GAO

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Report to Congressional Requesters

November 2011

IMMIGRATION BENEFITS

Consistent Adherence to DHS's Acquisition Policy Could Help Improve Transformation Program Outcomes

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Why GAO Did This Study

Each year, the Department of Homeland Security's (DHS) U.S. Citizenship and Immigration Services (USCIS) processes millions of applications for immigration benefits using a paper-based process. In 2005, USCIS embarked on a major, multiyear program to transform its process to a system that is to incorporate electronic application filing, adjudication, and case management. In 2007, GAO reported that USCIS was in the early stages of the Transformation Program and that USCIS's plans partially or fully met key practices. In 2008, USCIS contracted with a solutions architect to help develop the new system. As requested, GAO evaluated the extent to which USCIS has followed DHS acquisition policy in developing and managing the Transformation Program. GAO reviewed DHS acquisition management policies and guidance; analyzed transformation program planning and implementation documents such as operational requirements; compared schedule and cost information with GAO best practice guidance; and interviewed USCIS officials.

What GAO Recommends

GAO recommends that USCIS ensure its program schedules and life-cycle cost estimates are developed in accordance with best practices guidance. DHS concurred with GAO's recommendations and outlined the actions that USCIS is taking or has taken to address each recommendation.

View GAO-12-66. For more information, contact Richard M. Stana at (202) 512-8777 or stanar@gao.gov.

What GAO Found

USCIS has not consistently followed the acquisition management approach that DHS outlined in its management directives in developing and managing the Transformation Program. USCIS awarded a solutions architect contract in November 2008, in effect selecting an acquisition approach before completing documents required by DHS management directives. Specifically, DHS's acquisition policy requires that prior to selecting an acquisition approach, programs establish operational requirements, develop a program baseline against which to measure progress, and complete a plan that outlines the program's acquisition strategy. However, USCIS did not complete an Operational Requirements Document until October 2009, which was to inform the Acquisition Program Baseline and the Acquisition Plan. Consequently, USCIS awarded a solutions architect contract to begin capability development activities prior to having a full understanding of the program's operational requirements and the resources needed to execute the program. GAO has previously reported that firm requirements must be established and sufficient resources must be allocated at the beginning of an acquisition program, or the program's execution will be subpar. The lack of defined requirements, acquisition strategy, and associated cost parameters contributed to program deployment delays of over 2 years. In addition, through fiscal year 2011, USCIS estimates it will have spent about $703 million, about $292 million more than the original program baseline estimate.

USCIS expects to begin deployment of the first release of the Transformation Program in December 2011. However, USCIS is continuing to manage the program without specific acquisition management controls, such as reliable schedules, which detail work to be performed by both the government and its contractor over the expected life of the program. As a result, USCIS does not have reasonable assurance that it can meet its future milestones. USCIS has established schedules for the first release of the Transformation Program, but GAO's analysis shows that these schedules are not reliable as they do not meet best practices for schedule estimating. For example, program schedules did not identify all activities to be performed by the government and solutions architect. Moreover, as outlined by DHS acquisition management guidance, a life-cycle cost estimate is a required and critical element in the acquisition process. USCIS has developed and updated the $1.7 billion life-cycle cost estimate for the Transformation Program, but USCIS's individual schedules for the Transformation Program did not meet best practices for schedule estimating, raising questions about the credibility of the program's life-cycle cost estimates. Because some program costs such as labor, supervision, and facilities cost more if the program takes longer, reliable schedules can contribute to an understanding of the cost impact if the program does not finish on time. Collectively, and moving forward, not meeting best practices increases the risk of schedule slippages and related cost overruns, making meaningful measurement and oversight of program status and progress, and accountability for results, difficult to achieve.

Contents

Abbreviations:

ADE	acquisition decision event
APB	Acquisition Program Baseline
ARB	Acquisition Review Board
DHS	Department of Homeland Security
ELIS	Electronic Immigration System
ESAR	Enterprise Segment Activity Roadmap
EVM	Earned Value Management
FTE	full-time equivalents
IMS	Integrated Master Schedule
LOE	level of effort
OIT	Office of Information Technology
OMB	Office of Management and Budget
ORD	Operational Requirements Document
PIPT	Program Integrated Product Team
PMR	Program Management Review
SDR	System Definition Review
SNET	Start No Earlier Than
SRA	Schedule Risk Analysis
TLT	Transformation Leadership Team
TPO	Transformation Program Office
USCIS	United States Citizenship and Immigration Services
WBS	Work Breakdown Structure
WIPT	Working Integrated Product Teams

G A O

Accountability * Integrity * Reliability

United States Government Accountability Office
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November 22, 2011

Congressional Requesters

Each year, the U.S. Citizenship and Immigration Services (USCIS), within the Department of Homeland Security (DHS), processes millions of applications and petitions for more than 50 types of immigrant and nonimmigrant-related benefits for persons seeking to study, work, visit, or live in the United States, and for persons seeking to become U.S. citizens. Having a system that allows USCIS to accurately grant immigration and citizenship benefits in a timely manner to eligible applicants and deny benefits to those who are ineligible, as well as one that can quickly and accurately identify fraudulent and criminal activity, is essential for ensuring the integrity of the immigration process. USCIS has long recognized the need to improve its benefits application and adjudication processes and underlying technology infrastructure. Moreover, we have previously reported on benefit processing inefficiencies that make it difficult to manage and process immigration benefit applications in a timely manner.[1] Further, the current systems and paper records do not allow USCIS to easily share information with other government agencies, limiting their ability to quickly identify criminals and possible terrorists. We have previously recommended that USCIS improve its quality assurance program to help ensure that immigration benefits are provided only to eligible individuals. USCIS generally agreed with this recommendation and has taken action to address.

To address program inefficiencies, USCIS embarked on a major initiative in 2005 to transform its current paper-based system into an electronic account-based system that is to use electronic adjudication and account-based case management tools, including tools that are to allow applicants to apply online for benefits. In July 2007, we reported that USCIS was in the early stages of its Transformation Program and that its plans partially

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[1]GAO, *Immigration Benefits: Additional Efforts Needed to Help Ensure Alien Files Are Located when Needed*, GAO-07-85 (Washington, D.C.: Oct. 27, 2006); *Information Technology: Near-Term Effort to Automate Paper-Based Immigration Files Needs Planning Improvements,* GAO-06-375 (Washington, D.C.: Mar. 31, 2006); and *Immigration Benefits: Improvements Needed to Address Backlogs and Ensure Quality of Adjudications*, GAO-06-20 (Washington, D.C.: Nov. 21, 2005).

or fully addressed most key practices for organizational transformations.[2] However, we identified gaps in USCIS's plans that created risks that could undermine its success as it began to implement the program, such as the lack of clear performance measures and targets for the transformed agency to show progress towards goals. We recommended that USCIS address gaps in its plans in the areas of performance measurement, strategic human capital management, communications, and information technology management practices. USCIS agreed with these recommendations and has taken actions to address them. In October 2007, USCIS prepared an acquisition plan that described its planned phased approach for acquiring new electronic tools (i.e., capabilities), established key milestones, and included an estimated program cost. In November 2008, USCIS selected a solutions architect to help design, build, and implement the Transformation Program.[3]

To help its component agencies manage large-scale acquisitions such as the Transformation Program, DHS has established an acquisition review process to provide departmental oversight at key points in an investment's life-cycle to assess the cost, schedule, and performance of these acquisitions. At critical steps in the acquisition process, agency components are required to prepare certain documents and to obtain approval from DHS's Acquisition Review Board (ARB) before moving into the next phase of the acquisition process.[4] In 2007, DHS established an

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[2]GAO, *USCIS Transformation: Improvements to Performance, Human Capital, and Information Technology Management Needed as Modernization Proceeds,* GAO-07-1013R (Washington, D.C.: July 17, 2007).

[3]A solutions architect is a person or company contracted by an agency to help with the overall execution and organization of a large-scale technology development effort.

[4]DHS Acquisition Directive 102-01 established the ARB as a cross-component within the department that determines whether a proposed acquisition has met the requirements of key phases in the acquisition life-cycle framework and is able to proceed to the next phase and eventual full production and deployment. The board is comprised of the Acquisition Decision Authority (chair of the ARB); the Under Secretary for Management; the Under Secretary for Science and Technology; the Assistant Secretary for Policy; the General Counsel; the Chief Financial Officer; the Chief Procurement Officer; the Chief Information Officer; the Chief Human Capital Officer; the Chief Administrative Officer; the Chief Security Officer; user representatives from components sponsoring the capability; and other officials within the department determined to be appropriate to the subject matter by the Acquisition Decision Authority.

Acquisition Program Management Division to support the ARB in managing DHS acquisitions.[5]

Given the critical nature of the Transformation Program to USCIS, you asked that we evaluate USCIS's efforts to implement the program. Specifically, this report addresses the extent to which USCIS has followed DHS acquisition policy in developing and managing the Transformation Program.

To address this objective, we reviewed DHS departmental policies and guidance, such as DHS acquisition management directives, and relevant Transformation Program planning documents, including the 2007 Acquisition Plan and Expenditure Plan; 2008, 2010, and 2011 Acquisition Program Baseline; and 2009, 2010, and 2011 Operational Requirements Document. We also reviewed the program's monthly status reports dated April 2010, when we began our work, through July 2011; the solutions architect contract for contractual program milestones; and program schedules for tracking program milestones and activities. Further, we reviewed DHS ARB decision memorandums for information on DHS-level approval of the Transformation Program's key acquisition events and action items to be addressed by the program. We interviewed USCIS's Transformation Program officials concerning early program planning efforts and challenges, schedule estimates and costs, and the development and planned deployment of the first phase of the program, among other things. We also interviewed DHS Acquisition Program Management Division officials about the acquisition process and decisions related to the Transformation Program. We analyzed two key Transformation Program schedules as of November 2010, and one updated schedule as of August 2011, against nine best practices associated with developing and maintaining reliable schedules in our *Cost*

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[5]The Acquisition Program Management Division has recently been replaced by the Program Accountability and Risk Management office.

Estimating and Assessment Guide.[6] We used commercially available software to determine whether these schedules, among other best practices, included all major activities and had a logical sequence of activities and reasonable activity durations.[7]

We conducted this performance audit from April 2010 through November 2011, in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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[6]In March 2009, we published our *Cost Estimating and Assessment Guide* that identifies best practices for developing and managing capital program costs. Agencies can follow the 12-step process which addresses best practices in cost estimating, including defining the program's purpose; developing the estimating plan; defining the program's characteristics; determining the estimating approach; identifying ground rules and assumptions; obtaining data, developing the point estimate; conducting sensitivity analysis (examine the effects of changing assumptions and ground rules); performing a risk or uncertainty analysis; documenting the estimate; presenting it to management for approval; and updating it to reflect actual costs and changes. In addition, within this guide, we have developed nine best practices for schedule estimating, which, when followed, should result in reliable and valid schedules that management can use to make informed decisions. GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: Mar. 2009).

