AUDIT REPORT

INITIAL DEVELOPMENT EFFORTS
OF THE
DEPARTMENTAL GRANTS MANAGEMENT SYSTEM

00-DP-166-0002
NOVEMBER 4, 1999

INFORMATION SYSTEMS AUDITS DIVISION
OFFICE OF AUDIT

audit report

OFFICE OF INSPECTOR GENERAL

TO: Saul Ramirez, Deputy Secretary, SD

FROM: Benjamin K. Hsiao, Director, Information Systems Audit Division, GAA

SUBJECT: Audit Report of the Initial Development Efforts of the Departmental Grants Management System

We completed an audit of the Department's initial development efforts of the Departmental Grants Management System (DGMS). The objective of our audit was to review the initial development efforts of DGMS to determine whether such efforts followed cost effective methods prescribed by the Department's standard "System Development Methodology." Our audit also reviewed the compatibility of DGMS development efforts with the ongoing development efforts of the Integrated Disbursement and Information System (IDIS).

We conclude that the initial DGMS development efforts are not cost effective. In particular, the "combined" development solution, selected from four technical alternatives in the DGMS feasibility study, was later abandoned in favor of the most costly and risky "custom" solution. The "combined" solution was to expand upon the software programs, developed to date from IDIS and from a system from another federal agency, called GATES. The switch to the "custom" solution has led to simultaneous development of two competing Departmental systems -- the existing IDIS and the replacement DGMS. This dual effort approach to grants management leads to higher development costs and greater risks of failure.

Within 60 days, please submit for each recommendation a status report on: (1) corrective action taken; (2) the proposed corrective action and target completion dates; or (3) why corrective action is considered unnecessary.

Thank you for the assistance provided to us by your staff during the course of our review. Should you have any questions, please contact me at 708-3444, extension 149.

Attachment

Executive Summary

We completed an audit of the Department's initial development efforts of the Departmental Grants Management System (DGMS). The objective of our audit was to review the status of the initial development efforts of DGMS including compliance to the Department's prescribed development standards in its March 1997 "System Development Methodology". Our audit also included determining the compatibility of DGMS development efforts with the ongoing development efforts of the Integrated Disbursement and Information System (IDIS).

Based on our audit work, we conclude that the DGMS development team did not comply with the intent of the System Development Methodology. In particular, the team reversed its development solution as outlined in the feasibility study. The development solution for DGMS was changed from a combined expansion of existing systems (determined to be the most efficient/effective solution) to a custom development solution, which its feasibility study concluded was the most expensive and risky solution. The custom solution has led, at least temporarily, to simultaneous development of two competing Departmental systems -- the existing IDIS and the new DGMS -- under two different Departmental organizations. As a result, this approach is expected to lead to substantially higher development costs and to greater risks of development failure.

In addition to the probable lengthening of development time from custom development, the team is expanding the DGMS scope to include Capital Advance Programs, such as Section 202 (housing for the elderly) loans and Section 811 (housing for persons with disabilities) loans. Because of the non-grant nature of these programs, the development process is unnecessarily complicated. Development time also is expected to increase because the team did not allow the end-users (grantees) to join the initial development efforts to help identify the system's functional requirements.

The current problems with the initial DGMS development are being compounded because the original project manager has been transferred and a permanent replacement has not been appointed. In addition, the recent July 4, 1999 reorganization of the Department's Office of Administration has created confusion over which organization has the sponsorship role, and hence the ultimate control over the development activities of DGMS. We made five recommendations to correct the development process. The Department must consolidate the dual sponsorship and development efforts of the two competing systems under one organization, preferably the Chief Information Officer (CIO). We also recommend that a new feasibility study be undertaken as soon as possible and it should include an analysis of the cost benefits of the technical alternatives. Further development on both systems should be curtailed until the new study has been completed.

Response to Report

We provided the draft report to the Deputy Secretary and the other officials listed in Appendix B on August 31, 1999. We received a written response to the draft report on October 19, 1999 from the Assistant Chief Financial Officer for Systems. The response is included in Appendix A. The Assistant Chief Financial Officer disagreed with three of the five report recommendations. Our evaluation of his comments are included prior to the report's recommendation section.

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Introduction

The Department of Housing and Urban Development (the Department) has over 100 grant or quasi grant programs, totaling close to $10.5 billion annually. There are currently about 20 different systems that handle most of these grant programs. A goal of the Department has been to consolidate the grant application and administration processes for efficiency and to increase both the Department's and grantee's accountability and reporting of the grant programs. To further this goal, the Department has attempted to develop three successive automated grant systems (IDIS, GMS, and DGMS) within the past five years, two of which (IDIS and DGMS) have been associated with the Department's Financial Systems Integration (FSI) project. The FSI was initiated in 1991 with the objective to develop a common, consolidated, financial management information system for streamlining and reorganizing Department operations to facilitate communication between HUD, its grantees, and communities across the country.

