REPORT BY THE

Comptroller General

OF THE UNITED STATES

Farmers Home Administration Needs To Better Plan, Direct, Develop, And Control Its Computer-Based Unified Management Information System

The Unified Management Information System s a computer-based information system under ;evelopment by the Farmers Home Administ- t ::ion. This new system is designed to deliver better management information to all offices and levels within the agency. It is also in- tended to improve service to rural Americans seeking financial assistance. Recommenda- tions made in this report will help the agency to more effectively

--schedule resources and completion dates,

--monitor life cycle costs for developing and operating the system,

--plan and develop the system consistent with user needs,.

--develop test plans for the two system alternatives,

--evaluate the impact of organizational changes on the system, and

--exercise top management control.

CED-78-68
FEBRUARY 27, 1978

B-146864

The Honorable Jamie L. Whitten, Chairman
Appropriations Subcommittee on
  Agriculture, Rural Development
  and Related Agencies
House of Representatives

Dear Mr. Chairman:

Pursuant to your October 25, 1977, request, we obtained
information on the Farmers Home Administration's plans and
costs for its computer-based systems project--the Unified
Management Information System. In addition, we were asked
to obtain information on the effect of recent organizational
changes on the system. At a subsequent meeting with your
office, we agreed to also cover

  --the status and use of computer terminals currently in
    county offices,

  --the feasibility of using these terminals for testing,

  --a comparison of operating costs of the current system
    with the operating costs of the system under develop-
    ment,

  --the source of funds available for all costs associ-
    ated with the system, and

  --the relationship of budget requests to the develop-
    ment and implementation of the system.

The Unified Management Information System is a computer-
based information system designed to deliver better manage-
ment information to all offices and levels within the Farmers
Home Administration. This new information system is also
intended to improve the level of service to rural Americans
seeking financial assistance.

In the process of obtaining the requested information,
our evaluations showed that the Farmers Home Administration
needs to improve the planning, direction, development, and
management control of its computer-based system development
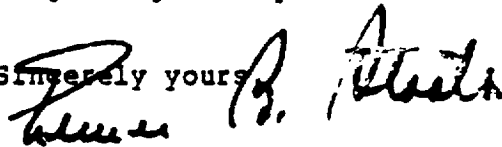project. Specifically, it should more effectively:

--schedule resources and completion dates for critical phases or tasks (see app. II);

--monitor life cycle costs associated with developing, operating, and enhancing the system (see app. III);

--plan and develop the project consistent with agency (user) needs (see app. IV);

--develop test plans for the two system alternatives: the National Operating Center and Full Field Service (see app. V);

--evaluate the potential impact of recent and proposed organizational changes on the system (see app. VI); and

--exercise top management control over the life cycle of the system's software (see app. VII).

We have made recommendations for improvement in each of these areas (see app. VIII).

As instructed by your office, we did not request comments from the Farmers Home Administration or the Department of Agriculture. We have, however, discussed with agency and department personnel the facts in this report. They generally agreed with them, and we have considered their comments in preparing this report.

As agreed with your office, the initial distribution of this report is being made only to your Subcommittee for use during hearings scheduled for March 1 and 2, 1978. We will contact you in the near future regarding subsequent distribution of this report.

Sincerely yours,

Comptroller General
of the United States

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C o n t e n t s

ABBREVIATIONS

ASC	Agriculture Service Center
FFS	Full Field Service
FmHA	Farmers Home Administration
GAO	General Accounting Office
NOC	National Operating Center
OADS	Office of Automated Data Systems
OMB	Office of Management and Budget
UMIS	Unified Management Information System
USDA	United States Department of Agriculture

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BACKGROUND INFORMATION

The Farmers Home Administration (FmHA) provides financial assistance to rural Americans who are unable to obtain credit from other sources at reasonable rates and terms. It operates principally under the Consolidated Farm and Rural Development Act (7 U.S.C. 1921) and title V of the Housing Act of 1949 (42 U.S.C. 1471). FmHA provides services through 42 State offices, a national finance office in St. Louis, Missouri, and approximately 1,750 county offices. Of its approximately 10,600 employees, nearly 300 are based in Washington; 10,300, in the field.

As of October 1, 1977, FmHA was servicing the accounts of about 1 million individual borrowers and 13,300 association borrowers serving approximately 5,000,000 families, with a principal indebtedness of $22.5 billion. The administration of these programs requires that information be processed by the current computer-based information and reporting system described below.

PRESENT INFORMATION AND REPORTING SYSTEM

FmHA's current computer-based information and reporting system is processed by the St. Louis Computer Center, located at the FmHA Finance Office in St. Louis, Missouri. Program loan accounting is the major application processed by the computer center.

Other FmHA data processing requirements are served by two U.S. Department of Agriculture (USDA) computer centers. The USDA Computer Center in New Orleans processes personnel, payroll, and selected administrative transactions. Statistical analysis is performed by the USDA Computer Center in Washington, D.C., or private contractors.

FmHA states that its current computerized information and reporting system is extensive, but data is widely dispersed in various computer records and difficult to access from its computer files. Field offices and borrowers mail to the FmHA Finance Office all loan accounting data to be processed by the computer center.

Most information produced by the Finance Office is mailed to the recipients. An exception is the County Office Inquiry Station located in the FmHA Finance Office. County offices may call this station for information about borrower account status. Inquiry station terminal operators have direct access to computer files and provide county offices with immediate voice responses to inquiries about loan status and related matters.

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FmHA's DECISION TO DEVELOP A NEW
MANAGEMENT INFORMATION SYSTEM

FmHA decided in 1974 that the deficiencies of the
current system warranted replacement rather than modifica-
tion. Accordingly, FmHA began developing a computer-based
system called the Unified Management Information System
(UMIS)--to provide better management information at all
levels.

FmHA specified the following objectives or goals for
UMIS:

   --To provide an accounting system that meets General
     Accounting Office requirements.

   --To provide responsive, timely management information
     to managers at all office levels--county, district,
     State, finance, and national.

   --To minimize office workloads required to provide basic
     input data.

   --To improve capability to serve loan applicants and
     borrowers in rural America.

To meet these objectives, FmHA initially specified that
UMIS would provide remote computer capability in all FmHA
county and State offices and would include terminals at the
Finance Office in St. Louis and the National Office. This
concept, referred to as Full Field Service (FFS), proposes
the immediate handling of transactions by the county offices
as they occur. The system proposes daily alerts on delin-
quent borrowers and immediate responses to individual in-
quiries.

Our earlier report (B-146864, January 28, 1977) ques-
tioned whether FmHA could substantiate the need for the imme-
diate handling of all these transactions. As a result, FmHA
agreed to develop another version of UMIS termed the National
Operating Center (NOC). It was also agreed that the possi-
bility of converting NOC to FFS would remain open if it could
be justified.