[7]The USCIS Program schedule consists of 18 individual program schedules and one high-level tracking tool that summarizes activities from these 18 individual schedules, called a "Critical Task Schedule." To independently determine which schedules to review, we requested all program schedules from the Transformation Program Office. We reviewed the schedules and related documentation, and interviewed program officials on the content of the schedules. We selected two individual program schedules for assessment: the USCIS Office of Information Technology schedule and the solutions architect's schedule. We selected these two schedules for assessment because the work that the solutions architect and the Office of Information Technology are doing make up the bulk of the work and they are the most critical drivers affecting the overall Transformation Program time frames. Specifically, the Office of Information Technology schedule is a summary of 10 of the 18 individual schedules and the solutions architect schedule represents their effort. We did not review the high-level tracking tool as it did not integrate all activities necessary to meet the milestones for Release A; rather, the tracking tool was a selection of key activities drawn from the individual schedules maintained by USCIS components and the solutions architect.
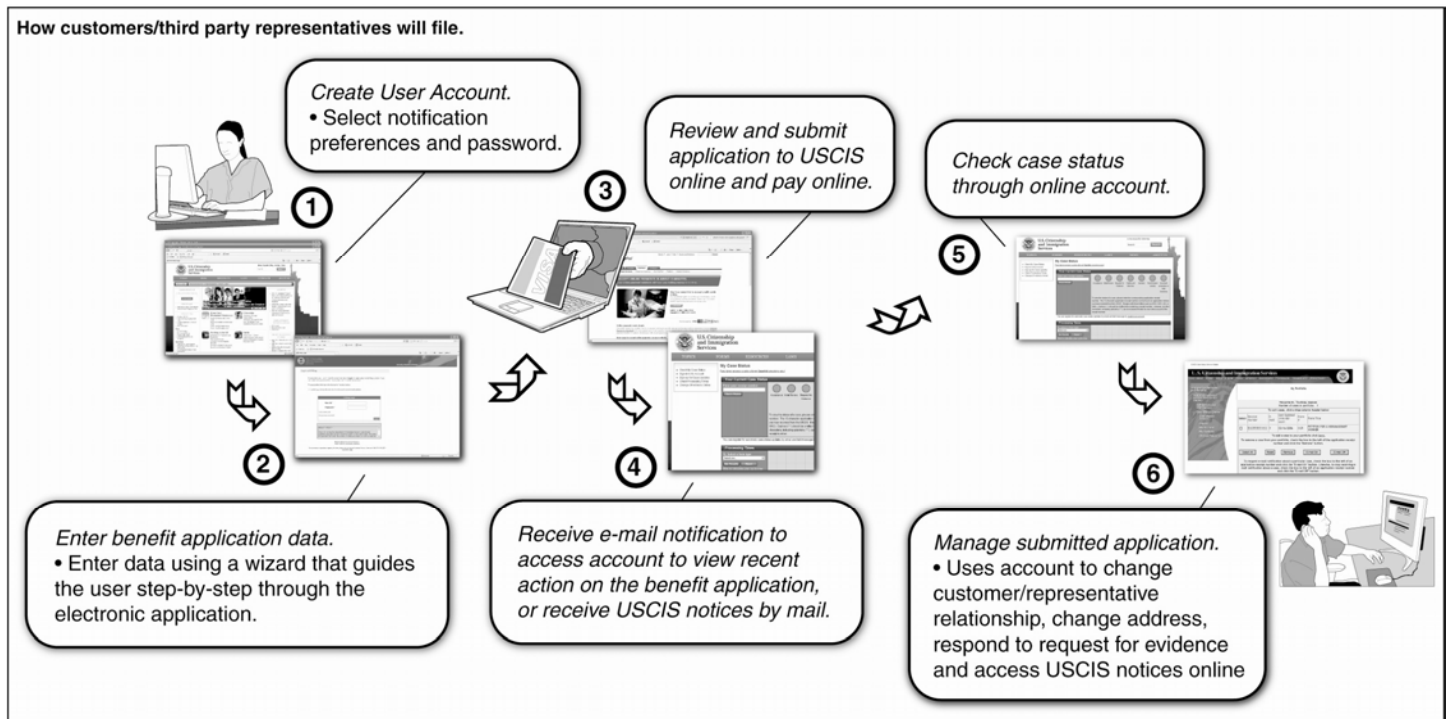
Background

Overview of Transformation Program

Once the Transformation Program is completed, USCIS envisions that the new electronic adjudication capabilities and improved information technology will improve agency operations and enable greater data sharing and management of information. USCIS expects the new system, named the USCIS Electronic Immigration System (ELIS), to have features that will allow USCIS to meet its transformation goals of enhanced national security and system integrity, better customer service, and operational efficiency. For example, once USCIS ELIS is implemented, USCIS expects that:

- Individuals will be able to establish an account with USCIS and file applications over the internet, as well as obtain information on the status of their application.

- USCIS will automatically apply risk-based rules to incoming applications to identify potentially fraudulent applications and national security risks.

- Adjudicators will have electronic access to applications, as well as relevant USCIS policies and procedures and external databases, to aid in decision making.

- USCIS will have the necessary management information to help it allocate workload and measure performance.

- USCIS will have electronic linkages with other agencies, such as the Departments of Justice and State, for data sharing and security purposes.

Figure 1 depicts the key features of USCIS ELIS, as envisioned, from a USCIS customer perspective. Figure 2 depicts these key features, as envisioned, from a USCIS adjudicator perspective.

Figure 1: USCIS ELIS Features from Customer Perspective

How customers/third party representatives will file.

① Create User Account.
• Select notification preferences and password.

② Enter benefit application data.
• Enter data using a wizard that guides the user step-by-step through the electronic application.

③ Review and submit application to USCIS online and pay online.

④ Receive e-mail notification to access account to view recent action on the benefit application, or receive USCIS notices by mail.

⑤ Check case status through online account.

⑥ Manage submitted application.
• Uses account to change customer/representative relationship, change address, respond to request for evidence and access USCIS notices online

Source: USCIS; and Art Explosion (clipart).

Figure 2: USCIS ELIS Features from Adjudicator Perspective

How USCIS Immigration Services Officer (adjudicator) will process benefits requests.

① Accesses system online to view a list of all assigned cases.

② Selects and reviews case. Validates evidence; identifies previous prerequisite related cases.

③ Reviews risk assessments completed automatically by the system and reviewed by a background check officer before case is made available for adjudication.

④ Reviews immigration history and associated policy and resources.
• Accesses related information and resources from existing sources to support decision making. Documents completion of activities.

⑤ Assesses eligibility and completeness, based on current law and policy.

⑥ Indicates and documents adjudication decision. Generates proof of benefit and notifies customer.

Source: USCIS; and Art Explosion (clipart).

Implementation of Transformation Program Business Processes

The Transformation Program intends to design and develop five core business processes to form the foundation of USCIS ELIS and process and manage all applications. Table 1 identifies and briefly describes the five core business processes.

Table 1: USCIS ELIS's Five Core Business Processes

Business process	Description
Immigration Account Management	Enable USCIS customers to establish and maintain their account information electronically and USCIS employees to access case information when adjudicating cases.
Benefits Case Management	Enable USCIS customers to apply for immigration benefits online via the internet, and enable USCIS employees to access case information in one location for more efficient processing and managing of benefits requests.
Electronic Content Management	Enable USCIS employees to access electronic evidence and information from within USCIS and from agency partners such as the Departments of State and Labor to support decision making.
Agency and Knowledge Management	Enable USCIS management to electronically access and centrally manage workload, resources, and performance.
Risk and Fraud Management	Enable USCIS employees to access actionable risk information to help quickly identify potential threats, risks, and fraud. Information to be integrated from across USCIS and from other agencies.

Source: GAO analysis of USCIS documentation.

USCIS plans to deploy USCIS ELIS in a series of five releases, labeled A through E.[8] Within the first two releases, USCIS ELIS is to be available to USCIS customers applying for nonimmigrant benefit types, followed by immigrant benefits, humanitarian benefits, and citizenship benefits.[9] Much of the functionality needed to operate the five core business processes

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[8]Within Release A there are to be several phases of deployment. The first phase of Release A will be deployed to customers applying for an extension of stay or change of status, which are nonimmigrant benefits. Subsequent phases of Release A and Release B will incorporate additional nonimmigrant benefit types.

[9]Nonimmigrant benefits are for individuals seeking to enter the United States temporarily for a specific purpose, such as tourism or temporary employment; Immigrant benefits are for foreign nationals (citizens of another country) seeking to live or work in the United States permanently; Humanitarian benefits are for persons who are brought to the United States or are currently in the United States, who are fleeing persecution, require temporary protection from removal, or need an extended stay due to emergent circumstances (e.g., those placed in Temporary Protected Status, seeking asylum or entering as refugees, granted significant public benefit parole), as a form of humanitarian aid, such as those in need of shelter or aid from disaster, oppression, or other specific circumstances; and, Citizenship benefits can be granted to a noncitizen who meets certain eligibility requirements and seeks to become a United States citizen.

are to be established during Releases A and B, with an enhanced level of functionality to be added during Releases C through E. Table 2 below shows the order in which ELIS's five releases are to be deployed and available to USCIS customers.

Table 2: Transformation Program Planned Deployment

Release	Planned deployment	Examples of benefits
A	Five core business processes for individuals applying for selected nonimmigrant benefits such as application to change immigration status	Extend/Change nonimmigrant status Employment authorization Temporary protected status
B	Enhanced core business processes' functionality for USCIS customers applying for nonimmigrant benefit types not addressed in Release A	Replace permanent resident card Petition for a nonimmigrant worker
C	USCIS customers applying for immigrant benefits	Petition for alien relative Petition for alien worker Permanent residency (except for asylees and refugees)
D	USCIS customers applying for humanitarian benefits	Permanent residency for asylees and refugees Asylum
E	USCIS customers applying for citizenship benefits	Naturalization

Source: GAO analysis of USCIS data.

Overview of the Transformation Program Management Structure, Acquisition Approach, and Funding Sources

In 2006, USCIS drafted a transformation strategic plan to guide its modernization efforts and established the Transformation Program Office (TPO) to lead and carry out the effort. By 2007, USCIS established a governance structure for the overall management, leadership, decision making, and oversight of the Transformation Program. The TPO governance structure includes three key groups: (1) Transformation Leadership Team (TLT) responsible for the overall program direction and coordination of transformation initiatives within the agency; (2) Program Integrated Product Teams (PIPT) responsible for advising on and approving strategy and performance measures, and overseeing and managing the program, including cost, schedule, and performance; and, (3) Working Integrated Product Teams (WIPT), composed of agencywide representatives with expertise to help define the transformed business processes and its operational aspects.

In addition to these key groups, USCIS also holds Program Management Review (PMR) meetings to help manage the transformation effort. Each month, the Transformation Program conducts PMR meetings to assess the status of the overall program and solutions architect activities in terms of cost, schedule, performance, and risk. Major program groups associated with USCIS's transformation efforts, and the solutions architect, report on the status of activities and deliverables for which they have responsibility.[10] The monthly PMR reports help provide an up-to-date snapshot of top program risks and concerns and how they are being mitigated, as well as the overall status of the program in meeting its milestones, among other information.

In November 2008, USCIS awarded a solutions architect contract for approximately $500 million to be allocated over a 5-year period, to design, develop, test, deploy, and sustain the Transformation Program by November 2013.[11] As such, the Transformation Program is USCIS's largest acquisition and according to USCIS's current Director "no project is more important to long-term operational improvement and efficiency than Transformation."[12] USCIS has funded the Transformation Program through both direct legislative appropriations and revenue from applicants' application fees paid. In fiscal years 2006 and 2007, Congress appropriated a combined total of $71.7 million to fund Transformation Program efforts. Since fiscal year 2007, USCIS's premium processing fee revenue has been the primary source of funding for the Transformation Program.[13] In addition, the program has used funds from its application fee account to pay for the salaries and benefits of USCIS Transformation Program staff. As shown in Table 3, USCIS spent about $455 million from fiscal years 2006 through 2010, which includes costs incurred by both the

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[10]There are six program groups associated with the Transformation Program: Increment Release Management; Business Integration; Organizational Change Management; Program Management and Integration; Regulatory, Privacy, and Policy; and Office of Information Technology.

[11]The solutions architect contract was awarded with a 90-day initial base period and five option periods for a total of 5 years.

[12]Testimony of USCIS Director before the House Subcommittee on Homeland Security on the U.S. Citizenship and Immigration Services Fiscal Year 2011 Budget Request; March 16, 2010.

[13]The premium processing fees are part of USCIS's Immigration Examination Fee Account, and are a fee that certain USCIS customers pay in addition to the base filing fee. Premium processing guarantees that USCIS will process an application within 15 days.

solutions architect and USCIS. USCIS estimates it will spend approximately $248 million in fiscal year 2011 for an estimated total cost of about $703 million through fiscal year 2011.

Table 3: Transformation Program Spending, Fiscal Years 2006-2011

Dollars in millions

Fiscal year	Transformation Program spending
2006	$19.3
2007	26.9
2008	52.5
2009	122.6
2010	233.2
Total spending 2006-2010	454.5
Estimated spending 2011	248.4
Total estimated spending 2006-2011	**$702.9**

Source: GAO analysis of USCIS data.

Note: Transformation Program did not incur solutions architect costs in fiscal years 2006 through 2007.

