RESOURCING BASE OPERATIONS:
A BUSINESS PROCESS STUDY

"Managing Costs for Superior Performance"

Coordinating Draft

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EXECUTIVE SUMMARY

This report is designed as both a vision document for the installation management chain and a program development handbook for installation resource programmers. It describes the evolution to the current processes used in developing Installations programs, proposes new processes to generate program requirements and rapidly assess the impact of resource constrained programs, and recommends a migration path to the new processes. These processes will enable commanders at all levels to conduct multi-layered analyses "to peel the onion" on their base operating support programs and readily assess the impact of program changes on their mission.

The ideal programming process uses output (quantity) and outcome (quality) metrics to derive program requirements and the impacts of resource constraints on the program. This fundamental shift in programming philosophy focuses on outputs and outcomes rather than input resources (funding and manpower) to the processes of providing base services on Army installations. The resource-constrained programs can then be optimized to achieve the best overall use of available resources and identify efficiency opportunities by location or service.

A triad of program support tools are key to effectively managing service costs: Service Based Costing (SBC), the Installation Status Report (ISR), and Standard Service Costing (SSC). Quantity metric and cost data are collected under SBC. While this currently requires significant installation input, by fiscal year 2000, installations will only input minimal data for services without their own management information systems and for costs not accounted for under the Defense Finance and Accounting Service. The ISR (in particular, ISR Part III - Services) will provide quality standards and status data. Finally, SSC will tie SBC and ISR data together to generate the cost factors and functions necessary to derive the full cost of performing a service to the standard quality. The SSC cost functions will further allow program analysts to rapidly assess the impact of resource constraints on installation programs and to effectively identify the level of service (quantity and quality) the Army can afford to buy.

Facilities programs require a different approach because funding levels for facility sustainment, revitalization, and improvement tend to have a delayed effect on the quality of the infrastructure. Facility sustainment requirements are a function of facility age that can be derived from the natural degradation of facilities that occurs over time. Similarly, facility revitalization requirements can be expressed as a function of the age of the infrastructure. Facility improvement requirements depend heavily on the facility condition reported in the ISR Part I -- Infrastructure. A holistic facilities strategy is necessary to take advantage of the synergy that exists between the various facilities programs in optimizing the facilities programs requirements and lead to a sustainable infrastructure capable of supporting the Army well into the 21st century.

Implementing the ideal programming process is already underway. SBC was tested with the collection of fiscal year 1995 data; it is being fully implemented with the 1996/1997 data collection using new and advanced techniques. Accounting structure changes for fiscal year 1999 have been approved; these changes will better align costs with the services, reducing installation workloads and enabling the future automation of data collection. Alternate data sources for many services have been found among functional management information systems; quantity data from these will be captured over the next couple years. The ISR Part III quality metrics are under development. SSC awaits the ISR data. Provided ISR Part III is fully implemented in FY 1999, by fiscal year 2000, the tools will have been tested and sufficient data collected to program for base services using the new processes.

When the new costing methods are combined with advances in technology, data collection and management techniques, and analytical software, they can provide installation commanders, MACOMs, and HQDA a flexible, yet robust approach to manage costs for superior performance.

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INTRODUCTION

Purpose

To document the current Installations programming process, propose a future process and document the migration path between the two.

Project Overview

This project is in support of the Office of the Assistant Chief of Staff for Installation Management (OACSIM). It is being executed under the Department of the Army's Defense Enterprise Planning and Management efforts and is part of the Army Core Processes Reengineering Project. It is sponsored by the U.S. Army Cost and Economic Analysis Center (USACEAC). The work is being performed by CALIBRE Systems, Inc., under contract #E75007-SC-96-029.

The project has three primary, interrelated task areas:

Task Area 1: Document the existing BASOPS resource requirements generation process and how it is managed.

Task Area 2: Develop a new BASOPS full cost resource requirements generation process that includes performance budgeting metrics – standards, quantity, and quality – and accepts Standard Service Costing/Service Based Costing (SSC/SBC) service data. These metrics should enable the Senior Army leadership to see not only what they are buying, but the expected quality of what they are buying and the impact of various resourcing levels. Document the recommended new BASOPS requirement generation process and how it is managed.

Task Area 3: Identify the necessary steps to transition from the current system and propose a plan to implement this new resource requirements generation process.

Document Overview and Scope

Chapters 1 and 2 respond to Task Area 1: Document the current BASOPS resource requirements generation process and how it is managed. Chapter 1 provides a brief history of the evolution of HQDA's installation resource requirements generation process, and chapter 2 describes the current process and operating environment for the Installations Program Evaluation Group (II PEG).

The Installations PEG has programming responsibility for resources in the following major functional areas:

- Real Property Maintenance Activities (RPMA)
- Base Operations
- Family Programs
- Environmental Programs
- Base Communications, Visual Information, and Base Automation
- Military Construction Revitalization
- Family Housing
- Base Realignment and Closure (BRAC)

Chapters 3, 4, and 5 respond to Task Area 2: Develop a new BASOPS full cost resource requirements generation process that includes performance budgeting metrics – standards, quantity, and quality – and accepts Standard Service Costing/Service Based Costing (SSC/SBC) service data. After establishing the framework for the new resource requirements generation process in chapter 3, this report describes the new process, its data, and how the Installations Program Evaluation Group (PEG) should manage it. It proposes a new assessment process that could become the core of a decision support system (DSS) for assessing installations programs, evaluating and adjusting service standards, and identifying efficiency opportunities.

In Task Area 2, this report focuses on two major program areas the Installations PEG has responsibility for:

- Base Operating Support programs, to include
  - ⇒ Base Operations
  - ⇒ Real Property Services,
  - ⇒ Environmental Programs,
  - ⇒ Family Programs, and
  - ⇒ Base Communications, Visual Information, and Base Automation.
- Facilities programs, to include
  - ⇒ Real Property Maintenance (RPM),
  - ⇒ Military Construction (Revitalization),
  - ⇒ Leasing, and
  - ⇒ Facility Reduction.

Finally, in Chapter 6, this report addresses Task Area 3: Identify the necessary steps to transition from the current system and propose a plan to implement this new resource requirements determination process.

Although this report primarily focuses on requirements determination, it also examines the assessment phase of the programming process and makes recommendations towards improving installation program assessments, justification, and defensibility.

1. EVOLUTION OF INSTALLATION PROGRAMMING

This chapter provides a short history as background on how the current installation programming process was developed.

1.1 Creation of the Base Operations PEG

In 1989, the Army created the BASOPS PEG in the Management Directorate of the Office of the Chief of Staff of the Army and gave it the responsibility for programming resources for base operations. BASOPS included BASOPS(-), RPMA, Environmental Compliance, and BRAC programs. Prior to this, resources for these programs were divided among the other programming groups and programmed as support costs for their mission programs. In 1989, the other installation programs were divided among other PEGS:

- The Construction and Housing PEG in the Office of the Assistant Chief of Engineers (ACE) was responsible for family housing and military construction programs;
- The Information Management PEG in the Office of the Director of Information Systems for Command, Control, Communications, and Computers (DISC4) was responsible for visual information, base communications, and base automation programs; and
- The Personnel Activities PEG in the Office of the Deputy Chief for Personnel (DCSPER) was responsible for family programs.

1.2 POM Build - FY 1992-1997

The BASOPS PEG was created just prior to the building of the FY 1992-1997 Program Objective Memorandum (POM). With this POM, the Army began their downsizing. In that downsizing environment, the Army had insufficient resources to fully fund all BASOPS programs for all Major Commands (MACOMs). The BASOPS PEG possessed very little analytic information for making resource assessments and relied primarily on "denominator analysis." That is, if the force structure is being reduced by 15%, BASOPS programs should come down a proportional amount. The resourcing strategy employed by the BASOPS PEG and endorsed by the Army leadership was to protect the "Army of the Mississippi"

(installation resources for installations in the U.S.) and under-resource the U.S. Army in Europe (USAREUR) where the major infrastructure and force structure cuts would occur. To the extent possible, the Army would "fix" USAREUR resource levels in the year of execution.

Since the Army uses management decision packages (MDEPs) as the building blocks for constructing the POM, the BASOPS PEG set out to identify all resources it now controlled. All dollar and manpower resources for an identified program are recorded in a single MDEP. Each MDEP is assigned to a PEG. In late 1989, to prepare for their first POM build, the BASOPS PEG requested each MDEP functional proponent for MDEPS assigned to the BASOPS PEG to brief the PEG on the status of their program and its resource levels. From these presentations, the BASOPS PEG staff created, in a commercial spreadsheet application, a one-page view of each of their MDEPs. This view provided both a visual and descriptive analysis of the MDEP program status and evolved into an automated application, MDEP Profiles, adopted by the Director of Program Analysis and Evaluation (DPAE) for use by all PEGs. [Note: In 1997, MDEP Profiles was rolled into a new system sponsored by DPAE, the Program Prioritization Profile (P^3) Application.]

In the course of the POM build, the BASOPS PEG leadership recognized the need to obtain significantly more information on installations and installation programs. As resource constraints became more acute, Army leaders requested more information and analyses on Army installations and BASOPS resourcing levels. As a result, in 1990, the BASOPS PEG staff conceived of and received resources to begin the development of a system, Army Installation Management - Headquarters Information (AIM-HI). AIM-HI's major purpose was to consolidate the information available on Army installations and programs and provide this to HQDA staff and leadership in an Executive Information System (EIS). The BASOPS PEG also hoped to be able to develop a capability to project BASOPS program requirements using AIM-HI.

1.3 POM Build - FY 1994-1999

In 1991, the BASOPS PEG staff participated for the first time in developing The Army Plan (TAP). Deputy Chief of Staff for Operations (DCSOPS) and DPAE began to stress incorporating measurable factors into the programming guidance for TAP. This spurred the BASOPS PEG staff to develop a means for projecting BASOPS requirements that went beyond the "denominator analysis" used in the previous POM build. At the same time, they needed a more robust analytic method for describing to the Army leadership the impact of budget lines and program changes on BASOPS programs. The BASOPS PEG set a course to redirect BASOPS programming focus from the budget top line to a measure of funding based on output.

1.3.1 BASOPS Resource Requirements and Programming Methodology

The BASOPS PEG employed the following methodology using an automated spreadsheet application:

- Select a base year.

  FY 1990 was selected as the base year for programmatic comparisons. Funding levels were determined for all years from FY90 through FY99 and the dollars converted to constant FY92 dollars.

- Select output or workload measures.

  - For BASOPS(-) less utilities and engineering activities, the output measure used was population served.
  - For RPMA, the PEG used the actual/projected on-hand facility square footage for a workload measure.
  - For environmental compliance, requirements were derived from the list of Class I, II, and III projects reported by the installations. MACOMs were required to fund all Class I projects.

- Estimate requirements.

  1. Calculate a cost per unit output for the base year for BASOPS(-) and RPMA. Assume this value remains constant over the POM years.
  2. Calculate the population served. For CONUS commands, this was the total military plus civilian authorizations for a MACOM's installations as reported in the latest Army Stationing and Installation Plan (ASIP). The

ASIP numbers were used for FY90 and FY91 figures. For FY92 through FY99, the BASOPS PEG did not use ASIP projections because they did not reflect the most recent endstrength projections. Rather, they multiplied the FY91 ASIP population by the ratio of a MACOM's FY9x projected military plus U.S. civilian endstrengths (from the current budget position) to their FY91 actual military plus U.S. civilian endstrengths. For OCONUS commands, the PEG used the military plus U.S. civilian endstrengths from the latest budget position for all fiscal years because the OCONUS MACOM was responsible for all Army installations in their theater. From the FY90 base, adjustments to endstrengths were made for the following if not already captured in the endstrength numbers:

- Transfers of installations between MACOMs.
- Force restructuring and restationing.

3. Calculate the square footage of facilities on-hand supported by Operations and Maintenance, Army (OMA) and Research, Development, Test, and Evaluation (RDTE) funds. The FY90 and FY91 inventories were obtained from the ACE's office. From the FY90 base, the BASOPS PEG made adjustments in the square footage for:
   - Transfers of installations between MACOMs.
   - Projections from Base Realignments and Closure (BRAC) actions.
   - Transfer of resourcing responsibility to other appropriations.
   - Inventory changes based on new mission military construction and facility reductions.
4. Calculate the projected requirements by multiplying the new workload projections in (1) and (2) by the cost per unit output. Subtract from these any projected efficiencies from the Defense Management Review and the Army Management Review.
5. For Environmental Compliance, requirements equaled the reported Class I projects.

- Calculate the programmatic funding requirements for BASOPS.

  For Environmental Compliance, requirements equaled the reported Class I projects. For BASOPS(-) and RPM, subtract the burdensharing and facility residual value payments to OCONUS MACOMs from the projected requirements.

- Apply the TAP programming guidance to establish desired POM resource levels

1.3.2 Civilian Endstrength Requirements and Affordability Analyses

In addition to projecting requirements and tracking BASOPS PEG program resource levels, the BASOPS PEG also developed the capability to project civilian workyear funding requirements based on the projected BASOPS workload factors and to perform an affordability analysis of the programmed civilian workforce. These capabilities were built into the installation program development spreadsheet mentioned earlier.

For the civilian workyear projection, the BASOPS PEG staff used FY90 as the base year and, for the program years, varied the workyears by the proportional change in a MACOM's BASOPS workload factors. For example, if a MACOM's workload was projected to increase by 10%, the BASOPS PEG projected a 10% increase in the civilian workforce.

To perform the civilian affordability analysis, the BASOPS PEG staff:

- Calculated the percentage of the total actual obligations for BASOPS(-), RPMA, and Environmental Compliance for FY90 and FY91 which accrued to civilian pay and benefits.
- Projected the FY91 percentage throughout the POM years.
- Multiplied the current program funding line by the FY91 percentage to obtain the civilian payroll proportion of funding.
- Calculated the cost per civilian workyear for the POM years by dividing a MACOM's civilian payroll costs for each FY for BASOPS by the projected BASOPS civilian workyears for that FY.
- Divided the estimated civilian payroll by the estimated cost per civilian workyear to obtain the number of workyears the current funding lines could support.
- Compared the "affordable" workyears with the actual workyears recorded in the latest database.

1.3.3 BASOPS Requirements Assessments

The BASOPS PEG was required to perform numerous assessments. Generally, they used FY90's actual obligations as the base year for establishing BASOPS(-) and RPMA

requirements. During the POM build, the BASOPS PEG staff shared their methodology and assessments with both HQDA functional proponents and with interested MACOM representatives. The ACE's office and several MACOM representatives criticized the use of FY90 as the base year asserting that FY90 actual obligations were significantly below requirements and both FY90 and FY91 obligations were distorted because of Desert Shield/Desert Storm. Several MACOM's challenged the validity of the population and square footage data used. Where appropriate, the data was corrected in the model.

1.4 Mini-POM Build, FY 1995-1999

Based on the experiences gained from the FY1994-99 POM build, the BASOPS PEG staff initiated an effort in 1992 to build into AIM-HI the capability to perform the requirements determination and programming assessments performed by their installation program development spreadsheet. AIM-HI would not be available for use until the next POM build.

For the mini-POM build in 1993, the BASOPS PEG continued to use the installation program development spreadsheet. In response to criticism from the ACE's office and from the MACOMs, they made the following changes in their methodology:

- Established FY92 as the base year for comparisons. FY92 was the most recent data available and was not distorted to any significant degree by Desert Shield/Desert Storm.
- Built into the model an assessment of the proportion of BASOPS(-) and RPMA requirements for each MACOM met by the FY92 actual obligations and used this proportion to establish BASOPS(-) and RPMA requirements.
- To perform the assessment of the proportion of RPMA requirements met by the FY92 actual obligations:
    - Used FY90 Annual Recurring Requirements (ARR) for RPMA as the base. The ACE's office validated these requirements in 1991.
    - Projected the FY92 square footage for each MACOM's OMA-funded facilities as detailed in paragraph 2.3.1 above.
    -

1.5 POM Build - FY 1996-2001

On 1 July 1993, the Army merged installation management and engineer staff elements, including the BASOPS and Military Construction and Housing (MilCon) PEGs, into a new staff element, the Assistant Chief of Staff for Installation Management (ACSIM). The BASOPS PEG chair also served as the co-chair for the MilCon PEG. Programming responsibility for family programs shifted from the Personnel Activities PEG to the BASOPS PEG.

Army leadership stressed resolution of Quality of Life (QOL) issues. For the BASOPS PEG, the major programs impacted were family programs and revitalization (via RPM) of facilities, especially unaccompanied housing. For the MilCon PEG, this impacted unaccompanied and family housing construction and revitalization. The two PEGs closely coordinated programming actions on QOL issues.

For the first time, the BASOPS PEG used AIM-HI to develop and project RPM and BASOPS(-) requirements for the POM years. Environmental program and family program requirements continued to be developed off-line.

- For BASOPS(-), AIM-HI, rather than using a one-year baseline (FY 1992), used a three-year running average baseline to establish a unit cost per population served.
- For RPM, rather than basing requirements on ARR, AIM-HI began to develop a more rigorous analytic approach in which cost factors were derived by MACOM by appropriation for facilities grouped around each of four units of measure: square feet, acres, linear feet, and square yards. These cost factors were created by melding the physical inventory data recorded by Facility Category Group (FCG) and the execution cost data recorded by Technical Data Activity Code (TDAC) (see the next section for a detailed description of this process). These four projected cost factors were then applied to the projected physical inventory of facilities to calculate the resource requirements.

1.6 POM Build - FY 1998-2003

Prior to the start of the FY 1998-2003 POM build in early 1996, the Army restructured the PEG system and consolidated programs from 14 PEGs to six PEGs. The Installation PEG was created by merging the MilCon and BASOPS PEGs' programs and

adding to that the base communications, information, and base automation programs for installations which had been the responsibility of the Information Management PEG.

The requirements generation process continued to evolve. The major changes included:

- The BASOPS (the (-) suffix was dropped) portion was expanded to incorporate family programs in the projected requirements level.
- The term Base Operating Support (BOS) was used to describe the total non-Real Property Maintenance (RPM) portion of the installations programs. It included BASOPS, real property services, family programs, environmental programs, base communications, information, and base automation programs.
- RPM requirements were now projected, not based upon projected inventory, but upon the lesser of the projected *required facilities* or the projected inventory.

Following the POM build, OACSIM made available to each MACOM a version of AIM-HI containing just that MACOM's data.

2. CURRENT INSTALLATION PEG PROGRAMMING PROCESS (FY1997 (MINI-POM 99-03))

2.1 General

The current (Mini-POM 99-03) Installation PEG programming process used by OACSIM during the course of this study can be broken into four phases:

- Requirements Determination;
- Program Prioritization;
- Program Line Development; and
- Program Assessment

AIM-HI plays the central role in the Requirements Determination phase. However, to understand the role and impacts of AIM-HI, one must understand the full programming process. These phases are not absolutely sequential. The Installations PEG must perform and provide program assessments on almost a continual basis. Program priorities can change at any point in the process.

2.2 Requirements Determination Phase

All requirements are determined down to the MACOM level.

2.2.1 BASOPS and Family Programs

Currently, MACOM program requirements for BASOPS (accounts in the xxxx96 (less .P0) and xxxx79 series) and Family Programs (xxx719 and xxx720 series) are computed together, using population served as the cost driver. The BASOPS and Family Programs Requirements are developed in a three step process (see figure 1).

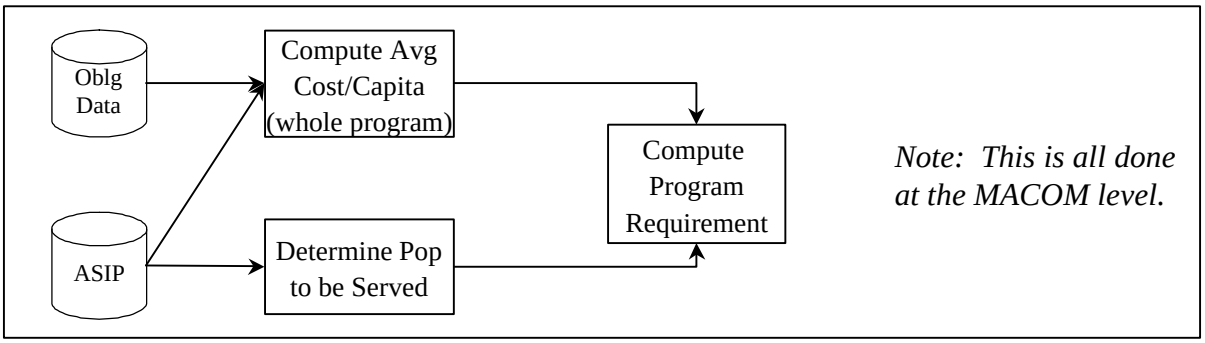

Figure 1 -- Current BASOPS and Family Programs Requirements Generation Process

a. Compute the average cost per capita.

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unspecified minor construction (xxxx76 series accounts). The current AIM-HI model uses the lesser of the required facility totals derived from the Headquarters, Real Property Planning and Analysis System (HQRPLANS) or the facilities inventory for a MACOM to drive the facility maintenance requirement. Appendix G describes the criteria for facilities included or excluded from the RPM requirement analysis. The repair and maintenance portion of the current RPM requirement generation process is a five-step process as shown in Figure 2.

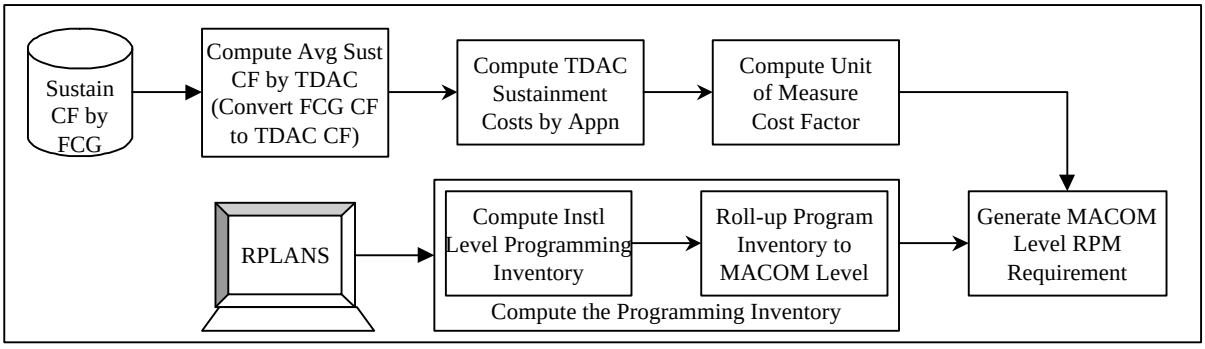


Figure 2 -- Current RPM Requirements Generation Process

a. Compute the average sustainment cost factors for facilities in each Technical Data Activity Code (TDAC)[1]. This calculation converts U.S. Army Cost and Economic Analysis Center (USACEAC) developed cost factors at Facility Category Group (FCG)[2] level to TDAC level cost factors. Note that USACEAC provides cost factors for approximately 30%

[1] The Army Engineer community developed the Technical Data Activity Code (TDAC) to better track real property maintenance expenditures against facilities. It is derived from the 7th and 8th digits of the Army Management Structure Code (AMSCO), and a four digit numeric suffix that together, uniquely identify a group of facilities with common characteristics and use. For example, the TDAC for administrative buildings is K26000: The "K2" is from the AMSCO for building maintenance, and the "6000" qualifies this particular TDAC as administrative buildings. As the AMSCOs are changed in FY 99, the 7th and 8th digits of the new AMSCOs in the xxxx78 series will be mapped directly to the FCGs, effectively eliminating t

of the inventory directly at the TDAC level. These are not subjected to the following conversion.

- Identify the sustainment cost factors (CONUS-based) derived by USACEAC for each unit of measure (UOM) in each FCG. These are unique for each FY. Appendix F describes USACEAC's derivation of these factors.
- Multiply the FCG sustainment cost factors by a percentage representing the FCG's proportion relative to other FCGs in that TDAC.[3]
- Sum the products by UOM within each TDAC. The resulting number is the weighted average sustainment cost factor by TDAC.

b. Calculate the sustainment cost for each TDAC by appropriation.

- Identify each MACOM's historical quantity of facilities (from the *Directorates of Public Works Annual Summary of Operations* [Red Book]) for each TDAC and FY.
- Identify each MACOM's percentage of funding for each appropriation. This percentage of funding is the fraction of the amount of funds from each appropriation used for RPM as a fraction of all funds used for RPM.[4] It includes direct and reimbursable funding (the Red Book does not separate or distinguish execution by Source of Funds Identifier).
- Multiply the quantity of facilities by the weighted average sustainment cost factor calculated above and the percentage of funding for each appropriation. The resulting product is the sustainment cost for the TDAC by appropriation.

c. Aggregate the sustainment costs and calculate the cost per unit of measure.

- For each MACOM's appropriations, sum the sustainment costs by unit of measure and appropriation. Four units of measure are used: square feet (buildings and structures), square yards (pavements), linear feet (railroads

[3] CAE-Link originally developed these conversion percentages in 1994. The precise derivation of these is unknown, but from a conversation with Mr. Edmund Davis at the U.S. Army Center for Public Works, they were based largely on engineer judgement (he was one of those interviewed). An attempt to empirically replicate these conversion factors, by comparing the FCGs' fraction of PRV and square footage to the total PRV and square footage within the TDAC, failed. While some were close, most differed significantly (greater than 20 percent), with no consistency noted.

[4] For example, if FORSCOM spent $1 million on RPM from all funding sources, but only $650,000 of that was OMA funds (the remainder was a combination of OMAR, OMNG, RDTE, AFH, NAF, and other sources), then the OMA percentage would be 65 percent. Similar calculations would be made for the other appropriations.

and bridges), and acres (training areas and ranges). Utility maintenance costs are lumped with the sustainment costs for those facilities measured in square feet. This results in a weighted cost per square foot that includes the utility infrastructure.

- For each MACOM's appropriations, sum the historical facility quantity data (again from the Red Book) by like unit of measure and appropriation.
- Divide the aggregated sustainment costs by the aggregated quantity to derive the cost per unit of measure for each appropriation and MACOM.

d. For each MACOM, compute the Programming Inventory and Excess Inventory to be maintained.

- The Programming Inventory is the smaller of Required Inventory or the Projected On-Hand Inventory for the program fiscal year. These figures are calculated at installation level by FCG (although this is done outside the ACSIM's Resource Integration Office), and summed for each MACOM. The ACSIM Resource Integration Office (RIO) receives the MACOM summarized Programming and Projected On-Hand Inventory figures from the ACSIM's Operations Division. Throughout these calculations, certain facilities maintained by other agencies are excluded from the figures. Appendix G details these exclusions.
- The Required Inventory comes from the smaller of the HQRPLANS calculated facility allowance or the installation generated facility requirement fed back to the headquarters via the Installation Status Report. This represents the quantity of facilities needed to support the tenant missions and population authorized on installations.
- The Projected On-hand Inventory comes from the Army's Real Property Inventory contained in the Headquarters, Integrated Facilities System (HQIFS). It is summarized at Unit of Measure level of detail, modified by deducting planned reductions in the Real Property Inventory, increased by programmed MilCon projects, and excludes facilities programmed for by other agencies listed in Appendix G.
- In cases where the Projected On-Hand Inventory is larger than the Programming Inventory, the difference is the Excess Inventory.
- The Programming and Excess inventories are summed under one of four units of measure: square feet, square yards, linear feet, or acres. All other units of measure are discarded.

e. Compute the RPM program requirement.

