



July 2016

FINANCIAL MANAGEMENT SYSTEMS

HUD Needs to
Address Management
and Governance
Weaknesses That
Jeopardize Its
Modernization Efforts

GAO Highlights

Highlights of [GAO-16-656](#), a report to congressional committees

Why GAO Did This Study

HUD is responsible for managing and reporting on the nearly \$45 billion it spends annually for housing programs. The department has reported its reliance on outdated and costly-to-maintain systems used for financial management functions. In 2013, HUD initiated a modernization program called New Core, which involved migrating financial management capabilities to a federal shared service provider, with expected benefits to include reducing legacy systems costs, improving the data, and resolving weaknesses in its financial management systems. After spending about \$58 million over 3 years, HUD decided to end New Core development in April 2016.

Congress included a provision for GAO to review the New Core program. This review (1) determined the financial management systems capabilities implemented through New Core and (2) evaluated HUD's implementation of key IT management practices applied to the program. GAO reviewed New Core plans and documentation to assess the capabilities delivered, compared HUD's implementation to recognized IT practices, and interviewed relevant agency officials.

What GAO Recommends

GAO is recommending that HUD address weaknesses in key IT management practices for future financial systems modernization efforts and take action to improve its governance and strengthen investment oversight. HUD neither agreed nor disagreed with GAO's recommendations, but stated it would improve management practices and governance for future efforts.

View [GAO-16-656](#). For more information, contact Valerie Melvin at (202) 512-6304 or melvinv@gao.gov.

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HUD Needs to Address Management and Governance Weaknesses That Jeopardize Its Modernization Efforts

What GAO Found

In October 2015, as part of its planned New Core financial management systems modernization efforts, the Department of Housing and Urban Development (HUD) completed transitioning 4 of 14 capabilities to shared service solutions. The implemented capabilities were for managing employee travel and relocation; recording time and attendance; performing core accounting functions such as general ledger accounting, producing financial reports, and processing salaries and expenses transactions; and managing procurements. As a result, the department reported that it fully replaced 4 systems, gained access to 7 shared service solutions, streamlined administrative services, and added efficiencies to the processing of financial management functions. For example, the systems used for core accounting and procurement were integrated to support the timely recording of commitments and obligations. However, while the 4 capabilities were transitioned as scheduled, none fully met the department's requirements or expectations. For instance, the department continues to execute programmatic transactions using costly and inefficient legacy systems that were expected to be replaced with New Core. HUD has begun other initiatives to deliver financial management systems capabilities and replace legacy systems that were not addressed under New Core. Detailed plans for these efforts are in development.

HUD's efforts to implement planned capabilities for New Core demonstrated weaknesses in the department's information technology (IT) management and governance practices. Key management practices include fully defining what a program is intended to accomplish; developing the program scope, schedule, and costs; and managing requirements. However, HUD's management of New Core had weaknesses in these areas. For example, the department did not:

- outline operations for all planned capabilities or create a roadmap for transitioning to the desired modernized environment;
- create comprehensive scope, schedule, and cost documentation; and
- manage requirements to ensure they were fully documented and traceable from business needs to system implementation.

Effective governance and executive-level oversight also help ensure programs achieve expected results. Specifically, establishing governance control reviews and providing oversight through, among other things, sustained leadership and coordination among stakeholders can strengthen modernization efforts. However, during the effort to implement New Core, HUD's IT governance and oversight were not fully effective. For example, governance reviews did not raise concerns or require improvement plans for management weaknesses identified, such as the lack of a schedule with a valid critical path. Moreover, executive-level oversight did not ensure effective coordination among stakeholders.

With any further pursuit of new initiatives to modernize its financial management systems, it is critical that the department consistently apply key IT management practices and effective governance to ensure it does not jeopardize the success of these efforts.

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Abbreviations

ARC	Administrative Resource Center
CFO	Chief Financial Officer
CIO	Chief Information Officer
HUD	Department of Housing and Urban Development
HUDCAPS	HUD Centralized Accounting and Program System
IT	information technology
OMB	Office of Management and Budget
PMI	Project Management Institute, Inc.
Treasury	Department of the Treasury

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July 28, 2016

The Honorable Susan M. Collins
Chairwoman
The Honorable Jack Reed
Ranking Member
Subcommittee on Transportation, Housing and Urban Development, and
Related Agencies
Committee on Appropriations
United States Senate

The Honorable Mario Diaz-Balart
Chairman
The Honorable David Price
Ranking Member
Subcommittee on Transportation, Housing and Urban Development, and
Related Agencies
Committee on Appropriations
House of Representatives

The Department of Housing and Urban Development (HUD) is responsible for managing, distributing, and reporting on the approximately \$45 billion spent annually for its programs that support home ownership, affordable rental housing, community development, and fair housing opportunities across the nation. However, in working to fulfill these responsibilities, the department has reported that it has relied on antiquated and costly-to-maintain information technology (IT), including financial management systems¹ that have been identified as being at risk of failure. In particular, the department has been reporting since the early 1990s that its financial management systems have contributed to the misstatement of financial information.

To address system failure risks and improve its ability to accurately report financial data, HUD has reported that it has invested approximately \$330 million over the past 25 years on efforts intended to modernize its

¹The Federal Financial Management Improvement Act of 1996, 31 U.S.C. § 3512 note, defines “financial management systems” to include the financial systems and the financial portions of mixed systems necessary to support financial management, including automated and manual processes, procedures, controls, data, hardware, software, and support personnel dedicated to the operation and maintenance of system functions.

financial management systems. In 2013, the department initiated the New Core program to modernize its financial management systems using shared service solutions.²

The explanatory statement accompanying HUD's fiscal year 2015 appropriation included a provision for us to review the New Core program.³ Accordingly, our objectives for this review were to (1) determine the financial management systems capabilities implemented through New Core and (2) evaluate HUD's implementation of key IT management practices applied to the program.

To determine the financial management systems capabilities implemented through New Core, we reviewed program artifacts such as the charter, implementation plan, and scope statements, and identified 14 planned capabilities. We compared the planned capabilities with what was implemented by reviewing key documents, including post-implementation reports, briefings, and HUD's September 2015 Financial Management Systems Plan. We also compared the features that were delivered to the features that had been planned for each of the capabilities implemented and reviewed documentation regarding the department's future modernization efforts. In addition, we reviewed the systems used to support HUD's financial management functions and identified the systems that were targeted for replacement with New Core.

To evaluate HUD's implementation of key IT management practices, we assessed and compared them to HUD's IT policies, standards identified by the Project Management Institute, Inc. (PMI) and the Institute of Electrical and Electronics Engineers, and GAO guidance in the areas of program definition and planning, requirements management, and governance. In doing so, we reviewed documentation, including the program's implementation approach and management plan; work

²A shared service solution refers to the supporting IT systems for a function that is provided for consumption by multiple organizations within or between federal agencies. Efforts to implement shared services for financial management have been ongoing in the federal government for approximately 30 years.

³This provision was included in the Explanatory Statement accompanying the Consolidated and Further Continuing Appropriations Act, 2015, Pub. L. No. 113-235 (Dec. 16, 2014). 160 Cong. Rec. H9983 (daily ed. Dec. 11, 2014) (statement submitted by Chairman Rogers is to have the same effect as if it were a joint explanatory statement of a committee of conference).

breakdown structures, schedules, and cost estimates; and IT investment management and governance policies, as well as artifacts from meetings about and reviews of New Core. For each objective, we also interviewed cognizant officials. Additional details on our objectives, scope, and methodology are contained in appendix I.

We conducted this performance audit from February 2015 to July 2016 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.

Background

HUD's mission is to create strong, sustainable, inclusive communities and ensure affordable housing. In carrying out its mission, the department relies on IT to support managing financial data for its programs that offer affordable rental housing opportunities for about 12 million residents; work with state and local governments to revitalize over 8,850 localities; help the homeless through community development; and provide mortgage insurance for single-family housing, multifamily housing, and health care facilities.

HUD programs are managed by six main offices:

- **Public and Indian Housing:** Assistance to low-income families is provided by this office through three programs aimed at offering units for eligible tenants in properties generally owned and administered by state and local public housing agencies; tenant-based rental assistance that eligible households can use to rent houses or apartments in the private housing market;⁴ and block grants and loan guarantees to low-income families and tribal entities for housing development and assistance and housing-related services. Using \$27 billion annually to subsidize housing for approximately 3.3 million low-

⁴Section 8 of the United States Housing Act of 1937, as amended, is the largest of HUD's rental assistance programs and disbursed about \$18 billion in 2015 to public housing authorities. These funds are generally used in the private rental housing market where an assisted household pays 30 percent of its monthly adjusted income in rent and the remainder of the rent is paid through a HUD-subsidized "voucher."

income families, this office provides housing assistance and supports block grants and guarantee programs for Native American tribes. This office also manages the Real Estate Assessment Center, which is responsible for providing information on the condition of the department's housing portfolio and for identifying fraud, waste, and abuse of resources.

- **Housing/Federal Housing Administration:** Programs within this office provide insurance on loans made by approved lenders for single-family mortgages and multifamily projects, including manufactured homes and hospitals. The Federal Housing Administration managed an insured portfolio of almost \$1.3 trillion, as of the end of fiscal year 2015. The Office of Housing is also tasked with regulating certain aspects of the housing industry and managing project-based rental assistance programs. In addition, this office provides support to a nationwide network of housing counseling agencies and counselors.
- **Community Planning and Development:** This office provides financial and technical assistance to states and localities in order to promote community-based efforts to develop housing and economic opportunities. The Community Development Block Grant program is managed by this office and is the federal government's largest block grant program for community development. This office engages in partnerships with local governments, as well as the private sector and nonprofit organizations; it also leads a number of efforts to combat homelessness.
- **Fair Housing and Equal Opportunity:** Complaints of housing discrimination under the Fair Housing Act of 1968 (Title VIII of the Civil Rights Act of 1968, as amended) are managed by this office.⁵ In addition, this office administers the Fair Housing Assistance Program, which provides funding annually to state and local agencies to enforce fair housing laws that are substantially equivalent to the Fair Housing Act.
- **Government National Mortgage Association (Ginnie Mae):** As a HUD-owned corporation, this office provides support for affordable housing by bringing global capital into the housing finance market

⁵42 U.S.C. §§ 3601-3619.

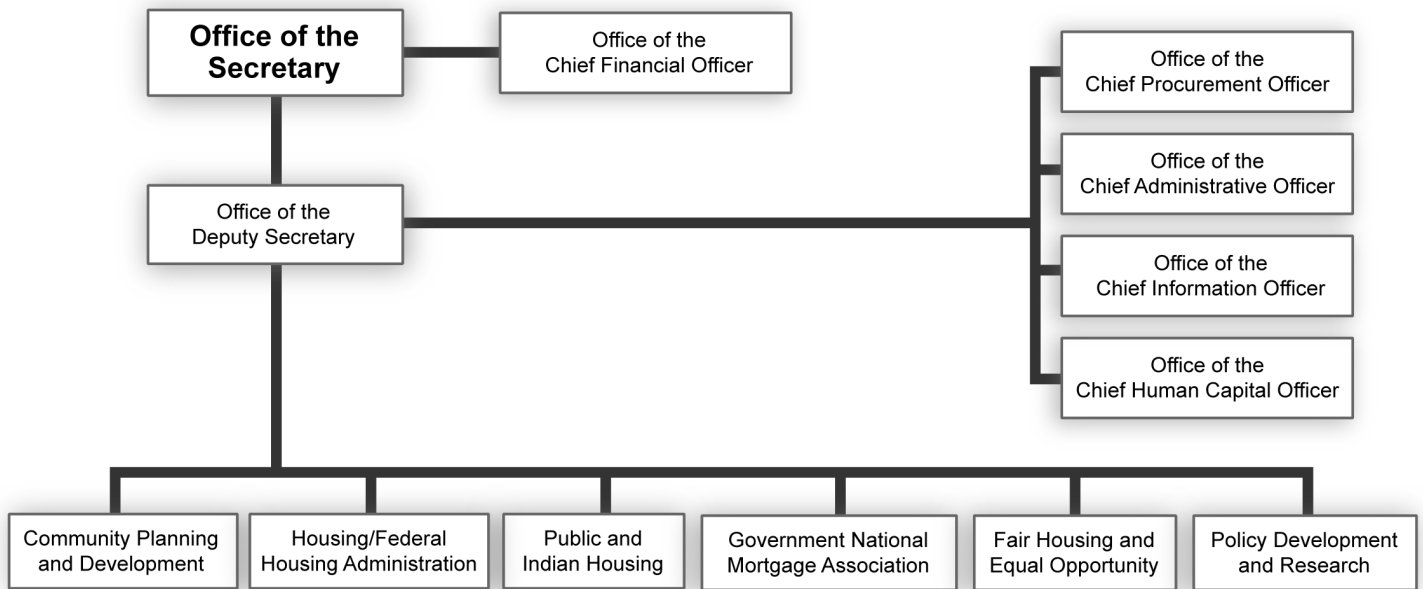
while seeking to minimize risk to the taxpayer. While Ginnie Mae does not issue loans or mortgage-backed securities, it guarantees investors timely payment and interest on mortgage-backed securities supported by federally insured or guaranteed loans.