Overview of DHS Acquisition Process

In 2003, DHS established an investment review process to help reduce risk and increase the chances for successful acquisition outcomes by providing departmental oversight of major investments throughout their life-cycles. The process was intended to help ensure that funds allocated for investments through the budget process were being spent wisely, efficiently, and effectively. In March 2006, DHS issued Management Directive No. 1400 that defined and updated DHS's investment review process. The directive required programs to prepare certain documents before transitioning to the next acquisition phase to ensure the program is ready to move to the next phase. To implement more rigor and discipline in its acquisition processes, DHS created the Acquisition Program Management Division in 2007 to develop and maintain acquisition policies, procedures, and guidance as a part of the system acquisition process.[14] In November 2008, DHS issued an interim acquisition directive

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[14]System acquisition process means the sequence of acquisition activities starting from the agency's reconciliation of its mission need with its capabilities, priorities and resources, and extending through the introduction of a system into operational use or the otherwise successful achievement of program objectives. OMB Circular A-109, *Major System Acquisitions*.

and guidebook that superseded Management Directive No. 1400, which provided programs guidance to use in preparing key documentation to support component and departmental decision making.[15] In January 2010, DHS finalized the acquisition directive, which established acquisition life-cycle phases and senior-level approval of each major acquisition program at key acquisition decision events during a program's acquisition life-cycle.[16] This directive established the acquisition life-cycle framework with four phases:
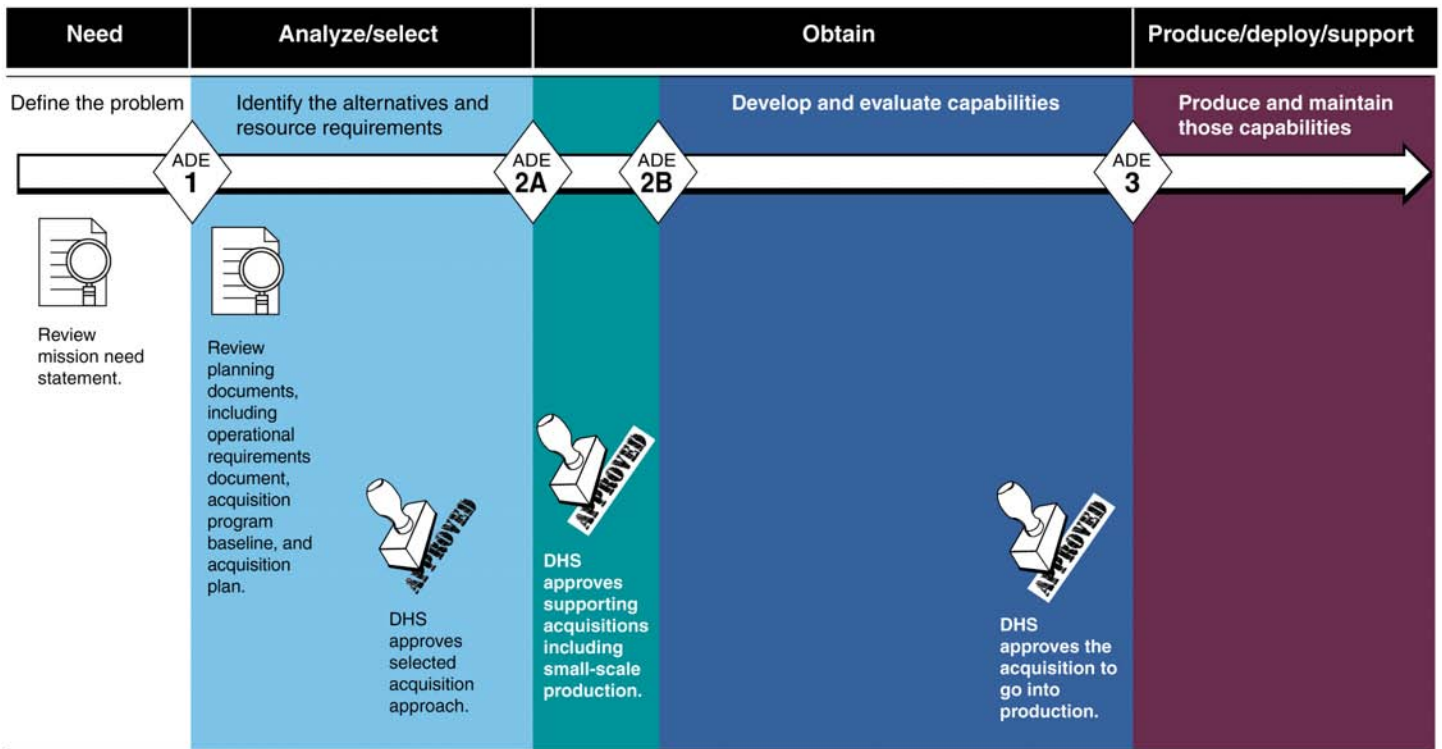
1. identify a capability need (need phase);

2. analyze and select the means to provide that capability (analyze/select phase);

3. obtain the capability (obtain phase); and

4. produce, deploy, and support the capability (produce/deploy/support phase).

Each acquisition phase culminates in a presentation to the DHS ARB, which is to review each acquisition at least three times at key acquisition decision events during a program's life-cycle. Figure 3 presents the four DHS acquisition phases, including the documents presented to ARB and their review as defined in the acquisition directive.

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[15]The department operated under the March 2006 Management Directive No. 1400, *Investment Review Process*, until November 2008 when DHS issued Acquisition Management Directive 102-01, *Interim Version*, which superseded Management Directive No. 1400. DHS Acquisition Instruction/Guidebook 102-*01, Interim Version 1.9* (Nov. 7, 2008).

[16]DHS Management Directive No. 102-01, January 20, 2010. Acquisition Decision Events occur when the Acquisition Review Board meets to determine whether a program has all of the necessary acquisition documents and other DHS requirements to move to the next phase in the acquisition process, such as when a program wants to move from analyzing and selecting a desired capability (phase 2) to actually acquiring that capability (phase 3). Key acquisition decision events are labeled 1, 2A, 2B, and 3. The 2A and 2B acquisition events may be combined into one acquisition decision event. See figure 2 for additional details.

GAO-12-66 Transformation Program

Figure 3: Overview of the DHS Acquisition Process

Need	Analyze/select		Obtain	Produce/deploy/support
Define the problem	Identify the alternatives and resource requirements		Develop and evaluate capabilities	Produce and maintain those capabilities

ADE 1 · ADE 2A · ADE 2B · ADE 3

Review mission need statement.

Review planning documents, including operational requirements document, acquisition program baseline, and acquisition plan.

DHS approves selected acquisition approach.

DHS approves supporting acquisitions including small-scale production.

DHS approves the acquisition to go into production.

Legend
ADE - Acquisition Decision Event

Sources: GAO analysis of DHS Acquisition Management Directive 102-01; and Art Explosion (clipart).

The Acquisition Decision Authority—the Chief Acquisition Officer or other designated senior-level official—is to chair ARB and decide whether the proposed acquisition meets certain requirements necessary to move onto the next phase and eventually to full production. The directive outlines the extent and scope of required program, project, and service management; level of reporting; and the acquisition decision authority based on whether the acquisition is considered a major life-cycle cost[17] (estimated at or above $300 million) or nonmajor (life-cycle costs estimated to be below $300 million). DHS considers the USCIS Transformation Program a major

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[17]Life-cycle costs represent all resources and associated cost elements required to develop, produce, deploy, and sustain a particular program from initial concept through operations, support, and disposal.

acquisition, and as such, the decision authority is the DHS Under Secretary for Management.[18]

Following an ARB meeting, the Acquisition Program Management Division is to prepare an acquisition decision memorandum as the official record of the meeting. This memorandum is to be signed by the acquisition decision authority and must describe the approval or other decisions made at the ARB and any action items to be satisfied as conditions of the decision. The ARB reviews provide the department an opportunity to determine a program's readiness to proceed to the following life-cycle phase. However, we reported in March 2011 that the ARB had not reviewed most of DHS's major acquisition programs by the end of fiscal year 2009, and the programs that were reviewed had not consistently implemented action items identified in the review by established deadlines.[19] Our prior work has shown that when these types of reviews are skipped or not fully implemented, programs move forward with little, if any, early department-level assessment of the programs' costs and feasibility, which contributes to poor cost, schedule, and performance outcomes.[20] In June 2011, DHS reported that it was taking action to strengthen its acquisition management processes by reviewing programs on an ongoing basis rather than only at key acquisition decision events, and developing decision-making support tools to aid with oversight. These are positive steps that if effectively implemented should help strengthen its acquisition management processes.

[18]According to agency officials, until late August 2010, the DHS Deputy Secretary was the decision authority and chaired the ARB.

[19]GAO, *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue*, GAO-11-318SP (Washington, D.C.: Mar. 1, 2011).

[20]GAO, *Department of Homeland Security: Assessments of Selected Complex Acquisitions*, GAO-10-588SP (Washington, D.C.: June 30, 2010).

USCIS Did Not Always Follow Acquisition Policy Contributing to Program Delays, Cost Increases, and Unreliable Schedules

USCIS has not consistently followed the acquisition management approach that DHS outlined in its management directives in developing and managing the Transformation Program. Consistent with DHS acquisition policy, USCIS prepared a Mission Needs Statement to justify the need and value of the Transformation Program in pursuing the proposed acquisition. In addition, USCIS identified and analyzed various alternatives for transforming its business processes. However, USCIS did not complete several acquisition planning documents required by DHS policy prior to moving forward with an acquisition approach and selecting a solutions architect to develop USCIS ELIS's capabilities. The lack of this program documentation contributed to the Transformation Program being more than 2 years behind schedule in its planned initial deployment of USCIS ELIS and increased program costs. In addition, USCIS has not developed reliable or integrated schedules, both of which, under DHS acquisition guidance, are required and essential acquisition management elements. As a result, USCIS cannot reliably estimate when all releases of the Transformation Program will be delivered.

USCIS Awarded a Contract to Develop Program Capabilities without Fully Understanding Requirements and Resources Needed

USCIS awarded a solutions architect contract to begin capability development activities prior to having a full understanding of requirements and resources needed to execute the program. DHS's acquisition policy requires that programs conduct planning efforts to establish a program's operational requirements, to develop a program baseline against which to measure progress, and a plan that outlines the program's acquisition strategy. These planning efforts are to be documented in three key documents: the Operational Requirements Document, the Acquisition Program Baseline, and the Acquisition Plan. According to DHS policy, these key documents are to be completed before selecting and moving forward with an acquisition approach.[21] According to agency officials, the goal is to help ensure that before committing funds to develop a capability, the program's operational requirements, cost, schedule, and performance parameters have been fully defined. We have previously reported that firm requirements must be established and sufficient resources must be allocated at the beginning of an acquisition program,

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[21]These planning documents were required by the March 2006 Management Directive No. 1400 *Investment Review Process* and continued to be required in November 2008 when DHS issued Acquisition Management Directive 102-01, *Interim Version* which superseded Management Directive No. 1400.

or the program's execution will be subpar.[22] We have also reported that well-defined requirements are critical to ensuring communication about what the government needs from the contractor providing services.[23] However, when the solutions architect contract was awarded in November 2008, one document had not been completed and the other two did not fully address the program's estimated cost, planned schedule, or performance parameters. Below is a summary of the three planning documents that USCIS did not develop according to DHS policy:

Operational Requirements Document (ORD)—According to DHS acquisition policy, this document is to describe the operational mission, objectives, capabilities, and operational user key performance parameters (i.e., the minimum as well as the desired levels of performance that must be met to provide a useful capability to the user) and should be completed before an acquisition approach is selected.[24] However, USCIS did not develop the first version of the ORD until October 2009, almost a year after the award of the solutions architect contract.[25]

Program officials acknowledged that an ORD was not prepared prior to selecting an acquisition approach but stated that the solutions architect had sufficient information on the program's operational requirements to begin work. For example, they stated that the contractor received USCIS's Enterprise Segment Activity Roadmap (ESAR), which described various activities related to ELIS's core business process. However, in a February 2009 memorandum, the USCIS Chief Information Officer stated that the ESAR did not provide a realistic capability to guide, constrain, or measure the solutions architect because the business process mappings were incomplete and vague, among other reasons.

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[22]GAO, *Defense Acquisitions: Realistic Business Cases Needed to Execute Navy Shipbuilding Programs,* GAO-07-943T (Washington, D.C.: July 24, 2007).

[23]GAO, *Acquisition Planning: Opportunities to Build Strong Foundations for Better Services Contracts,* GAO-11-672 (Washington, D.C.: Aug. 9, 2011).

[24]For example, one key performance parameter of the Transformation Program is that USCIS ELIS will be able to establish only one account per identical set of key personal data.

[25]USCIS's Component Acquisition Executive signed the first version of the USCIS Transformation Program's Operational Requirements Document on October 21, 2009.

Acquisition Program Baseline (APB)—This document is to provide cost, schedule, and performance parameters. DHS policy requires it to be prepared prior to selecting an acquisition approach. USCIS completed a draft acquisition program baseline in May 2008 prior to awarding the solutions architect contract. However, the May 2008 APB did not fully address cost, schedule, and performance parameters as required by DHS policy. Regarding cost, the APB estimated the Transformation Program would cost approximately $410.7 million for fiscal years 2009 through the second quarter of fiscal year 2013. However, this estimate only included the estimated contract cost for a solutions architect. According to program officials, the estimate did not include USCIS costs for upgrading its information technology infrastructure, such as upgrading networks and servers or the costs of USCIS Transformation Program personnel and other support contractors, because these costs had yet to be defined. Moreover, USCIS had not yet developed a life-cycle cost estimate, which per DHS acquisition policy, is a source document used to develop the APB's cost parameters.