- Multiply the cost per unit of measure by the Programming Inventory and the composite inflation factor.

- Separately, multiply the cost per unit of measure by the Excess Inventory, the caretaker status factor for excess facilities, and the composite inflation factor.
- Sum both to derive the total RPM requirement for each MACOM.
- For OCONUS MACOMs, multiply the total RPM requirement by the OCONUS conversion factor provided by USACEAC.
- Multiply the total RPM requirement by the ratio between the 1994 Unconstrained Requirements Report (URR) from the MACOMs and the 1994 AIM-HI generated RPM program requirement to generate the total RPM program requirement. (Note: This step adjusts for the 18% shortfall in AIM-HI generated requirements compared with the URR negotiated between RIO and the MACOMs in 1994.)

2.2.3 Environmental Programs

Current Environmental Program requirements are based on the Environmental Programs Requirements (EPR) Report produced by each installation documenting all of their known environmental requirements. Nearly all requirements generation occurs at the installation level and is recorded in the EPR Report. These are broken down into four major areas

Compliance (xxxx56 series accounts) – Identifies costs associated with complying with the law (whether federal, state or local). Compliance requirements are primarily project based. Installations develop projects to correct known compliance deficiencies. Each deficiency is ranked: Class I (most serious – must be fixed immediately) to Class IV. Compliance projects are submitted via the EPR Report. See Appendix C for a detailed explanation. Program budget levels for Compliance are established based on the number of must-fund requirements (Class I deficiencies and Class II deficiencies projected to become Class I if not funded in the year for which the funds are requested).

Conservation (xxxx53 series accounts) – Focuses on prevention of deficiencies. Conservation requirements are primarily sustainment based. Installations develop requirements necessary to prevent new deficiencies or degradation of the current environmental condition of the installation. Conservation sustainment requirements

are submitted via the EPR Report. Robust programming in this area is expected to reduce future compliance requirements.

Pollution Prevention (xxxx54 series accounts) – Like conservation, focuses on prevention of deficiencies to reduce future compliance requirements. These are also primarily sustainment requirements. Installations develop requirements necessary to prevent new deficiencies or degradation of the current environmental condition of the installation. Pollution prevention sustainment requirements are submitted via the EPR Report.

Restoration (Defense Environmental Restoration Account (DERA), executed under the 493008 series accounts in the Army) – Mitigates existing environmental hazards. Requirements are also determined at the local level but are more subjective in nature. Like compliance, environmental restoration is primarily project based. Installations develop restoration projects and submit these via the EPR Report. The rules and regulations for this program change frequently. As such, these resources are programmed for at Office of the Secretary of Defense (OSD) level, and executed at Service (Army) level.

2.2.4 Base Communications, Visual Information, and Base Automation

Currently, the ACSIM RIO does not generate program requirements for Base Communications (xxxx95 series accounts), Visual Information (xxxx90 series accounts) and Base Automation (xxxx96.P0 account) programs. The Office of the Deputy Chief of Staff for Information Systems, Command Control, Computers, and Communication (ODISC4) performs most of the programming functions to include requirements determination and program assessment. ODISC4 provides the program lines to RIO for submission to DPAE and relies on budget execution data, MACOM assessments, and known program changes to project requirements. At this time, they employ no specific cost factoring.

2.2.5 Military Construction Revitalization

The ACSIM's RIO does not generate program requirements for MilCon. Each installation develops their MilCon projects and forwards them to their MACOM, which, in

turn, forwards them to the ACSIM's Facilities and Housing Directorate (FHD) at HQDA. FHD works through the Project Review Board (PRB) to review and prioritize MilCon projects.

2.2.6 Family Housing

Family housing requirements determination is performed by analysts in FHD. This program comprises two appropriations, Army Family Housing Construction (AFHC) and Army Family Housing Operations (AFHO). A full description of the Family Housing Program is in Appendix D.

For AFHC, like military construction revitalization, the construction projects and program requirements originate at the installation level. Approved projects are used to build the program and budget lines.

For AFHO, the program is divided into four major parts. All parts include the following variables:

- Inventory -- MACOM Schedule 48[5] submission for owned units and Schedule 51 for leased units. These are checked against databases available at HQDA.
- Inflation – Official rates published by HQDA.

In addition, the specific variables for each of the four parts are listed below:

- 1910 (Operations). Historical performance over a five-year period independently computed for each subprogram. Foreign commands include an adjustment for currency differentials.
- 1920 (M&R). Requirements consist of two components; sustainment funding as reported in the ISR, and the revitalization component computed as a function of MACOM plant replacement value.
- 1930 (Utilities). Historical performance over a five-year period as adjusted for non-pay inflation, fuel inflation, and offset by energy conservation goals.

[5] Budget schedules are used in the Program/Budget process to detail items that cannot be found in the current supporting management information systems. The schedule described here collects data on family housing units not currently available in the Housing Operations Management Execution System (HOMES).

- 1940 (Leasing). Historical performance over a five-year period adjusted by inflation and currency exchange differential. Computed requirements reconciled with MACOM estimates submitted on Schedule 51.

AFHO requirements determination is performed in the following sequence:

- Review MACOMs' inputs for their housing inventories (Schedule 48 submission for owned units; Schedule 51 for leased units) and DFAS actual obligations and adjust computer model.
- Use the computer model to produce "should cost" per housing unit for each MACOM and then multiply by the number of units.

2.2.7 Base Realignment and Closure

BRAC program requirements have been developed by separate efforts for each round of BRAC. Initially, these were established by the Total Army Basing Study (TABS) group. After the BRAC actions received final Congressional and Presidential approval, the BRAC office conducted a budget/data call to establish the requirements. The BRAC office monitors execution of BRAC actions and provides any program/budget changes to RIO for inclusion in the Installation PEG program inputs.

2.3 Program Prioritization Phase

A variety of methods are used to prioritize Installations programs. In this phase, the Installations PEG determines the rules to be used in the Program Prioritization Profile Application (P^3) described in Section 3.4 below. P^3 is then used to conduct "what if" drills and to generate program lines.

The overarching priorities for the Installations PEG are established in *The Army Plan (TAP)* and expressed in the *Army Programming Guidance Memorandum (APGM)*. The APGM structure is the basis for the PEG's resourcing of their programs. Each MDEP is aligned with the appropriate APGM task. P^3 provides the capability to establish program priorities and perform analyses at three levels. Each application of P^3 can use only one of these levels. The levels are:

- MDEP and Appropriation;
- MDEP, Appropriation, and Command; or

- MDEP, Appropriation, Command, and Program Element.

Using P^3, the Installations PEG establishes rules to apply to their programs. Note that "Exception" rules are always the first set of rules processed before the "Default" rule is applied. Rules are established via a number of tools available within the application:

⇒ Establish Funding Bands - P^3 has five predefined funding bands (or levels) established by DPAE which cannot be modified: Unfunded, Total Requirement, Adequate, Partial, and Under Funded. The PEG can establish and define other funding bands.[6]

⇒ Set Funding Rules - The funding rules established by the PEG Administrator are the basis for the programming calculations within the Total Obligational Authority (TOA) established by DPAE. With P^3, the PEG can:

- Establish a Default Funding Rule by selecting a default Funding Band.
- Establish Exception Funding Rules by designating a Funding Band in lieu of the default Funding Band for any one of the elements from the following four sets:
  - The attribute level (i.e., CINC Priority, DoD Directed, any other attribute established by PEG);
  - The mission level (i.e., Provide the Army a CONUS-based power projection capability, Provide for special programs and QOL initiatives that contribute to Total Army readiness);
  - The MDEP element level; and
  - The APGM Structure level.

⇒ Set Funding Priorities - The PEG uses this to establish their Mission Priority for a "1 to n" list of their defined missions which are initially the same as their Subobjectives in the APGM.

⇒ Set Funding Percentages - P^3 allows the PEG to establish percentages of funding against the PEG's total requirements. Each of the funding bands has a set of

- Establish Exception Percentage of Total Requirement by designating a funding percentage for each FY in each Funding Band in lieu of the default percentage for any one of the elements from the following four sets:
    - The attribute level;
    - The mission level;
    - The MDEP element level; and
    - The APGM Structure level.

Using the rules established above, P^3 spreads the TOA and produces a funding line for each MDEP element.

The following paragraphs provide additional information concerning the establishment of resourcing priorities for each major Installations programming area.

2.3.1 RPM, BASOPS, and Family Programs

These program areas are prioritized using the basic methodology described in paragraph 2.3 above.

2.3.2 Environmental Programs

Class I compliance requirements, and Class II that are expected to become Class I during the program period are treated as "must fund" bills. All other environmental program requirements are prioritized using the basic methodology described in paragraph 2.3 above.

2.3.3 Base Communications, Visual Information, and Base Automation

These program areas are prioritized using the basic methodology described in paragraph 2.3 above.

2.3.4 Military Construction (Revitalization)

The Army uses the Project Review Board (PRB) to review Military Construction (MilCon) projects. Each summer the PRB reviews projects for the FY beginning two years hence. This year, they are reviewing projects for FY 2000. The PRB:

- Listens to MACOM presentations;

- Ranks the projects; and
- Develops a strawman list.

ACSIM reviews the list and submits to DCSOPS and ASA(IL&E) for review. Their revised list is then submitted to a General Officer Steering Committee (GOSC) which can only substitute projects and change priorities, staying within the constrained funding guideline levels. This GOSC returns the list to the DCSOPS for approval.

2.3.5 Family Housing

AFHC projects follow the same prioritization process as described for MilCon projects in paragraph 2.3.4 above.

For AFHO programs, the Facilities and Housing Directorate prioritizes requirements with MACOMs' "must fund" bills fully resourced and the remaining funds from the Presidents Budget position for the POM years distributed among MACOMs' M&R programs on a pro-rata basis. When fiscal guidance is received from RIO, any decrements are taken against AFHC and/or M&R.

For the actual budget execution, prior to the start of a new fiscal year, the distribution of M&R funding for the new year is recomputed based on occupancy performance as reported in the Business Occupancy Program (BOP) over the MACOMs' most recent 12-month period.

2.3.6 Base Realignment and Closure

BRAC requirements are generally treated as "must fund" requirements and, therefore, receive a high priority.

2.4 Program Line Development Phase

DPAE required all PEGs to use the P^3 application during the summer of 1997 for the FY 99-03 mini-POM build to generate program lines. P^3 assists in determining the rule-sets based on mission priorities for the funding of their programs. As described above, the model

employed provides multiple levels of analysis with the ability to update, create, and modify scenarios, capabilities, and constraints as necessary in an adhoc environment to analyze multiple scenarios and contingencies. The actual program line development is an iterative step in the loop with the prioritization and assessment processes.

2.4.1 RPM, BASOPS, and Family Programs

P^3 is the primary means of generating program lines for BASOPS, RPM, and family programs.

2.4.2 Environmental Programs

P^3 is the primary means of generating program lines for environmental programs.

2.4.3 Base Communications, Visual Information, and Base Automation

P^3 is the primary means of generating program lines for Base Communications, Visual Information, and Base Automation programs.

2.4.4 Military Construction Revitalization

The Directorate of Facilities and Housing, using the processes described in paragraph 2.3.4 above, generates Military Construction revitalization program lines.

2.4.5 Family Housing

The Directorate of Facilities and Housing, using the processes described in paragraph 2.3.5 above, generates Army Family Housing program lines.

2.4.6 Base Realignment and Closure

The BRAC Office generates BRAC program lines.

2.5 Program Assessment Phase

Program assessment is an on-going requirement that is performed continuously by the II PEG. In general, the CINCs' and MACOM commanders' assessments are extremely important because they identify the "hot" issues for a given POM/budget cycle. For each major POM/budget review, the II PEG solicits MDEP and program assessments from HQDA staff functionals. Wherever feasible, OACSIM has developed the capability to perform analyses independent of a MACOM's input. This capability is normally used to support and reinforce the issues raised by the commanders and to supplement the MACOM and functional staffs' assessments.

Once the P^3 produces program lines based on a set of prioritization rules, the ACSIM RIO evaluates the program for its ability to support the mission. Adjustments are made to the prioritization rules, taking into account the CINCs' and MACOMs' issues, and new program lines are built to be re-assessed. This process is repeated iteritively as new issues are raised and program decrements are received.

As described below, the program assessment process is largely a manual analysis process, supported with automated tools such as electronic spreadsheets (such as Microsoft Excel, Lotus 1-2-3, or Quatro Pro), P^3, AIM-HI, and the Civilian Manpower Integrated Costing System (CMICS).

2.5.1 RPM, BASOPS, and Family Programs

Generally, RIO performs program assessment by comparing the program lines to the requirements projected in AIM-HI to assure a fair balance among the MACOMs in the developed program with respect to the AIM-HI generated "requirements."

2.5.2 Environmental Programs

The Army Environmental Programs Directorate reviews and compares funding lines with the environmental program requirements generated via their EPR Reports.

2.5.3 Base Communications, Visual Information, and Base Automation

ODISC4 monitors these programs and compares program lines with the requirements and assessments generated from the MACOMs. ODISC4 retains only a limited capability to perform independent program analyses.

2.5.4 Military Construction Revitalization

The Directorate of Facilities and Housing submits the projects and programs to the ACSIM's Plans and Operations Division for review. They compare these with the data from the ISR Part I (Infrastructure) and provide an assessment.

2.5.5 Family Housing

The Facilities and Housing Directorate compares the program lines to estimated sustainment costs from the ISR data and analyzes the impact.

2.5.6 Base Realignment and Closure

The BRAC Office is responsible for monitoring program and budget execution for Army BRAC actions and compares the program lines with their BRAC requirements.

3 FRAMEWORK OF THE IDEAL PROGRAMMING PROCESS

This chapter establishes the framework the ideal installations programming process should fit within. It proposes a vision, identifies the programming challenges the Installations PEG faces, lays out enabling actions necessary to achieve the vision, and shares programming issues the MACOMs have raised. This chapter serves as the foundation for the remainder of this document.

3.1 The Vision

The ideal programming process manages costs to drive efficiencies.

To do so, this process must be based on the true "full" cost of executing base operating support programs to established standards. This process must allow for quantity and quality ranges to be overlaid, so that funding bands for various quantity and quality levels, capable of supporting requirements generation (in AIM-HI), prioritization (in P^3) and program assessment, can be generated. The process must allow for easy assessment of the impact of various resourcing levels (against the generated requirement) on the quality of the services provided. Further, the process must show how these qualities impact on force readiness indicators such as personnel retention, recruiting, equipment availability, and training readiness.

The process must be self-correcting. As updated or new data is collected, policy changes arise (such as in the Army Program Guidance Memorandum (APGM)), or new issues surface, the algorithms driving the process and even the process itself must be able to be updated to reflect the current programmatic trends, policies, and issues.

Finally, tools (such as AIM-HI, Standard Service Costing, the Installation Status Report, and Service Based Costing) that use common data and a shared process must be available at all levels in the programming process -- from Headquarters, Department of the Army, through the major commands, to the installations. Figure 3 shows how these tools, the PPBES process, and the Army's primary guidance documents for managing installations (The

Army Plan, the Army Strategic Management Plan, and the Installation Management Plan) are related in the vision of the future installations programming process.

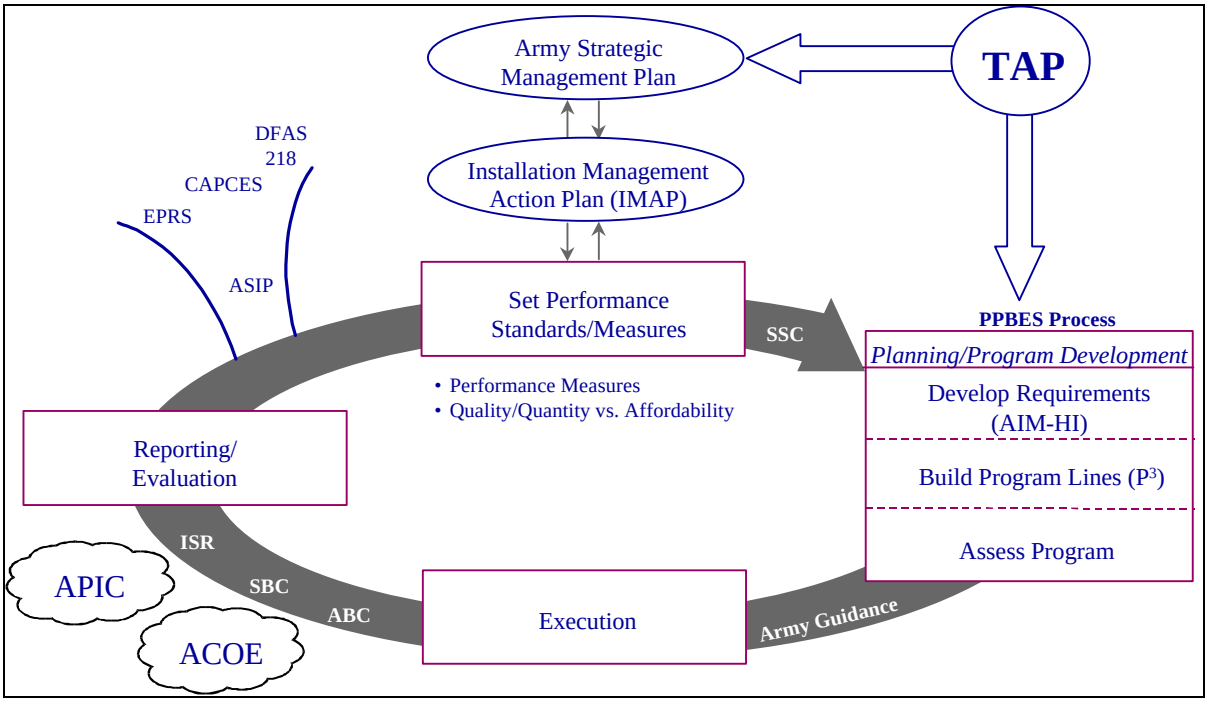
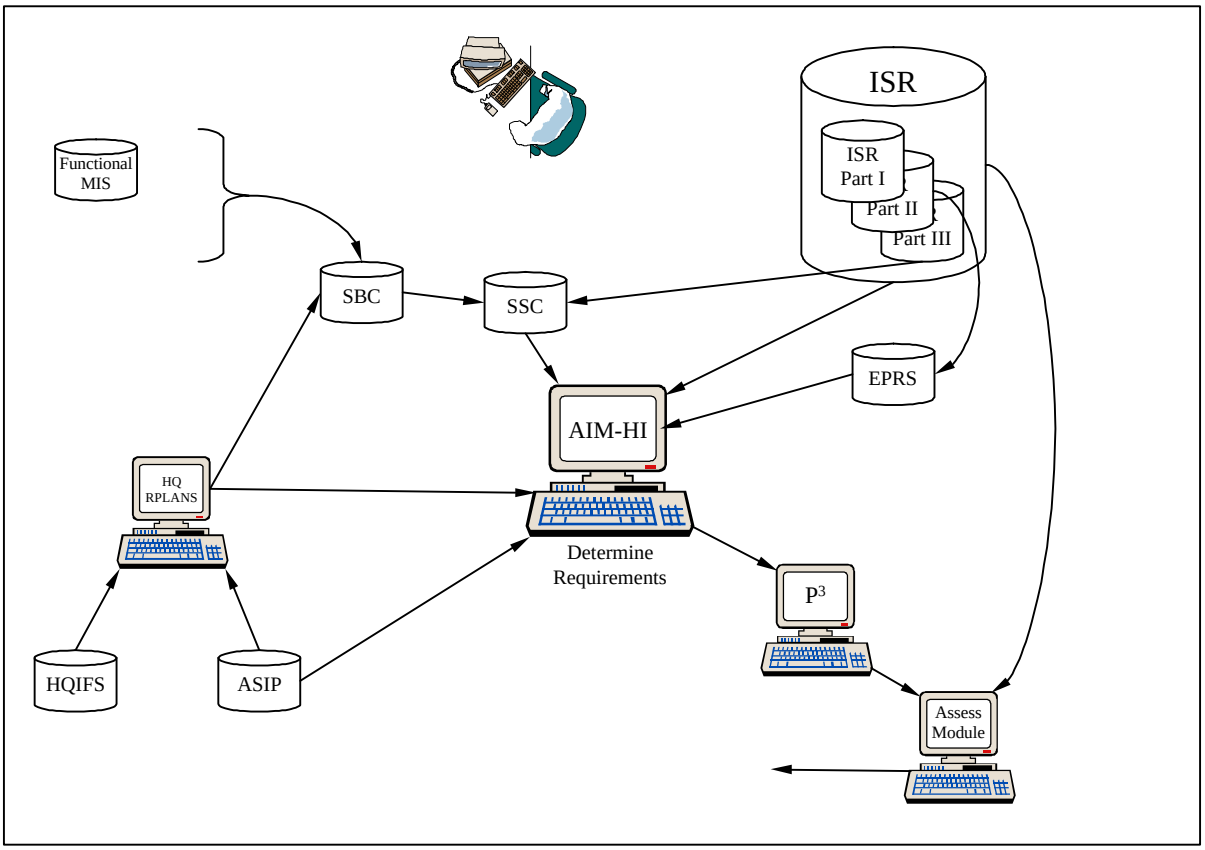


Figure 3 -- Vision of the Future Installations Programming Process

Implementing this vision involves making tangible connections between the data and systems used to support the planning, execution, and evaluation cycle. Figure 4 conceptually lays out this vision in terms of the databases, systems, data flows, and relationships integral to the installations programs development process. Some of these systems and flows may not yet exist (such as Standard Service Costing (SSC)), or may be in their infancy (such as the Installation Status Report (ISR) Part III). Others may be largely manual processes today (program assessments).


ISR
ISR Part I
Part II
Part III
Functional MIS
SBC
SSC
EPRS
AIM-HI
HQ RPLANS
Determine Requirements
P3
HQIFS
ASIP
Assess Module

share of the Federal budget. To enable Army leaders to successfully argue for a larger total obligation authority for the Army, the Installations PEG must:

- Identify the true "full" costs (scrutinizable requirements) of a program (even if less than the full costs are being programmed for and expended today, with some impact to program quality),
- Understand how costs relate to quality levels,
- Articulate how installation program quality impacts force readiness in terms senior Government, Defense, and Army leaders understand, and
- Describe the magnitude of the resource shortfall and its programmatic impact on the force.

3.3 Enabling Actions

Achieving the programming vision requires alignment of several mechanisms or enabling processes.

Establish Agreement on Service Definitions: Foremost, HQDA, the MACOMs, and the installations must have an agreed understanding of the installation services the Army is to provide and fund. Definitions are critical. Each service must be unique and mutually exclusive. The agreed list of services and definitions must be used in every aspect of delivering the services: requirements development, programming and budgeting, execution, contracting (if required), accounting, inspection and evaluation.

Establish Agreement on Standards to be Applied: Equally critical to an agreement on the services, is how delivery of these services is to be measured. Quantitative (how much, how often) and qualitative (how good, how fast, how accurate, how available) standards are necessary to effectively measure the output and outcome of a service.

Derive Decision Information from a Common Set of Installation Level Data: Data from the point of service delivery is essential to effective program development and evaluation. The installation service provider must "own" their cost, quantity, and quality data; without a sense of ownership, data quality suffers. Cost data, to the greatest extent possible, should come from the accounting systems installations already maintain. Functional management information systems should be tapped for quantitative and qualitative data they

contain rather than requiring additional data input. New data requirements must be carefully scrutinized to ensure the data is essential to the programming process. Installations should only be burdened with collecting essential data not captured in existing systems. Standard Service Costing, the Installation Status Report, Service Based Costing, and installation level Activity Based Costing initiatives must minimize the additional data collection burden, relying on existing systems and data where available. The principle of "just-in-time" data can and should be applied to data used in the program development process. Industry effectively uses "just-in-time" delivery of goods and services in their production processes to reduce material handling and storage requirements, improve quality, and reduce workloads. Only the right quantity of data, to the right level of detail, should be delivered at just the right time to meet programmers' analytic and leaders' decision-making needs.

Create a Shared Programming Process: To assure consistency from HQDA to the installation, shared programming processes must be established and used. These processes must allow for command uniqueness, but remain consistent vertically, treating the requirements generation, program development, and assessment the same at all levels. There must be sufficient commonality between the processes to assure a fair allocation of available resources. In this way, the dialog between the headquarters and commands can shift to one focused on priorities, rather than data or processes. HQDA should continue to program one level down (at major command level) but base the program on analysis two levels down (at installation level). This would parallel the Army's command and control structure, where a commander resources and commands units one level down (e.g., Division to Brigade), but has an area of interest two levels down (e.g., Division to Battalion).

Leverage Information Technology: State of the art data management, communications (data transfer), and simulation technologies are necessary to effectively leverage the already overburdened workforce at all levels. Find the easiest way to capture and store data. Data must be readily available electronically, so it can be pulled as needed, rather than pushed from the installation in reports and in response to ad-hoc data calls.

Establish Linkages between the Enabling Actions: To tie the other mechanisms together, there must be an agreed upon set of business rules. These rules go beyond priorities and data

relationships. They extend into the dynamics of the services provided. Service use or impact may change as the force deploys; for example, Army Community Service's caseload and importance on the installation may increase significantly when units deploy. Services may impact force readiness directly and indirectly; certain logistics and facility maintenance services may effect the equipment readiness of units on an installation (direct impact), while family programs may impact a soldier's willingness to reenlist (indirect impact). Privatization, competition, and other efficiency efforts may drive changes in service delivery and resource programming, host nation support, and reimbursement policies. All these dynamics should be quantified to the maximum extent possible.

3.4 Major Command Issues

In October 1997, the OACSIM held a workshop with representatives from the MACOM resource and installation management offices to explain the ACSIM's current programming methodology, share the direction envisioned for changes in the methodology, and solicit MACOM input on future programming methods. During this workshop, the MACOMs raised a number of issues, summarized below, that impact on the framework of the future process.

Installation Workload -- The future process should not increase the data collection or management workload of the installation. If possible, it should reduce this workload.

Installation Uniqueness -- The future process must account for differences in how installations operate, their missions, and MACOM specific requirements. These differences include the relative mix of fixed and variable costs, installation-unique service requirements, and installation (or at least MACOM -- or for Army Materiel Command, major subordinate command) specific cost factors.

Data Sources -- There were several data related issues. Cost data should be consistent with the output data and pacing metrics; accrued expenses, rather than obligation data, most closely meet this need. The Installation Status Report should play a greater role in determining requirements. ISR Part I data has been collected for three years, but has yet to be used in any significant programming role. While there was consensus that three major data

sets are needed to project requirements (cost of the output, quantity of the output, and quality of the output), many felt other data sources should be pursued to supplement or support Service Based Costing pacing measures data for most services. This ties back to the installation workload issue.

Complexity -- The process of the future must be simple. Single clearly defined cost drivers (pacing measures) and standards should be used in Service Based Costing and the Installation Status Report.

