AD-A165 873 P/BS FORDIMS INTERFACE TO THE OP-32 BUDGET EXHIBIT AUTOMATED SYSTEMS FUNC.. (U) GENERAL-RESEARCH CORP MCLEAN VA MANAGEMENT TECHNOLOGIES DIV 1/1

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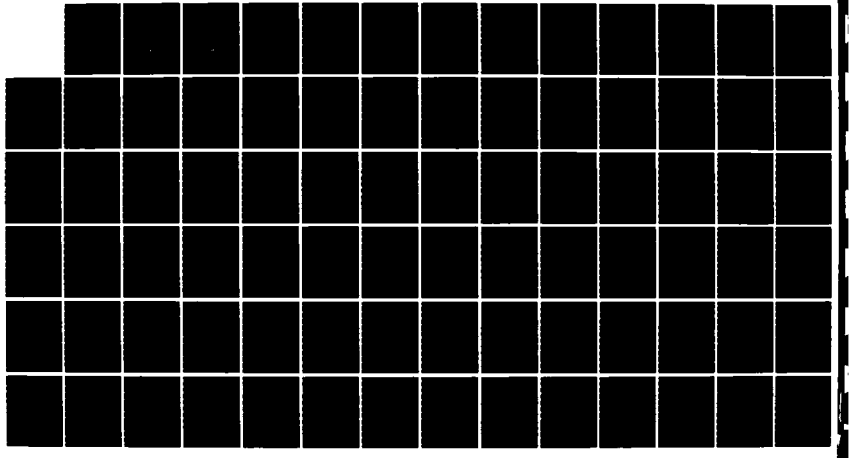

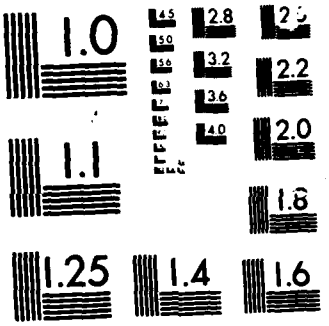

Report 1398-01-83-CR

(2)

P/BS FORDIMS Interface To The OP-32 Budget Exhibit Automated Systems

Functional Description

By:

Robert L. Schroeder, Project Manager
Larry E. Bradley
Einar (Bill) Berge
Keith B. Wolff
William E. Bartlett

7 October 1983

Contract Number MDA903-83-M-7399
Item No. 0001AC

MANAGEMENT TECHNOLOGIES DIVISION

GENERAL RESEARCH CORPORATION

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Submitted To:

Office of the Comptroller of the Army
(Operations and Maintenance)
Program Budget Division
Attn: Mrs. Jean S. Rogers
Room 3B666, the Pentagon
Washington, DC 20310

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A-1

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TABLES

SECTION 1
GENERAL

1.1 Purpose of the Functional Description

This Functional Description (FD) for "Automation of the Army Budget Activities for Civilian Personnel" (Contract Number MDA903-83-M-7399, 16 August 1983) is written to provide:

- 1) The civilian portion of the Army budget system requirements which must be satisfied to serve as a basis for mutual understanding between the user and the developer;
- 2) A description of the interface required to update the OP-32 Budget Exhibit from the Force Development Integrated Management System (FORDIMS) Program/Budget Subsystem (P/BS) data base resident on the United States Army Management System Support Agency (USAMSSA) computer; and
- 3) A basis for development of automated procedures to display, access, and update civilian personnel budget data through remote entry devices and computer interfaces.

1.2 Project References

This is the second FD prepared by the General Research Corporation (GRC) describing the OP-32 Budget Exhibit preparation process under the terms of the performance schedule required by the contract referred to above.

The first FD, submitted to the Contracting Officer's Representative COR) September 1983 described a proposed automated system for preparation of the OP-32 Budget Exhibit which will provide a responsive, timely method for generation of civilian personnel cost data in a format ready for budget submission. The FD provided a detailed description of the OP-32 Budget Exhibit preparation process. It also outlined the specific performance requirements of automated procedures that would display, access, and update civilian personnel budget data.

It explained how the proposed system would satisfy the user's needs delineated in the FD.

This FD will describe the interface requirements, and identify the data elements within the FORDIMS P/BS that would update the OP-32 Budget Exhibit in an acceptable format. As a related activity, a Data Processing Request (DPR) (DAS Form 56) has been prepared to forward the FD to USAMSSA.

In light of the comprehensive and detailed documentation relating to the OP-32 Budget Exhibit preparation process that has already has been provided, this FD will address only the interface requirements and identification of data elements within the FORDIMS P/BS that will be used to update the OP-32 exhibits; thus, this document will, to some extent, be an abbreviated version of the FD submitted on 6 September 1983.

The Project Sponsor is the Comptroller of the Army (COA); The Contracting Agency is the Defense Supply Service, Washington (DSS-W); The COR is Mrs. Jean S. Rogers. The primary user of the automated system will be OCOA. The operating support center of the system will be USAMSSA.

A copy of the unsolicited proposal submitted by GRC to OCOA, which led to award of the contract identified above is at Appendix A. A copy of the Statement of Work, required deliverables, and performance schedule required by the contract is at Appendix B.

1.2.1 Contractual Documents

a. Proposal titled "Functional Descriptions for Automation of the Army Budget Activities for Civilian Personnel," General Research Corporation, McLean, Virginia, 3 March 1983.

b. Procurement for "Functional Description for Automation of the Army Budget Activities for Civilian Personnel," Contract Number MDA903-83-M-7399, Defense Supply Service-Washington (DSS-W), 16 August 1983.

c. Functional Description titled "OP-32 Automated Data System," Contract Number MDA903-83-M-7399 (Item Number 0001AA) General Research Corporation, 6 September 1983.

d. Functional Description titled "PB-22 Automated Data System" Contract Number MDA903-83-M-7399 (Item Number 0001AB), General Research Corporation, 7 October 1983.

1.2.2 Reference Documentation

a. DOD Directive 5100.73, "DOD Management Headquarters and Headquarters Support," 12 March 1981.

b. Department of Defense Standard 7935 (DOD-STD-7935), 15 February 1983.

c. OMB Circular A-11, Subject: "Preparation and Submission of Budget Activities," July 1983.

d. DOD Budget Guidance Manual, DOD 7110-1-M.

e. Memorandum, OSD, Subject: "FY 1984 Revised and 1985 Budget Estimates Guidance," July 1983.

f. AR 10-5, Organization and Functions, Department of the Army.

g. AR 18-1, Army Automation Management.

h. AR 37-15, Budget Development and Review.

i. AR 37-100, Account/Code Structure, Financial Administration.

j. AR 37-100-XX, The Army Management Structure.

k. AR 570-4, Manpower Management, Manpower and Equipment Control.

l. AR 570-8, Army Management Headquarters Activities (AMHA).

m. CSR 5-3, Management of the FORDIMS.

n. CSR 10-23, Organization and Functions, Office of the Comptroller of the Army.

o. CSR 11-6, Army Programs, Program and Budget Guidance.

p. CSR 11-7, Staff Responsibilities for the Army Management Structure Code Data Base.

q. CSR 15-1, Boards, Commissions, and Committees, Program and Budget Committee.

r. CSR 18-11, Force Development Management Information System.

s. CSR 37-4, Financial Administration, Army Staff Budget Responsibilities.

t. CSR 570-5, Determination and Presentation of Civilian Manpower Requirements.

u. Memorandum 18-4, HQDA Subject: Automatic Data Processing Support from the USAMSSA, 18 March 1976.

v. Letter DACA-BUF, HQDA, Subject: "Department of the Army Budget Directive, 5 July 1983.

w. Volume I, FORDIMS User's Guide, August 1980.

x. Volume II, FORDIMS User's Guide, November 1980

y. ACF2 - The Access Control Facility User's Guide, modified by USAMSSA (18 Nov 81), developed by Schrager, Klemens, and Krueger, Inc.

1.3 Assumptions and Abbreviations

The definitions of abbreviations and acronyms used in this document are listed in Appendix C.

SECTION 2
SYSTEM SUMMARY

2.1 Background

The OP-32 Budget Exhibit is currently prepared through a combination of manual procedures and automated systems which were documented in the FD prepared by GRC titled "OP-32 Automated Data System (reference 1.2.1c).

The final OP-32 Budget Exhibit is produced by the Cost/Program Growth System (C/PGS) which was developed because of increasing demands for the Army to identify price, versus program growth, in budget estimates going to the Office, Secretary of Defense (OSD) and Congress. The identity of growth was needed at the budget activity level.

The C/PGS has become a valuable tool in the production of the OP-32 Budget Exhibit. It receives the manual inputs from subprogram directors and publishes the final total Operations and Maintenance, Army (OMA) OP-32, as well as subprogram level OP-32, reports. When changes to the OP-32 file in the C/PGS data base must be made, they must also be key-punched into the system. The OP-32 Automated Data System (ADS) will produce civilian personnel costs automatically. The current system still requires manual processing to update the C/PGS data base with the civilian personnel costs.

2.2 Objective

The objective of the OP-32 interface is to update the OP-32 civilian personnel costs in the OP-32 ADS and C/PGS through automated means. Specific tasks are:

- Update OP-32 ADS discrete data set from P/BS main file.
- Update C/PGS data file with OP-32 ADS updated data.
- Provide reports in OP-32 Budget Exhibit format which may be used for verification of the data update.

2.3 Existing Methods and Procedures

The existing methods for updating OP-32 Budget Exhibit civilian personnel information is through use of manual computation and keypunch operations. Development of the OP-32 ADS, described in the FD referenced in Section 1, will provide an automated means of computing the civilian personnel line items of the OP-32 Budget Exhibit. The OP-32 ADS is the system that will provide the vehicle on which the interface described in this FD operates.

The appropriation and program directors develop hardcopy reports in the OP-32 Budget Exhibit format based on updated information received from DACA-OMP, the field, or other sources. The updated reports are provided to DACA-OMP where the data is key-punched through remote terminals to the C/PGS data base. Figure 2.1 diagrams the current procedures.

2.4 Proposed Methods and Procedures

The proposed interface will provide a responsive, timely system for updating the OP-32 ADS and the C/PGS. Data concerning civilian personnel strengths and costs generated by changes to the P/BS main file will automatically trigger an update of the OP-32 ADS discrete data set and the C/PGS. This update procedure will not automatically change OP-32 Budget Exhibit line items that are not directly affected by civilian personnel changes. Program and appropriation directors still will be required to compute changes to other line items that may result from update of civilian personnel OP-32 line items.

This interface will operate on the USAMSSA IBM 3033 and 370-165 computers with remote interactive input terminals in DACA-OMP. The interface will be automatically executed within the USAMSSA storage devices. Updated reports will be printed out only when specifically requested.