Integrated Disbursement and Information System (IDIS). IDIS, which consolidated the processing for four major entitlement (formula) grant programs within the Community Planning and Development (CPD) program department, was added to the FSI project in September 1993[1]. The system became operational in February 1996. IDIS is the first automated system to allow non-Departmental end users -- the grantees -- to become the primary source for entering grant data (including payment requests). One of the main objectives of the system, besides consolidation, is to permit the grantees to setup, request, and report grant project funds by individual detailed activities. Previously, no detailed activity accounting was available, as the Department's existing grant payment system -- Line of Credit Control System (LOCCS) -- provided payment information only on a broad grant project basis. According to Departmental figures, over $18.5 million has been spent on IDIS development to date.

The General Accounting office (GAO) has recently issued an audit report on IDIS. The report (GAO/RCED-99-98, dated April 27, 1999) identified many data integrity and system functionality problems with IDIS and recommended that the Department consider whether it is more cost-effective to continue to improve and modify IDIS for eventual use in the new DGMS or to replace it. Our office has been conducting an ongoing IDIS application system review for the annual financial statement audit and has reported similar problems. We are also conducting a technical audit review of IDIS and plan to issue our report soon.

Grants Management System (GMS). The GMS was initiated during June 1995 with an eventual goal of consolidating many of the grant programs into three block grant programs with development of appropriate automated systems. The development effort was difficult and had several problems. Later the concept of three consolidated block grant programs was not approved by Congress. The original scope of the project was curtailed and the remaining system is used by Departmental staff for reviewing, scoring, and commenting on grant applications and proposals. The system also generates congressional notification letters and award documents.

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[1] The IDIS was described and listed as part of the revised FSI Plan, which was issued in September 1993. The projected costs for the IDIS portion of the overall FSI project cost (which totaled $102 million) was $8.4 million.

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Departmental Grants Management System (DGMS). The feasibility study for DGMS was completed on September 17, 1998. The study concluded that most Departmental grants, including entitlement and discretionary (competitively awarded), can be processed similarly. The competitive grants have a few additional steps prior to the award. The DGMS is suppose to incorporate the existing IDIS system for entitlement grants and the U. S. Department of Health and Human Services (HHS) system (GATES) for competitive grants into a consolidated grants management automated system. According to updated budget figures from management's response to our draft report, $5.3 million has been budgeted for development for FY 1999, and $6.3 million for FY 2000. Development of the system began soon after the study. The functional requirements of the system have been identified and have been set forth in the second version of the draft Functional Requirements Document, issued on June 30, 1999. A limited pilot system is scheduled to be developed by November 30, 1999 for testing at two grantee locations.

Audit Objectives

The objective of our audit was to review the initial development efforts of DGMS to determine whether such efforts followed cost effective methods prescribed by the Department's standard "System Development Methodology." Our audit also included determining the compatibility of DGMS development efforts with IDIS.

Scope and Methodology

Our audit was performed at the Department's headquarters and was conducted during the months of July and August of 1999. The audit was based on a review of applicable DGMS and IDIS records and documents, and on discussions with various Departmental officials and contractor staff.

The management control categories concerning the initial development efforts of DGMS include compliance to the following categories from the Department's March 1997 "System Development Methodology:"

- Cost Benefits Analysis
- Feasibility Study
- Requirements Analysis
- Functional Requirements Document

Our review found weaknesses in these categories and our recommendations for their improvement are included under the Finding section of the report.

Our audit was completed in accordance with the "Government Auditing Standards," issued by the Comptroller General of the United States. Accordingly, we

included such tests of records and other auditing procedures that we considered necessary under the circumstances.

Development of the Departmental Grants Management System at Risk

The Department has changed its development solution for the new Departmental Grants Management System (DGMS) from a combined expansion of existing systems to a custom development solution, which its feasibility study concluded was the most expensive and risky solution. In addition, the DGMS development scope may be too large as a result of including unique Departmental programs that do not easily lend themselves to consolidation. Based upon the system's feasibility study, which proposed four technical development alternatives, the Department initially selected the combined solution, which involves combining the existing IDIS system for formula grants with the U.S. Department of Health and Human Services' (HHS) GATES system for discretionary grants. Subsequent to the study, however, the developing office has changed course and has switched to the custom development solution, the least attractive of the four alternatives. This new solution has led, at least temporarily, to simultaneous development of two competing Departmental systems -- the existing IDIS and the new DGMS -- and will ultimately lead to higher development costs and greater risks of development failure. We believe the change was due to split responsibilities, as IDIS and the replacement system DGMS are being developed by two different Departmental offices.

Background	In a December 1997 Departmental study, titled "Departmental Grants Management Business Process Redesign," the study team concluded that the Department's numerous grant programs, primarily consisting of entitlement (formula) grants and discretionary (competitive) grants, can be redesigned into a common process covering all the grant functions -- application, evaluation, award, administration, and monitoring/reporting. The team also concluded that the common grant process would permit the consolidation of all the Department's existing automated and manual grant systems into a single automated system. The Department made the decision to follow through on the study and included DGMS as part of the Financial System Integration (FSI) development program with development responsibility residing with the Chief Financial Officer (CFO). In a September 1998 DGMS Feasibility Study, the Department reaffirmed the goal of a single common grant process and a single automated system to support it. The new system would incorporate the ongoing development efforts of the existing IDIS automated system, which supports the major Community Planning and Development (CPD) grant programs.