Flexibility -- The future process must be flexible enough to accommodate changes in organization (such as realignment of installations under the MACOMs), policy (such as BOS reimbursement policy changes), assumptions (such as adjustments in foreign currency fluctuation account rates), and mission (such as increases to support deployments to hostile fire zones). This flexibility must be present to ensure baselines are adjusted properly to ensure the generation of true requirements.

4 FUTURE PROGRAMMING METHODOLOGIES AND DATA

This chapter proposes future requirements generation and program assessment methodologies (processes), and the data these methods and processes will need. It focuses on two major program areas: base operating support (BOS) programs and facilities programs. In each section, the theory and rational for the new methodology are described, followed by a detailed description of the new process and its data. Finally, the expected impact of the new process is described.

4.1 Base Operating Support Program Requirements

Base Operating Support (BOS) programs include:

- Base Operations (BASOPS) (xxxx96 series accounts, less leasing (.A0))[7],
- Family Programs (xxx719 and xxx720 series accounts)
- Real Property Services, such as utilities and municipal type services (xxxx79 series accounts),
- Environmental programs (xxxx53, xxxx54, and xxxx56 series accounts which the Army programs, and 493008 which OSD programs), and
- Base Communications (xxxx95 series accounts), and Visual Information (xxxx90 series accounts).

All BOS programs, with the exception of Environmental Compliance and Restoration, are service based, i.e., program costs are closely related to a level of service (quantity and, to varying degrees, quality). These will be discussed together. Environmental Compliance and Restoration are generally project based; these will be discussed separately.

BOS programs have four basic dimensions that impact the programming process:

- Quantity -- How much of the service was provided? How often is it needed? How much is needed in the future (quantity standards)?

[7] Traditionally, lease requirements were included in the generation of the total BASOPS requirement. This report proposes that they be computed as part of the total facilities requirement.

- Quality -- How good (in terms of timeliness, accuracy, availability, and customer satisfaction) was the service provision? What quality is needed in the future (quality standards)?
- Cost -- How much did the service cost (historical costs)? These must include all costs, regardless of payer. From the historical cost, quantity, and quality data, how much should the service cost for a given level (quantity and quality) of service in the future?
- Level of discretion -- Is the service or buying the service mandatory (required by law)? If not, what degree of flexibility does the commander have in not "buying" the service? Must the commander buy a certain minimum level of the service?

The first three impact the development of the program requirements and the assessment and justification of the installations programs. The level of discretion impacts the prioritization, program line development, and assessment processes.

Background and Theory

With the exception of facilities programs in paragraph 4.2 below, the Army programs resources for 95 unique and mutually exclusive services that take place on installations.[8] These 95 services are rolled into 34 functional areas in the POM. Ten services are in the facilities programs. The remaining 85 are programmed for under BOS. Appendix H contains a taxonomy and definitions for all 95 services and Appendix K shows how they roll into the 34 BOS functional areas supported by the seven-digit program elements for which the Installations PEG is responsible.[9]

BOS program requirements should be based on what the services should cost, rather than strictly on what they did cost. Historical costs play a roll in developing the “should” or “expected” cost, but do not stand alone. Historical quantities and, most importantly, historical qualities are key to developing the cost factors (or functions) for the expected cost of services.

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[8] After the FY 1995 SBC/ISR data collection/testing a revised set of services was established for FY 1996 and beyond that also became the basis for the FY 1999 AMSCO revisions.

[9] Under the AMSCO redesign effective in FY 1999, these program elements will cleanly match the ISR fun

There are two major costing methodologies. The first, the engineer build, works from the bottom up, deriving the cost for a service by observing the costs (time, materials, equipment) to perform individual tasks, rolling these up to activity level, and finally summing these activity costs to the service level. This method is input oriented, focusing on the resources necessary to perform the tasks. Activity Based Costing is an engineer build costing methodology. Costs are assigned to the individual tasks, then rolled up to activity level. This is the more time consuming and expensive method for deriving costs

The second method, parametric analysis, works from the top down, deriving the relationships between costs and the output of services or activities. In the simplest form, a cost per unit output, such as dollars per meal served, is the result of parametric analysis. For example, the total costs for all meals served are divided by the total number of meals served to derive a unit cost per meal. If the unit cost is $1 per meal, 100 meals should cost $100, 500 meals should cost $500, and so on.

The relationship between cost and output quantity may not always be neatly linear. There could be efficiencies of scale; e.g. serving thousands of meals could cost less per meal than serving only a few dozen meals. The service could have a large fixed cost (y-intercept on a graph), with a small per unit cost added to the fixed cost (such as base operated utilities). Cost could even be related to more than one output pacing measure (multi-variant).

Quality also plays a major roll in cost. Quality measures, such as cycle time, accuracy, and availability of the service, can drive the cost per unit output up or down. For example, a commander can speed up the cycle time to move soldiers through the meal line by adding cooks and servers to the dining facility serving line, at an additional cost.

Service quantity, quality, and cost data used to develop these cost relationships and the subsequent program requirements should come from the installation to maximize the accuracy, credibility, and auditability of the data and the resulting analyses. The ACSIM and USACEAC have developed a triad of methods to gather and use this data. This triad consists of Service Based Costing (SBC), the Installation Status Report (ISR) (specifically Part III -- Services), and Standard Service Costing (SSC). (See Figure 5.)

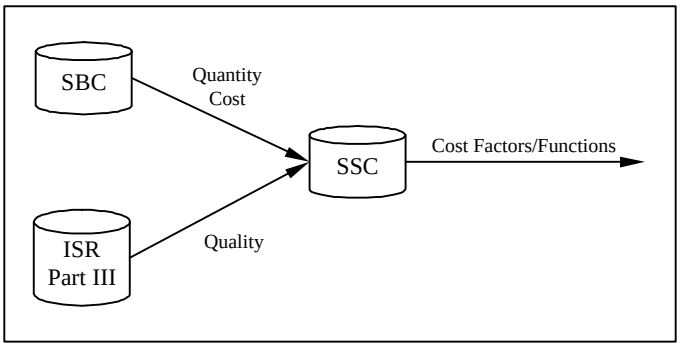

Figure 5 -- Service Costing Triad

Service Based Costing – The ACSIM and USACEAC developed Service Based Costing (SBC) as the first part of the triad to capture the costs and metrics that pace the output of the 95 services that take place on Army installations.[10] Standard definitions and pacing metrics were developed in conjunction with the HQDA functional proponents and staffed with the MACOMs.

Installations input their historical costs (based on accounting data) and pacing metric quantities for each service into the spreadsheet-based SBC application. An Internet-based SBC application is also available for installations to use.

To ease cost data input for the FY 1996 and 1997 data collection, USACEAC developed a method for spreading the installation's accounting data submitted to the Defense Finance and Accounting Service (DFAS) across the services for the installation. Installation resource managers and service providers can use and validate the predefined split of the costs or enter their own split. The ACSIM is working with USACEAC and the Assistant Secretary of the Army for Financial Management (ASA(FM)) to obviate the need for this by restructuring the BOS accounts to align directly with the 95 services. This new structure has been approved for FY 1999.

Installations will continue to enter service pacing metrics for the FY 1996 through FY 1998 SBC data collections. USACEAC has identified several alternative sources among the service proponents' management information systems from which pacing metric data for many services can be drawn. Currently, these systems do not align costs the same way SBC does

(although this will change with the new accounting structure in FY 1999). Because of this, it will not be cost effective to draw this metric data from the functional proponents' systems until FY 1999. Between now and FY 1999, USACEAC intends to identify additional alternate sources for pacing metric data, to minimize the installations' service quantity and cost input requirement in 1999 and beyond.

Some installations have undertaken efforts to institute Activity Based Costing (ABC). USACEAC and ACSIM are working with the vendors of ABC applications to develop methods for rolling up ABC data to SBC equivalent data. When this is complete, extracts of ABC data will automatically feed SBC for those services and installations where ABC is used.

Installation Status Report Part III (Services) – Part III of the Installation Status Report (ISR), which provides quality data on services, forms the second part of the costing triad. Under the ISR Part III, installations evaluate the quality of 98 services: 83 are identical in scope and definition with SBC services, one ISR service is a combination of the ten SBC facilities maintenance and repair services, and 14 are services funded outside the Army. Two SBC services are not evaluated under the ISR Part III (Command Investigations and Minor Construction).[11]

The ISR Part III is currently under development. Limited testing of the ISR Part III quantitative metrics was done in FY 1997, with a broader test planned for FY 1998. Quality metrics are currently under development.

Quality metrics should have certain characteristics to be useful in costing. First, quality metrics should be as objective as possible. For example, service cycle time, availability, and accuracy are measurable and have direct impacts to cost. Subjective quality measures, where used, should be based on objective questions where possible. For example, in the ISR Part I (Infrastructure), subjective quality ratings are based on simple yes/no answers to questions in picture books related to the facility component. Each of 12 to 20 rated components in a facility (by facility category group) has a corresponding picture with 20

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[10] In FY 1995, data on 122 services were collected. Based on feedback from the installations and MACOMs, these were consolidated into 95 services for the FY 1996 and 1997 data collection.

[11] Command Investigations will not be evaluated because of a functional proponent concern. Minor Construction will not be evaluated because it is only resource focused.

to 30 individual inspection points. These inspection points fall into three columns: Green, Amber, and Red. A facility component receives the rating of whichever column receives the most yes answers. While the rating is subjective, the method to arrive at the rating is objective and generates consistent results. Subjective ratings in the ISR Part III could use a similar methodology to infuse objectivity and assure consistency in the results.

Second, the sample size must be significant enough to show the range and provide sufficient data points to develop quality to cost relationships. Where objective quality metrics are used, the quality should be measured in more than a handful of incidents. For example, if cycle time through the dining facility is a measure of quality, then the cycle time should be measured several times throughout the month. The reported cycle time should not be based on the first of the month (when many soldiers go out to eat because they just got paid) or the last day of the month (when more soldiers eat in because their cash is low). While the first and last days of the month may be important (they show the range), several data points during the rest of the month are necessary to show the normal situation and provide the appropriate weighting to the extreme data points. Where subjective quality metrics are used (such as soldier satisfaction with the quality of the meal) a large sample size is critical to successfully costing quality. A large sample size allows for analysis of the quality metric as a continuous variable, rather than a step function. This will be important in developing the service cost factors or functions.

Standard Service Costing -- The third leg of the service costing triad is Standard Service Costing (SSC). SSC's main goal is to provide an “expected cost” (also known as full or should cost) estimate for providing installation support services at Army installations. SSC will not generate requirements. It will create the cost functions of quantity and quality to be used in the BOS requirements generation and program assessment processes against established standards.

While SSC is the least mature process in the costing triad, it has a solid theoretical foundation. Cost factors/functions generated within SSC will be based on historical cost and quantity data from SBC, and quality data from the ISR Part III. SSC will use (primarily) parametric methods for relating quantity and quality to cost. SSC goes beyond the traditional

cost factor development that was concerned with deriving unit costs only. It adds the service quality factor, i.e., shows how costs change with the quality of the service.

For SSC to work, five things must happen:

a. Identify and define a common set of installation support services. A common taxonomy of services is used in both SBC and ISR Part III. (Appendix H)

b. Establish a performance standard(s) for each service. These standards should include both quantitative (how much, how often) and qualitative (how fast, how accurate, how available) standards. These standards are being developed under the ISR Part III.

c. Develop the cost estimating relationship to estimate services cost at given standards. This is the core of the SSC process that generates the cost factors and functions of quality and quantity. Appendix M documents a method for developing SSC cost factors and functions.

d. Distribute and implement the service cost factors. The cost factors and functions developed in this process can be used for more than generating requirements. These cost factors will provide the capability to rapidly assess the impact of funding constraints in BOS programs.

e. Evaluate and refine the process and cost estimate. This is a key aspect of the assessment process that will be discussed later. It is not only assessing the reasonableness of program requirements generated from the service cost factors, it also involves using the assessments in further refining standards, pacing metrics, and even the costing methodology and relationships between cost, quantity, and quality.

In its simplest form, the SSC cost function for single quantity and quality variables is shown in equation 1.

$$Cost = FixedCost + Quantity \times SSCCostFactor \times \left(\frac{Quality}{StdQuality} \right)^{Quality\,\mathrm{Im}\,pact}$$

Equation 1 -- SSC Cost Function (Single Quantity and Quality Variables)

The general form of the SSC cost function for multiple quantity and quality variables is shown in equation 2. Appendix M details its derivation.

$$Cost = FixedCost + Quantity_1 \times SSCCostFactor_{1a} \times \left(\frac{Quality_1}{StdQuality_1} \right)^{Quality\ \mathrm{Im}\ pact_{1a}} +$$
$$Quantity_2 \times SSCCostFactor_{2a} \times \left(\frac{Quality_2}{StdQuality_2} \right)^{Quality\ \mathrm{Im}\ pact_{2a}} +$$
$$Quantity_1 \times SSCCostFactor_{1b} \times \left(\frac{Quality_2}{StdQuality_2} \right)^{Quality\ \mathrm{Im}\ pact_{2b}} +$$
$$Quantity_2 \times SSCCostFactor_{2b} \times \left(\frac{Quality_1}{StdQuality_1} \right)^{Quality\ \mathrm{Im}\ pact_{1b}} + \ldots$$

Equation 2 -- Generic SSC Cost Function

Where:

- *Cost* is the total cost of providing the service,
- *Fixed Cost* is the "y"-intercept of the equation,
- $Quantity_1$ and $Quantity_2$ (to $Quantity_n$) are the service quantity levels (one for each quantity pacing metric),
- $SSC\ Cost\ Factor_{1a,1b,2a,2b\ to\ n}$ are the cost factors for each quantity-quality combination,
- $Quality_1$ and $Quality_2$ (to $Quality_n$) are the service quality levels (one for each quality pacing metric),
- $Standard\ Quality_1$ and $Standard\ Quality_2$ (to $Standard\ Quality_n$) are the service quality level standards (one for each quality metric),
- $Quality\ Impact_{1a,1b,2a,2b,\ to\ n}$ are the quality impact factors for each quantity-quality combination, and
- The number of terms in the function will equal the product of the number of quantity and quality variables; there will be one term for each combination of quantity and quality.

When the quality is equal to the standard quality, the costs will equal the quantity of the service to be provided (each quantity pacing metric) multiplied by the SSC cost factor for

each quantity pacing metric; the quality index (*Quality/Standard Quality*) will always equal one. If a level of quality less (or more) than the standard is desired, the resulting service cost can be derived by applying the quality index and quality impact factor.

A cost function that includes both quantity and quality components has an additional benefit. The cost function can be used not only to generate requirements (the expected cost of the full quantity and quality), but also to assess the impact of funding constraints on a service. For single quantity and quality pacing metrics, if we constrain the cost and quantity, we can determine the expected quality. If we constrain costs and quality, we can determine the quantity of the service we can afford to buy at the desired quality. The same works for multiple quantity and quality variables – constrain cost and all but one other variable and leave the remaining variable "float" to determine the level of quantity or quality that is affordable.[12]

Armed with a function to derive standard cost requirements, we must be able to project the quantity (output pacing metric) into the future to establish the service quantity requirement.

The projection of all future service levels boil down to one factor – plans. The Army Plan (TAP) and its implementation in the Army's force structure and the Army Program Guidance Memorandum (APGM) serve as the foundation documents for the level of service (quantity and quality standards) and the population to be supported. The total population to be supported on Army installations over the POM period is consolidated in the Army Stationing and Installation Plan (ASIP). Army Regulations document the policy driven levels of service standards (quantity and quality). Service quantity metrics should be related to one or more of these planning documents.

A typical projection of future quantity requirements would take the quantity metric for a service and divide it by the supported population to derive an output level per capita. This output level per capita would then be multiplied by the future projection of the supported population to derive the future service quantity requirement. For example, if 100,000 meals were served over the course of a year to an installation population that includes 1000 soldiers on meal cards, the output per supported capita would be 100. If in a future year we expect

[12] This is essentially the same as the process for conducting a sensitivity analysis on the cost function.

the installation population to go up by 50 percent, with the same relative mix of units, we could expect 1500 soldiers to be on meal cards. This would generate a future quantity requirement of 150,000 meals per year.

In another case, policy changes could effect the service quantity requirement levels. If the policy on dependent identification card renewal is changed from once every four years to once every six years, the required level of support for this aspect of the (Military) Personnel Services should decrease by about one-third. Note that identification cards are only one part of (Military) Personnel Services; many other policy changes may also be needed to significantly change the workload.

One-time adjustments to the quantity of support should be made here. For example, if requests for assistance to Army Community Service increased due to a natural disaster in a particular year, this should be factored out of the required quantity of support for the program years. Conversely, if a one-time deployment lowered the level of Military Personnel support required during a year, this should be factored back in for the program years.[13]

Environmental Compliance and Restoration

Of these two project-based environmental programs, the Army only programs for environmental compliance projects. Environmental restoration programs are developed at OSD level; the Army's only involvement is in execution.

Environmental compliance project requirements vary widely by installation and command due to two major factors: state and local laws, and the scope of the individual compliance projects. Unfortunately, neither can be effectively predicted.

Installations develop and classify compliance projects based on federal, state and local laws as described in Chapter 2. Installations enter these projects in the Environmental Programs Requirements System (EPRS). Environmental compliance project requirements should continue to be submitted this way in the future, separate from the methods for generating requirements for the other services described above.

Other Non-Standard Services

[13] These one-time changes in the level of the support requirement should be captured separately to aid in developing the BOS costs of contingency operations.

SSC methodologies may work for other non-standard, but recognized services (such as TOE Bands). The uniqueness of these services may require more years worth of data to be collected before consistent cost factors can be developed. In the interim, more traditional costing methods which exclude quality may need to be used to develop cost factors and subsequently, requirements, for these services.

Proposed Process

SSC Cost Functions are the cornerstones of the BOS requirements determination process. The proposed process consists of three steps as shown in figure 6.

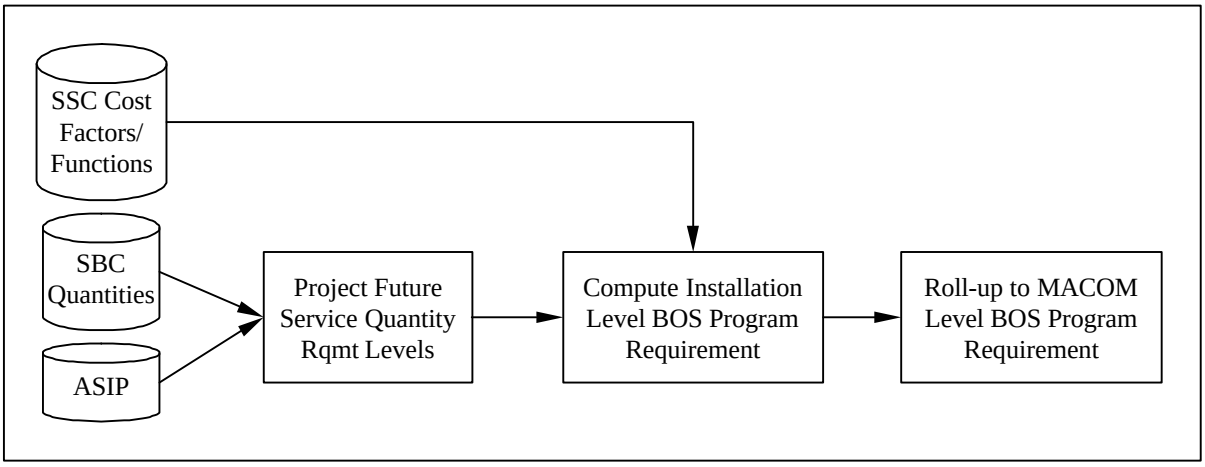


Figure 6 -- Proposed BOS Requirements Determination Process

a. Project the future quantity requirement levels for each service.

- Adjust the historical service quantities in SBC for one-time fluctuations in the quantity requirements.
- Divide the adjusted historical service quantities from SBC by the historical supported population authorized in the ASIP to derive a service quantity level per capita.
- Multiply the service quantity level per capita by the program year supported population authorized in the ASIP to derive the future quantity requirement level.

b. Compute the installation level BOS program requirements.

- Multiply the future quantity requirement level by the SSC cost factor for each service to derive an installation level resource requirement for each service.

- Note that under the new rules on reimbursements, each installation's direct BOS funding will come from a single appropriation.

c. Roll-up the installation level requirements to MACOM level BOS program requirements.

- For each MACOM, sum the installation level resource requirements by service to derive MACOM level service resource requirements.
- Roll-up the MACOM level service resource requirements into the 34 BOS functional areas supported by the proposed seven-digit program elements.

Expected Impact

The proposed process will recognize the full cost of providing services to standard levels of quality. It relies on SBC and ISR Part III data to generate the cost factors and functions used in developing service program requirements. Other demographic data, such as from the ASIP, will continue to support the projection of service quantity requirement levels. While initially only MACOM level cost functions will be able to be developed (because of the number of data points available to generate the cost functions), eventually installation level service cost factors and functions will be developed (with five years or more of data).

4.2 Facilities Program Requirements

Facilities programs include:

- Maintenance and repair (real property maintenance (RPM)),
- Revitalization (generally military construction (MilCon)),
- Leasing, and
- Facility reduction (generally demolition).

Municipal services (such as refuse removal) and utilities, while related to facilities, generally have significant pacing measures in other than facilities data, for example, population. They are included with base operating support. Only the four program areas related to the acquisition, maintenance, and disposal of facilities will be discussed as facilities programs.

Traditionally, facilities programs have been treated in isolation from other programs and from one another. While this simplified analysis, program development, and justification,

it ignored the natural synergy that exists between the facilities programs. This synergy is particularly strong between facility revitalization and real property maintenance (RPM). While requirements can (and should) be developed separately for these programs (different factors drive the requirements), linking these can strengthen program justification and testimony.

This section first examines the two distinct components of RPM: sustainment and improvement. It then lays out the revitalization, leasing, and facility reduction requirements. Finally, it discusses the synergy between the facilities programs and proposes facilities strategies to optimize the program requirement.

4.2.1 Facility Sustainment

Background and Theory

Facility sustainment includes only the maintenance and repair resource requirements necessary to keep a facility from degrading further from its current condition. Sustainment is performed through the use of day-to-day operating funds (e.g., OMA, OMNG, OMAR, and RDTE).

In the past, the unit cost of sustaining a facility has been assumed to be a constant. This allowed the development of a single sustainment cost factor for each facility category group that could be applied regardless facility age, level of use, or other factors. This essentially assumed a uniform degradation of a facility over time.

Under a straight-line degradation model, one year's degradation for a facility is proportional to that year's sustainment maintenance requirement. The faster a facility degrades (steeper line), the higher the resulting sustainment costs. Under straight-line degradation, the annual sustainment requirement remains constant. Figure 7 shows these relationships.[14]

[14] Note that this model is consistent with the DoD Financial Management Regulation (Volume 4, Chapter 6, paragraph 060210). A straight line method is to be used for depreciation or depletion, and the useful life used in the depreciation/depletion model is not to exceed 40 years.

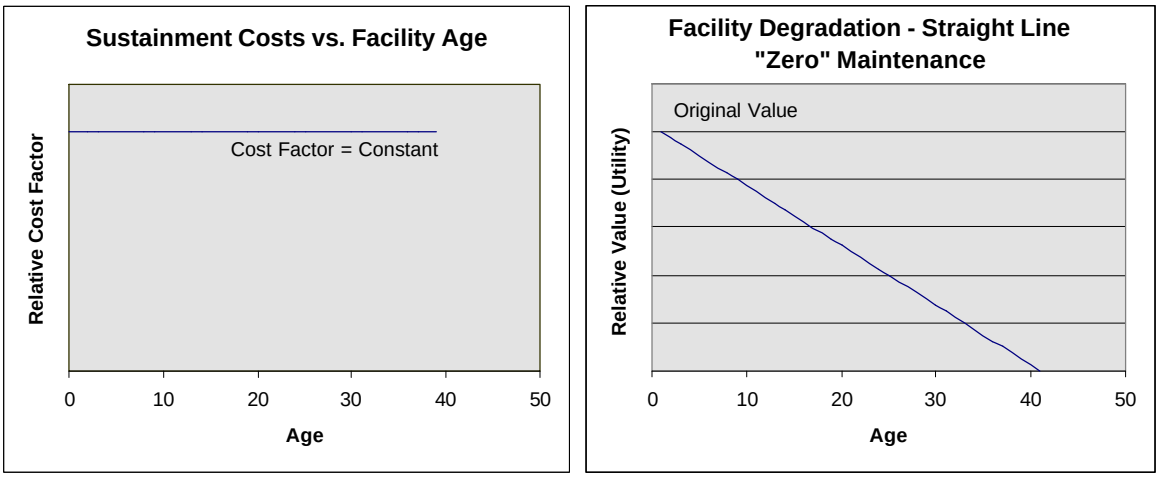


Figure 7 -- Constant Sustainment Costs with Straight Line Facility Degradation

A straight-line degradation model assumes no maintenance is performed on the facility. In effect, when no maintenance is performed, the facility can no longer meet its intended purpose at or near the 40 year point. Heavy use can cause the facility to degrade even faster. The current method of generating the facility sustainment cost factors, which is based on the average of 80 years of predicted facility maintenance costs from the Maintenance Resource Predictive Model (MRPM), takes heavy use into account in the component wear-out cycles for some facility types (such as barracks).

The method for calculating the sustainment costs for a group of facilities under this model is today's basic process: multiply the quantity of facilities by the sustainment cost factor for those facilities.

A closer examination of the MRPM costs, however, shows that the maintenance and repair costs are related to the age of the facility. As a facility ages, more components wear out or require additional maintenance. For a single facility, this shows up as a near constant straight line (annual recurring maintenance) with an ever increasing number of maintenance and repair spikes superimposed over it as the facility ages. In effect, the unit sustainment costs grow. This means facility degradation actually accelerates with age. Figure 8 shows these relationships.

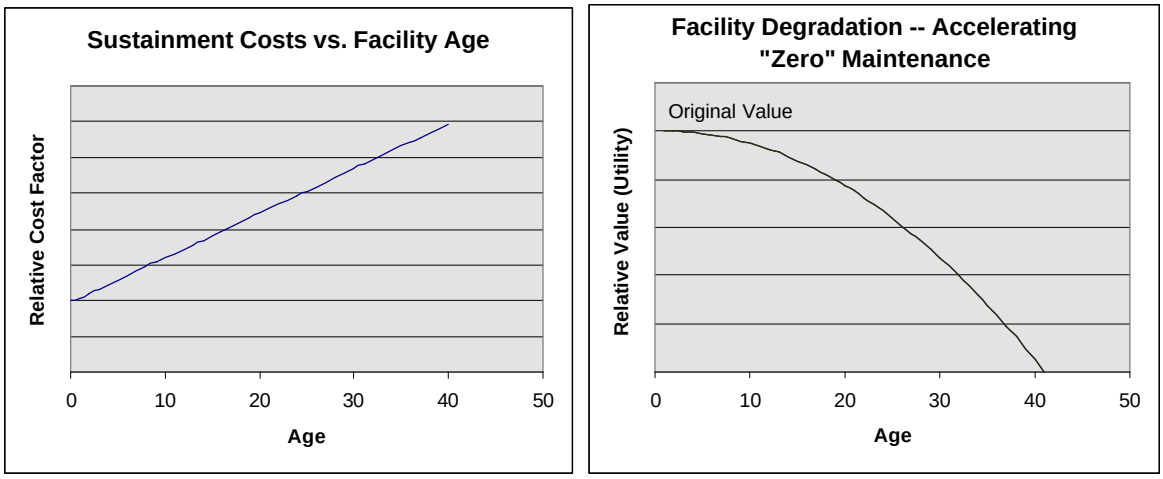


Figure 8 -- Growing Sustainment Costs with Accelerating Facility Degradation

Under this model, the sustainment cost factors become functions of age. An analysis of actual RPM expenses against the average age of facilities neither supports nor refutes this model.[15]

Currently, the facility sustainment requirement for a MACOM is generated at a MACOM level of aggregation. Installation programming and excess facility inventories are rolled up to MACOM level under each of four units of measure: square feet (buildings and structures), square yards (pavements), linear feet (railroads and bridges), and acres (training areas and ranges). Cost factors are rolled up to the same four units of measure under the processes described in Chapter 2. The units of measure cost factors are multiplied by the inventory and the composite inflation factor for the program year to generate the requirement.