NOC provides remote computer capability in FmHA State,
Finance, and National Offices but not at the county office.
Under NOC, most county office transactions would be mailed to
the Finance Office in St. Louis where entry of transactions
would occur. Borrower inquiries and check requests at the
county office would be handled by telephone calls to the In-
quiry Station at the FmHA Finance Office. Such a system is

currently in operation. National and State offices would use
their computer terminals to obtain management information
and structure ad hoc queries. There would be no daily
alerts, and delinquencies would be printed and mailed weekly
from the Finance Office.

FmHA obtained the services of a private contractor,
Systems Development Corporation (SDC), to assist in the de-
sign, development, testing, and implementation of UMIS. SDC
subcontracted to Arthur Andersen & Co. the task of surveying
FmHA's management information needs. SDC is working closely
with the FmHA system development team to complete the various
tasks required for installation of the new system, UMIS.

An FmHA Project Manager is responsible for the develop-
ment and installation of UMIS. He is also responsible for
coordinating with the user organizations and directing the
efforts of the SDC contractor.

SCOPE

We primarily directed our review toward obtaining in-
formation on the project. We visited the Farmers Home Ad-
ministration's National Office in Washington, D.C., and the
Finance Office in St. Louis, Missouri. We also visited the
Department of Agriculture's Office of Automated Data Systems,
Office of Audit, Office of the Assistant Secretary for Rural
Development, and the Office of the Assistant Secretary for
Administration. In addition, we obtained information by
visiting or contacting the Farmers Home Administration's
field offices and representatives from Systems Development
Corporation and Arthur Andersen & Co. We reviewed records
and documents relative to the Unified Management Information
System at the various offices visited.

STATUS OF PLANS AND SCHEDULES

TO DEVELOP AND IMPLEMENT UMIS

The planning, design, development, and implementation of the Unified Management Information System represents a considerable investment of resources--people, automatic data processing software, 1/ and equipment. Producing an efficient, cost-effective system and maximizing the return on investment requires a formal project control mechanism to track and review each stage of the system's development process. Assuring effective scheduling of resources and completion dates for critical phases or tasks on the UMIS project necessitates management control over the progress of the scheduled events, project cost performance, and project resource utilization.

The development of UMIS began in late 1975 without the benefit of a formal project control mechanism to track progress and costs associated with its development. Late in 1977, the Farmers Home Administration installed PAC II, a computerized project management system designed to help FmHA budget, plan, monitor, report, and control the development and installation of UMIS. PAC II schedules and allocates resources and develops starting and ending dates for each major phase and task.

During our review we found that data collected for PAC II was incomplete. Output from PAC II was not in a form usable for management's use. Consequently, we applied the "software development life cycle model," an approach which divides the overall system effort into logical and manageable phases and stages (see p. 6). We used this proven and acceptable approach as a standard to review the status and associated costs of UMIS.

At our request FmHA compiled a special report on planned and completed tasks consistent with this model. It is based on FmHA data for major tasks within the overall software development life cycle (see p. 7).

In the context of this software life cycle model, UMIS has an 11-year life. The Initiation phase began in 1974 with the Development phase starting 1 year later. UMIS is currently in the Development phase with system development

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1/Software is the set of computer programs, operating systems, procedures, rules, and related documentation associated with computer/communication systems.

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activities in various stages of completion. FmHA expects
to complete the Development phase by October 1979.
The Operation phase of the UMIS life cycle, up to the point
of system termination, is expected to have a 6-year life--
1980 through 1985.

     During the period April through October 1979, FmHA plans
to conduct operational tests of UMIS under two versions--
National Operating Center and Full Field Service. Such tests
will involve functional or program personnel--the ultimate
users. UMIS, under the NCC method, will be implemented na-
tionwide to replace FmHA's current information and reporting
system. Concurrently, FmHA plans to test and evaluate PFS
to aid in deciding on future implementation of this UMIS ver-
sion.

     During the Development phase FmHA has encountered dif-
ficulties which have resulted in slippage of scheduled com-
pletion dates by approximately 1 year. Such slippages result
in increased costs for the development teams of FmHA and the
private contractor, Systems Development Corporation. Delays
associated with implementing UMIS may result in unused or low-
level usage of computer and terminals primarily procured to
process data for UMIS.

     When asked, FmHA offered the following reasons for sched-
ule slippages:

     --understaffing,

     --underestimation of the complexity of various tasks,

     --changes in requirements,

     --design modifications,

     --requirements for additional documentation for sub-
       sequent develoment work in the process, and

     --deferring the acquisition and developmert of a Data
       Base Management System until the host computer was
       selected.

Software Life Cycle Model

Initiation phase	Development phase	Operation phase
Definition of agency needs and system objectives	Definition of functional requirements	Evaluation of test results
Feasibility studies and cost-benefit analysis	Definition of information requirements	Implementation and maintenance of developed software
Preparing a request for proposal	Specification of design characteristics	Changing software as new requirements are identified
	Specifications for computer programming and writing programs	
	Specifications of operating environment	
	Specifications for telecommunications	
	Development of manuals for users, computer operators, and programmers	
	Data base conversion	
	Testing the developed software, reducing test data, and developing evaluation criteria	
	Preparation of test analysis report of results and findings for implementation of software	

Scheduled Completion For UMIS Software
Life Cycle by Calendar Year

Phase/stage description	1975	1976	1977	1978	1979	1980
I. Initiation phase:						
Define agency needs and systems objectives		1/C				
Conduct feasibility study and cost-benefit analysis			C			
Prepare request for proposal	C					
II. Development phase:						
Functional design				2/S		
Data dictionary				S		
Systems design				S		
Computer programming					S	
Operating interfaces					S	
Data base conversion					S	
Telecommunications					S	
Documentation and training					S	
Conduct systems test					S	
Operational test-- FFS versus NOC					S	
III. Operation phase:						
Implement UMIS-NOC version					S	
Evaluate test results of FFS and NOC						S

1/Completion
2/Schedule for completion. Projections are as of January 20, 1978

ANALYSIS OF COSTS FOR DEVELOPING, IMPLEMENTING, AND

OPERATING THE UNIFIED MANAGEMENT INFORMATION SYSTEM

Costs throughout the Unified Management Information
System software life cycle should be developed, reviewed,
and updated to effectively help direct and control the de-
velopment and operation of UMIS. The life cycle of UMIS
software is approximately 11 years. This time period is
divided into the three major phases--Initiation, Development,
and Operation. Over this life cycle, responsibility and
accountability for all costs, both estimated and actual,
should be fixed. The significant investment of effort, time,
and resources coupled with the complexity of design, develop-
ment, installation, and operation of the UMIS software war-
rant financial and management review at regular intervals.
At each check point, major phase, or task in the process,
management should review actual versus estimated cost
information to help decide on the future of UMIS.

We used Office of Management and Budget (OMB) Circular
A-109 as a guide to the type of costs that should be avail-
able for a project such as UMIS. This Circular defines life
cycle cost as

> "the sum total of the direct, indirect, recurring,
> nonrecurring, and other related costs incurred, or
> estimated to be incurred, in the design, develop-
> ment, production, operation, maintenance and sup-
> port of a major system over its anticipated useful
> life span."