The Change in DGMS Development Solutions

Selection of the "Combined Solution" Recommended by the Feasibility Study

The following is an excerpt of the decision made and the supporting chart in the September 1998 DGMS Feasibility Study:

"The FSI Grants Team recommends that HUD adopt a combined solution for a Departmental Grants Management System. The recommended solution consists of re-engineering HUD's IDIS application to support the formula grants and post-award monitoring functions, and reusing the competitive grants functions of HHS's GATES application to support the competitive grants processing needs at HUD. As displayed in the following table, which compares the proposed solutions, the combined solution provides HUD with an approach which can be implemented quickly and at the lowest cost."

Evaluation Criteria	Relative Weight of Criteria	Re-engineered HUD Application (IDIS)	Re-engineered HHS/ACF Application (GATES)	Combined HUD/HHS Solution (IDIS/GATES)	Custom Development
Functionality	25%	50	40	73	0
Technical Feasibility	40%	89	66	66	56
Cost	15%	$4,513,400	$5,651,800	$3,852,100	$8,998,700
Risk	20%	50	50	50	25
Weighted Score	100%	66	54	70	27

(Chart from FSI/GRANTS MANAGEMENT FEASIBILITY STUDY ,09/17/98, Version 1, page 37)

As evident by the chart, the Department's selection of the "Combined" solution represented the best value with a high score of "70" (the higher the score, the better the proposed solution). The second best solution (score of "66") was the expansion of IDIS system to include discretionary grants. The lowest score of "27" and least viable solution was the custom development approach. The selected solution included use of the software application platform being used by HHS's GATES system -- Oracle. The software and resulting database would be housed on the planned purchase of

an undetermined number of file servers[2]. The IDIS system is housed on the existing Hitachi (IBM) mainframe system using DB2 tables based upon COBOL code developed programs.

Switch to the "Custom Solution," Ranked as the Most Expensive and Risky Solution

Subsequent to the feasibility study and before the issuance of the Functional Requirements Document on June 30 1999, the developing office changed its proposed solution from the "Combined" approach to the "Custom" development approach. The project manager in her budget request for FY 2000 stated that as a result of requirements development sessions, grant program interviews, and systems analysis, the migration of program code from both IDIS and GATES is no longer feasible. The Functional Requirements Document, which lists all design considerations for the proposed system, states that only IDIS's existing data will be migrated, and that data on IDIS's program threshold edits will be identified and extracted. Migration of any of IDIS's COBOL program code, however, was not mentioned. We believe that the failure to incorporate IDIS programs into DGMS will substantially increase development time and costs.

We are particularly concerned that the DGMS development team is "reinventing the wheel" in regards to the interface programs and other viable IDIS program code. The IDIS has been operational for 3 1/2 years and substantial development and reconciliation effort has been expended in an attempt to improve the data integrity problems, especially in the interface programs with LOCCS, the major grant payment system. DGMS will continue to use this payment system in the interim until the Department decides on a new core financial accounting and payment system. Although Oracle program code is based upon Standard Query Language (SQL) script (a simple English-based programming language) and display-screen macro generating code, Oracle has developed a Pro COBOL pre-compiler software that allows easy migration of IDIS's COBOL code programs from mainframe DB2 applications into Oracle programs. Development time could be cut by salvaging as much of the useful IDIS code as possible. The IDIS system has 450 coded programs with 350,000

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[2] The June 30, 1999 Functional Requirements Document shows conflicting estimates for the number of computer servers that would be required for a fully implemented system -- two and twelve.

total lines of code. Therefore, the reversal in development solutions requires a re-evaluation of the feasibility study's four technical alternatives with costs analysis.

CIO Review States Project Scope not Well Defined

The Department's Chief Information Officer (CIO) reached the same conclusion in her June 14, 1999, Project Management Review Board report on DGMS. The report recommended the business case for DGMS be re-evaluated and strengthened. In addition, the technical development alternatives should be re-examined and validated, including a cost benefit analysis. The report stated that "until the business case is strengthened and the project scope is well defined, the project has no end or known total cost[3]."

Functional Requirements Document Contains No Final Completion Date

The contents of the Functional Requirements Document reinforces the conclusion of the Project Review report. As the latest available formal development document, the Functional Requirements Document did not provide a final implementation date for DGMS; instead, it stated that it will be developed in a phased approach. Cost estimates for infrastructure needs for DGMS are unknown -- "it is anticipated that system capacity planning studies and system growth studies currently underway with the IT Computer Services Group will be the basis for more accurate cost estimates."