Regarding the schedule included in the May 2008 APB, it was a high-level view of the program's key milestones. The acquisition program baseline shows that the program's start was expected in fiscal year 2009 and the deployment of all benefit types in USCIS ELIS by fiscal year 2013. According to DHS acquisition policy, this high-level schedule is to be based upon a program's integrated master schedule, a larger and more detailed delineation of program milestones and associated deliverables. However, USCIS did not complete an integrated master schedule prior to contract award. In the absence of an integrated master schedule, program officials were unable to clarify for us how USCIS determined the program's key milestones, which had USCIS implementing USCIS ELIS from fiscal years 2009 through 2013. Lastly, DHS acquisition policy required that performance parameters be based upon operational requirements. The May 2008 acquisition program baseline captured performance parameters, but they were not based on operational requirements since USCIS had not yet developed operational requirements, as discussed above.

Acquisition Plan—This document is to address, among other things, technical, business, management, and other significant considerations affecting the acquisition strategy and contract selection. USCIS developed an acquisition plan in October 2007; however, this document did not address all capabilities for sustaining and maintaining the acquisition, such as certain technical considerations that would affect the acquisition strategy, as required by DHS acquisition guidance. For

example, USCIS was to upgrade its information technology infrastructure. However, the October 2007 acquisition plan did not reflect these technical considerations.

Moreover, cost information in the acquisition plan is not traceable to other documents, such as a validated life-cycle cost estimate or an acquisition program baseline, as required by DHS guidance. Specifically, the October 2007 acquisition plan presented a $3.4 billion estimated cost for the Transformation Program. According to program officials, the $3.4 billion included information technology costs and covered the life of the program, which is similar to a life-cycle cost estimate. However, the $3.4 billion cost had not been validated as a life-cycle cost estimate by the DHS Cost Analysis Division. Moreover, the May 2008 acquisition program baseline makes no reference to the $3.4 billion cost over the life of the program. However, as required by DHS guidance, the acquisition program baseline is to reflect all cost parameters.

According to program officials, the solutions architect contract was performance-based, meaning that USCIS specified the outcomes it was seeking to achieve and gave the solutions architect responsibility for identifying and delivering the assets needed to achieve these outcomes.[26] As a result of this approach, many of the specifics that would affect the program's cost and schedule were to be determined after the contract was signed. The contract called for the solutions architect to use the 90-day base period from November 2008 to February 2009 to develop a plan to (1) identify work activities to be performed; (2) assign resources to these activities; (3) project the start and completion dates for these activities; (4) provide deliverables to the TPO; and (5) establish performance measures that the contractor and USCIS could use to measure progress. For example, the specific operational requirements and USCIS information technology upgrades that would be needed would depend upon the solutions architect plan. However, as early as 2004—4 years prior to the solutions architect contract—we reported that this type of acquisition strategy and contracting approach had led to poor acquisition outcomes at DHS. Specifically, we reported that a contracting approach that assigned a U.S. Coast Guard contractor significant responsibilities, such as the identification of work activities and

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[26]According to program officials, all vendors received a Statement of Objectives, which enabled vendors to propose widely varying solutions that could meet the stated performance objectives.

deliverables had been a primary reason for performance, cost, and schedule problems, as it had led to incomplete information about performance and production risks.[27] Program officials emphasized that the work completed during this 90-day base period was done in conjunction with USCIS, which helped to inform the production of these deliverables.

Incomplete Planning Contributed to Missed Milestones, Increased Costs, and Anticipated Benefits That Were Not Achievable

Incomplete program planning documents at the start of the program contributed to the delayed deployment of USCIS ELIS, increased costs, and anticipated benefits not being achieved.

Missed Milestones

According to the November 2008 solutions architect contract, the deployment of capabilities was to begin by September 2009 and be completed by 2013. USCIS did not meet the September 2009 deployment milestone. In an April 2009 memorandum to USCIS's Acting Deputy Director and Chief Financial Officer, the program manager stated that based on the solutions architect's proposal, the program did not have sufficient staff to provide adequate government oversight of the solutions architect or funding to support the proposed solution "rendering the solution unachievable." Consequently, the solutions architect contract was modified by scaling back the scope to allow the contractor to focus on work activities necessary to develop the five core business processes. Accordingly, TPO was not authorized to start preliminary design work for Release A until December 2009. By December 2009, TPO proposed deployment of this first release by April 2011. However, as noted in its July 2010 Acquisition Decision Memorandum, TPO experienced delays while defining Release A requirements. These delays resulted in a revised deployment milestone to occur between June and August 2011. Difficulties defining requirements continued and in November 2010, USCIS revised the deployment milestone to December 2011. By January 2011, the requirements had not yet been completed, and by April 2011 USCIS reduced the scope of the first release to meet the newly revised

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[27]GAO, *Contract Management: Coast Guard's Deepwater Program Needs Increased Attention to Management and Contractor Oversight*, GAO-04-380 (Washington, D.C.: Mar. 9, 2004), and GAO-11-6.

December 2011 deployment time-frame. Operational requirements were completed in April 2011 and approved by the ARB in July 2011, nearly 3 years after the solutions contract was awarded. Table 4 provides information on Transformation Program milestones, status, and acquisition planning postcontract award.

Table 4: Program Milestones and Acquisition Planning Postcontract Award

Milestone date	Milestone	Milestone status	Description	Acquisition planning postaward of contract
Sept. 2009	Begin deployment of the first phase of USCIS ELIS to Citizenship benefit types	Not met	USCIS awarded the solutions architect contract in November 2008, with a contractual milestone to deploy five core business processes for customers to file, and adjudicators to process, all benefit applications associated with its Citizenship line of business.	USCIS reviewed staff needs and costs and scope of upgrading USCIS's technology infrastructure, among other things, as proposed in the solutions architect's plan—concluding that USCIS did not have the resources, including funding, or infrastructure to support the proposed solution.
April 2011	Proposed Release A deployment, to first deliver core processes to Non-Immigrant benefit types	Not met	USCIS requested and was authorized by the ARB in December 2009 to change the order of deployment of its lines of business (start from Non-Immigrant instead of Citizenship)	Costs of digitizing existing paper files in support of the schedule for the program were defined, showing that original plans were not achievable within associated budget and timeframe.
June to Aug. 2011	Revised deployment of Release A, to deliver a release that was reduced in scope.	Not met	By July 2010, USCIS had changed the scope of the first release moving certain capabilities to Release B because of delays in fully defining Release A requirements.	Contract structure was reviewed, showing there was a cost risk due to lack of alignment between key events and deliverables for each release.
Dec. 2011	Revised deployment of Release A, to first deliver core processes to one Non-Immigrant benefit type	n/a[a]	By February 2011, USCIS proposed reducing the scope of the first release because the solutions architect indicated that it was unable to support a timely deployment unless the release was limited to one benefit type. By April 2011, USCIS reduced the scope of Release A and expected the additional benefit types associated with the Non-Immigrant business line to be deployed by October 2012.	Requirements were in the process of being defined, showing that USCIS and the solutions architect had underestimated the time and effort needed to develop requirements based on the complexity of the immigration process (i.e., workflow process business rules, legacy environment, and subject matter).

Source: GAO analysis of DHS data.

[a]The December 2011 milestone had not occurred as of the date this report was issued.

Cost Increases

Because the acquisition strategy and associated cost parameters were not fully outlined at the start of the program, costs associated with the Transformation Program have increased above the original estimate. The program's May 2008 acquisition program baseline estimated that the total cost of the program from fiscal years 2009 to 2013 would be $410.7 million. However, the estimated cost through fiscal year 2011 is about $703 million, about $292 million more than estimated in May 2008. This increase in the cost estimate is due to the fact that USCIS's original planning efforts did not cover the entire program, as required by DHS acquisition planning guidance. For example, the acquisition program baseline did not include USCIS's information technology enabling costs which, based on data gathered from program officials, totals approximately $618 million and includes activities such as upgrading its technology infrastructure. In addition, the staffing levels have significantly increased from original projections. At the start of the Transformation Program, USCIS had allocated funding for 20 full-time equivalent staff assigned to TPO. As of June 2011, the program had an authorized staffing level of 98. Other costs not planned for have contributed to the program's overall cost increases. For example, the cost of an operational testing agent, who would be responsible for planning, conducting and reporting independent operational testing and evaluation for Release A, was not included in the acquisition planning process. USCIS officials from TPO and the Office of Information Technology (OIT) agreed that an operational test agent appeared to be a duplicative effort because TPO had already planned to conduct independent testing.[28] However, DHS denied TPO's request for a waiver of the operational testing agent. As a result, USCIS contracted with an independent operational test agent by October 2010, and as of June 2011, TPO has awarded approximately $1.8 million towards this contract.

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[28]OIT officials explained that TPO had planned for 5 weeks of Independent Verification and Validation as well as 6 weeks of Operational Testing and Evaluation. Both of these activities are an examination of the system and are to be performed by an independent organization. Since these efforts were to overlap, OIT officials agreed with TPO officials that including an operational test agent in the Operational Test and Evaluation process was a duplicative effort because Independent Verification and Validation was already going to take place. However, according to DHS acquisition policy, an operational test agent is a required element in the deployment of a system.

Deferred Capabilities and Reduced Scope	USCIS's Transformation Program planned to deploy USCIS ELIS first to USCIS customers applying for citizenship benefits. However, once USCIS defined the costs associated with digitizing (scanning paper documents into an electronic format) existing records following the June 2009 ARB, USCIS concluded that the original plans were not achievable within the associated budget. As a result, in December 2009, USCIS requested—and was authorized by the ARB—to change the order of deployment and begin with the nonimmigrant instead of citizenship line of business. Moreover, according to program officials, from June 2010 to March 2011, USCIS worked to fully define the operational requirements that had not been developed prior to the start of the solutions architect contract. For example, an operational requirement of USCIS ELIS is account set up and intake, which is the ability of USCIS customers to set up accounts and for adjudicators to process them through one, person-centric account. TPO worked with subject-matter experts from USCIS's field and headquarters offices who were most familiar with the adjudication process to map out steps that were needed to fully define USCIS ELIS's operational requirements. However, in an ARB meeting held in July 2010, and in a program management review meeting for January 2011, program officials explained that defining operational requirements was taking longer than expected due to the complexity of the rules that needed to be defined in USCIS ELIS, and the review of and agreement to these rules by all stakeholders. For example, one requirement—the account set-up and intake requirement—identified 35 operational functions for USCIS ELIS to perform this action, including set up account online, schedule an appointment, and evaluate any identity discrepancy. To enable completion of the operational requirements needed to move into subsequent phases of development for Release A, USCIS moved approximately 10 percent of the capabilities into the second release. In May 2011, program officials told us they changed the scope of the first release and that full automation of Release A would not be in place in December 2011. Further, only one nonimmigrant benefit would be deployed at that time. Other nonimmigrant benefits were scheduled to be deployed between January and October 2012.
DHS Increased Its Oversight to Help Ensure Transformation Program's Compliance with DHS Acquisition Process	DHS has increased its oversight of the Transformation Program since it authorized USCIS to award the solutions architect contract in October 2008. In 2008, we reported that DHS's investment review process had not provided the oversight needed to identify and address cost, schedule, and performance problems in its major acquisitions, including ensuring that programs prepared key documents prior to moving into subsequent phases of program development. At the time, we made several

recommendations aimed at better ensuring DHS fully implemented and adhered to its acquisition review process, including tracking major investments.[29] DHS generally agreed with our recommendations and has since taken actions to improve its acquisition review process, including developing a database to capture and track key program information, such as cost and schedule performance, contract awards, and program risks. The database became fully operational in September 2009. DHS Acquisition Program Management Division officials acknowledged that there was limited oversight of the Transformation Program at the time the contract was signed primarily due to having limited staff to oversee DHS's programs. These officials further stated that DHS was continuing to develop its acquisition oversight function and had begun to implement the revised acquisition management directive that included more detailed guidance for programs to use when informing component and departmental decision making.

Since the contract award, the ARB has met six times to review the Transformation Program's status. At these meetings, the ARB has directed the TPO to address a number of issues related to cost, schedule, and performance. For example, in June 2009, the ARB held two meetings to discuss risks that had been identified during the 90-day baseline period, such as inadequate staffing levels and delays in delivering required government-furnished items to the contractor. As a result of these risks, the ARB authorized USCIS to move forward with awarding contract options one and two, but restricted the amount that could be expended. The Transformation Program Office was also required to return to the ARB for authorization to award any additional options. According to the ARB Acquisition Decision Memorandum from December 2009, the program had improved its staffing significantly, but issues remained, including the need to fully define system requirements prior to returning to the ARB for authorization to enter into design, development, and testing phases, as noted in the August 2010 ARB Acquisition Decision Memorandum. As a result of this and other outstanding action items, the ARB did not grant the program permission to proceed with development as requested by USCIS at the July 2010 and November 2010 ARBs. Subsequently, in April 2011, the program completed development of operational requirements and the acquisition program

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[29]GAO, *Department of Homeland Security: Billions Invested in Major Programs Lack Appropriate Oversight*, GAO-09-29 (Washington, D.C.: Nov. 18, 2008).

baseline. USCIS received departmental approval for both the requirements and acquisition baseline in July 2011, along with approval to proceed with development. DHS Acquisition Program officials stated that USCIS had received approval because they had fully defined operational requirements for Release A, but that USCIS was expected to return to the ARB in December 2011 in order to obtain a decision on whether Release A can be deployed as scheduled at the end of the year. In addition, DHS officials stated that before the ARB approves releases beyond Release A, TPO will need to demonstrate that:

- USCIS ELIS's core business processes work in accordance with its operational requirements, and

- USCIS can afford to pay for the rest of the program.