- **Policy Development and Research:** Responsibilities of this office include maintaining current information on housing needs, market conditions, and existing programs, and conducting research on priority housing and community development issues. Using in-house staff and contractors, it is the primary office responsible for data analysis, research, program evaluations, and policy studies to inform the development and implementation of programs and policies across HUD. This office is also in charge of sponsoring major surveys to provide information about housing markets.

HUD also relies on various support offices. These include the Office of the Chief Financial Officer (CFO) and the Office of the Chief Information Officer (CIO).⁶ Specifically, the Office of the CFO is responsible for the execution and oversight of the department's budget, as well as its financial management systems. The Office of the CIO is responsible for the department's IT environment, providing project management guidance, and identifying opportunities to replace or retire redundant or inefficient systems. A simplified view of the department's organizational structure is provided in figure 1.

⁶Other support offices include the Office of Chief Human Capital Officer and the Office of Chief Procurement Officer.

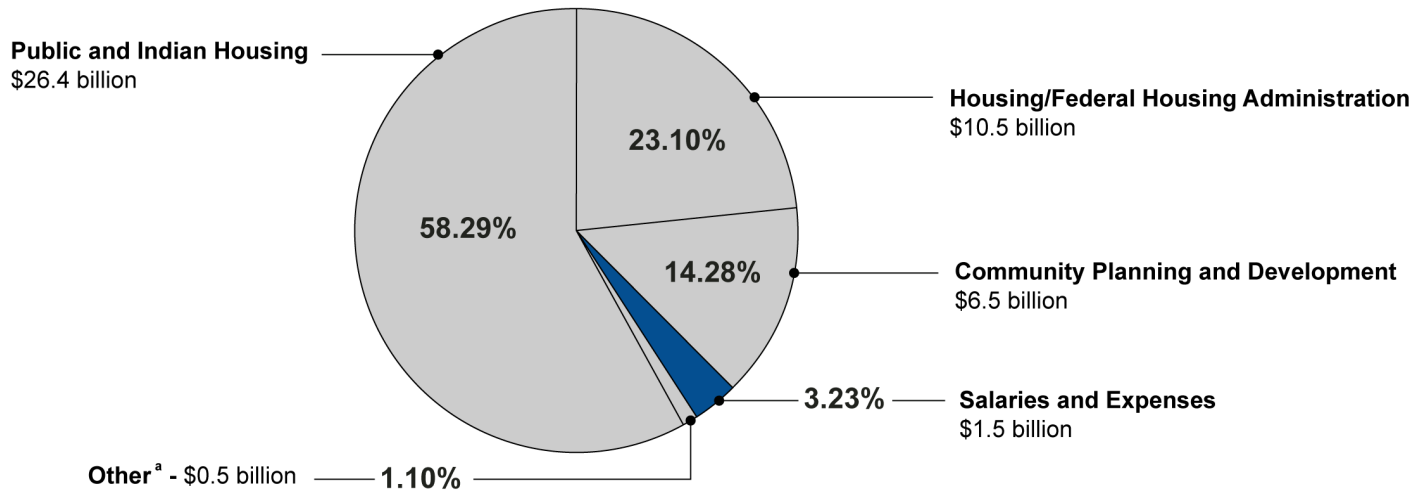
Figure 1: Simplified Department of Housing and Urban Development Organizational Chart



Source: GAO analysis of the Department of Housing and Urban Development data. | GAO-16-656

During fiscal year 2015, \$44.1 billion (96.8 percent) of the department's \$45.4 billion total gross discretionary budget authority was allocated to programs managed by the six main offices. An additional \$1.5 billion (3.2 percent) was dedicated to salaries for HUD's nearly 8,300 employees and expenses to support the department's daily operations. The allocation of the department's fiscal year 2015 budget is shown in figure 2.

Figure 2: Allocation of the Department of Housing and Urban Development’s Total Gross Discretionary Budget Authority for Fiscal Year 2015



Source: GAO analysis of the Department of Housing and Urban Development data. | GAO-16-656

^aThe “other” category represents the combined budget authority for smaller HUD program offices including the Government National Mortgage Association, Policy Development and Research, Fair Housing and Equal Opportunity, and the Office of Lead Hazard Control and Healthy Homes. The department’s IT fund is also accounted for in this percentage.

Overview of HUD’s Financial Management Systems Environment

HUD performs financial management functions for core accounting activities that include maintaining its general and subsidiary ledgers, budget execution and funds control, accounts receivable and collections, and accounts payable. The department records financial transactions and monitors its commitments, obligations, and payment activities. HUD also manages its budget from initial apportionment and allotment through allocation. Such activities support the department’s ability to regularly generate balances of its funds and produce financial statements. Other aspects of the department’s financial management functions include tracking the cost of resources allocated across programs and accounting for assets, including equipment and property.

In order to execute these functions, the department relies on IT systems that are used by its program and support offices. Specifically, systems are used for maintaining financial records, processing transactions, making payments, and distributing funds. To ensure the completeness of financial information, HUD uses IT systems to track spending for daily operations, including travel, employee time, and contract support. These financial

management systems assist HUD by storing records and providing analytical tools that support financial reporting and decision making by the department's budget officers, program managers, financial analysts, accountants, and auditors.

Toward this end, as of July 2016, HUD reported that its financial management functions were supported by 46 systems. Comprising a mix of legacy and modernized technologies, these systems are operated and maintained by the department and external entities. Notwithstanding the systems that have been modernized, HUD and its Office of Inspector General reported in November 2015 that the department's IT systems have not been sufficient to effectively support financial management needs.⁷ The department attributed this condition to the fact that its financial management systems employ antiquated technology, necessitate manual workarounds, are costly to maintain, and are not fully compliant with federal requirements. Furthermore, as a result of system weaknesses, the department has been unable to reliably track and report the detailed costs of its programs. The financial management systems supporting the department are identified in appendix II.

HUD's Fiscal Year 2015 Financial Management Plan, reports issued by the Office of Inspector General, and other documentation describe the following limitations in the department's financial management systems:

- **Antiquated technology.** Approximately 60 percent of HUD's financial management systems were deployed before the year 2001. These systems are increasingly at risk of failure due to aging technology and reliance on applications that are no longer supported by vendors. This limits the department's ability to deploy updates or make adjustments to ensure the systems support mission needs. For example, the HUD Centralized Accounting and Program System (HUDCAPS) supports the processing of financial data for one of the department's largest programs, but it relies on outdated technology.⁸ In March 2016, HUD's Inspector General stated that, as the volume and complexity of the department's work continues to grow, it becomes increasingly difficult

⁷Department of Housing and Urban Development, *U.S. Department of Housing and Urban Development: Agency Financial Report, Fiscal Year 2015* (Washington, D.C.: Nov. 23, 2015).

⁸Department of Housing and Urban Development, *New Core Alternatives Analysis*, (Washington, D.C.: July 2013).

to respond to market conditions using legacy systems that are 15 to 30 years old.

- **Manual processes.** A number of HUD’s financial management functions require manual processing due to gaps in the functionality offered by its legacy systems. For example, in order to distribute program grants for which funding has been appropriated over several years, employees are required to make manual adjustments in HUDCAPS to ensure that funding is available from one year to the next.
- **High Operations and Maintenance Costs.** HUD’s continued reliance on aging legacy systems has resulted in costly, labor-intensive, and inefficient operations for performing financial management functions. For fiscal year 2016, the department estimated its annual cost of operating and maintaining financial management systems to be approximately \$70 million. According to the department, until these systems are fully modernized, it will be difficult and expensive to support increased workloads.
- **Non-compliance with financial management requirements.** For fiscal year 2015, HUD received a disclaimer of opinion⁹ on its financial statements, in part due to financial management system weaknesses.¹⁰ Among these weaknesses, the department lacked compliance with the Federal Financial Management Improvement Act of 1996,¹¹ which is a law designed to improve financial management systems in order for managers to routinely have access to reliable, useful, and timely financial-related information. Highlighted in the auditor’s report on HUD’s financial statements are the weaknesses of

⁹A disclaimer of opinion indicates that sufficient information was not available for the auditors to determine whether the reported financial statements were fairly presented in accordance with generally accepted accounting principles.

¹⁰Department of Housing and Urban Development, *U.S. Department of Housing and Urban Development: Agency Financial Report, Fiscal Year 2015* (Washington, D.C.: Nov. 23, 2015).

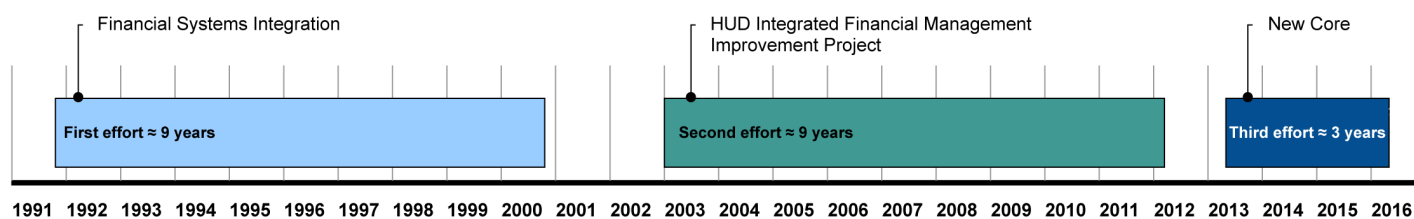
¹¹Pub. L. No. 104-208, div. A, title I, § 101(f) [title VIII], 110 Stat. 3009, 3009-389—3009-393 (Sept. 30, 1996). The Federal Financial Management Improvement Act of 1996 requires auditors, as part of their agencies’ financial statement audits, to report whether those agencies’ financial management systems substantially comply with (1) federal financial management systems requirements, (2) applicable federal accounting standards, and (3) the federal government’s *U.S. Standard General Ledger* at the transaction level.

Ginnie Mae's financial management systems, which employ poor accounting and record-keeping practices, and require manual work arounds. In addition, the department and its auditor reported in 2015 that a material weakness first identified in 1993 regarding the lack of data to perform managerial cost accounting had not yet been addressed.

HUD Has a Long History of Financial Management Systems Modernization Efforts

Recognizing the need to modernize its financial management systems, HUD has initiated three major efforts since 1991 that were aimed at enabling the department to properly manage its financial resources. These efforts were envisioned to deliver integrated financial management systems that would provide timely and accurate information to managers and comply with federal financial management system requirements. In addition, HUD expected that the modernization efforts would allow for the replacement of costly, unstable legacy systems that did not meet the department's financial management needs. Figure 3 depicts a timeline of HUD's financial management systems modernization efforts from November 1991 to April 2016.

Figure 3: Timeline of the Department of Housing and Urban Development (HUD) Financial Management Systems Modernization Efforts



Source: GAO analysis of the Department of Housing and Urban Development data. | GAO-16-656

Financial Systems Integration (1991–2000)

HUD undertook the Financial Systems Integration project in November 1991, with the intent of delivering integrated financial management systems and replacing costly legacy systems, such as the Line of Credit Control System and the Program Accounting System.¹² By November

¹²The Line of Credit Control System, implemented in 1984, supports the Office of the CFO and HUD program offices in coordinating and controlling grant, loan, and subsidy disbursements and providing post-award grants financial management. Implemented in 1974, the Program Accounting System provides fund accountability and an integrated subsidiary ledger for the Department's grant, subsidy, and loan programs.

HUD Integrated Financial
Management Improvement
Project (2003–2012)

2000 and after experiencing significant changes in cost, schedule, and scope, the department had spent approximately \$240 million on implementing systems that did not achieve the project's vision. Specifically, as a part of the Financial Systems Integration project, the department implemented HUDCAPS as its core accounting system, but this system was not used across the department as planned. The system also introduced additional manual processing, could not provide accurate and timely information to managers, was not fully compliant with federal requirements, and did not replace legacy systems as expected. Furthermore, both the Line of Credit Control System and the Program Accounting System remained in use and, as of June 2016, continued to be relied on for financial management functions.

Our prior reviews have noted that the Financial Systems Integration project was not fully successful due, in part, to weaknesses in IT management disciplines. Specifically, we reported in 1998 and 2003 that the project had suffered cost increases and schedule delays due to changes in strategy and inadequate project management, including an unreliable schedule and cost estimate and inadequate planning.¹³ Accordingly, we recommended that HUD address these deficiencies by preparing complete and reliable cost estimates and finalized detailed project plans. The department agreed with our recommendations and took steps to complete a cost-benefit analysis for the Financial Systems Integration project, as well as pursued actions to finalize a detailed project plan before ending the program in 2000.