Developing facility sustainment requirements by facility category group at installation level would provide a more robust capability for incremental analysis of the sustainment requirement. Installation transfers between MACOMs would become easier; each installation's sustainment requirement would be "packaged" separately. Certain facility types

[15] The RPM expenditures per dollar of PRV were compared to the PRV weighed average age of facilities for the whole Army, CONUS and OCONUS, and by TDAC. No correlation was found. Possible reasons for the lack of correlation could include differing command and installation priorities, a tendency to minimally sustain old facilities that are close to renovation or demolition, and costs to repair early component failure not covered by warrantee.

can be quickly targeted for special program interest, such as the recent focus on unaccompanied personnel housing. Virtually all the data necessary to accomplish this level of requirements development already exists.

Sufficient data detail exists today to calculate predictive sustainment cost factors (or functions) by facility category group at the installation level. Area cost factors used for facility maintenance and construction purposes exist for every installation. Space requirements by facility category group, which are the basis for calculating the programming and excess inventory, are already generated at installation level. The proposed process should take advantage of the capability these data provide to give installations program developers additional visibility necessary to better defend the program requirement.

Proposed Process

The proposed process for generating facilities sustainment requirements is a three-step process as shown in Figure 9.

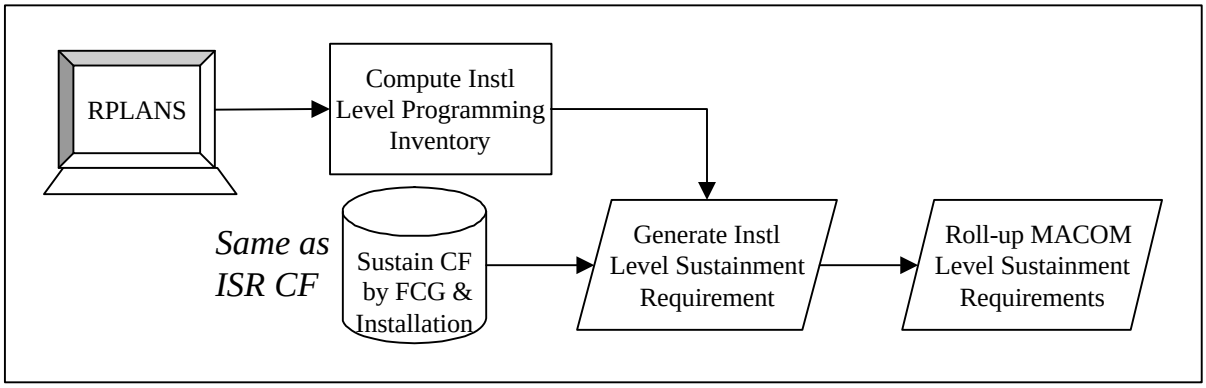


Figure 9 -- Proposed Facility Sustainment Requirements Generation Process

a. For each installation, compute the Programming Inventory and Excess Inventory to be maintained. This process is virtually identical to the current process

ACSIM's Resource Integration Office). The ACSIM Resource Integration Office (RIO) receives the installation summarized Programming and Projected On-Hand Inventory figures from the ACSIM's Operations Division. Throughout these calculations, certain facilities maintained by other agencies are excluded from the figures. Appendix G details these exclusions.

- The Required Inventory comes from the smaller of the HQRPLANS calculated facility allowance or the installation generated facility requirement fed back to the headquarters via the Installation Status Report (or via installation RPLANS to HQRPLANS, which now has a similar feedback mechanism). This represents the quantity of facilities needed to support the tenant missions and population authorized on installations.
- The Projected On-hand Inventory comes from the Army's Real Property Inventory contained in the Headquarters, Integrated Facilities System (HQIFS). It is summarized at Unit of Measure level of detail, modified by deducting planned reductions in the Real Property Inventory, increased by programmed MilCon projects, and excludes facilities programmed for by other agencies listed in Appendix G. Since HQDA does not currently have visibility of facility reduction targets the MACOMs have given to their installations, the MACOMs will need to provide these targets to HQDA in the future.
- In cases where the Projected On-Hand Inventory is larger than the Programming Inventory, the difference is the Excess Inventory.

b. Generate the installation level facility sustainment requirement.

- For each FCG, multiply the installation Programming Inventory by the USACEAC generated sustainment cost factors (or cost functions), and the composite inflation factor for the program year. Note: The cost factors should be the same as those used to estimate the facility sustainment costs in the Installation Status Report Part I.
- Aggregate the FCG facility sustainment requirements to an installation total sustainment requirement.

c. Roll-up the MACOM level facility sustainment requirement.

- Aggregate the installation facility sustainment requirements to a MACOM total sustainment requirement.

Expected Impact

The proposed process will simplify the sustainment requirement generation process while providing a more flexible program analysis capability to the installations PEG. A greater degree of consistency in and visibility of sustainment program requirements will be gained by

using sustainment cost factors common with the Installation Status Report Part I. While currently developed sustainment cost factors, in conjunction with area cost factors, will fully support the proposed process, future installation specific cost factors or cost functions are equally supported. The only additional data requirement of this process will be securing HQDA visibility of MACOM assigned facility reduction targets to their installations.

4.2.2 Facility Improvement

Background and Theory

The facility improvement requirement is distinct from the sustainment requirement. Where the sustainment requirement represents the resource level needed to retain facilities in their current condition, the improvement requirement is the resource level needed to return the facility to "like new" condition. Improvement can be performed through the use of day-to-day operating funds or Military Construction (MilCon) funds, depending on the size and scope of the improvement projects.

The facility improvement requirement has been more difficult to determine. For years, the Engineer community used the Backlog of Maintenance and Repair (BMAR) to articulate the facility improvement requirement for the Army. With the advent of the Installation Status Report in 1994, improvement cost factors were developed to estimate the total improvement requirement for Army facilities.

The magnitude of the improvement requirement is approximated by multiplying the quantity of facilities in Amber and Red condition (as reported in the Installation Status Report (ISR) - Part I) by the Amber-to-Green and Red-to-Green improvement cost factors (developed by ACSIM and USACEAC). While this method may provide a reasonable aggregate requirement for programming purposes at HQDA, it looses validity at MACOM and installation level for facility improvement planning because of wide variances in what constitutes a Red or Amber condition.

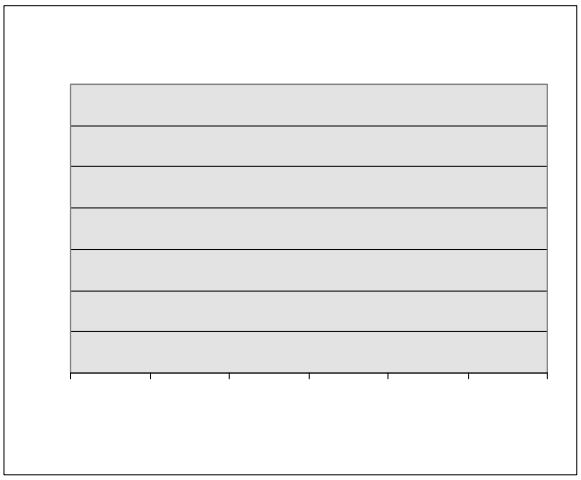
Under the ISR Part I, a facility is broken into several components (for example, the roof, lighting, restrooms and plumbing, entrances and doors, etc.). Each component is inspected and rated separately. A facility could be assigned a Red condition because of a single critical component (e.g., the roof leaks), or because every component of the facility is in

Red condition. The costs associated with improving each of these to a Green condition vary widely. Even a facility rated Green could have one or more non-critical components (such as the entrances and doors) in Amber or Red condition. Computing the renovation requirements by component, then summing across a facility would provide a more robust and accurate improvement requirement. Fortunately, component improvement cost factors can be derived.

Sustainment cost factors (see Appendix F) are based on component repair or replacement costs (developed by R.S. Means, and other commercial engineering costing firms), summed over an 80-year lifespan of a facility, then averaged. Because Means data is at facility component level, ACSIM can develop component level improvement cost factors that would align with the ISR Part I facility inspection criteria. The resulting cost factors could be used against the installation level ISR Part I quality data to derive a total improvement requirement for the installation.

With the total improvement requirement identified, it must be split into the part that can be maintenance and repair, and the part that must be revitalization (new replacement construction or renovation). Understanding the relationship of the improvement requirement to the value of the facility will help identify an appropriate split.

Figure 8 showed what happens to the relative value (or utility) of a facility over time given some normal degradation with little or no maintenance. Funding levels, command priorities, level of use, and environmental conditions may cause the actual maintenance level to vary from this predicted degradation curve, as shown in figure 10 (middle curve). At the same time, the plant replacement value (PRV) tends to increase because of rising expectations, higher standards, and increasingly complex components (see figure 10, top curve). Since ISR standards are based on current expectations, standards, and technology, the difference between the actual maintenance line and the PRV line at a given age represents the total improvement requirement.



Proposed Process

The proposed process for developing the facilities improvement requirement is a three step process as shown in Figure 11. It has no counterpart in the current installations programming process.

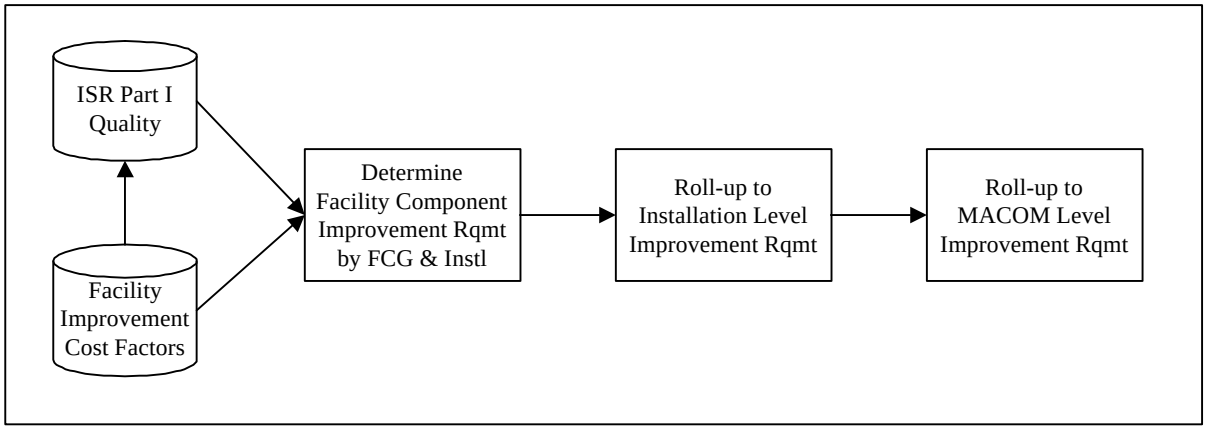


Figure 11 -- Proposed Facilities Improvement Requirements Generation Process

a. Determine the improvement requirement for each facility component by FCG and installation.

- For each facility component, multiply the facility component improvement cost factors (Amber-to-Green and Red-to-Green) by the quantity of facilities in a FCG on the installation that have Amber or Red ratings for that facility

Expected Impact

The most significant impact of the proposed process is to recognize and use the facility improvement requirement across the Army in the programming process. While the ISR has captured and estimated the improvement requirement, a formal linkage to programming has never occurred. Refining the improvement cost factors to the facility component level will help generate more accurate and robust improvement requirements that will have the flexibility to be used at HQDA for programming purposes and MACOM level for budget distribution. FCG level visibility of improvement costs will easily support the development of targeted improvement programs. While there is no additional data collection requirement, the ACSIM, supported by USACEAC and the U.S. Army Corps of Engineers (USACE), should develop the component level improvement cost factors necessary to fully implement the proposed process.

4.2.3 Facility Revitalization

Background and Theory

Facility revitalization is a combination of the new and replacement construction and facility renovation necessary to renew (or revitalize) the Army's facility inventory. While it is generally project-based (executed under the MilCon program), some revitalization projects (less than $500,000) can take place as unspecified minor construction (under the xxxx76 series accounts).

A revitalization project essentially turns back the effective age of a facility. New and replacement construction results in a facility with age "zero." Renovation may turn back the effective age to zero or something between zero and the current age of the facility (depending on the extent of the renovation).

To maintain a constant average age for a large set of facilities, the revitalization cost is inversely proportional to the age at which the revitalization is done. For example, the cost to revitalize every year (via new construction) a group of facilities with a plant replacement

value[18] of $100, would be $100. If the revitalization point would be every two years, the annual requirement would be $50; every four years, $25; every 50 years, two dollars. The annual revitalization requirement for the Army, where the revitalization point for the past ten years has been approximately 76 years of age, would be about 1/76th of the Army's plant replacement value. Revitalization funding levels above this level tend to reduce the average age of the physical plant; funding levels below this tend to allow the average age of the physical plant to grow. Figure 12 shows this graphically.

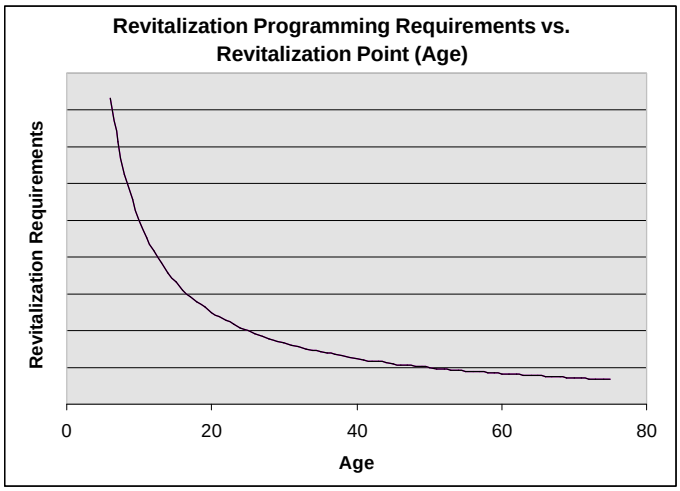


Figure 12 -- Revitalization Requirements vs. Revitalization Point

The PRV weighted average age of the Army's physical plant is 39.5 years[19], approximately half the revitalization age. This is not coincidental. Because Army facilities were constructed

revitalize the oldest facilities first, we can assume for programming purposes that the average revitalization point is (and will be) twice the average age of the physical plant.

Now we can relate the annual revitalization requirement to maintain the current average age of the physical plant in terms of the average age (see Equation 3). This relationship will be important later in optimizing the total facilities programs requirements.

$$RVitRqmt \cong \frac{PRV}{2 \times AvgAge}$$

Equation 3 -- Revitalization Requirement as a Function of PRV and Average Age

The Army's revitalization strategy, specifically, the target average age of the physical plant that the Army wants to establish and maintain within available resources, plays the most significant role in the revitalization requirement level the Army should program.

Proposed Process

No significant change is proposed in the development or submission of revitalization projects. Each installation should continue to develop their MilCon projects and forward them to their MACOM, which, in turn, should forward them to the ACSIM's Facilities and Housing Directorate (FHD) at HQDA. FHD should continue to work through the Project Review Board (PRB) to review and prioritize the MilCon projects. Although the ACSIM's RIO does not need to be involved with the individual project development, prioritization, and submission, it should work with the FHD to establish a defendable resource floor. This resource floor could be based on a facility aging model similar to the model described above[20].

Expected Impact

A facility aging model most significantly impacts the integration of the revitalization requirement with the sustainment requirement, which also is related to the aging model. This, in turn, enhances the defense of all of the Army's facilities programs before OSD and Congress. No impact or changes to the project development, prioritization, or submission or additional data requirements are expected.

[20] The Office of the Secretary of Defense (OSD) successfully used a similar model developed by the Institute for Defense Analysis to defend the 1998 MilCon program.

4.2.4 Facility Leasing

Background and Theory

The Army leases facilities to meet facility space requirements. The specific reasons for leasing facilities vary, including: to augment current space on the installation to meet facility space shortfalls, meet surge requirements, provide facilities at the point of service where owning is not practical (such as recruiting stations), and for economic reasons (it may be less expensive to retain a lease than build and maintain a new facility over its life cycle). Some commands facilities requirements are met completely (or nearly completely) by leasing. The Recruiting Command has its facilities in the civilian community to be effective in its mission.

Virtually every lease has certain common characteristics: the size of the leased space, the duration or term of the lease (how long the lease is for and the number and duration of option periods), the lease rate (how much the lease costs per period), and a penalty clause (how much it will cost to terminate the lease early, or before a certain number of periods have passed). Some leases may also have start-up costs (such as the costs associated with renovating the space to meet the tenants' needs) and restoration costs at the termination of the lease. Each of these factors should be considered in developing the lease program requirement. [Note: Utility and service costs associated with leasing have been deliberately excluded. These are discussed in more detail below.]

For an individual lease, the lease resource requirement is equal to the size of the leased space multiplied by the lease rate. In the first year of the lease, the start-up costs are added. In the last year of the lease, any restoration costs are added. If the lease is terminated early, the penalty, if any, is added with any restoration costs. This level of detail is appropriate for lease execution, but programmers should work at a higher level of aggregation to be able to project the program requirements into the future based on changes to the force structure and facilities mix on the installation.

Lease program requirements are currently based on a per capita cost factor as a part of the total BASOPS requirement outlined in Chapter 2. Essentially, as the population changes, the lease requirement changes proportionally. While this method is consistent with the basic RPLANS process and appropriate in commands where the facility space requirement is met

mainly through leasing, it breaks down at traditional installations. At most installations, leased space augments facility shortfalls. Introducing (or taking away) organizations to the installation effects the lease space requirements on the margin -- only shortfalls in owned facilities need to be covered through leasing. For programming purposes, this would lead the Army to take different approaches in developing the lease requirements for traditional installations and off-post organizations. Appendix L describes the generation of the lease space requirement.

Aligning costs with the lease space requirement may require a change in how costs associated with leases (particularly utilities and services) are accounted for. Current accounting guidelines (in DFAS-IN Manual 37-100-**) allow the Army to account for utility and service costs under the lease accounts[21]. For owned facilities these costs are accounted for under utilities and services. In practice, utility and service costs associated with leases are generally accounted for under leases when they are an integral part of the lease. For example, if the Army leases a floor of a commercial office building without separate metering of utilities on that floor, a pro-rated share of the utilities for the building is usually included in the lease bill to the government. Conversely, where the utilities are not included as a part of the lease, the utility costs are usually accounted for under the utility accounts. For example, when the Army leases a whole building that has metered utilities, it will typically receive a separate bill for each utility.

This mixing of the accounting for costs associated with the leased property has two effects. First, it makes the development of consistent cost factors/functions for leasing and utilities difficult by mixing the scope of costs under each. Including utility and service costs with some leases, but not others, prevents a consistent comparison to the lease space requirement recommended above. Second, it does not reflect that utility costs will generally stay with the tenants, even if the lease is terminated. When an organization moves from leased space back into government owned space, the organization will still need heat, electricity,

[21] Procedures for accounting for utility costs associated with leases are unclear. Lease related utility costs are not specifically addressed in the account definitions for leases or utilities.

water, custodial services, and so on. In effect, the utility and service costs will remain approximately the same.

Accounting for utility and service costs associated with leases under the appropriate utility or service account will not only improve the development of lease and utility cost factors (and the subsequent program requirements development), it will lower the apparent lease costs by accounting for the costs properly. Additionally, it will make expectations of lease reduction efforts more realistic. For example, if half the cost of a lease could be saved by moving the tenants to an owned facility, but the lease has imbedded utility and service costs (that amount to 40 percent of the total lease), the actual savings would be far less than expected. To take this example further, if the lease in question were $100,000 ($40,000 of which is utility and service costs), only half of the $60,000 would actually be saved; the government would face the same utility bill in the owned facility. Savings would only be $30,000 versus the $50,000 expected from the "first glance" analysis that just looked at the total lease costs. Separating the utility and service costs from all leases is essential to proper cost analysis and program development for leases.

With only costs associated with the basic lease, start-up, restoration and early termination accounted for under leases and a lease space requirement based on the PRV weighted facility shortfall, consistent leasing cost factors and lease requirements to the MACOM and installation level can easily be derived. USACEAC can derive the cost factors down to installation level based on the ratio of the historical lease costs to the total PRV of the facility shortfall. ACSIM, using HQRPLANS and AIM-HI, can project the facility shortfall and apply the lease cost factor for each installation to derive the installation lease requirement. These can then be rolled to the MACOM and HQDA summary level for program development.

Proposed Process

The proposed process for developing the facility leasing requirement is a three step process as shown in Figure 13.

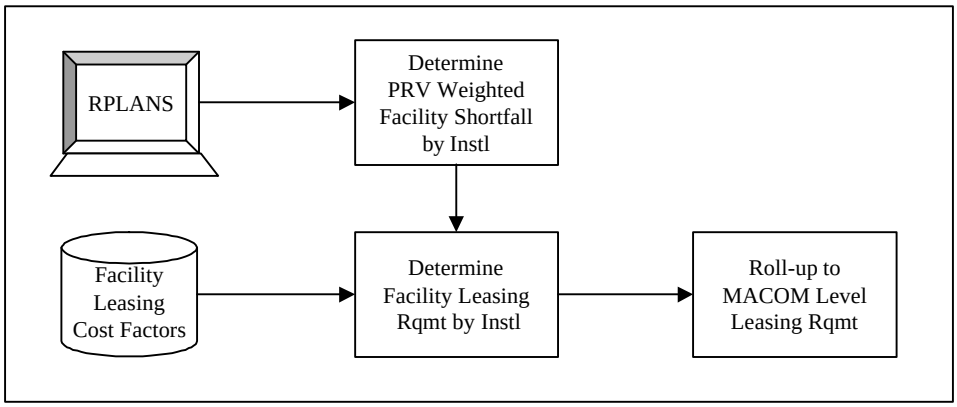


Figure 13 -- Proposed Facility Leasing Requirements Generation Process

a. Determine the PRV weighted facility shortfall for each installation.

- Obtain the facility shortage by facility category for each installation and off-post station from HQRPLANS.
- Calculate the PRV for each facility shortage by facility category and installation.
- Sum the PRVs of the facility shortages for each installation.

b. Determine the facility leasing requirement by installation.

- For each installation, multiply the PRV weighted facility shortfall by the facility leasing cost factor provided by USACEAC[22].

c. Roll-up the installation level leasing requirements to a MACOM level requirement.

Expected Impact

The proposed process will provide the capability to assess the impacts of force structure changes on the requirement to lease facilities. As the force structure and quantity of owned, available facilities change, the facility space shortfall on the installation changes.

To achieve the ideal process, accounting procedures should be clarified for utility costs associated with leases. Lease related utility and service costs should be accounted for with the appropriate utility or service, rather than under leases.

4.2.5 Facility Reduction

Background and Theory

The facility reduction program is designed to reduce the size of the Army's excess infrastructure: that is, the facilities that exceed the Army's space requirement generated in the RPLANS process.

Many methods are used to reduce the infrastructure. Facility demolition under the xxxx79.M9 account and demolition done in conjunction with construction projects remove facilities by destroying them. Ongoing privatization and divestiture efforts (with housing and utilities, in particular) reduce the Army's infrastructure support requirement by selling or giving the assets to commercial enterprises to run as businesses with the Army installation as a customer. Base Realignment and Closure identified a significant portion of the Army's inventory for eventual closure and elimination. Another alternative is to convert via renovation an excess facility to a category of a facility shortfall on the installation. These methods have different levels of focus.

- BRAC focuses on the whole installation (or major sections of an installation). BRAC program requirements are developed by the Army's BRAC office.
- Privatization focuses on a single facility category group (or series of related FCGs).
- Facility demolition applies to a single excess facility. This discussion will focus on developing the demolition requirement.
- Conversion also applies to a single facility.

The quantity of excess facilities on an installation must be adjusted to identify the true demolition requirement. First, any excess facilities due to be privatized, sold or otherwise divested must be excluded. Similarly, any facilities due to be converted via renovation must be excluded. Excess facilities earmarked for strategic mobility purposes, and DA designated mobilization facilities should be excluded from the excess pool for demolition programming. Finally, any facilities that are to be replaced by new construction during the program period

(under the Army's One-for-One demolition program) should be added to the pool of facilities to be demolished. Demolition funding cost factors should then be applied to the adjusted facility excess figure.

Proposed Process

The proposed process for generating the facility demolition requirement is a two step process:

First, identify the facility excess at each installation (using RPLANS) and adjust it for known BRAC, privatization, divestiture, and revitalization actions.

Second, multiply the adjusted excess by the facility demolition cost factor and sum the total products by MACOM.

Expected Impact

No significant impact is expected by using the proposed process.

4.2.6 Optimizing the Facilities Programs Requirements

Background and Theory

Optimizing facilities programs is about more than minimizing the requirement. Finding the right quantity and mix of facilities at the right locations, revitalizing them in the appropriate cycle, and maintaining them properly are key to identifying the optimum requirements. The Army's facilities strategy should consider each of these.

This part of the report will focus first on facility sustainment and revitalization, as they comprise a major portion of the total facilities requirement and are closely tied to the revitalization cycle. It will then discuss the effect sustainment has on the improvement requirement and how the facilities strategy can be tailored to significantly impact the improvement requirement over a 15-20 year program. Finally, it discusses the leasing and facility reduction requirement.

The sustainment and revitalization requirements can be expressed as functions of age, as discussed in paragraphs 4.2.1 and 4.2.3 above. Overlaying these two functions, as shown in figure 14, leads to the initial optimization of the facility requirements.