2.4.1 Summary of Improvements

The OP-32 Budget Exhibit Interface will provide responsive, timely

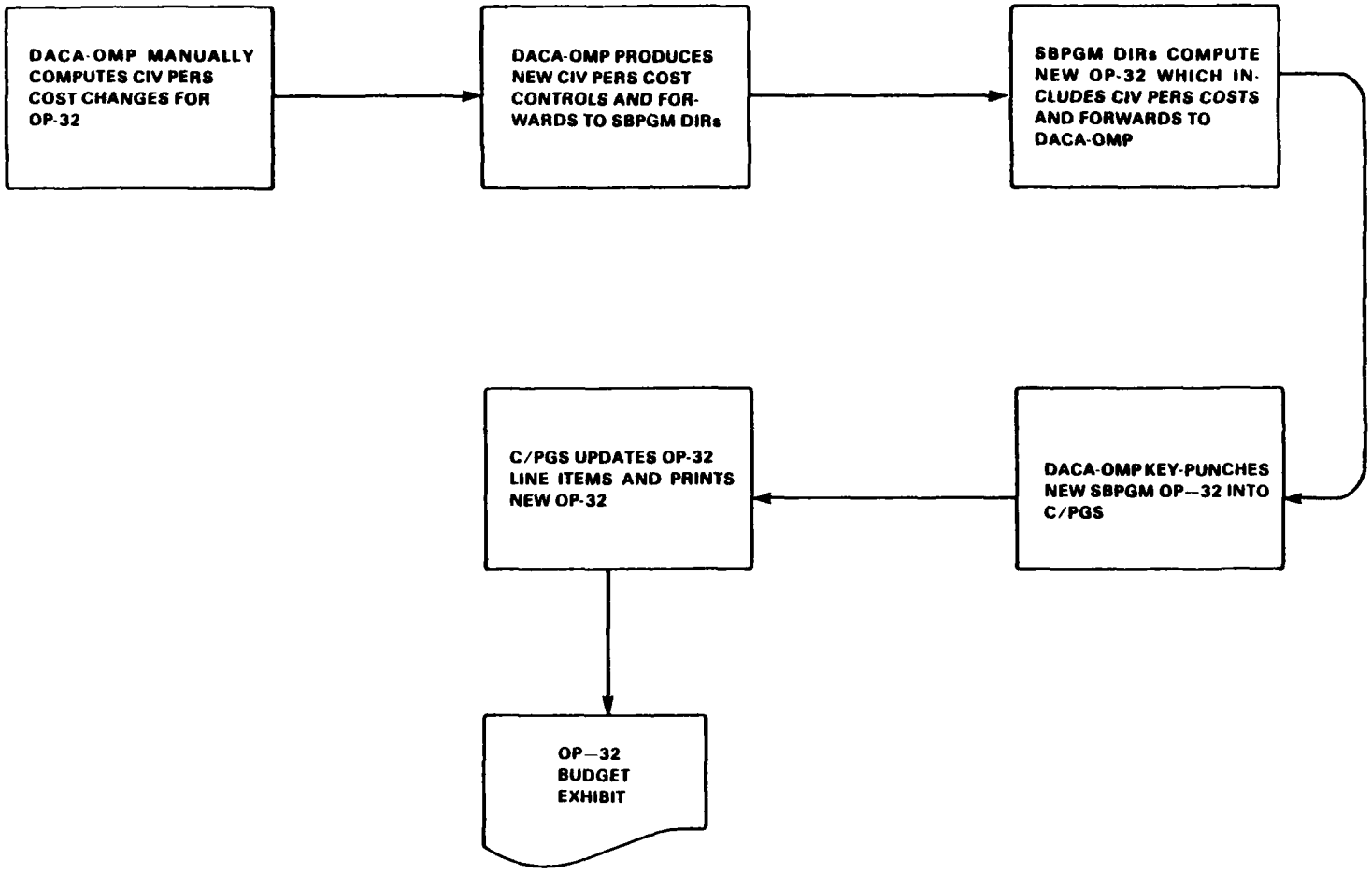

Figure 2.1. Flow Diagram of Current OP-32 Update Procedures

updates of information in an automated operation. This automated update will save approximately two workdays of effort in DACA-OMP and increase the accuracy of updates by eliminating tedious manual key-punch operations.

The interface will also complete the automation effort of computing and distributing the OP-32 Budget Exhibit civilian personnel cost line items. It will facilitate the continued automation of the OP-32 preparation process and save an undetermined number of workdays in the several program and appropriation directors' offices. It will also lead to a completely integrated, automated, system that will eliminate the current mixture of automated and manual processes. More importantly, it will provide for a smooth transition to the adoption of the VFDMIS architecture.

2.4.2 Summary of Impacts

2.4.2.1 User Organization Impacts

The OP-32 interface system will increase the efficiency of the OCOA as well as that of the Program Directors by saving time and providing more timely information. There will be no requirements for reorganization in either DACA-OMP or Program Director's offices.

2.4.2.2 User Operational Impacts

Since this system will be developed after the OSD budget submission, there will be no adverse impacts on the preparation of the FY 85 budget submission. After development of the system, the operational impact will be the enhanced ability to analyze budget proposals and submissions. There will be no adverse operational impacts.

2.4.2.3 User Development Impacts

The system will employ equipment currently operated by the user organizations and, therefore, no equipment training will be required. Personnel will have to become familiar with new CRT displays. A system check using the current manual process will be required, but no adverse impact will result.

2.5 Assumptions and Constraints

2.5.1 Assumptions

The following assumptions have been made in developing this interface:

- The OP-32 Budget Exhibit will continue to be required by OSD.
- Computer time for executing the interface will be made available.
- The FORDIMS P/BS data base may be utilized for producing required outputs.
- The VFDMIS data base will be designed to provide the same automated capabilities.

2.5.2 Constraints

The OP-32 Budget Exhibit Interface is dependent upon the P/BS data base for resource information. If the P/BS data base is not available, the interface will not be able to provide the expected efficiency improvements.

The Budget Management Information System (BMIS) was not integrated into this interface. BMIS is still under development and modification and no final version of BMIS was available for integration into the interface. When the final BMIS version is developed, this interface should be revised to integrate BMIS into the OP-32 Budget Exhibit preparation process.

SECTION 3
DETAILED CHARACTERISTICS

3.1 Specific Performance Requirements

The OP-32 Interface will be compatible with VFDMIS and must perform the following tasks:

- Retrieve data from the P/BS main file that affects OP-32 line items containing civilian personnel costs.
- Update the OP-32 ADS with the data retrieved from the P/BS main file.
- Update the C/PGS file with the new data in the OP-32 ADS.
- Produce updated OP-32 reports for OP-32 ADS or C/PGS as required.

3.1.1 Accuracy and Validity

The data retrieved must meet the same accuracy and validity requirements as the OP-32 ADS.

3.1.2 Timing

The updates performed by this interface must be executed on a real time basis. Brief delays may be expected because of computer Central Processing Unit (CPU) requirements, but updates must not be delayed by more than 24 hours.

3.2 Functional Area System Functions

3.2.1 Data Retrieval

Data will be retrieved from the P/BS data base as described in OP-32 ADS FD. Data elements retrieved are specified in detail in Section 4 of this FD.

3.2.2 OP-32 ADS Update

The OP-32 ADS will be updated using the processes and calculations described in the OP-32 ADS FD.

3.2.3 CPGS Update

The OP-32 civilian personnel cost line items will be updated from the OP-32 ADS. The data will be transferred from the OP-32 ADS discrete data set to the C/PGS data set. The new data will replace the old data on the C/PGS data set.

3.3 Inputs-Outputs

3.3.1 Inputs

Inputs will consist of the data elements retrieved from the P/BS main file. The data elements are explained in more detail in Section 4 of this FD.

3.3.2 Outputs

Outputs will be updated data on the OP-32 ADS and C/PGS data sets. Hardcopy reports of the updated data can be produced by the respective systems (OP-32 civilian cost controls from the OP-32 ADS and an OP-32 report from the C/PGS).

3.4 Data Base Characteristics

The data base on which this sytem is based is the FORDIMS P/BS. The characteristics of that data base are outlined in the FORDIMS P/BS User's Guide. The details of data produced by the OP-32 ADS are described in the OP-32 ADS FD. The characteristics of the C/PGS data set are described in the C/PGS Master Plan as modified by DPR TB-0016-83. A copy of the C/PGS file layouts is in Appendix D.

3.5 Failure Contingency

The OP-32 Interface will have the same failure contingencies as the OP-32 ADS described in the OP-32 ADS FD.

3.6 Security

In some forms of aggregation the P/BS main file data is classified. However, in the OP-32 cost controls format the data is not classified. The OP-32 report format of the C/PGS is also not classified. Because

the information is being used for budget formulation, it is not releasable to the general public and should be protected as such. There are no individual personnel records used in the interface.

SECTION 4
DESIGN DETAILS

This section provides a detailed description of the OP-32 Interface designs which will satisfy the system requirments outlined in more general terms in Sections 2 and 3.

4.1 System Description

The OP-32 Interface uses the P/BS main file for the source of data to update the OP-32 ADS and C/PGS data sets. The updates are accomplished automatically through the transfer of data from the P/BS main file to the OP-32 ADS discrete data set and from there to the C/PGS data set.

4.2 System Functions

- The OP-32 ADS system functions provide the basis for the OP-32 ADS update. Those functions are described in the OP-32 ADS FD.
- The update of the C/PGS will follow the OP-32 ADS update and will use the data from the OP-32 cost controls produced by the OP-32 ADS. An example of the OP-32 cost controls report is shown in Figure 4.1 and 4.2.

4.2.1 Accuracy and Validity

Accuracy and validity details are the same as those for the OP-32 ADS and are explained in the OP-32 ADS FD.

4.2.2 Timing

Timing details are essentially explained in the OP-32 ADS FD. The OP-32 Interface requires that the OP-32 ADS be updated prior to updating the C/PGS. Consequently, priority will be given to the OP-32 ADS update.

4.3 Flexibility

The OP-32 Interface requires the same flexibility as the OP-32 ADS.

PROGRAM 7S - FY 85 BUDGET
SUMMARY OF PRICE AND PROGRAM CHANGES
APPROPRIATION

OP-32 COST CONTROLS ($ IN THOUSANDS) - CURRENT YEAR DISPLAY

OP-32 LIN ITEM (1)	SUBPROGRAM/ACTIVITY GROUP/AMSCO/OPAGY/LINE DESCRIPTION (2)	FY 83 PROG (3)	FOR CURR RATE DIF (4)	PRICE GROWTH (5)	PROG GROWTH (6)	FY 84 PROG (7)
	CIVILIAN PERSONNEL COMP (8)					
0101	EXEC, GEN AND SPEC SCHED (9)					
0103	WAGE BOARD (10)					
0104	FOR NATNL DIR HIRE (FNDH) (11)					
0105	SEPARATION LIABL (FNDH) (12)					
0106	BENEFITS TO FORMER EMPLOY (13)					
0110	UNEMPLOYMENT COMPENSATION (14)					
0199	TOTAL CIV PERS COMP (15)					
	IND FUND PURCHASES (16)					
0681	UNFIN (IF) PAY RAISE (17)					
0691	IF PASS THROUGHS (18)					
	OTHER PURCHASES (19)					
0901	FOR NATL INDIR HIRE (FNIH) (20)					
0902	SEPARATION LIABL (FNIH) (21)					
0989	OTHER CONTRACTS (22)					
0991	FOR CURRENCY VAR (23)					

NOTE: Field widths for above entries are as indicated below.

