department of Homeland Security (DHS), submitted to the Congress its fiscal year 2006 expenditure plan for the Automated Commercial Environment (ACE) program. ACE is to be CBP's new import and export processing system. The program's goals include

- supporting border security by enhancing analysis and information sharing with other government agencies and
- streamlining time-consuming and labor-intensive tasks for CBP personnel and the trade community through the provision of a single Web-based interface.

DHS currently plans to acquire and deploy ACE in 11 increments, referred to as "releases," in approximately 8.5 years. The first three releases are deployed and operating, and the fourth release is being deployed. Other releases are in various states of definition and development. For the ACE life-cycle, the risk-adjusted cost estimate is about \$2.8 billion; through fiscal year 2005, ACE-appropriated funding has been about \$1.6 billion.

The Department of Homeland Security Appropriations Act of 2006¹ appropriates about \$320 million for ACE. The act states that DHS may not obligate any funds for ACE until it submits for approval to the House and Senate Committees on Appropriations a plan for expenditure that

1. meets the capital planning and investment control review requirements established by the Office of Management and Budget (OMB), including Circular A-11, part 7;²
2. complies with DHS's enterprise architecture;
3. complies with the acquisition rules, requirements, guidelines, and systems-acquisition management practices of the federal government;
4. includes a certification by the DHS Chief Information Officer that an independent verification and validation agent is currently under contract;
5. is reviewed and approved by the DHS Investment Review Board (IRB),³ the Secretary of Homeland Security, and OMB; and
6. is reviewed by GAO.

As required by the act, we reviewed the ACE fiscal year 2006 expenditure plan. Our objectives were to (1) determine whether the expenditure plan satisfies certain legislative conditions, (2) determine the status of our open ACE recommendations, and (3) provide any other observations about the expenditure plan and DHS's management of the ACE program.

On March 10, 2006, we briefed your offices on the results of this review. This report transmits the results of our work. The full briefing, including our scope and methodology, can be found in appendix I.

¹Pub. L. 109-90 (Oct. 18, 2005).

²OMB Circular A-11 establishes policy for planning, budgeting, acquisition, and management of federal capital assets.

³The purpose of the Investment Review Board is to integrate capital planning and investment control, along with the budgeting, acquisition, and management of investments. It is also to ensure that spending on investments directly supports and furthers the mission, and that this spending provides optimal benefits and capabilities to stakeholders and customers.

Compliance with Legislative Conditions

The legislative conditions that the Congress placed on the use of fiscal year 2006 ACE appropriated funds have been either partially or fully satisfied by the latest expenditure plan and related program documentation and activities. However, more can be done to better address several aspects of these conditions. For example:

- One legislative condition states that the plan should meet OMB's capital planning and investment control review requirements, which include addressing security and privacy issues. However, a privacy impact assessment⁴ for ACE has been in draft for several months and is not yet approved. Another capital planning and investment control review requirement is that performance goals and measures be provided in the business case for ACE. Although CBP describes selected performance goals and measures, the goals (i.e., targets) are not always realistic (we provide further discussion of this issue later in this report).
- According to another legislative condition, the expenditure plan must comply with DHS's enterprise architecture. However, DHS does not have a documented methodology for evaluating programs for compliance with its enterprise architecture, other than relying on the professional expertise of its staff.
- According to a third legislative condition, the DHS Chief Information Officer is to certify that an independent verification and validation (IV&V) agent is under contract. Although DHS satisfied this condition, the scope of the IV&V contractor's activities is not consistent with the operative industry standard, which states that IV&V should extend to key system products and development processes.⁵

Status of Our Open Recommendations

CBP has addressed some recommendations, while progress has been slow on others. Each recommendation, along with the status of actions to address it, is summarized below.

- Ensure that future expenditure plans are based on cost estimates that are reconciled with independent cost estimates.

⁴The purpose of a privacy impact assessment is to ensure that there is no collection, storage, access, use, or dissemination of identifiable personal or business information that is not both needed and permitted.

⁵Institute of Electrical and Electronics Engineers Computer Society, *Standard for Software Verification and Validation 1012-1998* (June 8, 2005).

*Complete.*⁶ In October 2005, CBP, with contractor support, compared the program plan cost estimate with the independent cost estimate. According to the analysis performed, the two estimates are consistent.

- Develop and implement a rigorous and analytically verifiable cost estimating program that embodies the tenets of effective estimating, as defined in the institutional and project-specific estimating models developed by the Software Engineering Institute (SEI).⁷

In progress. CBP has taken steps such as (1) hiring a contractor to develop cost estimates (including contract task order cost estimates) that are independent of CBP's estimates, and (2) tasking a support contractor with evaluating both the independent and CBP estimates against the criteria defined by SEI. According to the results of the support contractor's evaluation, the independent estimates satisfied the SEI criteria; CBP's estimates largely satisfied the criteria.

However, according to the support contractor, CBP's cost estimating had limitations. First, the CBP estimate did not adequately consider past projects in its cost and schedule estimates. In addition, the CBP estimate was an aggregation of estimates developed separately for three ACE components, each according to a different cost estimating methodology; the support contractor advised against this approach, recommending that component estimates be based on the same methodology.

- Immediately develop and implement a human capital management strategy that provides both near- and long-term solutions to program office human capital capacity limitations, and report quarterly to the Appropriations Committees on the progress of efforts to do so.

In progress. CBP has expanded its contractor and government workforce dedicated to the ACE program by merging staff assigned to trade-related legacy systems with the ACE program staff. In addition, it is beginning to use subject matter experts from existing field operations advisory boards

⁶CBP's implementation of this recommendation is complete with respect to the fiscal year 2006 expenditure plan.

⁷SEI's institutional and project-specific estimating guidelines are defined respectively in Robert E. Park, *Checklists and Criteria for Evaluating the Cost and Schedule Estimating Capabilities of Software Organizations*, CMU/SEI-95-SR-005, and *A Manager's Checklist for Validating Software Cost and Schedule Estimates*, CMU/SEI-95-SR-004 (Pittsburgh, Pa.: Carnegie Mellon University Software Engineering Institute, 1995).

to help program officials define requirements for future releases. However, it does not have a documented human capital strategy covering its ACE program.

- Have future ACE expenditure plans specifically address any proposals or plans, whether tentative or approved, for extending and using ACE infrastructure to support other homeland security applications, including any impact on ACE of such proposals and plans.

In progress. The expenditure plan describes steps both planned and under way to ensure that ACE infrastructure supports both ACE and other homeland security applications. For example, it states that both ACE and the United States Visitor and Immigrant Status Indicator Technology⁸ (US-VISIT) program should conform to the DHS enterprise architecture, which is to define standard shared services that the two systems can request. Such a services oriented architecture is intended to promote reuse, as well as reducing overlap and duplication.

- Define measures, and collect and use associated metrics, for determining whether prior and future program management improvements are successful.

In progress. CBP continues to make changes that are intended to improve overall program management, but it has not consistently defined measures to determine whether the changes are successful. For example, CBP has reorganized its Office of Information Technology; this reorganization is intended to improve program management by providing (1) enhanced government oversight of ACE development, (2) better definition of requirements for future ACE releases, and (3) faster and cheaper delivery of ACE capabilities. However, program officials told us that they have not established measures or targets for determining whether the reorganization is providing these benefits.

- Define and implement an ACE accountability framework that fulfills several conditions:
 1. The framework should cover all program commitment areas, including key expected or estimated system (a) capabilities, use, and quality;

⁸US-VISIT is a governmentwide program to collect, maintain, and share information on foreign nationals for enhancing national security and facilitating legitimate trade and travel, while adhering to U.S. privacy laws and policies.

(b) benefits and mission value; (c) costs; and (d) milestones and schedules.

In progress. CBP has prepared an initial version of an accountability framework that it intends to improve as it proceeds. The framework is built around measuring progress against costs, milestones, schedules, and risks for select releases; however, the benefit measurement has not been well defined, and the performance targets are not always realistic.

2. The framework should ensure currency, relevance, and completeness of all program commitments made to the Congress in expenditure plans.

In progress. The fiscal year 2006 expenditure plan includes inaccurate, dated, and incomplete information and omits other relevant information. For example, the plan did not include information regarding CBP's decision to eliminate the dependencies among the screening and targeting releases and the cargo releases, and to take advantage of the capabilities of its existing Automated Targeting System.⁹

3. The framework should ensure reliable data that are relevant to measuring progress against commitments.

In progress. The data that CBP uses to measure progress against commitments are not consistently reliable. For example, data in the defect tracking system show that defects in Release 4 (which is now operational) have not been closed; however, program officials told us that many of these defects have been resolved.

4. The framework should ensure that future expenditure plans report progress against commitments contained in prior expenditure plans.

In progress. The current expenditure plan does not adequately describe progress against commitments made in previous plans. For example, the plan provides a summary of the funding requested in each of the previous six expenditure plans, but it does not provide information on whether these funding amounts were actually expended or obligated as planned.

⁹The Automated Targeting System is a DHS system that targets containers for inspection based on a perceived level of risk.

-
5. The framework should ensure that criteria for exiting key readiness milestones adequately consider indicators of system maturity, such as the severity of open defects.

In progress. ACE milestone exit criteria provide for addressing the risk associated with severe defects that are unresolved. Using these criteria, CBP passed several release milestones with severe defects still open. However, CBP officials were unable to provide us with any documentation on how they assessed the inherent risks of passing these milestones with open severe defects.

6. The framework should ensure clear and unambiguous delineation of the respective roles and responsibilities of the government and the prime contractor.

Complete. The current ACE program plan describes general roles and responsibilities for the government and the prime contractor. More detailed roles have been documented in a roles and responsibilities matrix that assigns primary responsibility for each activity.

- Report quarterly to the House and Senate Appropriations Committees on efforts to address our open recommendations.

In progress. CBP submitted quarterly reports to both Committees on its efforts to address our open recommendations; however, progress in addressing our recommendations was not always reported accurately.

Observations about ACE Management

We have several observations about the development of ACE releases, as well as several more concerning the performance of ACE releases that are deployed and operating.

- *ACE development: Steps have been taken to address a past pattern of ACE release shortfalls, but new release management weaknesses are emerging.*

As we have previously observed, CBP established a pattern of borrowing resources from future releases to address problems with the quality of earlier releases; this led to schedule delays and cost overruns. This pattern has continued with the most recently deployed cargo release, which developed problems that caused delays with a subsequent screening and

targeting release.¹⁰ CBP took steps to mitigate this problem by eliminating the dependencies between the cargo releases and the screening and targeting releases.

However, CBP's planned schedule for developing additional releases includes a significant level of concurrence, because of CBP's interest in delivering ACE functionality sooner. Such concurrence between ACE release activities has led to cost overruns and schedule delays in the past. Thus, the revised ACE plans and actions are potentially reintroducing the same problems that produced past shortfalls.

We made several specific observations related to these weaknesses, including the following:

- On two recent releases, key milestones were passed despite unresolved severe defects. Officials told us that the risk of proceeding did not outweigh the need to get the releases to users, and thereby gaining user acceptance and feedback. However, the risks were not documented and formally managed.
- Concurrence in developing early ACE releases caused schedule slips and cost overruns. Despite these experiences, CBP has established a risky plan that involves considerable overlap across the development schedules for three future releases.
- Although the use of earned value management (EVM) is an OMB requirement, it was not being used to manage the development of two recent releases.¹¹ For example, CBP discontinued use of EVM on one release because this method was not familiar to staff who were transferred to work on the program.

¹⁰Screening is the method of determining high-risk people or shipments before their arrival at a port. Targeting is the risk-based determination of whether a shipment should undergo additional documentary review or physical inspection.

¹¹Earned value management is a tool for measuring program progress by comparing the value of work accomplished during a given period with that of the work expected in that period; this comparison permits performance to be evaluated based on calculated variances from the planned cost and schedule.

-
- *ACE operations: Operational performance has been mixed, and mission impact is unclear.*

ACE releases one through four are in operation. To date, these releases' operational performance has been uneven. For example, ACE has largely been meeting its goals for being available and responsive in processing virtually all daily transactions, and has decreased truck processing times at some ports. However, ACE is not being used by as many CBP and trade personnel as was expected, and truck processing times at other ports have increased. Moreover, overall user satisfaction has been low.

In addition, ACE goals, expected mission benefits, and performance measures are not fully defined and adequately aligned with each other. For example, not every goal has defined benefits, every benefit is defined only in terms of efficiency gains, not every benefit has an associated business result, and not every benefit and business result has associated performance measures.

Further, where performance measures have been defined, the associated targets are not always realistic. For example, the performance target in fiscal year 2005 for ACE usage was that 11 percent of all CBP employees would use ACE. However, that many CBP employees will never need to use the system. This performance target does not reflect that.

Because performance measures are not always realistic or aligned with program goals and benefits, it is unclear whether ACE has realized—or will realize—the mission value that it was intended to bring to CBP's and other agencies' trade- and border security-related operations.

Conclusions

The legislative conditions that the Congress placed on the use of fiscal year 2006 ACE appropriated funds have been either partially or fully satisfied by the latest expenditure plan and related program documentation and activities. Nevertheless, more can be done to better address several aspects of these conditions, such as ensuring that the program's privacy impact assessment is approved, measuring ACE performance and results, ensuring architectural alignment, and employing effective IV&V practices. Given that the legislative conditions are collectively intended to promote accountability and increase the chances of program success, it is important that each receives DHS's full attention.

Also important to ACE's success is the swift and complete implementation of the recommendations that we have previously made to complement the

legislative conditions and improve program management, performance, and accountability. In this regard, some recommendations have been addressed, while progress has been slow on others, such as

- accurately reporting to the Appropriations Committees on CBP's progress in implementing our prior recommendations;
- developing and implementing a strategic approach to meeting the program's human capital needs;
- using criteria for exiting key milestones that adequately consider indicators of system maturity, such as severity of open defects and the associated risks; and
- developing and implementing a performance and accountability framework for ensuring that promised capabilities and benefits are delivered on time and within budget.

To its credit, CBP has taken several steps to stem the pattern of cost, schedule, and performance shortfalls that it experienced on early ACE releases. However, future releases are unlikely to realize the impact of these steps because revised ACE plans and actions are reintroducing the same pattern that led to early release shortfalls. This pattern includes not formally and transparently considering, and proactively addressing, the risks associated with passing key release milestones with known severe defects; building considerable overlap and concurrence in the development schedules of releases that will contend for the same resources; and not performing EVM on all releases. If this pattern continues, the prospects for a successful program will be diminished.

Although availability and responsiveness targets are largely being met and long-standing help desk limitations are being addressed, the prospects for a successful program nevertheless remain unclear. The true measure of ACE's success is arguably the mission value that it brings to CBP's and other agencies' trade- and border security-related operations and users. Such value depends both on the operational performance of ACE and on CBP's ability to demonstrate that this performance is achieving program goals, delivering expected benefits, and producing desired business results. At this juncture, however, neither the system's performance nor its value is clear because of several factors: the operational performance of deployed releases has been mixed; users' satisfaction has been low; the relationships among goals, benefits, and desired business outcomes are

not evident; and the range of measures needed to create a complete and realistic picture of ACE's performance is missing.

In summary, a number of ACE activities have been and are being done well; these have contributed to the program's progress to date and will go a long way in determining the program's ultimate success. However, it will be important for CBP to effectively address long-standing ACE management challenges along with emerging problems. Until it does so, ACE will remain a risky program.

Recommendations for Executive Action

To assist CBP in managing ACE—and increasing the chances that it will deliver required capabilities on time and within budget, demonstrating promised mission benefits and results—we recommend that the Secretary of Homeland Security direct the appropriate departmental officials to fully address those legislative conditions associated with having an approved privacy impact assessment and ensuring architectural alignment.

We also recommend that the Secretary, through CBP's Acting Commissioner, direct the Assistant Commissioner for Information and Technology to

- fully address those legislative conditions associated with measuring ACE performance and results and employing effective IV&V practices;
- accurately report to the appropriations committees on CBP's progress in implementing our prior recommendations;
- include in the June 30, 2006, quarterly update report to the appropriations committees a strategy for managing ACE human capital needs and the ACE framework for managing performance and ensuring accountability;
- document key milestone decisions in a way that reflects the risks associated with proceeding with unresolved severe defects and provides for mitigating these risks;
- minimize the degree of overlap and concurrence across ongoing and future ACE releases, and capture and mitigate the associated risks of any residual concurrence;
- use EVM in the development of all existing and future releases;

-
- develop the range of realistic ACE performance measures and targets needed to support an outcome-based, results-oriented accountability framework, including user satisfaction with ACE; and
 - explicitly align ACE program goals, benefits, desired business outcomes, and performance measures.