In several meetings, the ARB has requested that USCIS refine or otherwise provide a complete and documented life-cycle cost estimate for DHS review and validation. USCIS subsequently completed life-cycle cost estimates in September 2009, November 2010, and an updated version in March 2011. This most recent version estimated that the Transformation Program's life-cycle cost would be approximately $1.7 billion from fiscal years 2006 through 2022. However, as referenced in the life-cycle cost estimate—a planning document—USCIS cannot estimate several work elements because the program does not have required information to estimate complete cost, such as requirements beyond Release A.[30] According to the TPO Program Manager, DHS has reviewed and provided guidance on the development of the life-cycle cost estimate, but it has not yet validated the life-cycle cost estimate as being sound and reasonable. Therefore, at this time, the total expected costs of the program from initiation through completion remain uncertain. Prior to validation of the life-cycle cost estimate, program officials stated that TPO and the DHS Cost Analysis Division are to work closely to ensure the cost estimate is sound and reasonable. According to best practices in cost estimating, an updated life-cycle cost estimate is to, among others, show the source of data. In the case of the Transformation Program, an updated life-cycle cost estimate should show the source of data

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[30]Per the USCIS planning document, *Transformation Program Life Cycle Cost Estimate*, March 2011, version 1.5, the present estimate's margin of error remained in the low to moderate range despite certain costs not being included.

underlying the software design and cost estimating model, and the equations used to estimate the costs of this large effort. The most recent Acquisition Decision Memorandum dated July 7, 2011, states that the Transformation Program Office must work closely with the DHS Cost Analysis Division to complete a life-cycle cost estimate by September 30, 2011.

Improved Acquisition Planning Could Help USCIS Avoid Further Delays and Potential Cost Overruns for the Transformation Program

USCIS Does Not Have Reasonable Assurance That Future Milestones Are Achievable

USCIS is continuing to manage the Transformation Program without specific acquisition management controls such as reliable schedules and as a result it will be difficult for USCIS to provide reasonable assurance that it can meet its future milestones. USCIS has established schedules for the first release of the Transformation Program, but our analysis shows that these schedules are not reliable as they do not meet best practices for schedule estimating. For example, the schedules did not identify all activities to be performed by the government and solutions architect. Additionally, USCIS has encountered a number of challenges in implementing the schedules, such as assumptions that have not been met regarding the time frames that either the solutions architect or USCIS would complete certain tasks. For example, according to an April 2010 program management review, USCIS planned to provide the solutions architect with two technical environments to conduct production and testing activities by December 2010.[31] However, USCIS has since revised the schedule due to challenges in procuring hardware and software needed before these two environments were ready for the solutions architect.

Based on the revised schedule, delivery of the technical environments was delayed to April 2011, according to USCIS, so that OIT could take

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[31]The technical environments are physical locations equipped with hardware and software, and which USCIS is making available for the solutions architect to conduct production and testing activities prior to full deployment.

actions to address the delay, such as borrowing equipment until a contract protest was resolved, and providing the solutions architect with a walk-through of the technical environments to ensure it met their needs. Program officials stated that factors outside their control, such as contract protests or review and approval of system requirements, have contributed to challenges in implementing the schedules.[32] According to program officials, defining and developing requirements was expected to last about 2 ½ to 3 months. However, USCIS completed the requirements in 9 months, which included review and validation of these requirements by agency leadership. Program officials stated that detailed reviews and approval by agency leadership took longer than expected.

Best practices in schedule estimating state that a comprehensive schedule should include a schedule risk analysis, so that the risk to the estimate if items are delayed can be modeled and presented to management including, among others, assumptions on equipment deliveries or length of internal and external reviews. However, according to a January 2011 program management review, as changes to the program were happening rapidly, there was no analysis completed to determine the impact on the schedule.

In addition to the challenges USCIS has encountered in carrying out the schedules as originally planned, on the basis of our analysis we found that the current schedules for the first release of the Transformation Program are of questionable reliability. Best practices state that the success of a large-scale system acquisition program, such as the Transformation Program, depends in part on having reliable schedules that identify:

- when the program's set of work activities and milestone events will occur;

- how long they will take; and

- how they are related to one another.

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[32]A contract award protest was filed with GAO by a vendor that competed for the solutions architect contract. This protest was filed in November 2008, and required that the winning vendor, IBM, stop work on the contract until the protest was resolved. The vendor withdrew its protest in December 2008, and the contract moved forward by January 2009.

Among other things, reliable schedules provide a road map for systematic execution of a program and the means by which to gauge progress, identify and address potential problems, and promote accountability. Our research has identified nine best practices associated with developing and maintaining a reliable schedule.[33] To be considered reliable, a schedule should meet all nine practices. In a July 2008 memorandum, DHS's Under Secretary for Management endorsed the use of these scheduling practices and noted that DHS would be using them. The nine scheduling best practices are summarized in table 5.

Table 5: Description of GAO Scheduling Best Practices

Characteristic	Description
Capturing all activities	The schedule should reflect all activities (steps, events, outcomes, etc.) as defined in the program's work breakdown structure, to include activities to be performed by both the government and its contractors.
Sequencing all activities	The schedule should be planned so that critical project dates can be met. To meet this objective, activities need to be logically sequenced—that is, listed in the order in which they are to be carried out. In particular, activities that must be completed before other activities can begin (predecessor activities), as well as activities that cannot begin until other activities are completed (successor activities), should be identified. This helps ensure that interdependencies among activities that collectively lead to the accomplishment of events or milestones can be established and used as a basis for guiding work and measuring progress.
Assigning resources to all activities	The schedule should reflect what resources (e.g., labor, materials, and overhead) are needed to do the work, whether all required resources will be available when needed, and whether any funding or time constraints exist.
Establishing duration of all activities	The schedule should reflect how long each activity will take to execute. In determining the duration of each activity, the same rationale, data, and assumptions used for cost estimating should be used. Durations should be as short as possible and have specific start and end dates. Excessively long periods needed to execute an activity should prompt further decomposition of the activity so that shorter execution durations will result.

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[33]GAO-09-3SP, 218–224.

Characteristic	Description
Integrating schedule activities horizontally and vertically	The schedule should be horizontally integrated, meaning that it should link products and outcomes associated with other sequenced activities. These links are commonly referred to as "handoffs" and serve to verify that activities are arranged in the right order to achieve aggregated products or outcomes. The schedule should also be vertically integrated, meaning that traceability exists among varying levels of activities and supporting tasks and subtasks. Such mapping or alignment among levels enables different groups to work to the same master schedule.
Establishing a critical path	Scheduling software should be used to identify the critical path, which represents the longest total duration through the sequenced list of activities. Establishing a project's critical path is necessary to examine the effects of any activity slipping along this path. Potential problems along or near the critical path should also be identified and reflected in scheduling the duration of high-risk activities.
Identifying float between activities	The schedule should identify the float—the amount of time by which a predecessor activity can slip before the delay affects successor activities—so that a schedule's flexibility can be determined. As a general rule, activities along the critical path have the least float.
Conducting a schedule risk analysis	A schedule risk analysis should be performed using statistical techniques to predict the level of confidence in meeting a project's completion date. This analysis focuses not only on critical path activities but also on activities near the critical path, since they can affect the project's status.
Updating the schedule using logic and durations to determine dates	The schedule should be continuously updated using logic and durations to determine realistic start and completion dates for program activities. The schedule should be analyzed continuously for variances to determine when forecasted completion dates differ from planned dates.

Source: GAO.

The Transformation Program has 18 individual schedules. Table 6 summarizes the findings of our assessments of two of these individual schedules as of November 2010 representing the bulk of the Transformation Program efforts and those most critical to the production of USCIS ELIS. Specifically, these schedules track activities associated with USCIS's OIT and the solutions architect. TPO is responsible for managing key acquisition functions associated with the Transformation Program; thus, USCIS is responsible for tracking and oversight of the OIT and solutions architect's activities and associated schedules. Appendix I includes a detailed discussion of our analysis.

Table 6: Transformation Program Schedules' Satisfaction of Schedule Estimating Best Practices

Best practice	GAO assessment of USCIS approved OIT schedule	GAO assessment of USCIS approved solutions architect schedule
1. Capturing all activities	Minimally met	Partially met
2. Sequencing all activities	Minimally met	Minimally met
3. Assigning resources to all activities	Minimally met	Minimally met
4. Establishing the duration of all activities	Partially met	Substantially met
5. Integrating schedule activities horizontally and vertically	Partially met	Partially met
6. Establishing the critical path for all activities	Not met	Not met
7. Identifying float between activities	Minimally met	Minimally met
8. Conducting a schedule risk analysis	Minimally met	Minimally met
9. Updating the schedule using logic and durations to determine dates	Minimally met	Minimally met

Source: GAO analysis of USCIS data and information.

Note: "Not met" means the program provided no evidence that satisfies any of the criterion. "Minimally met" means the program provided evidence that satisfies a small portion of the criterion. "Partially met" means the program provided evidence that satisfies about half of the criterion. "Substantially met" means the program provided evidence that satisfies a large portion of the criterion. "Fully met" means the program provided evidence that completely satisfies the criterion.

As shown above, the two Transformation Program schedules, for the most part, did not substantially or fully meet the nine best practices. For example, neither the OIT nor the USCIS-approved solutions architect schedule contained detailed information for Release A activities beyond March 2011. In addition, both schedules were missing a significant number of logic links between activities which indicate activities that must finish before others and which activities may not begin until others have been completed.[34] While we cannot generalize these findings to all 18 schedules, our review raises questions about the reliability of the program's schedules.

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[34]Our analysis of the OIT program schedule showed 74 percent of activities were missing predecessor or successor logic. In addition, the USCIS-approved solutions architect schedule contained 38 percent of activities with missing logic.

Based on our discussions with the Transformation Program's lead program scheduler, this condition stems, in part, from the "aggressiveness of the Transformation Program to implement most of the capabilities within the first 3 years of the program," and a lack of program management resources for developing knowledge to create and maintain schedules. Moreover, and regardless of the aggressiveness of the solution, our best practices call for schedules to reflect all activities—government, contractors, and any other necessary external parties—essential for successful program completion. As such, neither of the Transformation Program schedules we reviewed substantially met this practice. Furthermore, as demonstrated in the challenges USCIS has encountered in carrying out the schedule as originally planned, not including all work for all deliverables, regardless of whether the deliverables are the responsibility of the government or contractor, may result in confusion among team members and lead to management difficulties because of an incomplete understanding of the plan and of the progress being made.

Collectively, and moving forward, not meeting the nine key practices increases the risk of schedule slippages and related cost overruns and makes meaningful measurement and oversight of program status and progress, as well as accountability for results, difficult to achieve. For example, in June 2011, a program management review noted a schedule risk if the development, testing, and deployment process slip again. This could result in USCIS being unable to deliver the first release in December 2011. A schedule risk analysis could be used to determine the level of uncertainty and to help mitigate this risk. Similarly, capturing and sequencing all activities, as outlined in best practices, could help identify the extent to which other activities linked to this schedule risk are affecting its progress. Furthermore, without the development of a schedule that meets scheduling best practices, it will be difficult for USCIS to effectively monitor and oversee the progress of an estimated $1.7 billion to be invested in the acquisition of USCIS ELIS.

In August 2011, TPO provided us the updated USCIS-approved solutions architect schedule. Program officials indicated that this updated schedule addressed some areas in which their previous schedule was deficient according to our assessment of the nine scheduling best practices. For example, they said that this schedule included activities through December 2011 rather than only through March 2011. In addition, officials indicated that they have confidence in meeting the December 2011 milestone. Specifically, they said that USCIS and the solutions architect have tested over 70 percent of the Release A capabilities that are to be released in

December 2011, and demonstrated these capabilities to the USCIS leadership team in August 2011. On the basis of our analysis of the updated USCIS-approved solutions architect schedule, we determined that the updated schedule did not address many of the deficiencies we identified in the earlier version of the schedule. For example, the USCIS-approved solutions architect schedule did contain activities through December 2011, but logical links were missing between activities indicating which activities must finish before others and which activities may not begin until others have been completed.[35] The schedule's authorized work has therefore not been established in a way that describes the sequence of work, which prevents the schedule from meeting other best practices, such as establishing a critical path or developing a schedule risk analysis. Thus, the updated USCIS-approved solutions architect schedule does not fully meet all nine key practices, making meaningful measure and oversight of program status and progress difficult to achieve. USCIS did not provide us with an updated OIT schedule; therefore, we were unable to determine to what extent many of the deficiencies we identified in the earlier versions were addressed.