DGMS Draft Conversion Plan Shows Exclusion of 37 Programs And Inclusion of 2 Loan Programs

From our review of the various documents including the plan for converting the various Departmental grant programs into DGMS, we found that DMGS is attempting to encompass programs that are not typically grant programs or that are unique programs. As a result, additional development delays might be incurred. According to the listing of Departmental grant programs that are potential candidates for conversion to DGMS, the number to be converted were:

76 ……. Yes
37 ……. No
16…….. Undecided
129 ……. Total

The basic premise for the new grants management

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[3] This quote is from the CIO's conclusion regarding the risk rating, which she assigned as "High," to the business case needs for DGMS.

system was that Departmental grant programs can be processed the same way and that a single automated system can accommodate that process. Although the discretionary grants will have some additional steps that are generally not applicable to entitlement grants (such as, rating and ranking for competitive award purposes), the system is suppose to accommodate these grants. However, certain grants have too many unique program regulatory requirements that prevent easy accommodation under the proposed system. For example, regulatory requirements for certain programs related to Native Americans are too unique, and as a result, three of these programs are listed in the "No" category for non-conversion.

We also found that there is confusion in the development strategy to include Capital Advance Programs, such as Section 202 (housing for the elderly) and Section 811 (housing for persons with disabilities), both of which are initially loan programs. Again, we saw much documentation on the possible development strategies of the unique processes involved with these programs. Although the July 15 Plan shows that these programs are to be converted, the DGMS project manager, on July 20, informed us that the programs will not be converted because the accounting is not like the regular grant process. We are not convinced that this issue (exclusion or inclusion) has been settled, and as a result, development delays can be expected.

Basic Premise of a Common Grant Process Not Supported by a Cost-Benefit Analysis

The December 1997 Business Process Redesign report stated that a common grant process accounting is feasible and the September 1998 DGMS Feasibility Study report reaffirmed it. Although the recent Functional Requirements Document lists a possible 104 grant programs for DGMS coverage, the four CPD grant programs currently covered by IDIS represent 72 percent of the total grant funding projected to be included under DGMS. The 1997 report did not include a cost benefit analysis supporting the decision to go with the common grant process. Although it is hard to argue against the merits of consolidating all the various grant programs under one common process, no technical alternatives were considered and the benefits versus the costs were not analyzed. We recommend that this premise be supported by such an analysis.

Grantees Excluded From Development Process

After issuance of the 1998 Feasibility Study, the development team began determining system functional and data requirements by building demo system screens (data display only) using HTML/web coding. They developed three prototype versions with the last one being presented in early May 1999. Departmental headquarters, field office, and community builder staff all participated in the process of identifying system functional and data requirements. Absent from the process, however, were the grantees. Although the prototypes were available on the Internet, the first working group meeting with the grantees was on May 25, 1999. Two days of demo presentations were followed by two days of questions, answers, and some "homework" assignments for the users. The grantees provided some useful questions and comments, such as the need for Electronic Data Interchange (EDI) capabilities to avoid re-entering of grantee data. The development team in response added this feature to its June 30 Functional Requirements document. We believe this type of grantee input would have been more helpful earlier in the process.

The Department's "System Development Methodology" recommends that the end users actually be part of the prototype development teams and help feed requirements to the developers of the team. The development management informed us that grantee team membership was excluded because their number and non-homogeneity would preclude consistent input, and that the system itself belonged to the Department. We do not see these factors as adequate justification for their exclusion. However, we believe a potential problem in obtaining grantee input would be the amount of time that they could devote to development efforts beyond their normal job assignments. Because grantee input is so important to the system's functionality, we recommend that the Department offer experienced IDIS grantees, including both state and community recipients, reimbursable temporary employment agreements for their help in the Department's DGMS development efforts.

Two Competing Departmental Systems

Simultaneous Development of Grant Systems By 2 Different Organizations

The Department is currently developing two competing grants management systems -- DGMS and IDIS. Although the IDIS system was originally to be incorporated into DGMS, this plan was abandoned which has led to simultaneous development of two grants systems. We believe a major reason for this situation and perhaps even for the change in the DGMS development solution itself was that each system is sponsored by different organizations - DGMS by the CFO under the FSI Initiative and IDIS by CPD, a major grant program department. There has been little coordination between the two, and the contractor teams (totaling 38 personnel with IDIS and 25 with DGMS) have been working independently of each other. These competing grant systems have to be consolidated under one sponsor so that the hard decisions involving funding for further development and migrating possible program code can be made. The CIO in her June 14 Project Review report also suggested that this might be practical.

Congress Requires IDIS to Correct and Improve System Before Adding States

Although almost all of the entitlement communities are using IDIS, only 11 of the states (as of May 18, 1999) have been using it. A goal of CPD was to require all states to use IDIS. Because of the before mentioned data and reporting problems with the system, Congress, in a Conference report to H.R. 4194 (the Department's appropriations law for FY 1999), ordered the Department not to require the states to implement IDIS until these problems are corrected and the system can provide for EDI and Internet capabilities. Since the issuance of our draft report, the IDIS developers have installed Internet capability and are continuing to develop and expand EDI capability.