Agency Comments

In written comments on a draft of this report signed by the Director, Departmental GAO/OIG Liaison, DHS agreed with our findings concerning progress in addressing our prior recommendations, and it agreed with the recommendations in this report. DHS also described actions that it has under way and planned to address the recommendations. The department's comments are reprinted in appendix II.

We are sending copies of this report to the Chairmen and Ranking Minority Members of other Senate and House committees and subcommittees that have authorization and oversight responsibilities for homeland security. We are also sending copies to the DHS Secretary, the CBP Commissioner and, upon their request, to other interested parties. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

Should you or your offices have any questions on matters discussed in this report, please contact me at (202) 512-3459 or at hiter@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Other contacts and key contributors to this report are listed in appendix III.



Randolph C. Hite
Director, Information Technology Architecture
and Systems Issues

Appendix I: Briefing to Subcommittees on Homeland Security, House and Senate Committees on Appropriations



Information Technology: Customs Has Made Progress on Automated Commercial Environment System, but it Faces Long-Standing Management Challenges and New Risks

Briefing to the Staffs of the
Subcommittees on Homeland Security,
Senate and House Committees on Appropriations

March 10, 2006



Briefing Overview

Introduction

Objectives

Results in Brief

Background

Results

- Legislative Conditions
- Status of Recommendations
- Observations

Conclusions

Recommendations

Agency Comments

Attachment 1: Scope and Methodology



Introduction

The Department of Homeland Security's (DHS) Customs and Border Protection (CBP)¹ is about 5 years into its trade processing modernization program, known as the Automated Commercial Environment (ACE). The goals of ACE are as follows:

Support border security by enhancing analysis and information sharing with other government agencies to deal with increasing new security threats to our nation.

Provide CBP personnel with the technology and information needed to decide, before a shipment reaches the border, what should be targeted² because it is a security threat, and what should be expedited because it complies with U.S. laws.

Provide an integrated, fully automated information system to enable the efficient collection, processing, and analysis of commercial import and export data.

Streamline time-consuming and labor-intensive tasks for CBP personnel and the trade community, through a single, Web-based interface, reducing costs for the government and the trade community.

Enable users to process, view, and manage their accounts nationally, and obtain historical information on cargo, conveyances, and crew, based on screening and targeting rules.

Enable CBP to comply with legislative mandates to improve efficiency/effectiveness and provide better customer service to U.S. citizens.

¹ CBP was formed from the former U.S. Customs Service and other entities with border protection responsibility.

² Targeting capabilities are currently being provided by DHS's Automated Targeting System. This system targets containers for inspection based on a perceived level of risk. ACE is intended to leverage these capabilities.



The Department of Homeland Security Appropriations Act, 2006,¹ appropriates about \$320 million for ACE and states that DHS may not obligate any funds for ACE until it submits for approval to the House and Senate Committees on Appropriations a plan for expenditure that

1. meets the capital planning and investment control review requirements established by the Office of Management and Budget (OMB), including Circular A-11, part 7;²
2. complies with DHS's enterprise architecture;
3. complies with the acquisition rules, requirements, guidelines, and systems acquisition management practices of the federal government;
4. includes a certification by the Chief Information Officer of DHS that an independent verification and validation agent is currently under contract;

¹ Pub. L. 109-90 (Oct. 18, 2005).

² OMB Circular A-11 establishes policy for planning, budgeting, acquisition, and management of federal capital assets.



5. is reviewed and approved by the DHS Investment Review Board (IRB),¹ the Secretary of Homeland Security, and OMB; and
6. is reviewed by GAO.

On February 2, 2006, DHS submitted its fiscal year 2006 expenditure plan for \$316.8 million to the House and Senate Appropriations Subcommittees on Homeland Security.

DHS currently plans to acquire and deploy ACE in 11 increments, referred to as releases. The first three releases are fully deployed and operating, and the fourth release is being deployed. Other releases are in various stages of definition and development.

¹The purpose of the Investment Review Board is to integrate capital planning and investment control, budgeting, acquisition, and management of investments. It is also to ensure that spending on investments directly supports and furthers the mission and that this spending provides optimal benefits and capabilities to stakeholders and customers.



Objectives

Objectives

As agreed, our objectives were to

- determine whether the ACE fiscal year 2006 expenditure plan satisfies the legislative conditions,
- determine the status of our open recommendations on ACE, and
- provide any other observations about the expenditure plan and DHS's management of the ACE program.

We conducted our work at CBP headquarters and contractor facilities in the Washington, D.C., metropolitan area, as well as at the port in Blaine, Washington, from July 2005 through March 2006, in accordance with generally accepted government auditing standards. Details of our scope and methodology are provided in attachment 1.



Objective 1: Satisfaction of legislative conditions

The legislative conditions that the Congress placed on the use of fiscal year 2006 ACE appropriated funds have been either partially or fully satisfied by the latest expenditure plan and related program documentation and activities. Nevertheless, more can be done to better address several aspects of these conditions, such as having an approved privacy impact assessment, measuring ACE performance and results, ensuring architectural alignment, and employing effective independent verification and validation (IV&V) practices. The following table summarizes the status of each of the legislative conditions.



Legislative condition	Status
1. Meets the capital planning and investment control review requirements established by OMB, including OMB Circular A-11, part 7.	Partially satisfied ^a
2. Complies with DHS's enterprise architecture.	Partially satisfied
3. Complies with the acquisition rules, requirements, guidelines, and systems acquisition management practices of the federal government.	Satisfied ^b
4. Includes a certification by the Chief Information Officer of DHS that an independent verification and validation agent is currently under contract.	Satisfied
5. Is reviewed and approved by the DHS Investment Review Board, Secretary of Homeland Security, and OMB.	Satisfied
6. Is reviewed by GAO.	Satisfied

Source: GAO.

^a Partially satisfied means that the plan, in combination with supporting documentation, either satisfied or provided for satisfying many, but not all, key aspects of the condition that we reviewed.

^b Satisfied means that the plan, in combination with supporting documentation, either satisfied or provided for satisfying every aspect of the condition that we reviewed.



Objective 2: Status of actions to implement our open recommendations

Some recommendations have been addressed, while progress has been slow on others, such as

- accurately reporting to the Appropriations Committees on CBP's progress in implementing our prior recommendations;
- developing and implementing a strategic approach to meeting the program's human capital needs;
- using criteria for exiting key milestones that adequately consider indicators of system maturity, such as severity of open defects and the associated risks; and
- developing and implementing a performance and accountability framework for ensuring that promised capabilities and benefits are delivered on time and within budget.

The following table summarizes the status of each of the open recommendations.



GAO recommendation	Number of months open	Status
1. Ensure that future expenditure plans are based on cost estimates that are reconciled with independent cost estimates.	7 months ^a	Complete ^{b,c}
2. Develop and implement a rigorous and analytically verifiable cost estimating program.	46 months	In progress ^d
3. Immediately develop and implement a human capital management strategy that provides both near- and long-term solutions; develop and implement missing human capital practices.	46 months	In progress

Source: GAO.

^a Recommendation was also completed with respect to the fiscal year 2005 expenditure plan.

^b With respect to the fiscal year 2006 expenditure plan.

^c Complete means that actions have been taken to fully implement the recommendation.

^d In progress means that actions are under way to implement the recommendation.



GAO recommendation	Number of months open	Status
4. Have future ACE expenditure plans specifically address any proposals or plans for extending and using ACE infrastructure to support other homeland security applications.	36 months	In progress
5. Define measures, and collect and use associated metrics, for determining whether prior and future program management improvements are successful.	22 months	In progress
6. Define and implement an ACE accountability framework that ensures		
a. coverage of all program commitment areas, including key expected or estimated system (1) capabilities, use, and quality; (2) benefits and mission value; (3) costs; and (4) milestones and schedules.	12 months	In progress
b. currency, relevance, and completeness of all such commitments made to the Congress in expenditure plans.	12 months	In progress

Source: GAO.



GAO recommendation	Number of months open	Status
c. reliable data relevant to measuring progress against commitments.	12 months	In progress
d. reporting in future expenditure plans progress against commitments contained in prior expenditure plans.	12 months	In progress
e. use of criteria for exiting key readiness milestones that adequately consider indicators of system maturity, such as severity of open defects.	12 months	In progress
f. clear and unambiguous delineation of the respective roles and responsibilities of the government and the prime contractor.	12 months	Complete
7. Report quarterly to the House and Senate Appropriations Committees on efforts to address open GAO recommendations.	22 months	In progress

Source: GAO.



Objective 3: Observations

Steps have been taken to address past pattern of ACE release shortfalls, but new release management weaknesses are emerging.

- Release 4 pilot revealed performance problems that caused the pilot period to be extended and the pilot scope to be reduced.
- Release 4 operational readiness review was passed despite unresolved severe defects, and Release 4 is now being deployed.
- Release 4 quality problems and enhancement needs have led to changes in how ACE release requirements are defined.
- Release 4 problems delayed Screening 1 and led to a revised strategy for delivering all screening and targeting releases.
- Screening 1 key milestones were passed despite unresolved severe defects.



- Past pattern of cost, schedule, and performance shortfalls with Releases 2, 3, and 4 makes new strategy of concurrently developing Releases 5, 6, and 7 risky.
- Earned value management (EVM), a technique for measuring progress toward meeting deliverables, is not being used to manage Screening 1 and Release 5.



ACE's operational performance has been mixed, and mission impact is unclear.

- Availability and responsiveness performance targets are largely being met.
- Processing times for trucks crossing the border at key ports vary.
- Long-standing help desk limitations are being addressed.
- Usage by CBP and the trade is lower than expected.
- User satisfaction was reported as low.
- Performance targets are not always realistic.
- Goals, expected mission benefits, and performance measures are not adequately aligned.



To assist CBP in managing ACE and increasing the chances that it will deliver required capabilities on time and within budget and demonstrate promised mission benefits and results, we are recommending that DHS

- fully address legislative conditions associated with having an approved privacy impact assessment, measuring ACE performance and results, ensuring architectural alignment, and employing effective IV&V practices;
- accurately report to the Appropriations Committees on CBP's progress in implementing our prior recommendations;
- include in the June 30, 2006, quarterly update report to the Appropriations Committees a strategy for managing ACE human capital needs and the ACE framework for managing performance and ensuring accountability;
- document key milestone decisions in a way that reflects the risks associated with proceeding with unresolved severe defects and provides for mitigating these risks;



- minimize the degree of overlap and concurrency across ongoing and future ACE releases, and capture and mitigate the associated risks of any residual concurrency;
- use EVM in the development of all existing and future releases;
- develop the range of realistic ACE performance measures and targets needed to support an outcome-based, results-oriented accountability framework, including user satisfaction with ACE; and
- explicitly align ACE program goals, benefits, desired business outcomes, and performance measures.



In their oral comments on a draft of this briefing, DHS and CBP officials, including the Executive Director of Cargo Management Systems, CBP, generally agreed with our findings, conclusions, and recommendations and stated that the presentation was fair and balanced. They also provided clarifying information that we incorporated as appropriate in this briefing.



Background ACE-Related Business Functions

ACE is to support eight major CBP business areas.

1. **Release¹ Processing:** Processing of cargo for import or export; tracking of conveyances, cargo, and crew; and processing of in-bond, warehouse, Foreign Trade Zone, and special import and export entries.
2. **Entry² Processing:** Liquidation and closeout of entries and entry summaries related to imports, and processing of protests and decisions.
3. **Finance:** Recording of revenue, performance of fund accounting, and maintenance of the general ledger.
4. **Account Relationships:** Maintenance of trade accounts, their bonds and CBP-issued licenses, and their activity.
5. **Legal and Policy:** Management of import and export legal, regulatory, policies and procedures, and rulings issues.

¹A release is the act of CBP permitting imported merchandise to enter the United States.

²An entry is the documentation required to be submitted to CBP in order for it to permit imported merchandise to enter the United States.



Background
ACE-Related Business Functions

6. **Enforcement:** Enforcement of laws, regulations, policies and procedures, and rulings governing the import and export of cargo, conveyances, and crew.
7. **Business Intelligence:** Gathering and reporting data, such as references for import and export transactions, for use in making admissibility and release decisions.
8. **Risk:** Decision making about admissibility and compliance of cargo using risk-based mitigation, screening,¹ and targeting.²

¹Screening is the method of determining high-risk people or shipments before their arrival at a port.

²Targeting is the risk-based determination of whether a shipment should undergo additional documentary review or physical inspection.



Background
ACE Technical Architecture

The ACE technical architecture is to consist of layers or tiers of computer technology:

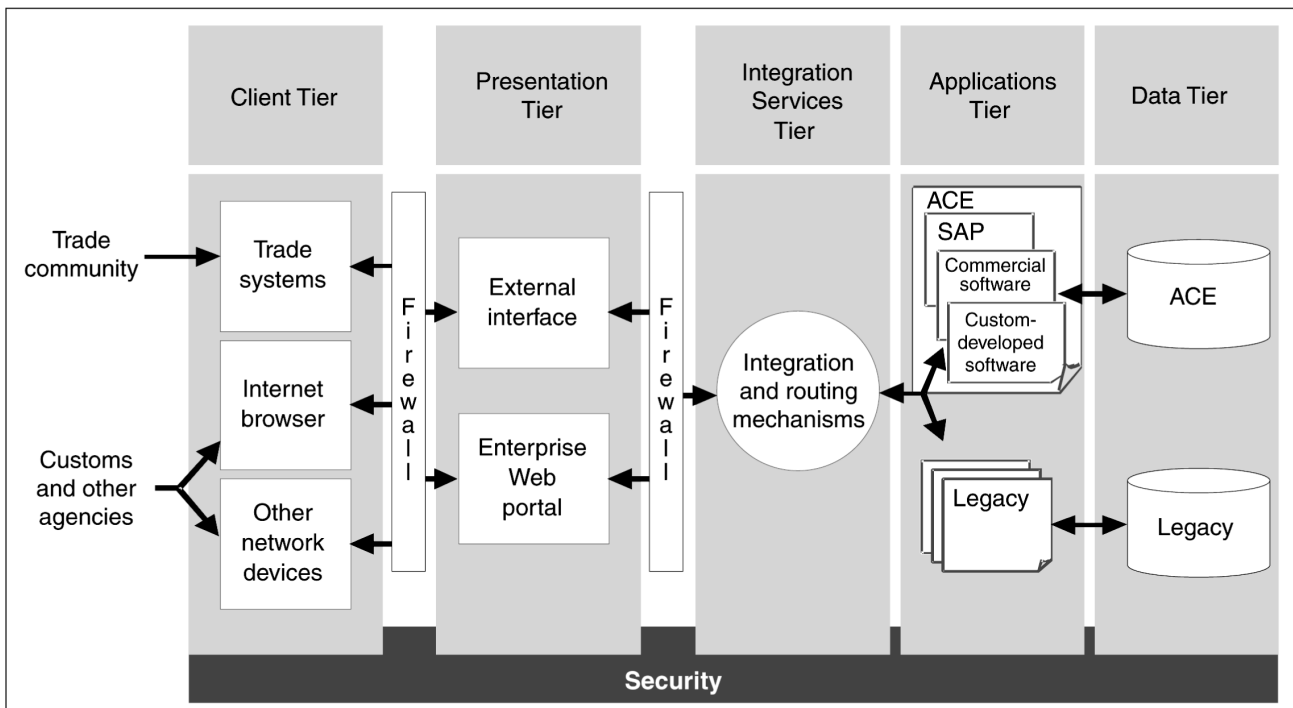
- The **Client Tier** includes user workstations and external system interfaces.
- The **Presentation Tier** provides the mechanisms for the user workstations and external systems to access ACE.
- The **Integration Services Tier** provides the middleware for integrating and routing information between ACE software applications and legacy systems.
- The **Applications Tier** includes the ACE software applications comprising commercial products (e.g., SAP¹) and custom-developed software that provide the functionality supporting CBP business processes.
- The **Data Tier** provides the data management and warehousing services for ACE, including database backup, restore, recovery, and space management.

Security and data privacy are to be embedded in all five layers.

¹ SAP is a commercial enterprise resource planning software product that has multiple modules, each performing separate but integrated business functions. ACE will use SAP to support many of its business processes and functions. CBP's Modernization Office is also using SAP as part of a joint project with its Office of Finance to support financial management, procurement, property management, cost accounting, and general ledger processes.