Further, USCIS established the Transformation Program as a long-term program made up of five releases to procure, test, deploy, and maintain USCIS ELIS, but USCIS officials confirmed in October 2010 that there was no integrated master schedule for the entire Transformation Program. In addition, the schedules we received in August 2011 were also not integrated into a master schedule. According to best practices, an integrated master schedule is to contain the detailed tasks necessary to ensure program execution and is a required document to develop key acquisition planning documents under DHS acquisition management guidance.[36] Among other things, best practices and related federal guidance call for a program schedule to be programwide in scope, meaning that it should include the integrated breakdown of the work to be

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[35]The updated USCIS-approved solutions architect schedule contained over 40 percent of activities with missing predecessor or successor logic. Therefore, in both the original and updated USCIS-approved solutions architect schedules, more than one-third of the remaining activities are missing logic links.

[36]For example, an acquisition program baseline requires that an updated integrated master schedule be used to support the schedule parameters, and a life-cycle cost estimate is to be developed following GAO's *Cost Assessment Guide: Best Practices for Estimating and Managing Program Costs*, which includes the development of an integrated master schedule.

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performed by both the government and its contractors over the expected life of the program.[37] According to program officials, when the Transformation Program's planning efforts began, USCIS was unable to develop an integrated master schedule for the Transformation Program due to the complexity of integrating the numerous individual schedules and the lack of skilled staff necessary to develop and manage such an integrated master schedule. In addition, program officials explained that scheduling software to develop and maintain individual schedules was not used by every organization performing transformation work, such as OIT, even though the program issued guidance in August 2010 to all organizations on scheduling best practices, including the use of scheduling software.

As an alternative to an integrated master schedule and for ease of reporting to the ARB and other senior officials, TPO developed a high-level tracking tool summarizing dates and activities for the first release of the program and based on individual schedules such as the OIT and solutions architect schedule, which are not directly managed by TPO.[38] According to program officials, in a September 2010 briefing to agency leadership, this high-level tracking tool created capacity for USCIS to analyze the schedule. In this briefing, program officials stated TPO used the high-level tracking tool to ensure coordination and alignment of activities by collaborating with staff responsible for the management of individual schedules. However, this tracking tool is not an integrated master schedule as it does not integrate all activities necessary to meet the milestones for Release A; rather, it is a selection of key activities drawn from the individual schedules maintained by USCIS components and the solutions architect. Moreover, the Transformation Program Manager expressed concern in a May 2011 program management review that the information reported in the high-level tracking tool was not being reported in the individual schedules. In addition, this tracking tool is not an integrated master schedule because it does not show activities over the life of the program. That is, there are no dates or activities for when the

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[37]See, for example, GAO-09-3SP and OMB, *Capital Programming Guide V 2.0, Supplement to the Office of Management and Budget Circular A-11, Part 7: Planning, Budgeting, and Acquisition of Capital Assets* (Washington, D.C.: June 2006).

[38]USCIS refers to this tracking tool as a Critical Task Schedule. The Critical Task Schedule consists of the dates for major milestones and the activities for the Transformation Program, but program officials stated that the Critical Task Schedule is not an integrated master schedule.

other four releases' set of work activities will occur, how long they will take, and how they are related to one another. As a result, it will be difficult for program officials to predict, with any degree of confidence, how long it will take to complete all five releases of the Transformation Program. It will also be difficult for program officials to manage and measure progress in executing the work needed to deliver the program, thus increasing the risk of cost, schedule, and performance shortfalls. Lastly, USCIS's ability to accurately communicate the status of Transformation Program efforts to key stakeholders such as its employees, Congress and the public will be hindered.

Unreliable Schedules Affect USCIS's Ability to Develop Reliable Life-Cycle Cost Estimates

Because USCIS lacks reliable schedules, its ability to develop reliable life-cycle cost estimates is hampered. As outlined by DHS acquisition management guidance, a life-cycle cost estimate is a required and critical element in the acquisition process. USCIS has developed and updated the life-cycle cost estimate for the Transformation Program, but USCIS's individual schedules for the Transformation Program do not meet best practices for schedule estimating, thus raising questions about the credibility of the program's life-cycle cost estimates. For example, neither the OIT nor the solutions architect schedule fully captured all activities to be performed by the government and contractor. Therefore, when USCIS is developing the life-cycle cost estimate there is an incomplete understanding of the work necessary to accomplish the five releases of the Transformation Program. Further, in the case of both individual schedules, the absence of a schedule risk analysis makes it difficult for officials to account for the cost effects of schedule slippage when developing the life-cycle cost estimate. Further, a reliable life-cycle cost estimate is essential for helping the program determine how much funding is needed and whether it will be available to achieve the Transformation Program's goals.

Best practices that we have previously identified for cost estimation state that because some program costs such as labor, supervision, rented equipment, and facilities cost more if the program takes longer, a reliable schedule can contribute to an understanding of the cost impact if the program does not finish on time.[39] Meeting planned milestones and controlling costs are both dependent on the quality of a program's schedule. An integrated schedule is key to managing program

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[39]See GAO-09-3SP.

performance and is necessary for determining what work remains and the expected cost to complete the work.

Conclusions

USCIS's effort to develop a modern, automated system for processing benefit applications and addressing the many current program inefficiencies has been in progress for nearly 6 years. The program is now more than 2 years behind its planned deployment schedule for implementing the agencywide transformed business process, and given the enormity, significance, and complexity of this transformation, it is essential that USCIS ensures it takes the proper steps for implementation. Although only one benefit type is expected to be available for online account management and adjudication in December 2011, the decision to channel resources and efforts to focus on ensuring the core businesses are ready for a December 2011 launch prior to making other application types available for online-processing appears to be prudent.

Moving forward, it is essential that USCIS consistently follows DHS acquisition management guidance to best position the department to develop and share information within the department and with Congress and the public that can be relied upon for purposes of informed decision making. Moreover, ensuring that the program's schedules are consistent with schedule estimating best practices and integrated through an integrated master schedule would better position USCIS to reliably estimate the amount of time and effort needed to complete the program. Reliable schedules could also assist USCIS in developing and maintaining a complete and reliable life-cycle cost estimate for the program which is essential for helping the program determine how much funding is needed and whether it will be available to achieve the Transformation Program's goals.

Recommendations for Executive Action

To help ensure that USCIS takes a comprehensive and cost-effective approach to the development and deployment of transformation efforts to meet the agency's goals of improved adjudications and customer services processes, we recommend that the Director of USCIS take the following three actions:

1. Ensure program schedules are consistent with the nine estimating best practices.

2. Develop and maintain an Integrated Master Schedule consistent with these same best practices for the Transformation Program.

3. Ensure that the life-cycle cost estimate is informed by milestones and associated tasks from reliable schedules that are developed in accordance with the nine best practices we identified.

Agency Comments and Our Evaluation

We provided a draft of this report to DHS for comment. DHS provided written comments, which are reprinted in Appendix II. In commenting on this report, DHS, including USCIS, concurred with the recommendations.

DHS's letter outlined the actions that USCIS is taking action or has taken to address each recommendation. Regarding the first recommendation to ensure program schedules are consistent with best practices, DHS stated that USCIS is incorporating the nine schedule estimating best practices we identified into Transformation Program management reviews, as well as the Acquisition Review Board review. Regarding the second recommendation to develop and maintain an Integrated Master Schedule consistent with these same best practices for the Transformation Program, DHS stated that USCIS will develop an Integrated Master Schedule to depict the multiple tasks, implementation activities, and interrelationships needed to successfully develop and deploy the Transformation Program. Regarding the third recommendation to ensure that life-cycle cost estimates are developed in accordance with the nine best practices, DHS stated that they will refine the Transformation Program life-cycle cost estimate in accordance with GAO's 12-Step Process for Cost Estimation. In addition, DHS noted that their revised master schedule will clearly identify work elements to ensure a reasonable and cost-effective timeframe for accomplishing the five releases associated with the program. If fully implemented, we believe that the actions that DHS identified will address our recommendations.

DHS also provided technical comments, which we have incorporated, as appropriate.

We are sending copies of this report to the Secretary of Homeland Security and other interested parties. The report also will be available at no charge on the GAO Web site at http://www.gao.gov.

If you or your staff members have any questions about this report, please contact me at (202) 512-8777 or stanar@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.

Richard M. Stana
Director, Homeland Security
   and Justice Issues

List of Requesters

The Honorable Joseph I. Lieberman
Chairman
Committee on Homeland Security
   and Governmental Affairs
United States Senate

The Honorable Charles Grassley
Ranking Member
Committee on the Judiciary
United States Senate

The Honorable Charles E. Schumer
Chairman
Subcommittee on Immigration, Refugees
   and Border Security
Committee on the Judiciary
United States Senate

The Honorable John Conyers, Jr.
Ranking Member
Committee on the Judiciary
House of Representatives

The Honorable Zoe Lofgren
Ranking Member
Subcommittee on Immigration Policy
   and Enforcement
Committee on the Judiciary
House of Representatives

Appendix I: Detailed Results of GAO Assessment of USCIS's Detailed Transformation Program Schedules

In prior work, we have identified nine best practices associated with effective schedule estimating.[1] These are (1) capturing all activities; (2) sequencing all activities; (3) assigning resources to all activities; (4) establishing the duration of all activities; (5) integrating activities horizontally and vertically; (6) establishing the critical path for all activities; (7) identifying float time between activities; (8) conducting a schedule risk analysis; and (9) updating the schedule using logic and durations. We assessed the extent to which two detailed schedules, Office of Information Technology (OIT) and the solutions architect, dated November 2010, met each of the nine practices. We characterized whether the schedules met each of the nine best practices as follows:

- Not met—the program provided no evidence that satisfies any portion of the criterion.

- Minimally met—the program provided evidence that satisfies less than one-half of the criterion.

- Partially met—the program provided evidence that satisfies about one-half of the criterion.

- Substantially met—the program provided evidence that satisfies more than one-half of the criterion.

- Met—the program provided evidence that satisfies the entire criterion.

Tables 7 and 8 provide the detailed results of our analysis of these schedules.

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[1]GAO *Cost Estimating and Assessment Guide*, GAO-09-3SP (Washington, D.C.: March 2009).

Table 7: Detailed Results of Transformation Program's OIT Schedule Satisfaction of Scheduling Best Practices

Best practice	Explanation	Criterion met (November 2010)	GAO analysis
1. Capturing all activities	The schedule should reflect all activities as defined in the project's work breakdown structure, which defines in detail the work necessary to accomplish a project's objectives, including activities to be performed by the government.	Minimally met	The schedule only reflects government effort for the completion of Release A. Because the OIT program schedule does not account for all planned government work for the five phases of the program to be fully deployed by 2014, program officials are not able to reliably estimate planned finish dates beyond the schedule's current end date of April 20, 2012.
			Moreover, the schedule does not include a standardized Work Breakdown Structure (WBS). The WBS should be the basis of all project schedules. Aligning the schedule to the program WBS will ensure that the total scope of work is accounted for within the schedule. These shortcomings in this best practice will have cascading effects on the remaining best practices. Unless all activities are accounted for, it is uncertain whether all activities are properly sequenced, resources are properly assigned, the critical path is valid, or a Schedule Risk Analysis (SRA) accounts for all risk. If the schedule does not fully and accurately reflect the project, it will not serve as an appropriate basis for analysis and may result in unreliable completion dates, time extension requests, and delays.
2. Sequencing all activities	The schedule should be planned so that critical project dates can be met. To meet this objective, activities need to be logically sequenced—that is, listed in the order in which they are to be carried out. In particular, activities that must be completed before other activities can begin (predecessor activities), as well as activities that cannot begin until other activities are completed (successor activities), should be identified. This helps ensure that interdependencies among activities that collectively lead to the accomplishment of events or milestones can be established and used as a basis for guiding work and measuring progress.	Minimally met	Our analysis of the OIT program schedule shows that 377 of the remaining 618 activities (or 61 percent) have missing predecessor or successor logic. The detailed planning period leading up to System Definition Review (SDR) shows 233 of the remaining 317 activities (74 percent) have missing predecessor or successor logic. Missing predecessors or successors reduce the credibility of the calculated dates. If an activity that has no logical successor slips, the schedule will not reflect the effect on the critical path, float, or scheduled start dates of downstream activities.
			We also found 293 activities with Start No Earlier Than (SNET) constraints. These are considered "soft" date constraints in that they allow the activity to slip into the future based on what happens to their predecessor activities. However, while activities may be soft constrained, for example, to represent receipt of delivery of equipment, in general constraining an activity's start date prevents managers from accomplishing work as soon as possible and consumes flexibility in the project.