To correct the major data integrity and functionality problems with IDIS, CPD and the development team have prioritized the most urgent requirements into a "Stabilization Plan." Proposed IDIS software changes are ranked as either priority 1, 2, or 3, with 1 being the highest priority. Priority 1 changes totaled 121 and as of July 6, 1999, 70 or 58% have been noted as completed. In addition to these priorities, there were at least 45 additional priority 2 and 3 tasks for which

funding is questionable. Since the issuance of our draft report, the development team claims that 90 percent of the priority 1 tasks have been completed [we are still awaiting documentation], and that they have received authorization to complete the other two priorities, and certain other software fixes.

New Reorganization Creates Confusion Regarding Control Over DGMS

Effective July 4, 1999, the Department's Office of Administration reorganized its divisions and offices under a plan called Comprehensive Administrative Services at HUD (CASH). Part of this plan established a new division under the Operations Branch called the Grants Management and Program Compliance Support Division. Apparently, this division is to assume sponsorship of all grants systems development activities, including IDIS and DGMS. However, from our discussions with all parties involved, the role of sponsorship, and hence the ultimate control over the development activities, is not clear within the Department. In fact, both the CFO's Office and the new Grants Management Division have claimed they are in charge. Upon a later discussion with a CFO official, the CFO and the new Division were said to be equal partners in the DGMS sponsorship. In the meantime, the DGMS project leader has been transferred to the Office of Information Technology (IT). Since the issuance of our draft report and after a period of time without a project leader replacement, the Deputy Director of the Office of Grants Management (a new office created under the CASH) has been assigned an additional duty as the new DGMS project leader. We disagree with this current arrangement, and recommend that the project leader's sole responsibilities be devoted to DGMS development.

Sponsorships of Dual Systems Needs to Be Combined

We believe that it is imperative that sponsorship and development control of both DGMS and IDIS be placed under one organization in order to reduce development risks and costs. This organization should be a stakeholder in the systems, that is, it should have a vested interest in the successful operation of the final system. Since the DGMS pertains to grant programs from various grant program departments, no one particular grant department has a vested interest in all covered grant programs. We also do not see where the Office of Administration has vested operational interest in any of the grant programs. Therefore, we are left

with only two conceivable organizations for sponsorship -- the CFO from a financial standpoint of the grant financial aspects and the CIO from a Department-wide information systems standpoint. We have previously called for an active CIO role in such sponsorships and recommend this as the best organization to oversee the development of both DGMS and IDIS.

Auditee Comments

Management provided its written comments on the draft report on October 19, 1999 (see Appendix A for the full response). Management disagreed with three of the following five recommendations. Management disagreed with the first recommendation of consolidating the sponsorship and development oversight of both DGMS and IDIS under the CIO because each system is under the sponsorship of different Departmental organizations -- DGMS under the CFO and IDIS under CPD. Also management states that IDIS should not be characterized as being under development as it is only "being modified to address the immediate needs of users." Management also stated that both DGMS development and IDIS modification efforts are now under the development control or direction of the new Grants Management and Compliance Division.

Management disagreed with the third recommendation which called for curtailing further development of both systems until the feasibility and cost benefit studies from Recommendation No. 2 have been implemented. Management said that curtailment would possibly result in the loss of development staff which would further delay the project and increase costs. Recommendation No. 5 (which recommended the use of reimbursable employment agreements with experienced IDIS users to provide input into DGMS development efforts), was not concurred with because the DGMS team does not intend to utilize IDIS processing methodology.

OIG Evaluation of Auditee Comments

Our Office has been concurrently auditing IDIS while conducting our DGMS review. Although IDIS has been operational since 1996, new software versions have been released at an average of every 30 days. Between releases, there have been several individual quick patches and fixes. Internet capability has been added recently and work is continuing on EDI capability as well as other planned

software upgrades. We consider this system to be in a continual state of development. In fact, IDIS has more development staff than DGMS. We have seen no evidence of any significant involvement of the Grants Management and Compliance Division over specific ongoing development decisions of IDIS. There are numerous day-to-day decisions that should be considered by an active consolidated development operation. The consolidated approach will avoid expensive IDIS enhancements that may not be critical in view of the planned DGMS replacement. The separate sponsorships have led to the current environment in which competing systems are being developed to administer the same grant funds (over 70% of DGMS grant funds are currently accounted for under IDIS). To avoid any questions in responsibility, we have recommended that both the sponsorship and development oversight be transferred to the CIO, which is an objective stakeholder in Department-wide information management systems.

The constant IDIS development efforts have begun to improve the system to the point where it is approaching effective operational functionality in terms of data recording. As continual improvements are being made, implementation of Recommendations No. 2 and 3 have become more critical.

Management agrees with Recommendation No. 2 (feasibility and cost/benefit analysis). However, management is proceeding with a planned development schedule without the completion of the study. The implementation date (by contracting with a consulting firm for the cost benefit study between January 1 and June 30, 2000) would be too late to influence development decisions. We have recommended curtailing further substantial development efforts of both systems until the feasibility study (including cost benefit analyses) covering the common grants concept and any technical alternatives is completed. In view of the potential results from an independent study, management should seriously consider the possibility that DGMS should not be implemented. Any extensive development in the interim will represent a waste of funds. Of course the same is true with extensive IDIS development if DGMS is determined to be cost beneficial. Therefore, the study should be given high priority and curtailment on both systems should be instituted. The potential loss of individual contractor

personnel should not be a limiting factor, as the contracting concept is suppose to provide the flexibility to meet customer needs.