Simplified View of ACE Technical Architecture



Source: GAO analysis based on CBP data.



Background Acquisition Strategy

CBP is the component agency within DHS that is responsible for ACE. Currently, CBP is headed by an Acting Commissioner. Within CBP, the ACE program is located within the Office of Information Technology, which is headed by the Assistant Commissioner for Information and Technology.

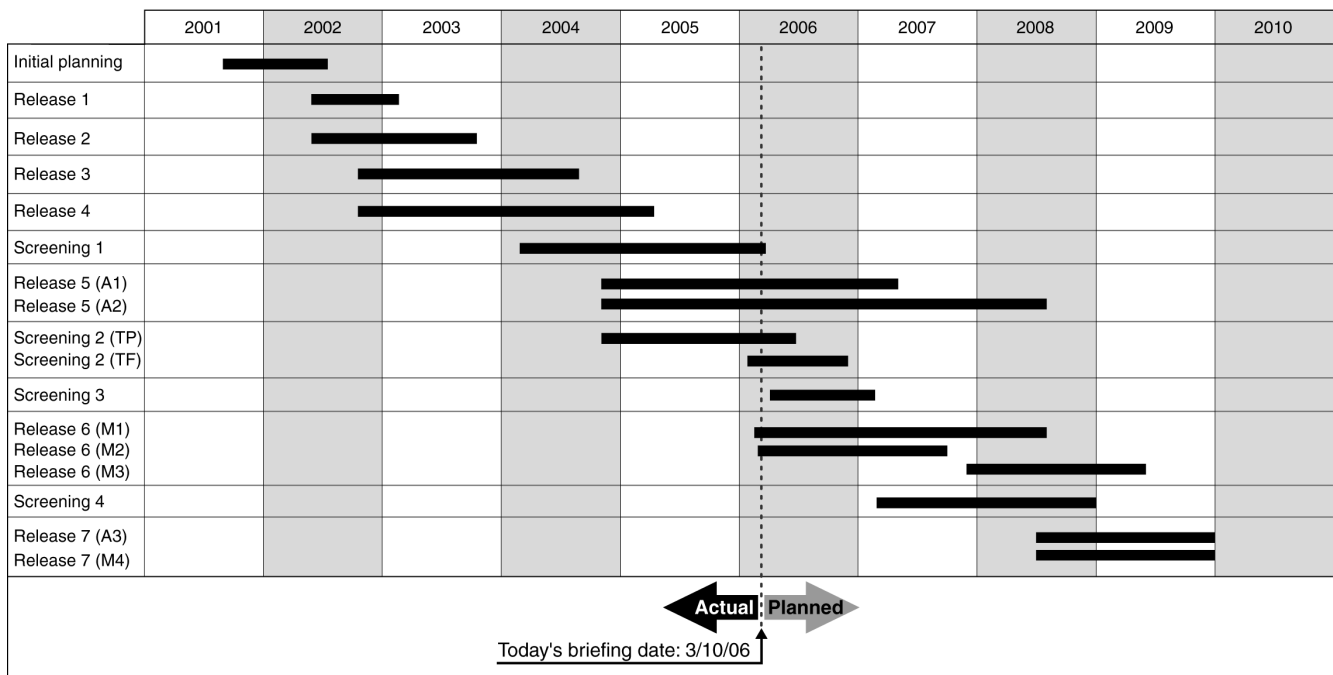
ACE is being acquired and implemented through a series of incremental releases. On April 27, 2001, CBP awarded a contract to IBM Global Services to develop and implement ACE. IBM and its subcontractors are collectively called the ACE Support Team (formerly called e-Customs Partnership).

CBP currently plans to acquire the 11 ACE releases in about 8.5 years. Screening 2 is to be acquired in two “drops,” or subreleases; Release 5 is to be acquired in two drops; Release 6 is to be acquired in three drops; and Release 7 is to be acquired in two drops.



Background
 Summary of ACE Releases

Planned Schedule for ACE



Source: GAO analysis based on CBP data.



Background
Summary of ACE Releases

The following presents the functionality provided by the 11 ACE releases, their status, and associated plans.

Release 1 (ACE Foundation): Provide information technology (IT) infrastructure—computer hardware and system software—to support subsequent system releases. This release was deployed in October 2003 and is operating.

Release 2 (Account Creation): Give initial group of CBP national account managers¹ and importers access to account information, such as trade activity. This release was deployed in October 2003 and is operating.

Release 3 (Periodic Payment): Provide additional account managers and importers, as well as brokers and carriers,² access to account information; provide initial financial transaction processing and CBP revenue collection capability, allowing importers and their brokers to make monthly payments of duties and fees. This release was deployed in July 2004 and is operating.

¹ CBP national account managers work with the largest importers.

² Brokers obtain licenses from CBP to conduct business on behalf of the importers by filling out paperwork and obtaining a bond; carriers are individuals or organizations engaged in transporting goods for hire.



Background
Summary of ACE Releases

Release 4 (e-Manifest: Trucks): Provide electronic truck manifest¹ processing and interfacing to legacy enforcement systems and databases. As discussed later, this release is operating at 39 truck border crossings as of March 8, 2006. Additional enhancement releases for Release 4 have been deployed since May 2005.

Screening 1 (Screening Foundation): Establish the foundation for screening cargo and conveyances by centralizing criteria and results into a single standard database; allow users to define and maintain data sources and business rules. This release is scheduled for deployment beginning in March 2006.

Screening 2 (Targeting Foundation): Establish the foundation for advanced targeting capabilities by enabling CBP's National Targeting Center to search multiple databases for relevant facts and actionable intelligence. This release is scheduled for deployment in two drops:

- **Screening 2 Targeting Platform (TP):** Provide a platform to collect and search relevant data and other information from multiple databases. This drop is scheduled for deployment beginning in June 2006.

¹Manifests are lists of passengers or invoices of cargo for a vehicle, such as a truck, ship, or plane.



Background
Summary of ACE Releases

- **Screening 2 Targeting Foundation (TF):** Build on the targeting platform to add new data sources, enhance screening business rules, and provide reporting capabilities. This drop is scheduled for deployment beginning in October 2006; however, CBP deployed a prototype to the National Targeting Center as part of an effort to gather detailed requirements.

Release 5 (Entry Summary, Accounts, and Revenue): Leverage SAP technologies to enhance and expand accounts management, financial management, and entry summary functionality. This release is being developed in two drops:

- **Master Data and Enhanced Accounts (Drop A1):** Use SAP to deliver enhanced account creation and maintenance functionality and expand the types of accounts managed in ACE. This drop is scheduled for deployment beginning in May 2007.
- **Entry Summary and Revenue (Drop A2):** Expand ACE to encompass entry summary, interfaces with participating government agencies, calculation of duties and fees, reconciliation processing, and refunds. This drop is scheduled for deployment beginning in July 2008.



Background
Summary of ACE Releases

Screening 3 (Advanced Targeting Capabilities): Provide enhanced screening for reconciliation, intermodal manifest, Food and Drug Administration data, and in-bond, warehouse, and Foreign Trade Zone authorized movements; integrate additional data sources into targeting capability; and provide risk management capability. This release is scheduled for deployment beginning in February 2007.

Screening 4 (Full Screening and Targeting): Provide full screening and targeting functionality supporting all modes of transportation and all transactions within the cargo management life cycle, including enhanced screening and targeting capability with additional technologies. This release is scheduled for deployment beginning in December 2008.

Release 6 (e-Manifest: All Modes and Cargo Security): Provide electronic manifest capability for rail, air, and sea shipments; provide a multimodal manifest;¹ enable full tracking of cargo, conveyances, individuals, and equipment; and enhance enforcement processes for rail, air, and sea. This release is planned for development in three drops:

¹The multimodal manifest involves the processing and tracking of cargo as it transfers between different modes of transportation, such as cargo that arrives by ship, is transferred to a truck, and then is loaded onto an airplane.



Background
Summary of ACE Releases

- **E-Manifest: Rail and Sea (Drop M1):** Extend the electronic manifest functionality to rail and sea shipments; convert rail, sea, and truck electronic manifests into the multimodal manifest. Drop M1 is scheduled for deployment beginning in July 2008.
- **E-Manifest: Air (Drop M2):** Provide the electronic manifest capability to air shipments, and bring all modes of transportation into the multimodal manifest. Drop M2 is scheduled for deployment beginning in October 2007.
- **E-Manifest: Enhanced Tracking (Drop M3):** Provide the capability to track cargo, conveyances, individuals, and equipment, providing more timely and accurate shipment status information. Drop M3 is scheduled for deployment beginning in June 2009.



Background
Summary of ACE Releases

Release 7 (Exports and Cargo Control): Implement the remaining accounts management, revenue, manifest, and release and export functionality. This release is planned for development in two drops:

- **ESAR: Drawback, Protest, and IASS (Drop A3):** Provide the import activity summary statement (IASS),¹ drawback functionality, and enhanced protest; provide on-line processing for trade account applications. Drop A3 is scheduled for deployment beginning in December 2009.
- **E-Manifest: Final Exports and Manifest (Drop M4):** Extend the electronic manifest for mail, pipeline, and hand carry; provide for electronic export processing. Drop M4 is scheduled for deployment beginning in December 2009.

¹An import activity summary statement is a summary of an importer's shipment activities over a specific period of time that is transmitted electronically to CBP on a periodic basis by importers and brokers.



Background
Deployment Status

As of March 8, 2006, ACE, Releases 1 through 4 capabilities have been deployed to 39 of the 99 truck ports (see table).

State	Deployed ports		State	Deployed ports
Washington	Blaine	Ferry	Arizona	Nogales
	Sumas	Laurier		Douglas
	Lynden	Boundary		Naco
	Point Roberts	Frontier		Sasabe
	Oroville	Metaline Falls		Lukeville
	Danville			
North Dakota	Pembina	Hannah	New Mexico	Columbus
	Neche	Sarles		Santa Teresa
	Walhalla	Hansboro		
	Maida			
Minnesota	Noyes		Texas	Brownsville
Michigan	Detroit	Algonac		Pharr
	Port Huron	Sault Ste. Marie		Progreso
	Marine City			Rio Grande City
				Roma
				Eagle Pass
			Del Rio	
			Presidio	

Source: GAO analysis based on CBP data.



Background
ACE Satisfaction of Modernization Act Requirements

ACE is intended to support CBP satisfaction of the provisions of Title VI of the North American Free Trade Agreement, commonly known as the Modernization Act. Subtitle B of the Modernization Act contains the various automation provisions that were intended to enable the government to modernize international trade processes and permit CBP to adopt an informed compliance approach with industry. The following table illustrates how each ACE release is to fulfill the requirements of Subtitle B.



Background ACE Satisfaction of Modernization Act Requirements

Modernization Act requirements	ACE releases									
	Release 1 and 2	Release 3	Release 4	Screening S1	Screening S2	Release 5	Screening S3	Screening S4	Release 6	Release 7
Electronic entry of merchandise									●	●
Electronic entry summary of required information						●				●
Electronic transmission of invoice information						●				●
Electronic transmission of manifest information			●						●	●
Electronic payment of duties, fees, and taxes		●				●				●
Electronic status of liquidation and reliquidation						●				●
Electronic selection of high risk cargo for examination			●	●			●	●		
Electronic selection of high risk entry summaries for examination					●			●		
Electronic filing and status of protests										●
Electronic filing (including remote filing under section 414) of entry information with the Customs Service									●	●
Electronic filing of import activity summaries										●
Electronic filing of reconciliations						●				●
Electronic filing of bonds						●				●
Electronic penalty process										●
Electronic filing of drawback claims, records, or entries										●
Account management	●	●				●				
Periodic monthly statement		●				●				●
Inbond and cargo tracking									●	●

Percentage of Modernization Act requirements satisfied: ● 10% ● 25% ● 50% ● 75% ● 90% ● 100%

Source: CBP.



Background
Contract Tasks

Thus far, CBP has executed 21 contract task orders—12 have been completed and 9 are active.

Status and Description of Completed Task Orders

No.	Name	Start	Date completed	Description
001	Program management	August 2001	July 2003	Initial program and project management; continued by task 009.
002	Enterprise architecture and engineering	August 2001	June 2003	Initial enterprise architecture and system engineering; continued by task 010.
003	Requirements and planning	August 2001	July 2002	Initial requirements development and program planning effort; continued by tasks for specific increments/releases.
004	Releases 1 and 2	February 2002	November 2003	Design, development, testing, and deployment of Releases 1 and 2 (initially intended to build Increment 1, which was subsequently divided into four releases)



Background
 Contract Tasks

No.	Name	Start	Date completed	Description
005	Requirements definition	February 2002	March 2004	Development of Release 5 project plan, documentation of ACE business processes, and development of an ACE implementation strategy.
008	Releases 3 and 4	August 2002	May 2005	Design, development, and testing of Releases 3 and 4, and deployment of Release 3.
009	Foundation program management	February 2003	October 2003	Follow-on to task 001 to continue program and project management activities.
010	Foundation architecture and engineering	February 2003	December 2003	Follow-on to task 002 to continue enterprise architecture and system engineering activities; continued by task 017.
011	Infrastructure and facilities	August 2002	March 2003	Acquisition and setup of the necessary infrastructure and facilities for the contractor to design, develop, and test releases.
012	Operations and maintenance	April 2003	September 2004	Establishment of the infrastructure to operate and maintain releases.



Background
Contract Tasks

No.	Name	Start	Date completed	Description
013	Legacy scripts modernization	June 2003	October 2003	Conversion of scripts for interfacing desktop applications (MS Word and Excel) and mainframe computer applications.
014	Knowledge-based risk management	September 2003	March 2004	Development, demonstration, and delivery of a prototype to provide CBP insight into whether knowledge-based risk management should be used in ACE.

Source: GAO analysis based on CBP data.



Nine contract task orders are active.

Status and Description of Active Task Orders

No.	Name	Start	Status	Description
006	Enterprise process improvement	February 2002	April 2006 planned completion	Enterprise process improvement integration.
007	International Trade Data System (ITDS)	January 2002	December 2006 planned completion	Assistance for participating government agencies to define requirements for an integrated ACE/ITDS system.
015	Technology prototypes	October 2003	September 2006 planned completion	Development and demonstration of technology prototypes to provide CBP insight into whether the technologies should be used in ACE.
016	Foundation program management: Communication, training, and outcomes	October 2003	September 2006 planned completion	Program management and support to organizational change management through activities such as impact assessments, end user training, communication, and outreach.



Background
 Contract Tasks

No.	Name	Start	Status	Description
017	Architecture and Engineering	December 2003	October 2006 planned completion	Coordination of program activities and alignment of enterprise objectives and technical plans through architecture and engineering activities.
018	Enterprise Life Cycle Methodology	January 2004	September 2006 planned completion	Application of the CBP Enterprise Life Cycle Methodology to integrate multiple projects and other ongoing Customs operations into CBPMO.
019	Operations and Maintenance	March 2004	October 2006 planned completion	Follow-on to task 012 includes establishment, integration, configuration, and maintenance of the infrastructure to support Releases 2, 3, and 4.
020	Screening and Targeting	March 2004	March 2006 planned completion	Design, develop, test, and deploy the Screening and Targeting (S&T) operational capability.
021	Releases 5 and 6	May 2004	April 2006 planned completion	Project definition and initial design for Release 5; initial project authorization and definition for Release 6.

Source: GAO analysis based on CBP data.



Background
Chronology of Seven ACE Expenditure Plans

Since March 2001, seven ACE expenditure plans have been submitted.¹ Collectively, the seven plans have identified a total of \$1,698.1 million in funding.

- On March 26, 2001, CBP submitted to its appropriations committees the *first expenditure plan* seeking \$45 million for the modernization contract to sustain Customs and Border Protection Modernization Office (CBPMO) operations, including contractor support. The appropriations committees subsequently approved the use of \$45 million, bringing the total ACE funding to \$50 million.
- On February 1, 2002, the *second expenditure plan* sought \$206.9 million to sustain CBPMO operations; define, design, develop, and deploy Increment 1, Release 1 (now Releases 1 and 2); and identify requirements for Increment 2 (now part of Releases 5, 6, and 7 and Screenings 1 and 2). The appropriations committees subsequently approved the use of \$188.6 million, bringing total ACE funding to \$238.6 million.