Best practice	Explanation	Criterion met (November 2010)	GAO analysis
3. Assigning resources to all activities	The schedule should reflect what resources (e.g., labor, materials, and overhead) are needed to do the work, whether all required resources will be available when needed, and whether any funding or time constraints exist.	Minimally met	According to program officials, resources are not assigned to activities in the schedule. In lieu of putting resources in the schedule, program officials said they perform a full-time equivalents (FTE) projection where they work with each division and ask them to estimate the number of FTEs. However, assigning resources to activities in the schedule ensures that resources are used to determine activity durations because resource requirements may directly relate to the duration of an activity. Furthermore, if the current schedule does not allow for insight into current or projected over-allocation of resources, then the risk of the program slipping is significantly increased
4. Establishing the duration of all activities	The schedule should realistically reflect how long each activity will take to execute. In determining the duration of each activity, the same rationale, data, and assumptions used for cost estimating should be used. Durations should be as short as possible and have specific start and end dates. Excessively long periods needed to execute an activity should prompt further decomposition of the activity so that shorter execution durations will result.	Partially met	The majority of remaining activities in the schedule meet best practices for durations; however, leading up to SDR, we found that majority of the remaining activities did not meet best practices for durations 44 days or less. This does not support program officials' statement that activities leading up to SDR are detail planned and with durations of 44 days or less.

	Best practice	Explanation	Criterion met (November 2010)	GAO analysis
5	Integrating schedule activities horizontally and vertically	The schedule should be horizontally integrated, meaning that it should link products and outcomes associated with other sequenced activities. These links are commonly referred to as "handoffs" and serve to verify that activities are arranged in the right order to achieve aggregated products or outcomes. The schedule should also be vertically integrated, meaning that the dates for starting and completing activities in the integrated master schedule should be aligned with the dates for supporting tasks and subtasks. Such mapping or alignment among levels enables different groups to work to the same master schedule.	Partially met	Vertical integration is partially demonstrated in the schedule. While we were able to trace some activities between the OIT and USCIS high-level schedules, the program's WBS numbers did not match. In addition, the name and WBS numbers for the SDR activity, which is a critical milestone necessary for detail planning to continue, is also not consistent across the OIT, contractor and USCIS high-level master schedules. Without a standardized WBS, identifying activities across different schedules is hampered, if not impossible. Issues with missing dependencies, activities with dangling logic, and overuse of date constraints prevent the schedule from fully complying with the requirement of horizontal integration—that is, the overall ability of the schedule to depict relationships between different program elements and product handoffs.
6.	Establishing the critical path for all activities	Scheduling software should be used to identify the critical path, which represents the chain of dependent activities with the longest total duration. Establishing a project's critical path is necessary to examine the effects of any activity slipping along this path. Potential problems along or near the critical path should also be identified and reflected in scheduling the duration of high-risk activities.	Not met	Our analysis could not determine a valid critical path within the schedule, particularly because over 61 percent of remaining activities have missing or incomplete logic. Unless all activities are included and properly linked, it is not possible to generate a true critical path. Program Management Office officials acknowledged that a critical path cannot be calculated within the schedule.
7.	Identifying reasonable float between activities	The schedule should identify the float—the amount of time by which a predecessor activity can slip before the delay affects successor activities—so that a schedule's flexibility can be determined. As a general rule, activities along the critical path have the least float.	Minimally met	Our analysis found that float calculations within the OIT schedule are not reliable because of missing logic links and the high number of date constraints. In addition, because the schedule is missing dependencies, float estimates will be miscalculated since float is directly related to the logical sequencing of events. Because the critical path is directly related to the amount of float in the schedule, excessive float will cause an invalid critical path.

Best practice	Explanation	Criterion met (November 2010)	GAO analysis
8. Conducting a schedule risk analysis	A schedule risk analysis should be performed using statistical techniques to predict the level of confidence in meeting a project's completion date. This analysis focuses not only on critical path activities but also on activities near the critical path, since they can affect the project's status.	Minimally met	The agency has not performed a schedule risk analysis on the schedule. However, program officials provided risk management documentation that identified the list of top risks, their impacts, probability of occurrence, mitigation strategy and actions, and risk status. It appears that USCIS is managing risk, but these program management reviews do not provide management with the necessary program information to determine if the program will meet its planned completion date. Moreover, before a schedule risk analysis can be performed and produce realistic results, the agency must fix the missing dependencies, remove the date constraints, break down the long durations and examine and address unrealistic float values.
9. Updating the schedule using logic and durations to determine dates	The schedule should be continuously updated using logic and durations to determine realistic start and completion dates for program activities. The schedule should be analyzed continuously for variances to determine when forecasted completion dates differ from planned dates.	Minimally met	Our analysis shows that the schedule does not have a valid status date. Both the initial and updated schedules provided by the program office showed a status date of July 5, 2011, which was more than 7 months in the future relative to our November 2010 analysis. A status date denotes the date of the latest update to the schedule and thus defines the point in time at which completed work and remaining work are calculated. As a result of this incorrect status date, we found several activities in the schedule that should have started in the past with no actual start dates and several activities that should have finished in the past with no actual finish dates. As a best practice, maintaining the integrity of the schedule logic is not only necessary to reflect true status, but is also required before conducting a schedule risk analysis.

Source: GAO analysis of USCIS data.

Table 8: Detailed Results of Transformation Program's Contractor Schedule Satisfaction of Scheduling Best Practices

Best practice	Explanation	Criterion met (November 2010)	GAO analysis
1. Capturing all activities	The schedule should reflect all activities as defined in the project's work breakdown structure, which defines in detail the work necessary to accomplish a project's objectives, including activities to be performed by both the owner and contractors.	Partially met	The contractor's schedule accounts for key activities to be performed by the government and contractor across all five phases, but officials stated that work beyond SDR is not sufficiently planned because they were not authorized to do so by the government. Without an IMS that accounts for all planned effort, management is not able to reliably estimate planned dates beyond the current schedule's end date of August 8, 2014.
			In addition, activities in the schedule are not aligned with government master schedules via a work breakdown structure (WBS). Because the contractor activities are not aligned to a program WBS we cannot be certain that the schedule captures the work necessary to accomplish the program's objectives.
2. Sequencing all activities	The schedule should be planned so that critical project dates can be met. To meet this objective, activities need to be logically sequenced—that is, listed in the order in which they are to be carried out. In particular, activities that must be completed before other activities can begin (predecessor activities), as well as activities that cannot begin until other activities are completed (successor activities), should be identified. This helps ensure that interdependencies among activities that collectively lead to the accomplishment of events or milestones can be established and used as a basis for guiding work and measuring progress.	Minimally met	Specifically, 2,812 of the 7,053 activities (40 percent) have missing logic. The detailed planning period leading up to SDR shows 587 (38 percent) of the 1,561 remaining activities have missing logic. The high number of activities with missing logic is cause for concern because missing predecessors or successors links reduce the credibility of the calculated dates.
			We also found 935 activities (13 percent) with Start No Earlier Than (SNET) constraints, including 251 activities (16 percent) with SNET constraints within the detail planning period. SNET constraints are considered "soft" date constraints in that they allow the activity to slip into the future based on what happens to their predecessor activities. However, while activities may be soft constrained, for example, to represent receipt of delivery of equipment, in general constraining an activity's start date prevents managers from accomplishing work as soon as possible and consumes flexibility in the project.
			The schedule includes 1,284 activities (18 percent) that are linked to their successor activities with lags, including 498 negative lags. The detail planning period leading up to SDR shows 190 activities (12 percent), including 51 negative lags. Lags are often used to put activities on a specific date or to insert a buffer for risk; negative lags predict when the successor activity will start prior to the finish of its predecessor; however, these lags persist even when predecessor activities are delayed (that is, when the buffer should be consumed). Lags should be justified because they cannot have risk or uncertainty.

Best practice	Explanation	Criterion met (November 2010)	GAO analysis
			There are also 221 activities (3 percent) in the schedule that have dangling logic. Of these, 82 activities are missing logic that would determine their start dates and 139 are missing a successor from their finish dates. The detail planning period leading up to SDR shows 51 activities with dangling logic, of which 22 are missing logic that would determine their start and 29 are missing a successor from their finish date. Regarding activities with dangling logic, activities missing predecessors to their start date would have to start earlier in order to finish on time if they ran longer than their planned durations; and activities missing successors from their finish date could continue indefinitely and not affect the start or finish dates of future activities.
3. Assigning resources to all activities	The schedule should reflect what resources (e.g., labor, materials, and overhead) are needed to do the work, whether all required resources will be available when needed, and whether any funding or time constraints exist.	Minimally met	The schedule does not directly assign resources needed to complete the captured activities. Instead, the contractor's resource data are maintained separately as part of its Earned Value Management (EVM) system. According to program and contract representatives, the contractor manages resources through detailed EVM reporting on a monthly basis. Program officials agreed to provide documentation showing that the contractor has associated control accounts with schedule activity codes. However, the documentation we received did not show the mapping between control accounts and schedule activities. Without this information, we were unable to reconcile the resource information in the EVM system with activities planned in the schedule.
4. Establishing the duration of all activities	The schedule should realistically reflect how long each activity will take to execute. In determining the duration of each activity, the same rationale, historical data, and assumptions used for cost estimating should be used. Durations should be as short as possible and have specific start and end dates. Excessively long periods needed to execute an activity should prompt further decomposition of the activity so that shorter execution durations will result.	Substantially met	The durations of the majority of remaining activities (82 percent) met best practices for durations, being less than 44 days (or 2 working months). In addition, the majority of the long-duration activities (462 activities or 7 percent), that is, activities longer than 100 days, occur after SDR in the nondetail planning period. Program officials stated that all activities prior to SDR are detail planned and that long duration activities are level of effort (LOE) activities. However, many of these long duration activities are included in schedules to represent effort that has no measurable output and cannot be associated with any one single product.
			We also found 150 remaining activities that are scheduled to start on a Saturday or Sunday. Officials stated these activities are related to the start and finish dates of specific contract periods; however, we found that only 14 of the 150 activities were associated with a 7-day workweek calendar.

Best practice	Explanation	Criterion met (November 2010)	GAO analysis
5. Integrating schedule activities horizontally and vertically	The schedule should be horizontally integrated, meaning that it should link products and outcomes associated with other sequenced activities. These links are commonly referred to as "handoffs" and serve to verify that activities are arranged in the right order to achieve aggregated products or outcomes. The schedule should also be vertically integrated, meaning that the dates for starting and completing activities in the integrated master schedule should be aligned with the dates for supporting tasks and subtasks. Such mapping or alignment among levels enables different groups to work to the same master schedule.	Partially met	Our analysis determined that the schedule is not fully vertically integrated. While the schedule is vertically integrated within itself because low-level tasks and milestones are traceable to higher-level summary tasks, it does not roll up into an overall government integrated master schedule. In addition, and similar to the OIT schedule, the name and WBS numbers for the SDR activity, which is a critical milestone necessary for detail planning to continue, is also not consistent. Without a standardized WBS, identifying activities across different schedules is hampered, if not impossible. The schedule is also not fully horizontally integrated. The horizontal traceability is hampered due to the issues noted in Best Practice 2 with incomplete logic and reliance on date constraints. Unless the schedule is fully horizontally integrated, the effects of slipped tasks on downstream work cannot be determined. Further, when schedules are not horizontally integrated, relationships between different program teams cannot be seen and product handoffs cannot be identified
6. Establishing the critical path for all activities	Scheduling software should be used to identify the critical path, which represents the chain of dependent activities with the longest total duration. Establishing a project's critical path is necessary to examine the effects of any activity slipping along this path. Potential problems along or near the critical path should also be identified and reflected in scheduling the duration of high-risk activities.	Not met	The schedule does not reflect a valid critical path for several reasons. First, the schedule does not include all logic links between activities. Second, there are excessive constraints, lags and open-ends in the schedule. Unless all activities are included and properly linked, it is not possible to generate a true critical path. Without clear insight into a critical path at the project level, management will not be able to monitor critical or near-critical detail activities that may have a detrimental impact on downstream activities if delayed.
7. Identifying reasonable float between activities	The schedule should identify the float—the amount of time by which a predecessor activity can slip before the delay affects successor activities—so that a schedule's flexibility can be determined. As a general rule, activities along the critical path have the least float.	Minimally met	We found a relatively high number of remaining activities 1,282 (18 percent) with negative float ranging from -308 days to -2 days. Negative float means that an activity must be completed ahead of schedule in order for the overall program to be on time. However, the float calculations within the contractor schedule are not reliable because of missing logic links and a high number of date constraints. In addition, because the critical path is directly related to the amount of float in the schedule, excessive float will cause an invalid critical path.