5	25	8	7	7	7	8
3	5	3	3	3	3	

Figure 4.1 OP-32 Format - Current Year

PROGRAM 7S - FY 85 BUDGET
SUMMARY OF PRICE AND PROGRAM CHANGES
OP-32 COST CONTROLS ($ IN THOUSANDS) - BUDGET YEAR DISPLAY

OP-32 LIN ITEM (1)	SUBPROGRAM/ACTIVITY GROUP/AMSCO/OPAGY/LINE DESCRIPTION (2)	FY 84 PROG (3)	FOR CURR RATE DIF (4)	PRICE GROWTH (5)	PROG GROWTH (6)	FY 85 PROG (7)
	CIVILIAN PERSONNEL COMP (8)					
0101	EXEC, GEN AND SPEC SCHED (9)					
0103	WAGE BOARD (10)					
0104	FOR NATNL DIR HIRE (FNDH) (11)					
0105	SEPARATION LIABL (FNDH) (12)					
0106	BENEFITS TO FORMER EMPLOY (13)					
0110	UNEMPLOYMENT COMPENSATION (14)					
0199	TOTAL CIV PERS COMP (15)					
	IND FUND PURCHASES (16)					
0681	UNFIN (IF) PAY RAISE (17)					
0691	IF PASS THROUGHS (18)					
	OTHER PURCHASES (19)					
0901	FOR NATL INDIR HIRE (FNIH) (20)					
0902	SEPARATION LIABL (FNIH) (21)					
0991	FOR CURRENCY VAR (22)					

NOTE: Field widths for above entries are as indicated below.

5	25	8	7	7	7	8
3	5	3	3	3	3	

Figure 4.2 OP-32 Format - Budget Year

4.4 System Data

4.4.1 Interface Table for OP-32 ADS Update

The OP-32 ADS update will be accomplished by calculating the entries for the data fields shown in Figure 4.1 in accordance with Table 4.1. Appendix E provides an expanded list of AMSCO for civilian personnel manpower and associated costs. The appendix is an update of Table 4.3 of the OP-32 ADS FD.

4.4.2 Interface Table for C/PGS Update

The C/PGS data set will be updated from the OP-32 ADS. Table 4.2 provides the correlation between the OP-32 Cost Controls Report and the C/PGS files data elements.

4.4.3 Data Base

The OP-32 Interface operates off the FORDIMS P/BS data base. The Volume I FORDIMS User's Guide, describes the P/BS data base. The FD for the OP-32 ADS describes the content of Figure 4.1 and 4.2 which is used as the basis for updating the C/PGS. The data set supporting C/PGS is described in the C/PGS Project Master Plan dated 22 December 1981, as modified by DPR TB-0016-83.

TABLE 4.1
CORRELATION TABLE FOR OP-32 ADS INTERFACE WITH P/BS

This table shows the correlation of OP-32 Budget Exhibit entries (identified by the number in parentheses below that correspond to the numbers in parentheses in Figure 4.1) and P/BS data elements.

OP-32 BUDGET EXHIBIT	P/BS FILE
1. OP-32 LIN ITEM (1)	- Generate as shown in Figure 4.1.
2. Subprogram/Activity Group/AMSCO/OPAGY/	- Subprogram = SBPGM (P/BS) - Activity Group = Generate from Table 4.3, OP-32 ADS FD - Army Management Structure Code = AMSCO (P/BS) - Operating Agency = OPAGY (P/BS) - Line Description = Generate from Figure 4.1.

3. FY Prog (3) and (7)	OP-32 LIN ITEM	P/BS C-TYPE	APPN	WORKPAPERS FIELD
	0101	101	Total	$ (Direct Hire)
		118	"	" "
		121	"	" "
		122	"	" "
	0103	102	Total	$ (Direct Hire)
		120	"	" "
		301	"	" "
		302	"	" "
		303	"	" "
		304	"	" "
	0104	103	Total	$ (Direct Hire)
		104	"	" "
		105	"	" "
		109	"	" "
		110	"	" "
	0105	105	FNSA	$ (Direct Hire)
		109	"	" "
		110	"	" "
	0106	101	FECMP	$ (Direct Hire)
		102	"	" "
	0901	106	TOTAL	$ (Indirect Hire)
		201	"	" "
		205	"	" "
		206	"	" "
	0902	106	FNSA	$ (Indirect Hire)
		205	"	" "

TABLE 4.1 (continued)

	0110		Data entry by DACA-OMP
	0681		" " " "
	0691		" " " "
	0991		" " " "
	0199		Automatic addition of OP-32 LIN Item 0101, 0103, 0104, 0105, 0106, and 0110.
4. For Curr Rate Dif (4)	0901	106	ACTNO identified by DACA-OMP
		201	" " " "
		205	" " " "
		206	" " " "
	0902	106	ACTNO identified by DACA-OMP
		205	" " " "
	0989		Data entry by DACA-OMP
	0991		" " " "
5. Price Growth (5)	0101	101	ACTNO identified by DACA-OMP
		118	" " "
		121	" " "
		122	" " "
	0103	102	ACTNO identified by DACA-OMP
		120	" " "
		301	" " "
		302	" " "
		303	" " "
		304	" " "
	104	103	ACTNO identified by DACA-OMP
		104	" " "
		105	" " "
		109	" " "
		110	" " "
	105	105	ACTNO identified by DACA-OMP
		109	" " "
		110	" " "
	0901	106	ACTNO identified by DACA-OMP
		201	" " "
		205	" " "
		206	" " "

TABLE 4.1 (continued)

	0902	106 205	ACTNO identified by DACA-OMP " "
			NOTE: For budget year display, annualization costs determined by data between years of ACTNOs identified by DACA-OMP must be included in price growth for all the OP-32 line items above.
	0110		Data entry by DACA-OMP
	0681		" " "
	0691		" " "
	0199		Automatic addition of OP-32 LIN Items 0101, 0103, 0104, 0105, 0106, and 0110.
6. Prog Growth (6)			All line items determined by automatic subtraction from column (7) the total of columns (3), (4), and (5).

TABLE 4.2
CORRELATION TABLE FOR OP-32 ADS INTERFACE WITH C/PGS

This table shows the correlation of OP-32 Budget Exhibit entries to the C/PGS File ID. The numbers in parentheses following the OP-32 Budget Exhibit entries correspond to the numbers on Figure 4.1.

OP-32 Budget Exhibit Entry/Field		POS #	C/PGS FIELD ABBREV
1. OP-32 LIN ITEM (1)		04	Line Item
2. Subprogram/Activity Group/AMSCO/OPAGY/	- Subprogram	01	Sub-Pgm
	- Activity Group	03	Act-Grp
	- OPAGY	-	(C/PGS should be updated to accept OPAGY)
	- Line Description	07	File ID WBAU.DBDESCR
3. FY Prog (3) - Current Year Display		06	Amt-PY
4. For Curr Rate Dif (4) - Current Year Display		07	Currency - PY-CY
5. Price Growth (5) - Current Year Display		09	Price-Growth-Amt-PY-CY
6. Prog Growth (6) - Current Year Display		10	Pgm-Growth-Amt-PY-CY
7. FY Prog (7) - Current Year Display		11	Amt-CY
8. For Curr Rate Dif (4) - Budget Year Display		12	Currency - CY-BY
9. Price Growth (5) - Budget Year Display		14	Price-Growth-Amt-CY-BY
10. Prog Growth (6) - Budget Year Display		15	Pgm-Growth-Amt-CY-BY
11. FY Prog (7) - Budget Year Display		16	Amt-BY

SECTION 5
ENVIRONMENT

This section provides a description of the current ADP environment, and projects the environment needed to satisfy the requirements delineated in Sections 3 and 4. The discussion that follows will include the equipment that now supports the P/BS.

5.1. Equipment Environment

This paragraph provides a brief description of the present equipment environment that will support the development of the software leading to automated updating of the OP-32 budget exhibit from the FORDIMS P/BS. The automated system is expected to be supported by the USAMSSA computer environment using the FORDIMS P/BS data base with interactive links to DACA-OMP.

The equipment environment includes the hardware presently available at USAMSSA for support of the P/BS. The automation of certain DACA-OMP civilian budget exhibits will require interactive and batch computer support and supporting hardware for its development and operation.

The following is a broad description of the USAMSSA equipment presently available to support the automation of certain budget displays which this FD defines. The discussion of the equipment configuration requires that the following equipment categories be addressed:

- Processors
- Storage media
- Output devices
- Input devices
- Communications Net

5.1.1 Processors

The mainframe capability of USAMSSA will be utilized to support the development of automated exhibits for Budget displays with interactive links to terminals located in DACA-OMP.

USAMSSA has an IBM 3033 processor with 16 megabytes of main memory (core), and an IBM 370/165 with 6 megabytes of main memory. The two CPU (Central Processing Unit) operate loosely, coupled with shared queues and peripherals. They operate under the Multiple Virtual Storage (MVS) operating system. The existing IBM 370/165 system will be replaced by a fourth generation IBM 3081 Model K (or equivalent) with faster processing capability and added storage capacity.

5.1.2 Storage Media

The part of the computer that is able to store data is the computer's memory or storage. Storage refers to keeping processed data for future reference. The data are placed on storage media such as paper, magnetic tapes, or microfilm for retrieval when needed.

The USAMSSA storage media consists of:

- 31 Gigabytes DASD (Direct Access Storage Device) (112 disk drives).
- 38 Tape Drives (30,000 tapes)

5.1.3 Input/Output Devices

All data processing follows the same flow pattern of input, processing, and output.

- Input involves collection of data and verification of its accuracy, followed by conversion to machine-readable form so that it can be entered into the data-processing system.
- Processing relates, in order, to the classification, sorting, calculation, summarization, and storage of data.

- Output is the information that is produced by the computer after the processing steps identified above have been completed.

The input/output devices in the USAMSSA environment configuration are:

- Input
  - 564 terminals
  - 62 RJE (Remote Job Entry)
- Output
  - 2 laser, and 5 impact local printers
  - 564 terminals
  - 62 RJE

5.1.4 Communications Net

Communication nets carry data from one location to another, and are the links permitting transmissions of electrical signals between locations. Types of communications nets used for data transfer are telegraph and telephone lines, coaxial cables, communications satellites, and laser beams.

5.1.5 USAMSSA Modernization Program

Effective 30 September 1983, the Government signed a contract with the Centennial Computer Corporation to provide USAMSSA with new CPUs, Communications Processors (CPs), and various contractor services. Significant milestones, which are projected to occur during the 8-year period of the contract, are:

November 1, 1983	Replace IBM 370-165 with an AMDAHl 5860 32 Megabyte, 24 channel CPU, processing speed: 13 Million Instructions Per Second (MIPS).
January 1, 1984	Install three AMDAHL 4705E Communications Processors; two for production, one for backup purposes.

April 1, 1984	Replace IBM 3033 with AMDAHL 5860 24 Megabyte, 24 channel CPU, processing speed: 13 Million Instructions Per Second (MIPS).
January 1, 1985	Upgrade second AMDAHL 5860 to AMDAHL 5880 48 Megabyte, 48 channel CPU, processing speed: 26 Million Instructions Per Second (MIPS).
January 1, 1985 until contract end	Install three additional AMDAHL 4705E communications processors. Final configuration will be four CP's for production, two CP's for backup.