In January 2003, HUD began work on a second initiative—the HUD Integrated Financial Management Improvement Project—which was expected to integrate the department's financial management systems by implementing an enterprise resource planning system.¹⁴ The project was also expected to replace HUDCAPS, the Program Accounting System, and portions of the Line of Credit Control System that related to core

¹³GAO, *Department of Housing and Urban Development: Status of Efforts to Implement an Integrated Financial Management System*, [GAO-03-447R](#) (Washington, D.C.: Apr. 9, 2003), and *HUD Information Systems: Improved Management Practices Needed to Control Integration Cost and Schedule*, [GAO/AIMD-99-25](#) (Washington, D.C.: Dec. 18, 1998).

¹⁴An enterprise resource planning system is an automated system using commercial-off-the-shelf software consisting of multiple, integrated functional modules that perform a variety of business-related tasks such as general ledger accounting and payroll.

accounting functions. After initial planning activities, a contract for development was awarded in November 2008. However, this contract award was successfully protested, and due to changes in requirements, the new contract was not awarded until September 2010. The new contract established a completion date of May 2012 for the project. Subsequently, as the completion date drew near, HUD sponsored an operational assessment¹⁵ conducted in February 2012 by subject matter experts from the department and multiple government agencies to evaluate the status of the project. The assessment found that the project was at increased risk of failing to meet its completion date. After determining that a course correction was not a viable option, the department canceled the project in March 2012 after spending \$35 million.

According to HUD's assessment and the department's Office of Inspector General report, the failure of the project was due to management weaknesses, including an unreliable schedule and cost estimate, inadequate planning, inadequate requirements management, and an ineffective governance structure.¹⁶

New Core (2013–2016)

In April 2013, HUD began work on the New Core program, which was intended to move the department forward with modernizing its financial management systems and processes. Using a phased approach, the program was expected to deliver capabilities that would enable the replacement of 17 legacy systems (including HUDCAPS, the Line of Credit Control System, and the Program Accounting System) with modern, integrated financial management systems that would more effectively support the department's financial management needs. Further, the department identified expected benefits such as

- reduced costs associated with operating, maintaining, and upgrading legacy systems;
- automated processing, reducing the need for manual processing due to gaps in the functionality of its legacy systems;

¹⁵Department of Housing and Urban Development, *HUD Integrated Financial Management Improvement Project Operational Assessment* (Washington, D.C.: March 2012).

¹⁶Department of Housing and Urban Development Office of Inspector General, *Integrated Core Financial System*, 2013-DP-0003 (Washington, D.C.: December 2012).

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- improved timeliness and accuracy of the department's financial data for enhanced decision making; and
 - the resolution of weaknesses that led to compliance issues with federal financial management system requirements in accordance with the Federal Financial Management Improvement Act of 1996, including the lack of reliable, useful, and timely financial-related information.

Toward this end, the New Core program charter identified 14 financial management systems capabilities that would have to be delivered with the program in order to meet HUD's financial management needs, replace legacy systems, and achieve the expected benefits (these capabilities are summarized in table 1).

Table 1: Department of Housing and Urban Development’s (HUD) Planned Financial Management Systems Capabilities for the New Core program

Capability
1. Travel and relocation. Provide the ability to make reservations, authorize travel requests, access relocation forms, request reimbursement, and open travel card accounts using a system that is compliant with the General Services Administration’s Federal Travel Regulation ^a
2. Time and attendance. Record employee time and attendance data against specific work activities and projects, submit leave requests for supervisory review and approval, and allow the donation of leave to fellow employees
3. Core accounting. Manage the budget and general ledger, produce financial reports, and execute transaction processing for all funds
4. Procurement. Provide contract writing, procurement tracking, the reporting of procurement data to a federal procurement data system, purchase card administration, and invoice payment processing
5. Budget formulation. Support the process of assembling budget estimates for the upcoming fiscal year for transmittal to the Office of Management and Budget and the congressional appropriations committees
6. Data warehousing. Consolidate and standardize data assets to support decision making, analysis, and reporting
7. Housing/Federal Housing Administration accounting. Produce audited financial statements, control funds for financial operations, and support cash management
8. Ginnie Mae accounting. Meet accounting and reporting requirements for Ginnie Mae, including financial transactions processing
9. Grant accounting. Control funds for grant expenditures and support accounting transactions for grant programs
10. Grant and loan management. Coordinate and control grant, loan, and subsidy disbursements and ensure timely payments
11. Loan accounting. Support all direct and guarantee loans, implement internal controls for loan programs, and track receivables
12. Managerial cost accounting. Track project costs, plan resource allocations, and forecast payroll expenditures
13. Property Management. Provide accounting for costs associated with equipment, property, and software, including asset depreciation
14. Public and Indian Housing Section 8 accounting. Automate accounting, including budgeting and cash management, for the largest component of HUD’s budget

Source: GAO analysis of data provided by HUD officials. | GAO-16-656

^aThe Federal Travel Regulation, located in Subtitle F of Title 41 of the *Code of Federal Regulations*, implements both statutory requirements and executive branch policies for travel by federal civilian employees and others authorized to travel at government expense.

As a way to obtain these capabilities, HUD planned to pay for financial management services, including the use of systems, from a shared service provider instead of acquiring or developing systems in-house. HUD’s decision to adopt this approach was consistent with an Office of

Management and Budget's (OMB) memorandum¹⁷ that directed federal agencies to consider migrating to federal shared service providers for modernizing their financial systems.¹⁸ In our prior work, we have supported and called for shared service initiatives to standardize and streamline common systems when appropriate, which can reduce costs and, if done correctly, also improve accountability.¹⁹

The charter also outlined responsibilities for the program and identified HUD's CIO, CFO, Chief Procurement Officer, and Chief Human Capital Officer as business owners with authority to identify and provide subject matter experts from across the department. As business owners, their role was to ensure that, among other things, the program would meet the department's requirements and support business processes. The CIO also served as the executive sponsor of the program and, at times, shared this responsibility with the department's CFO.

The executive sponsor(s) was charged with ensuring that the program was reviewed by appropriate governance boards and received centralized IT funding and support from staff in the Office of the CIO, including an IT program manager. The New Core program was led by an Executive Director and Deputy Director with the support staff from the Office of the CIO, Office of the CFO, contractors, and staff who were detailed to HUD from the shared service provider. Subject matter experts were also provided from the Office of the Chief Procurement Officer and the Office of the Chief Human Capital Office.

In July 2013, HUD signed an interagency agreement with the Administrative Resource Center (ARC),²⁰ a federal entity designated by OMB and the Department of the Treasury to offer federal agencies

¹⁷Office of Management and Budget, *Improving Financial Systems Through Shared Services*, M-13-08 (Washington, D.C.: Mar. 25, 2013).

¹⁸Shared service solutions refer to the supporting IT systems for a function or functions that are provided for consumption by multiple organizations within or between federal agencies.

¹⁹GAO, *Financial Management Systems: Experience with Prior Migration and Modernization Efforts Provides Lessons Learned for New Approach*, [GAO-10-808](#) (Washington, D.C.: Sept. 8, 2010) and *Financial Management Systems: Additional Efforts Needed to Address Key Causes of Modernization Failures*, [GAO-06-184](#) (Washington, D.C.: Mar. 15, 2006).

²⁰ARC is a component of the Department of the Treasury's Bureau of the Fiscal Service.

financial management shared services. With this agreement, HUD became the first cabinet-level agency to commit to adopting a federal financial shared services solution for its core accounting. According to this agreement, the initial phase of New Core would allow HUD to begin using ARC's services and systems for four planned New Core capabilities—travel and relocation, time and attendance, core accounting, and procurement—by October 1, 2014. The estimated implementation costs for HUD and ARC were \$38 million and the estimated annual operational costs were \$32 million. The implementation costs included program management activities, enhancing systems to meet HUD-specific requirements, migrating data to ARC systems, testing features of the system and interfaces, and training HUD employees.

Following implementation of the four capabilities, HUD would pay fees to ARC for operation and use of its systems, which could be accessed via Internet-based applications. In addition, the department would begin paying ARC for services including entering financial transactions into the core accounting system, assisting in the preparation of HUD's financial statements, supporting financial audits, coordinating application upgrades and fixes, and assisting end users through a help desk. Other services for employee travel and relocation and overseeing processing of time and attendance were also expected to be provided by ARC.

In April 2014, the implementation approach was revised to incorporate additional HUD-specific requirements, prepare employees for business process changes, and align with OMB guidance, which calls for agencies to reduce costs and risk by dividing programs into smaller segments, such as phases and releases.²¹ To this end, the original agreement was modified by HUD and ARC to transition four financial management systems capabilities over a period of three releases. With the revised approach, the expected HUD and ARC implementation cost increased to a total of \$68 million, with estimated operational costs decreasing by \$1 million. During 2014 and 2015, the four capabilities were delivered on the respective release dates provided in table 2.

²¹Office of Management and Budget, *Immediate Review of Financial Systems IT Projects*, M-10-26 (Washington, D.C.: June 28, 2010).

Table 2: Releases and Delivery Dates for Four New Core Financial Management Systems Capabilities

Release	Capability	Delivery date
1	Travel and relocation	October 1, 2014
2	Time and attendance	February 8, 2015
3	Core accounting	October 1, 2015
	Procurement	

Source: GAO analysis of data provided by the Department of Housing and Urban Development officials. | GAO-16-656

For each release, HUD and ARC worked in partnership to execute activities in preparation for the delivery of these capabilities. Specifically, they collaborated on developing and executing project plans; gathering, validating, and testing requirements; extracting and preparing department data for migration to ARC's systems; system and user testing; aligning the department's business processes to the shared service solutions; and training HUD employees.

Following the completion of release 3 in October 2015, HUD's Deputy Secretary stated that the department would continue to use ARC's systems and services for the capabilities that had already been delivered, but that the department would continue to evaluate its needs for other financial management capabilities. In late April 2016 the department completed close-out activities for the program.

New Core Partially Delivered Financial Management Systems Capabilities; Other Initiatives Are Under Way for Remaining Capabilities

By October 2015, HUD had completed transitioning 4 of the 14 planned financial management systems capabilities to shared service solutions provided by ARC. This enabled the department to fully replace four systems and gain access to seven of ARC's systems.²² In addition, ARC became responsible for processing portions of the department's financial management functions and transactions related to travel and relocation, time and attendance, and core accounting. ARC also began providing system services in support of HUD's procurement-related transactions.

Each of the 4 capabilities was delivered by the scheduled date and provided standard features of the shared service solutions offered by ARC. As of July 2016, the department continued to use these capabilities to support its financial management functions.

Notwithstanding the work completed, the 4 implemented capabilities did not fully meet HUD's requirements and expectations, although the department has begun pursuing other initiatives for remaining capabilities.

- **Travel and relocation.** HUD began accessing ARC's travel and relocation systems via a web page on October 1, 2014.²³ The systems allowed employees to make reservations, authorize travel requests, access relocation forms, request reimbursements, and open travel card accounts. According to New Core officials, with the use of ARC's systems the department was able to avoid costs that may have been incurred with the legacy travel system, which was not compliant with the General Services Administration's Federal Travel Regulation.²⁴

²²The four systems replaced were FedTraveler, HUD moveLINQ, Kronos WebTA (hosted by the National Finance Center), and Total Estimation and Allocation Mechanism. The seven ARC systems were CitiDirect, Concur Government Edition, moveLINQ, Invoice Processing Platform, Kronos WebTA, Oracle Federal Financials, and Procurement Request Information System Management. See appendix II for additional details on the systems that support HUD's financial management functions, including systems the department intends to decommission.

²³The travel system used by ARC is Concur Government Edition, and the relocation system is moveLINQ.

²⁴The Federal Travel Regulation, located in Subtitle F of Title 41 of the *Code of Federal Regulations*. HUD's legacy travel system was not compliant with the e-Travel Services 2 government-wide initiative that is mandated by the Federal Travel Regulation.

Although the transition to ARC's travel system allowed HUD to shift to a system that was compliant with the Federal Travel Regulation, one of HUD's requirements for improving the automation of travel and relocation processing was not completely met. HUD had a requirement for a bi-directional interface between ARC's travel and core accounting system that would provide real-time automated funds control. The requirement was based on the department's need to ensure that budgetary resources were available for immediate travel in the event of an emergency. This interface was not part of ARC's standard solution and, therefore, instead of a system performing an automated check of the availability of travel funds, HUD adopted ARC's standard business process to perform a manual check to ensure funds availability prior to approving travel requests. According to ARC officials, a technical solution that is intended to provide this functionality is scheduled for implementation in January 2017.

- **Time and attendance.** On February 8, 2015, HUD employees began accessing ARC's time and attendance system via a web page to complete their timecards, submit leave requests for supervisory review and approval, and donate leave.²⁵ In addition, ARC employees became responsible for managing and updating data entered by HUD employees into the system and ensuring the timely completion of payroll processes. ARC also responds to time and attendance-related information requests from the department and provides appropriate reports and/or data. In addition, the new system includes default codes that link employees' time and attendance data to their assigned program or support office. According to a June 20, 2016, memorandum from HUD's Deputy CFO, this has improved the accuracy and timeliness of payroll processing.