The Farmers Home Administration had not estimated the
total development cost of UMIS before our review. When re-
quested, FmHA could not separately identify the development
costs associated with Full Field Service or National Operat-
ing Center. In addition, FmHA had to reconstruct and estimate
some incurred costs because a cost accounting system was not
in place to accumulate cost data.

In the absence of a formal cost reporting structure,
FmHA decisionmakers have no assurance that the system under
development will be cost beneficial and consistent with
agency (user) needs.

UMIS life cycle costs provided to us by FmHA for the
three major phases are depicted below. The projected cost
for operating UMIS under the FFS version is about 75 percent
higher than the NOC version.

Life Cycle Cost of UMIS

	Phase	UMIS/FFS alternative	UMIS/NOC alternative
		(millions)	
I	Initiation	$ 0.1	$ 0.1
II	Development	16.5	16.5
III	Operation	152.4	88.2
	Total	$169.0	$104.8

FmHA did not agree with our presentation of the Operation phase costs and stated that the appropriate figures for FFS and NOC are $164.7 and $150 million, respectively. The primary difference between the FmHA and the GAO computations is the value assigned to county office personnel time under the NOC alternative. FmHA's computations were based on the amount of time county office personnel would use a terminal under the FFS environment and assumed the same dollar value under the NOC environment. However, we based our calculations on characteristics unique to the NOC environment.

FmHA has or plans to perform most of the tasks identified for the Initiation and Development phases in the software life cycle model (see app. II, p. 6). However, two tasks, the feasibility study defining system design alternatives and the related cost-benefit analysis, were not performed in the Initiation phase before system development began.

The following table shows $16.6 million in costs for the Initiation and Development phases broken down by resource categories identified by FmHA.

Cost For Initiation and Development--Nonrecurring as of November 30, 1977

Resource categories	Nonrecurring costs
	(millions)
Kansas City host computer	$ 5.5
Telecommunications network	.1
Computer terminals	.1
Personnel to develop and implement UMIS	4.9
Private contractor to develop and implement UMIS	4.4
Training	.9
Site preparation	.3
Travel	.2
Space and supplies	.2
Total	$16.6

Of the $16.6 million total for the Initiation and Development phases of UMIS, $12.1 million represents projected costs through the completion of the current Development phase. The remaining $4.5 million is the cost expended as of November 30, 1977.

As stated earlier, FmHA was not able to separate the development costs of FFS and NOC. We were told there was no essential difference in costs between the two approaches. FmHA defines NOC as an FFS system without terminals in the county offices. This particular definition is a result of designing FFS first, then designing NOC as a "subset" of the FFS version.

We believe that if NOC had been defined and evaluated as an independent, unique alternative to UMIS, the associated development cost would have been substantially less. For example, frames management, an advanced technique for entering data on terminals, was a design feature for FFS and planned for use under NOC. If NOC had been developed independently and other data entry methods studied in a cost/benefit framework, the frames management technique may not have been determined the most cost-effective.

UMIS budget

FmHA does not budget nor request funds for all phases of UMIS as a separate line item on FmHA's budget justification. As noted in the table below, budget requests primarily relate to costs associated with the contractor, System Development Corporation.

UMIS Budget For Development Contractor·

Fiscal year	Requested	Approved
	(millions)	
1977	$2.3	$2.3
1978	3.2	2.7
1979	4.2	(subject to approval)
	$9.7	

These requests do not include costs of FmHA employees
assigned to the UMIS development team, supplies, travel, or
floor space. For example, FmHA budget requests through Sep-
tember 30, 1977 (FY 1977), were $2.3 million, but incurred
costs approximated $4 million for the same time frame.
In addition, budget requests for the 3-year period associated
with the total development project amounted to $9.7 million,
but the estimated total development costs (including
Initiation phase costs) are approximately $16.6 million.

We believe FmHA should establish a budget for the entire
UMIS project. Incurred costs should be measured against
this baseline on a regular basis. In addition, with knowledge
of total development costs, an adequate cost-benefit analysis
can be performed and FmHA decisionmakers would be better in-
formed in determining future courses of action.

Operating costs of present and proposed system (UMIS)

On the basis of information provided to us by FmHA, we
estimated the annual operating cost for the present informa-
tion and reporting system and the proposed operating cost for
UMIS/NOC and UMIS/FFS. Costs are distributed in seven major
categories, and UMIS costs are based on a projected life
cycle of 6 years for operating the system.

Annual Operating Costs--Present and Proposed Systems

Resource category	Current information system	UMIS/ NOC	UMIS/ FFS
	----------(millions)------------		
Host computer system	$1.3	$ 2.7	$ 3.1
Computer terminals	.3	.8	2.7
Telecommunication network	-	.5	4.2
Personnel	4.6	9.2	14.2
Office space	.4	.5	1.1
Voice communications	.3	.9	-
Supplies	.1	.1	.1
Total	$7.0	$14.7	$25.4

Annual operating costs of FFS are estimated at $25.4 million. In April 1976 FmHA reported the annual operating cost of FFS would be only $10.3 million. We believe FmHA underestimated because it did not include all costs associated with UMIS.

We met with several FmHA officials and obtained concurrence on the definition of the present management information system. Costs were then constructed in terms of the agreed definitions using as a basis costs incurred during FY 1977. The current system should have been defined and costed during the Initiation phase to provide a basis for a valid cost-benefit analysis.

NOC's estimated annual operating costs were based on figures provided by FmHA. We have reservations regarding certain information provided to us. For example:

--FmHA proposes the need for 240 terminals at the Finance Office and 250 people to operate them. We found that this need was based on peak workloads and on the assumption that all elements peak at the same time. We question this assumption and believe that other alternatives should be considered (e.g., the use of more than one shift, or overtime, or contracting for services) during these peak periods.

--FmHA proposes the use of 42 toll-free WATS phone lines under NOC. (The current system includes 19 such

lines.) The number of phone lines was based partially
on FmHA's estimate that it would take a terminal oper-
ator 2.5 minutes on the line to handle a single
inquiry. Our analysis of the current system revealed
an average of 1.4 minutes to respond to an inquiry,
which also includes the manual activity of reading
the amount of last payment on a microfiche reader.
This manual activity will not be performed under the
proposed system.

In addition, the number of expected inquiries
under NOC may be overstated because the projection
is based on the number of inquiries presently
experienced. Based on our survey of county offices,
approximately 86 percent of the present inquiries are
a result of their confirming the accuracy of informa-
tion on delinquency reports. When improvement is made
in the accuracy and timeliness of the delinquency
reports, we believe the capability of the current in-
quiry stations to respond to county office inquiries
will be greatly improved.

In our view, these problem areas would affect the cost
of terminals, voice communication lines, and the number of
personnel under NOC. If such costs are inaccurately stated,
the results of a cost-benefit analysis based on these costs
would likewise be invalid.

STATUS OF AGENCY (USER) NEEDS
(FUNCTIONAL REQUIREMENTS)

The Farmers Home Administration did not base its initial decision to develop UMIS/Full Field Service on an adequate study of agency needs. FmHA could have avoided or minimized problems by following the steps outlined in a computer system feasibility study.