The addition of the first AMDAHL 5860 CPU will give USAMSSA an increase of 250 percent in its CPU processing capabilities. When the AMDAHL 5880 CPU is installed, USAMSSA will increase its CPU processing capabilities by over 500 percent over the present capabilities. The installation of the AMDAHL 4705E CPs will allow the Agency to enter into a true networking environment keynoted by an orderly migration to the IBM Systems Network Architecture (SNA).

5.2 Support Software Environment

Software refers to the sets of prewritten, standardized computer programs, procedures, and related documentation that are developed for an ADS. Many organizations employ programmers to develop software programs for their internal operations. This approach called "in-house" development allows for programming creativity. On the other hand, it requires significant staff expenditures, and in many instances results in duplicative effort in, and among, organizations. For these reasons, firms specializing in software development have been formed to meet the growing demand for prewritten programs.

Systems programs, or packages, are normally machine-dependent; thus, system programming is normally provided by the manufacturer of the hardware, or, as pointed out above, by specialized programming firms. USAMSSA already has a variety of software packages which will provide multiple user interactive, on-line, query, and update service to meet the user's needs.

5.3 Interfaces

The following is a brief description of the means and equipment by which data relating to the P/BS are exchanged between DACA-OMP and the USAMSSA Computer facility.

DACA-OMP has a Four-Phase Systems Inc Data IV/50 remote controller terminal cluster. This is an intelligent terminal system consisting of:[1]

- A Model 5001-99 processor
- Three Model 5115-A display stations
- Two Model 8121 character printers

The IV/50 system is used for both remote data entry and on-line inquiry and retrieval. The IV/50 system has no local storage capability and no batch communications mode. Data are input to the USAMSSA computer data base by using an interactive communications capability with an IBM 3270 protocol. The advantages of this arrangement are:

- The 5001-99 processor contains the terminal's 48K memory and interfaces with the CRT display stations and printers. The 5001-99 has an on-line capability to operate in an interactive mode with discrete data sets (files) resident on the USAMSSA computer. This means that the system has the capability to allow the OCA operator to access the data set and enter changes such as percentage data elements and currency fluctuation; however, the software providing this capability is not in place at this time.
- The Model 5115-A display stations have a large video screen and a separate keyboard. The CRT video screen can display up to twenty-four, 80 character lines at one time.

[1]Information extracted from Vol. I, FORDIMS User's Guide, August 1980.

- The Model 8121 character printer is a low speed printer which the terminal operator can use to produce a hard copy of any data that are displayed on the CRT screen. Thus, after making the changes to the USAMSSA computer work file, the terminal operator can retain a copy for staffing or reference until the USAMSSA input action has been completed.

5.4 Summary of Impacts

It is expected that the organizational, operational, and developmental impacts of the proposed automation on the ADP organization (USAMSSA) will be minimal. Modification of positional responsibilities is not forseen although reorientation of some staff members may be required. It would not appear, on the basis of functions defined in this FD, that there should be a need for additional ADP personnel. It is not anticipated that there will be any changes in the ADP configuration of USAMSSA. Additional requirements for program and data conversion are not known at this time.

5.5 Failure Contingencies

Hardware or software failures of such magnitude, devastation, and duration as to require a fallback to periods of extended manual manipulation and recording procedure probably would occur only as a result of sabotage or war. If the computer center becomes inoperable under such conditions, Continuity Of Operations Plans (COOP) provide for support of automated systems elsewhere.

5.5.1 Restart

In the event of temporary system failure during processing and execution activity, USAMSSA has the software capability to accommodate rapid restart. An example of this capability is the Automated Planning and Execution (APEX) Control System that resides on the USAMSSA mainframe. APEX allows automatic restart without user intervention or loss of software in case of system failure through its automatic control of the release of job streams.

5.5.2 Backup

"Back-up" refers to redundancy available in the event the primary system fails. The primary system files, data bases, and interactive hardware are maintained on disk files. USAMSSA provides backup by daily dumps from disk to magnetic tape. Thus, the loss of critical operational software would be minimal.

5.5.3 Fallback

If the mainframe operating system at USAMSSA fails, the Continuity of Operations Plans (COOP) will provide temporary alternative processing activities. As stated in paragraph 3.5 batch processing or manual manipulation, rather than an interactive mode, may be used until system capability is restored.

5.6 Security

5.6.1 Data Security Measures

Breaches and penetration of data security are matters of key concern at computer centers. Unauthorized disclosure, destruction, or modification/manipulation of data used by the data processing system could threaten the ability of a center to continue operations.

Various security measures will be instituted to protect the security and integrity of data in the Army budget system.

- The system will have security features built into it so that only certain information can be accessed from each terminal.
- Special codes will be required to access data sets, records, or files.
- Specific portions of the data base will be accessed only by those whose job requirements require such access.
- Scope of access will be proportionate to the user's security clearance and job responsibilities.

5.6.2 USAMSSA Data Security

The USAMSSA computer center has installed a data security system called ACF2--The Access Control Facility--which is an extension of the IBM OS/MVS Operating System that provides data security.[1]

ACF2 is not a data protection system but rather a system that provides for the controlled sharing of data. An algorithmic methodology, much like a program, is used to determine whether access to a specific data set by an individual user should be allowed.

Because ACF2 determines whether an individual user should be allowed access to a data set, it must be able to associate a user's identity with each job or time-sharing session. Each user has a logon Identification (LOGONID) and each LOGONID has a password associated with it. These passwords are kept in an encrypted format which cannot be reversed. If the user forgets the password, the USAMSSA Security Officer cannot tell the user what it is; he can only change.

5.7 Assumptions and Constraints

Several assumptions have been made in developing this FD defining the system requirements and providing the DACA-OMP with a clear statement of the operational capability to be developed for automation of certain budget activity exhibits. It is assumed that:

- There will be a continuing requirement for the Army to display budget exhibits identifying costs and manpower data.
- The FORDIMS P/BS data base will produce the required outputs for the OP-32 Budget Exhibit Interface.
- The VFDMIS MIS will replace the FORDIMS and will be designed to provide the data now furnished by P/BS.

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[1]Extracted from the ACF2-The Access Control Facility User's Guide, Modified by USAMSSA (18 November 1981), developed by Schrager, Klemens, and Krueger, Inc.

SECTION 6
COST FACTORS

6.1 Introduction

The purpose of this section is to provide a summary of the cost factors associated with the Automation of the Army Budget Activities for Civilian Personnel relating to the FORDIMS P/BS interface to update the OP-32 Budget Exhibit. The cost factors shall occur in three system phases:

- System Development
- System Implementation
- System Operation

6.2 System Development Costs

Developmental effort will be required to generate the necessary custom programs for the automation of civilian personnel budget exhibits.

Developmental effort also is required to design screen formats, help function formats, and specify procedures for data base maintenance. In addition, instructions and system documentation must be produced during the development phase.

The required computer services also shall be considered. It is expected that this development effort will require not more than 2.5 person-weeks. The skill categories and person-weeks required for this task are:

Senior Analyst/Programmer	.5
Junior Programmer	.1
Technical Writer	.5
Word Processor Specialist	.5
Total Weeks	2.5

6.3 System Implementation Costs

The initial implementation costs involve specifying the data base structure; and loading pre-defined tables, screen formats, and application programs. Testing of the operating system and application programs shall be performed during implementation. After software development has finished, functional personnel shall receive approximately four hours of informal training in concept design and hands-on training for manipulation of the CRT and terminal operations. All training shall be accomplished on-site prior to full utilization of the system. No additional personnel will be required to operate the system as existing operational and analytical personnel presently functioning in OP-32 activities shall be trained to operate the proposed system. Impact of the new system on USAMSSA facilities will be negligible. There are no additional implementation costs anticipated with respect to the user terminal.

6.4 System Operation Costs

The continuing operations-related costs will involve those currently in being for the contractor costs for the user terminal already in place. It is recommended that these services continue for the fully automated system.

SECTION 7

SYSTEM DEVELOPMENT PLAN

7.1 Project Work Plan

The purpose of this plan is to provide for the project control necessary for the USAMSSA to design, develop, test, document, and install the software programs and interfaces necessary to satisfy the system requirements outlined in Section 4.

The life cycle activities to be considered for the implementation of an Automated Interface to update the OP-32 Budget Exhibit from the FORDIMS P/BS data base are depicted in the overall System Development Schedule, Figure 7.1. While the period of time for completion of this project may appear to be short, many of the events can be accomplished concurrently. Further, the schedule provides only a representative list of events necessary for system development. During design and development, changes to the schedule and approved requirements may become necessary. In this event, the proponent will notify the USAMSSA as early as practical.

Emphasis is placed on informal in-progress reviews. At the review time, the schedule will be checked and any changes will be identified. The activity during each event will be reviewed to ensure that it will satisfy the requirements needed for an automated interface to update the OP-32 Budget Exhibit from the FORDIMS P/BS data base. In the event of a slip in the schedule, or a significant change in the system requirements, both the USAMSSA and the OCA management will be informed as to the extent and nature of the impact. Where possible, if schedule or requirement changes have little or no impact on the project in terms of manpower or time, they will be incorporated directly in the development effort.

7.2 Definition/Design Phase

The Definition/Design Phase shall be accomplished by the USAMSSA utilizing this Functional Description, The OP-32 FD, and any other

PB-32 FORDIMS P/BS INTERFACE DEVELOPMENT SCHEDULE

[==========]

MILESTONE ACTIVITIES	WEEKS AFTER PROJECT START . 1 2 3
DEFINITION/DESIGN PHASE	
Start Project	<
Preliminary System Design	<-->
Preliminary Design Review	<->
Detailed System Design	<------->
Detailed Design Review	<->
Design Updates	<->
SYSTEM DEVELOPMENT PHASE	
Display Screen Development	<----->
Coding & Check-out	<----->
Documentation	
Testing & Integration	<------>
Training	<--->
Quality Assurance	<--->

MANPOWER RESOURCES		
Senior Analyst/Programmer	1/4	1/4
Junior Programmer		1/2
Technical Writer	1/2	1/2
Word Processing Specialist	1/4	1/4

Figure 7.1. PB-22 FORDIMS P/BS Interface Development Schedule

supporting documentation provided by the OCA. Work on this Phase shall be completed 1 1/2 weeks after initiation of the project.

7.2.1 Preliminary System Design

The USAMSSA shall have two days in which to develop the Preliminary System Design and provide it for the OCA review.

7.2.2 Preliminary Design Review

The OCA shall have one day in which to review the Preliminary Design for accuracy and completeness, ensuring that all aspects necessary to system development have been included. The OCA shall approve all designs, prior to initiation of any coding.

7.2.3. Detailed System Design

Upon completion of the Preliminary System Design, the Detailed System Design shall be developed by the USAMSSA. This detailed design shall be completed and submitted to the OCA for review by the end of the first week of the project.

7.2.4 Detailed Design Review

The OCA shall review the detailed design to ensure the developmental aspects of the design include all capabilities necessary for the system. This review shall be completed one day after receipt of the detailed design.