However, HUD employees do not have the ability to link their time and attendance to specific activities and projects. This was a critical feature that the department identified as needed for better understanding and improving its allocation of resources, forecasting payroll expenditures, and tracking costs by activities and projects. While ARC's time and attendance system supports the tracking of employee work activities and projects, the department is using this feature on a limited basis because the implementation of requirements for the managerial cost accounting capability was

²⁵ARC's time and attendance system is Kronos WebTA.

planned for a future New Core phase. The inclusion of this feature was a prerequisite for addressing a material financial management system weakness regarding the lack of a system to perform managerial cost accounting that, according to HUD Office of the Inspector General officials, had been identified as early as 1993.

- **Core accounting.** On October 1, 2015, HUD began relying on ARC's core accounting system and services for the management of its budget and general ledger.²⁶ To this end, ARC hired 70 new staff to, among other things, manage entries to the general ledger, ensure that a complete set of the department's financial transaction records is available for generating financial statements, and maintain the core accounting system. An interface—the New Core Interface Solution—was also established to ensure transactions made in legacy systems, such as HUDCAPS, the Line of Credit Control System, and the Program Accounting System, would be recorded in the shared service provider's core accounting system. HUD employees also gained access to the shared service provider's reporting tool that allows them to view the department's financial data and produce reports such as financial statements, trial balances, and transaction histories.²⁷ According to a June 20, 2016, memorandum from HUD's Deputy CFO, the tool is also compliant with Department of the Treasury financial reporting requirements.

To manage HUD's budget, department employees send transactions establishing or amending the budget via e-mail to ARC staff, who upload the data to the core accounting system. Synchronizing these budget data with other financial data in HUD's legacy systems can result in up to a 48-hour delay. Notwithstanding the delay, HUD officials noted that employees can access up-to-date data via the reporting tool implemented and emphasized that the shared service provider's core accounting system includes controls that decrease the risk of funds being obligated when they are not available.

ARC's system and services also execute transaction processing to the general ledger for HUD's salaries and expenses funds. This

²⁶ARC's core accounting system (Oracle Federal Financials) became HUD's financial system of record on October 1, 2015. As a result, the department's budget is recorded in ARC's system and interfaced to the subsidiary systems that record program related expenditure transactions.

²⁷ARC's reporting tool is Oracle Discoverer.

includes making payments to vendors and federal employees, generating bills, and collecting payments.²⁸ However, HUD is not yet using ARC's shared services for executing transaction processing for its program funds, as originally expected. This is particularly significant because HUD directed 96.8 percent of its total gross discretionary budget authority toward its programs during fiscal year 2015. As a result, the department continues to execute programmatic transactions using costly and inefficient legacy systems. In June 2016, senior HUD officials, including the Deputy CFO and CIO, stated that the decision to not migrate transaction processing for program funds to ARC was made due to the lack of fully defined requirements and a shift in the department's priorities.

Further, the reporting tool associated with ARC's core accounting system has yet to produce detailed status of funds reports, which are critical to HUD's understanding of the current amount of available IT funds at any given time.²⁹ Specifically, officials from the Office of the CIO stated that a report that provides details on available IT funds and cannot be produced on-demand by the core accounting system to their satisfaction. As a result, HUD employees spend at least 2 days manually creating a report that meets their needs—a product that the department's legacy reporting tool had produced on-demand—by consolidating, manipulating, and verifying in spreadsheets data that are taken from ARC's core accounting system as well as the department's legacy systems. According to New Core officials, this report must be manually created because HUD decided not to migrate relevant historical data to ARC's system or include the accounting fields needed to produce an automated version of the report. Senior department officials stated that they are revisiting these decisions and may implement changes in fiscal year 2017.

- **Procurement.** On October 1, 2015, HUD employees were provided access to ARC's procurement system for activities including contract writing and procurement tracking; electronic routing, review, and approval of invoices; and the reporting of procurement data to a

²⁸Salaries and expenses funds made up 3.2 percent of HUD's total gross discretionary budget authority during fiscal year 2015.

²⁹As of July 15, 2016, the department reported that while the overall available balance of funds was provided, the granular level of funding details that had previously been provided in legacy reports was lacking.

federal procurement data system.³⁰ The department also gained access to a system for reconciliation and approval of purchase card transactions, and to a government-wide invoice processing platform of approved federal government suppliers.³¹ A notable feature of ARC's procurement system is that it is integrated with the core accounting system to provide real-time contract processing, which is intended to support the timely recording of commitments and obligations and prevent the department from creating contract obligations when funding is not available. The migration to ARC's invoice processing platform also allowed the department to adopt new controls and a new electronic payment process for managing contracts and payments to commercial vendors. In addition, the department shifted to ARC-managed processes for purchase cards, including issuing cards to HUD employees, and to an electronic process for receiving, approving, and paying invoices.

Nevertheless, the features of ARC's procurement system did not offer all of the features that existed in the department's legacy system; and to fill these gaps, employees devised and adopted manual processes. For example, HUD agreed to adopt ARC's standard procurement system with the understanding that a requirement for processing contracts that are funded by more than one entity within the department³² would not be met. This agreement was made because of the costly and lengthy system enhancement that would be needed to add the feature.

To address the requirement, the department adopted ARC's standard business process change that, according to HUD and ARC officials, has increased the level of effort and complexity of creating and managing these contracts. Moreover, challenges with converting data from HUD's legacy procurement system to ARC's system were encountered. These challenges continue to adversely impact the department's ability to process and manage contracts. Between October 2015 and January 2016, HUD users of ARC's procurement system reported instances in which data were missing or inaccurate.

³⁰ARC's procurement system is Procurement Request Information System Management.

³¹The purchase card system is Citibank CitiDirect and the government-wide platform is called the Invoice Processing Platform.

³²These internal entities are categorized as HUD, the Federal Housing Administration, Ginnie Mae, and the Office of the Inspector General.

According to senior officials, this required procurement actions to be processed manually outside of the system and then entered into the system after data issues were resolved. In June 2016, HUD officials reported that, although progress had been made toward resolving these issues, additional work is needed to ensure that contract data are correct.

On November 4, 2015, HUD's Deputy Secretary stated that the department would not develop additional capabilities as part of the New Core program. According to the New Core Executive Director, this decision allowed the department to refocus its efforts on evaluating options and identifying the optimal solution for modernizing its approach to grants management. The department's decision to end further implementation of the program was made prior to, but was consistent with, a December 2015 directive to have no other New Core releases in fiscal year 2016.³³ After spending at least \$58 million³⁴ over a period of 3 years, in April 2016 the department officially completed development close-out activities for the New Core program.

Although HUD ended further implementation of the New Core program before all of the planned capabilities were implemented, HUD officials, including the Deputy Secretary, stated that the migration to a shared service provider allowed the department to streamline administrative services, promote innovation, and gain efficiencies by transitioning responsibilities to ARC. According to a June 20, 2016, memorandum, HUD's Deputy CFO reported that the migration also resulted in

- improved internal controls, such as real-time checks with the documents in the procurement system for recording commitments and obligations;
- increased discipline in financial activities, including the use of delegated authority for purchases;
- improved compliance with laws and regulations;

³³This provision was included in the Explanatory Statement accompanying the Consolidated Appropriations Act, 2016, Pub. L. No. 114-113 (Dec. 18, 2015), 161 Cong. Rec. H10449 (daily ed. Dec. 17, 2015) (statement submitted by Chairman Rogers is to have the same effect as if it were a joint explanatory statement of a committee or conference). HUD had expected to implement one additional release as part of the initial phase.

³⁴HUD also expects to pay ARC approximately \$33 million in fiscal year 2016 for the shared service solutions implemented through New Core.

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- better data quality due to ARC's core accounting system ensuring that budget funds control balances are the same as balances in the general ledger;
 - strengthened funds-control process because of, among other things, improvements in the accuracy of payroll costs and improved procedures for accounts receivable; and
 - increased confidence in controls and configurations employed on systems used for purchase cards, processing invoice payments, procurement management, and employee time and attendance.

HUD officials, including the Deputy Secretary, also stated that other new initiatives were under way to deliver financial management systems capabilities and replace legacy systems that were not addressed under New Core. In this regard, the department is seeking \$12 million for fiscal year 2017 to support planning, design, and development activities for two efforts referred to as the Voucher Management System/HUDCAPS Decommissioning and the Enterprise Data Warehouse initiatives. Initial documentation for these initiatives discusses delivering 5 of the remaining 10 planned New Core capabilities—data warehousing, grant accounting, grant and loan management, loan accounting, and Public and Indian Housing Section 8 accounting.

Related briefings and other early planning documents call for these two initiatives to result in the replacement of the department's legacy financial reporting system—known as the Financial Data Mart—as well as HUDCAPS, the Line of Credit Control System, New Core Interface Solution, and the Program Accounting System. Specifically, the department expects to replace and decommission the New Core Interface Solution by June 2017 and to begin activities that would enable the decommissioning of the remaining systems by the end of fiscal year 2018. These documents also acknowledge the need for HUD to re-engage with ARC to ensure that its core accounting system will enable the processing of transactions for HUD's program funds. According to ARC officials, including the Director for the Office of Shared Services, doing so would require a new interagency agreement and additional implementation costs. As of June 2016, the department was still working on developing detailed plans for these two initiatives.

Further, in commenting on a draft copy of this report in July 2016, HUD provided updated information regarding the status of the other 5 capabilities that would not be addressed through new initiatives. Specifically, the department stated that the capability for budget formulation would be met through existing systems, with improvements to

be considered at a future date. The department also stated that it would no longer pursue modernization for the Housing/Federal Housing Administration accounting, Ginnie Mae accounting, managerial cost accounting, and property management capabilities. In regard to Housing/Federal Housing Administration accounting and Ginnie Mae accounting, the department said it had re-evaluated its legacy systems and concluded that modernized capabilities were not required. For managerial cost accounting, the department reported that it would be focusing on enhancing processes and procedures instead of implementing the capability originally planned. Additionally, HUD stated that the implementation of the Federal Asset Management Enterprise System in 2016 had met its needs for the property management capability.³⁵

³⁵In March 2013, HUD identified the need to replace its legacy facilities management system and began efforts to develop the Federal Asset Management Enterprise System, which was implemented in 2016.

Implementation of New Core Demonstrated Weaknesses in HUD's IT Management and Governance

Our experience with IT-related programs has shown that disciplined management practices can help agencies plan, manage, and oversee modernization efforts. The success of such efforts often depends on agencies' possessing the ability to effectively implement practices for defining programs, developing adequate plans, and managing requirements. As we and others have reported,³⁶ governance and executive-level oversight are also among the disciplined practices important to the success of IT programs. Since 2009, we have reported on HUD's capacity to modernize its IT environment and made several recommendations aimed at improving management and governance practices.³⁷

The New Core program demonstrated weaknesses in HUD's implementation of key IT management and governance practices. Management practices including program definition, planning, and requirements had deficiencies that were consistent with those we have identified for other departmental modernization efforts.³⁸ For instance, HUD did not fully define the program, inadequately planned for the program's cost and schedule, and did not effectively manage requirements—practices that in 2013 we recommended the department improve. We also identified limitations in the department's governance and executive oversight of the program. Specifically, HUD's IT governance practices and oversight of New Core were ineffective, in part, due to leadership changes, lack of coordination among key stakeholders,

³⁶GAO, *Farm Program Modernization: Farm Service Agency Needs to Demonstrate the Capacity to Manage IT Initiatives*, [GAO-15-506](#) (Washington, D.C.: June 18, 2015), *Library of Congress: Strong Leadership Needed to Address Serious Information Technology Management Weaknesses*, [GAO-15-315](#) (Washington, D.C.: Mar. 31, 2015), *Information Technology: HUD Can Take Additional Actions to Improve Its Governance*, [GAO-15-56](#) (Washington, D.C.: Dec. 2014), and *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, [GAO-04-394G](#) (Washington, D.C.: March 2004); Project Management Institute, Inc. (PMI), *The Standard for Program Management*, Third Edition (2013), and Software Engineering Institute (SEI) at Carnegie Mellon University, *CMMI® for Acquisition (CMMI-ACQ)*, Version 1.3 (Pittsburgh, Pa.: November 2010).

³⁷GAO, [GAO-15-56](#) and *Information Technology: HUD Needs to Improve Key Project Management Practices for Its Modernization Efforts*, [GAO-13-455](#) (Washington, D.C.: June 12, 2013).

³⁸According to PMI's *Standard for Program Management*, initial program activities include defining, among other things, the vision, roadmap, plans, and requirements managers can use to guide the program and oversee the delivery of capabilities and achievement of benefits.

and alignment of the program with other modernization efforts. Until HUD fully addresses these persistent IT management and governance weaknesses, the department will continue to be at an increased risk of jeopardizing future modernization efforts.