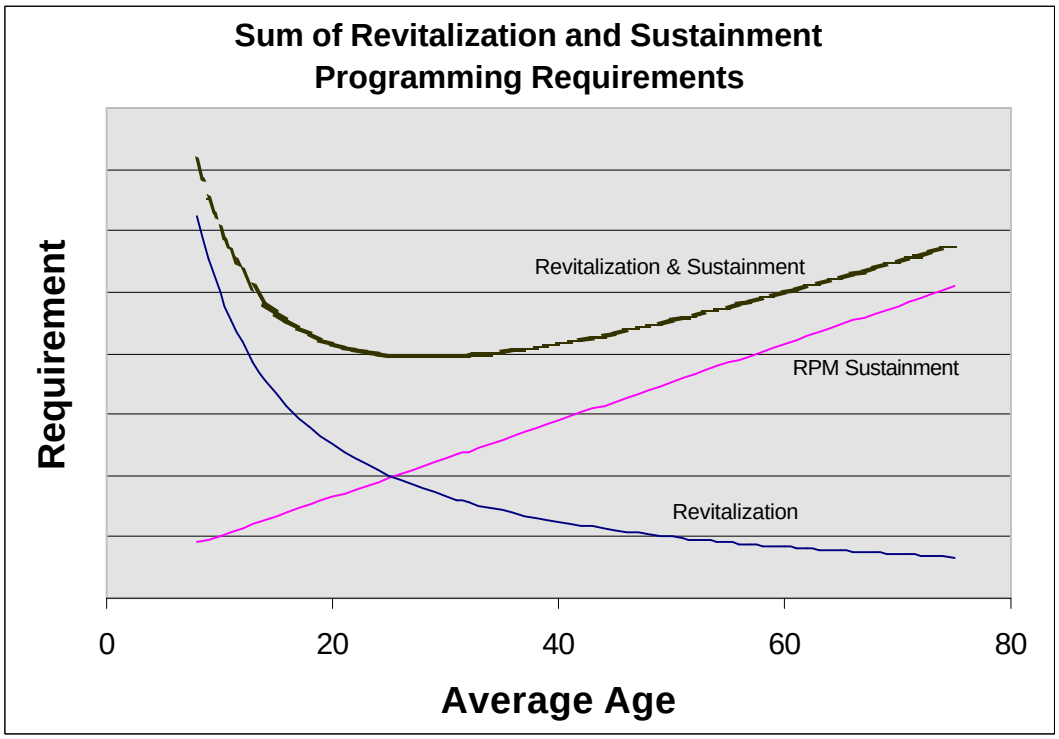


Figure 14 -- Facility Sustainment and Revitalization Requirements

The optimal average age for the Army's facilities is at the minimum point of the total revitalization and sustainment requirement functions. [The sustainment requirement function shown in figure 14 is illustrative only, approximated from the accelerated degradation curve in figure 8. The actual sustainment requirement function will be the sum of the sustainment

for a facility and its actual maintenance curve. When the magnitude of this improvement requirement exceeds 75 percent of the PRV, new construction is more worthwhile than renovation in revitalizing the facility. Below 75 percent, it is more worthwhile to renovate the facility before it degrades too far..

Facility revitalization plays an important role in solving the improvement requirement. There is a synergistic effect between revitalization and the Army's ability to reduce the improvement requirement. If the revitalization program is large enough to reduce the average age of the physical plant, the sustainment requirement will become smaller (figure 14). A smaller sustainment requirement will allow existing resource levels to better meet the sustainment requirement and slow the growth of the improvement requirement (figure 10), effectively raising the "actual maintenance" line. This will result in more facilities reaching their revitalization point with an improvement requirement of less than 75 percent of their PRV, making renovation more worthwhile than new construction.

When a facility is revitalized through renovation rather than new construction, the revitalization cost is smaller (by at least 25 percent of the PRV -- the break point for renovation versus new construction). For a large group of facilities, these savings can be significant. It may not be practical to revitalize only through renovation (i.e., renovate every time a facility comes due for revitalization). New construction is needed where significant structural improvements are necessary, or technology and standards have progressed so far than renovating the facility will not meet mission requirements and standards. Even a moderate mix of renovation with new construction in the revitalization program can generate significant savings.[23]

A careful evaluation of the Army's revitalization strategy is necessary to determine the portion of the improvement requirement should be a part of the revitalization requirement. The entire improvement requirement should be accounted for between the revitalization requirement and the improvement portion of the RPM program.

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[23] A mix of 50 percent renovation in the revitalization program will cost at least 12.5 percent less than all new construction. If the average improvement requirement for that 50 percent is only half the PRV, the savings jump to 25 percent.

One such strategy could identify the point at which the improvement requirement will not be programmed explicitly. For example, the Army could choose not to program for improvement in the older half of the physical plant, with the plan that these improvement requirements will be corrected when the facility is revitalized. For the other part of the improvement requirement, a period could be selected over which the pro-rated portion of remaining improvement requirement would be programmed. To continue the example, the improvement requirement for the younger half of the inventory could be programmed over a 20 year period, with 1/20th of the requirement programmed in each year.

Lease and facility reduction program requirements must be viewed as helping to "right size" the Army's total facility space requirement. As such, these program requirements must be optimized in the context of optimizing the Army's space. Facility reduction removes unneeded space. Leasing provides short term (and sometimes, long term -- based on mission requirements) solutions to needed space. These must be used in concert with the facility revitalization program to provide the right facilities in the right place(s).

As an example , integrating these components into a 25-year facilities strategy for the Army could look like this:

- Over a 25-year period, move the revitalization point for the Army's facilities from 76 years to 50 years (with the corresponding change in the average age from 39.5 years to approximately 25 years). As a result, the revitalization requirement will nearly double for the 25 year period, then drop to about one and a half times the current rate after that. To make this example more concrete, by using a $208 billion plant replacement value, the current revitalization rate (to maintain the same average age of our facilities) is approximately $2.73 billion per year. The revitalization requirement for the 25-year transition period would be approximately $5.58 billion per year, and the revitalization rate thereafter would be approximately $4.16 billion per year.
- Do not program for the improvement requirement for facilities older than 25 years. These improvement requirements will be included as part of the revitalization of these facilities over the next 25 years.

- For facilities less than 25 years old, program for 50 percent of their current improvement requirement over the next 25 years (two percent per year). The remainder of their improvement requirement will be deferred to revitalization. If, for example, we assume that improvement requirement is spread evenly over the entire infrastructure, approximately 1/3 of the $31.8 billion improvement requirement (or $10.6 billion) would be attributable to the youngest 25 years of the inventory. Two percent of this would result in a $212 million per year improvement requirement that would be appropriate to program for under RPM.
- Fund facility sustainment at 82.5 percent of the requirement or greater. This will result in an average improvement requirement (caused from the under-funding of sustainment) equal to about 50 percent of the PRV at the 50-year revitalization point.[24] Keep in mind that the sustainment requirement will come down as the average age of the physical plant decreases. If the sustainment to age relationship is linear, moving from a 39.5 year to a 25 year average age will reduce the sustainment requirement by about one-third by the end of the 25 year program.
- Lease program requirements will be funded at 100 percent. Over the 25-year period, shortfalls of on-post owned facilities will be constructed as a part of the revitalization program and installation leases terminated.
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Proposed Process

While no specific process recommended for developing the optimum facilities programs requirements (each facility requirement is generated separately), a guiding strategy is critical to assessing the appropriateness of the independently generated requirements. The strategy would not only set the parameters for generating the individual requirements, it would provide the set of business rules and baseline priorities used in segmenting large requirements (such as the improvement requirement) into manageable slices and prioritizing these for the P^3.

Expected Impact

A facilities strategy is key to optimizing the facilities programs requirements. Targeting not only the right mix of facilities, but also the right age for the infrastructure can allow the requirement to be minimized over time while providing world class facilities to the Army. The optimization plays a more significant role in assessing the impact of funding constraints on the program.

4.3 Base Operating Support Program Assessment

Background and Theory

There are two major questions in assessing the BOS program lines developed in the Program Prioritization Profile (P^3). First, what is the impact of the resource constrained program on installations' ability to provide the BOS services to the desired level of quantity and quality? Second, what is the impact of the resource constrained levels of service quantity and quality on force readiness, particularly the unexpected consequences to force readiness indicators?

The SSC cost functions, linked to established standards, are the key to answering the first program assessment question. As discussed in paragraph 4.1, above, the cost function can be used not only to generate requirements (the expected cost of the full quantity and quality), but also to assess the impact of funding constraints on a service. In the case of single quantity and quality metrics, if we constrain the cost and quantity, we can determine the expected quality. If we constrain costs and quality, we can determine the amount of the service we can afford to buy at the desired quality. The same works for multiple quantity and

quality variables – constrain cost and all but one other variable and leave the remaining variable "float" to determine the level of quantity or quality that is affordable.

An assessment process based on the SSC cost functions lends itself to automation. Numerous commercial, off–the-shelf (COTS) automated simulation tools are available which have the capability accept user defined functions, link these functions to available data and business rules (such as the program lines and prioritization rules from P3), and allow the user to "dial" the variables and view the results. An added benefit of these simulation tools is they can help address the second question and evaluate the unintended consequences of installation program constraints on force readiness indicators and other program areas outside the Installations PEG. For example, changing the cycle time (a potential quality metric) for laundry services may impact initial clothing issue requirements under the purview of the Personnel PEG. Available simulation tools can help identify both the positive and negative impacts of and to these externalities.

Simulation tools provide an additional benefit. They will allow the Army to further refine the pacing metrics – both pacing metrics of cost and pacing metrics of the readiness indicators. Today, there are no links between resources and readiness. It is difficult to identify the data necessary to prove or disprove the theories about potential links. If analysts identify some relationships that they think exist and capture data based on the suspected relationships, they can test whether or not a relationship truly exists. Then, using the proven relationships, analysts can make more educated guesses at the next set of relationships. Iteratively, strong relationships between installation resource levels and force readiness can be developed.[25]

Proposed Process

In the objective BOS programs assessment process, the RIO analyst would:

- Load program lines generated from P3 into the assessment module along with the SSC Cost Factors and Quality Impact ("n") Factors, historical data of what the service cost over the past year(s), ISR quality and SBC quantity data (standards and results), and DA desired standards.

[25] This is essentially the Bayesian method of analysis.

- Run the assessment of the program lines (using the SSC cost functions and factors) to see the resource constrained expected level of quantity and quality.
- Display the program lines with the expected levels of quantity and quality, the "full" requirement with the standard levels of quantity and quality, and the past costs with the historical levels of quantity and quality to allow the analyst to compare the programs. (Program comparisons could include past against fully funded, past against the resource constrained, multiple iterations of future resource constrained programs against each other (what if drills), et al.) The display should show the full requirement, the total historical costs, and total program regardless of appropriation, source of funds, or installation. It should allow the analyst to "drill down" into one of these sets (costs, requirements, or program) to see the appropriation, source of funds (direct or reimbursable), and/or installations within a MACOM (three-dimensional drill down capability).
- The analyst should further be able to run a simulation that shows the time effects on force readiness indicators of the past program (as executed), the projected program with the standard levels of quantity and quality, and the projected program with the resource constrained (adjusted) levels of quantity and quality.

Expected Impact

The proposed assessment process will provide the analyst a greater degree of flexibility and a significantly more robust assessment capability than currently exists. Analysts could use the assessment tool to not only assess the baseline program generated from P^3, but also rapidly conduct "what if" drills on the resource constrained program to find the optimum levels of quantity and quality that the Army could afford.

The proposed assessment process (all except the last bullet) requires SSC cost factors and functions to be developed. Realistic and affordable standards also need to be developed. Program optimization within available resources could lead to re-evaluation of service

standards or the identification of services that are not cost effective for the Army to provide. For example, if service quality suffers little near the standard quality when resource levels are changed (i.e., the *Quality Impact* factor is greater than one), service standards may be lowered to save resources, accepting the marginally smaller quality as the new Army standard.

To complete the analysis of the effects of the program on force readiness indicators, the relationships between base readiness and force readiness must be identified, modeled in a simulation tool, and tested. With this in place, the impact of BOS programs and resourcing levels on force readiness can be assessed.

4.4 Facilities Program Assessment

Background and Theory

Facility program assessment, like BOS program assessment, essentially addresses the same two major questions: what is the impact of the resource constrained program on the desired quantity and quality of facilities, and what is the impact of the resource constrained levels of facility quantity and quality on force readiness? Likewise, the approach in conducting the assessments can be similar.

The facility degradation and aging models are the keys to assessing the impact of funding constraints on facility quantity and quality. The degradation model provides the capability to assess the impact to facility quality (and the improvement requirement) of underfunding facility sustainment, not only for the program years, but also with respect to goals outlined in the Army's facilities strategy. The facility aging model allows rapid assessment of the resource constrained revitalization program -- how the average age of the infrastructure will change under various funding profiles and the impact of this average age on the sustainment requirement.

Lease program assessments require a slightly different approach. Since leases constitute part of the facility quantity used to meet the installation's (or station's) space requirement, underfunding of leases should lead to a comparison of the total facility space requirement against the owned and affordable lease space on hand (or programmed to be on hand). The comparison could include the ratio of on-hand to required space that would reflect the degree of overcrowding the installation faces. The quantity and quality of the lease

space should also be included in the ISR Part I (in a way to permit separate analysis). Leased facilities not only mitigate facility shortfalls on the installation (provide the space necessary to complete the mission), but typically are of high quality that can impact significantly on workforce effectiveness and soldier and family morale. While the quality ratings on leased facilities should not necessarily be included in ISR Part I roll-ups for facility improvement purposes, these should be included when assessing the impact of facilities on force readiness.

The impact of facilities programs readiness has two major aspects. First, the quantity of facilities impacts on the ability to accomplish the mission. If a facility (or suitable substitute) is not available, some part of the mission or training may not be accomplished. Second, the quality of the facility impacts on how well (timely, accurate, available) the mission or training will be accomplished. If the quality of the available facilities is poor, the time needed to accomplish the mission, the quality of the training, or even the ability to conduct the mission or training at all may suffer.

Here, like the BOS programs, a simulation tool can help. Relationships can be identified between various facility categories and unit training and mission requirements or BOS services. As facility resource levels are changed, the effects on facility quantity and quality can be derived and from these, the impacts on force readiness indicators. The time effects of short and long term resourcing levels on facilities programs can be assessed. When the facilities programs impacts are integrated with the BOS programs in such a simulation tool, the effects of facilities resourcing on BOS programs can also be assessed, with its cascading effect on force readiness.

Proposed Process

In the objective facility programs assessment process, the RIO analyst would:

- Load program lines generated from P3 into the assessment module along with the MilCon program (summarized), historical budgets and obligation data on facilities programs over the past year(s), ISR quantity and quality data, and DA facilities strategy goals.
- Run the assessment of the program lines (using the facility degradation and aging models) to see the impact of resource constraints on expected

quantity and quality of the infrastructure, and cost impact to the improvement requirement.

- Display the program lines with the expected levels of quantity and quality, the "full" requirement, the facilities program strategy goals, and the past costs with the historical levels of quantity and quality to allow the analyst to compare the programs. (Program comparisons could include past against fully funded, past against the resource constrained, multiple iterations of future resource constrained programs against each other (what if drills), et al.) The display should show the full requirement, the total historical costs, and total program regardless of appropriation, source of funds, or installation. It should allow the analyst to "drill down" into one of these sets (costs, requirements, or program) to see the appropriation, source of funds (direct or reimbursable), and/or installations within a MACOM (three-dimensional drill down capability). [Note that this is virtually identical to the view of BOS programs.]
- The analyst should further be able to run a simulation that shows the time effects on force readiness indicators of the past program (as executed), the projected program with the standard levels of quantity and quality, and the projected program with the resource constrained (adjusted) levels of quantity and quality.

Expected Impact

The proposed assessment process will provide the analyst a greater degree of flexibility and a significantly more robust assessment capability than currently exists. Analysts could use the assessment tool to not only assess the baseline program generated from P^3, but also rapidly conduct "what if" drills on the resource constrained program to find the optimum levels of quantity and quality that the Army could afford.

Realistic and affordable facilities strategy also needs to be developed. Program optimization within available resources could lead to re-evaluation of the strategy.

To complete the analysis of the effects of the program on force readiness indicators, the relationships between the infrastructure and force readiness must be identified, modeled in a simulation tool, and tested. With this in place, the impact of facilities programs and resourcing levels on force readiness can be assessed.

5 PROGRAM MANAGEMENT

5.1 Responsibilities

ACSIM -- The ACSIM will remain responsible for developing installation programs. They will retain responsibility and approval authority over the processes used to generate requirements and assess program capabilities to meet mission requirements.

MACOM -- MACOMs will gain a more active role in the programming process, primarily as responsible agents for the data used in the process, and as members on a configuration control board to advise the ACSIM on the requirements generation and program assessment processes.

5.2 Configuration Management

5.2.1 Configuration Control Board

The ACSIM should establish a configuration control board (CCB) for the installation programs development processes they control (requirements generation and program assessment). The purpose of the CCB should be to continually assess the installation programming process and advise the ACSIM on changes.

5.2.1.1 Composition of the CCB

The composition of this board should be the resource managers of each major command, regular Installations PEG members, and the ACSIM RIO and Operations Division staffs. The ACSIM or a person designated by him shall chair the CCB.

5.2.1.2 CCB Meetings

The CCB should meet annually after each POM cycle to assess the programming process (not data or priorities), and provide recommendations to the ACSIM on changes necessary to improve the processes or defensibility of the installations program.

5.2.2 Technical Configuration Board

The ACSIM should establish a technical control board (TCB) for the installation programs development processes they control. The purpose of the TCB should be to evaluate technical and cost issues related to implementing the recommendations of the CCB, tracking technical issues throughout the program cycle, and advising the ACSIM on the best process implementation path.

5.2.2.1 Composition of the TCB

The TCB should be comprised of members of the ACSIM RIO and Operations Division staffs, and other members of the Army staff who manage the headquarters level data used in the installations programming process. The Chief of the Resource Integration Office should chair the TCB.

5.2.2.2 TCB Meetings

The TCB should meet prior to the annual meeting of the CCB to prioritize technical and cost issues of interest to the CCB. The TCB should meet as necessary before and during the program cycle to identify, research, and prioritize process issues that arise, keeping the ACSIM informed as necessary.

6 TRANSITION PLAN

The transition plan is broken into two main parts: the recommended process changes, and the implementation timeline. The first part has detailed descriptions of what the recommended changes are, how the change will impact on the programming process, and the status of the change (if known). The implementation timeline proposes a schedule and sequence for implementing these recommended changes.

6.1 Recommended Process Changes/Tasks

6.1.1 Base Operating Support Programs

Develop Quality-to-Cost functions from SSC for base services

On hold. This involves identifying the relationships between quality and cost from ISR (forthcoming) and SBC data. The result will be the cost factors and functions to be used in the AIM-HI requirements generation process. While some preliminary work has been done, full development of the cost factors relies on ISR Part III quality data that is not yet available. Given testing of ISR quality metrics in FY 1998 and a full data collection in FY 1999, SSC cost factors and functions should be available for most services by FY 2000 for the 02-07 POM build.

Develop base operations requirements at installation level, then roll-up

Not yet started. This involves using the SSC cost factors and functions developed above, with quantity requirements from SBC to generate a BASOPS program requirement at installation level. While it make take up to five years to collect sufficient data to generate installation specific SSC cost factors and functions, MACOM specific functions can be generated with SBC data and the first complete set of ISR Part III quality data. Installation specific requirements can be generated using the MACOM level cost factors and functions by applying the cost functions to the installation specific service quantity levels. The future requirement generation process should allow various quantity and quality levels to be "dialed," generating requirement levels for the desired quantity and quality levels. The process could also allow for entering costs (program funding levels) and allowing the quantity or quality to

"float," providing the ability to rapidly assess the impact in terms of service delivery to various funding profiles.

Identify and link other quantity data sources to SBC

Started -- expected to be complete by FY 1999. This involves identifying data elements in existing operational level systems that contain quantity data that drive costs, mapping this data to SBC data elements, and establishing the appropriate queries and reports to automatically feed the SBC database from these sources. Alternate data sources have been identified in several functional areas, but the linkages have not yet been made because accounting data still requires the installation to spread the costs across the services (this will correct itself when the new accounting structure is implemented in FY 1999).

Establish an automatic feed of 218 data into SBC

Interim fix in place -- expected completion by FY 2000. This involves mapping the accounting structure to the service structure, and using this mapping, populating the cost data in SBC directly from DFAS accounting data. Such a crosswalk is currently in place. The new accounting structure will replace this crosswalk with the FY 1999 data collection in FY 2000.

Develop continuous or near-continuous quality criteria (ACSIM)

Started. This involves identifying objective quality metrics that drive cost. Where subjective metrics (such as customer ratings) are needed, ensure a large sample size of data is available on which to base cost factor development.

6.1.2 Facilities Programs

Develop facility component improvement cost factors

To be started. This involves developing new cost factors. These new cost factors are needed at the facility component level (aligned with the ISR inspection criteria) to develop the cost of improving facility component deficiencies identified during ISR inspections. Data from R.S. Means and other industry and government cost estimating sources could be used in developing these factors. Improvement cost factors keyed to individual ISR facility inspection criteria are essential to improving the defensibility of the improvement requirement.

Develop facility requirements at installation level, then roll-up to MACOM level

Ongoing -- expected to be in place for 00-05 POM build (FY 1998). This involves calculating the facility sustainment requirement (later add the facility improvement requirement) at installation level by facility category group, then summing the requirements by MACOM to develop MACOM requirements. It eliminates several steps in the old process used to roll-up the cost factors and programming inventory. This will improve the ability to analyze components of the facilities program, improve the clarity and defensibility of the requirement.

Develop an integrated facilities strategy

Not yet started. This involves integrating the developed facility requirements, and identifying long term goals for facility condition, revitalization, and leasing. The integrated program should drive toward the optimum requirement level. A programmatic path (funding levels, priorities) needs to be established to achieve the goals.

6.1.3 Program Assessment

Identify links from resources thru quality to force readiness

Not yet started. This involves capitalizing on the relationships between quality and cost from SSC and ongoing work by the Army Reserve and National Guard in linking costs and quality to force readiness indicators, and developing an Army wide model for showing the impact and unintended consequences of base resource levels on force readiness. This, with AIM-HI as the requirements generator, will form the cornerstone of a automated program assessment capability for the Installations PEG.

6.2 Timeline and Phasing

A proposed timeline showing the phasing and sequence of the tasks and events described above are on the foldout insert (next page).

CONCLUSION

The proposed methodologies call for a fundamental shift in programming philosophy from an input oriented to an output and outcome oriented approach. The ideal programming processes use output (quantity) and outcome (quality) metrics to derive program requirements and assess the impacts of resource constraints on installations programs.

Three tools are critical to achieving the ideal programming process for services: Service Based Costing (SBC), the Installation Status Report (ISR), and Standard Service Costing (SSC). SSC will combine cost and quantity data from SBC with quality data from the ISR to generate the cost factors and functions. These are necessary to not only derive the full program requirements to deliver a standard quality of service, but also to allow analysts to rapidly assess the impacts of resource constraints on the affordable levels of service quality and quantity.

Many of the enabling tasks are underway towards achieving the ideal programming process. Under current development and testing timelines, SSC cost factors and functions should be available to be used in developing the 02-07 POM (in FY 2000). While the SSC cost factors will only be to the MACOM level at that point, sufficient data should exist within five years of the first full ISR Part III data collection to develop installation specific SSC cost factors.

Several other tasks have yet to be undertaken. The most significant of these are identifying the linkages between installations programs and force readiness and developing an integrated facilities strategy for the Army. Combined with SSC, these two tasks will allow the installation commanders, MACOMs, and HQDA to more effectively manage installation program costs to drive efficiencies for superior performance.

In addition, and possibly of equal importance, the information generated by the proposed tools and tasks will permit Army leaders to more effectively communicate their installations programs requirements and the consequences of failing to meet these requirements. This information may increase the Army's effectiveness in competing for Defense and Federal dollars with OSD and Congress

APPENDICES

Appendix A -- Acronyms

ABC	Activity Based Costing
ABO	Army Budget Office
ACE	Assistant Chief of Engineers
ACSIM	Assistant Chief of Staff for Installation Management
AFH	Army Family Housing
AFHC	Army Family Housing Construction
AFHO	Army Family Housing Operations

DCSLOG	Deputy Chief of Staff for Logistics
DCSOPS	Deputy Chief of Staff for Operations
DCSPER	Deputy Chief of Staff for Personnel
DERA	Defense Environmental Restoration Account
DFAS	Defense Finance and Accounting Service
DFAS-IN	Defense Finance and Accounting Service – Indiana
DISC4	Director of Information Systems for Command, Control, Communications, and Computers
DoD	Department of Defense
DPAE	Director of Program Analysis and Evaluation
EIS	Executive Information System
EPR	Environmental Programs Requirements
EPRS	Environmental Programs Reporting System
FCG	Facility Category Group
FHD	Facilities and Housing Directorate, OACSIM
FORSCOM	U.S. Forces Command
FY	Fiscal Year
GOSC	General Officer Steering Committee
HQDA	Headquarters, Department of the Army
HQIFS	Headquarters Integrated Facilities System
HQRPLANS	Headquarters Real Property Planning and Analysis System
II PEG	Installations Program Evaluation Group
ISR	Installation Status Report
M&R	Maintenance and Repair
MACOM	Major Command
MDEP	Management Decision Package
MilCon	Military Construction
MIS	Management Information System
MRPM	Maintenance Resource Predictive Model
NAF	Non-Appropriated Fund

NGB	National Guard Bureau
OACSIM	Office of the Assistant Chief of Staff for Installation Management
OCAR	Office of the Chief of Army Reserves
OCONUS	Outside the Continental United States
ODISC4	Office of the Director of Information Systems for Command, Control, Communications, and Computers
OMA	Operations and Maintenance, Army
OMAR	Operations and Maintenance, Army Reserve
OMNG	Operations and Maintenance, National Guard
OSD	Office of the Secretary of Defense
P^3	Program Prioritization Profile
PAE	Program Analysis and Evaluation
PE	Program Element
PEG	Program Evaluation Group
POM	Program Objective Memorandum
PPBES	Programming, Planning, Budgeting, and Evaluation System
PRB	Project Review Board
PROBE	Program Budget Execution (system) [Bill M --???]
PRV	Plant Replacement Value
QOL	Quality of Life
RDTE	Research, Development, Test, and Evaluation
RDTE	Research, Development, Test, and Evaluation
RIO	Resource Integration Office, OACSIM
RPLANS	Real Property Planning and Analysis System
RPM	Real Property Maintenance
RPMA	Real Property Maintenance Activities
SBC	Service Based Costing
SIOH	Supervision, Inspection, and Overhead
SSC	Standard Service Costing

TABS	Total Army Basing Study
TAP	The Army Plan
TCB	Technical Control Board
TDAC	Technical Data Activity Code
TOA	Total Obligational Authority [Bill M – Is this right?]
UOM or U/M	Unit of Measure
URR	Unconstrained Requirements Report
USACE	U.S. Army Corps of Engineers
USACEAC	U.S. Army Cost and Economic Analysis Center
USAREUR	United States Army, Europe
USR	Unit Status Report
VHA/OHA	Variable Housing Allowance/Overseas Housing Allowance

Appendix B -- Definitions

Army Management Structure Code: The nine digit code used to uniquely specify identified Army programs in PPBES. The first six digits are associated with a unique OSD program element.

Base Operating Support: The services provided by garrisons and resourced as BASOPS (AMSCOs ****53, ****54, ****56, ****76, ****78, ****79, ****96), Base Communication (AMSCO ****95), Audio Visual Services (AMSCO ****90), and Family Programs (AMSCOs ***719 and ***720). See Appendix C for a detailed description of these programs.