7.2.5 Design Updates

The USAMSSA shall revise and update the system design based on recommendations provided by the OCA. The system design updates shall be completed by the beginning of the second week of the project.

7.3 System Development Phase

The System development Phase shall be accomplished by the USAMSSA utilizing the final detailed design. Work on all listed events of the development phase shall be completed 2 1/2 weeks after initiation of the project.

7.3.1 Display Screen Development

The screens involving menu selection items and data input forms shall be developed during the second week of the project.

7.3.2 Coding and Check-out/Program Modules

The coding of the programs shall begin during the second week of the project, to be completed and checked out by the end of the second week of the project.

7.3.3 Documentation and Deliverables

The necessary system documentation shall be developed concurrently with the coding and check-out of the program modules. As a minimum, the documentation will include a program reference and user, operations, and maintenance instructions. Development of the instructions shall be co-ordinated with the OCA, completed by the end of the second week of the project, and made available for the Training Event.

In addition to system documentation, deliverables, on a time schedule determined by the functional proponent, shall include:

- A functional proponent's user's manual
- OP-32 Budget Exhibit Reports

7.3.4 Testing and Integration

Testing and integration of the program modules shall begin the second week of the project in order to check the accuracy and validity for integrating the OP-32 FORDIMS P/BS interface with the existing systems. This phase of development shall be completed by the end of the project (2 1/2 weeks).

7.3.5 Training

Operator training shall be incorporated in the System Development Phase and involve informal meetings between the USAMSSA and the OCA personnel to discuss system operational procedures. This activity shall be accomplished during the last three days of the project and result in initiation of the operation of the ADS.

7.3.6 Quality Assurance Certification

The completed OP-32 FORDIMS P/BS Interface shall be thoroughly tested for quality assurance during the final three days of the project. A Systems Engineering Test shall be conducted by the USAMSSA to ensure that the system components operate as a whole. This test will be conducted from a technical aspect. Testing from a functional point of view will be the responsibility of the OCA. This Operational Acceptance Test will be conducted in an operational environment and will ensure that the system performance is in accordance with the functional requirements.

7.4 Deployment and Operational Phases

As the OP-32 ADS shall be integrated into an operational system, there will be no additional time required for installation and check-out of the system. Any software modifications shall be accomplished on an as required basis using a Data Processing Request (DPR) form 56.

APPENDIX A
WORK STATEMENT

WORK STATEMENT

FUNCTIONAL DESCRIPTIONS FOR AUTOMATION OF THE ARMY BUDGET ACTIVITIES FOR CIVILIAN PERSONNEL

INTRODUCTION

The General Research Corporation (GRC) proposes to develop for the Office, Comptroller of the Army the functional descriptions for automation of (1) the Army Management Headquarters Activities (AMHA) PB-22 Budget Exhibit and (2) the Program and Price Growth OP-32 Budget Exhibit. In addition, GRC proposes to develop a third functional description for the interface requirement to update the OP-32 system from FORDIMS P/BS.

The purposes of this effort are to provide:

- The budget system requirements which must be satisfied to serve as a basis for mutual understanding between the user and the developer.
- Information on performance requirements, data sources, and interfaces with existing automated data systems.
- A basis for systems development of procedures to display, access, and update civilian personnel budget data through remote entry devices and computer interface.

APPROACH

The functional description will be developed by analysis of existing manual procedures, determination of specific user requirements, and identification of data elements to be extracted from relevant management systems. The specific tasks to be accomplished are described below.

TASK 1 - BUDGET EXHIBIT FORMATS

The objective of this task is to develop PB-22 and OP-32 Budget Exhibit formats for hard copy and CRT display which provide civilian personnel budget data broken out by categories such as:

- Fiscal year
- Command
- Program element
- Appropriation code
- Compensation area
- End strength
- Work years
- Army Management Headquarters
- Functional Category

The description of the budget exhibits will identify the manner in which the data elements will be displayed, necessary mathematical computations required to translate input data into summary type information, structure of the exhibit formats, and other information necessary to support a data processing request. Work on this task is of critical importance to all following efforts in automating the budget process.

The initial step in the work on this task will be to meet with the COR to determine specific data needs and obtain relevant extant data such as existing documentation of the budget process. In addition, the project staff will meet with other HQDA and USAMSSA staff representatives to define the budget exhibit format and content requirements and ensure development of a viable functional description. Following these initial meetings, GRC will develop and refine the budget exhibits in accordance with DoD Budget Guidance Manual 7110-1-M and in close coordination with the COR and other staff representatives, as necessary. The focus of these efforts will be not to critique current methods, but rather to ensure that the design of the exhibits incorporates the knowledge and experience of the personnel involved in the budget process. In

addition, particular attention will be focused on developing hardcopy formats that are easily understood and compatible with CRT displays.

Work on this task will be completed 2 weeks after contract award and require approximately 2 person-weeks of effort. The output will be a description with appropriate sample exhibits, of the PB-22 and OP-32 Budget Exhibit formats.

TASK 2 - BUDGET DATA SOURCES

The objective of this task is to identify the sources of data for the Army Management Headquarters Activities (AMHA) Program Budget 22.

Work on this task will involve review of the systems that support Army manpower management to identify data sources which could be used for input to the PB-22. The initial review will involve those systems identified by the COR as being particularly useful to the current budget preparation process. In addition, the project staff will endeavor to identify other potential sources of data that exist for allocating, costing, and managing civilians on both an end strength and a work year basis.

This review will involve selective examination of the program control and feedback system to include:

- The Program/Budget Subsystem (P/BS) of the Force Development Integrated Management System (FORDIMS)[1] and input to the Program Budget Guidance (PBG).
- The Civilian Personnel Information System - Model I (CIVPERSINS-I), as prescribed in AR 680-330, which provides feedback on actual characteristics of the civilian work force hired against authorized positions.

[1]GRC supported the development of FORDIMS from a functional user aspect and developed the FORDIMS User's Guide, Volume I, Introduction and Program/Budget Subsystem (P/BS).

- The Tables of Distribution and Allowance (TDA) which are normally prepared only for the current, budget, and first program year (Concept Plans are a limited exception). Civilian manpower detail by category, grade, and civilian occupational specialty code is not normally available for the remaining program years ("outyears").[1]
- The Army Civilian Personnel System (ACPERS), currently in early stages of development.
- The CSFOR-78 report which currently displays actual and authorized civilian strengths at command, Army Management Structure Code, and civilian identity level (with some limited workload data).
- The Manpower Evaluation and Tracking System (METS) which compares actual and authorized civilian strength.

GRC already has a comprehensive understanding of functional interrelationships among Army mission and workload, civilian manpower requirements determination, documentation of current and future civilian work force characteristics, personnel management policy, external constraints, and life cycle functions. During this project, we will confirm, update, and upgrade our background knowledge with particular emphasis on relevant input data for the PB-22. Our current and extensive library of applicable directives, studies, and other background information will greatly simplify the literature search.

Work on this task will be completed approximately 3 weeks after contract award and require approximately 1 person-week of effort. The output will be a description which identifies the appropriate sources of input data for PB-22 and describes the data elements which can be obtained from these sources.

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[1]This may change under the Vertical Force Development Management Information System (VFDMIS) (currently under development with GRC support) since documentation details in that system are reflected on a time continuum and remain valid until modified.

TASK 3 - DATA INPUT BY CRT

The objective of this task is to develop procedures to input additional PB-22 and OP-32 cost data via the DACA-OMP CRT and document these procedures by functional descriptions.

Work on this task will commence approximately 2 weeks after contract award and involve close coordination with the COR to review current capabilities and establish future requirements for input of cost data via the CRT. Based on this coordination, GRC will design and develop procedures to input additional cost data which specify:

- The data elements which are to be input
- The format and content of the data elements
- A structure for filing the input data which is compatible with the existing systems

Particular emphasis will be placed on development of procedures which are user friendly and facilitate data entry. The procedures will be documented by the development of the input required for a Data Processing Request (DPR) (DAS Form 56, Appendix B, DA Memo 18-4, dated 18 March 1979) for both the PB-22 and OP-32 systems. This documentation will include:

- Systems title and general description
- System benefits, assumptions, and constraints
- Source data media and formats of input data
- Frequency and timeliness
- Output title and general description
- Output interface constraints, media, and formats
- Description of the proposed system to include:
  - Data element definition and coding structure
  - Data tables
  - Relations between data elements

While it is not practical to scope completely the magnitude of this effort, we estimate that development of these procedures may require approximately 7 person-weeks of effort.

The output will be two functional descriptions of the procedures to input additional cost data via the DACA-OMP CRT:

- The OP-32 functional description will be delivered approximately 5 weeks after contract award.
- The PB-22 functional description will be delivered approximately 7 weeks after contract award.

TASK 4 - OP-32 AND FORDIMS P/BS INTERFACE

The objective of this task is to develop a functional description for the interface requirement to update the OP-32 system (resident at the USAMSSA computer) from FORDIMS P/BS.

GRC is fully aware that the functional description requirements must drive the system design and not vice-versa. This is not to say that existing system design considerations should not intrude in the process of developing the functional description. Such design considerations can exert a very positive influence, when, as in this case, there is another system (FORDIMS P/BS) with which the automated budget process must interface in order to update the OP-32 system.

Work on this task will involve identification of the data elements in the FORDIMS P/BS that will be utilized to update the OP-32 system translation of the data elements into a format acceptable as input for the OP-32 system, and development of the input required for a DPR as described under Task 3. Tentative FORDIMS P/BS data elements which may be used as input to the OP-32 system include:

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[1]Data element descriptions are in Appendix D, FORDIMS User's Guide, Vol I, Aug 1980.

FORDIMS P/BS DATA ELEMENTS[1]

AUCCO	BCOCO	BBECO	AYSCO	FEPER
AMYRC	CASHA	FECMP	CAPER	SVPER
MDAYS	CASCO	SVPAY	OTPER	BCOMP
MYRCO	OTIME	ADSAL	OTPCO	BBENE
OTMYR	OTICO	ADSCO	EEPER	AYSAL

Work on this task is estimated to require approximately 4 person-weeks. The output will be a functional description for the interface requirement that will be delivered approximately 8 weeks after contract award.

COORDINATION

Successful completion of the work will require close and continuing interface with the personnel most knowledgeable about the development and use of the PB-22 and OP-32 Budget Exhibits and supporting systems. GRC intends to facilitate this coordination by almost daily liaison with these personnel to ensure the existing systems are properly described and defined in terms of systems requirements.

All functional descriptions will be developed in coordination with the COR and incorporate Government comments.

PERSONNEL

This research will be conducted by the personnel listed below. Estimated time to be devoted to the study is shown. Their qualifications are briefly described in the subparagraphs below.

	Person hours
Mr. Robert Schroeder	240
Mr. Einar (Bill) Berge	232
Mr. William Bartlett	80

Mr. Schroeder will be project leader.