HUD Did Not Fully Define the New Core Program

Effective organizations often begin programs like New Core by defining a long-term direction and activities needed to achieve a modernized future state. Program management disciplines promulgated by the Project Management Institute (PMI) and the Institute of Electrical and Electronics Engineers call for a concept of operations that outlines how users will interact with systems in the future environment, along with a roadmap for executing associated activities.³⁹ Typically, developing the future operating state helps to provide a high-level description of the IT systems, describe the operations that must be performed and who must perform them, and explain where and how the operations are to be carried out. We have also previously reported on the benefits of developing the concept for future operations.⁴⁰ Fully defining a program also involves creating a roadmap that can help justify continuing investments in modernization efforts. An effective program roadmap consists of, among other things, a graphic depiction of the program's intended future state, a high-level view of milestones, and dependencies that help identify the chronology for work, as well as reveal or explain gaps.⁴¹

HUD policy and guidance call for programs to develop a concept of operations to provide a mechanism for users to describe their expectations of the solution and recommend that one be developed for modernization efforts that are of high mission criticality or cost to the department.⁴² Further, the department's guidance states that when

³⁹PMI, *The Standard for Program Management*, and Institute of Electrical and Electronics Engineers (IEEE), *IEEE Guide for Information Technology – System Definition – Concept of Operations (ConOps) Document*, Standard 1362TM-1998 (Dec. 5, 2007).

⁴⁰GAO, *Information Technology: FEMA Needs to Address Management Weaknesses to Improve Its Systems*, [GAO-16-306](#) (Washington, D.C.: Apr. 5, 2016) and *Financial Management Systems: DHS Faces Challenges to Successfully Consolidating Its Existing Disparate Systems*, [GAO-10-76](#) (Washington, D.C.: Dec. 4, 2009).

⁴¹PMI, *The Standard for Program Management*.

⁴²Department of Housing and Urban Development, *Project Planning and Management, V2.0 Project Type Guide: Software-as-a-Service*, Version 1.1 (January 2014).

implementing a program that contains multiple projects (i.e., phases or releases), a concept of operations is expected to be produced at the program level to show how the entire system and its parts would operate.

To implement New Core financial management systems capabilities, HUD developed planning documents for a series of specific activities including an implementation plan, which partially described the IT systems at a high level. For example, the plan documented the scope of systems affected by the first three planned releases and also explained that, in addition to implementing the shared services provider's solutions, HUD planned to develop the New Core Interface Solution to crosswalk budget and general ledger data between HUDCAPS and ARC's core accounting system. For understanding operations at a high level through the first three releases, the department relied upon documentation outlining standard operations for customers using ARC's services and systems.⁴³ The New Core program also mapped out how the department's processes would need to be altered to align with the standard shared service processes.

HUD also took action in late September 2015 to develop standard operating procedures focused on the core accounting and procurement capabilities provided through the shared service provider's systems and services. For instance, the program developed transitional standard operating procedures for budget execution, transition mission support, and payroll review and correction. The procedures outlined, for example, how budget staff in the Office of the CFO and program offices would submit templates via e-mail to the shared service provider's employees, who would set up the initial budget and allocate it to specific activities and programs. The procedures described how HUD employees could verify that ARC had processed payroll corrections accurately. In addition, the department partially developed a program roadmap for New Core consisting of delivery dates for the first three releases and a graphic of the future modernized IT systems planned through fiscal year 2017.⁴⁴ In particular, the roadmap outlined that HUDCAPS and the Program Accounting System would be replaced by shared service systems as a result of implementing the planned capabilities.

⁴³Department of the Treasury, Bureau of the Fiscal Service Administrative Resource Center, *Enterprise Architecture Document*, Version 3.08 (May 2015).

⁴⁴This roadmap was included in the New Core charter and program implementation plan.

Although these planning documents and activities assisted with the operations related to transitioning to ARC's services and systems, documentation that outlined future operations for all of the planned New Core capabilities was not developed. For the documentation that was developed, it was limited because it did not clearly describe, from a HUD user's perspective, the users' needs and what operations must be performed, who must perform them, and whether shared service solutions and/or HUD systems would be used to carry out the operations. For instance, while the department developed training materials and job aids prior to the delivery dates, processes and tasks had not been fully determined for the operational changes needed for 54 identified user roles. Similarly, while the department began developing standard operating procedures during the summer of 2015, the procedures were narrow in scope and focused on implementing daily operations to align with ARC's processes—instead of providing a comprehensive overview of the operations users would perform. In addition, the department acknowledged that activities to align procedures to positions was incomplete and identified additional procedures that need to be developed after implementation that were not originally part of New Core plans.

The partial roadmap that HUD developed also did not fully depict a comprehensive view of the planned modernized environment and it did not outline future dates for delivering the remaining 10 planned capabilities. For instance, the roadmap did not account for when or how the department would replace other systems identified to be replaced with the program and fell short of clearly outlining what needed to occur to achieve expected benefits such as reducing the costs of legacy systems. Moreover, New Core program documentation did not provide information regarding dependencies among the 14 capabilities or the priority or chronological order in which the capabilities needed to be implemented. Establishing dependencies would have allowed for HUD to identify and understand gaps in planning or optimize the sequencing of the planned capabilities during implementation.

In June 2016, HUD officials, including the New Core program Executive Director, acknowledged that the department had focused on planning activities for the first three releases associated with migrating to ARC's shared service solutions and did not fully define the program up front because they were taking an iterative approach to planning for future releases. The Deputy Director also noted that HUD's lack of maturity in effectively planning the level of effort needed to implement all of the intended capabilities was among the reasons the department did not

develop a comprehensive concept of operations. ARC Officials, including the Director for the Office of Shared Services, further explained that the time required to complete the work needed was underestimated due to the challenges and resource constraints encountered. In commenting on our draft report, HUD officials acknowledged that they had relied on an OMB definition of a concept of operations from the early 1990s. In doing so, the department determined it was better to leverage ARC's documentation that described the system from a user's perspective instead of developing a concept of operations in accordance with its own guidance, which calls for one to be created at the program level. As a result of these early planning decisions and a desire to implement the four capabilities by October 2015, the program went forward without a comprehensive concept of operations and roadmap that defined a long-term direction and activities needed to achieve a modernized future state.

As HUD proceeds with new initiatives aimed at financial management systems modernization, it is important that a concept of operations and roadmap, or something similar, be developed to guide its efforts. Without a guide for the long-term direction, the department will be at an increased risk of repeating these program management weaknesses and jeopardizing its continued investment in future modernization efforts.

HUD Program Planning for New Core Was Inadequate

To aid in successful planning, management disciplines promulgated by PMI and described in federal guidance call for organizations to, among other things, plan for the scope of work needed to execute the program, establish and manage a schedule for completing the needed work, and estimate and manage the cost of completing the planned work.⁴⁵ Planning a program's scope involves developing a program-level work breakdown structure that defines in detail the work activities necessary and capturing

⁴⁵PMI, *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, Fifth Edition, 2013; *PMBOK* is a trademark of Project Management Institute, Inc., and GAO, *GAO Schedule Assessment Guide: Best Practices for Project Schedules*, [GAO-12-120G](#) (Washington, D.C.: May 2012) and *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: March 2009).

all the relevant information to support the development of associated schedules or cost estimates.⁴⁶

Building upon the planned scope, developing an effective program schedule entails establishing an integrated master schedule that identifies when and how long work will occur. This is a fundamental management tool that, when adequately created, defines a valid critical path⁴⁷ to help gauge progress and identify and resolve potential problems. Lastly, planning for and establishing a credible cost estimate is important for determining budget requests and understanding the total monetary value invested in modernization efforts. Such estimates should be based on current data and updated to increase the quality of the estimates and create a means for effective program and cost control.⁴⁸ HUD's project planning and management policy also requires that these program plans be developed for IT investments, including modernization efforts.⁴⁹

HUD executed activities aimed at planning the New Core program, including practices to develop its scope, schedule, and cost. To establish the scope, the department developed work breakdown structures with associated dictionaries that outlined the scope of 3 out of 14 planned financial management systems capabilities and used them to manage the planning and implementation of releases.⁵⁰ For instance, the April 2015

⁴⁶A work breakdown structure should be accompanied by a dictionary that describes in brief narrative form what work is to be performed in each of the various work breakdown structure elements.

⁴⁷A valid critical path should be clearly identified, continuous, and free of constraints and level-of-effort activities. Establishing a valid critical path is important because it allows for determining the program's earliest completion date and is intended to help focus the team's energy and management's attention on the activities that will lead to the program success. The critical path can also highlight major events and dependencies to help ensure parameters for time needed to complete tasks are realistic and achievable.

⁴⁸[GAO-09-3SP](#).

⁴⁹Specifically, HUD policy calls for the development of a work breakdown structure that will define the key activities to be performed, a schedule that defines the tasks from inception at the level of detail necessary to support successful implementation, and cost estimates to be developed and updated as appropriate. Department of Housing and Urban Development, *Project Planning and Management V2.0, User Guide for Initiation Phase*, Version 1.1 (January 2014).

⁵⁰HUD developed work breakdown structures and associated dictionaries for time and attendance, core accounting, and procurement.

work breakdown structure for the third New Core release identified tasks within eight high-level categories, including planning, requirements and analysis, and development and testing. Individual schedules were also established and managed for the 4 capabilities delivered through October 2015. The individual schedules outlined specific tasks within the categories that had been defined in the work breakdown structures. For example, planning tasks within the schedule for the third release included time for updates needed to the charter and program plans. Finally, HUD developed a cost estimate for the program in 2013 that was based on the original assumption that the first 4 capabilities would be implemented at a single point in time—October 2014.

However, we identified shortcomings in HUD's management of program planning practices. Regarding scope, the department did not develop a comprehensive program-level work breakdown structure for New Core that encompassed the high-level work activities relative to all 14 capabilities. For example, while work breakdown structures for 3 capabilities had been defined and developed, work activities related to delivering the remaining 11 capabilities, such as managerial cost accounting, were not defined in work breakdown structures or outlined in New Core documentation.

While the department created individual schedules, it did not develop a program-level integrated master schedule to define when and how long it would take to deliver the 4 capabilities with identified delivery dates or any of the remaining 10 planned capabilities. The individual New Core schedules that had been developed lacked valid critical paths to identify key activities that, if not completed when planned, could delay the implementation of the capabilities. For example, our assessment of the schedule for capabilities delivered on October 1, 2015, found that the critical path was not continuous, contained both hard and soft constraints,⁵¹ and had long duration activities that did not represent measurable work. In addition to developing individual schedules, briefings were developed to guide senior management and stakeholder review of New Core's progress. These slides identified certain major program activities including development and testing. However, according to New Core's Deputy Director, these briefings were used to report on major

⁵¹Date constraints are often categorized as either soft (also referred to as moderate or one-sided) or hard (also referred to as inflexible), depending on how the constraint restricts the ability of the activity to accelerate or slip.

activities that were of interest to management and stakeholders and were not representative of New Core's critical path.

Moreover, the cost estimate for New Core was based on outdated information that did not accurately reflect the cost of the entire program. Specifically, when the department decided in April 2014 to shift from a single implementation to a phased implementation beyond October 2014, the department did not take action to revise the original estimate or create a new one to reflect the estimated costs of delivering capabilities over a longer duration of time. Although the department continued to identify budgetary resources needed for the program, those costs were not derived from a credible estimate.

According to New Core officials, including the Deputy Director, efforts to establish a program-level work breakdown structure and an integrated master schedule were limited because the scope of all planned capabilities had not been defined. In June 2016, the department provided information regarding the reason a comprehensive work breakdown structure had not been developed that encompassed high-level work activities; it stated that this was a lesson learned and that in hindsight the individual schedules should have been integrated for the program. In its comments on our draft report, HUD also stated that because it was the first cabinet-level agency to migrate to a shared service provider, the department had relied on ARC's experience and processes for program planning practices. Further, the New Core officials stated that, while an updated cost estimate had been drafted in early 2015, the information used for the estimate had not been validated and the estimate was not finalized.⁵²

By adequately executing program planning practices, including creating comprehensive scope, schedule, and cost documentation, HUD would be better positioned to implement the remaining capabilities and have reasonable assurance that investing in new initiatives would achieve desired benefits.

⁵²The draft updated cost estimate had been developed as part of the department's pilot to implement cost estimating best practices outlined in the *GAO Cost Estimating and Assessment Guide*. However, the New Core program did not validate the proposed assumptions associated with replacing legacy systems or time frames for when the shared service provider would be able to provide remaining planned capabilities.

Requirements Were Not Effectively Managed on New Core

Requirements establish what the system is to do, how well it is to do it, and how it is to interact with other systems. Program management disciplines established by PMI and the Software Engineering Institute⁵³ outline practices that include documenting “as-is” processes to aid the organization in defining and managing requirements. These disciplines also stress the use of requirements traceability matrixes to ensure that agreed upon requirements can be traced back to business needs, criteria used for evaluating and accepting requirements, and design and testing documentation. Further, clearly identifying the attributes of a requirement on the matrix, such as the disposition of the requirement and any associated testing that was performed, can provide program officials and decision-makers with key information about each requirement.