Management has underestimated the value of the grantee input during DGMS development. Grantees are primary users of system and the source for most data entry. The cause of a number of reported problems with IDIS is a lack of user input. Any new grants management development efforts should not repeat the same mistake.

Management has made other comments on certain facts included in the report. We have added footnotes or updates in the report where appropriate.

Recommendations

We recommend that the Deputy Secretary:

1. Consolidate the sponsorship and development of DGMS and IDIS under the CIO, along with the provision of adequate resources, including a full-time project leader for the grants management system.

2. Require a new feasibility study with a cost benefit analysis of the technical alternatives to the development approach of the Department's grant management system|s|, to include, an additional cost benefit analysis to support the common grant process and any implementing system.

3. Curtail further new development on both systems until the recommended studies and analysis have been completed.

4. Reexamine the planned migration of unique grant or loan programs to any new single grants management system.

5. Use temporary employment agreements to obtain experienced IDIS grantees, including both state and community recipients, to help in the Department's development of any new grants management systems.

Auditee Comments

OFFICE OF THE CHIEF FINANCIAL OFFICER

October 19, 1999

MEMORANDUM FOR: Benjamin K. Hsiao, Director, Information Systems
Audit Division, GAA

FROM: W.B. Erwin, Assistant Chief Financial Officer for Systems, FY

SUBJECT: Response to the Draft Audit Report of the Initial Development Efforts of the
Departmental Grants Management System.

This memorandum has been prepared in response to your correspondence dated
August 31, 1999, attaching the draft audit Report of the Initial Development Efforts of the
Departmental Grants Management System(DGMS).

DGMS is part of HUD's Financial Systems Integration(FSI) project which has as
its objective to develop a common, consolidated financial management information system
for streamlining and reorganizing Department operations to facilitate communication
between HUD, its grantees and communities. Nothing is more to the heart of this
relationship than the distribution of grant funds and the accounting of such to the American
public. So it is imperative that the system developed to achieve this integration reflect the
highest standards of accuracy, integrity and reliability.

Your draft report is welcomed as an independent review of the development of
DGMS and, we believe, will assist in the result that DGMS will more likely reach the high
standards we have set for the system. We appreciate the invitation to respond to your
findings, conclusions and recommendations. We do disagree, however, with one major
conclusion and several smaller issues in your draft.

The Change in DGMS Development Solutions

You point out correctly that the FSI Team, after conducting a preliminary study of
alternative solutions to achieving an integrated, department-wide grants management
system, recommended to the Department's Technology Investment Board (TIB) a
"combined" solution joining together HUD's existing Integrated Disbursement and
Information System (IDIS) and the Dept. of Health and Human Services' GATES system.
This solution was initially appealing, in part, because it built upon existing systems and it
appeared to be the least expensive. The TIB accepted the recommendation, and authorized
the FSI Team to initiate preliminary systems design, development and end-user review on
an accelerated schedule. Subsequently, upon further analysis of systems integrity, user
requirements and user reviews, the FSI Team reversed its initial recommendation, and the

Auditee Comments

TIB, after review by the new Office of Chief Information Officer, authorized the development of a custom package, called the Departmental Grants Management System (DGMS), which it had originally estimated to be substantially more expensive to build.

The decision to develop a custom software solution was made based upon three conclusions:
- A discovery that end-user complexity with IDIS was caused by fundamental design flaws,
- A discovery that GATES was not designed to report and monitor at the grant and subgrantee level, which is critical to HUD's grants, and
- A recalculation of the costs for the combined system in light of the extensive redesign of both softwares made the combined system more expensive to develop, with a higher potential for risk.

A thorough analysis conducted during and after the DGMS Joint Application Design (JAD) sessions brought to light the numerous problems that would be faced if an attempt were made to create a database foundation from combining IDIS and GATES. Some of the problems that would be encountered include, but are not limited to, the rewriting of ALL IDIS code. The IDIS database would need to be redesigned to support all HUD grant programs; the addition of extensive software code to support all HUD programs, and the rework of GATES to comply with HUD Reform principles and program requirements. A closer examination of the costs of this solution indicated a substantial increase in the initial estimate.

Other Issues
There are several other issues and discrepancies which we want to point out to you for clarification and correction.

1. In the Introduction, the report states, **"...(the Department) has approximately 130 grant or quasi grant programs"**.
Upon research, we believe the figure is 104 grant or quasi-grant programs.