Mr. Robert L. Schroeder is a former Army Colonel who has extensive experience in manpower and personnel studies and analyses as well as civilian personnel management experience. He is a GRC Senior Analyst with a graduate degree in operations research, was recently project manager for two Army studies involving manpower and personnel management policy analysis and turbulence definition, and was a member of the project team developing a Civilian Personnel Management Module within the FORECAST System. Before joining GRC, Mr. Schroeder was Director, Systems Force Mix at the Army Concepts Analysis Agency. In this capacity, he directed and managed a staff of approximately 50 civilian and military analysts in the conduct of cost and benefit studies. Earlier assignments included management of study efforts requiring functional definition, data collection, analysis, and evaluation of organizational and operational requirements, and Army personnel policy analysis. His extensive background in the Army and in operations research studies makes him eminently qualified for this project.

Mr. Einar (Bill) Berge is a Senior Consultant with unparalleled expertise in the areas of manpower planning and analysis and mobilization manpower planning. He has been a member of several GRC project teams; most notably, the projects to develop the modifications to ELIM-COMPLIP and MOSLS for mobilization planning and to develop a Civilian Personnel Management Module within the FORECAST System.

Mr. Berge, a former Army Colonel with more than 30 years of military service, has extensive experience in analysis of manpower requirements and automated systems design. His analytical experience in these areas will be invaluable in this project.

Mr. William E. Bartlett, Jr. is a GRC Principal Analyst (and Deputy Director, Management Sciences Operations) with extensive experience in manpower management, ADP systems, personnel planning, and mobilization. He is currently serving as manager of the project to develop a Civilian Personnel Management Module within the FORECAST System. He was also a major contributor in the study to determine modifications to ELIM-

COMPLIP and MOSLS for mobilization strength planning and management for enlisted personnel.

A former Army Colonel with more than 4 years of day-to-day involvement with Army personnel matters as a key member of the staff of the Deputy Chief of Staff for Personnel at Department of the Army level, he brings an unparalleled depth and breadth of understanding of Army personnel functions and system development to this project.

APPENDIX B

STATEMENT OF WORK

CONTRACT NO. MDA903-83-M-7399
General Research Corp.

I. SCOPE OF WORK

The contractor shall furnish the necessary personnel, materials, facilities and other services, managing and directing the same as may be required to conduct research to develop Functional Descriptions for Automation of the Army Budget Activities for Civilian Personnel. The work to be performed consists of the following tasks.

a) TASK A - Contractor will develop PB-22 and OP-32 Budget Exhibit formats for hard copy and CRT display which provide civilian personnel budget data broken out by categories.

b) TASK B - Contractor will identify the sources of data for the Army Management Headquarters Activities (AMHA) Program budget 22.

c) TASK C - Contractor will develop procedures to input additional PB-22 and OP-32 cost data via the DACA-OMP CRT and document these procedures by functional discriptions.

d) TASK D - Contractor will develop a functional discription for the interface requirements to update the OP-32 System (resident at the USAMSSA computer) from FORDIMS P/BS.

II. REPORTS

(a) During the period of research, the contractor shall submit reports in accordance with the delivery schedule set forth below. The reports shall include the following:

(1) Interim status reports - containing working notes and all papers related to development of functional descriptions.

(2) A written OP-32 functional description to include data processing request ready for submission to USAMSSA.

(3) A written PB-22 functional/description to include data processing request ready for submission to USAMSSA.

(4) A written functional description of P/BS FORDIMS Interface to the OP-32 System to include data processing request ready for submission to USAMSSA.

III. DELIVERY SCHEDULE

REPORTS	QUANTITY	DELIVERY DATE
First Interim Status on OP-32	5 copies	22 Aug 1983
OP-32 Functional Description	5 copies	05 September 1983

CONTRACT NO. MDA903-83-M-7399
General Research Corp.

REPORTS	QUANTITY	DELIVERY DATE
Second Interim Status on PB-22 and P/BS FORDIMS Interface to OP32.	5 copies	19 Sept 1983
PB-22 Functional Description	5 copies	07 Oct 1983
P/BS FORDIMS INTERFACE to the OP-32	5 copies	07 Oct 1983

IV. CONTRACTING OFFICERS REPRESENTATIVE

Mrs. Jean S. Rogers, HQDA (DACA-OMP), Rm 3B666, The Pentagon, Washington, DC 20310: (202) 697-7669, is hereby designated as the Contracting Officer's Representative to:

a. Receive for the Government Reports and any other material called for and represent the Contracting Officer in the technical phases of the work. The Contracting Officer's Representative is not authorized to change any of the terms and conditions. Changes in the scope of work shall be made only by the Contracting Officer by properly signed modifications to the delivery order.

b. Certify the Contractor's "need to know" in connection with the contractor's:

(1) requests for information from Government activities,

(2) requests to private Contractors for information developed pursuant to Government contracts,

(3) visits to Government installations and other Government Contractors to obtain information to be used in the performance of this delivery order.

c. Act as the Authorized Government Representative to receive, inspect, and accept the services performed under this purchase order by executing the receiving report(s) (Block 26 & 27 of DD Form 1155 or block 23 of DD Form 250) required by this orde as verification that the specified services have been performed. The COR will distribute one (1) copy of the signed receiving reports(s) to Defense supply Service-Washington.

V. PAYMENT

At the time of delivery of Functional Descriptions and Interface called for herein, the contractor shall complete a DD form 250. "Material Inspection and Receiving Report" and submit it along with an invoice in original and four copies to the Contracting Officer's Representative (COR). The COR shall forward same to the designated activity for payment.

VI. Military Security Requirements clause, DAR 7-104.12, dated 1971 APRIL, is applicable.

VII. MILITARY SECURITY CLASSIFICATION

Military security requirements in the performance of this contract shall be maintained in accordance with the DD Form 254 which is attached. The highest classification involved in the performance of this contract is secret. This contract document is unclassified.

VIII. CLASSIFIED INFORMATION

The contractor will not use any electrical information processing equipment in his possession for the purpose of processing or transmitting classified information under this contract without the written permission of the Contracting Officer.

IX. DISSEMINATION OF INFORMATION

There shall be no dissemination or publication, except within and between the contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the COR or of the Contracting Officer.

X. LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

a. Attachments

DD Form 254

APPENDIX C

ABBREVIATIONS AND ACRONYMS

APPENDIX C

ABBREVIATIONS AND ACRONYMS

ABS	Additional Budget Submits
ADSAL	Average Daily Salary
ACT	Activity Group
ACTNO	Action Number
AFP	Annual Funding Program
AMHA	Army Management Headquarters Activities
AMSCO	Army Management Structure Code
APCAT	Appropriation Category
AIF	Army Industrial Fund
AMO	Automation Management Office
AYSAL	Average Yearly Salary
BDFA	Basic Daily Food Allowance
BEAMS	Budget Execution and Appropriation Management System
BBENE	Basic Benefits
BCOMP	Basic Compensation
BEPER	Benefit Percent Factor
BOS	Base Operations
CA	Commercial Activities
COA	Comptroller of the Army
COB	Command Operating Budget
COLA	Cost of Living Allowance
COR	Contracting Officer Representative
C/PGS	Cost/Program Growth System
CPI	Consumer Price Index
CRT	Cathode Ray Tube
CSFOR-78	Manpower Utilization and Requirements Report
DBMS	Data Base Management System
DOD	Department of Defense
DPR	Data Processing Request
EOE	Elements of Expense
FD	Functional Description
FECMP	Former Employee Compensation

ABBREVIATIONS AND ACRONYMS (Cont.)

FEGHI	Federal Employee Group Health Insurance
FEGLI	Federal Employee Group Life Insurance
FEPER	Former Employee Percent Factor
FICA	Federal Insurance Contribution Act
FNDH	Foreign National Direct Hire
FNID	Foreign National Indirect Hire
FNSA	Foreign National Separation Allowance
FORDIMS	Force Development Integrated Management System
FSS	Force Structure Subsystem
FTP	Fulltime Permanent
FYDP	Five Year Defense Program
GFSR	General Functional System Requirement
GS	General Schedule - Civilian Employee
MACOM	Major Army Command
MSN	Mission
MYP	Multiyear Procurement
OC	Object class
OCA	Office of the Comptroller of the Army
O&M	Operations and Maintenance
OMA	Operation and Maintenance, Army
OMAR	Operation and Maintenance, Army Reserve
OMARNG	Operation and Maintenance, Army National Guard
OMB	Office, Management and Budget
OPAGY	Operating Agency
OSD	Office, Secretary of Defense
OTIME	Overtime
OTPER	Overtime Percentage Factor
PBD	Program Budget Decision
PBG	Program Budget Guidance
P/BS	Program/Budget Subsystem
PCD	Program Change Decision
PCS	Permanent Change of Station
PDM	Program Decision Memorandum

ABBREVIATIONS AND ACRONYMS (Cont.)

PE	Program Element
POM	Program Objective Memorandum
PPBES	Planning, Programming, Budgeting, and Execution System
RCOMD	Resource Command
RDTE	Research, Development, Test, and Evaluation
RPMA	Real Property Maintenance, Army
SCR	Systems Change Request
SES	Senior Executive Service
SOW	Statement of Work
STANFINS	Standard Financial Systems
STARCIPS	Standard Army Civilian Payroll System
SVPAY	Severance Pay
TAADS	The Arrmy Authorization Documents System
TDA	Table of Distribution and Allowance
TDY	Temporary Duty
TPT	Temporary Parttime
USAFAC	United States Army Finance and Accounting Center
USAMSSA	United States Army Management System Support Agency
VFDMIS	Vertical Force Development Management Information System

APPENDIX D

COST/PROGRAM GROWTH SYSTEM FILE LAYOUTS

COST/PROGRAM GROWTH SYSTEM FILE LAYOUTS

FILE DESCRIPTION

SYSTEM ID: COST/PROGRAM GROWTH SYSTEM	RECORD LENGTH 80	PAGE No 001	No of PAGES 001
( ) CARD (X) TAPE ( ) DISK ( ) OTHER		FILE ID WBAU.TPMACOM	
REC PER BLK	REMARKS Data received from MACOM's		

RELATIVE POSITION	IDENTIFICATION OF ELEMENT (field)	ABBREV	LENGTH/ CLASS	LOCATION
01	Basic Appropriation Account	Approp	4/N	01-04
02	Command Code	Command	3/N	05-07
03	Army Program Element Code	Pgm-Element	6/N	08-13
04	Line Item	Line-Item	4/N	14-17
05	Title	Title	15/A	18-32
06	Filler	Filler-1-Macom	22/A	33-54
07	Prior Year Amount	Prior-Yr-Amt	8/N	55-62
08	Current Year Amount	Current-Yr-Amt	8/N	63-70
09	Budget Year Amount	Budg-Yr-Amt	8/N	71-78
10	Schedule	Schedule	1/N	79-79
11	Filler	Filler-2-Macom	1/A	80-80

FILE DESCRIPTION

SYSTEM ID: COST/PROGRAM GROWTH SYSTEM	RECORD LENGTH 91 bytes	PAGE No 001	No of PAGES 002
( ) CARD (X) TAPE ( ) DISK ( ) OTHER		FILE ID WBAU.TPCOMPS	
REC PER BLK	REMARKS Compressed data to be loaded in to 'ADABAS'		