Prior to signing the interagency agreement in September 2013, HUD identified high-level requirements for the New Core program and documented these requirements in traceability matrixes. Following a determination that ARC was the best fit for HUD, more detailed requirements were created. To this end, the shared service provider, in conjunction with the New Core program staff, held requirements working sessions with relevant subject matter experts from program offices and support offices managed by the CFO, CIO, Chief Procurement Officer, and Chief Human Capital Officer. These sessions were intended to define and document detailed requirements specific to each of the 4 planned capabilities. During these sessions, 15 traceability matrixes were created that documented 923 requirements for the program. These matrixes included the identification of requirements that would be met by or require enhancements to the shared service provider’s standard solutions and requirements that would need alternative solutions outside of the shared services provided. According to the department and ARC officials, further definition of the high-level requirements gathered for the remaining 10 planned capabilities was not completed because the capabilities were not part of the April 2014 revised implementation approach or included in the interagency agreement.

Nevertheless, limitations existed in HUD’s implementation of these requirements management practices. Efforts to define and trace requirements were limited because the level of detail needed was not fully

⁵³PMI, *The Standard for Program Management* and *PMBOK® Guide*; and SEI *CMMI-ACQ*.

defined during requirement gathering sessions. For example, the department did not document its “as-is” processes to aid in defining and managing requirements. As a result, the department limited its ability to assess and explain the impact of the New Core requirements on existing processes. While HUD identified new requirements throughout the duration of the program, these requirements were not added to the matrixes or managed by the department. Alternatively, they were documented in various files and not tracked with the originally identified requirements.

Furthermore, requirements outlined in the matrixes did not trace back to documentation that described criteria to be used to evaluate and accept these requirements. The matrixes also did not identify the dates of completion for the requirements or indicate the disposition of the requirements. For example, several requirements were listed in testing documentation as “dropped as a requirement,” “untestable,” or “deferred.” Yet this information was not listed on the matrix, nor did the matrix provide an explanation for why a requirement was dropped or deemed untestable or indicate who approved the changes. The absence of such information impeded the traceability of requirements from matrixes through to test cases and results. Moreover, when the decision to move forward with implementing core accounting and procurement capabilities for release 3 was made, the final disposition or status of requirements could not be confirmed by HUD or ARC officials.

New Core officials acknowledged that requirements had not been consistently documented early in the program at a detailed level to help ARC understand and appropriately capture the department’s business needs. These officials also stated that a requirements management tool had been planned for use to trace requirements throughout the life cycle of the program; however, the tool was not fully available and was only partially used. According to ARC officials, gathering requirements took more time than anticipated due to the New Core program challenges in identifying and producing knowledgeable staff for requirements sessions, who had the requisite background and understanding of HUD’s financial management functions, processes, and requirements.

As HUD moves forward with initiatives to modernize its financial management systems, ensuring that requirements are effectively managed and traced will be essential to ensuring that final solutions effectively support the department’s business needs.

HUD's IT Governance and Executive-Level Oversight for New Core Were Not Fully Effective

GAO's guide to effective IT investment management⁵⁴ emphasizes the importance of applying effective disciplined, repeatable governance processes for selecting and re-selecting, controlling, and evaluating investments to ensure mission needs are met. After IT investments are selected and work on them has been initiated, effective control processes include monitoring and taking corrective actions for approved investments. HUD policy, issued by the Office of the CIO, also calls for similar processes in project planning and management guidance.⁵⁵ The guidance outlines the role of a technical review subcommittee to authorize a program to proceed through one control gate to the next if it has met an established set of criteria. These criteria include reviewing requirements and approving planning documents (such as the program management plan), an assessment of the readiness of the system or service, and evaluating closeout activities to end a program.⁵⁶ During 2015, HUD also implemented a process for conducting health assessments biweekly or monthly to evaluate the overall scope, schedule, and costs of IT investments.⁵⁷

The department's Office of the CIO applied two governance IT investment control mechanisms for monitoring New Core—technical review control gates and health assessments. In general, both types of control mechanisms focused on assessing whether required program planning documents, such as schedules for each release, were developed and submitted for review.

First, technical review control gates of New Core were performed for the 4 capabilities delivered during 2014 and 2015. Specifically, the decision to initiate planning for New Core was made through the first review in July 2013. Subcommittee members specializing in privacy, enterprise

⁵⁴[GAO-04-394G](#).

⁵⁵Department of Housing and Urban Development, *HUD Policy for Project and Management (PPM)*, Version 2.0, (Washington, D.C.: October 2015).

⁵⁶Department of Housing and Urban Development, *Project Planning and Management V2.0, User Guide for Initiation Phase*, Version 1.1, (Washington, D.C.: January 2014). The process also allows programs, with approval, to tailor governance requirements and artifacts to meet the needs of the program so that, for example, a project enhancing functionality of an existing system would not be required to submit as many plans and artifacts as a program developing new technology for HUD use.

⁵⁷Department of Housing and Urban Development, *Project Health Assessment Guide, Version 1.2* (Washington, D.C.: Feb. 26, 2016).

architecture, and IT security, among others, approved the requirements and operational readiness for the first and second releases in September 2014 and January 2015, respectively. Continued work on release 3 of the program was approved through four additional reviews in 2015 and 2016. In particular, a baseline review of the plans and requirements, a review of the operational readiness of the release, an additional review of the interface HUD developed to support its use of ARC's shared service solutions, and a closeout review were performed.

For the second governance control mechanism, HUD conducted two health assessment reviews for New Core in June 2015 and March 2016 that, among other things, looked at the scope, schedule, and cost of the core accounting and procurement capabilities.⁵⁸ For example, the review in June noted that the schedule was on target overall, but that specific activities on the schedule had been behind their expected completion dates and a "get well" plan had been established. However, New Core received a high score for its schedule and the assessment did not require follow-up to ensure the get well plan yielded the intended results.

Neither of these governance control activities was fully effective in monitoring the program and ensuring corrective action was taken when needed. Specifically, although the governing entities reviewed the same New Core program artifacts we assessed, HUD's reviews did not raise concerns regarding the management weaknesses we identified during the course of our review and did not require improvement plans for known deficiencies. For example, action to ensure New Core developed a schedule with a valid critical path as defined by best practices before moving forward was not taken despite the fact that concerns were raised in reports issued by the department's Office of Inspector General and an independent validation and verification contractor.

⁵⁸Health assessments evaluate programs or projects in 10 areas including project planning and management compliance, risk, and requirements. In each area, a program is rated low, medium, or high risk based on established criteria. For example, a program would receive the maximum score of 10 and be rated low risk on risk management if a risk management strategy exists; risks are clearly defined; a risk register is in use; risks are prioritized and owners have been identified; mitigation strategies have been developed; and a contingency budget has been established for highest probability and impact risks. Health assessments were implemented during 2015 and not performed on release 1 and 2 of New Core.

Furthermore, decisions made about the timing of control reviews limited the effectiveness of New Core governance. HUD combined the technical reviews for planning and readiness for release 1 and 2 of New Core and delayed control gates until nearly 2 weeks before deployment. This was a deviation from the status quo of conducting sequential control gate reviews that warranted a waiver from the department's Office of the CIO. Department officials stated that the risk of combining reviews had been knowingly accepted and asserted there was no adverse impact. However, this in effect did not give technical reviewers the opportunity to provide input or recommend corrective action for implementation plans and requirements before the team had already executed activities against them, as the process was intended.

In response to our draft report, the department also stated that it did not agree that the technical reviewers' perspectives were the most fundamental purpose of the control reviews, but that the success of New Core falls on holding program managers accountable. While we agree that holding managers accountable is important, we maintain that the approach taken in combining the reviews for New Core was a deviation from the department's established processes. Specifically, according to the department's guidance, the project planning and management process is intended to involve progressive steps that help ensure proper management review and approval. Further, guidance on control reviews calls for approval gates to be held at each stage of a program's life cycle. By not holding a distinct review at the end of the New Core planning, the department did not effectively ensure program managers received the independent review the guidance was intended to provide. Specifically, the technical reviewers were not positioned to formally validate and baseline the program's planned cost, scope, schedule, and requirements or identify any deficiencies that needed to be addressed before managers proceeded to act upon those plans.

Our prior work also has shown the importance of executive-level oversight and the role CIOs play as critical to the success of IT investments.⁵⁹ More directly related to our prior work on financial

⁵⁹GAO, *High-Risk Series: An Update*, [GAO-15-290](#) (Washington, D.C.: Feb. 11, 2015); *Healthcare.gov*; *Healthcare.gov: Ineffective Planning and Oversight Practices Underscore the Need for Improved Contract Management*, [GAO-14-694](#) (Washington, D.C.: July 30, 2014); and *USDA Systems Modernization: Management and Oversight Improvements Are Needed*, [GAO-11-586](#) (Washington, D.C.: July 20, 2011).

management systems modernization efforts, we have emphasized that a partnership between executives is critical to ensuring that systems are effectively modernized.⁶⁰ Specifically, our work has found the importance of a CFO in leading financial management efforts and the role of a CIO to ensure successful implementation of IT investments. Along with strong leadership, federal and HUD guidance call for coordination among stakeholders and the alignment of programs with other IT investments by identifying subject matter experts and ensuring that IT investments are composed of an efficient mix of programs that best utilized resources.⁶¹

HUD's Deputy Secretary, CFO, and CIO, as well as the Executive Director and Deputy Director of New Core, provided executive-level oversight for the program and were involved in key decisions for the program. For example, the CFO, CIO, and Executive Director of the program approved the charter that, as of March 2015, confirmed the department's plans to implement the 14 capabilities. These leaders worked to establish a program sponsor, business lead, and teams to manage each release, as well as identify key subject matter experts to be involved with activities such as testing and training. In addition, HUD's Deputy Secretary was involved in weekly status meeting and also assisted with reprioritized funding for all IT investments in order to sustain adequate funding for the program.

However, the effectiveness of the program's executive-level oversight was limited in part by challenges HUD faced with sustaining leadership, coordinating among stakeholders, and ensuring alignment with other IT programs.

- Significant changes to key New Core leadership positions between 2013 and 2014 impacted the approach used in implementing the planned capabilities. After turnover occurred in the key positions of HUD Deputy Secretary, CIO, CFO, and program director, significant changes were made to New Core. For example, the key senior officials who originally assessed and evaluated New Core alternatives and made the decision to move forward with ARC for financial management shared services did not remain in those leadership

⁶⁰GAO, [GAO-15-315](#), [GAO-06-184](#), and *Executive Guide: Creating Value Through World-class Financial Management*, [GAO/AIMD-00-134](#) (Washington, D.C.: April 1, 2000).

⁶¹[GAO-15-315](#), [GAO-06-184](#), and [GAO-04-394G](#).

positions to sustain the effort. As a result, instead of implementing all four capabilities at one time as planned, the new leaders opted to implement the capabilities through a series of releases. According to program documentation, this option had not been selected by the prior Deputy Secretary due to it being more costly and requiring a longer period of time to implement. In commenting on our draft report, HUD noted that after the change in leadership, there was a consensus to change the approach because advantages outweighed the risks.

- Critical decisions regarding the scope of New Core were not coordinated with important stakeholders in a timely manner. Of particular note, HUD's acting Chief Procurement Officer reported that his office was not involved in the decision made by the Deputy Secretary at the start of New Core in 2013 to change procurement management system approaches and migrate to ARC's procurement system. At that time, the acting Chief Procurement Officer was still working to finish customization of the new in-house procurement system the department had implemented during 2012. Additionally, although the need for a data warehouse had been established early in the program, HUD did not take action to ensure this capability was delivered in time to support the first four capabilities implemented. Specifically, New Core officials determined actions were needed to make alternative plans because the data warehouse would not be ready for the October 2015 release date as expected. Toward this end, the Office of the CIO also recognized the need to establish an enterprise data warehouse capability that would satisfy broader needs of the department and took initial steps to start the Enterprise Data Warehouse initiative. Because the department did not deliver that capability when intended, financial data continue to be accessed and stored in a legacy warehouse system that was expected to be replaced by New Core.
- While the department had other IT modernization efforts aimed at delivering budget formulation tools, it is unclear how or to what extent those efforts would be incorporated into or aligned with the New Core program's capabilities for budget formulation. Plans were not made to ensure that New Core was aligned with other department IT modernization efforts delivering similar capabilities related to budget formulation. Specifically, at the same time New Core was implemented, budget formulation tools were also being built by other department offices. HUD's Office of the CIO has also implemented a

tool to support formulation of the department's IT budget. Yet, program officials could not provide evidence that requirements or dependencies among these efforts had been evaluated.⁶²

HUD's Deputy CIO acknowledged in March 2016 that IT governance practices needed to be updated to reflect the challenges associated with shared services projects. He noted that lessons learned from New Core would be used to document tailoring guidance for shared service projects in the future. In addition, according to program officials, adequate time was not invested to assess whether New Core had achieved its identified benefits. This was in part due to the program's focus on implementing the four capabilities by an established deadline.