2. In the Introduction, the report states, **'To further this goal, the Department has attempted to develop three successive automated grant systems (IDIS, GMS and DGMS) within the past five years, two of which (IDIS and DGMS) have been associated with the Department's Financial Systems Integration (FSI) project."**
Although, in fact, IDIS was developed in 1993 under the auspices of the Office of Community Planning and Development, the statement is irrelevant. As noted above, all software systems are developed under the auspices of the HUD's Technology Investment Board that makes direct and specific decisions on the development of each software system.

Auditee Comments

3. Under the Integrated Disbursement and Information System (IDIS) section of the Introduction, the report states, **"IDIS, which consolidated the processing for four major entitlement (formula) grant programs within the Community Planning and Development (CPD) program department, was added to the FSI project in September 1993."**
Again, IDIS was developed by the Office of Administration, OIT, for CPD's four formula programs exclusively. DGMS is a tool for the entire Department to capture grants department-wide and to integrate into one system: performance measuring, monitoring, and data capturing that would produce reports not currently available in any system.

4. Under the Departmental Grants Management System (DGMS) section of the Introduction, the draft report inaccurately states, **"Approximately $7.5 million has been budgeted for development for FY 1999, and at least another $5 million for FY 2000"**.
The actual figures are lower and the correction should read, **"Approximately $5.3 million has been budgeted for development and implementation for FY 1999, and at least another $6.3 million for FY 2000"**. Only a portion of these funds are directed toward development of software. This budget also includes infrastructure requirements which would benefit future project and training for end users. The infrastructure requirements address the improvement and upgrade of the existing network which would not have to be addressed again by future projects.

5. On page 4 of the report, the it states, **"The software and resulting database would be housed on the planned purchase of, at least, 12 mini-computer file servers."**
The original architecture proposed for DGMS from development through and including implementation of the pilot in production consisted of a total of 5 mini-computer file servers. This included a Sun Microsystems E3500 for development; a Sun Microsystems E3500 and E250 for testing, QA and training; a Sun Microsystems E6500 and E250 for implementing DGMS into production. A number of hardware renderings were developed in order to convey the concept of expandability and extensibility. These drawings are not meant to represent a 'number' of computers. In actuality, the FSI team proposed a production hardware configuration which required only one Sun Microsystems E6500 and one Sun Microsystems E250. The hardware configuration was approved by the Technology Investment Board, and will support DGMS development and the pilot implementation of DGMS.

6. On Page 6 of the draft report, it reads, **"CIO Review Concludes Project Scope Not Well Defined"**.
We disagree. Attached is a copy of the CIO PMRB Report. The findings by the CIO did not address scope other then to provide the DGMS scope definition. HUD feels this conclusion is unfounded.

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7. On Page 6, the report reads ,"**Functional Requirements Document Contains No Final Completion Date.**"
HUD acknowledges your finding of no final completion date contained in the Functional Requirements Document. Due to the non-selection of the target payment system and the lack of business requirements with respect to a Common Performance Measurement criteria, it was not possible to establish a firm end date at this time. The Joint Application Review Team will meet in the next month to finalize measurement criteria. The target payment system will be determined by the end of 1999.

8. On Page 6, the report reads, "**DGMS Draft Conversion Plan Shows Exclusion of 37 Programs and Inclusion of 2 Loan Programs.**"
The inclusion of "loan" programs within DGMS is continuing to be discussed. Certain loan programs have characteristics that are very similar to grants. An example is Section 108 Loans. Where possible, these loan programs may be candidates for partial inclusion in DGMS. While DGMS is being designed to handle the majority of HUD grants, some grants are so unusual that the cost of adapting DGMS to fit these unique requirements would possibly cost more than the amount of the grant. DGMS developers continue to meet with HUD staff to determine exact program requirements in order to determine what grant programs are cost beneficial to be included in DGMS.

In the case of HUD Programs Sec 202 and Sec 811, a decision was made by the Assistant CFO for Systems that DGMS would not include these loan programs. The primary focus of DGMS is grants management with the flexibility to allow multi levels of data capturing to include interim performance measures, monitoring and risk assessment. Other programs that involve loans may be introduced and supported in DGMS, but only after all grant programs have been incorporated into, and are being supported by, DGMS. The DGMS team has determined that the ideal method of development would be to initially work with an achievable population until the system can be stabilized. Once stability is achieved, the team will begin analysis for possible inclusion of additional programs.

9. On Page 7 of the draft audit report, it reads, "**Basic Premise of a Common Grant Process Not Supported by a Cost-Benefit Analysis.**"
The HUD has addressed the subject of providing an updated cost/benefit analysis for a departmental grant system, and it will be completed in early 2000. This will be after the DGMS pilot is introduced in November 1999, and prior to a production release, scheduled for June 2000. It should provide better data for the analysis.

10. On Page 7, the report claims that **grantees were excluded from the DGMS development process.**"
DGMS is first and foremost a HUD system, designed for use by HUD to manage all grants across all disciplines. Although the DGMS team did not invite individual grantees, the team briefed three public interest groups, the National Community

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Development Association(NCDA), the National Association of Housing and Redevelopment(NAHRO), and the Council of State Community Development Agencies(COSDA), that represent grantees. In addition to the briefings held at HUD, the DGMS team conducted a presentation at the NCDA conference held in Washington D.C. This dialogue continues today and will be further nourished by the establishment of DGMS user groups. Grantees may identify requirements that would improve their business operations. The DGMS Team will analyze the feasibility of satisfying these requirements. If the Team determines it is cost effective and does not adversely impact HUD's business need, we intend to incorporate the requirements into the system.