¹ In March 2001, appropriations committees approved the use of \$5 million in stopgap funding to fund program management office operations.



Background
Chronology of Seven ACE Expenditure Plans

- On May 24, 2002, the *third expenditure plan* sought \$190.2 million to define, design, develop, and implement Increment 1, Release 2 (now Releases 3 and 4). The appropriations committees subsequently approved the use of \$190.2 million, bringing the total ACE funding to \$428.8 million.
- On November 22, 2002, the *fourth expenditure plan* sought \$314 million to operate and maintain Increment 1 (now Releases 1, 2, 3, and 4); to design and develop Increment 2, Release 1 (now part of Releases 5, 6, and 7 and Screening 1); and to define requirements and plan Increment 3 (now part of Releases 5, 6, and 7 and Screenings 2, 3, and 4). The appropriations committees subsequently approved the use of \$314 million, bringing total ACE funding to \$742.8 million.



Background
Chronology of Seven ACE Expenditure Plans

- On January 21, 2004, the *fifth expenditure plan* sought \$318.7 million to implement ACE infrastructure; to support, operate, and maintain ACE; and to define and design Release 6 (now part of Releases 5, 6, and 7) and Selectivity 2 (now Screening 2 and 3). The appropriations committees subsequently approved the use of \$316.8 million, bringing total ACE funding to \$1,059.6 million.
- On November 8, 2004, the *sixth expenditure plan* sought \$321.7 million for design and development of Release 5 and Screening 2, definition of Screening 3, ACE program management, architecture and engineering, and operations and maintenance. The appropriations committees subsequently approved the use of \$321.7 million, bringing total ACE funding to \$1,381.3 million.



Background
Chronology of Seven ACE Expenditure Plans

- On February 02, 2006, CBP submitted its *seventh expenditure plan*, seeking \$316.8 million for detailed design and development of Release 5, development of Release 6, deployment of Screening 2, development and deployment of Screening 3, program management and operations, and ACE operations, maintenance, and infrastructure implementation.



Background
 Summary of Funding

Summary of the ACE Fiscal Year 2006 Expenditure Plan

Plan activity	Funding^a
Entry Summary, Accounts, and Revenue (Release 5), Design and Development	\$52.3
e-Manifest: All Modes and Cargo Security (Release 6), Design and Development	33.5
Screening and Targeting, Development	24.8
International Trade Data System	15.8
Foundation Architecture and Engineering	15.5
Operations and Maintenance	50.0
Implementation Infrastructure and Support	62.4
Communications, Training, and Outcomes	9.0
ACE Foundation Program Management	25.6
Program Office Operations	27.9
Total	\$316.8

Source: CBP.

^a Millions of dollars.

The plan does not include management reserve funding. As of December 15, 2005, the program had about \$33.8 million in unused management reserve funding from prior years.



Background
ACE Testing and Related Milestones

Development of each ACE release includes system integration and system acceptance testing, followed by a pilot period that includes user acceptance testing. Generally, the purpose of these tests is to ensure that the system meets defined system requirements or satisfies user needs. The associated readiness reviews are to ensure that the system is ready to proceed to the next stage of testing or operation.

Tests and their related milestones are described in the following table.

Test	Description	Related milestone^a
System integration test	Verify that related system, subsystem, or module components are capable of integrating and interfacing with each other.	Test Readiness Review
System acceptance test	Verify that the developed system, subsystem, or module operates in accordance with requirements.	Production Readiness Review
User acceptance test	Verify that the functional scope of the release meets the business functions for the users.	Operational Readiness Review

Source: eCP.

^aGenerally, the identified milestone review comes at the conclusion of the related test.



Background Defect Categories

Defects identified during testing and operation of the system are classified into one of four severity categories, as described below.

Category	Description
Critical (Severity 1)	Defect prevents or precludes the performance of an operational or mission-essential capability, jeopardizes safety or security, or causes the system, application, process, or function to fail to respond or to end abnormally.
Severe (Severity 2)	Defect prevents or precludes system from working as specified and/or produces an error that degrades or impacts the system or user functionality.
Moderate (Severity 3)	Defect prevents or precludes system from working as specified and/or produces an error that degrades or impacts the system or user functionality. An acceptable (reasonable and effective) work-around is in place that rectifies the defect until a permanent fix can be made.
Minor (Severity 4)	Defect is inconsequential, cosmetic, or inconvenient and does not prevent users from using the system to accomplish their tasks.

Source: eCP.



Background Previous GAO Observations

Since 2001, we have reviewed CBP's six prior expenditure plans and made a number of observations that relate to cost overruns, schedule delays, quality limitations, and program management shortcomings. Among other things, we observed the following:

- Release 1 and 2 testing revealed a sufficient volume and significance of system defects to result in schedule delays.¹
- Following cost overruns and schedule delays with Release 1, steps were taken to avoid future problems, but the means for measuring the success of the actions was not in place.¹
- Delays in Release 2 began a pattern of increased reliance on concurrent activities, which in turn caused future release delays and cost overruns.¹
- Release 3 testing and pilot activities were delayed and produced system defect trends that raised questions about decisions to pass key milestones and about the state of system maturity.²

¹ GAO, *Information Technology: Early Releases of Customs Trade System Operating, but Pattern of Cost and Schedule Problems Needs to Be Addressed*, GAO-04-719 (Washington, D.C.: May 14, 2004).

² GAO, *Information Technology: Customs Automated Commercial Environment Progressing, but Need for Management Improvements Continues*, GAO-05-267 (Washington, D.C.: Mar. 14, 2005).



Background
Previous GAO Observations

- Release 4 test phases were delayed and overlapped, and tests revealed a higher than expected volume and significance of defects, which again raised questions about decisions to pass key milestones and about the state of system maturity.¹
- Progress toward activating ACE importer accounts had not met expectations.¹

¹ GAO-05-267.



Objective 1: Legislative Conditions Capital Planning Requirements

DHS and OMB satisfied or partially satisfied each of its legislative conditions; GAO satisfied its legislative condition.

Condition 1. The plan is to meet the capital planning and investment control review requirements established by OMB, including Circular A-11, part 7, which establishes policy for planning, budgeting, acquisition, and management of federal capital assets. The plan, in conjunction with related program documentation and program officials' statements, partially satisfied the condition.

The table that follows provides examples of the results of our analysis.



Objective 1: Legislative Conditions
Capital Planning Requirements

**Example of A-11
conditions**

Provide justification and describe acquisition strategy.

Results of our analysis

The expenditure plan provides a high-level justification for ACE. In addition, supporting documentation describes the acquisition strategy for ACE releases covered in the expenditure plan, including Release 5 (Drops A1 and A2), Release 6 (Drops M1 and M2), Screening and Targeting Releases (S2 and S3), and International Trade Data System capabilities.

Summarize life cycle costs and cost/benefit analysis, including the return on investment.

CBP issued a cost/benefit analysis (CBA) for ACE on September 16, 2004. This analysis reported a life cycle cost estimate of \$3.1 billion and a benefit to cost ratio of 8.29. This means CBP expects that on average, there will be a return of \$8.29 in benefits for every dollar spent on ACE. Subsequently, CBP reported that this ratio had increased to 10.77.¹

¹ We did not independently review the reliability of this benefit to cost ratio.



Objective 1: Legislative Conditions
Capital Planning Requirements

**Example of A-11
conditions**

Address security and
privacy.

Results of our analysis

ACE Releases 1 through 4 passed security acceptance testing and have been accredited. CBP reported that security plans will be developed for Releases 5 through 6. It also reported that the privacy impact assessment for ACE has been in draft for approximately 7 months and is not yet approved.



Objective 1: Legislative Conditions
Capital Planning Requirements

**Example of A-11
conditions**

Provide performance goals and measures.

Results of our analysis

The plan and supporting documentation describe selected ACE performance goals and measures. However, the performance goals (targets) are not always realistic. For example, CBP has established a single performance goal to apply to all ports, despite differences among the ports. Additionally, the performance measures that CBP is using are not aligned to the expected benefits of ACE. According to CBP, the performance measurement program continues to evolve as it gains more understanding of useful and meaningful measures. (See the observations section of the briefing for more detailed information on performance goals and measures.)

Source: GAO analysis.



Objective 1: Legislative Conditions
Enterprise Architecture Compliance

Condition 2. The plan is to comply with DHS's enterprise architecture (EA). The plan, including related program documentation and program officials' statements, partially satisfied this condition.

The DHS Enterprise Architecture Board, supported by the Enterprise Architecture Center of Excellence, is responsible for ensuring that projects demonstrate adequate technical and strategic compliance with the department's EA.

In May 2005, CBP requested that the DHS Enterprise Architecture Board evaluate its analysis of ACE's alignment with the department's EA. Using the ACE fiscal year 2006 business case, the ACE program plan, and other documentation, the Center of Excellence evaluated alignment with version 2.0 of the DHS EA business model, data architecture, technical reference model, and transition strategy. In July 2005, the center approved CBP's analysis and recommended that the request for program alignment be approved. The Enterprise Architecture Board subsequently concurred with the center's recommendation.



Objective 1: Legislative Conditions
Enterprise Architecture Compliance

DHS required CBP to provide documentation to support ACE's alignment with aspects of the EA such as the business architecture, the data model, the transition strategy, and the technical reference model. However, DHS officials told us that they do not have a documented methodology for evaluating programs for compliance with the DHS EA, other than relying on the professional expertise of the members of the Center of Excellence. Moreover, no analysis or documentation was produced by the evaluators that could be used to verify the degree of alignment.



Objective 1: Legislative Conditions Acquisition Requirements

Condition 3. The plan is to comply with the acquisition rules, requirements, guidelines, and systems acquisition management practices of the federal government. The plan, in conjunction with related program documentation, satisfied this condition.

The Software Acquisition Capability Maturity Model (SA-CMM®), developed by Carnegie Mellon University's Software Engineering Institute (SEI), is consistent with the acquisition guidelines and systems acquisition management practices of the federal government, and it provides a management framework that defines acquisition practices for such process areas as acquisition planning, solicitation, requirements development and management, project management, contract tracking and oversight, and evaluation.

In November 2003, SEI assessed ACE acquisition management processes and practices against the SA-CMM and assigned a level 2 rating, indicating that CBP had instituted basic acquisition management processes and controls in the following areas: acquisition planning, solicitation, requirements development and management, project management, contract tracking and oversight, and evaluation.



Objective 1: Legislative Conditions
Independent Verification and Validation

Condition 4. The DHS Chief Information Officer (CIO) is to certify that an independent verification and validation (IV&V) agent is under contract. DHS satisfied this condition.

On January 26, 2006, the DHS CIO certified that an IV&V agent is under contract for the ACE program. However, the CIO also reported that the contractor's approach needs to be improved. For example, the CIO said that the contractor needs to address ACE satisfaction of quality standards and user needs.

Further, the scope of the contractor's activities is not consistent with the operative industry standard, which states that IV&V should extend to key system products and development processes.¹ CBP's IV&V contract, awarded in December 2004, recognizes the importance of this scope of activities by requiring the contractor to implement a program consistent with this standard.

¹ IEEE Computer Society, *Standard for Software Verification and Validation 1012-1998* (June 8, 2005).



Objective 1: Legislative Conditions Independent Verification and Validation

In fiscal year 2005, CBP expended approximately \$310,000 on IV&V. However, these resources have been used to assess certain program management processes, such as ACE help desk activities and progress in hiring Office of Information Technology staff. They have not been used to, for example, examine the development of ACE requirements or the quality of ACE software releases.

According to CBP officials, the scope of the IV&V contractor's activities has not included ACE product quality because they believe that such verification and validation activities would duplicate the program's own quality assurance and testing activities. While we agree that the IV&V agent should not duplicate work that is already performed by an entity that is independent of the program's cost and schedule processes, both the DHS CIO and the IV&V agent's statement of work have directed that product quality be addressed. For fiscal year 2006, CBP plans to spend \$856,000 on IV&V.



Objective 1: Legislative Conditions
Review by DHS and OMB

Condition 5. The plan is to be reviewed and approved by the DHS Investment Review Board (IRB), the Secretary of Homeland Security, and OMB. DHS and OMB satisfied this condition.

On November 21, 2005, the DHS IRB reviewed the ACE program. The Under Secretary for Management approved the expenditure plan on behalf of the Secretary of Homeland Security on February 2, 2006.

OMB approved the plan on December 30, 2005.



Objective 1: Legislative Conditions
Review by GAO

Condition 6. GAO is to review the plan. We satisfied this condition.

Our review was completed on March 10, 2006.



Objective 2: Open Recommendations

CBP has implemented one of our seven open recommendations, and implementation of the remaining six is in progress. The status of each of these recommendations is summarized below.

GAO recommendation	Number of months open	Status
1. Ensure that future expenditure plans are based on cost estimates that are reconciled with independent cost estimates.	7 months ^a	Complete ^{b,c}
2. Develop and implement a rigorous and analytically verifiable cost estimating program.	46 months	In progress ^d
3. Immediately develop and implement a human capital management strategy that provides both near- and long-term solutions; develop and implement missing human capital practices.	46 months	In progress

Source: GAO.

^a Recommendation was also completed with respect to the fiscal year 2005 expenditure plan.

^b With respect to the fiscal year 2006 expenditure plan.

^c Complete means that actions have been taken to fully implement the recommendation.

^d In progress means that actions are under way to implement the recommendation.



Objective 2: Open Recommendations

GAO recommendation	Number of months open	Status
4. Have future ACE expenditure plans specifically address any proposals or plans for extending and using ACE infrastructure to support other homeland security applications.	36 months	In progress
5. Define measures, and collect and use associated metrics, for determining whether prior and future program management improvements are successful.	22 months	In progress
6. Define and implement an ACE accountability framework that ensures		
a. coverage of all program commitment areas, including key expected or estimated system (1) capabilities, use, and quality; (2) benefits and mission value; (3) costs; and (4) milestones and schedules.	12 months	In progress
b. currency, relevance, and completeness of all such commitments made to the Congress in expenditure plans.	12 months	In progress

Source: GAO.



Objective 2: Open Recommendations

GAO recommendation	Number of months open	Status
c. reliable data relevant to measuring progress against commitments.	12 months	In progress
d. reporting in future expenditure plans progress against commitments contained in prior expenditure plans.	12 months	In progress
e. use of criteria for exiting key readiness milestones that adequately consider indicators of system maturity, such as severity of open defects.	12 months	In progress
f. clear and unambiguous delineation of the respective roles and responsibilities of the government and the prime contractor.	12 months	Complete
7. Report quarterly to the House and Senate Appropriations Committees on efforts to address open GAO recommendations.	22 months	In progress

Source: GAO.



Objective 2: Open Recommendations
Independent Cost Estimates

Open recommendation 1: Ensure that future expenditure plans are based on cost estimates that are reconciled with independent cost estimates.

Status: Complete¹

The cost estimate in the fiscal year 2006 expenditure plan is based on the estimates in the current ACE program plan. CBP, with contractor support, compared the program plan cost estimate with the independent cost estimate. According to the analysis performed, the two estimates are consistent. The analysis was completed in October 2005, about 3 months before the fiscal year 2006 expenditure plan was submitted to the Appropriations Committees.

¹With respect to the fiscal year 2006 expenditure plan.



Objective 2: Open Recommendations Effective Cost Estimating

Open recommendation 2: Develop and implement a rigorous and analytically verifiable cost estimating program that embodies the tenets of effective estimating as defined in SEI's institutional and project-specific estimating models.¹

Status: In progress

CBP has defined and documented processes for estimating program costs for the expenditure plan (including management reserve costs). It has also hired a contractor to develop cost estimates, including contract task order cost estimates, that are independent of CBP's estimates. Further, to ensure sufficiency and completeness of the estimates, CBP tasked a support contractor with evaluating both the independent and the CBP estimates against the criteria defined by SEI.

¹For these models, see Robert E. Park, *Checklists and Criteria for Evaluating the Cost and Schedule Estimating Capabilities of Software Organizations* (Pittsburgh, Pennsylvania: SEI, Carnegie Mellon University, 1995); *A Manager's Checklist for Validating Software Cost and Schedule Estimates* (Pittsburgh, Pennsylvania: SEI, Carnegie Mellon University, 1995).



Objective 2: Open Recommendations
Effective Cost Estimating

According to the results of the support contractor's evaluation, the independent estimates satisfied all seven of the SEI criteria, and CBP's estimates satisfied six of the criteria and partially satisfied the remaining one. For the partially satisfied criterion, the evaluation found that the CBP estimate did not adequately consider past projects in its cost and schedule estimates.