Concerning executive-level oversight, in February 2016 HUD officials noted in describing lessons learned that several leadership transitions at the initiation of the New Core program had resulted in a lack of strategic direction and consensus around decision-making. The department's CIO also acknowledged that processes needed to improve executive-level oversight and decision-making and allow the department to avoid duplication in modernization efforts had not yet been fully implemented.

Until HUD addresses weaknesses in IT governance practices and strengthens executive-level oversight for financial management systems modernization efforts, the department's capacity to manage and control successor efforts may be limited.

Conclusions

Over the past two decades, HUD has undertaken modernization efforts aimed at improving its financial management systems and ensuring that it can accurately and efficiently carry out financial functions. With New Core, the department transitioned 4 of 14 planned capabilities to shared service solutions. In doing so, the department added efficiencies and integrated systems that support the processing of financial management functions. However, the program ended further development efforts before delivering the remaining 10 planned capabilities. As a result, the department has been unable to follow through with its plans to replace a number of its legacy financial management systems through New Core

⁶²In July 2016, the department clarified that one budget formulation tool was developed because unique functionality was needed for Public and Indian Housing Section 8 vouchers and could not be used department-wide.

and continues to maintain those systems while seeking other new initiatives to address aspects of the remaining capabilities.

HUD's efforts to modernize its financial management systems have been hindered by weaknesses in implementing key IT management practices. Specifically, the department did not fully define and plan the program by outlining the future operational state, establishing the scope and estimating the schedule and cost for all planned capabilities, or effectively managing requirements. While HUD's senior leaders, including the CIO, ensured that IT governance processes were applied and the program received executive-level oversight, limitations existed with both. Specifically, the governance process was not fully effective in recognizing and addressing challenges as they arose, including those identified with the scope, schedule and costs of the program. Further, HUD faced challenges with sustaining leadership, coordinating among stakeholders, and aligning New Core with other IT modernization efforts. Going forward, it will be critical for the department to address these management and governance weaknesses in order to help ensure that the success of subsequent modernization efforts is not jeopardized.

Recommendations for Executive Action

To address weaknesses in the department's financial management systems modernization efforts, we recommend that the Secretary of HUD direct the Chief Financial Officer to work with the Chief Information Officer to take the following three actions with regard to managing subsequent initiatives:

- define a high-level depiction of the IT systems anticipated in the future state, a description of the operations that must be performed and who must perform them, and an explanation of where and how the operations are to be carried out;
- develop comprehensive plans for scope, schedule and cost; and
- ensure requirements are fully documented and traceable.

We also recommend that the Secretary direct the Deputy Secretary to ensure that the Chief Information Officer takes action to

- improve IT governance control activities used for monitoring programs and identifying needed corrective actions, and
- strengthen investment oversight by improving coordination with stakeholders and alignment among IT modernization efforts.

Agency Comments and Our Evaluation

We received written comments on a draft of this report from HUD and Treasury. HUD's comments are reprinted in appendix III. In its comments, HUD neither agreed nor disagreed with our recommendations, but noted that it plans to improve management practices and IT governance for future modernization efforts. Specifically, the department stated that it would continue to improve its practices for project planning, implementation, and monitoring.

Related to New Core planned capabilities, HUD stated that all were not expected to be delivered at this time, particularly given funding constraints; instead, new initiatives would address additional capabilities for modernizing its financial management systems. The department stated that it considers the approaches taken for planning, schedule, and cost activities to be aligned with OMB's guidance on dividing programs into smaller segments, such as phases and releases. The department also noted that New Core provided many lessons learned that are being incorporated into its IT governance and that review processes would be enhanced. The comments elaborated on the external entities that provided governance and leadership for the New Core program beyond the department's internal structure. For example, HUD explained that it held regular briefings with ARC, the Department of the Treasury's Office of Financial Innovation and Transformation, and OMB.

While we support HUD improving its management practices and enhancing IT governance processes, we continue to stress the importance of taking action to implement our recommendations to ensure the success of subsequent initiatives aimed at modernizing the department's financial management systems. This is particularly significant for the two initiatives under way that are intended to replace and decommission legacy systems that have been long-identified as at risk of failure, and have contributed to the misstatement of financial information. Furthermore, augmenting oversight through external entities, as noted in HUD's comments, does not eliminate the need for the department to apply rigor and discipline in its IT management and governance.

Treasury's comments are reprinted in appendix IV. In its comments, the department noted its appreciation for HUD being the first cabinet-level agency to transition to its shared services provider. Further, Treasury stated that HUD had demonstrated a commitment to standardization and working collaboratively through challenges which had hindered previous modernization efforts. Treasury also stated that the migration had resulted in HUD reducing enterprise risks and costs, compliance with

federal initiatives and mandates, standardization of information, and improvements in the timeliness of information available for decision-making.

HUD and Treasury provided technical comments on the draft report, which we have incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees, the Secretary of the Department of Housing and Urban Development, the Secretary of the Treasury, and other interested parties. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-6304 or melvin@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 key contributions to this report are listed in appendix V.

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Appendix I: Objectives, Scope, and Methodology

The explanatory statement accompanying the Consolidated and Further Continuing Appropriations Act, 2015 directed GAO to review New Core, the Department of Housing and Urban Development's (HUD) financial management systems modernization effort.¹ Our specific objectives for this review were to (1) determine the planned financial management systems capabilities implemented through New Core and (2) evaluate HUD's implementation of key IT management practices applied to the program.

To determine what financial management systems capabilities had been implemented through New Core, we reviewed artifacts such as the *New Core Program Charter*, *New Core Implementation Plan*, interagency agreements between HUD and ARC, and release scope statements, and identified 14 capabilities that were planned for delivery through the program. After determining that 4 capabilities had been implemented, we identified the features that were delivered and the features that had been planned for these capabilities by reviewing, for example, post-implementation reports and briefings, requirements and training plans, and HUD's *Fiscal Year 2015 Financial Management Systems Plan*. More specifically, for each of the 4 capabilities—travel, time and attendance, core accounting, and procurement—we reviewed release-related documentation and compared the result of outcomes to the identified planned features. Further, we reviewed actions under way to address open issues and challenges HUD was managing after the implementation and how those related to planned features. In addition, to identify the systems that support HUD financial management functions, as well as the systems that were targeted for replacement with New Core, we reviewed documentation such as the department's financial management systems plans for fiscal years 2014 and 2015. We also reviewed documentation regarding the department's future modernization efforts, including the *HUD IT Fund 2017 Summary Statement and Initiatives*, preliminary planning documents, and briefings.

To evaluate the program, we assessed the department's implementation of key IT management practices in the areas of program definition,

¹This provision was included in the Explanatory Statement accompanying the Consolidated and Further Continuing Appropriations Act, 2015, Pub. L. No. 113-235 (Dec. 16, 2014); 160 Cong. Rec. H9983 (daily ed. Dec. 11, 2014) (statement submitted by Chairman Rogers is to have the same effect as if it were a joint explanatory statement of a committee of conference).

planning, requirements, and governance in order to compare the practices with standards and processes identified by the Project Management Institute (PMI), Institute of Electrical and Electronics Engineers, and federal guidance, including HUD policies and guidance and GAO's guides for investment management, cost estimating, and schedule assessments.²

- In the area of program definition, we reviewed documentation including the *New Core Implementation Plan* and the *New Core Program Charters*, and *New Core Program Management Plans* for each release, and briefings to determine whether these artifacts were developed in adherence with key practices and elements for fully defining a program as called for in PMI program management standards, concept of operations guidance published by the Institute of Electrical and Electronics Engineers, and our previous reports on IT modernization efforts.³ We also reviewed briefing slides documenting recommendations and results of a study HUD conducted to plan for a vision and roadmap for New Core to determine the extent to which the department established a comprehensive concept of operations and roadmap for the program.
- For program planning, we reviewed New Core documentation including work breakdown structures, schedules, and cost estimates

²Project Management Institute, Inc. (PMI), *The Standard for Program Management*, Third Edition (2013) and *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*, Fifth Edition, 2013). *PMBOK* is a trademark of Project Management Institute, Inc.; Institute of Electrical and Electronics Engineers, *IEEE Guide for Information Technology – System Definition – Concept of Operations (ConOps) Document*, Standard 1362TM-1998 (Dec. 5, 2007), Department of Housing and Urban Development, *Project Planning and Management*, V2.0 policies and artifacts; *Project Health Assessment Guide*, Version 1.2 (Washington, D.C.: Feb. 26, 2016); GAO, *GAO Schedule Assessment Guide: Best Practices for Project Schedules*, [GAO-12-120G](#) (Washington, D.C.: May 2012); *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: March 2009); *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, Version 1.1, and *Executive Guide: Creating Value Through World-class Financial Management*, [GAO/AIMD-00-134](#) (Washington, D.C.: April 2000).

³GAO, *Farm Program Modernization: Farm Service Agency Needs to Demonstrate the Capacity to Manage IT Initiatives*, [GAO-15-506](#) (Washington, D.C.: June 18, 2015); *Information Technology: Actions Needed to Fully Establish Program Management Capability for VA's Financial and Logistics Initiative*, [GAO-10-40](#) (Washington, D.C.: Oct. 26, 2009); and *Office of Personnel Management: Retirement Modernization Planning and Management Shortcomings Need to Be Addressed*, [GAO-09-529](#) (Washington, D.C.: Apr. 21, 2009).

to determine the extent to which these artifacts were consistent with key practices identified by federal guidance and industry. Specifically, we assessed whether the work breakdown structures defined in detail all of the work activities and scope necessary to deliver the planned 14 capabilities and compared it to key practices identified by PMI. In addition, using GAO's Schedule Assessment Guide, we assessed whether schedules identified when and for how long work would occur as well as whether a valid critical path had been defined. Finally, we assessed whether New Core developed reliable cost estimates by using key practices outlined in GAO's Cost Estimation Guide and assessed whether those estimates were up to date.⁴

- In regard to requirements management, we reviewed New Core's process for defining and tracing requirements to determine the extent to which these practices were consistent with practices promulgated by PMI. Specifically, we reviewed and assessed the 15 requirements matrixes developed for New Core to determine if requirements could be traced back to business needs, criteria used for evaluating and accepting requirements, and design and testing documentation. We also ascertained if matrixes identified specific attributes for the established requirements, such as disposition of the requirements or any associated testing that was performed.
- To assess HUD's IT governance, we reviewed documentation produced from New Core governance reviews and program artifacts such as the charter, program briefings, and associated governance and program team meeting minutes and compared them to relevant HUD governance policies outlined in its project planning and management framework and health assessment guide as well as to governance practices in our IT investment management guide.⁵

⁴[GAO-12-120G](#) and [GAO-09-3SP](#).

⁵GAO, *Electronic Health Records: Outcome-Oriented Metrics and Goals Needed to Gauge DOD's and VA's Progress in Achieving Interoperability*, [GAO-15-530](#) (Washington, D.C.: Aug. 13, 2015); *Library of Congress: Strong Leadership Needed to Address Serious Information Technology Management Weaknesses*, [GAO-15-315](#) (Washington, D.C.: Mar. 31, 2015); *Financial Management Systems: Additional Efforts Needed to Address Key Causes of Modernization Failures*, [GAO-06-184](#) (Washington, D.C.: Mar. 15, 2006); *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, [GAO-04-394G](#) (Washington, D.C.: March 2004); and AIMD-00-134.

Additionally, we compared New Core executive-level oversight with criteria in our previous reports and guidance on oversight.⁶

For each objective, we interviewed senior officials from HUD's headquarters in Washington, D.C., including HUD's Deputy Secretary, Chief Financial Officer, Chief Information Officer, and Chief Procurement Officer. Specific to the New Core program, we interviewed key officials, including the Executive Director, Deputy Director, and business and IT program managers. Additionally, we conducted a site visit to Treasury's Administrative Resource Center in Parkersburg, West Virginia, and interviewed cognizant officials, including the Director of the Office of Shared Services, program manager, and employees who had been detailed to work at HUD, such as the release and testing managers.

We determined that information provided by the department, such as work breakdown structures, schedules, cost estimates, and requirements traceability matrixes, was sufficiently reliable for the purposes of our review. To arrive at this assessment, we conducted reliability testing by comparing information with other program documentation and statements from relevant department officials to identify discrepancies. Where appropriate, GAO schedule and cost estimation experts also assessed the reliability of the data and artifacts we reviewed.

We conducted this performance audit from February 2015 to July 2016 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.

⁶[GAO-15-315](#), [GAO-06-184](#), [GAO-04-394G](#), and [GAO/AIMD-00-134](#).