Best practice	Explanation	Criterion met (November 2010)	GAO analysis
8. Conducting a schedule risk analysis	A schedule risk analysis should be performed using statistical techniques to predict the level of confidence in meeting a project's completion date. This analysis focuses not only on critical path activities but also on activities near the critical path, since they can affect the project's status.	Minimally met	Based on documentation provided by program officials and contract representatives, we found that the contractor has not performed a schedule risk analysis. Program officials provided cumulative schedule variance data from their monthly EVM reports and a Risk Report, which identifies risk. However, these risks are not tied to activities in the schedule and therefore have no direct impact on the schedule's forecasted completion date. Moreover, before a schedule risk analysis can be credible, the program must have a quality schedule that reflects reliable logic and clearly identifies the critical path—conditions that the solutions architect schedule does not meet.
9. Updating the schedule using logic and durations to determine dates	The schedule should be continuously updated using logic and durations to determine realistic start and completion dates for program activities. The schedule should be analyzed continuously for variances to determine when forecasted completion dates differ from planned dates.	Minimally met	Contractor and USCIS officials review the schedule during the weekly and monthly Program Management Reviews to discuss updates, identify critical work and ensure schedule coordination. In addition, the program schedule team, including contractor officials, provides weekly status updates to management. However, despite these status updates, data anomalies exist. For example, 107 tasks that should have started in the past have no actual start dates and 116 tasks that should have finished in the past have no actual finish dates. As a best practice, the schedule should be continually monitored to determine when forecasted completion dates differ from the planned dates, which can be used to determine whether schedule variances will affect downstream work. Maintaining the integrity of the schedule logic is not only necessary to reflect true status, but is also required before conducting a schedule risk analysis.

Source: GAO analysis of USCIS data.

Appendix II: Comments from the Department of Homeland Security

Homeland Security

November 16, 2011

Richard Stana
Director, Homeland Security and Justice
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Draft Report GAO-12-66, "IMMIGRATION BENEFITS: Consistent Adherence to DHS's Acquisition Policy Could Help Improve Transformation Program Outcomes"

Dear Mr. Stana:

Thank you for the opportunity to review and comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the U.S. Government Accountability Office's (GAO's) work in planning and conducting its review and issuing this report.

The Department is pleased to note GAO's positive acknowledgement of the actions DHS has taken in establishing key institutional acquisition and Information Technology (IT) investment oversight controls and implementing them in major programs. The Department and The U.S. Citizenship and Immigration Services (USCIS) are committed to continuing efforts to instill more discipline and rigor in acquisition and IT processes.

The draft report contained three recommendations directed at DHS with which the Department concurs. Specifically, GAO recommended that the Director of USCIS:

Recommendation 1: Ensure program schedules are consistent with the nine estimating best practices.

Response: Concur. USCIS is incorporating the nine schedule estimating best practices into Transformation Program management reviews, as well as the Acquisition Review Board process administered under Acquisition Management Directive 102-1, and will work with the Acquisition Program Management Division to ensure Directive 102-1 reflects focus in its *Directive 102-1 Instructions and Guideline* documents. A more detailed management response describing specific implementation actions USCIS will take related to each of the nine best practices can be found in the attachment to this memorandum.

The USCIS Transformation Program will also be transitioning the second release from a traditional waterfall software methodology (a classical linear and sequential approach of software design and systems development) to an agile development methodology (a parallel approach that emphasizes working in weekly or monthly cycles to quickly demonstrate working software). An agile process will allow USCIS to focus on delivering the highest business value

in the shortest amount of time. The features and functions of the program will be identified and prioritized by the business, and the highest priorities developed first, enabling the program to produce a consumable solution on a regular basis and providing greater value to stakeholders. Beginning in Fiscal Year (FY) 2012, the program will incorporate the agile project management concepts using cross-functional teams to design, test, and implement the features and functions. A product-oriented work breakdown structure and schedule will be developed to (1) capture the necessary activities for each build, (2) allocate the necessary resources for each product, (3) establish a duration for each build or iteration, and (4) identify integration points throughout the process. By implementing the nine best practices and the agile project management concepts, the program will ensure consistent schedules.

Recommendation 2: Develop and maintain an Integrated Master Schedule consistent with these same best practices for the Transformation program.

Response: Concur. We agree that an Integrated Master Schedule (IMS) must be developed to depict the multiple tasks, implementation activities, and interrelationships needed to successfully develop and deploy the Transformation Program. USCIS will first validate the Work Breakdown Structure (WBS) as a basis for developing a schedule for reliable estimates of all program activities. To help ensure no extended activities exist that may cause slippage in the schedule, USCIS will analyze and evaluate activities within the duration of the schedule, further defining more granular activities into a manageable timeframe, as necessary.

Improvement in the WBS will correct IMS related deficiencies the GAO identified in the areas of: resource allocation, materials cost, overhead expenses, interdependencies, missing dependencies, and "handoffs." The result will be the Transformation Program's improved ability to meet planned milestones and control program costs.

Successful completion of the program IMS will enable USCIS to adopt an industry standard tracking tool for purposes of integrating the numerous individual program schedules into a single IMS. This calendar-based IMS will be used in program management reviews, Acquisition Review Boards, and ad hoc meetings and will be capable of identifying required tasks to support program execution, support risk management activities, and identify the program's critical path.

Modifying the IMS and using an industry-proven tracking tool will demonstrate relationships within activities creating dependencies and further identify and define required pre-requisite activities. IMS Report Generation will include the "forecasted" versus "actual" percentage complete in tracking the progress of each activity and associated performance measures. Periodic analysis of the program's progress will be performed using the IMS Report, alleviating potential risks while providing USCIS the ability to immediately mitigate risks observed "cradle-to-grave" across the total schedule and program.

Recommendation 3: Ensure that the life-cycle cost estimate is informed by milestones and associated tasks from reliable schedules that are developed in accordance with the nine best practices identified.

Response: Concur. A refined life-cycle cost estimate (LCCE) will evolve in accordance with GAO's 12-Step Process for Cost Estimation. Moreover, in relation to the LCCE, the improved

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IMS will clearly identify work elements contributing to the depiction of a reasonable and cost-effective timeframe for accomplishing the five releases associated with the program, through 2014 and beyond. Specifically:

- The level of detail within the estimate will be consistent with the level of detail available for the five releases, and this relationship will be clear and included in the life cycle costs.

- USCIS will utilize additional cost analysis resources offered at the Department level to assist with the estimation planning, which will include the IMS.

- The LCCE will identify requirements, purpose; technical characteristics (including predecessor or similar systems), physical characteristics and parameters, relationships to other systems, development plan and schedule, acquisition strategy, operational plan, and risk (including technology implications). Moreover, USCIS will identify any technical, programmatic, or schedule changes that have taken place to date.

- A clearly defined WBS will be developed to the appropriate level of detail, at minimum level 3[1]. The WBS will be developed in a standard format for future use and easily aligned to cost analysis data. All changes to the WBS will be documented in real time, and a WBS dictionary will be developed.

- All ground rules and assumptions will be documented and contain risk analysis, identification of possible budget constraints, program delays, program dependencies, and technology maturity. Moreover, approval authority will be identified in relation to each action and this will be vetted within the program as well as with the cost analyst at the Department level.

- Historical actual cost, schedule, program, technical sources (i.e., past invoices related to the program as the basis of cost), and government personnel costs will additionally be used, and the data collection method and source will be identified.

- Cost data will be segregated into nonrecurring and recurring costs, where applicable.

- The cost estimating methodology will be documented to include the reports to be used on a recurring basis for analysis and statistical purposes.

- If resources are available, a sensitivity analysis will be conducted and documented and all outcomes will be evaluated for the parameters most sensitive to change.
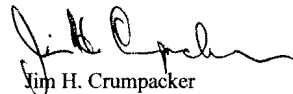
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[1] GAO, *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-35P (Washington, D.C.: March 2009) Figure 10, page 66; "level 3 would be the lowest level of the breakdown; for others, still lower levels would be required" page 67.

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- Risk analysis will be conducted, to include cost drivers (e.g., requirements, cost estimation errors, and uncertainty in business, technology, schedule, program, and software).

- All information, sources, and approvals will be documented, evaluated for risk, and made available for review and reference, as appropriate, once finalized.

USCIS is also committed to vetting its cost estimate documentation with the DHS Cost Analysis Division to demonstrate accuracy of source data and validity of the LCCE.

Again, thank you for the opportunity to review and comment on this draft report. General, technical, and sensitivity comments were previously provided under separate cover. We look forward to working with you on future Homeland Security issues.

Sincerely,

Jim H. Crumpacker
Director
Departmental GAO-OIG Liaison Office

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DHS Detailed Management Response
to GAO's Nine Schedule Estimating Best Practices

Best Practice	Description	Response
1. Capturing all activities	The schedule should reflect all activities (steps, events, outcomes, etc.) as defined in the program's work breakdown structure to include activities to be performed by both the government and its contractors.	Extend the IMS to include the five phases of the program to full deployment by 2014. Develop and sequence program activities within the IMS via use of a Work Breakdown Structure; align the IMS to ensure total scope of program work is accounted for, resources are properly assigned, critical path is validated, and a Schedule Risk Analysis is documented.
2. Sequencing all activities	The schedule should be planned so that critical project dates can be met. To meet this objective, activities need to be logically sequenced—that is, listed in the order in which they are to be carried out. In particular, activities that must be completed before other activities can begin (predecessor activities), as well as activities that cannot begin until other activities are completed (successor activities), should be identified. This helps ensure that interdependencies among activities that collectively lead to the accomplishment of events or milestones can be established and used as a basis for guiding work and measuring progress.	Identify and reconcile interdependencies to avoid program slippage and improve credibility of schedule.

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Best Practice	Description	Response
3. Assigning resources to all activities	The schedule should reflect what resources (e.g., labor, materials, and overhead) are needed to do the work, whether all required resources will be available when needed, and whether any funding or time constraints exist	Utilize project management tools to effectively plan and allocate resources calculating labor hours, cost of material, and other project related expenses.
4. Establishing the duration of all activities	The schedule should reflect how long each activity will take to execute. In determining the duration of each activity, the same rationale, data, and assumptions used for cost estimating should be used. Durations should be as short as possible and have specific start and end dates. Excessively long periods needed to execute an activity should prompt further decomposition of the activity so that shorter execution durations will result.	Further the use of the WBS to analyze any potential prolonging in remaining activities by decomposing to make efficient execution durations.
5. Integrating schedule activities horizontally and vertically	The schedule should be horizontally integrated, meaning that it should link products and outcomes associated with other sequenced activities. These links are commonly referred to as "handoffs" and serve to verify that activities are arranged in the right order to achieve aggregated products or outcomes. The schedule should also be vertically integrated, meaning that traceability exists among varying levels of activities and supporting tasks and sub-tasks. Such mapping or alignment among levels enables different groups to work to the same master schedule.	Identify logical and vertical dependencies of tasks and subtasks, and integrate all other programs schedules for seamless transitioning.

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Best Practice	Description	Response
6. Establishing the critical path for all activities	Scheduling software should be used to identify the critical path, which represents the longest total duration through the sequenced list of activities. Establishing a project's critical path is necessary to examine the effects of any activity slipping along this path. Potential problems along or near the critical path should also be identified and reflected in scheduling the duration of high-risk activities.	Adopt the use of a project scheduling tool to upload schedule dates for the purpose of identifying and resolving critical path issues.
7. Identifying reasonable float between activities	The schedule should identify the float—the amount of time by which a predecessor activity can slip before the delay affects successor activities—so that a schedule's flexibility can be determined. As a general rule, activities along the critical path have the least float.	Adopt the use of a project scheduling tool to upload schedule dates for the purpose of identifying and adjusting float estimates.
8. Conducting a schedule risk analysis	A schedule risk analysis should be performed using statistical techniques to predict the level of confidence in meeting a project's completion date. This analysis focuses not only on critical path activities but also on activities near the critical path, since they can affect the project's status.	Correct missing dependencies, remove date constraints, decompose extended activity durations, analyze, and evaluate float values as inclusive of developing Schedule Risk Analysis to be included in the Risk Management documentation.
9. Updating the schedule using logic and durations to determine dates	The schedule should be continuously updated using logic and durations to determine realistic start and completion dates for program activities. The schedule should be analyzed continuously for variance to determine when forecasted completion dates differ from planned dates.	Review program schedule activities in weekly, monthly, and ad hoc meetings, ensuring current depiction of "start," "end," "actual start," "actual end," and variances of planned versus forecasted dates; ensure accuracy in Status Date.

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Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

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