In addition, the support contractor found that CBP's estimate was the aggregation of three ACE component estimates, each of which was developed by the group responsible for a given component using different cost estimating methodologies. As a result, the support contractor recommended that CBP ensure that component estimates be based on the same methodology.



Objective 2: Open Recommendations
Human Capital Strategy

Open recommendation 3: Immediately develop and implement a human capital management strategy that provides both near- and long-term solutions to program office human capital capacity limitations, and report quarterly to the Appropriations Committees on the progress of efforts to do so.

Status: In progress

CBP does not have a documented human capital strategy covering its ACE program. As we have previously reported, such a strategy should provide for defining the positions needed (including core competencies) to perform core program functions; assessing and inventorying current workforce skills and abilities; assessing any gaps between needed and existing workforce levels and capabilities; and filling identified gaps via such means as new staff, training existing staff, and augmenting staff with contractor support.



Objective 2: Open Recommendations
Human Capital Strategy

In lieu of a documented human capital strategy, CBP officials told us that they have taken various steps to bolster their ACE workforce as part of a less formal strategy. For example:

- CBP expanded its contractor and government workforce dedicated to the ACE program by merging staff assigned to trade-related legacy systems with the ACE program staff—creating a Cargo Management Systems Program Office. According to the officials, this merger has enabled them to leverage the knowledge of staff who have been working with cargo systems for the past 10 to 20 years, and thus increased the level of expertise available to ACE.
- CBP recently trained staff working on a major release on earned value management.
- CBP began using subject matter experts from existing field operations advisory boards to help program officials define requirements for future releases.



Objective 2: Open Recommendations
Human Capital Strategy

Further, CBP has reported quarterly to the appropriations committees on its human capital goals and objectives for ACE.

Nevertheless, CBP officials acknowledged that they have not developed and followed a formal strategy that systematically compares competency-based staffing needs to on-board capabilities and defines and implements long-term and short-term plans for closing any shortfalls and associated strategies. Further, they have not reported to the appropriations committees on these shortfalls. They stated that they intend to develop a formal human capital strategy, and in doing so, will reflect the activities that they have already taken.



Objective 2: Open Recommendations
Extending ACE Infrastructure

Open Recommendation 4: Have future ACE expenditure plans specifically address any proposals or plans, whether tentative or approved, for extending and using ACE infrastructure to support other homeland security applications, including any impact on ACE of such proposals and plans.

Status: In progress

The expenditure plan describes steps under way and planned to leverage ACE's relationship with other homeland security applications. According to the plan,

- ACE and US-VISIT¹ conform to the DHS enterprise architecture, which is to define standard shared services that the two systems can request. Such a services oriented architecture is intended to promote reuse and reduce overlap and duplication. According to CBP officials, they are currently exploring shared services areas.

¹United States Visitor and Immigrant Status Indicator Technology (US-VISIT) is a governmentwide program to collect, maintain, and share information on foreign nationals for enhancing national security and facilitating legitimate trade and travel, while adhering to U.S. privacy laws and policies.



Objective 2: Open Recommendations
Extending ACE Infrastructure

- ACE and US-VISIT have begun to use a common infrastructure to deploy and operate their systems. For example, in locations where ACE and US-VISIT have been fully deployed, such as at the port of Blaine, Washington, the two systems operate on the same network and the same workstations.

However, the plan does not discuss the impact to ACE (e.g., cost and schedule) with regard to these efforts and plans.

Besides what is described in the plan, ACE officials told us that they meet once a month with US-VISIT officials to share lessons learned on program management topics, such as risk management, change management, and configuration management.



Objective 2: Open Recommendations
Measuring Success

Open recommendation 5: Define measures, and collect and use associated metrics, for determining whether prior and future program management improvements are successful.

Status: In progress

CBP continues to make changes that are intended to improve overall program management.

- CBP has merged aspects of its Office of Information Technology that managed trade-related legacy systems with its former ACE program office, thereby creating the Cargo Management Systems Program Office. This reorganization, according to CBP, is to result in (1) enhanced government oversight of ACE development, (2) better definition of requirements for future releases, and (3) faster and cheaper delivery of ACE capabilities. However, program officials told us that they have not established measures or targets for determining whether the reorganization is providing these benefits.



Objective 2: Open Recommendations Measuring Success

- CBP eliminated the dependencies between the screening and targeting releases and the cargo releases by leveraging its existing Automated Targeting System in delivering ACE screening and targeting capabilities. (This topic is discussed in further detail in the observations section.) It has also established measures for determining the impact of this change, including saving the program \$10 million in life-cycle costs and allowing the screening and targeting releases to be fully deployed 1 year ahead of schedule.



Objective 2: Open Recommendations
Accountability Framework

Open recommendation 6: Define and implement an ACE accountability framework that fulfills several conditions:

a. Covers all program commitment areas, including key expected or estimated system (a) capabilities, use, and quality; (b) benefits and mission value; (c) costs; and (d) milestones and schedules.

Status: In progress

CBP has prepared an initial version of an accountability framework that program officials said they intend to improve, but have nevertheless begun using. This framework is built around measuring progress against costs, milestones and schedules, and risks for select releases. It is also intended to permit measurement at different levels of aggregation, and for whatever incremental periods of time desired (e.g., monthly). However, as we discuss later, the benefit commitments have not been well defined and the performance targets are not always realistic.



Objective 2: Open Recommendations
Accountability Framework

b. Ensures currency, relevance, and completeness of all program commitments made to the Congress in expenditure plans.

Status: In progress

The fiscal year 2006 expenditure plan continues to include inaccurate, dated, and incomplete information and to omit other relevant information.

- The plan did not include information regarding CBP's decision to eliminate the dependencies among the screening and targeting releases and the cargo releases and to leverage its existing Automated Targeting System capabilities, nor did the plan reflect the \$10 million cost reduction and the 1 year schedule acceleration that this change is intended to produce.
- The plan includes milestone completion dates for Releases 5, 6, and 7 and Screening 1 that are not accurate. For example, the expenditure plan shows that the preliminary design review for Release 5, drops A1 and A2, was scheduled to occur in August 2005; however, it did not occur until November 2005. Similarly, although the plan states that the critical design review for Release 6, drop M1, was scheduled to occur in November 2005, it is currently scheduled to take place August 2006.



Objective 2: Open Recommendations
Accountability Framework

According to CBP officials, they did not update the plan because they wanted to provide it to the Appropriations Committees as soon as possible. They also stated that they use the congressional quarterly reports to provide the Appropriations Committees with more current, relevant, and complete information about ACE. However, these quarterly reports are generally submitted 3 to 4 months after the end of each quarter.



Objective 2: Open Recommendations
Accountability Framework

c. Ensures reliable data relevant to measuring progress against commitments.

Status: In progress

The data that CBP uses to measure progress against commitments are not consistently reliable. For example:

- Data in the defect tracking system show that Release 4 is operating with long-standing defects and that new defects have not been closed. For example, as of January 18, 2006, the system showed that a number of defects were open:

Number	Severity
12	Severity 2
4	Severity 3
3	Severity 4



Objective 2: Open Recommendations
Accountability Framework

- Program officials told us that many of these defects are in fact resolved. However, the defect tracking system does not accurately reflect this status for two reasons:
 - staff were using multiple systems to track defects and these systems were not always reconciled; and
 - newer staff were inexperienced in using the defect tracking system.

According to program officials, they are manually reconciling the data between the multiple systems, and plan to implement a new system that will track all defects in one central system.



Objective 2: Open Recommendations
Accountability Framework

d. Ensure future expenditure plans report progress against commitments contained in prior expenditure plans.

Status: In progress

The fiscal year 2006 expenditure plan does not adequately describe progress against commitments made in previous plans. For example:

- The plan provides a summary of the funding requested in each of the previous six expenditure plans. However, it does not provide information on whether these funding amounts were actually expended or obligated as planned.
- The plan includes a new schedule for ACE releases, but it does not report progress relative to the schedule presented in the fiscal year 2005 plan.
- The plan does not explain the extent to which Release 5 design and development planned in the fiscal year 2005 plan was actually accomplished.



Objective 2: Open Recommendations
Accountability Framework

e. Ensure criteria for exiting key readiness milestones adequately consider indicators of system maturity, such as severity of open defects.

Status: In progress

According to CBP officials, ACE milestone exit criteria provide for considering the risk associated with having unresolved severe defects. Specifically, the criteria state that critical and severe defects must be resolved or there must be a plan in place to resolve them. Using these criteria, CBP passed several release milestones with severe defects still open:

- Release 4 operational readiness review was passed with 9 severe defects open,
- Screening 1 test readiness review was passed with 3 severe defects open, and
- Screening 1 production readiness review was passed with 2 severe defects open.



Objective 2: Open Recommendations
Accountability Framework

In making these decisions, CBP officials told us that they considered the associated risk and concluded that the risk was acceptable. In particular, they stated that it was more important to get the releases in the hands of users and thereby gain user acceptance and receive user feedback sooner than it was to first resolve the defects.

However, CBP officials were unable to provide us with any documentation on how the inherent risks of passing these milestones with open severe defects were assessed, and the ACE risk inventory does not include any risks associated with these decisions.



Objective 2: Open Recommendations
Accountability Framework

f. Ensures clear and unambiguous delineation of the respective roles and responsibilities of the government and the prime contractor.

Status: Complete.

The current version of the ACE program plan describes general roles and responsibilities for the government and the prime contractor. More detailed roles and responsibilities of CBP, the prime contractor, and the support contractors have been documented in a roles and responsibilities matrix that assigns primary responsibility for each activity, such as testing, training, and maintenance. In addition, the task orders describe the specific responsibilities and expectations of the contractors.



Objective 2: Open Recommendations Implementation Reporting

Open recommendation 7: Report quarterly to the House and Senate Appropriations Committees on efforts to address open GAO recommendations.

Status: In progress

CBP submitted reports to both Committees on its efforts to address open GAO recommendations for the quarters ending March 31, 2005; June 30, 2005; and September 30, 2005. CBP also plans to submit a report for the quarter ending December 31, 2005.

However, progress in addressing our recommendations was not always reported accurately. For example, CBP reported that it will review the expenditure plan throughout the approval process to ensure that it incorporates the most current program commitments. However, it did not. Additionally, in the September 2005 report, CBP stated that the fiscal year 2006 expenditure plan would have a section that describes progress made against program commitments made in all prior expenditure plans. However, the expenditure plan does not include this information.



Objective 3: Development Observations

Steps have been taken to address past pattern of ACE release shortfalls, but new release management weaknesses are emerging.

As we have observed in our previous reviews, CBP established a pattern of addressing quality problems with earlier releases by borrowing resources from future releases, which led to schedule delays and cost overruns. This pattern has continued with Release 4, which developed problems that caused delays with Screening 1. CBP has taken steps to mitigate this problem by eliminating the dependencies between the cargo releases and the screening and targeting releases.

However, CBP's planned schedule for developing Releases 5, 6, and 7 includes a significant level of concurrency, because of CBP's interest in delivering ACE functionality sooner. As we have reported in the past, such concurrency between release activities has led to cost overruns and schedule delays. Thus, the revised ACE plans and actions are potentially reintroducing the same problems that resulted in shortfalls in the past.



Objective 3: Development Observations
Release 4 Pilot Problems

Release 4 pilot revealed performance problems that caused the pilot period to be extended and the pilot scope to be reduced.

The Release 4 pilot was intended to ensure that the release met its requirements before it was deployed to all truck ports. Examples of pilot activities include training of CBP and trade personnel in how to use the release and conducting user acceptance testing. As planned, the pilot was to be conducted at two truck ports—Blaine, Washington, and Buffalo, New York—and the testing was to occur during a 10 week period. The pilot was to conclude with the operational readiness review on February 23, 2005.

However, the pilot only occurred at Blaine, the pilot period covered 17 weeks, and the operational readiness review did not occur until April 14, 2005. The following are significant events that occurred during the pilot.

- During the initial days of the pilot, Release 4 slowed truck processing. To address this, users identified needed system enhancements, primarily intended to reduce the number of steps required to process trucks. As a result, the pilot was suspended 11 days after it began so that the enhancements could be developed and implemented.



Objective 3: Development Observations Release 4 Pilot Problems

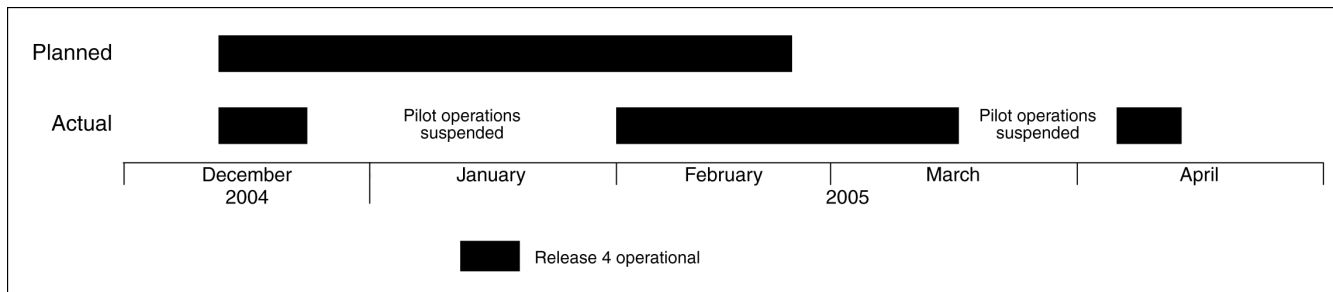
- The pilot resumed about 5 weeks after it was suspended. However, new problems were encountered, such as slow system response times and screen freezes. Additionally, the release was not properly displaying alerts for potential criminals or terrorists. As a result, the pilot was again suspended about 6 weeks after it was resumed.
- The pilot resumed about 3 weeks after the second suspension. On April 14, 2005, about 7 weeks later than planned, Release 4 passed operational readiness review.
- Because of the ongoing problems with Release 4 in Blaine, CBP cancelled its plans to include Buffalo in the pilot.

A comparison of the planned versus actual pilot schedules is summarized in the following figure.



Objective 3: Development Observations
Release 4 Pilot Problems

Planned versus Actual Time Frame for Release 4 Pilot Activities



Source: GAO analysis of CBP data.



Objective 3: Development Observations
Release 4 Milestone Reviews and Quality Problems

Release 4 operational readiness review was passed despite unresolved severe defects, and Release 4 is now being deployed.

CBP's criteria for passing key milestones—such as the Release 4 operational readiness review (ORR)—stipulate that all critical and severe defects must either be resolved or there must be plans in place to resolve the defect. As noted earlier, we have recommended that any decisions to pass key milestones adequately consider indicators of system maturity, such as open severe defects.

At the time of the Release 4 operational readiness review, CBP reported that 9 severe defects remained open, and that it had plans in place to resolve each of these defects. Of these 9, one was subsequently cancelled, 4 were closed within approximately 6 weeks of ORR, 3 were closed several months after ORR, and 1 remains open about 10 months later. According to program officials, the remaining open defect has been lowered from severe to moderate status, but the change has yet to be reflected in the defect tracking system.



Objective 3: Development Observations
Release 4 Milestone Reviews and Quality Problems

CBP officials told us that they considered the risk associated with passing ORR with these 9 severe defects, and concluded that the risk was acceptable. In particular, they indicated that it was important to get Release 4 in the hands of users and thereby gain user acceptance and receive user feedback sooner.

However, it is important to note that deploying a system with known operational problems, while likely to encourage user feedback, may actually limit user acceptance, particularly given the number of Release 4 enhancements needed. (The next section discusses these enhancements.)

Further, CBP officials were unable to provide us with any documentation on how the inherent risks of passing this milestone with open severe defects were assessed, and the ACE risk inventory does not include any risks associated with this decision.

Since ORR, Release 4 has been deployed to 38 truck ports on the northern and southern U.S. borders; by December 2006, CBP plans to deploy Release 4 to the remaining 60 truck ports.



Objective 3: Development Observations
Release 4 Definition Limitations and Enhancements

Release 4 quality problems and enhancement needs have led to changes in how ACE release requirements are defined.

Inadequate requirements definition was a major reason for the problems and delays encountered during the Release 4 pilot in Blaine. Specifically, program officials told us that the requirements definition process did not fully identify the key functionality contained in the legacy system that ACE needed to provide. Also, the process did not adequately consider the capabilities that ACE would need to provide in an actual operational environment. For example, Release 4 requirements did not reflect the large volumes of transactions common in an operational setting, such as documenting notifications of potential security violations.