Appendix II: Financial Management Systems Supporting the Department of Housing and Urban Development

As of July 2016, 46 systems were in place to support the Department of Housing and Urban Development's (HUD) financial management functions, as identified in table 3. Of these systems, 8 were implemented as part of the New Core program. Specifically, HUD gained access to 7 systems operated by ARC. The department also implemented the New Core Interface Solution to ensure that its legacy systems could communicate with the shared service systems. Additionally, 13 of the 46 systems that were targeted for replacement as part of New Core, but have not yet been decommissioned or fully replaced are also identified.¹

Table 3: Financial Management Systems Supporting the Department of Housing and Urban Development (HUD)

Acronym	System name	Year Implemented	Implemented as part of New Core	Originally targeted for replacement with New Core
PAS	Program Accounting System	1974		√
IMF	Institution Master File	1980		
LAS	Loan Accounting System	1981		√
CHUMS	Computerized Homes Underwriting Management System	1984		
DCAMS	Debt Collection and Asset Management System	1984		
LOCCS	Line of Credit Control System	1984		√
SFIS	Single Family Insurance System	1984		
CLAIMS	Single Family Insurance Claims Subsystem	1985		
TIIS	Title I Insurance and Claims System	1987		
DSRS	Distributive Shares and Refund Subsystem	1991		
SFPCS-U	Single Family Premium Collection Subsystem-Upfront	1993		
TRACS	Tenant Rental Assistance Certification System	1993		
HCFSS	HUD Consolidated Financial Statement System	1994		√
HUDCAPS	HUD Central Accounting and Program System	1994		√
PSCRS	Personnel Services Cost Reporting Subsystem	1995		√

¹HUD originally planned to replace 17 systems with New Core. As of June 2016, 4 systems had been fully replaced (FedTraveler, HUD moveLINQ, Kronos WebTA, and Total Estimation and Allocation Mechanism). According to HUD officials, as a result of the new initiatives under way the department expects to replace or decommission 5 systems between fiscal years 2017 and 2019 (Financial Data Mart, HUDCAPS, Line of Credit Control System, New Core Interface Solution, and the Program Accounting System). Officials also stated that 4 other systems have been partially replaced and/or are planned for decommissioning (HUD Integrated Acquisition Management System, HUD Procurement System, Personnel Services Cost Reporting Subsystem, and Small Purchase System).

**Appendix II: Financial Management Systems
Supporting the Department of Housing and
Urban Development**

Acronym	System name	Year Implemented	Implemented as part of New Core	Originally targeted for replacement with New Core
SAMS	Single Family Asset Management System	1995		
HPS	HUD Procurement System	1996		√
IDIS Online	Integrated Disbursement and Information System	1996		
CSMS	Comprehensive Servicing and Monitoring System	1999		
DRGR	Disaster Recovery Grant Reporting System	1997		
EZB	EZBudget Formulation System	1997		√
SFHEDW	Single Family Housing Enterprise Data Warehouse	1997		
e-snaps	Electronic Special Needs Assistance Programs	1998		
SFPCS-P	Single Family Premium Collection Subsystem-Periodic	1998		
FDM	Financial Data Mart	1999		√
IMS	PIH Inventory Management System	1999		
SPS	Small Purchase System	2000		√
FHA-SL	Federal Housing Administration Subsidiary Ledger	2002		√
HIHRTS	HUD Integrated Human Resources and Training System	2005		
GFAS	Ginnie Mae Financial and Accounting System	2006		√
IPMS	Integrated Pool Management System	2008		
SMART	Single Family Mortgage Asset Recovery Technology	2008		
RFS	Reporting and Feedback System	2009		
UFS	Unclaimed Funds System	2010		
HERMIT	Home Equity Reverse Mortgage Information Technology	2012		
HIAMS	HUD Integrated Acquisition Management System	2012		√
CGE	Concur Government Edition	2014	√	
LEAP	Lender Electronic Assessment Portal	2014		
moveLINQ	moveLINQ	2014	√	
NCIS	New Core Interface Solution	2014	√	
CitiDirect	Citibank CitiDirect	2015	√	
IPP	Invoice Processing Platform	2015	√	
Oracle	Oracle Federal Financials	2015	√	
PRISM	Procurement Request Information System Management	2015	√	
WebTA	Kronos WebTA	2015	√	
FAMES	Federal Asset Management Enterprise System	2016		

Source: GAO analysis of data provided by HUD officials. | GAO-16-656

Appendix III: Comments from the Department of Housing and Urban Development



U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

WASHINGTON, DC 20410-1000

Office of the Chief Financial Officer

JUL 15 2016

Office of the Chief Information Officer

Ms. Valerie C. Melvin
Director, Information Management
and Technology Resources Issues
U.S. Government Accountability Office
441 G. Street, NE
Washington, DC 20548

Dear Ms. Melvin,

Thank you for the opportunity to respond to the draft report entitled *Financial Management Systems: HUD Needs to Address Management and Governance Weaknesses That Jeopardize Its Modernization Efforts*, July 2016 (GAO-16-656). HUD's comments are addressed in this memo and listed in the enclosed spreadsheet.

In 2010, HUD reviewed its aging financial systems and made a determination to transition from costly legacy systems that did not provide the necessary scale and breadth required to meet today's financial management needs to a more efficient shared services model. By partnering with the Department of Treasury (Treasury) Administrative Resource Center (ARC), HUD gained valuable efficiencies and is adopting numerous standards that will allow the Department to improve HUD's financial management stewardship and programmatic systems integration.

New Core was a multi-phase, multi-release program that succeeded in migrating HUD's financial and administrative systems and services to a Federal Shared Service Provider (FSSP) – ARC. The New Core program aligns with OMB M-13-08, *Improving Financial Systems through Shared Services*, which directs agencies to use a shared service approach when modernizing their systems and recommends a phased approach for implementation.

The first four capabilities delivered by the New Core program represented financial management system modernization by migrating to a Federal Shared Service Provider's (FSSP) solutions. The migration utilized six Commercial Off the Shelf (COTS) systems & one Government Off the Shelf (GOTS) system within ARC's suite of products. A key difference between modernization by migrating to shared services and IT development is that a shared services migration represents adopting the existing FSSP solution and IT development represents developing a new system(s). Shared services migrations typically require that a customer agency adopt the provider's standard solution unless there is a compelling reason not to do so. The HUD and ARC partnership represents a significant milestone in improving financial management and serves as the foundation for greater delivery of shared services across the government. As evidence, HUD was recognized as the pioneering agency for the lessons learned for the upcoming Migration Modernization Management (M3) Playbook developed by General Services Administration (GSA), Unified Shared Services Management (USSM) team. USSM was created to serve as an integration body, collaborating across functions and the provider and customer landscapes to improve shared service delivery, increase agency adoption, and resolve concerns or disagreements between customers and providers. HUD looks forward to USSM's role in

providing guidance and support for federal shared services, for both customers and providers, going forward.

New Core Implementation

As the report highlights, after previous failed attempts, the Department successfully put in place a new financial system on October 1, 2015—becoming the first Cabinet level agency to move its core financial system to a Federal Shared Service Provider. The completion of this phased implementation will provide the foundation on which the Department can achieve greater accuracy, timeliness, and transparency in financial management. New Core benefits include adopting standard federal accounting and financial management processes; strengthening HUD's internal controls and funds control processes (such as integrating HUD's procurement and accounting systems and improved payroll reporting); reducing risk of legacy system failure; and resolving known financial compliance issues. HUD further benefits by minimizing future modernization and upgrade costs by sharing costs with ARC's other Federal agency customers.

The decision to separate Phase 1 into distinct releases was arrived at after a complete budget and cost-benefit review, including an analysis of requirements, assumptions and resources needed to successfully deploy Releases 1-3. The analysis was conducted by HUD with input by ARC and included a review of the HUD/ARC Interagency Agreement(s) (IAA), contractor support, staffing resource needs and complete scope. The review addressed the fact that no Development, Modernization and Enhancement (DME) funds were received for FY2015 and required a comprehensive justification of all cost estimates, including a reprioritization of efforts and a reevaluation of HUD's IAA costs. HUD considers the approach taken with planning, schedule and cost activities in line with OMB guidance, cited in the draft GAO report on page 17 "which calls for agencies to reduce costs and risk by dividing programs into smaller segments, such as phases and releases."

While HUD considers its New Core program successful, as the GAO report highlights, not all fourteen originally identified capabilities were deployed. However, HUD did not intend nor plan to deploy all of these capabilities at this time, particularly with the funding constraints the Department faced. For some of the capabilities referenced, the Department is pursuing new process improvement projects while some other capabilities are in the planning, evaluation, and/or implementation phase.

IT Management and Governance

HUD followed a rigorous, disciplined approach in its phased implementation of New Core. Leadership from HUD, OMB and Treasury were engaged in the New Core implementation throughout the duration of the project. HUD, in coordination with Treasury, implemented strong program management discipline—including risk management, schedule management, and change management. Effective governance was in place throughout the migration, including governance gates before each release.

Through the partnership between HUD and ARC, HUD communicated ongoing status, upcoming activities, risks, and mitigating solutions of the New Core program to oversight groups

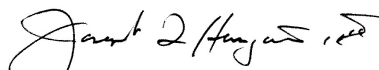
**Appendix III: Comments from the Department
of Housing and Urban Development**

comprised of the HUD co-executive sponsors, HUD Executive Steering Committee, business owners, and relevant offices for their awareness and input into critical decisions. HUD also held regular briefings for principals, weekly briefings to OMB and Treasury leadership, monthly briefings to Treasury's Office of Financial Innovation and Transformation (FIT), two Go/No-Go briefings, which included the Deputy Secretary, OMB, ARC, program stakeholders, and GAO, and ESC briefings throughout Phase 1 Releases 1-3. The New Core Program, as is required by all HUD Development, Modernization and Enhancement (DME) programs/projects, applied HUD's Project Planning and Management (PPM) Life Cycle v2.0.

The New Core program was consistently managed under a rigorous IT governance process. However, due to the unique nature of this project as a shared service implementation, there were many lessons learned related to IT governance that are being incorporated into HUD's overall IT governance processes in the interest of continuous improvement. Furthermore, outside of the New Core context, the Department continues to improve its IT governance through enhanced reporting and project level reviews, revised governance charters, and implementing agile development IT project management processes.

GAO's draft report of HUD's financial management systems and modernization efforts identified lessons learned for future shared services migrations, while underlining the need to depart from the traditional system development mindset and align the migration strategy to the alternative opportunity that shared services provides federal agencies. While HUD continues to improve its project management, planning, implementation, and monitoring for future large-scale modernization efforts, the New Core program exemplifies leading practices for upcoming modernization projects. The New Core program moved the Department closer toward its goal of a modernized, disciplined financial environment that efficiently and effectively supports HUD's program mission goals.

Sincerely,



Joseph Hungate, III,
Deputy Chief Financial Officer, U.S. Housing & Urban
Development (HUD)



Rafael Diaz,
Chief Information Officer, U.S. Housing & Urban
Development (HUD)

Enclosure

Appendix IV: Comments from the Department of the Treasury



DEPARTMENT OF THE TREASURY
BUREAU OF THE FISCAL SERVICE
WASHINGTON, DC 20227

July 15, 2016

Ms. Valerie C. Melvin, Director
Information Management and Technology Resources Issues
U.S. Government Accountability Office
441 G. Street, NE
Washington, DC 20548

Subject: *Management Report: Financial Management Systems: HUD Needs to Address Management and Governance Weaknesses That Jeopardize Its Modernization Efforts (GAO-16-656)*

Dear Ms. Melvin:

Thank you for the opportunity to review and comment on the draft report entitled "*Financial Management Systems: HUD Needs to Address Management and Governance Weaknesses That Jeopardize Its Modernization Efforts (GAO-16-656)*." While the Department of the Treasury's (Treasury) Administrative Resource Center was not the central focus of this review, Treasury would like to recognize HUD's major achievement of becoming the first cabinet-level agency to transition to a federal shared services provider.

Implementing a shared services solution is unlike a traditional IT modernization effort, and HUD should be commended for supporting OMB guidance and embracing the shared services model. Throughout the initiative, HUD demonstrated a commitment to standardization and working collaboratively through many change management challenges that hindered previous modernization efforts.

As a result of this effort HUD achieved reduced enterprise risks and costs, compliance with federal initiatives and mandates, standardization of information, and improvements in the timeliness of information available for decision-making. In addition, during the transition HUD maintained all mission critical operations and required financial management reporting to Treasury and OMB. Likewise, as a designated federal shared service provider, Treasury benefited from the success of this effort, including valuable lessons learned for future cabinet-level agency transitions.

Sincerely,

A handwritten signature in blue ink that reads "Sheryl R. Morrow".

Sheryl R. Morrow
Commissioner

Appendix V: GAO Contact and Staff Acknowledgments

GAO Contact

Valerie C. Melvin, (202) 512-6304 or melvinv@gao.gov

Staff Acknowledgments

In addition to the contact above, Teresa M. Yost (Assistant Director), Donald A. Baca, Kami J. Brown, Christopher G. Businsky, Juana S. Collymore, Amanda C. Gill, Michael S. LaForge, Jason T. Lee, Lee A. McCracken, Sukhjoot Singh, and Carroll M. Warfield, Jr. made key contributions to this report.

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