General Services Administration/Federal Management Circular GSA-FMC 74-5 and Office of Management and Budget Circular A-109 offer guidance for acquiring automatic data processing equipment and software.

GSA-FMC-74-5, dated July 30, 1974, requires that Federal agencies base any decision to acquire automated data processing equipment, software, and maintenance on a well-documented general systems or feasibility study. This rule applies any time the anticipated purchase price exceeds $100,000.

The purpose of a feasibility study is to provide information for choosing among various data processing alternatives. It is one of the first steps in developing a system to economically and efficiently meet an organization's data processing needs. This approach avoids the problems and consequences of developing a system to fit a predetermined equipment configuration.

The feasibility study, normally performed during the Initiation phase of the system life cycle, generally includes the following elements:

--Development of system objectives.

--An analysis of the existing management information system.

--An analysis of major agency (user) requirements.

--An analysis of major design alternatives.

--An analysis of costs and benefits of proposed system alternatives.

Although a United States Department of Agriculture official identified the first part of the UMIS contractor's system development work (called UMIS Phase I by FmHA) as a feasibility study, we question the adequacy of this study and will discuss our reservations in the context of the above elements.

Development of system objectives

OMB Circular A-109 requires that agencies define their system needs and objectives in terms of agency mission and purpose. This circular also stresses the importance of not defining new system needs in equipment terms.

The FmHA system design and development Request for Proposal (RFP), specified that UMIS would be based on a computer system with computer terminals in each of FmHA's 1,7⁵0 county offices. By defining its system needs in equipment terms, FmHA precluded any objective consideration of system design alternatives. Furthermore, by not defining UMIS' objectives in terms of agency mission and purpose, FmHA has little assurance that any completed system will meet the agency's short- and long-term information needs. Had the RFP specified the UMIS objectives in agency mission terms, FmHA would have provided the basis for developing an effective and economical management information system.

Analysis of the existing management information system

FmHA reviewed the existing system during the first part of the UMIS design and development project. The purpose of this review was to (1) obtain an understanding of the agency's current operations and (2) determine the availability of the information collected by the system. The survey did not adequately determine why the system could not meet the agency's needs. According to an agency official, the decision to implement UMIS eliminated any need to define the problems with the existing system. We believe, however, that such an analysis would have provided a basis for either improving the existing system or designing UMIS.

Analysis of user requirements

FmHA's initial decision to develop the FFS version of UMIS was based on an inadequate study of agency needs (functional requirements). FmHA's first attempt to study user needs began October 15, 1974, with the establishment of a Management Information System Task Force. One of its products included an information requirements survey which was developed and distributed to FmHA personnel at all levels; i.e., Field, National and Finance Offices. Although these surveys were completed and returned by April 1975, the results were not summarized or evaluated until the UMIS system development contract was awarded.

FmHA issued the UMIS design, development, and implementation Request for Proposal (RFP) July 27, 1975, and

System Development Corporation signed the contract on
November 25, 1975. Subsequently, SDC subcontracted to
Arthur Andersen & Co. the task of studying FmHA's management
information needs. The results of this study were published
in the "Unified Management Information System Phase I"--1st
interim report dated February 2, 1976. The study concen-
trated on the information classes, representing data ele-
ments, required by the systems users but did not adequately
define or quantify information attributes, such as timeli-
ness, accuracy, and frequency of use. For example, there is
little evidence to indicate how long the various classes of
information will retain their usefulness before an update is
necessary. There is no evidence supporting the necessity
that all information be up-to-date at the close of each
business day. Knowledge of such attributes is important be-
cause they can and should serve as a baseline for evaluating
system alternatives; i.e., batch versus on-line.

To confirm some attributes of FFS, we called 19 FmHA
county offices. In regard to the FFS daily delivery of re-
ports on delinquent borrowers, we were told such reporting
on a weekly or bi-weekly basis was adequate because they
believed it would not be practical to service accounts
daily while handling new applicants and other duties. In
regard to immediate responses to inquiries, we found overall
satisfaction with the current telephone inquiry station,
although improvements are needed to make it more responsive.
We were also told the only transactions that required imme-
diate turnaround or response were requests for final payment
information. In the county offices included in our survey,
approximately 86 percent of the inquiries were made to ob-
tain information on the number of months behind and/or the
date of last payment for FmHA borrowers. County personnel
told us that the occurrences of these inquiries indicated
how the inquiry station was used to confirm information
on their delinquency reports. More accurate and timely de-
linquency reporting would reduce the number of requests for
such information and thereby improve the inquiry station's
ability to respond to other calls.

Evaluation of alternatives

FmHA evaluated alternatives to UMIS/FFS in early 1976
and reported its findings in the UMIS Phase I--Final Report,
dated April 19, 1976. The baseline for this evaluation in-
cluded features which could be met only by the FFS version
of UMIS. Consequently, the study concluded that FFS was the
"best" alternative. This study should have used defined and
quantifiable information attributes as a basis for evalua-
tion. Since the baseline for comparison was FFS, none of
the alternatives received an objective evaluation.

During the evaluation, FmHA developed estimates called
effectivity ratings for the relative levels of service avail-
able with each of five alternatives. Since FFS was the base-
line, it received an effectivity rating of 100 percent. The
ratings for the other four alternatives, including NOC, ex-
pressed the ability of each to meet the "level of service"
provided by FFS. FmHA did not attempt to evaluate the level
of service needed or the ability of each alternative to sat-
isfy those needs.

Furthermore, the effectivity ratings were based primar-
ily on judgment. FmHA has not adequately documented the
effectivity ratings assigned to each of the alternatives.
Nor can the agency identify the services which would be lost
under each alternative.

Cost benefit

FmHA's cost-benefit analysis compared the annual opera-
ting cost of each alternative to its potential annual sav-
ings. The potential savings for each alternative were deter-
mined as follows:

--FmHA computed the "potential" savings resulting from
   FFS.

--The overall effectivity ratings were then applied to
   the potential savings under FFS to determine the dol-
   lar value of savings that would accrue under the al-
   ternatives. (For example, because NOC had an effec-
   tivity rating of 28 percent, the agency believed NOC
   would realize 28 percent of the potential savings
   attributable to FFS.)

FmHA acknowledged that the anticipated savings for FFS
were determined subjectively and that little documentation
was available to support these savings. The UMIS project
manager stated that these figures were developed to obtain
some idea of the type of savings which might be realized.
They were not intended to justify implementation of FFS.

FmHA should have developed savings for each UMIS alter-
native independent of FFS. These "potential savings" should
in turn be as objective as possible. As a result of the
evaluation method used by FmHA, we do not believe that any
of the alternatives received an objective evaluation.