According to program officials, the requirements definition process was insufficient in part because personnel involved in defining requirements did not have sufficient experience with the legacy systems that ACE was to replace and/or interface with. Moreover, they said that although Release 4 met the requirements that were defined for it in 2001, since then CBP's mission and operations have changed, creating the need to introduce additional system requirements.



Objective 3: Development Observations
Release 4 Definition Limitations and Enhancements

To address these limitations, the number and scope of release enhancements (subreleases) have been larger than anticipated. To date, CBP has implemented two enhancement releases that add, for example, performance enhancements to transaction processing and improvements to the usability of reports. Although CBP has yet to determine the total number of enhancement subreleases that will be developed for Release 4, program officials stated that more are needed.

To improve requirements definition for future releases, CBP has changed its requirements definition process. For instance, program officials said that they are

- leveraging existing field operations advisory boards to augment program staff defining the requirements for future releases,
- using contractors to analyze legacy system functionality to ensure that ACE requirements reflect it, and
- regularly involving key representatives from the trade community to more fully define ACE requirements and help ensure that ACE meets users' needs.



Objective 3: Development Observations
Release 4 Impacts on Screening 1

Release 4 problems delayed Screening 1 and led to a revised strategy for delivering all screening and targeting releases.

The Release 4 problems caused delays in developing and testing Screening 1 because resources that were to be used on Screening 1 were diverted to Release 4. For example:

- The test environment's availability to support Screening 1 was delayed about 11 weeks because it was still supporting Release 4.
- The staff targeted for Screening 1 development and test activities were being held on Release 4 longer than planned.

As a result, the combined critical design review/test readiness review for Screening 1 was delayed by 60 days. As we have previously reported, this diversion of resources from future releases to address problems on prior releases has been a pattern on ACE for many years, owing largely to the concurrency in the development of releases and the releases' dependency on the same resources.



Objective 3: Development Observations
Release 4 Impacts on Screening 1

To correct this pattern, as well as to leverage existing targeting functionality, CBP decided to take two steps:

- to “decouple” all screening and targeting releases from ACE’s cargo releases and
- to use its existing system, the Automated Targeting System (and associated resources), to deliver needed screening and targeting capabilities.

In addition to addressing the pattern of delays caused by the releases competing for the same resources, CBP estimates that these changes will save the program \$10 million and allow the screening and targeting releases to be fully deployed 1 year ahead of schedule.



Objective 3: Development Observations
Screening 1 Milestone Reviews and Quality Problems

Screening 1 key milestones were passed despite unresolved severe defects.

As previously noted, CBP's criteria for passing key milestones, such as the test readiness review and production readiness review for Screening 1, stipulate that all critical and severe defects must either be resolved or have work-off plans in place. Also, we have recommended that any decisions to pass key milestones adequately consider indicators of system maturity, such as open severe defects.

A number of severe defects were open at the time of these milestones:

- At the test readiness review on November 14, 2005, CBP reported that three severe defects were open.
- At the production readiness review on December 22, 2005, CBP reported that two severe defects were open.

According to CBP officials, these key milestones were passed because work-off plans were in place for resolving each severe defect. Thus, in their view the risk of proceeding did not outweigh the need to get Screening 1 to the users and thereby gain user acceptance and receive user feedback sooner.



Objective 3: Development Observations
Screening 1 Milestone Reviews and Quality Problems

However, deploying a system with known operational problems, while likely to encourage user feedback, may actually limit user acceptance. Further, CBP officials were unable to provide us with any documentation on how the inherent risks of passing these milestones with open severe defects were assessed, and the ACE risk inventory does not include any associated risks.

Screening 1 is scheduled for deployment beginning on March 23, 2006.



Objective 3: Development Observations
Concurrent Development Risks

Past pattern of development problems with Releases 2, 3, and 4 makes new strategy of concurrently developing Releases 5, 6, and 7 risky.

As we have previously reported,¹ concurrent development of system components introduces risks that can adversely impact program cost and schedules. According to ACE contractors, these risks can include limited understanding of requirements before design and development activities begin, uncertainty regarding the timely availability of commercial hardware and software products, and increased near-term funding requirements. Other risks include contention for limited resources (such as key personnel, as well as development and testing equipment and facilities) and dependencies among releases not being met.

Concurrency in developing early ACE releases caused schedule slips and cost overruns. As we previously reported, overlapping the development of Releases 2 and 3 caused delays in Release 3 and resulted in Releases 1 through 4 costing more than planned.

¹ GAO-04-719.



Objective 3: Development Observations Concurrent Development Risks

Factors contributing to the schedule slips and cost overruns include the following:

- Additional resources were needed to eliminate Release 1 and 2 defects.
- Unavailable testing and development environments extended Release 3 and 4 schedules.
- Increased scope of Releases 3 and 4 to include Release 2 deferred requirements.

Despite these experiences, CBP established a new ACE program plan in July 2005 that involves considerable overlap across the development schedules for Releases 5 and 6 and for Releases 6 and 7. According to CBP, the additional risk introduced by this concurrency is outweighed by the potential for delivering ACE functionality sooner.



Objective 3: Development Observations
 Concurrent Development Risks

However, performance to date in meeting the highly concurrent milestones in the July 2005 program plan shows that delays are already occurring that are introducing even more schedule overlap and thus program risk. For example, both Releases 5 and 6 have experienced significant design-related delays, as shown by the table below. These delays have in turn increased the amount of development overlap across Releases 5, 6 and 7, as shown by the next slide, which compares the July 2005 and January 2006 schedules for these releases.

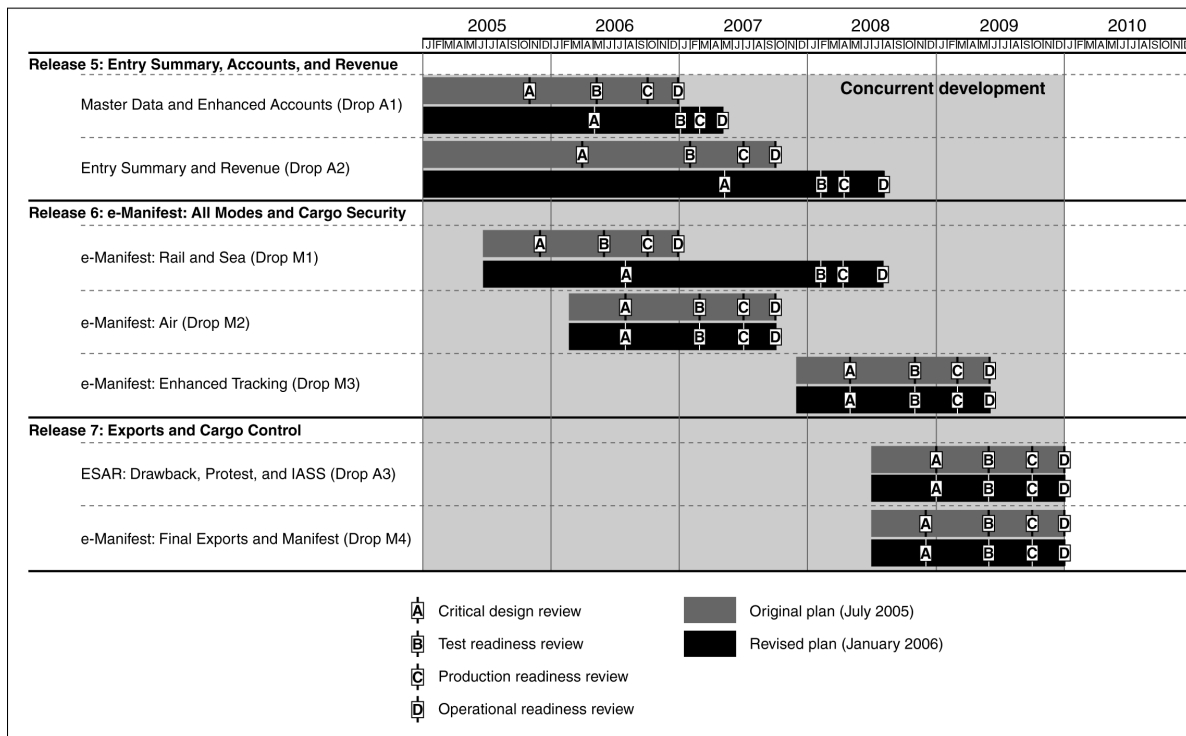
Delays in Meeting Release 5 and 6 Design-Related Milestones

Release/drop	Milestone	Planned	Actual/revised plan	Delay
Release 5/ Drops A1 and A2	Preliminary Design Review	August 2, 2005	November 10, 2005	3+ months
Release 5/ Drop A1	Critical Design Review	October 31, 2005	Planned for May 4, 2006	6+ months
Release 6/ Drop M1	Critical Design Review	November 30, 2005	Planned for August 3, 2006	8+ months



Objective 3: Development Observations
 Concurrent Development Risks

Original versus Revised Schedules for Developing Releases 5, 6, and 7



Source: GAO analysis of CBP data.



Objective 3: Development Observations Concurrent Development Risks

The risk associated with this concurrency in development schedules is exacerbated by several factors.

- Releases/drops have extensive data and resource (e.g., testing environments) dependencies. For example, Release 6, drop M1, which is to provide electronic manifest capabilities to rail and sea ports, is dependent on the data that will be provided by Release 5, drop A1, which is to add trade account types and corresponding data. Further, CBP officials have said that Release 5, drop A2, and Release 6, drop M1, must be tested together in the same testing environment. Therefore, if either of the drops is delayed, the other will be delayed as well.
- Just as delays on drops have already increased contention for resources, further delays could introduce additional contention.
- Release 5, 6, and 7 include the vast majority of ACE's functionality (87 percent) and are to produce the more significant mission benefits.



Objective 3: Development Observations
Earned Value Management Not Being Used

Earned value management is not being used to manage Screening 1 and Release 5.

CBP has not used earned value management (EVM) to manage Release 5 and Screening 1. EVM is a management tool for measuring program progress by comparing, during a given period of time, the value of work accomplished with the amount of work expected to be accomplished; this comparison permits performance to be evaluated based on calculated variances from the planned cost and schedule. EVM is both an industry accepted practice and an OMB requirement.

For Screening 1, CBP discontinued use of EVM in June 2005, when it made the decision to decouple the screening and targeting releases from the cargo releases. At that time, it decided to take advantage of the functionality of its legacy targeting system, Automated Targeting System (ATS), as well as the expertise of ATS staff. According to CBP officials, when ATS staff began working on Screening 1, they were unfamiliar with EVM and therefore did not use it. CBP officials stated that in lieu of EVM, they monitored the actual costs of work performed.



Objective 3: Development Observations Limited Use of Earned Value Management

In addition, CBP has not used EVM for Release 5, which has been under development for 22 months and for which \$29.5 million has reportedly been expended. According to CBP officials, use of EVM was not possible because the revision of the Release 5 scope and strategy delayed definition of requirements and prevented cost and schedule baselines from being established. Therefore, Release 5 work had to be conducted under intermittent authorizations to proceed, which did not have measurable baselines.

To respond to these EVM limitations, according to program officials, Screening 1 staff have now been trained on EVM. They also agreed that prior Release 5 work should have been managed by measurable baselines. They said that they plan to use EVM for future Release 5 work once fiscal year 2006 funds become available. In addition, they said that they intend to establish baselines for any work performed under authorizations to proceed, and appropriate performance metrics will be applied.



Objective 3: Operation Observations

ACE's operational performance has been mixed, and mission impact is unclear.

As described earlier, ACE Releases 1 to 4 are in operation. To date, these releases' operational performance has been uneven. For example, ACE has largely been meeting its goals for being available and responsive in processing virtually all daily transactions, and it has decreased truck processing times at some ports. However, ACE is not being used by as many CBP and trade personnel as was expected, and truck processing times at other ports have increased. Moreover, overall user satisfaction has been low.

In addition, ACE goals, expected mission benefits, and performance measures are not fully defined and adequately aligned. Where performance measures have been defined, the associated targets are not always realistic. As a result, it is unclear whether ACE has realized or will realize the mission value that it was intended to bring to CBP's and other agencies' trade- and border security-related operations.



Objective 3: Operation Observations
Availability Targets Largely Met

Availability and responsiveness targets are largely being met.

CBP has defined ACE availability in terms of the percentage of transactions that are to be executed successfully each day. According to a service level agreement between the ACE Support Team and CBP, 99.9 percent of all ACE transactions on any given day are to be successful. The ACE Support Team reports that ACE met this requirement on all but 22 days between January 1, 2005, and January 27, 2006.

For each of the 22 days that the system did not meet the agreement, the ACE Support Team identified and corrected the root cause. For example, outages were caused by

- a server accidentally being shut down by data center personnel,
- a software error that disabled a transaction function, and
- a network switch that malfunctioned.

To address these causes, the ACE Support Team instituted new data center procedures, deleted ACE code that caused the transaction error, and established methods for identifying network problems sooner.



Objective 3: Operation Observations
Availability Targets Largely Met

Another service level agreement between the ACE Support Team and CBP requires the system to execute all transactions within 6 seconds 95 percent of the time. The ACE Support Team reports that ACE met this requirement on all but 16 days between January 1, 2005, and January 27, 2006, and no incidents have been reported since August 5, 2005.

For each of the 16 days that the system did not meet the agreement, the ACE Support Team identified the root cause. For instance:

- eight incidents were due to a problem with a program that measures network performance, which has since been addressed through changes to operational procedures, and
- one incident was caused by an improperly configured server that has since been reconfigured.



Objective 3: Operation Observations
Truck Processing Times Vary

Processing times for trucks crossing the border at key ports vary.

CBP has identified more efficient truck processing at the ports as an expected ACE benefit. To ascertain whether the benefit is being realized, it also defined truck processing time as the performance measure to be used, and it set a performance target of reducing processing times at the ports by 6 percent in fiscal year 2005.

However, at the two ports for which CBP established baselines to measure truck processing against performance targets in fiscal year 2005, CBP reports that truck processing times have actually increased. For example:

- At Pembina, North Dakota, by the end of fiscal year 2005, processing time had increased by about 14 percent. CBP officials attributed this increase to a lack of user proficiency and confidence with ACE.
- At Nogales, Arizona, by the end of fiscal year 2005, processing time had increased by about 70 percent. CBP officials attributed this increase to ACE-related changes to booth operations, such as the new requirement to enter empty trucks in the system.



Objective 3: Operation Observations Truck Processing Times Vary

According to CBP officials, widespread truck processing efficiency gains will not be realized until a majority of truck manifests are submitted electronically, which is not expected to occur until use of electronic manifests becomes a requirement in early fall 2006. Nevertheless, since fiscal year 2005, CBP reports that some ports have experienced processing improvements. For example:

- At the Ambassador Bridge in Detroit, Michigan, processing time decreased by approximately 27 percent between October 3 and December 15, 2005. CBP officials attributed this decrease to improvements in the quality of training and a new user interface toolbar feature.



Objective 3: Operation Observations
Help Desk Improvements

Long-standing help desk limitations are being addressed.

According to an independent technology research firm,¹ effective help desk services include providing users timely updates on the status of their requests; conducting user satisfaction surveys; and establishing, collecting, and reporting operational metrics, such as the number of requests resolved during the initial call to the help desk.

The current ACE help desk does not perform all the practices associated with an effective help desk. To its credit, the existing help desk does, for example, monitor and measure such activities as the number of requests that are resolved during the initial call to the help desk, the number of calls that are not received because the user hangs up, and the average time it takes to answer a help desk call. However, it does not

- collect data and inform users on the status of their help desk requests or
- survey users on their satisfaction with help desk services.

¹ Chip Gliedman, *Thirty-One Best Practices for the Service Desk* (Forrester Research, Inc., 2005).



Objective 3: Operation Observations Help Desk Improvements

CBP has long recognized the limitations of the ACE help desk. In January 2003, it decided to implement a new system that would provide greater help desk capabilities. However, the first phase of the new system was not implemented until about 3 years later (February 2006). According to CBP officials, the delay was due to competing demands for limited resources.

- The first phase is to enable users to check the status of their existing requests and to resolve certain problems without calling the help desk. In addition, the new system is to automatically e-mail users with a notification of resolution, which is to provide a link to a customer satisfaction survey.
- The second phase is to include more advanced functionality such as allowing users to open and update their own help requests. CBP is working to develop a schedule for the second phase.