RELATIVE POSITION	IDENTIFICATION OF ELEMENT (field)	ABBREV	LENGTH/ CLASS	LOCATION
01	Program / Sub Program	Sub-Pgm	2/N	01-02
02	Program Budget Decision	Pgm-Budg-Dec	3/N	03-05
03	Activity Group	Act-Grp	3/N	06-08
04	Line Item	Line-Item	4/N	09-12
05	Use Growth Flag	Growth-flag	1/A	13-13
06	Prior Year Amount	Amt-PY	8/N	14-21
07	Foreign Currency Adjustment Prior Yr / Current Yr	Currency-PY-CY	8/N	22-29
08	Price Growth Percentage Prior Yr / Current Yr	Price-Growth-Perc-PY-CY	5/N	30-34
09	Price Growth Amount Prior Yr / Current Yr	Price-Growth-Amt-PY-CY	7/N	35-41

SYSTEM ID: Price/Program Growth System	RECORD LENGTH 91 bytes	PAGE No 002	No of PAGES 002
( ) CARD ( ) TAPE (X) DISK ( ) OTHER		FILE ID WBAU.TPCOMPS	

REC PER BLK	REMARKS
	'ABABAS' Master (Activity Group Level)

RELATIVE POSITION	IDENTIFICATION OF ELEMENT (field)	ABBREV	LENGTH/ CLASS	LOCATION
10	Program Growth Amount Prior Yr / Current Yr	Pgm-Growth-Amt-PY-CY	7/N	42-48
11	Current Year Amount	Amt-CY	8/N	49-56
12	Foreign Currency Adjustment Current Yr / Budget Yr	Currency-CY-BY	8/N	57-64
13	Price Growth Percentage Current Yr / Budget Yr	Price-Growth-Perc-CY-BY	5/N	65-69
14	Price Growth Amount Current Yr / Budget Yr	Price-Growth-Amt-CY-BY	7/N	70-76
15	Program Growth Amount Current Yr / Budget Yr	Pgm-Growth Amt-CY-BY	7/N	77-83
16	Budget Year Amount	Amt-BY	8/N	84-91

FILE DESCRIPTION

SYSTEM ID: COST/Program Growth System	RECORD LENGTH 42	PAGE No 1	No of PAGES 1
( ) CARD (X) TAPE ( ) DISK ( ) OTHER		FILE ID WBAU.TPBACKUP	
REC PER BLK	REMARKS: Used to load the ISAM DB and as input Compress program		

RELATIVE POSITION	IDENTIFICATION OF ELEMENT (field)	ABBREV	LENGTH/ CLASS	LOCATION
01	Error line CPGS '*' if line in error	Error-Flag-CPGS	1/A	1-1
02	Basic Appropriation Account	Approp	4/N	2-5
03	Command Code	Command	3/N	6-8
04	Army Program Element Code	Pgm-Element	6/N	9-14
05	Line Item	Line-Item	4/N	15-18
06	Prior Year Amount	Prior-Yr-Amt	8/N	19-26
07	Current Year Amount	Current-Yr-Amt	8/N	27-34
08	Budget Year Amount	Budget-Yr-Amt	8/N	35-42

FILE DESCRIPTION

SYSTEM ID: COST/PROGRAM GROWTH SYSTEM	RECORD LENGTH 91 bytes	PAGE No 001	No of PAGES 002
( ) CARD ( ) TAPE (X) DISK ( ) OTHER		FILE ID WBAU.DBOP32	
REC PER BLK	REMARKS ADABAS FILE NAME IS OP-32 'ABABAS' Master (Activity Group Level)		

RELATIVE POSITION	IDENTIFICATION OF ELEMENT (field)	ABBREV	LENGTH/ CLASS	LOCATION
01	Program / Sub Program	Sub-Pgm	2/N	01-02
02	Program Budget Decision	Pgm-Budg-Dec	3/N	03-05
03	Activity Group	Act-Grp	3/N	06-08
04	Line Item	Line-Item	4/N	09-12
05	Use Growth Flag	Growth-flag	1/A	13-13
06	Prior Year Amount	Amt-PY	8/N	14-21
07	Foreign Currency Adjustment Prior Yr / Current Yr	Currency-PY-CY	8/N	22-29
08	Price Growth Percentage Prior Yr / Current Yr	Price-Growth-Perc-PY-CY	5/N	30-34
09	Price Growth Amount Prior Yr / Current Yr	Price-Growth-Amt-PY-CY	7/N	35-41

FILE DESCRIPTION

SYSTEM ID: Price/Program Growth System	RECORD LENGTH 91 bytes	PAGE No 002	No of PAGES 002
( ) CARD ( ) TAPE (X) DISK ( ) OTHER		FILE ID WBAU.DBOP32	

REC PER BLK	REMARKS
	'ABABAS' Master (Activity Group Level)

RELATIVE POSITION	IDENTIFICATION OF ELEMENT (field)	ABBREV	LENGTH/ CLASS	LOCATION
10	Program Growth Amount Prior Yr / Current Yr	Pgm-Growth-Amt-PY-CY	7/N	42-48
11	Current Year Amount	Amt-CY	8/N	49-56
12	Foreign Currency Adjustment Current Yr / Budget Yr	Currency-CY-BY	8/N	57-64
13	Price Growth Percentage Current Yr / Budget Yr	Price-Growth-Perc-CY-BY	5/N	65-69
14	Price Growth Amount Current Yr / Budget Yr	Price-Growth-Amt-CY-BY	7/N	70-76
15	Program Growth Amount Current Yr / Budget Yr	Pgm-Growth Amt-CY-BY	7/N	77-83
16	Budget Year Amount	Amt-BY	8/N	84-91

FILE DESCRIPTION

SYSTEM ID: COST/Program Growth System	RECORD LENGTH 42	PAGE No 1	No of PAGES 1
( ) CARD ( ) TAPE (x) DISK ( ) OTHER (ISAM)		FILE ID WBAU.DBMACOM	
REC PER BLK	REMARKS: Data from MACOMs use by edits (pre ADABAS).		

RELATIVE POSITION	IDENTIFICATION OF ELEMENT (field)	ABBREV	LENGTH/ CLASS	LOCATION
01	Error Line CPGS '*' if line in error	Error-Flag CPGS	1/A	1-1
02	Basic Appropriation Account	Approp	4/N	2-5
03	Command Code	Command	3/N	6-8
04	Army Program Element Code	Pgm-Element	6/N	9-14
05	Line Item	Line-Item	4/N	15-18
06	Prior Year Amount	Prior-Yr-Amt	8/N	19-26
07	Current Year Amount	Current-Yr-Amt	8/N	27-34
08	Budget Year Amount	Budget-Yr-Amt	8/N	35-42

FILE DESCRIPTION

SYSTEM ID: COST/PROGRAM GROWTH SYSTEM	RECORD LENGTH 71 bytes	PAGE No 001	No of PAGES 001
( ) CARD ( ) TAPE (X) DISK ( ) OTHER		FILE ID WBAU.DBDESCR	
REC PER BLK	REMARKS ADABAS FILE NAME IS DESCR 'ABABAS' Edit / Descriptor file		

RELATIVE POSITION	IDENTIFICATION OF ELEMENT (field)	ABBREV	LENGTH/ CLASS	LOCATION
01	Command Code	Command-CPG	3/N	01-03
02	Program / Sub Program	Sub-Pgm-CPG	2/N	04-05
03	Program Budget Decision	Pgm-Budg-Dec-CPG	3/N	06-03
04	Activity Group	Act-Grp-CPG	3/A	09-11
05	Army Program Element Code	Pgm-Element-CPG	6/N	12-17
06	Line Item	Line-Item-CPG	4/N	18-21
07	Description CPG (for above elements)	Descript-CPG	50/A	22-71

APPENDIX E

AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPENDIX E

AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
OPERATION & MAINTENANCE, ARMY (2020)	
GENERAL PURPOSE FORCES (02)	
LAND FORCES (003)	
Unified Command	201000, 201112, 201113, 201114, 201115, 201116, 201117, 201118, 201120, 201131, 201134, 201135, 201137, 201138, 201298, 201398, 201498, 201598, 201698, 201798, 201898
Alaska Forces	202100, 202180, 202181, 202185, 202189, 202190, 202193
Europe Forces	202300, 202310, 202311, 202312, 202313, 202314, 202315, 202316, 202317, 202318, 202319, 202380, 202381, 202382, 202383, 202384, 208013, 202385, 202386, 202389, 202390, 202392, 202393, 202395, 202398, 202399, 202391
Pacific Forces	202400, 202410, 202411, 202413, 202414, 202415, 202416, 202417, 202418, 202419, 202480, 202481, 202482, 202483, 202484, 202486, 202490, 202491, 202492, 202493, 202495, 202498, 202499
South Forces	202500, 202580, 202583, 202585, 202588, 202590, 202593
CONUS Forces - FORSCOM	202600, 202610, 202611, 202612, 202613, 202614, 202615, 202616, 202617, 202618, 202619, 202680, 202681, 202682, 202683, 202684 202690, 202692, 202693, 202698, 202699
CONUS Forces - Other	202800, 202810, 202815, 202816, 202817, 202818, 202891, 202892, 202899, 208019, 208090

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
OPERATION & MAINTENANCE, ARMY (2020)	
GENERAL PURPOSE FORCES (02)	
LAND FORCES (003)	
JCS Exercises	208011
Combat Dev Act	208015, 208018, 208198
Currency Fluc	208022
BASE OPERATIONS (056)	
BOS - FORSCOM & Other CONUS	202696
RPMA - FORSCOM & Other CONUS	202694
BOS - Europe	202396
RPMA - Europe	202394
BOS - Pacific	202496
RPMA - Pacific	202494
INTELLIGENCE AND COMMUNICATIONS (03)	
CONSOLIDATED CRYPTOLOGIC PROGRAM (330)	381011, 381055, 381194, 381196, 381198
GENERAL DEFENSE INTELLIGENCE PROGRAM (331)	381302, 381311, 381318, 381321, 381307, 381308, 381327, 381329, 381330, 381331, 381334, 381335, 381339, 381398, 381315, 381332, 381359
FOREIGN COUNTERINTELLIGENCE PROGRAM (335)	385127
SERVICE-WIDE ACTIVITIES PROGRAM (013)	385128, 385298, 385398

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
COMMUNICATION SECURITY PROGRAM (350)	393401
TELECOMMUNICATIONS, COMMAND & CONTROL PROGRAM (009)	
WWMCCS - Facilities	392012, 392053, 393131, 393145
Long-Haul Communications	393111, 393126, 393142
Mgt HQ - Comm	393998
Base Communications	393190, 395701, 395702, 395703
WWMCCS - ADP	393151, 393152, 393298, 3933998
Air Traffic Cont Systems	395114
BASE OPERATIONS (056)	
BOS - COMMUNICATIONS	393196
RPMA - COMMUNICATIONS	393194
BOS - OTHER INTELLIGENCE/COMM	395896
RPMA - OTHER INTELLIGENCE/COMM	395894
CENTRAL SUPPLIES AND MAINTENANCE (07)	
CENTRAL SUPPLY ACTIVITIES (24)	
Supply Activities	721111, 721112, 721113
Log Support Activities	722829, 722890, 722892, 722898 728012
Transportation Mgt. & Overseas Port Units	728013, 728028
Ind Preparedness Opns	728011
Resale Commissaries	722891
Real Estate Admin/Const Sup	728018