STATUS OF PLANS TO TEST AUTOMATION OF

AGRICULTURE SERVICE CENTERS AND THE

FULL FIELD SERVICE/NATIONAL OPERATING CENTER

APPROACHES TO UNIFIED MANAGEMENT INFORMATION SYSTEM

Beginning in April 1979, the U.S. Department of
Agriculture plans to test the feasibility of using computer
terminals in Agriculture Service Centers (ASCs) located in
Illinois. During this period and within the framework of
the ASCs, the Farmers Home Administration plans to conduct
a test of the Full Field Service approach to the Unified
Management Information System. The test results are to be
used to make a cost-effective comparison between FFS and
the National Operating Center approach to UMIS.

ASCs may include field offices of Agriculture Stabiliza-
tion and Conservation Service, FmHA, Soil Conservation Service,
Federal Crop Insurance Corporation, and the Extension Service.
ASC promotes the sharing of work, equipment, systems, and
facilities among agencies in collocated field offices. The
purpose of the test is to determine whether operating computer
terminals in an ASC environment provides a cost-effective
appproach to delivering services.

The test and evaluation of terminals in Agriculture
Service Centers will be separate from FmHA's test and evalua-
tion of FFS. A detailed discussion follows.

ILLINOIS ASC TEST

In July 1975 USDA formed a task force, called the Field
Installation ADP Requirements (FIAR) Task Force, to (1) evalu-
ate the feasibility and cost effectiveness of installing
terminals in county offices and (2) identify opportunities for
USDA agencies to share information. The five agencies men-
tioned above as participants in ASCs also served as a basis
for defining the data processing requirements in the task
force study.

The major objective of the Illinois/ASC Test is to
verify the findings of this task force. The March 22, 1976.
task force report contained the following conclusions
and recommendations:

--The feasibility of a county office network has
   been demonstrated from both a technical and
   benefits viewpoint.

--The ASC concept offers significant savings in
terms of terminal and network costs.

--Significant savings result as network utilization
is increased; whenever possible, other USDA agen-
cies should use the same network.

--A test of the ASC network should be established
to further demonstrate and quantify both costs
and benefits.

USDA designated the Office of Automated Data Systems
(OADS) to conduct the test and assume responsibility for all
terminal activities necessary for verification of the test
results. Although detailed test plans have not been pre-
pared, we did review the Objectives and Requirements Report
prepared by the Telecommunications Division of OADS. It
discusses the objectives, terminal requirements, estimated
cost of the Illinois/ASC Test, as well as the FmHA/FFS Test
and implementation of FmHA UMIS/NOC which are discussed be-
ginning on page 20 of this appendix. The report indicates
that 41 terminals will be placed in ASC county offices. One
terminal will be placed in each State office of FmHA, Agricul-
ture Stabilization and Conservation Service (ASCS), and Soil
Conservation Service.

USDA's estimated cost associated with the Illinois/ASC
Test initially scheduled in November 1978 were as follows:

Illinois/ASC Test Projected Cost

FY 1978	$ 85,600
FY 1979	$204,900
FY 1980	$205,100
FY 1981	$205,100

During the test period each agency is to develop and
implement its own independent computer-based systems which
will allow the test objectives to be verified. Specific
action plans by each agency are still to be formulated.

The selection of a particular type of terminal has
already been made by OADS and was based primarily on FmHA
workload, the only workload known at the time. We were
told these terminals were compatible with several computer
systems which will allow participants to use the Kansas City,
Fort Collins, or New Orleans Computer Centers. We were also
told the lease can be terminated within 30 days if OADS finds
the terminals cannot handle the workload of the other agencies.

In an August 25, 1977, memo to the Administrator, ASCS, the Secretary of Agriculture expressed support for the ASC concept. USDA has assigned responsibility for establishing ASCs to the State Administrative Committees. The Illinois State Administrative Committee supports the ASC concept and testing the use of automation in those centers.

We were told by an ASCS national office official that the work characteristics in its county offices has changed, which makes the use of terminals less attractive. Other ASC test participants (agencies) will be using existing systems to which they have access. FmHA is the only participant currently developing a system to be used during the test. Its system will employ 50 to 70 percent of the usage of these terminals.

A test with only one major user may not verify the conclusions of the Field Installations ADP Requirements Task Force report. We believe the test of computer terminals in the ASCs should not end until all agencies have reached a significant level of their expected usage. We believe the test should not be expanded to other county offices outside Illinois until the test is completed and the results evaluated.

ILLINOIS UMIS/FFS TEST

The test of FmHA's FFS approach to UMIS is planned to run concurrently with the Illinois/ASC Test discussed above. The UMIS/FFS version is to be tested within the context of the ASC concept. OADS is in the process of obtaining terminals to be used in all designated Illinois ASCs. FmHA plans to provide terminals in all their county offices which are not within designated ASCs. The test was scheduled to begin in November 1978 but has been rescheduled for April 1979.

The objectives of the FFS test are

--to gather statistics needed to make the comparison of the relative costs and benefits of UMIS implementation under two alternative modes of operation--NOC and FFS and

--to gather the technical data necessary to implement FFS on a nationwide basis should the test indicate it to be the most cost-effective approach.

FmHA plans to assemble a detailed test and evaluation plan. This plan should describe the measuring criteria to be

applied in the test, the mechanism for collecting and retaining measurement data, the evaluative testing mechanisms to be applied in interpreting the data collected (statistical or otherwise), and the decision rules to be applied in these evaluative tests. In other words, before the test is initiated, FmHA management should determine what test results must be observed to select one of the two alternatives for final implementation.

Because detailed test plans were not yet formulated, we reviewed the FmHA objectives of the FmHA/FFS Test in Illinois and FmHA/NOC implementation. FmHA's proposed measurements of performance and service quality are to be used to compare NOC and FFS. We believe a more appropriate evaluation would be to measure each approach independently against well-defined, specific needs of each user. This should include a determination of what level of performance is acceptable.

In its cost-effectiveness measurements FmHA highlights functional capabilities available from FFS and assumes that the lack of them under NOC results in a degradation of services; yet FmHA has not established the acceptable or needed level of service.

The FFS test is scheduled to run 6 months. We believe a test period of 1 year would be more appropriate because

   --sufficient time should be allowed to eliminate
     initial startup design problems and training
     errors from the test data and

   --it would insure that peaks in workload processing
     would be included in the evaluation.

We found no formal organizational structure to insure user (county office) participation in the development of the test objectives and detailed test plans. We did find an informal arrangement whereby various county and State office personnel could be requested to make comments on these documents. A more formal structure would insure that the UMIS test measures items considered important by the users.

NOC IMPLEMENTATION

The NOC approach to UMIS was scheduled to be implemented nationwide in five 1-month stages beginning in October 1978. Schedule slippages in this plan resulted in rescheduling implementation to begin in April 1979.

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The first stage will be used to make limited operational
tests of software, hardware, and telecommunications. We
believe a longer period for both testing and evaluating NOC
is necessary. The extended test period would provide FmHA
the opportunity to train personnel, correct data errors, re-
solve design problems and refine the system before nation-
wide implementation.

During the first stage, Iowa, Mississippi, and New York
are scheduled to be converted from the existing system to
UMIS/NOC. Iowa will be used as a comparison against UMIS/FFS
in Illinois.