In addition to the new help desk service, CBP has established an ACE Portal Support Center to provide additional support to CBP and the trade community on nontechnical issues: for example, submitting and processing electronic truck manifests, setting up and using accounts, generating reports, and resetting passwords.



Objective 3: Operation Observations
Usage Lower Than Expected

Usage by CBP and the trade is lower than expected.

CBP and trade usage of deployed ACE releases has been lower than expected. Specifically:

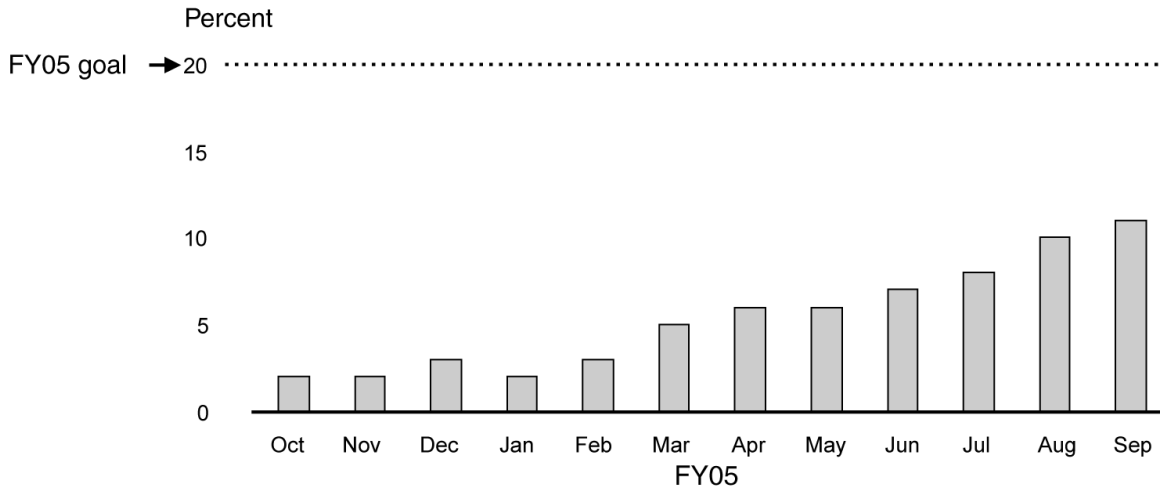
- The goal for fiscal year 2005 was for 11 percent of CBP employees to use ACE. However, as of the end of the fiscal year, 8 percent were using it. According to CBP officials, they are rethinking this goal to recognize that not all CBP employees have a need to use ACE.
- The goal for fiscal year 2005 was for 20 percent of all monthly payments of fees and duties to be collected using ACE. However, as of the end of fiscal year 2005, ACE collected about 11 percent of the total fees and duties. To increase ACE use in paying fees and duties, CBP has
 - eliminated its requirement for importers paying their way to be members of the Customs-Trade Partnership against Terrorism (this organization is focused on developing, enhancing, and maintaining effective security practices throughout the trade industry) and
 - eliminated some of the paperwork and other requirements that have since been deemed unnecessary.



Objective 3: Operation Observations
Usage Lower Than Expected

The following graph depicts the expected and actual percentage of ACE-collected fees and duties for fiscal year 2005.

Fiscal Year 2005 Expected versus Actual Percentage of Duties and Fees Collected Using ACE



Source: GAO analysis of ACE data.



Objective 3: Operation Observations Usage Lower Than Expected

- The goal for fiscal year 2005 was for 5 percent of all manifests¹ to be filed electronically using ACE. However, the actual percentage filed in this manner was less than 1 percent. CBP officials attributed this low percentage to the trade community's reluctance to invest resources to change, and the fact that electronic manifests must be submitted in advance of a truck's arrival. They also said that even though the goal for fiscal year 2006 is 20 percent, a significant increase in electronic manifests is unlikely to occur until it is mandatory for the trade to use this method, which is not expected to occur until early fall 2006.

The following table shows CBP's progress towards reaching its fiscal year 2005 and 2006 electronic manifest goals.

¹ Electronic manifests provide truck information such as driver/passenger data, vehicle data, and shipment details to CBP officers.



Objective 3: Operation Observations
 Usage Lower Than Expected

**CBP's Limited Progress Towards Reaching Fiscal Year 2005 and 2006
 Electronic Manifest Goals.**

	FY05								FY06	
	February	March	April	May	June	July	August	September	October	November
e-Manifest collection goal	Goal: 5 percent								Goal: 20 percent	
e-Manifests as a percent of total manifests	0.02	0.02	0.03	0.02	0.02	0.04	0.18	0.31	0.18	0.13

Source: GAO analysis of CBP data.



Objective 3: Operation Observations
User Satisfaction Low

User satisfaction was reported as low.

In February and March of 2005, a CBP user satisfaction survey was conducted that covered, among other things, CBP IT systems, including ACE. Of the 187 respondents, 39 percent indicated that they are dissatisfied or very dissatisfied with ACE. The reason most often given for this response was that the system was not easy to use. For example, according to the survey responses, ACE required officers to navigate through several screens in order to process each truck.

Other ACE user concerns identified include the following:

- Passwords did not allow users to access the system.
- Response times were slow.
- Initial training of users was not adequate.



Objective 3: Operation Observations
User Satisfaction Low

In response to the ACE survey results, CBP officials are developing a prioritized list of recommendations for improving user satisfaction, as well as a strategy for surveying CBP and trade users at several ports at which Release 4 has been deployed. The goal is to gain further insights into users' satisfaction and to identify potential areas for improvement. According to CBP, they plan to start surveying the ports in the spring of 2006.



Objective 3: Operation Observations Performance Targets Not Realistic

Performance targets are not always realistic.

Meaningful measurement of operational performance requires, among other things, realistic performance targets against which to gauge results. However, defined ACE performance targets are not always realistic. For example:

- The performance target in fiscal year 2005 for ACE usage was that 11 percent of all CBP employees would use ACE. However, many CBP employees will never need to use the system. Thus, the defined performance target does not reflect this. CBP officials stated that they plan to redefine this measure to focus on CBP employees who have a reason to use ACE.
- The performance target for fiscal year 2005 for truck processing was a 6 percent decrease in truck processing times at each port. However, each port varies in terms of truck volumes, operational hours, cargo and antiterrorism activities, and port policies. A single performance goal for every port does not recognize these differences.



Objective 3: Operation Observations
Performance Goals Not Realistic

- According to CBP officials, the fiscal year 2005 and 2006 targets for processing electronic manifests (5 and 20 percent, respectively) were arbitrarily set. They stated that until electronic filing of manifests is required—which is expected to take place in early fall 2006—it is unlikely that there will be any significant increase in the rate of electronic submissions.



Objective 3: Operation Observations Benefits and Measures Not Aligned

Goals, expected mission benefits, and performance measures are not fully defined and adequately aligned.

The Clinger-Cohen Act and associated OMB guidance¹ require the use of effective IT management practices, including measuring the contributions of IT investments to achieving agency mission outcomes. To this end, OMB requires² that agencies should, among other things,

- establish program performance goals and expected benefits;
- develop outcome-based performance measures to assess actual program performance (i.e., achievements) against expected benefits; and
- ensure that goals, expected benefits, and performance measures are properly aligned.

¹Clinger-Cohen Act of 1996, 40 U.S.C. 1101-11703; and OMB Circular A-130, *Management of Federal Information Resources* (Nov. 30, 2000).

²OMB Circular No. A-11, Part 7 (revised June 2005).



Objective 3: Operation Observations Benefits and Measures Not Aligned

CBP has defined ACE goals, expected benefits, desired business results, and performance measures. The six ACE goals cited earlier are summarized below.

- Support border security through enhanced analysis and interagency information sharing.
- Provide information to enable decisions before a shipment reaches the border as to what to target and what to expedite.
- Enable efficient collection, processing, and analysis of commercial import and export data.
- Streamline time-consuming, labor-intensive tasks for CBP and the trade.
- Enable national account management and informed, rule-based screening and targeting.
- Comply with legislative mandates to improve efficiency/effectiveness and provide better customer service.



Objective 3: Operation Observations
Benefits and Measures Not Aligned

CBP has also identified 23 ACE benefits, all of which relate to gains in efficiency. Examples of these benefits are as follows:

- importer account profile efficiency gains,
- forms processing efficiency gains,
- driver verification efficiency gains, and
- cargo release efficiency gains.

CBP has also identified 11 ACE desired business results. Examples are as follows:

- improved accuracy and timeliness of information to support threat assessment decisions,
- detected unfair/illegal trade activities,
- increased compliance rates, and
- improved responsiveness and adaptability to policy, statutory, and regulatory changes and trade volume increases.



Objective 3: Operation Observations
Benefits and Measures Not Aligned

In addition, CBP has defined 17 performance measures. Examples are as follows:

- percentage of internal CBP population using ACE functionality to manage trade information,
- percentage of total duties and fees paid through periodic monthly statements, and
- percentage reduction of truck processing time.



Objective 3: Operation Observations Benefits and Measures Not Aligned

However, the relationships among these program goals, benefits, business results, and performance measures have not been clearly established and are not always apparent. Further, not every goal has defined benefits, every benefit is defined only in terms of efficiency gains, not every benefit has an associated business result, and not every benefit and business result have associated performance measures. For example:

- The two ACE goals focused on homeland security do not align with any stated ACE benefit.
- The ACE benefit of greater efficiency in processing forms does not clearly align to any performance measures.
- The desired business result related to improved threat assessment decisions does not align to any ACE benefit or performance measure.
- There are 23 ACE benefits but only 17 measures for gauging performance relative to these benefits.

The following table illustrates the lack of clearly defined relationships among ACE benefits, desired business results, and performance measures for Releases 2, 3, and 4.



Objective 3: Operation Observations Benefits and Measures Not Aligned

Benefits	Desired business results	Performance measures
Release 2		
<ul style="list-style-type: none"> • Efficiency gains related to account profile establishment and maintenance for importer accounts • Efficiency gains related to account data report preparation for importer accounts • Efficiency gains related to account compliance assessment 	<ul style="list-style-type: none"> • Enable an accounts based approach • Provide a single interface to the trade community • Enable modern commercial business practices of the trade 	<ul style="list-style-type: none"> • Percentage of internal CBP population using ACE functionality to manage trade information • Percentage of trade accounts with access to ACE functionality to manage trade information
Release 3		
<ul style="list-style-type: none"> • Efficiency gains related to account profile establishment and maintenance for broker accounts • Efficiency gains related to company report preparation for broker accounts 	<ul style="list-style-type: none"> • Enable modern commercial business practices of the trade • Improve responsiveness and adaptability to changes • Safeguard the revenue of the government • Improve workload management • Provide a single interface to the trade community • Enable increased compliance rate 	<ul style="list-style-type: none"> • Percentage of total duties and fees paid through periodic monthly statements
Release 4		
<ul style="list-style-type: none"> • Efficiency gains related to single sign-on to ACE system and consolidated interface for preferred and standard truck e-release • Efficiency gains related to conveyance and driver verification • Efficiency gains related to CBP forms processing • Efficiency gains related to in-bond release processing for trucks 	<ul style="list-style-type: none"> • Improve accuracy and timeliness of information to support threat assessment decisions • Detect unfair/illegal trade activities • Enable modern commercial business practices • Enable increased compliance rates • Improve responsiveness and adaptability changes • Provide a single user interface to trade community • Improve workload management • Integrate participating government agencies' participation for executing regulatory requirements 	<ul style="list-style-type: none"> • Percentage reduction of CBP truck processing time • Percentage of truck manifests that are filed electronically at each port of entry

Source: DHS.



Conclusions

The legislative conditions that the Congress placed on the use of fiscal year 2006 ACE appropriated funds have either been partially or fully satisfied by the latest expenditure plan and related program documentation and activities. Nevertheless, more can be done to better address several aspects of these conditions, such as having an approved privacy impact assessment, measuring ACE performance and results, ensuring architectural alignment, and employing effective IV&V practices. Given that the legislative conditions are collectively intended to promote accountability and increase the chances of program success, it is important that each receives DHS's full attention.

Also important to ACE's success is the swift and complete implementation of the recommendations that we have previously made to complement the legislative conditions and improve program management, performance, and accountability. In this regard, some recommendations have been addressed, while progress has been slow on others, such as

- accurately reporting to the Appropriations Committees on CBP's progress in implementing our prior recommendations;



Conclusions

- developing and implementing a strategic approach to meeting the program's human capital needs;
- using criteria for exiting key milestones that adequately consider indicators of system maturity, such as severity of open defects and the associated risks; and
- developing and implementing a performance and accountability framework for ensuring that promised capabilities and benefits are delivered on time and within budget.

To its credit, CBP has taken several steps to stem the pattern of cost, schedule, and performance shortfalls that it experienced on early ACE releases. However, future releases are unlikely to realize the impact of these steps because revised ACE plans and actions are reintroducing the same pattern that led to early release shortfalls. This pattern includes not formally and transparently considering and proactively addressing the risks associated with passing key release milestones with known severe defects, building considerable overlap and concurrency in the development schedules of releases that will contend for the same resources, and not performing EVM on all releases. If this pattern continues, the prospects for a successful program will be diminished.



Conclusions

Although availability and responsiveness targets are largely being met and long-standing help desk limitations are being addressed, the prospects for a successful program nevertheless remain unclear. The true measure of ACE's success is arguably the mission value that it brings to CBP's and other agencies' trade- and border security-related operations and users. Such value depends both on the operational performance of ACE and on CBP's ability to demonstrate that this performance is achieving program goals, delivering expected benefits, and producing desired business results. At this juncture, however, neither the system's performance nor its value is clear because of several factors: the operational performance of deployed releases has been mixed; users' satisfaction has been low; the relationships among goals, benefits, and desired business outcomes are not evident; and the range of measures needed to create a complete and realistic picture of ACE's performance is missing.

In summary, a number of ACE activities have been and are being done well; these have contributed to the program's progress to date and will go a long way in determining the program's ultimate success. However, CBP needs to effectively address long-standing ACE management challenges along with emerging problems. Until it does so, ACE will remain a risky program.



Recommendations

To assist CBP in managing ACE and increasing the chances that it will deliver required capabilities on time and within budget and demonstrate promised mission benefits and results, we recommend that the DHS Secretary direct the appropriate departmental officials to fully address those legislative conditions associated with having an approved privacy impact assessment and ensuring architectural alignment.

We also recommend that the DHS Secretary, through CBP's Acting Commissioner, direct the Assistant Commissioner for Information and Technology to

- fully address those legislative conditions associated with measuring ACE performance and results and employing effective IV&V practices;
- accurately report to the Appropriations Committees on CBP's progress in implementing our prior recommendations;
- include in the June 30, 2006, quarterly update report to the Appropriations Committees a strategy for managing ACE human capital needs and the ACE framework for managing performance and ensuring accountability;



Recommendations

- document key milestone decisions in a way that reflects the risks associated with proceeding with unresolved severe defects and provides for mitigating these risks;
- minimize the degree of overlap and concurrency across ongoing and future ACE releases, and capture and mitigate the associated risks of any residual concurrency;
- use EVM in the development of all existing and future releases;
- develop the range of realistic ACE performance measures and targets needed to support an outcome-based, results-oriented accountability framework, including user satisfaction with ACE; and
- explicitly align ACE program goals, benefits, desired business outcomes, and performance measures.



Agency Comments

In their oral comments on a draft of this briefing, DHS and CBP officials, including the Executive Director of Cargo Management Systems, CBP, generally agreed with our findings, conclusions, and recommendations and stated that the presentation was fair and balanced. They also provided clarifying information that we incorporated as appropriate in this briefing.



Attachment 1
Scope and Methodology

Scope and Methodology

To accomplish our objectives, we analyzed the ACE fiscal year 2006 expenditure plan and supporting documentation, comparing them to relevant federal requirements and guidance, applicable best practices, and our prior recommendations. We also interviewed DHS and CBP officials, ACE program contractors, and officials at the port of Blaine, Washington. In particular, we reviewed

- DHS and CBP investment management practices, using OMB A-11, part 7;
- DHS and CBP certification activities for ensuring ACE compliance with the DHS enterprise architecture;
- DHS and CBP acquisition management efforts, using SEI's SA-CMM;
- CBP cost estimating program and cost estimates, using SEI's institutional and project-specific estimating guidelines;
- independent verification and validation (IV&V) activities using the Institute of Electrical and Electronics Engineers Standard for Software Verification and Validation;



Attachment 1
Scope and Methodology

- CBP actions to coordinate ACE with US-VISIT program documentation;
- CBP's reorganization documentation, including the new organizational charts and roles and responsibilities matrix;
- ACE's accountability framework;
- ACE's performance using service level agreements;
- ACE's quality, using the ACE Support Team defect data and testing results for Release 4 and Screening 1;
- cost and schedule data and program commitments from program management documentation;
- CBP's progress toward increasing usage of ACE, against established targets;
- level of user satisfaction, against survey scores; and
- reliability of performance measures, by mapping the measures to benefits.