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
DEPOT MAINTENANCE (017)	
Depot Maintenance, Other	732207
Maint Spt Activities	738017
BASE OPERATIONS (056)	
BOS	722896
RPMA	722894
TRAINING, MEDICAL AND OTHER GENERAL PERS ACTIVITY (08)	
TRAINING (029)	
Recruit Training	814711
One Station Training	814761
Officer Acquisition	814721, 814722
Senior ROTC	814723
Specialized Trng	814731, 814733, 814734
Flight Training	814741, 814743
Professional Education	814751, 814752
Training Support	814771, 814772, 815790, 815798, 819731
MEDICAL OPERATIONS, ARMY (041)	
Med Care/Reg Def Fac	847711
Station Hosp & Clinics	847792
Dental Care Activities	847715

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
MEDICAL OPERATIONS, ARMY (Cont.)	
Med Care in Non-Def Facilities	847713
Med Ed & Trng	846722, 846723, 846761
Cmd Health Care	847798
Med Recruiting & Examining	841713
Other Med Act	847714
Audio-Visual Spt	847790
OTHER PERSONNEL SUPPORT (037)	
Recruiting & Examining	871711, 871712, 871713, 871798 879790
Other Personnel Act	871714, 878716
Civ Education	878751
Junior ROTC	879721
ACES	879732
VEAP	879733
AFRT	878711
BASE OPERATIONS (056)	
BOS - Training & Education	815796, 815896
BOS - Medical	847796

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
BASE OPERATIONS (Cont.)	
RPMA - Training & Education	815794, 815894
RPMA - Medical	847794
ADMINISTRATION & ASSOCIATED ACTIVITIES (09)	
ADMINISTRATION (044)	
Dept HQ Spt	952398, 952498, 952798
Pers Admin Spt	951220
Public Affairs	951214, 951298
CID Act	951520, 952598
Service-Wide Spt	951212, 951215, 951518, 951519
Audio-Visual Spt	952490,
BASE OPERATIONS (056)	
BOS - Administration	951296
BOS - Real Estate Leases	951396
RPMA - Administration	951294
SUPPORT TO OTHER NATIONS (10)	
SUPPORT TO OTHER NATIONS (052)	
Int. National Mil Hqs & Agcy	001098, 001004
Misc. Spt	001010
Svc Spt to MAP and Sales Program	001009, 002002, 001011

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
RESEARCH, DEVELOPMENT, TESTING & EVALUATION, ARMY (2040)	
TECHNOLOGY BASE (01)	
DEFENSE RESEARCH (200)	611101, 611102
EXPLORATORY DEVELOPMENT (204)	612105, 612111, 612120, 612201, 612202, 612209, 612210, 612211, 612303, 612307, 612601, 612603, 612617, 612618, 612622, 612623, 612701, 612703, 612704, 612705, 612706, 612707, 612709, 612715, 612716, 612717, 612719, 612720, 612722, 612723, 612724, 612725, 612727, 612728, 612730, 612731, 612732, 612733, 612734, 612745, 612746, 612770, 612772, 612775, 612777, 612781
ADVANCED TECHNOLOGY DEVELOPMENT (02)	
ADVANCED TECHNOLOGY DEMONSTRATION (216)	623102, 623104, 623201, 623206, 623207, 623209, 623211, 623216, 623218, 623220, 623221, 623306, 623313, 623314, 623322, 623324, 623602, 623606, 623607, 623621, 623626, 623631, 623636, 623637, 623710, 623725, 623731, 623734, 623737, 623739, 623742, 623743, 623744, 623748, 623749, 623752, 623756, 623758, 623759, 623761, 623762, 623763, 623765
STRATEGIC PROGRAM (03)	

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
STRATEGIC DEFENSE (224)	633304, 633308
STRATEGIC C3I PROGRAMS (228)	152814, 152821
GENERAL DEFENSE INTELLIGENCE PROGRAM (331)	351307
COMMUNICATION SECURITY PROGRAM (350)	353401
TACTICAL PROGRAM (04)	
LAND WARFARE FORCES (230)	243718, 243724, 243726, 243730, 243731, 243735, 243739, 243741, 243743, 243744, 623322, 643217, 643302, 643316, 643323, 643536, 643612, 643619, 643623, 643627, 643628, 643632, 643633, 643635, 643702, 643705, 643719, 643726, 643732, 643740, 643741, 643747, 643750, 643770, 644202, 644204, 644206, 644207, 644212, 644213, 644216, 644217, 644218, 644220, 644223, 644268, 644306, 644307, 644308, 644309, 644310, 644313, 644314, 644318, 644323, 644601, 644604, 644608, 644609, 644612, 644614, 644616, 644619, 644620, 644621, 644623, 644624, 644626, 644628, 644630, 644631, 644632, 644704, 644710, 644713, 644714, 644717, 644718, 644722, 644723, 644728, 644730, 644731, 644746, 644748, 644758, 644770
AIR WARFARE (235)	643215, 643303, 644324
THEATER NUCLEAR WAR (246)	623638, 643604, 644311, 644603, 644706

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
CHEMICAL WARFARE (248)	623764, 643614, 643615, 643720, 643721, 643751, 644610, 644724, 644725, 644757, 645710
THEATER AND TACTICAL C3I (252)	248010, 343145, 643706, 643707, 643713, 643723, 643730, 643740, 643746, 643766, 643767, 644222, 644321, 644701, 644702, 644705, 644709, 644712, 644727, 644740, 644741, 644751, 644766, 644779
WARFARE COMMAND & CONTROL (256)	243740
ELECTRONIC WARFARE C3 COUNTER-MEASURES (262)	643711, 643718, 643745, 643755, 644711, 644732, 644750
INTELLIGENCE AND COMMUNICATIONS (05)	
STRATEGIC C3I PROGRAMS (228)	353142
INFORMATION SYSTEMS AND DEFENSE COMMUNICATION SU (253)	353111, 353126, 333151, 333152
DEFENSE-WIDE MISSION SUPPORT (06)	
DEFENSE-WIDE MISSION SPT (260)	663738, 664715, 664726, 665102, 665706, 665709, 665806, 665803, 665805
MANAGEMENT & SUPPORT (270)	665715, 665801, 665808, 665890, 665898
TEST & EVALUATION SUPPORT (275)	663315, 665201, 665301, 665702 665712, 665804, 665806, 665807
WARFARE COMMAND CONTROL (256)	653712, 654201, 654716, 654778

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
MILITARY CONSTRUCTION, ARMY (2050)	
PLANNING (03)	
PLANNING AND DESIGN PROGRAM (314)	**6100, **6700, **6710, **6711, **6712, **6713, **6714, **6300
OPERATION & MAINTENANCE, ARMY NATIONAL GUARD (2065)	
OPERATION & MAINTENANCE, ARMY NATIONAL GUARD (20)	
OPERATION & MAINTENANCE, ARNG (065)	*3711A, *3711B, *3711C, *3711D, *3711E, *3711F, *3711G, *3711H, *3711J, *3711K, *3721A, *3721B, *3721C, *3721D, *3721E, *3721F, *3721G, *3721H, *3721J, *3721K, *3721N, *3721V, *3731L, *3732K, *3733K, *3733N, *3736K, *3738K
OPERATION & MAINTENANCE, ARMY RESERVE (2080)	
MISSION FORCES (01)	
DU 061	511928, 512911, 512913, 512914, 512923, 512924, 512981, 513911, 514932, 517984, 518992, 518993, 518997, 519991, 519992, 519999
DEPOT MAINTENANCE (02)	
DU 061	527991
OTHER SUPPORT (03)	
DU 061	535094, 535096, 535296, 538990, 538991, 538999, 539993, 539995, 539998, 535194, 535196, 535294

*Indicates less than 6 digits and/or letters

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
MILITARY CONSTRUCTION, ARMY RESERVE (2086)	
MAJOR CONSTRUCTION (01)	
CONSTRUCTION PROGRAM (317)	**8600
ARMY INDUSTRIAL FUND (4992)	
ARMY INDUSTRIAL FUND (20)	
DU 401	4A003100000, 4A006000000, 4A007200000, 4A008700000, 4A009100000, 4A009200000, 4A009300000, 4A009400000, 4A330000000, 4B003100000, 4B006000000, 4B007200000, 4B008700000, 4B009100000, 4B009200000, 4B009300000, 4B009400000, 4B330000000, 4B997200000, 4C003100000, 4C006000000, 4C007200000, 4C008700000, 4C009100000, 4C009200000, 4C009300000, 4C009400000, 4C330000000, 4D003100000, 4D006000000, 4D007200000, 4D008700000, 4D009100000, 4D009200000, 4D009300000, 4D009400000, 4D330000000, 4E330000000, 4E335072510, 4E335172530, 4E335272540, 4Y000000000, 4Y330000000, 4Z000000000, 4Z330000000, 6A001000000, 6A001900000, 6A006000000, 6A007200000, 6A007300000, 6A009100000, 6A009200000, 6A009300000, 6A009400000, 6A009500000, 6A360000000, 6B316658980, 6B360000000, 6B363100000, 6B365200000

*Indictes less than 6 digits

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
ARMY INDUSTRIAL FUND (20)	
DU401 (Cont.)	6B526658980, 6Y000000000, 6Y009100000, 6Y009200000, 6Y009300000, 6Y009400000, 6Y360000000, 6Z000000000, 6Z009100000, 6Z009200000, 6Z009300000, 6Z009400000, 6Z360000000, 7A001900000, 7A003900000, 7A007200000, 7A008700000, 7A009100000, 7A009200000, 7A009300000, 7A009400000, 7A009500000, 7A360000000, 7B007300000, 7B009100000, 7B009200000, 7B009300000, 7B009400000, 7B360000000, 7C001000000, 7C001900000, 7C006000000, 7C007200000, 7C007300000, 7C009100000, 7C009200000, 7C009300000, 7C009400000, 7C009500000, 7C360000000, 7D000020020, 7D001000000, 7D001900000, 7D002000000, 7D003800000, 7D006000000, 7D007200000, 7D007300000, 7D008700000, 7D009100000, 7D009200000, 7D009300000, 7D009400000, 7D009500000, 7D360000000, 7E317228982, 7E360000000, 7E363100000, 7Y000000000, 7Y009100000, 7Y009200000, 7Y009300000, 7Y009400000, 7Y360000000, 7Z000000000, 7Z009100000, 7Z009200000, 7Z009300000, 7Z009400000, 7Z360000000, 7Z110900000

APPENDIX E (Cont.)
AMSCO AND BUDGET ACTIVITY GROUPS FOR
CIVILIAN MANPOWER AND ASSOCIATED COSTS

APPROPRIATION (APCAT) BUDGET ACTIVITY (BA#) DECISION UNIT (DU#) ACTIVITY GROUP	AMSCO
FAMILY HOUSING OPERATIONS AND DEBT, ARMY (7025)	
OPERATING EXPENSES (06)	
DU 321	**1910
NATIONAL BOARD FOR THE PROMOTION OF RIFLE PRACTICE (1705)	
NATIONAL HQ MARKSMANSHIP TRAINING AND COMPETITION (090)	**0510

*Indicates less than 6 digits

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