BASOPS: Base Operations includes the resources used to provide goods, facilities, services and environmental programs at Army installations. And identified by AMSCOs ****53, ****54, ****56, ****76, ****78, ****79, and ****96. See Appendix C for a detailed description of these programs.

BASOPS(-): Specific goods and services resourced under AMSCO ****96. See Appendix C for a detailed description of these programs.

Business Occupancy Program: The Army's Business Occupancy Program (BOP) was developed beginning in 1994 as one in a range of solutions to the problem of the "downward spiral" in the condition of Army housing. Under BOP, installations earn funding equal to the BAQ plus VHA/OHA of the primary sponsor occupying quarters. Before BOP, installation housing funding was based on the size of the inventory. BOP uses Army dollars that would otherwise be paid out in housing entitlements to help fix the shortfall in maintenance and repair of units in the inventory. BOP provides the incentive for installations to get rid of unnecessary inventory as earnings are generated only from occupied quarters. Excess inventory lowers occupancy rates and is a drag on earnings. Occupancy has become a key indicator for housing managers, installation commanders, and other decision makers at MACOMs and above. It provides a tool for installation and MACOM commanders to efficiently monitor the operation of their housing. Installations have a predictable source of funding through BOP and the incentive to maximize earnings by maximizing occupancy. This provides a business-like basis for housing managers to plan and execute projects and to generate funding based on performance. Installation housing offices generate BOP reports each month, mostly through automated systems. The reports are loaded onto a central Army computer and funding data is provided to HQDA on a quarterly basis.

Caretaker Status Factor: The factor, normally a fraction less than one, that is applied to

resourced under AMSCO ****56. See Appendix C for a detailed description of these programs. Also includes Environmental Restoration (see definition below).

Environmental Restoration: Cleanup of contamination resulting from past practices, on Army installations and Formerly Used Defense Sites, and related costs paid from DERA. This program is directed at sites which meet the criteria of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as amended. It does not include cleanup of contamination resulting from current operations.

Family Housing: Consists of two appropriations, Army Family Housing Construction (AFHC) and Army Family Housing Operations (AFHO). See Appendix D for detailed program descriptions.

Family Programs: Child development and family center services and programs resourced under AMSCOs ***719 and ***720. See Appendix C for a detailed description of these programs.

Installation Status Report: The Installation Status Report is an annual report that captures the condition status of installations and installation programs. It is made of three parts. Under Part I (Infrastructure), installations report the condition of their facilities. Under Part II (Environment), installations report the status of their environmental programs. Under Part III (Services), which is under development, installations will report the condition of their installation services.

RPM: Real Property Maintenance identified by AMSCOs ****76 and ****78 and includes the letter accounts of .K and .L and resources real property maintenance, repair, and minor construction. See Appendix C for a detailed description of these programs.

RPMA: Real Property Maintenance Activities identified by AMSCOs ****76, ****78, and ****79 and includes the letter accounts of .J, K, .L, and M. In addition to RPM, RPMA includes utilities, and all other engineering services. See Appendix C for a detailed description of these programs.

TDAC: The Technical Data Activity Code is a six-digit identifier of a group a facilities that have common characteristics (usually use) for cost accounting purposes. The Army developed TDACs for the engineer community to allow them to better track costs associated with the maintenance, sustainment, and operation of facilities.

URR: The Unconstrained Requirements Report was an annual report submitted through the engineer chain from installation through MACOM to HQDA. The URR attempted to capture the full maintenance and sustainment requirement for facilities including the backlog of maintenance and repair (BMAR). The URR was replaced by Part I (Infrastructure) to the Installation Status Report.

Appendix C -- Taxonomy of Base Support Programs

As noted in Appendix B above, Base Support programs include the services provided by garrisons and resourced as BASOPS (AMSCOs ****53, ****54, ****56, ****76, ****78, ****79, ****96), Base Communication (AMSCO ****95), Audio Visual Services (AMSCO ****90), and Family Programs (AMSCOs ***719 and ***720). These programs are described in detail below. The descriptions are extracts from *DFAS-IN Manual 37-100-**, The Army Management Structure*, dated July 1996.

C-1 Audiovisual and Visual Information Production, Acquisition, and Support

Programmed under AMSCO ****90. Includes management, administration, and operation of installation, MACOM, headquarters and Joint Visual Information Service and activities. Visual Information provides services associated with production, acquisition, and support of visual images, permanently recorded or temporarily displayed, transmitted, or reproduced. This includes in-house or contract operation pertaining to still and motion picture photography, multimedia sound/aural, video without sound, graphic art, presentation facilities, radio and closed circuit television and broadcast (less Army Broadcast Service), cable television, videodisc, repair and maintenance of equipment, visual information library services, visual information recordholding facilities, combat and technical documentation and video teleconferencing terminals. Audiovisual services provides motion picture and video production with sound. Excludes graphic training aids; training device fabrication; stock; store, loan and accountability of training devices; and training device maintenance which are chargeable to the BASOPS "N" account. [The old BASOPS "V" account was rolled into the "N" account effective FY 1992.]

C-2 Base Communications

Programmed under AMSCOs ****95. Includes operation and maintenance of Army non-tactical, base (post, camp, and station) communications facilities and equipment systems which provide local communications for installations/activities worldwide. Includes GSA local and long distance (toll) service, cellular service, telecommunications centers (TCCs) and telephone switches in CONUS and OCONUS, and equipment only requirements. Excludes long haul communications requirements.

C-3 Base Operations

Base Operations, or BASOPS, refers to the resources involved with operating and maintaining Army installations (major, minor, stations, other). BASOPS accounts designate functions of an installation support nature such as administration; automation support; morale, welfare and recreation services; base services support; real estate leases; facility support services; maintenance and repair; minor construction; and environmental compliance. This structure applies to OMA, OMAR, OMNG, and RDTE. These accounts are identified as indirect

overhead by Headquarters, Department of the Army (HQDA). BASOPS is further subdivided into seven distinct program elements (PE) to conform with DoD guidance. These subdivisions are: Environmental Conservation (PE ****53); Pollution Prevention (PE ****54); Environmental Compliance (PE ****56); Minor Construction (RPM) (PE ****76); Maintenance and Repair (RPM) (PE ****78); Real Property Services (PE ****79); and BASOPS(-) (PE ****96). Each of these are described below:

C-3.1 Enviromental Conservation

Resource under AMSCO ****53. Environmental Conservation includes programs and activities designed to conserve and preserve natural and cultural resources on Army controlled property. Conservation includes requirements to comply with laws, regulations, executive orders, and policies governing natural and cultural resources. Applies to personnel, supplies, studies, plans, monitoring, testing, surveys, services, procurement and installation of systems and equipment, repairs, minor construction, design costs directly associated with accomplishing a designated project undertaking, and other associated costs specifically identifiable and measurable when the primary purpose is to exercise stewardship of natural and cultural resources. Includes activities necessary to comply with laws and regulations, such as National Historic Preservation Act, Archeological Resources Protection Act, Native American Graves Protection and Repatriation Act, Sikes Act, Endangered Species Act (ESA), Clean Water Act (non-point source provisions), Noxious Weed Control Act (aspects driven by natural resources management issues), Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), Executive Orders, AR 200-3 and AR 200-4, and other applicable state, local, and host nation standards. This includes installation-wide environmental planning, pre-requisites for ecosystem management and sustainment of biodiversity. Pre-requisites for ecosystem management and biodiversity sustainment include installation-wide surveys, mapping, classification, documentation, and monitoring of topographic features of surface water, soils, species and ecological units. Conservation excludes cost for Defense Environmental Restoration Account (DERA) and Base Closure Account (BCA) activities; Integrated Training Area Management (ITAM) except in BA4 and OMNG; and incidental conservation requirements associated with larger construction or equipment actions, unless specifically identifiable and measurable, routine pest management and routine grounds maintenance. (Minor construction limitations and project approval authority are same as for Real Property Maintenance activities.)

C-3.2 Pollution Prevention

Resourced under AMSCO ****54. Includes costs required to correct deficiencies and comply with pollution oriented compliance requirements, regulations, executive orders, and policies. Includes costs of personnel, supplies, studies, plans, monitoring, testing; surveys, services, procurement and installation of systems and equipment, repairs, minor construction, design costs directly associated with accomplishing a

designated project undertaking, and other associated costs specifically identifiable and measurable when the primary purpose is to prevent pollution. Pollution prevention cost includes, but is not limited to compliance with: Clean Air Act Amendments of 1990 requiring phaseout of ODCS; Emergency Planning and Community Right to Know Act and Executive Orders 12856 and 12873, and other applicable Federal, state, local or host nation pollution oriented compliance requirements. Pollution prevention costs cover production processes, management practices, or acquisition of materials/products, and consist of all related actions (including project identification, design, procurement or modification/change of material, and installation). Includes cost of actions aimed specifically at reducing the amount of toxic substances used either as input to production processes or as part or all of a finished product. Includes design and implementation of material or waste tracking systems. Pollution prevention excludes Defense Environmental Restoration Account (DERA) or Base Closure Account (BCA) requirements, and incidental pollution oriented compliance requirements associated with larger construction or equipment actions, unless specifically identifiable and measurable. (Minor construction limitations and project approval authority are same as for Real Property Maintenance activities.)

C-3.3 Environmental Compliance

Resourced under AMSCO ****56. Includes cost of projects and activities implemented to correct deficiencies and achieve compliance with current or new Federal, state, local, host nation or Final Governing Standards for environmental quality and management. Includes administrative costs, procurement and installation of systems and equipment; repairs; minor construction; design costs directly associated with accomplishing a designated project undertaking; building demolition if compliance driven or if 50% or more of the total cost is applicable to environmental compliance; and other associated costs specifically identifiable and measurable when the primary purpose is to comply with environmental laws and regulations or Final Governing standards (OCONUS). Excludes: Defense Environmental Restoration Account (DERA) or Base Closure Account (BCA) activities; routine, recurring costs for in-house or contracted utility operations and maintenance (e.g., sewage and water treatment, solid waste collection and disposal, heating plant operations); repairs or minor construction not required to ensure compliance with an environmental standard; incidental environmental requirements associated with larger construction or equipment actions, unless specifically identifiable and measurable. (Minor construction limitations and project approval authority are same as for Real Property Maintenance activities.) Also excludes Army Management Headquarters Activities (AMHA) and utility plant personnel costs; NEPA Environmental Impact Statements/Assessments (EIS/EA) and Preliminary Assessment Screenings (PAS) when the requiring activity is other than the DEH/DPW (or NGB-ARE/AEN for ARNG); and costs for conservation and pollution prevention (****53 and ****54).

Environmental compliance requirements consists of the following classes:

Class I requirements are those necessary to: (1) support compliance with legally binding agreements or judgments under applicable Federal, State, local, or host nation environmental law; (2) correct deficiencies cited in an inspection or notice of violation by a regulatory agency, or host nation equivalent; (3) correct deficiencies where a statutory or regulatory deadline has passed; (4) execute Class II requirements which will become Class I by end of the year for which budget estimates are formulated.

Class II requirements include projects or actions needed at facilities which are not yet out of compliance, but will be if not implemented prior to certain deadlines in the future.

Class III requirements are those projects or actions needed for facilities or operations which meet current standards but need replacement or expansion to avoid obsolescence or going out of compliance. These could also be projects or actions which demonstrate leadership and others which are not covered under Class I or Class II definitions. For example, most hazardous waste minimization projects are Class III, but funded high priority to reduce future costs and risks.

C-3.4 Minor Construction:

L Account -- Resourced under AMSCO ****76. Includes erection, installation, or assembly of a new real property facility; the addition, expansion, extension, alteration, conversion, or replacement of an existing real property facility; or the relocation of a real property facility from one installation to another. Includes design costs directly associated with accomplishing a designated project undertaking; construction costs for opening new sanitary landfills; and equipment depreciation costs (non financed). Excludes the costs of minor construction projects financed by military construction funds. Statutory limitation on use of O&M funds for construction (less than $500,000) applies.

C-3.5 Maintenance and Repair of Real Property

K Account -- Resourced under AMSCO ****78. Includes applicable expenses incurred by building trades shops, construction units, grounds and pavements units, machine shops, quarries, construction equipment units, solar systems maintenance. Includes design costs directly associated with accomplishing a designated project undertaking. Includes supplies for maintenance and repair, and supply personnel. Excludes cost of minor construction. Costs will be maintained for individual projects as required for complying with statutory and administrative limitations.

C-3.6 Real Property Services

Resourced under AMSCO ****79. Includes operating, maintaining, and providing the installation support services related to real property. This account is broken into two areas: utilities and municipal (real property) services.

J Account -- **Operation of Utilities**: Procurement or production and distribution of utilities except communications. Includes expenses for purchased electrical energy; operation of electric generating plants and distribution systems; purchased steam and hot water; operation of heating plants and distribution systems, including fuels; purchased water; operation of water plants and systems and sewage and waste systems; operation of air-conditioning and refrigeration plants; other purchased utilities and related administration. Does not include utilities for family housing.

M Account -- **Municipal services** as related to real property, including fire protection, custodial services, pest control, refuse collection and disposal, snow and ice removal, street sweeping and demolition of real property. Includes rental of real property when not otherwise identified, and public works management and engineering not otherwise identifiable.

C-3.7 Base Operations (-)

Resourced under AMSCO ****96. Includes most installations services not related to real property. These are detailed below by BASOPS letter account. Appendix XXX shows the crosswalk from the old to the new BASOPS accounting structure that will become effective in FY 1999.

A Account – **Real Estate Leases**: All costs of DoD recruiting real estate leases, GSA and non-GSA. All costs for MEPCOM and all other GSA and non-GSA managed leased real estate (rent and reimbursable charges).

B Account – **Installation Supply Activities**: Operation of consolidated post supply functions. Includes operation of clothing initial issue points and central issue facilities. Provides interface with the wholesale system. Operations include, but are not limited to: inventory control, processing requisitions, reconciling open requisitions, customer assistance, control of retail outlets including POL resale points (excludes actual cost of POL) and the purchase of operating supplies and equipment. It also includes receiving, storing and issuing operating supplies and equipment (excluding: DPW supplies and equipment where the DPW account is not consolidated with supply operations) used by CONUS/OCONUS installations and activities. Includes self-service supply centers and the care and preservation of material performed by installation maintenance. Includes support type expenses incurred in connection with the sale of gasoline and oil for use in privately owned vehicles. It also includes reimbursement to installation maintenance for repair or overhaul of supplies and equipment to be placed in stock. Such equipment will include, but not be limited to,

items cannibalized, items found on post, and items received from other installations. Excludes storage and maintenance of unit MTOE equipment which is properly chargeable to unit mission O&M accounts.

C Account – Direct and General Support (DS/GS) of Non-Tactical Equipment: Includes DS/GS maintenance of installation non-tactical equipment. This includes other Federal agencies and TOE maintenance units which are assigned in place of installation/satellite maintenance support activity (SMSA) and are in direct support/augmentation of an installation SMSA. Charges to this code include: pre- and post-repair inspection; classification of equipment; custodial and janitorial services relating to the installation or satellite support maintenance activity; and procurement of equipment and fabrication of parts, tools and equipment. All costs incurred for DS/GS maintenance of non-tactical equipment will be charged to the appropriate commodity group in the .C account and will not be charged to other base operations functional accounts (except ADP/office automation equipment chargeable to the appropriate .P account and DPW equipment chargeable to .M9). Excludes cost of maintenance (including repair parts) performed by TOE units, other than those described above, and contractual maintenance costs associated with TOE equipment.

D Account – Transportation Services: Operation of and, where specified, maintenance and provision of transportation equipment for local transportation support services. Includes contractual transportation equipment, such as contractual bus service, GSA leasing, other leasing, and other transportation expenses, such as local drayage, which are local in character. Excludes costs associated with transportation of MTOE units to training events/activities. These costs are properly chargeable to the unit O&M accounts.

E Account – Laundry and Dry Cleaning Services: Operating laundry and dry-cleaning plants and contracting for such services where Army-owned plants are not operated. Excludes costs of organizational clothing and equipment and MTOE CTA equipment. These are chargeable to unit O&M accounts.

F Account -- The Army Food Service Program: Operation and administration of food supply and food preparation facilities; i.e., garrison bread bakeries, dining facilities, central pastry kitchens, and ration processing and distribution points. Includes cost of operation of milk plants in overseas areas and reimbursement for the surcharge collection of meals served to officer personnel and civilians in field and garrison ration dining facilities. Excludes costs of Army Field Feeding System associated with MTOE units and chargeable to unit O&M accounts.

G Account – Personnel Support: Appropriate support to military and civilian personnel including such services as information, other personnel support, the alcohol and drug abuse program, and re enlistment activities.

Civilian personnel management and administration to include: processing civilian personnel actions; conducting internal evaluation of civilian personnel actions; employee benefits programs, civilian personnel records, files, data collection/automated management information systems; developing and revising staffing/merit placement plans; establishing and implementing installation recruitment and placement policy; performing actions to fill vacancies and to effect civilian personnel placements; administering civilian career programs; exercising delegated examining authority; planning and accomplishing reductions in force, reorganizations and transfers of function; performing and evaluating the impact of individual position management actions; conducting position and pay management surveys; participating in local wage surveys; making determinations on environmental pay and work allowances; developing and administering training programs: administering local labor/management relations programs and disciplinary, adverse action, grievance and appeal process; fostering employee management communication/relations; advising and counseling employees, managers and supervisors on employment/personnel management problems and practices; coordinating civilian personnel office activities related to EEO programs; conducting evaluation of total local civilian personnel management program; preparing civilian personnel reports; and processing civilian retirements - separations.

Military, family members and retired military, personnel management and administration to include: in and out processing of personnel records, maintenance of personnel records, personnel management procedures and implementation of personnel policies; provision of records and reports; developing and maintaining strength data; processing personnel requests and actions; and provides local commander with overall personnel management support.

Operation, administration, and maintenance of station bands and Continental Army band. Includes purchase of non-expendable, professional-quality musical instruments and band equipment; band uniforms and accouterments; sheet music, band compositions and arrangements, instrumental method books, and allied materials associated with maintenance of a band library; and expendable supplies for operation and maintenance of band instruments, equipment, and uniforms. Procurement of heraldic regalia, to include emblazoned drums, mace, baldric, and tabards to display the honors of the unit/command; and commercial, nonstandard professional-quality audio system equipment and public address/sound reinforcement components to complement unit training and performance. Includes costs for bandmaster and enlisted band leader attendance at civilian music workshops/seminars/clinics, and annual Army Bandmaster Training Conference. Travel costs, per diem, and related expenses for band travel in support of community relations, Army recruiting, or designated military events.

H Account – Unaccompanied Personnel Housing Operation, Administration, and Furnishings: Operation and administration of unaccompanied personnel housing and the purchase, control, moving, and handling of unaccompanied personnel housing furnishings. Categories of unaccompanied personnel housing include: unaccompanied

officer personnel quarters, unaccompanied enlisted personnel quarters (troop barracks and BEQ), unaccompanied civilian personnel dormitories, unaccompanied visitor personnel quarters, and those unaccompanied personnel guest houses financed by OMA. Excludes reception stations, processing centers, disciplinary barracks, and confinement facilities. Includes reimbursements from FHMA for services furnished and the operation of unaccompanied personnel housing to include personnel. Rental costs, administration and operation costs of unaccompanied personnel housing leased by the Government from private owners, Federal Housing Administration (FHA) or Veteran Administration (VA), and designated as public quarters.

N Account – Command Element, Special Staff, HQ Commandant: The Command Element activities include commanding all Army units assigned or attached to the installation. The Army Garrison Commander activities include commanding all organizations assigned or attached to it. Normally performs the activities of the Installation Chief of Staff; as such, coordinates for the Installation Commander, the activities of the installation's special and personal staff officers and the activities of the installation's tenant organizations. HQ Commandant commands troops assigned to headquarters and other troop units. It includes supervision of activities, such as: administration, housing, dining facility, supply, training, military discipline, housekeeping, and welfare activities for personnel assigned to headquarters and other troop units assigned or attached which are less than company size. All costs associated with special garrison staff proponents. These proponents are the Inspector General, Staff Judge Advocate, Chaplain, Public Affairs, Equal Opportunity Activities, Internal Review and Audit Compliance Activities, Safety, Dependents Schools - CONUS, and Plans Training and Mobilization Activities. Provides for operation of Army Museums at installation level. Direct costs for all garrison matters pertaining to nuclear and chemical activities.

P Account – Automation Activities: Provides for the administration and operation of the office, Director/Chief of Information Management and for all base operations automation activities, to include office automation. No automation/office automation costs will be charged to any other Standard Installation Organization base operation account. Excludes costs of operations and maintenance of automation assigned to or primarily used by mission activities which should be chargeable to the appropriate mission ADP account.

Q Account – Reserve Component Support: Responsible for directly supporting Reserve Component and ROTC training on installations; such as individuals, units, or cadets in an IDT, AT, IRR, counterpart, IMA, exercise or conference status by coordinating training, billeting, supply, classroom, mess or other training needs as required. Provides coordination with all post staff agencies for on and off post support for local reserve units.

S Account -- Community and Morale Support Activities: Development, staffing, equipping, administering, operating, supervising and promoting recreation facilities and activities for library, physical, entertainment and community skill development activities. Includes Youth Development Programs.

T Account – Preservation of Order/Counterintelligence Operations: Police services at Army installations and other areas, when directed, to maintain order, enforce laws and regulations, control vehicular and pedestrian traffic; protect Government property, prevent and investigate crime, apprehend Army absentees, and correct military offenders. Also includes costs associated with security and counterintelligence activities.

U Account – Resource Management Operations: This account captures all resource management operations at the installation level. It includes program and budget administration, management analysis functions, and residual finance and accounting operations. Excludes finance and accounting functions which transfer to the Defense Finance and Accounting Service (DFAS).

W Account – Contracting Operations: Provides for the administration of the Office, Director of Contracting/Contracting Division and oversees contracting and purchasing execution and contracting and purchasing administration for the garrison commander. Includes, but not limited to, purchasing and contracting for supplies, services and construction for the installation and assigned customers; managing installation small business activities; administering activity career program manager for procurement; operating impress funds; performing contracting costs and price analysis; assisting with performance work statements; administering contracts and purchases; performing quality assurance; participating in advance acquisition planning; administering small and disadvantaged business programs, and administering labor surplus area acquisition and contract audit tracking programs.

Y Account – Records Management/Publications: All activities concerned with records management, records holding areas, mail distribution centers, print plants, and other printing and publications activities.

C-4 Child Development Services (CDS)

Resourced under AMSCO ***719. CDS includes center-based care, home based care, and supplemental programs and services. It funds management, administration, and care-giving staffs to provide developmental care and to minimize the risk of child abuse in Army child care settings. It also funds equipment, supplies, training, and TDY of appropriated fund personnel.

C-5 Family Centers (Army Community Services)

Resourced under AMSCO ***720. Includes manpower authorizations and costs peculiar and support equipment, necessary facilities and the associated costs specifically identified and measurable to the following: Army Community Services; Exceptional Family Members; Family Advocacy; Family Member Employment Program; Foster Care; Financial Planning/Consumer Affairs; and Outreach and Relocation.

Appendix D -- Family Housing

Family housing programs are resourced in two appropriations: Military Construction, Army Family Housing and Operations and Maintenance, Army Family Housing. The descriptions below are extracts from *DFAS-IN Manual 37-100-97, The Army Management Structure* dated July 1996.

D-1 Military Construction

Military Construction, Army Family Housing consists of four major parts:

- **New Construction:** (AMSCO 1*******) Erection, installation or assembly of new single or multifamily dwelling units; related land acquisition, excavation, filing, landscaping and other land improvements; initial outfitting of a dwelling unit with fixtures and other equipment which are either integral components or movable items of major equipment. The purpose of the construction may be for deficit reduction or replacement of existing housing. The construction of new nondwelling buildings directly associated with family units or a family housing area which primarily serve the family housing units; and community facilities which are integral to a family housing area and are available for use only by family housing area residents and their house guests. The construction of trailer courts, including roads, driveways, walks, utility systems, community and laundry buildings and facilities pertinent thereto. The cost of supervision, administration, inspection and engineering during construction. Excludes telephone and TV services, including exterior distribution systems and house services, but includes wall conduits, interior wiring and outlet plates to facilitate future installation of telephone and TV systems/equipment. The AMS code structure for individual projects begins with a "1", followed by the imbedded six digit project number, followed by a trailing zero (example: for project number 054321, AMS equals 10543210).

- **Acquisition of Housing:** (AMSCO 2*******) Acquisition of housing projects through purchase of the sponsor's equity, the acquistion of utility distribution systems and property associated with those units.

- **Planning and Design:** (AMSCO 3*******) Feasibility studies, planning and design of new construction and improvement construction of family housing facilities, including working drawings, specifications and estimates. Excludes construction programming authorized under 191100 and master planning authorized under BASOPS M account. Obligations under this account require identification by individual project.

- **Improvement Construction:** (AMSCO 6*******) Construction performed on existing family housing which improves the structure, installed equipment and ancillary support facilities. These projects include whole-neighborhood revitalization, alteration, addition, expansion, extension, upgrade, and minor construction. Includes construction projects for retrofitting of Army controlled family housing with energy systems and structures which make them more energy efficient. Projects must have a savings/investment ratio greater than one and amortize in ten years or less.

D-2 Operations and Maintenance

Operations and Maintenance, Army Family Housing is also divided into four major parts:

- **Operations:** (AMSCO 191***) Family housing operations including the housing referral offices; initial procurement, moving, handling, storage, maintenance, repair, and replacement of furnishings; utility services; services such as refuse collection and disposal, custodial services, entomology services, fire and police protection, municipal type services, and other miscellaneous expenses. Includes, as applicable, other administrative and support type services, such as work performed in the installation engineering office and the resource management office pertinent to the operation of family housing facilities; family housing

requirements surveys, preliminary family housing studies, and engineering construction plans made prior to OSD project approval; and inspection of the construction and administration of family housing rental guarantee projects.

- **Maintenance of Real Property Facilities:** (AMSCO 192***) Maintenance and repair of buildings, roads, driveways, walks, exterior and interior utility systems, and ground care; maintenance and repair of fixtures and equipment which are integral components of a housing unit; costs of acquisition of materials and equipment for use in the occupant self-help program. Includes costs of alterations and additions (incidental improvements). Includes all costs of ungraded employees performing maintenance functions.

- **Utilities:** (AMSCO 193***) Utilities consumed in family housing and supporting activities. Excludes the cost of maintenance and repair of utility systems. Utilities include: (1) electricity procured and/or generated for consumption within family housing, (2) gas fired (natural, manufactured, LPG, etc.) heating plants for the production of steam, hot water, hot air, and heat for cooking, (3) fuel oil fired heating plants for the production of steam, hot water, hot air, and heat, (4) water procured or provided for consumption in family housing (includes watering of yards), and (5) sewage disposal for family housing. Also includes, operation of heating plants not provided for above, and the cost of other utilities, such as steam and coal provided to family housing. Separately billed connection, facility, or other charges amortizing construction costs and not related to consumption or usage will be recorded in this account. Includes cost of operation of Government-owned TV antenna and distribution systems used exclusively for family housing and/or the procurement of such services from commercial sources. Excludes CATV (a commercial) service, which cannot be accomplished with appropriated funds. Also includes utility costs associated with operation of Military Housing Rental Guarantee Program, 10 USC 2836 (formerly Sec 802, Rental Guarantee Housing).