Attachment 1
Scope and Methodology

For DHS-, CBP-, and contractor-provided data that our reporting commitments did not permit us to substantiate, we have made appropriate attribution indicating the data's source.

We conducted our work at CBP headquarters and contractor facilities in the Washington, D.C., metropolitan area and at the port of Blaine, Washington, from July 2005 through March 2006, in accordance with generally accepted government auditing standards.

Appendix II: Comments from the Department of Homeland Security



Homeland
Security

May 9, 2006

Mr. Randolph C. Hite
Director
Information Technology Architecture and
System Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Hite:

Thank you for the opportunity to review and comment on the Government Accountability Office's (GAO's) draft report GAO-06-580 entitled *INFORMATION TECHNOLOGY: Customs Has Made Progress on Automated Commercial Environment System, but it Faces Long-Standing Management Challenges and New Risks*.

The U.S. Customs and Border Protection (CBP) agrees with the status of open recommendations and new recommendations for CBP executive action. The report indicates that an earlier recommendation regarding the roles and responsibilities of the government and prime contractor has been satisfied. The report also indicates that a previous recommendation on reconciling Modernization expenditure plans with independent cost estimates has been successfully satisfied for the second consecutive year. CBP will continue using independent cost estimates to develop future expenditure plans.

CBP is committed to fully addressing the remaining open recommendations regarding: (1) cost estimating; (2) human capital management; (3) use of the Automated Commercial Environment (ACE) for other Department of Homeland Security (DHS) applications; (4) program management metrics and measurements; and (5) implementation of an accountability framework, including (a) coverage of all program commitment areas, (b) currency and completeness of commitments made in expenditure plans, (c) reliable data, (d) reporting on progress against commitments in future expenditure plans, (e) establishing milestone exit criteria that account for system maturity; and (6) quarterly reporting to Congress. CBP notes that recommendations 1 and 3, aspects of recommendation 5, and recommendation 6 are related to normal programmatic processes, and as such, will likely remain open for the life of the program. CBP would suggest that these recommendations not continue to be held as open findings, but that they be continuously monitored through status updates in quarterly reports to Congress on ACE.

CBP continues to follow established plans for developing and deploying ACE capabilities that are enhancing cargo security while also facilitating the flow of legitimate trade across our borders. Solid program management and reporting systems have enabled the ACE program to operate within 10 percent of the program baseline and within approved program funding. CBP acknowledges the nine new recommendations by the GAO in the draft report and intends to address them as part of continuing efforts to enhance processes for balancing quality, cost, and schedule, and maintain visibility of, and accountability for, program commitments. The following is a summary of the agency's progress toward, and plans for addressing, each of the nine new recommendations detailed in the draft report.

Recommendation 1: Fully address those legislative conditions associated with having an approved privacy impact assessment and ensuring architectural alignment.

Response: CBP is committed to fully satisfying all legislative conditions for the approval of Modernization expenditure plans. CBP is taking steps to address the two subordinate elements of the recommendation, as follows:

- The ACE Privacy Impact Assessment (PIA) has been updated based on input from the DHS Privacy Office and the Federal Motor Carrier Safety Administration (FMCSA). CBP provided a revised draft of the PIA to the DHS Privacy Office on May 1, 2006 and will continue to work with that staff to bring the matter to closure.
- CBP will work with DHS to ensure that an appropriate methodology is used to evaluate the compliance of ACE with the DHS Enterprise Architecture (EA) as part of the FY 2007 Modernization Expenditure Plan development process.

Recommendation 2: Fully address those legislative conditions associated with measuring ACE performance and results and employing effective Independent Verification and Validation (IV&V) practices.

Response: Consistent with its commitment to fully satisfy all legislative conditions for the approval of Modernization expenditure plans, CBP is addressing the two subordinate elements of the recommendation as follows:

- CBP will align and fully define program goals, benefits, business results, and performance measures. CBP's approach for this effort, which will be completed by July 1, 2006, and certified as complete by the CBP Commissioner, is outlined below in the responses to recommendations 8 and 9.
- Beginning October 2005, CBP took steps to align Modernization program IV&V efforts more closely with the Institute of Electrical and Electronic Engineers (IEEE) 1012-2004 Standard for Software Verification and Validation. To further align with this standard, CBP will complete and implement Version 2.0 of the IV&V Implementation and Management Plan by June 1, 2006. Implementation of version 2.0 of the subject plan will ensure IV&V efforts are aligned with the IEEE 1012-2004 standard and address satisfaction of quality

standards for all ACE products, as well as user needs, as defined through requirements, use cases, and design documents.

Recommendation 3: Accurately report to the Appropriations Committees on CBP's progress in implementing our prior recommendations.

Response: CBP will continue to report on progress toward addressing open GAO recommendations through quarterly status updates to the Appropriations and Authorization Committees. CBP intends to meet with GAO representatives to ensure that quarterly status reports accurately reflect a common understanding of the intent of each new and previous recommendation, as well as critical success factors for fully satisfying each recommendation. CBP will provide ACE third and fourth quarter reports, including the status of prior recommendations, to the Appropriations and Authorization Committees by September 1, 2006, and December 1, 2006, respectively.

Recommendation 4: Include in the June 30, 2006, quarterly update report to the Appropriations Committees a strategy for managing ACE human capital needs and the ACE framework for managing performance and ensuring accountability.

Response: Based on the Office of Information Technology (OIT) Strategic Human Capital Management Plan, which is now under development, the ACE program office will develop a complementary plan that maps OIT human capital strategies to the ACE program, and as such, provides a strategy for managing ACE human capital needs. By July 1, 2006, OIT will achieve certification by the Acting CBP Commissioner that the OIT Strategic Human Capital Management Plan is complete and mapped to the ACE program.

The December 31, 2005, quarterly report on ACE, as well as the March 31, 2006, quarterly report, now under review, includes a copy of the accountability framework that is being used as the basis for tracking progress against program commitments. CBP will include, as part of the third quarter report on ACE, a copy of the aforementioned accountability framework and an outline of the key elements of the plan for managing ACE human capital needs. CBP representatives intend to meet with their GAO counterparts to ensure that the agency fully understands the intent of the foregoing recommendation and the actions that will be required to satisfy this intent. CBP plans to provide the ACE third quarter report, including the strategy for managing ACE human capital needs and the ACE framework for managing performance and accountability, to the Appropriations and Authorization Committees by September 1, 2006.

Recommendation 5: Document key milestone decisions in a way that reflect the risks associated with proceeding with unresolved severe defects and provide for mitigating these risks.

Response: The ACE program office has strengthened the Software Development Lifecycle (SDLC) gate review process by ensuring that specific risk assessment and acceptance at each review is a requirement for proceeding to the next stage of the SDLC. In addition, the ACE Risk and Issue

Management Process has been updated to account for the need to identify risks associated with proceeding beyond SDLC gate reviews. Under the updated process, the designated ACE risk manager is working with project teams to identify appropriate risks, mitigation plans, and impact assessments prior to gate reviews so that gate review decisions will be based on documentation that includes risks and their associated impact. Documented risks are entered into ACE program office risk management software to ensure that CBP has visibility of these risks and can take action to mitigate them as appropriate. In addition, CBP is working with the DHS Chief Information Officer to certify that each release is ready to proceed beyond the Critical Design Review and Production Readiness Review. The ACE program office will implement the strengthened SDLC gate review process at the next scheduled SDLC gate review.

Recommendation 6: Minimize the degree of overlap and concurrency across ongoing and future ACE releases, and capture and mitigate the associated risks of any residual concurrency.

Response: As noted in the draft GAO report, CBP has taken steps to “decouple” Screening and Targeting (S&T) releases from ACE secure cargo management releases, and will augment the Automated Targeting System with new S&T capabilities. This approach will reduce system development interdependencies between ACE S&T and secure cargo management capabilities. CBP has also taken specific action in three areas to reduce potential contention for common resources across ACE releases. First, CBP has conducted extensive planning to ensure that development milestones eliminate contention for computer hardware environments needed for development, integration, testing, and training activities. Second, CBP is centrally managing underlying ACE shared software services to maximize efficient use of resources, enhance responsiveness to workload peaks, and provide consistent technical management approaches across releases. Third, CBP has divided ACE releases into smaller groups of capabilities or “drops,” which, in turn, will be packaged into “deliveries” of ACE that can include capabilities from more than one release. Managing ACE deliveries allows hardware environments, system testing, integration with legacy systems, training, and deployment activities, as well as required staffing, to be managed across releases, thereby improving planning and reducing resource contention.

CBP has in place a solid program for managing remaining concurrent project and program activities and associated risks. Key elements of this program management foundation include the following:

- Requirements Traceability Matrix (RTM): The RTM provides a complete view of all ACE release and task order requirements, as well as the interrelationships between these requirements, thus minimizing the potential for duplicative efforts.
- Integrated Master Schedule (IMS) for ACE secure cargo management capabilities: The IMS provides (1) the visibility of all project release/delivery schedules and project interdependencies; (2) a centralized repository for information on all gate reviews, milestones, and project schedules; (3) comprehensive schedule information on the use and availability of computer hardware “environments” that helps reduce delays by ensuring environments are available when needed for development efforts; (4) a calculated critical path for the entire program that shows which activities are critical to staying on schedule; (5) a view of all measurable project activity

at the project work package level; and (6) a view of what deliverables and/or milestones are on track for timely completion or are behind schedule. When status updates to the IMS place key program milestones at risk, the IMS automatically notifies the ACE program office scheduling team via e-mail. This feature allows program office staff members to actively monitor program milestones and computer hardware environment dependencies. Collectively, IMS capabilities provide a valuable tool for evaluating the progress of the program and determining where corrective actions may be required.

- Bi-weekly integration meetings: OIT directors and senior managers of the prime contractor meet bi-weekly to discuss program issues and concerns.
- Monthly Program Management Reviews (PMRs): OIT conducts monthly PMRs to review the ACE Accountability Framework report, which details the status of all ACE task orders and releases relative to program commitments.
- Active Risk Manager (ARM): ARM, a leading software tool used across industry and government, provides visibility of program risks and issues and attendant mitigation plans. OIT uses ARM to track and manage all identified program risks for the ACE program. The process for identifying risks is reviewed and revised, as appropriate, to further strengthen the risk identification process and ensure that it will successfully lead to the identification of risks associated with concurrent activities across the program.
- Risk Issue Forum (RIF): Monthly RIF meetings are conducted to evaluate the status and impacts of risks and issues; take steps to mitigate risks and issues, as appropriate; and determine whether new risks and issues should be tracked across the program.
- Cost and schedule risk analysis: The ACE program office identifies potential program risks as part of the cost and schedule analysis that is completed for each ACE Program Plan and Modernization Expenditure Plan update. A sensitivity analysis is conducted to quantify these risks and ensure that sufficient management reserve will be available should the risk materialize. The output of cost and schedule analysis are risk-adjusted cost and schedule estimates that are used to ensure that sufficient time and funding are available within the program baseline to allow for successful development of ACE. Each risk identified as part of the cost and schedule risk analysis is entered into the aforementioned ARM tool and actively managed to diminish the probability that a risk will materialize.
- Earned Value Management (EVM): As discussed below in the response to recommendation 7, EVM is a key tool for managing the development of ACE releases. EVM provides early warning signals of potential problems as well as the basis for making course corrections across the program.

Recommendation 7: Use EVM in the development of all existing and future releases.

Response: CBP is currently using EVM for the development of e-Manifest: Trucks (Release 4) production baseline enhancements and Targeting Foundation (S2). CBP plans to use EVM in the development of all future releases, and to effect the implementation of EVM within 45 days after task order award to the prime contractor. CBP intends to implement use of EVM for e-Manifest: All Modes and Cargo Security (Release 6), e-Manifest: Rail and Sea (M1), by May 31, 2006. The agency projects that EVM will be implemented for Entry Summary, Accounts, and Revenue

(ESAR) (Release 5) Master Data and Enhanced Accounts (A1) and Entry Summary and Revenue (A2) by June 30, 2006. Contract negotiations for Advanced Targeting (S3) began in April 2006. CBP projects that EVM will be implemented for ESAR Master Data and Enhanced Accounts (A1) and Entry Summary and Revenue (A2) by June 30, 2006.

Recommendation 8: Develop the range of realistic ACE performance measures and targets needed to support an outcome-based, results-oriented accountability framework, including user satisfaction with ACE.

Response: CBP is committed to aligning and fully defining program goals, benefits, business results, and performance measures. Toward this end, CBP will update the performance measurement framework for ACE, which is the basis for the overall ACE performance measurement program. The updated framework will demonstrate the relationship between CBP objectives and Desired Business Results (DBRs). Through validation of DBRs and supporting performance measures, CBP will institute a more realistic, appropriate, and comprehensive performance measurement framework that includes assessments of user satisfaction, CBP operational efficiency, and trade facilitation benefits. Based on these performance measures, CBP will institutionalize data collection on a monthly basis and report results against performance measures through management reports such as the ACE Accountability Framework. CBP expects to develop ACE performance measures by July 1, 2006.

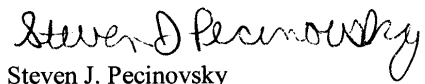
Recommendation 9: Explicitly align ACE program goals, benefits, and desired business outcomes, and performance measures.

Response: As discussed above in response to recommendation 8, CBP will align ACE program goals, benefits, DBRs, and performance measures by (1) adapting the Federal Enterprise Architecture and CBP Performance Reference Model framework for ACE performance measures, including DBRs; and (2) revising specific performance objectives to ensure they are realistic and aligned with DBRs. The foregoing planned efforts are expected to further clarify the mission impact of ACE and provide a solid foundation for evaluating progress against commitments. CBP expects to align ACE program goals, benefits, and desired business outcomes, and performance measures by July 1, 2006.

Mindful of the imperative to detect terrorist efforts to exploit our Nation's supply chain, while also facilitating legitimate trade, CBP is focused on ensuring that ACE will meet high standards for usability and operational effectiveness within cost and on schedule. CBP looks forward to working with GAO to address previous and new GAO recommendations, and will continue efforts to make transparent the agency's progress toward satisfying these recommendations.

Thank you again for the opportunity to comment on this draft report and we look forward to working with you on future homeland security issues.

Sincerely,



Steven J. Pecinovsky
Director
Departmental GAO/OIG Liaison Office

Appendix III: Contact and Staff Acknowledgments

GAO Contact

Randolph C. Hite, (202) 512-3459

Staff Acknowledgments

In addition to the person named above, Justin Booth, Barbara Collier, William Cook, Neil Doherty, Michael Marshlick, Shannin O'Neill, Tomas Ramirez, and Jennifer Vitalbo made key contributions to this report.

GAO's Mission

The Government Accountability Office, the audit, evaluation and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's Web site (www.gao.gov). Each weekday, GAO posts newly released reports, testimony, and correspondence on its Web site. To have GAO e-mail you a list of newly posted products every afternoon, go to www.gao.gov and select "Subscribe to Updates."

Order by Mail or Phone

The first copy of each printed report is free. Additional copies are \$2 each. A check or money order should be made out to the Superintendent of Documents. GAO also accepts VISA and Mastercard. Orders for 100 or more copies mailed to a single address are discounted 25 percent. Orders should be sent to:

U.S. Government Accountability Office
441 G Street NW, Room LM
Washington, D.C. 20548

To order by Phone: Voice: (202) 512-6000
TDD: (202) 512-2537
Fax: (202) 512-6061

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: www.gao.gov/fraudnet/fraudnet.htm

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Gloria Jarmon, Managing Director, JarmonG@gao.gov (202) 512-4400
U.S. Government Accountability Office, 441 G Street NW, Room 7125
Washington, D.C. 20548

Public Affairs

Paul Anderson, Managing Director, AndersonP1@gao.gov (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, D.C. 20548