In addition, FmHA plans to replace existing terminals in
four county offices in Iowa, Mississippi, and New York which
will operate in a UMIS/FFS mode. FmHA plans to use these
counties as a control group to identify problems caused by
not being familiar with UMIS versus those caused by a lack of
familiarity with the use of terminals.

COUNTY OFFICE TERMINALS IN USE

FmHA currently has 20 terminals which it originally
considered using to interface UMIS. They were leased for
use by FmHA and ASCS. Unique ASCS requirements called for
terminals with a 64-character line. FmHA purchased them
in April 1977 ($57,428) for use during the FFS test. The
purchase was made on the assumption that these "intelligent"
terminals could be programmed to have an 80-character line.
It was later determined that this was not feasible. FmHA
now plans to use some of these terminals in the St. Louis
Finance Office and release the remaining machines to other
agencies.

THE EFFECT OF RECENT U.S. DEPARTMENT OF AGRICULTURE

REORGANIZATION ON THE DEVELOPMENT, TESTING, AND

EVENTUAL OPERATION OF THE SYSTEM

During our work at Farmers Home Administration, we identified five organizational changes which could affect the development, testing, and eventual operation of the Unified Management Information System:

--The merger of USDA's Office of Automated Data Systems with two other USDA offices.

--The merger of the Rural Development Service (RDS) and FmHA.

--The reassignment of those members of FmHA's UMIS development team located in St. Louis, Missouri, to FmHA's Finance Office, also located in St. Louis.

--The restructuring of FmHA field operations.

--The establishment of six staff positions in FmHA's National Office to serve as area coordinators.

In addition to these changes, we noted the possibility that a major reorganization may be recommended by the President's Reorganization Project, and the Congress could enact legislation which would significantly alter the mission and loan programs of FmHA. Each of these organizational changes is described and analyzed in the following sections.

In general, the merger of USDA's Office of Automated Data Systems with two other USDA offices could have a positive effect on the future operation of the Kansas City Computer Center which will process the information required by UMIS. On the other hand, the reassignment of the UMIS development team could have an adverse effect on the development of UMIS. The other three organizational changes may require some revisions to the UMIS design. Major reorganizations which significantly alter the mission and loan programs of FmHA could require major revisions to the UMIS design.

FmHA officials told us that they have carefully discussed the impact on UMIS which could result from these organizational changes. However, they have not conducted a formal study. Because UMIS is still in the development stage and because of the potential impact of these reorganizations on UMIS, we believe that a group of high-level officials and

system users and designers should evaluate this matter by
conducting a formal, analytical study.

SECRETARY'S DEPARTMENTWIDE REORGANIZATION

On October 5, 1977, the Secretary of Agriculture issued
Secretary's Memorandum No. 1927 ordering consolidations and
mergers of functions and units in seven departmental areas.
The target date for full implementation of the reorganization
was set for January 1, 1978.

The single criterion given by the Secretary as the basis
for his reorganization is that agencies and offices which have
similar objectives or missions should to the extent practical
be consolidated. The Secretary believes this will provide
opportunities for improved management of departmental programs
and policies by focusing responsibility for similar functions
in a smaller number of units and administrators.

The Secretary used the authority granted him under
Reorganization Plan No. 2 of 1953 in issuing the memorandum.
According to an Assistant to the Secretary, the reorganization
was cleared through the President's Reorganization Project at
the Office of Management and Budget and discussed with congres-
sional committees.

Two of the Secretary's seven reorganization initiatives
could have an impact on UMIS. These are the merger of the
three USDA administrative offices and the merger of RDS into
FmHA. These mergers are discussed below.

Merger of USDA administrative offices

In his October 1977 memorandum, the Secretary directed
that the three departmentwide administrative support offices
(Office of Automated Data Systems, Office of Operations, and
Office of Finance) be combined into a new Office of Operations
and Finance. This brings together related administrative
service functions and provides the potential for reduced over-
head in management. All functions performed by the three
existing offices will be combined under the new office.

Before the Secretary's reorganization, the Office of
Automated Data Systems was responsible for operating
USDA's major computer centers, including the Kansas
City Computer Center which will process the information
required by UMIS. During 1977 efforts were made by the
Agricultural Stabilization and Conservation Service, one
of the users of the Kansas City Computer Center, to obtain
control of the Center. In October 1977 the Deputy Secretary

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denied an ASCS request for control of the Center because he
did not want anything to interfere with the Kansas City
procurement. He also emphasized his support for consolida-
tion and centralization of USDA's computer centers. However,
the Deputy Secretary also said that in the future, if an
agency can fully justify managing its own computer and has
submitted a justification that he can support, he will help
that agency obtain its own computer.

Officials of ASCS indicated they may make another
request in the future to obtain control of the Kansas City
Computer Center. If ASCS obtains control, we believe it
could adversely affect efforts promoting efficiency through
centralization and consolidation of automatic data processing
operations, and also to the operation of UMIS. With ASCS in
control of the Center, it would have the authority to set
priorities and might be inclined to process its workload
before processing FmHA's data.

We believe that the new Office of Operations and Finance
could be a much stronger organization than the three separate
offices and, therefore, could be in a better position to sup-
port centralized control of the computer centers because:

   --The director will be a grade GS-18 with increased
     authority. The heads of the three terminated
     offices were GS-16s.

   --The new office will employ about 1,700 full-time
     people.

   --The new office will have control of USDA's National
     Finance Center in New Orleans, Louisiana, a major
     service organization. The Center employs about
     1,000 people and provides accounting support through-
     out USDA.

Merger of RDS and FmHA

The Secretary's memorandum also ordered the merger of
FmHA and RDS into an expanded FmHA. This resulting agency
will be designated the Farm and Rural Development Administra-
tion upon securing legislative changes. The functions of RDS
will be placed in a separate staff office reporting directly
to the Administrator. However, FmHA officials foresee the
future extension of RDS's mission to the field through FmHA's
field office structure.

RDS, a Washington-based agency with only about 40
employees, derived its mission from section 603(b) of the
Rural Development Act of 1972. In essence, the Secretary of

Agriculture has the responsibility to set rural development
goals and provide leadership and coordination of the Nation's
efforts to meet them. This responsibility has been delegated
to RDS. The mission of RDS is to coordinate a nationwide
rural development program utilizing the services of executive
branch departments and agencies in support of State and local
rural development programs. RDS has no line authority for
program management.

To help meet its leadership and coordination mandate,
RDS operates two information systems to provide policy
and program decisionmakers with up-to-date information and
data on (1) the status of rural conditions and program
performance and (2) Federal aid programs for which a
particular community may be eligible.

The first system, called the National Rural Development
Information System (NRDIS), builds on the fact that many in
the public and private sectors collect a wide variety of data
and information describing and analyzing specific conditions
in rural areas. NRDIS will maintain a catalog of those
sources routinely collecting and/or analyzing rural data and
information at the national level and will select and in-
corporate the most timely and relevant data into the system.
The status and performance data and information selected for
inclusion in NRDIS will then be analyzed and interpreted for
rural development implications and reported to the Congress,
the Federal Government, State agencies, and public and private
interest groups. Although NRDIS will only use data collected
by others and will do no primary data collecting, it will
encourage others to obtain data needed but not being
collected.