- **Leased Housing:** (AMSCO 194***) Operation, maintenance and repair, utilities, and lease costs of family housing leased from foreign governments, private owners, FHA, and VA that are designated as public quarters.

Appendix E -- System Descriptions

ACTS The Army Criteria Tracking System

The Army Criteria Tracking System (ACTS) was developed to provide facility planning criteria and category code guidance for Army Planners and Programmers. It is the Army's automated repository of space planning criteria. ACTS addresses the particular needs of Army planners by providing detailed space planning factors, algorithms and specific guidance on the use of category codes. (ACTS should not to be confused with the Design Criteria Information System (DCIS) which provides specific detailed design criteria information for design architects and engineers.)

ADDS Army DEIS (Defense Energy Information System) Data System

ADDS is an automated management system to collect and report energy consumption data for Army installations, Army Reserve, and National Guard. ADDS was added to the PAX system in October 1989. It is also used to reports energy use to DoD.

AIM-HI Army Installation Management - Headquarters Information

AIM-HI is the ACSIM's automated installations programs requirements generation tool.

ASIP Army Stationing and Installation Plan

The only consolidated source that shows the total authorized population for army installations. Based on the army's force structure, the data also includes derivative units (split away from their parents), student loads, and non-army tenants. ATRRS (The TRADOC enrollment system for schools) feeds it student load data, SAMAS (Structure and Manpower Allocation System) feeds it TOE/TDA decisions on Force Structure, and TAADS feeds it derivative TOE/TDA Force Structure data. Field feedback provides up-to-date changes. TOTA (Tenants Other Than Army) feeds it information on civilian contractors, other services, etc. DEERS feeds it retiree loads.

CAPCES Construction Appropriations Programming Control And Execution System

The Construction Appropriation, Programming, Control, and Execution System (CAPCES) supports the funds management and program formulation functions as related to the Military Construction Army (MCA), Army Family Housing (AFH) and Defense Medical Facilities Office (DMFO), Base Realignment and Closure (BCA), Production Based Support (PBS) construction programs. CAPCES enables HQDA, MACOMs and installations to program and track approximately 50,000 individual projects in the Army Construction Programs. It manages and controls projects through the planning, programming, budgeting, and execution phases (fiscally and electronically). CAPCES is the basis of system, processes and organizational performance analysis, providing historical information, trend analysis and projections. The system provides project and program status reports to Congress, OMB, OSD, DA, MACOM, installations and USACE FOA.

CAPPBAS Computer Aided Planning, Programming, and Budgeting Automated System

CAPPBAS is a module of the CAPCES system currently under design to provide automated methods for preparing, reviewing and approving the Future Year Program (FYP). FYP data is stored in the DD Form 1391 Processor and CAPCES, and CAPPBAS provides an interface between the two systems to facilitate the POM development.

CMICS Civilian Manpower Integrated Costing System

An automated tool sponsored by ASA(M&RA) for manpower, program, and budget managers to immediately assess the impact of changing the civilian manpower plan on funding or the impact of shifting funding to other resources on the civilian manpower plan. The system also provides linkage between the Structure and Manpower Allocation System (SAMAS), the CMORE DSS, and the Resource Formulation System (RFS).

CMORE DSS Civilian Manpower Obligations Resources Decision Support System

DAQS Data Analysis Query System

A tool sponsored by the ASA(FM&C) which provides financial analysts Army-wide with access to the latest program and budget data at HQDA. DAQS is accessed from the user's desktop through e mail.

DR-REAL Desktop Resource Real Property

A PC-based system that provides installations without IFS-M capabilities to an automated method of updating installation real property assets accounting.

DD FORM 1391 PROCESSOR:

The Automated DD Form 1391 Processor System assists Headquarters, Department of the Army, MACOMs, installations develop, submit, review, edit, prioritize and approve DD Forms 1391 Military Construction Project Data. Projects are developed at Army Installations, prioritized and submitted electronically in the processor to major subordinate commands and MACOMs for review, editing, prioritized and resubmitted electronically to arrive at the DA Program Manager level. USACE Districts and Divisions participate in the development/review process and electronically receive the 1391 documents as the description of projects to be designed. DD Forms 1391 are the principal statutory instruments for the Authorization and Appropriation of Military Construction. The President's budget to Congress for Military Construction is composed of these documents consolidated in the Army's Military Construction (MILCON) budget book or "Green Book." Once enacted into public law, they are the governing documents for construction control. The following are sub-systems of the processor:

DD Form 1391 Module

The DD Form 1391 Module was developed by the Construction Engineering Research Laboratory (CERL) in Champaign, Illinois. Since initial fielding in 1980, the system has undergone extensive modifications and enhancements.

The system currently accommodates projects for the following major programs: Military Construction, Army (MCA); Production Base Support (PBS); Army Family Housing (AFH); Non-Appropriated Funds (NAF); Maintenance and Repair (M&R); Commissary (COMM); Army and Air Force Exchange Service (AAFES); Medical Facilities (MED); the Defense Logistics Agency (DLA); Commercially-Financed Facilities (CFF); Base Closure, Army (BCA); (SOP) Special Operations Program; (S6S) Section 6 Schools; (MCON) Navy/USMC Military Construction; (SES) Shared Energy Savings; and (DFAS) Defense Finance and Accounting Service. Over 4000 forms are now maintained via the DD Form

- Controlled access to project being programmed by other activities for the sharing of information. With the approval of the creator of a DD Form 1391, a copy of the form may be electronically permitted to another user to "read."
- Multiple data retrieval procedures to generate listings of project information in many different formats. Additionally, all system users may access the directory of archived forms which represents DD Form 1391 projects which have been successful in the programming and planning process.

PC-ISCE is the personal computer (PC) version of the Information Systems Cost Estimate (ISCE) is a computer package created to assist users in developing the Information Systems Cost Estimate associated with all Military Construction programs. PC-ISCE includes the capability to upload/download files to/from the mainframe DD Form 1391 Processor System. This interface capability enables users to develop Information Systems Cost Estimates using the PC-ISCE package off-line and upload the data to the mainframe for transmission to a DD Form 1391.

PC-Print is a personal computer based print program which allows off-line printing from the DD Form 1391 processor.

DD Form 1390 Module

Provides automated assistance in preparation, review and printing of DD 1390 forms in accordance with AR 415-15, Military Construction, Army Program Development. The DD Form 1390 is used by the Department of Defense to submit to Congress a consolidation of the Military Construction Program in relation to personnel strengths, real property, real property improvements, and the installation mission and functions. Preparation and/or modification of DD Form 1390 is made with minimal effort since such of the supporting data is automatically extracted from other automated systems. The DD Form 1390 Module extracts information from the DD Form 1391 Processor System, the Construction Appropriations Programming Control and Execution System (CAPCES), the Headquarters, Integrated Facility System (HQIFS) and upon availability, the Army Stationing and Installations Plan (ASIP).

DEMOLISH

The DEMOLISH data base contains data pertaining to the inventory of structures committed for demolition in MCA project justification. Data reflecting authorized and appropriated construction is provided from the CAPCES system. Data from the 1391 Processor provides a listing of buildings offered for demolition in the projects. HQIFS provides information on demolition of existing structures. All are written to the DEMOLISH data base. The DEMOLISH Interface is designed to run on the PAX System host, IBM mainframe computer. The DEMOLISH data base, as well as the three source systems for updating are all resident on the host system. The interchange of data is accomplished through a series of COBOL programs. Data updates from the DD Form 1391 Processor's DD Form 1391 data base will be made periodically. Data updates from the HQIFS's HQA data base will be made quarterly. Data updates from CAPCES's PMMFILE will be made annually, as new

fiscal year programs pass into law. Testing and evaluation is continuing on the DEMOLISH Interface.

ENG Form 3086 Module

The US Army Corps of Engineers (USACE) uses the ENG Form 3086 to compile the Military Construction Project's current working estimate (CWE) for budget purposes. The automated ENG Form 3086 Module is an interactive computer program which assists the U.S. Army Corps of Engineers military construction district and division personnel in the preparation and submission of ENG Form 3086 form (one for each project). These forms directly support funding requests for Army Family Housing (AFH), Military Construction, Army (MCA), and other construction programs. The ENG Form 3086 cost data is automatically transferred to the DD Form 1391 for submission, approval, and authorization by Congress.

PC-3086 is a personal computer version of the mainframe ENG Form 3086 Module. This companion program is designed to be completely compatible with the PAX System and provides full-screen editing so that users may modify their ENG 3086 forms without accessing the mainframe. PC-3086 also provides the capability to download and upload forms to/from the mainframe ENG 3086 Module located in the DD Form 1391 Processor System.

PC-COST, currently under design, is a software package that will provide a tool for USACE cost engineers to prepare and submit budget estimates for construction projects. PC-Cost will allow estimators to create an estimate from an existing cost estimate, download a DD Form 1391 or ENG 3086 estimate for modification, or create a new estimate from a template. Once work is completed, the estimator will be able to upload the estimate into either an ENG 3086 form or a DD Form 1391 in the DD Form 1391 Processor System.

Budget Book Generation: This routine compiles and generates the “Green Book” for OSD and Congressional submission.

DIRNET The Directives Network System

DIRNET is the interface between the U.S. Army Corps of Engineers (USACE) and the USACE customers. The system operates in an interactive, real-time data entry mode. Its primary purpose is to electronically transmit design and construction directives to Major Subordinate Commands (MSC) of the USACE. The transmitted data also provides for management reporting. DIRNET is presently operating from an IBM mainframe running VM/ESA using PAX. The present system improvements will provide for micro preprocessing and micro post processing of much of the work presently being done on the mainframe. PC operations will be performed from a Windows environment and will provide increased economy, functionality, and a much improved graphical user interface (GUI).

ECONPACK Economic Analysis Package

Economic Analysis Package is an economic analysis program that performs life cycle cost comparisons on proposed MCA/AFH projects and alternatives. It provides installations and MACOM planners with an automated tool needed to properly use economics in decision

making. It is easy to use and saves time preparing manual calculations. It permits more

IFS-M Integrated Facilities System Mini/Micro

This STAMIS system encompasses the life-cycle management of the US Army's real property resources, and provides information on all aspects of facility engineering activities. It provides DPW divisions, branches, and shops with function information for their operational and reporting requirements. Business areas covered include real property accounting, work reception, job cost accounting and utility billing, work estimating, contract administration, supply management, and property book management. Also includes IFS-M Supply that automates inventory control and supply management at the installation.

ISR Installation Status Report

A Commander's macro-level decision support and reporting system that assesses installation infrastructure and environmental condition. It measures mission impact, and assists HDQA and MACOM Commanders in allocating resources, and assesses and prioritizing programs.

MDEP Profiles

An automated system which provided a graphical and descriptive analysis of the resourcing status for an MDEP. Sponsored by DPAE and used by the PEGs. This system is now part of the P^3 application.

MOBPRO Mobilization Programming

MOBPRO is another module in CAPCES which is used in case of mobilization. The MOBPRO module is a front-end subsystem of CAPCES used for developing, prioritizing, budgeting, directing, and managing MILCON programs during periods of national emergency (mobilization). The system is fully capable of simulation during mobilization exercises. Essentially, MOBPRO allows authorized users access to mobilization project data for edit and analysis.

PPP (P^3) Program Prioritization Profile Application

Used by DPAE, ABO, OCAR, NGB, and the PEGs to establish their program prioritization methodology. P^3 assists in determining the rule-sets based on mission priorities for the funding of their programs. The model employed provides multiple levels of analysis with the ability to update, create, and modify scenarios, capabilities, and constraints as necessary in an adhoc environment to analyze multiple scenarios and contingencies.

RMAT Real Property Management Tool

Under development. To provide installation level real property management, planning, and forecasting with an analysis of an installation's carrying capacity and a cost-effective investment strategy to support and accomplish mission requirements.

> **Note**: RMAT development has stopped and its functionality, where required, will be replaced by a series of COTS packages.

RPLANS Real Property Planning and Analysis Systems

An installation level master planning tool that helps planners and programmers calculate peacetime facility space allowances and compare them to available real property assets.

SAACONS Standard Army Automated Contracting System

Sufficient data is sent from IFS-M to create local purchase orders (a contract) for materials required by the DPW. IFS-M Supply receives in return a file containing update information on contracts (ordering, adding of an item to SAACONS Stock Catalog, and receipt information when the item is received) and vendors.

STANFINS Standard Army Finance System

IFS-M tracks labor, equipment rental and shop supply costs for all work performed by in-house DPW personnel. In STANFINS, the cost of work performed is obligated, accrued, expensed, and dispersed as a debit to the benefiting AMS account and as a debit to credit DPW labor, equipment, and supply suspense accounts.

STARFIARS Standard Army Financial Inventory & Reporting System

All transactions in IFS-M Supply that affect the dollar value of the Stock Fund General Ledger Account of the DPW are sent daily. The Stock Fund is a fixed amount of money drawn on to fund stocking materials in warehouses and is reimbursed by DPW customer when reimbursable work is done.

TAADS-R The Army Authorization Document System - Redesign

The Army's database of record containing authorization documents for Army organizations.

TDMRPM Tech Data and Maintenance Resources Predictive Model

Tech data is a report of the dollars spent on facilities maintenance at the installation by facility category group (a roll-up into 300 groups of the more than 800 facility category codes). The Maintenance Resources Predictive Model for predicts buildings maintenance costs using facilities assets from IFS-M.

Appendix F -- Current Derivation of Facility Sustainment Cost Factors

The U.S. Army Cost and Economic Analysis Center provides the cost factors used in determining facility sustainment requirements. These cost factors are provided for facilities at one of two levels of aggregation: Facility Category Group or Technical Data Activity Code level of detail. This appendix describes the derivation of these cost factors.

F-1 Facility Category Group Sustainment Cost Factors

The Facility Category Group (FCG) level sustainment cost factors used in determining the RPM sustainment requirement are identical to those used in the Installation Status Report (ISR) Part I – Infrastructure. Sustainment cost factors provided at the FCG level are expressed in dollars per unit of measure associated with each FCG.

a. Cost factors for those FCGs measured in square feet are based on the Maintenance Resource Predictive Model which provides 80 years of cost data for each FCG.[26] The model accounts for the costs required to maintain a facility at Army standards and include:

- Cyclic/Routine Maintenance, and
- Major Component Replacement.

Component replacement and repair models, to include commercial standards, such as those provided by R.S. Means, provide the component costs. Component costs from the model are aggregated across the 80 year model life span of a facility and averaged.

b. Where needed to support ISR, cost factors for FCGs measured in other than square feet are developed through regression analysis of the historical costs of maintaining the facilities. Costs are plotted against the quantity of supported facilities for as many years as data is available (currently ranges from one to ten). As additional years of data become

[26] This model covers about 69 percent of the inventory (by PRV) – $143 billion of the PRV is measured in square feet compared to $208 billion total PRV at the end FY 1997.

available, they are added to the regression analysis. No prior years' data points are discarded. A best-fit line driven through zero is derived. The slope of this line is the cost factor.

F-2 Technical Data Activity Sustainment Cost Factors

The Technical Data Activity (TDAC) level sustainment cost factors are developed through regression analysis of the historical costs of maintaining the facilities just as those cost factors for FCGs measured in other than square feet. Costs are plotted against the quantity of supported facilities for as many years as data is available (currently ranges from one to ten, depending on how long the FCG or FCG to TDAC alignment has been in existence). As additional years of data become available, they are added to the regression analysis. No prior years' data points are discarded. A best-fit line driven through zero is derived. The slope of this line is the cost factor.

Appendix G -- Current Derivation of the Programming and Excess Facility Inventory

The following sections describe how the on-hand and program inventories are adjusted to take into account these factors.

G-2 On-Hand Inventory

Baseline

The baseline for the On-Hand Inventory is the end-of-fiscal-year lock of the Army's Real Property Inventory (RPI) contained in the Headquarters version of the Integrated Facilities System (HQIFS). In the case of the 99-03 mini-POM (conducted in FY97), this baseline was the HQIFS lock of 30 September 1996.

All Army owned and permitted RPI is included except for Civil Works (Ownership codes 1, 3, 4, 5, and 7). Only federally owned National Guard Bureau (NGB) property is included.

Deductions

DoD funded installations and category codes are deducted from the analyzed inventory as follows:

- Defense Nuclear Agency
- U.S. Army Medical Command (except for Fort Sam Houston and Camp Bullis)
- National Security Agency
- SPTS
- Defense Logistics Agency
- Space and Strategic Defense Command
- Rocky Mountain Arsenal
- Medical FCGs (includes all category code 5xxxx series)
- Commissaries (category code 74021)
- Dependent Schools (category code 73046)

- Defense Logistics Agency outgrants per Army Materiel Command

Non-Army support activities inventory are deducted from the analysis by category code as follows:

74003 Audio-Photo Club

74051 Exchange Cafeteria

74050 Branch Exchange

74052 Exchange Auto Service Station

74053 Exchange Main Retail Store

74054 Exchange Maintenance Shop

74055 Exchange Warehouse

74056 Exchange Service Outlet

74058 Exchange Concession

74059 Exchange Car Wash

74062 Fast Food Snack Bar

74085 Private Organization Club

Base Closure adjustments: BRAC full and partial closure installations are deducted from the analyzed inventory as of the projected closure year. For partial closures, the percentage of the entire installation inventory to be closed is applied uniformly across all category codes except where specific guidance exists as to certain categories of the inventory. USAREUR and USARSO closures projected through the POM period are also deducted from the analyzed inventory. Non-BRAC closures are deducted from the analyzed inventory (currently, this list has only St. Louis Army Ammunition Plant (AMC) and Stewart Annex (USMA)).

Facility Reduction Program: Inventory coded as vacant and disposal, as well as FRP targets will be deducted from the inventory.

Additions

Projected new construction under the MilCon program is added to the analyzed inventory two years after identifying funding.

Dividing the Inventory by Appropriation

The adjusted baseline inventory is divided into appropriations (OMA, RDTE, PAA, AFH, and DBOF). The following two fund sources are also split out separately.

Reserve Components: The Reserve Components (RC) includes the National Guard Bureau (NBG) and U.S. Army Reserve Command (USARC) MACOMs (including Forts Pickett, McCoy, Hunter-Liggett, Camp Parks, and RC enclaves designated through BRAC 95), and all facilities under the following category codes:

17140 Army Reserve Center Building

17141 Armed Forces Reserve Center Building

17142 Army Reserve/National Guard Armory

17180 National Guard Armory

21407 National Guard Vehicle Maintenance Shop

21409 Army Reserve Vehicle Maintenance Shop

except for those facilities on Active Army installations, which will be included in the inventory of the host installations' MACOMs.

Non-Appropriated Fund: The Non-Appropriated Fund (NAF) portion of the inventory is made up of facilities under the following category codes:

74011 Bowling Center

74030 Golf Club House

74031 Golf Maintenance Facility

74032

74047 Enlisted Open Dining Facility

74048 Officer Open Dining Facility

74078 Thrift Shop

G-3 Programming Inventory

Definition – The Programming Inventory is that inventory for which real property operations, maintenance, and repair dollars are to be programmed.

Business Rules

All categories of facilities excluded from (or included in) the projected on-hand inventory are excluded from (or included in, respectively) the programming inventory.

For other than AFH, the programming inventory is equal to the lessor of the projected on-hand inventory, the calculated allowance or the ISR submitted requirement when less than the calculated allowance.

For AFH, the programming inventory is equal to the on-hand inventory.

Facility Allowances

Allowances are calculated at the FCG level using HQRPLANS for all installations (planning level) where the on-hand inventory is greater than 10,000 square feet and units are assigned, except for USAR Centers and National Guard Armories.

For installations not meeting these criteria, allowances are set equal to the on-hand inventory.

For USAR Centers and National Guard Armories, allowances are set equal to the on-hand inventory.

For FCG where HQRPLANS does not calculate an allowance, allowances are set equal to the on-hand inventory.

Appendix H -- New Army SBC/ISR Installation Service Definitions

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
a01	Organizational and Job Design	Consult management on all phases of basic compensation, position management, and organizational/job design to promote mission accomplishment within available resources, considering the labor market. Classify jobs and/or provide classification advisories.
a02	Filling Jobs	Advise and assist managers on labor market resources/recruitment programs which will provide high quality, skilled candidates to fill jobs in a timely manner. Attract, recruit, and place a quality work force.
a03	Employee Services	Advise and counsel employees on all aspects of Federal employment to include benefits, conditions of employment, employment process, and organizational expectations. Provide processing of support actions.
a04	Workforce Effectiveness	Advise on, develop, and sustain programs and services designed to cultivate a competent, motivated, and effective workforce. Foster internal and external partnerships between employee organizations and management.
a05	Workforce Transition	Advise and assist management officials on planning and implementing people aspects of reshaping the civilian work force to include: reductions, reorganization, and realignment. Perform associated processing functions.
a06	NAF Personnel Support	Provide civilian personnel administration and management support for NAF activities.
a07	*(Military)* Personnel Manning	Provide support for military personnel readiness, personnel accounting, replacement operations, and casualty operations to include: managing strength, including monitoring and analyzing strength accounting data; managing military career professional development, including classifications, assignments, utilization, and retention; collecting, reporting, recording, and reconciling of by-name and numerical personnel data; managing delivery of individual replacements, replacement center operations, and soldier readiness

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
		including line of duty investigation processing.
a08	*(Military)* Personnel Services	Provide support for military personnel information, systems management, systems support, personnel processing, and personnel actions to include: collecting, verifying, maintaining, and distributing personnel information including personnel records maintenance, pay administration, adverse information, physical readiness information, official photographs, and personnel selection boards; supporting SIDPERS operations including system administration operations of SIDPERS hardware, software, and communications, performing data base management, conducting sustainment training, and providing technical assistance; supporting interface exchanges of personnel data between external systems; supporting the needs and requirements of installation activities, command elements, units, soldiers, family members and retirees including arrival and departure installation processing activities, personnel reassignment processing, transition management activities such as transfers between Services and/or components, termination of affiliation with the military, discharge and retirement programs, and supporting personnel eligibility and identification document processing; sustaining and/or enhancing soldier professional career development including military awards, personnel evaluations, promotions, and personnel application processing.
a09	Substance Abuse	Administer installation alcohol and drug abuse programs. Conduct installation drug and alcohol abuse prevention activities. Provide for alcohol and drug abuse counseling.
a10	Army Community Services	Manage and provide a comprehensive array of family support programs to eligible personnel, including child and spouse abuse; personal financial management; exceptional family member; family member employment assistance; relocation; outreach; information, referral, and follow-up; and deployment assistance. Includes Army Emergency Relief.
a11	Child and Youth	Manage and provide center-based, home-based, and supplemental services to eligible children. Provide sports and fitness, leisure and recreation, life skill and mentoring, intervention and support services, homework center, computer lab, youth sponsorship, workforce preparation, and teen and preteen councils to eligible children and to youth grades K-12. Establish parent advisory group(s); serve special needs children.

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
a12	Fitness and Recreation	Manage and provide an array of fitness and recreation programs and services to eligible patrons (e.g., aquatic training, sports and athletics, libraries, outdoor recreation, arts and crafts, auto crafts, performing arts, entertainment, recreational swimming, and recreation). Manage and operate recreation center(s) and Better Opportunities for Single and Unaccompanied Soldiers (BOSS) Program.
a13	Business Operations	Manage and provide leisure programs to eligible patrons (e.g., bowling; golf; military clubs; theme restaurants and other food, beverage, and entertainment services; ITR/ITT offices; and other appropriate business operations). *Includes Nonappropriated Fund activities.*
a14	Continuing Education Services	Manage installation/community adult continuing education program (planning, assessing needs, programming, and implementing and evaluating command program). Provide on-duty education and training under the Functional Academic Skills Training (FAST) (workplace literacy), NCO Leader Development, English-as-a-Second Language, mission related language, and command sponsored programs. Create/manage multiuse learning environments incorporating distance education technologies (learning centers with materials that support Army Distance Learning Plan) to provide professional and source reference/learning materials for client self development. Provide education/career counseling services to include customer assistance and interviews to determine appropriate education goals/plans/ services/programs and to serve as a gateway for effective/efficient provision of individual services. Provide testing services to certify client skills and capabilities. Testing includes DANTES, CLEP, SAT, GRE, TABE, Army Personnel testing, and proctoring services. Conduct language testing (DLAB, DLPT) for formal certification of capabilities and skill levels. Provide off duty self development programs at high school and postsecondary levels (vocational/technical; undergraduate/graduate). Provide tuition assistance to assist soldiers complete high school, if necessary, and pursue postsecondary education goals.

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
a15	Communication Systems and System Support	Provide switch-based and wireless communications to facilities and/or activities of an installation, which are designated by the installation commander to be critical to accomplishing his mission. Provide the cable infrastructure, networks, and external network access necessary to deliver electronic information to, from, and among mission-critical facilities/activities. As required by the mission, provide information technology for the operation of battle field simulation centers and distance learning centers.
a16	Visual Information Systems	Provide customers with visual information products and services to include: graphic art, photography, motion imagery, multimedia, audio, exhibits, training device fabrication, consultation, media/equipment/ training device loan/issue, broadcast, and presentation services.
a17	Document Management	Manage information from creation to final disposition according to federal laws and Army record keeping requirements. Provide or obtain forms, official publications, instructional materials, and printing services. Support formal files/records management programs. Archive official records, either hard copy or electronic. Operate installation mail and record/document distribution centers. Also includes the purchase, lease, maintenance and management of copiers.
a18	Information Systems Security	Provide necessary infrastructure and management services to protect information technology systems from unauthorized access and to protect the integrity of data within the system.
a19	Automation	Provide software and hardware components necessary to process and store data, as well as the management services needed to maintain them. Automation can exist with or without external communicators or networking (i.e., connected vs. stand-alone systems). It is distinctly different from communications, not a sub thereof. Provide STAMIS and LAN support.
a20	IT *(Information Technology)* Planning	Provide strategic planning for IT *(information technology)* investment, modernization, and introduction/integration of emerging technologies.
a21	Installation Security Program Management Support	Conduct counterintelligence support activities. Provide security training and security inspections. Administer foreign disclosure program and installation information and personnel security programs. Provide intelligence support to force protection**.**
a22	Force Protection	Develop a security program that protects soldiers, civilian employees, family members, facilities, and equipment through

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
		the planned integration of combating terrorism (AT/CT), physical security, information operations, personal security, and law enforcement operations with the synchronization of operations, intelligence, training and doctrine, policy, and resources.
a23	Ammunition Supply	Provide installation retail ammunition supply service (receipt, storage and issue) to customers. Includes QASAS support. Does not include Ammunition Supply Points operated by tactical units.
a24	Retail Supply	Provide installation retail supply services (receipt, storage and issue, requisition processing, and equipment turn-in) to customers.
a25	Central Issue Facility	Operate the Central Issue Facility providing organizational clothing and individual equipment (OCIE) supplies.
a26	Asset Management	Provide installation non-expendable property accountability and related asset sustainment actions. Includes preparation and maintenance of hand receipts, performance of CBS-X re-evaluation reconciliation process, maintenance of unit equipment documents, redistribution of excess property, and conduct of associated transaction process integrity and security.
a27	Materiel Support Maintenance	Coordinate all Active Army maintenance resources within the installation's geographic support area except those managed by USAISC, INSCOM, TSG, and MEDCOM. Also provide DS, GS, and AVIM level maintenance on a geographical area basis, maintain and issue the operational readiness float (when assigned this mission), operate a cannibalization point, provide maintenance technical assistance to supported units and activities, and provide maintenance of all materiel required to operate the installation.
a28	Transportation Services	Provide transportation management services relating to the commercial transportation of persons and things, including contracted services in connection therewith and customs inspections. Includes costs associated with GSA-owned and leased non-tactical vehicles. Includes local storage and movement of HHG. Training, evaluating, testing, and issuing licenses to drivers and equipment operators is also included.
a29	Food Services/TISA	Provide installation dining facilities services. Includes operation and administration of installation food supply and food preparation facilities. Includes the TISA operations. Does not include dollar value of food or costs of Army Field Feeding System associated with MTOE units.