11. On Page 8 of the draft report, the you express concern over **"Simultaneous Development of Grant Systems By 2 Different Organizations."**
Contrary to the phrasing in this finding, IDIS is not under development, but rather is being modified to address the immediate needs of users. These adjustments fix the system for the next 12 months in order to give the Department time to train grantees and roll out DGMS. These actions are being carried out simultaneously, but will be deployed to the end users sequentially so to have the least amount of disruption.
Both the fixing of IDIS and the development of DGMS are being carried out by the Office of Grants Management and Program Compliance Support in the Office of Administration. CPD continues to be the sponsor for IDIS, and the CFO, under the FSI Project, continues to be the sponsor for DGMS.

12. On Page 9 of the draft report, you express the concern that **"Congress Requires IDIS to Correct and Improve System Before Adding States."**
The IDIS currently has "EDI " or file transfer capability. The IDIS will have internet capability beginning with Fiscal Year 2000. The Department is continuing to bring various States on to the IDIS with the goal of having them all on the system by year's end. The Department is committed to the continuation of IDIS as an effective grant management system until the last IDIS grantee has been converted to the DGMS. This conversion is scheduled for completion by December 2001.

13. On Page 9, the report reads, **"New Reorganization Creates Confusion Regarding Control Over DGMS."**
We agree that the reorganization of the Departments Office of Administration has created some confusion among software contractors regarding management control over DGMS. However, senior level management was not confused, and the FSI Team has continued to work closely with the DGMS Development Team during the transition stage to avoid any delay which would result in further unnecessary costs. DGMS is part of the FSI project and represents the Department's continuing commitment to achieve true integration between program and financial systems. It

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is important to note that the reorganization aligns the grants systems from all program areas under one Office that is developing the DGMS in coordination with the project sponsor, the CFO. The new DGMS team leader is fully operational.

14. On Page 10, the draft report reads, **"Sponsorships of Dual Systems Needs to Be Combined."**
HUD believes that DGMS and other such systems, which are department-wide should come under the control of the CIO or CFO. Under CIO or CFO sponsorship, systems will be developed to meet the needs of the Department, and should achieve a level of cooperation from program areas heretofore resistant. Although sponsored by the CIO or CFO, once completed, the Office of Administration would be responsible for the maintenance, management, and implementation of department-wide systems.

In the case of DGMS and IDIS, dual sponsorship is appropriate because DGMS is department-wide while IDIS is CPD-specific. DGMS will include grants across the Department and it will capture more information on performance and monitoring than IDIS allowing the Department to respond more effectively and efficiently to requests from Congress and the American public.

Recommendations
On page 11 of the draft report, the you make five recommendations.

1. **"Consolidate the sponsorship and development of DGMS and IDIS under the CIO, along with provisions of adequate resources, including a project manager for the grants management system."**
DGMS, as a HUD-wide system, is under the sponsorship of the CFO, while IDIS, as a CPD-only system, is under the sponsorship of CPD. Both systems are under the development or direction of the Grants Management and Compliance Division of Administration. This ensures a coordinated, cost-effective approach. There are very limited, if any efficiencies or economies-of-scale to be achieved by combining the DGMS project with IDIS. IDIS should remain as an IT maintenance project until phased out.

2. **"Require a new feasibility study with a cost benefit analysis of the technical alternatives to the development approach of the Department's grant management system(s), to include, an additional cost benefit analysis to support the common grant process and any implementing system."**
We agree with your recommendation. A contract will be let for a consulting firm to conduct the proposed cost/benefit analysis between January 1, 2000 and June 30, 2000.

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3. **"Curtail further new development on both systems until the recommended studies and analysis have been completed."**

We disagree with your recommendation. Further delay of the development of DGMS would result in additional unnecessary costs. Curtailing further development would result in the possible loss of development staff from the project, which, in turn, would result in rework such as staff training and project familiarization. The Department is confident that the approach is sound and cost effective.

4. **"Reexamine planned migration of unique grant or loan programs to any new single grants management system."**

We agree with the your recommendation. The reexamination of planned migration of unique grant or loan programs is being accomplished at this time and will continue to be a point of focus. The migration of additional programs will not be included in the first production release, however, the team is examining the possibility of adding programs at a later date.

5. **"Use temporary employment agreements to obtain experienced IDIS grantees, including both state and community recipients, to help in the Department's development of any new grants management systems."**

We disagree with the your recommendation. The DGMS Team will continue to work with national public interest groups about the features and functionality of DGMS. The Team is interested in grantee business needs, however, the Department is confident in the DGMS methodology and sees no reason to utilize the IDIS processing methodology as a basis for developing the DGMS.

Cc: Terry Nicolosi

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