The second system, called the Federal Assistance Programs
Retrieval System (FAPRS), is a computerized program informa-
tion system that provides information concerning Federal aid
programs to interested persons throughout the United States.
It is designed to identify specific Federal aid programs for
which a particular community may be eligible. FAPRS is pres-
ently available in almost every State through various Federal,
State, and local organizations and agencies. The system con-
tains program information on approximately 600 Federal pro-
grams and eligibility information on more than 3,000 counties
in the United States.

UMIS, FAPRS, and NRDIS appear to have a common element--
each of these automated systems accumulates information on
rural development for use by decisionmakers. Each of these
systems may benefit from data collected by the others. For
example, FmHA may be able to expand the NRDIS data base by
collecting certain data which is not now in the UMIS design.

but which would be useful to policy and program decisionmakers.
Also, UMIS may make use of FAPRS data by interfacing the
program information of FAPRS with the UMIS data base.

At the completion of our field work, the merger of RDS
and FmHA had been delayed. We were told that the merger
should take place within a few months. On the basis of our
discussions with FmHA officials and our review of documents
describing the merger and the mission and role of RDS and
FmHA, it appears that after the merger the two agencies
will continue operating as before. RDS will operate as a
separate staff office in FmHA with the same people and
mission. However, FmHA officials foresee the future
extension of RDS's mission to the field through FmHA's field
office structure. This will mean an additional function for
FmHA's field offices.

FmHA officials told us that they have carefully
considered the merger and believe it will not affect UMIS.
Yet they have not studied the merger to determine how
it could. One official indicated that with FmHA field offices
taking on the RDS mission, the field offices might find it
useful to have terminals so they could access data bases such
as FAPRS.

Although we believe the merger will not have an adverse
effect on UMIS, it may require additions or revisions to its
design. FmHA should study the impact of the RDS merger on
(1) UMIS, FAPRS, NRDIS and determine the extent of changes
needed to interface the systems' data bases and (2) the
information requirements of FmHA field offices.

Reassignment of UMIS development team

About November 1975 an "ad hoc" system development team
was formed to work on UMIS. The team was formed with person-
nel from the Finance Office and the National Office's Manage-
ment Information System (MIS) staff. All team members report
administratively to the Director of the MIS staff who is also
the project leader of UMIS. There are about 37 people
assigned to the team, about 34 of whom work in the St. Louis
Finance Office.

In July 1977 the Director of the Finance Office proposed
to USDA's Office of Management and Finance that members of
the system development team located in St. Louis, Missouri,
become permanently assigned to the FmHA Finance Office.

According to the Director, his proposal was initiated
because of personnel management concerns resulting from the

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ad hoc nature of the UMIS development team. The Director cited critical problems, such as lack of organizational security, informal supervisory channels, and difficulties in rewarding and promoting employees.

The Director also noted that designing information systems is a function of the Finance Center. He said that UMIS is like any other system under development except it is much larger.

The Director told us that under his proposal his office would take over administrative and supervisory control of team members but leave technical control to the UMIS project leader. The Director feels that this change would have a positive impact on UMIS because it would enable the Finance Office to provide onsite management direction to the UMIS Development Team. The Director observed that the project leader is stationed in Washington, D.C., and must make frequent trips to St. Louis to monitor the team's progress.

As of the end of 1977, the reorganization proposal had been reviewed and approved at the department level. However, the departmental reviewing staff did express concern over all systems development activities and responsibilities being transferred out of Washington to the Finance Office in St. Louis. The concern is based on the staff's belief that a total management information system, such as UMIS, should serve agencywide needs and not be overly influenced by financial viewpoints which are the primary concern of the Finance Office. The reviewing staff recommended that the Administrator of FmHA consider establishing a unit in Washington to insure this agencywide viewpoint is adequately considered in FmHA's systems development effort. The reviewing staff stressed that its approval was not contingent on FmHA's acceptance of this recommendation, but it urged the Administrator to carefully consider it.

At the close of our field work, the FmHA Deputy Administrator for Financial and Administrative Operations told us that FmHA management has considered the reviewing staff's recommendation. He assured us that although administrative and supervisory control over the UMIS development team in St. Louis would be transferred to the Finance Office, all decisions involving the development of UMIS would be made at the National Office.

Neither the Director nor FmHA officials at the National Office feel that this organizational change will have an adverse impact on UMIS. However, we believe that management problems could be created by splitting control over the UMIS development team between the Director and the project leader.

Consequently, we believe that after the reassignment takes
effect a group of high-level officials and system users and
designers should continually monitor its impact on UMIS.

Restructuring of field office operations

FmHA is planning to restructure its field operations by
transferring from county offices to district offices the
responsibility for processing loans and grants in the com-
munity facilities, water and sewer, multifamily housing, and
business and industry programs. FmHA believes this restruc-
turing would reduce the county office workload and improve
service by concentrating at a higher level the needed
expertise in processing these complex, infrequently used
loans.

FmHA's goal in restructuring the field offices is to
provide better and faster assistance on loan applications
thereby improving its delivery system. According to FmHA,
a county office supervisor under the current field office
structure may process an application for certain types ^f
loans so infrequently that he doesn't develop the necessary
expertise. Under the restructuring, a county office super-
visor would continue as the entry point for applications,
but would contact someone with such expertise to process
the loan and provide assistance to the borrower.

FmHA is also planning to realine FmHA districts within
States to correspond to substate planning and development
districts to the degree feasible. This will enable FmHA to
work in closer harmony with local goals and exercise greater
leadership in rural development.

At the close of our field work, the Deputy Administrator
for Financial and Administrative Operations told us that
the details of the restructuring were being worked out and
a plan developed. He said that although the reason for the
change was simple, there was a problem in deciding on the
best approach to use.

One approach being considered is to reduce the number of
counties and the geographical area for which each district
director is responsible. District directors are currently
responsible for assisting 6 to 10 county offices. Additional
directors would have to be hired. To offset the reduction in
county offices for which a district director is responsible, a
director would take on responsibility for handling the com-
plex loan programs.

Another approach is to leave the number of counties un-
changed for which a district director has responsibility.

The complex loan programs would be handled by loan specialists assigned to the districts.

FmHA officials insist that the restructuring will not affect UMIS. A study of the impact on UMIS of the restructuring has not been made. The project leader indicated that it would have little impact on the design of UMIS because the fundamental process of making and servicing loans would continue unchanged and about 95 percent of FmHA's loan activity (loans to individuals) would remain in the county office. In addition, the county office would continue as the entry point for all loan programs. He conceded that some revisions to UMIS may be necessary to reflect changes where input data originates and the output is sent; however, these revisions would be minor and easily made.

Because UMIS is still in the development stage, we believe that this is the appropriate time for a group of top officials, system designers, and users to evaluate the impact of the restructuring.

FmHA is also considering establishing "area coordinators." These coordinators would have no line authority. They would each be assigned the responsibility of coordinating FmHA programs in seven to nine States. The Civil Service Commission has approved the Secretary of Agriculture's request to add six positions to FmHA for this purpose. At the end of our field work the positions had not been filled. It appears that the activities of these coordinators will not significantly affect UMIS. However, after these coordinators are hired and gain experience in these new positions, FmHA should study their information needs and determine whether UMIS should be modified to provide additional data and/or reports.

Possible changes resulting from legislation and the President's Reorganization Project

The UMIS project leader and FmHA officials acknowledge that changes to the nature of FmHA's mission would have a significant impact on UMIS. For example, it has been suggested that new legislation could increase the use of guaranteed loan programs at FmHA. It has also been suggested that the President's Reorganization Project is considering the following reorganization options:

--Formation of a new Community Development Department with responsibility for community and economic development programs in both rural and urban areas.

--Reorganizing the Department of Commerce to form a
Department of Economic Development with responsi-
bility for all business and manpower related
programs.

--Splitting the major community and economic develop-
ment programs into rural and urban segments with
the rural segments headed by FmHA and USDA.

FmHA officials said they have not studied these proposed
reorganizations and do not plan to revise UMIS to reflect
such future possibilities.

Organizational changes, similar to those mentioned above,
could significantly affect UMIS. However, because these
changes are to a large extent beyond the control of FmHA
and are uncertain, we believe revisions to UMIS are unneces-
sary at this time. However, we also believe that this is
another matter a top management group should study and con-
tinually monitor.

TOP MANAGEMENT INVOLVEMENT

During the 3 years since initiation of the Unified
Management Information System project, FmHA has not had a
steering committee to oversee and review development of the
project.

It is important that top management become involved at
the earliest stage of the UMIS project. In this case, a
top management group, commonly called a steering committee,
should be formed to regularly oversee and review status
and make final decisions at each critical phase/task of the
project. Such a steering committee would make decisions to
initiate, continue, restart, or terminate activities of the
project and would take into account any matters affecting
UMIS, such as reorganizations within U.S. Department of
Agriculture. Progress on the major phases of the project
should be subject to the review and approval of a steering
committee.

The steering committee should include representatives of
three essential functions: the intended users of the system,
the designers of the system, and those responsible for over-
seeing the development process. Because all three functions
are important for successful development of UMIS, they should
be represented on the steering committee.

Currently decisions to initiate, continue, restart, or
terminate the project is vested in the FmHA Administrator in
lieu of a steering committee. We believe that FmHA should
have established a steering committee during the Initiation
phase of this automatic data processing project. In the ab-
sence of a steering committee, the project is continuing
without the benefit of approvals for each major phase or
task before work is started on subsequent tasks. For example,
there is no documented evidence of top management committee
review or approval of such phases/tasks as (1) developing
functional requirements for various subsystems, (2) design-
ing the software, (3) testing the designed system's
software, (4) acquiring additional hardware and software,
and (5) conducting an operational test of the developed
system in a user environment.

Another effective tool for monitoring the system
development process is through reviewing costs for
each phase or task and analyzing variances between
original and revised budgeted costs. These comparisons
would enable a steering committee of top managers
to evaluate progress and performance, decide whether
system benefits still warrant continuing the project,

and aid in planning future development effort. The steering
committee should be in place and active during the current
phase to decide on whether the development effort is con-
sistent with agency needs and to evaluate the impact of cost
overruns and slippages in schedule. The absence of a steering
committee and the budgetary and financial control such a com-
mittee could exercise provides no assurance that the project
is being effectively and economically developed.

During a meeting with your subcommittee and later with
top agency officials, we discussed the benefits of a steering
committee. Agency officials concurred with our position that
a steering committee would provide a more effective organiza-
tional structure to oversee the UMIS project. At FmHA's re-
quest, we met on February 15, 1978, and outlined the initial
steps toward establishing such a committee and provided infor-
mation on its mission, representation, and responsibilities.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Farmers Home Administration (FmHA) has invested a substantial amount of funds, staff resources, and time in the development of its Unified Management Information System (UMIS). Considerably more time and money will be required to complete the project, and operate, modify, and replace it at the end of its operational life. A significant project such as this requires top management planning, direction, and control through the complete life cycle. FmHA needs to apply appropriate measures to insure that the UMIS project will satisfy a set of well defined agency (user) needs and the information system ultimately implemented will be the most cost effective approach.

Our review disclosed the following:

--The development of UMIS began in 1975 and continues without the benefit of a formal project control mechanism in place to track the progress of UMIS development and its associated costs (see app. II).

--Schedule slippages have occurred which are a result of FmHA's inadequacies in the planning of and control over the UMIS project (see app. II).

--FmHA's cost-benefit analysis was not adequate because (1) total development costs had not been determined and (2) the methodology used in the analysis was not sound. As a result, none of the alternatives considered received an adequate cost-benefit analysis (see apps. III and IV).

--FmHA did not base its initial decision to develop UMIS Full Field Service on a study of agency needs. Agency (user) needs were defined in ADP equipment terms which precluded FmHA from adequately considering design alternatives other than Full Field Service (see app. IV).

--The test period of 6 months for FFS is insufficient to eliminate design and start-up problems and insure peaks in workload are included (see app. V).

--FmHA has not performed an analysis to determine the
possible impact of various reorganization proposals
on the UMIS project (see app. VI).

--A steering committee of top managers representing
user organizations, management, and designers is not
in place to assure that UMIS is being effectively
developed. The development is continuing without
formal review by such representatives at each
critical check point before the project continues
to the next phase (see app. VII).

RECOMMENDATIONS

We recommend that the Secretary of Agriculture direct
Farmers Home Administration to

--Intensify its effort in installing PAC II--the
computerized project control mechanism. This is
necessary to monitor progress of the development
project, identify and analyze schedule and cost
variances and to better plan the use of its resources.

--Establish a budget for UMIS to cover the Development
and Operation phases, and note UMIS as a separate
line item in FmHA's budget justification.

--As part of a project control mechanism, install a
cost accounting system to account for all costs
incurred during the system design, development,
and operational life cycle. Total life cycle cost
estimates should be updated on a regular basis.

--Redefine agency (user) needs in terms which are more
specific and quantifiable to provide performance cri-
teria for evaluating UMIS alternatives.

--Test the FFS version of UMIS in Illinois for a period
of one year in lieu of the scheduled six months.

--Defer expanding the FFS test to other county offices
outside Illinois until the Illinois test is completed
and results evaluated.

--Conduct a formal, analytical study to evaluate the
impact on UMIS of recent and proposed organizational
changes.

--Establish a steering committee representing user
  organizations, system designers and top agency
  management to provide the planning, direction,
  and control over the UMIS development project.
  The steering committee would be responsible for
  decisions on such matters as project continuation,
  cost/benefit analyses, budgets, life-cycle costs,
  studying impact of organization changes, and
  approval of design modifications.