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
a30	Laundry & Dry Cleaning Services	Provide or obtain laundry and dry-cleaning services.
a31	Bldg. *(Facilities)* Maint. - Training & Ops	Provide maintenance and repair of all installation training and operations facilities. Includes all Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a32	Bldg. *(Facilities)* Maint. - Maint. & Production	Provide maintenance and repair of all installation maintenance and production facilities. Includes all Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a33	Bldg. *(Facilities)* Maint. - RDT&E	Provide maintenance and repair of all installation research, development, testing, and evaluation facilities. Includes Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of the facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a34	Bldg. *(Facilities)* Maint. - Supply	Provide maintenance and repair of all installation supply facilities. Includes all Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a35	Bldg. *(Facilities)* Maint. - Administration	Provide maintenance and repair of all installation administrative facilities. Includes all Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a36	Bldg. *(Facilities)* Maint. - AFH	Provide maintenance and repair of all installation Army Family Housing facilities. Includes all Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
		infrastructure (utility service components, roads, grounds) and environmental protection services.
a37	Bldg. *(Facilities)* Maint. - UPH	Provide maintenance and repair of all installation unaccompanied personnel housing facilities. Includes Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a38	Bldg. *(Facilities)* Maint. - Community	Provide maintenance and repair of all installation community activity facilities. Includes Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a39	Bldg. *(Facilities)* Maint. - Medical/Hospital	Provide maintenance and repair of all installation hospital and medical facilities. Includes Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a40	Maint. - Improved Grounds	Provide grounds maintenance activities including mowing, trimming, raking, seeding/sodding, and related landscaping activities. Does not include management of timber or agricultural leases.
a41	Maint. - Unimproved Grounds	Provide the upkeep of all grounds areas of the installation that are not classified as improved grounds.
a42	Bldg. *(Facilities)* Maint. - Other	Provide maintenance and repair of all installation facilities not otherwise categorized. Includes Standing Operating Orders (SOO), Individual Job Orders (IJO), Service Orders (SO), and Preventive Maintenance (PM) work performed inside or within five feet of a facility. Excludes facility infrastructure (utility service components, roads, grounds) and environmental protection services.
a43	Maint. - Surfaced Area	Provide maintenance and repair of installation roads, bridges, and other surfaced areas. Includes paving, pothole/crack repair, bridge maintenance and inspection, sealing, painting, and other related activities. Does not include snow/sand removal and subsequent treatment.
a44	Heating/Cooling Services	Provide Heating/Cooling services throughout the installation

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
		including housing. Includes installation maintenance and repair of distribution system and the cost of producing or purchasing Heating/Cooling services.
a45	Water Services	Provide Water service throughout the installation including housing. Includes installation, maintenance and repair of distribution system and the cost of producing or purchasing water.
a46	Waste Water Services	Provide waste water service throughout the installation including housing. Includes installation, maintenance and repair of distribution system and the cost of processing or disposing of waste water.
a47	Electrical Services	Provide electric service throughout the installation including housing. Includes installation, maintenance and repair of distribution system and the cost of producing or purchasing electricity.
a48	Other Utility Services	Provide other utility services to the installation including housing not specified as a specific utility.
a49	Maint. - Railroad	Provide maintenance and repair of all railroad infrastructure, including track, trestles, and associated structures. Does not include operation and maintenance of rolling stock.
a50	Family Housing Management	Manage installation utilization policies and programs to cover general officer and family housing facilities. Includes development of assignment procedures to maximize use of family housing facilities, to include leased housing, and implementation of internal control procedures. Provide housing referral services.
a51	Transient Housing Management	Operate installation transient housing facilities. Includes development and management of procedures for taking reservations, check-in and check-out. Also includes all aspects of Guest Support and Housekeeping functions.
a52	UPH Management	Manage installation utilization policies and programs to cover BOQs and SBEQs. Includes development of assignment procedures to maximize use of BOQs and SBEQs, and implementation of internal control procedures. Also includes

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
a54	Master Planning	Integrate and analyze the installation plan for managing and developing the installation's real property and facility requirements. Includes all reporting, briefings, etc., performed in association with master plan development. Establish and maintain the master plan, land use plan, and mobilization plan. Insure liaison with the local community. Establish and maintain an installation design guide. Insure that an environmental assessment of the master plan is established and maintained. Establish the use of supporting automated master planning tools.
a55	Real Estate/Real Property Administration	Administer Army real estate. Ensure real property accountability. Maintain real estate instruments. Provide construction administration services for installation projects.
a56	Real Estate Leases	Lease space as required to support the installation mission. Includes direct and reimbursable costs for real estate leases.
a57	Custodial Services	Provide janitorial services performed in all installation facilities. Includes routine washing, waxing, dusting, indoor refuse collection, and other scheduled cosmetic cleaning activities. Includes scheduled (routine), requested, and emergency cleaning services. Does not include equipment cleaning covered under a preventive maintenance contract.
a58	Indoor Pest Control	Provide service to develop and implement integrated building/facility pest management strategies. Service includes pest surveillance, pest identification, breeding site removal, pesticide applications, and other required actions to control pests in and around buildings and facilities including family

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
		require such service to insure adequate installation operations and to maintain safety. Provide emergency (primary) and routine (secondary) removal services.
a62	Minor Construction	Manage all activities associated with new construction/modification (erection, installation, or assembly of a new real property facility; the addition, expansion, extension, alteration, conversion, or replacement; or the relocation of a real property facility from one installation to and another) of facilities. Does not include O&M maintenance and repair and military construction financed projects. (An Army SBC service that is not included in the ISR Part III).
a63	Real Property Demolition	Demolish installation facilities and structures and dispose of residual materials.
a64	Conservation Programs	Provide conservation and preservation of natural and historic resources. Conservation focuses on responsibly managing installation to ensure long-term natural resource productivity. Preservation focuses on limited use of natural resource to ensure future integrity of valuable national resources such as wetlands, endangered species habitat, and historic and cultural sites. Does not include Timber, Agriculture & Grazing Programs.
a65	Restoration Programs	Clean up contaminated, protected, disrupted sites on the installation. Includes management and administration of DERA funded projects.
a66	Compliance Programs	Development, implementation, and maintenance of installation policies, plans, and programs related to environmental issues. Includes compliance inspections, Environmental Protection Act compliance, and pollution abatement and environmental engineering studies.
a67	Pollution Prevention Programs	Conduct programs to reduce the impact on the environment through the reduction or elimination of wastes, more efficient use of raw materials or energy, and/or reduced emissions of toxic and other undesirable materials to the environment.
a68	Fire and Emergency Response Services	Develop and implement installation fire protection policies and programs. Inspect for hazards and level of compliance with fire protection and prevention plans. Train installation

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
a70	Support Agreement/MOU/MOA Management	Manage, prepare, coordinate negotiations, and process support agreements and related MOUs/MOAs.
a71	Management Accounting	Perform managerial accounting services, provide advice on accounting policy issues, and maintain liaison with the supporting DFAS organizations.
a72	Installation TDA Management	Analyze and review TDA personnel and equipment requirements and authorizations. Plan, execute, and monitor manpower requirements and authorizations.
a73	Management Analysis	Manage programs that improve productivity. Provide management assistance and conduct studies and analyses.
a74	Contracting	Contract for all supplies, services and construction for installation activities plus all NAF contracts over $100K. Assist in developing performance work statements. Manage small purchase program.
a75	Contracting Administration	Manage awarded contracts.
a76	Correctional Services	Manage and administer military confinees in confinement or correctional facilities. Prepare, process, and maintain correctional records. Prepare and distribute prisoner reports. Provide guard services for transfer of prisoners between facilities.
a77	Law Enforcement Services	Provide services for protection of people and property, enforcement of laws, and maintenance of order and discipline.

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
a80	Criminal Law & Discipline	Provide military justice support services. Conduct courts-martial. Prosecute courts-martial. Provide statutorily required victim and witness assistance. Provide commanders and law enforcement agencies responsive, correct, legal advice. Conduct prosecution research and investigations. Conduct U.S. District Court and U.S. Magistrate Court prosecutions.
a81	Client Services	Assist eligible individuals address personal legal issues responsively and professionally. Investigate, process and settle meritorious personnel claims arising from military operations and activities.
a82	Religious Support	Provide military religious support activities that meet the religious requirements of soldiers, families, and authorized civilians. Religious Support includes religious services; rites, sacraments, and ordinances; pastoral care/counseling; religious education; family life ministry; and clinical pastoral education (CPE).
a83	*(Chaplain)* Special Staff Work	Provide advice to the Commander as a special staff officer on matters of religion, morals, and morale. Conduct the Special Staff Work required to execute the Command Master Religious Plan (CMRP). Special Staff Work includes professional support to the command; management and administration; humanitarian support; training and planning/operations.
a84	Community Relations	Increase public awareness of the Army's mission, policies and programs, inspire patriotism, foster good relations with the various publics with which the Army comes into contact at home and abroad, maintain the Army's reputation as a respected professional organization responsible for national security and support the Army's recruiting and personnel procurement mission. Provide museum services and activities. Conduct planning and training.
a85	News Media Facilitation	Assist media entry, register media representatives, orient them on ground rules for coverage, ensure they understand security policies, arrange interviews and briefings, coordinate organization visits and escorts, and provide thorough and timely responses to media queries. Also includes conducting planning and training.
a86	Information Strategies	Acquire, produce, and distribute information to achieve specific communication objectives while protecting non-releasable or classified information. Also includes conducting planning and training.

Svc	Army SBC Service Title	Army SBC/ISR Installation Service Description
a87	Command Inspections	Conduct inspections as directed by the installation commander.
a88	Command Investigations	Conduct IG investigations on behalf of the commander. (An Army SBC service that is not included in the ISR Part III).
a89	Complaint/ Assistance Services	Manage and resolve IG complaints and/or assistance requests.
a90	Protocol Services	Provide protocol and visitor services for installation visitors. Administer foreign exchange/liaison programs.
a91	Installation Management	Supervise and coordinate activities and services provided by the garrison. Includes HQ Commandant function of commanding troops assigned to garrison and direct support to the Commander's office. Implement the Army's Management Control Process.
a92	EEO *(Equal Employment Opportunity)*	Direct the Equal Employment Opportunity (EEO) Program (to include EEO training and special emphasis programs) and develop/implement Affirmative Employment Plans (AEP) for Department of the Army civilians. Provide routine updates to Commander. Execute the administrative EEO complaints procedures and advise management and employees of the process.
a93	EO *(Equal Opportunity)*	Provide affirmative action plans, training, and advice on military equal opportunity issues; advise command on equal opportunity program; handle formal and informal complaints; conduct unit staff assistance visits, special emphasis events and EO climate surveys; provide relevant statistical data. Provide professional EO advice to all brigade and higher level commands.
a94	Internal Review	Provide independent, objective information for command decision making. Foster best business practices in support of the command missions by providing a full range of internal audit and analytical services. Provide audit compliance and follow-up services to protect command interests and ensure benefits of internal and external audits are realized.
a95	Installation Safety and Occupational Health	Manage Army Safety Program; support integration of risk management into installation activities, systems, and processes; implement and evaluate risk management process; conduct accident investigations.

NOTE: The Army SBC Program has added parenthetical italicized words to several Service Titles and Definitions for the purpose of clarity, for example, Service #a07 (Military) Personnel Manning.

Appendix I -- AMSCO to Service Crosswalk (FY 1996)

	Army Installation "Carrier" Appropriation/Account	OMA	RDTE	DBOF

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
a18	**Information Systems Security**						
	Automation Activities	xxxx96	.P0	xxxx96	.P0	ZG*096	.P0
a19	**Automation**						
	Automation Activities	xxxx96	.P0	xxxx96	.P0	ZG*096	.P0
a20	**IT *(Information Technology)* Planning**						
	Automation Activities	xxxx96	.P0	xxxx96	.P0	ZG*096	.P0
a21	**Installation Security Program Management Support**						
	Security and Counterintelligence Operations	xxxx96	.TD	xxxx96	.TD	ZG*096	.TD
a22	**Force Protection**						
	Security and Counterintelligence Operations	xxxx96	.TD	xxxx96	.TD	ZG*096	.TD
a23	**Ammunition Supply**						
	Other Supply Operations	xxxx96	.BC	xxxx96	.BC	ZG*096	.BC
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
a24	**Retail Supply**						
	Other Supply Operations	xxxx96	.BC	xxxx96	.BC	ZG*096	.BC
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
a25	**Central Issue Facility**						
	Clothing Initial Issue Points (CIIP) / Central Issue Facilities (CIF)	xxxx96	.BB	xxxx96	.BB	ZG*096	.BB
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
a26	**Asset Management**						
	Other Supply Operations	xxxx96	.BC	xxxx96	.BC	ZG*096	.BC
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
a27	**Materiel Support Maintenance**						
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
	Direct and General Support (DS/GS) Maintenance of Non-Tactical Equipment	xxxx96	.C0	xxxx96	.C0	ZG*096	.C0
a28	**Transportation Services**						
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
	Transportation Services	xxxx96	.D0	xxxx96	.D0	ZG*096	.D0
a29	**Food Services/TISA**						
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
	The Army Food Service Program	xxxx96	.F0	xxxx96	.F0	ZG*096	.F0
	Troop Issue Subsistence Activities (TISA)	423892	.00	423892	.00	423892	.00
a30	**Laundry & Dry Cleaning Services**						
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
	Laundry and Drycleaning Services	xxxx96	.E0	xxxx96	.E0	ZG*096	.E0
a31	**Bldg. *(Facilities)* Maint. - Training & Ops**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a32	**Bldg. *(Facilities)* Maint. - Maint. & Production**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a33	**Bldg. *(Facilities)* Maint. - RDT&E**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a34	**Bldg. *(Facilities)* Maint. - Supply**						

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a35	**Bldg. *(Facilities)* Maint. - Administration**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a36	**Bldg. *(Facilities)* Maint. - AFH**						
	Recurring Maintenance and Repair - General/Flag Officer Quarters	192110	.00	192110	.00	192110	.00
	Recurring Maintenance and Repair General/Flag Officer Quarters (GFOQ)	192111	.00	192111	.00	192111	.00
	Between Occupancy Maintenance Cleaning - General/Flag Officer Quarters	192112	.00	192112	.00	192112	.00
	Recurring Maintenance and Repair - General/Flag Officer Quarters (Historic)	192113	.00	192113	.00	192113	.00
	Between Occupancy Maintenance Cleaning - General/Flag Officer Quarters (Historic)	192114	.00	192114	.00	192114	.00
	Recurring Maintenance and Repair - Family Housing (Built Prior to 1950, Excluding GFOQ)	192130	.00	192130	.00	192130	.00
	Recurring Maintenance and Repair (Excluding GFOQ)	192131	.00	192131	.00	192131	.00
	Between Occupancy Maintenance Cleaning - Family Housing (Built Prior to 1950, Excluding GFOQ)	192132	.00	192132	.00	192132	.00
	Recurring Maintenance and Repair - (Excluding GFOQ) (Historic)	192133	.00	192133	.00	192133	.00
	Between Occupancy Maintenance Cleaning - Family Housing (Excluding GFOQ - Historic)	192134	.00	192134	.00	192134	.00
	Recurring Maintenance and Repair - General Charges	192170	.00	192170	.00	192170	.00
	Major Maintenance and Repair Projects - General/Flag Officer Quarters	192210	.00	192210	.00	192210	.00
	Major Projects - General/Flag Officer Quarters	192211	.00	192211	.00	192211	.00
	Repair on Historic Units - General/Flaq Officer Quarters (GFOQ)	192214	.00	192214	.00	192214	.00
	Major Maintenance and Repair Projects - Family Housing (Excluding GFOQ)	192230	.00	192230	.00	192230	.00
	Major Projects - Family Housing (Excluding GFOQ)	192231	.00	192231	.00	192231	.00
	Repair on Historic Units (Excluding GFOQ)	192234	.00	192234	.00	192234	.00
	Major Maintenance and Repair Projects - Mobile Home Spaces and Other Housing Facilities	192260	.00	192260	.00	192260	.00
	Major Projects - Mobile Home Spaces and Other Housing Facilities	192261	.00	192261	.00	192261	.00
	Alterations and Additions - General/Flag Officer Quarters	192310	.00	192310	.00	192310	.00
	Alterations and Additions - General/Flag Officer Quarters	192311	.00	192311	.00	192311	.00
	Alterations and Additions - General/Flag Officer Quarters (Historic)	192312	.00	192312	.00	192312	.00
	Alterations and Additions - Family Housing (Excluding GFOQ)	192330	.00	192330	.00	192330	.00
	Alterations and Additions (Excluding GFOQ)	192331	.00	192331	.00	192331	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Alterations and Additions (Excluding GFOQ - Historic)	192332	.00	192332	.00	192332	.00
	Alterations and Additions - Mobile Home Spaces and Other Housing Facilities	192360	.00	192360	.00	192360	.00
a36	**Bldg. *(Facilities)* Maint. - AFH (continued)**						
	Dwelling Units - Mobile Home Spaces and Other Housing Facilities	192361	.00	192361	.00	192361	.00
	Administrative Real Property - Mobile Home Spaces and Other Housing Facilities	192362	.00	192362	.00	192362	.00
	Other Real Property - Mobile Home Spaces and Other Housing Facilities	192363	.00	192363	.00	192363	.00
	Other - General/Flag Officer Quarters	192513	.00	192513	.00	192513	.00
	Other - General/Flag Officer Quarters (Historic)	192523	.00	192523	.00	192523	.00
	Other - General Charges	192573	.00	192573	.00	192573	.00
	Other - Excluding GFOQ (Historic)	192583	.00	192583	.00	192583	.00
	Self-Help Program	192600	.00	192600	.00	192600	.00
	Maintenance	194200	.00	194200	.00	194200	.00
	Government Rental Housing Program	194210	.00	194210	.00	194210	.00
	Domestic Leased Family Housing	194220	.00	194220	.00	194220	.00
	Build-to-Lease Family Housing	194230	.00	194230	.00	194230	.00
	Foreign Leased Family Housing (Other than GRHP)	194240	.00	194240	.00	194240	.00
a37	**Bldg. *(Facilities)* Maint. - UPH**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a38	**Bldg. *(Facilities)* Maint. - Community**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a39	**Bldg. *(Facilities)* Maint. - Medical/Hospital**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
	Hospital and Medical Buildings	xxxx78	.K7	xxxx78	.K7	ZG*078	.K7
a40	**Maint. - Improved Grounds**						
	Grounds	xxxx78	.K3	xxxx78	.K3	ZG*078	.K3
	Grounds - General/Flag Officer Quarters	192511	.00	192511	.00	192511	.00
	Grounds - General/Flag Officer Quarters (Historic)	195521	.00	195521	.00	195521	.00
	Grounds - General Charges	192571	.00	192571	.00	192571	.00
	Grounds - Excluding GFOQ (Historic)	192581	.00	192581	.00	192581	.00
a41	**Maint. - Unimproved Grounds**						
	Grounds	xxxx78	.K3	xxxx78	.K3	ZG*078	.K3
	Grounds - General/Flag Officer Quarters	192511	.00	192511	.00	192511	.00
	Grounds - General/Flag Officer Quarters (Historic)	195521	.00	195521	.00	195521	.00
	Grounds - General Charges	192571	.00	192571	.00	192571	.00
	Grounds - Excluding GFOQ (Historic)	192581	.00	192581	.00	192581	.00
a42	**Bldg. *(Facilities)* Maint. - Other**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
	Other Non-Building Facilities	xxxx78	.K6	xxxx78	.K6	ZG*078	.K6
a43	**Maint. - Surfaced Area**						

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Surfaced Areas	xxxx78	.K5	xxxx78	.K5	ZG*078	.K5
	Surfaced Areas - General/Flag Officer Quarters	192512	.00	192512	.00	192512	.00
	Surfaced Areas - General/Flag Officer Quarters (Historic)	192522	.00	192522	.00	192522	.00
	Surfaced Areas - General Charges	192572	.00	192572	.00	192572	.00
	Surfaced Areas - Excluding GFOQ (Historic)	192582	.00	192582	.00	192582	.00
a44	**Heating/Cooling Services**						
	Utility Systems	xxxx78	.K1	xxxx78	.K1	ZG*078	.K1
	Heating Services and Cooling Services	xxxx79	.J4	xxxx79	.J4	ZG*079	.J4
	Exterior Utilities (All)	192410	.00	192410	.00	192410	.00
	Utilities - General/Flag Officer Quarters	193010	.00	193010	.00	193010	.00
	Utilities - General/Flag Officer Quarters (Historic)	193020	.00	193020	.00	193020	.00
	Utilities - Family Housing (Excluding General/Flag Officer Quarters)	193030	.00	193030	.00	193030	.00
	Utilities (Excluding GFOQ) (Historic)	193040	.00	193040	.00	193040	.00
	Utilities - Mobile Home Spaces and Other Housing Facilities	193060	.00	193060	.00	193060	.00
	Utilities - Military Housing Rental Guarantee Program	193960	.00	193960	.00	193960	.00
	Government Rental Housing Program	194310	.00	194310	.00	194310	.00
a45	**Water Services**						
	Utility Systems	xxxx78	.K1	xxxx78	.K1	ZG*078	.K1
	Water Services	xxxx79	.J1	xxxx79	.J1	ZG*079	.J1
	Exterior Utilities (All)	192410	.00	192410	.00	192410	.00
	Utilities - General/Flag Officer Quarters	193010	.00	193010	.00	193010	.00
	Utilities - General/Flag Officer Quarters (Historic)	193020	.00	193020	.00	193020	.00
	Utilities - Family Housing (Excluding General/Flag Officer Quarters)	193030	.00	193030	.00	193030	.00
	Utilities (Excluding GFOQ) (Historic)	193040	.00	193040	.00	193040	.00
	Utilities - Mobile Home Spaces and Other Housing Facilities	193060	.00	193060	.00	193060	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Utilities - Military Housing Rental Guarantee Program	193960	.00	193960	.00	193960	.00
	Government Rental Housing Program	194310	.00	194310	.00	194310	.00
a47	**Electrical Services**						
	Utility Systems	xxxx78	.K1	xxxx78	.K1	ZG*078	.K1
	Electric Services	xxxx79	.J3	xxxx79	.J3	ZG*079	.J3
	Exterior Utilities (All)	192410	.00	192410	.00	192410	.00
	Utilities - General/Flag Officer Quarters	193010	.00	193010	.00	193010	.00
	Utilities - General/Flag Officer Quarters (Historic)	193020	.00	193020	.00	193020	.00
	Utilities - Family Housing (Excluding General/Flag Officer Quarters)	193030	.00	193030	.00	193030	.00
	Utilities (Excluding GFOQ) (Historic)	193040	.00	193040	.00	193040	.00
	Utilities - Mobile Home Spaces and Other Housing Facilities	193060	.00	193060	.00	193060	.00
	Utilities - Military Housing Rental Guarantee Program	193960	.00	193960	.00	193960	.00
	Government Rental Housing Program	194310	.00	194310	.00	194310	.00
a48	**Other Utility Services**						
	Utility Systems	xxxx78	.K1	xxxx78	.K1	ZG*078	.K1
	Other Utilities Operations	xxxx79	.J6	xxxx79	.J6	ZG*079	.J6
	Exterior Utilities (All)	192410	.00	192410	.00	192410	.00
	Other Utilities and Fuels - General/Flag Officer Quarters	193011	.00	193011	.00	193011	.00
	Other Utilities and Fuels - GFOQ Historic	193021	.00	193021	.00	193021	.00
	Other Utilities and Fuels (Excluding GFOQ)	193031	.00	193031	.00	193031	.00
	Other Utilities and Fuels (Excluding GFOQ) (Historic)	193041	.00	193041	.00	193041	.00
	Other Utilities and Fuels - Mobile Home Spaces and Other Housing Facilities	193061	.00	193061	.00	193061	.00
	Utilities - Military Housing Rental Guarantee Program	193960	.00	193960	.00	193960	.00
	Other Utilities and Fuel	194307	.00	194307	.00	194307	.00
	Government Rental Housing Program	194310	.00	194310	.00	194310	.00
a49	**Maint. - Railroad**						
	Railroads	xxxx78	.K4	xxxx78	.K4	ZG*078	.K4
a50	**Family Housing Management**						
	Management	191100	.00	191100	.00	191100	.00
	Management - General/Flag Officer Quarters	191110	.00	191110	.00	191110	.00
	Family Housing Office	191111	.00	191111	.00	191111	.00
	Indirect Support Services	191112	.00	191112	.00	191112	.00
	Programming and Studies	191114	.00	191114	.00	191114	.00
	Environmental Studies (GFOQ)	191118	.00	191118	.00	191118	.00
	Management - Family Housing (Excluding General/Flag Officer Quarters)	191120	.00	191120	.00	191120	.00
	Family Housing Office Including Family Housing Referral (Excluding GFOQ)	191121	.00	191121	.00	191121	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Indirect Support Services	191122	.00	191122	.00	191122	.00
	Programming and Studies	191124	.00	191124	.00	191124	.00
	Environmental Studies (Excluding GFOQ)	191128	.00	191128	.00	191128	.00
	Military Housing Rental Guarantee Program	191129	.00	191129	.00	191129	.00
	Services	191200	.00	191200	.00	191200	.00
	Services - General/Flag Officer Quarters	191210	.00	191210	.00	191210	.00

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	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a59	**Outdoor Pest Control**						
	Pest Management	xxxx79	.M3	xxxx79	.M3	ZG*079	.M3
	Entomology Services	191214	.00	191214	.00	191214	.00
	Entomology Services	191224	.00	191224	.00	191224	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a60	**Refuse Removal**						
	Refuse Handling Operations	xxxx79	.M2	xxxx79	.M2	ZG*079	.M2
	Refuse Collection and Disposal	191211	.00	191211	.00	191211	.00
	Refuse Collection and Disposal	191221	.00	191221	.00	191221	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a61	**Snow and Sand Removal**						
	Snow/Ice, Sand Removal, and Street Sweeping	xxxx79	.M5	xxxx79	.M5	ZG*079	.M5
a62	**Minor Construction**						
	Minor Construction	xxxx76	.L0	xxxx76	.L0	xxxx76	.L0
a63	**Real Property Demolition**						
	Demolition of Real Property	xxxx79	.M9	xxxx79	.M9	ZG*079	.M9
	Demolition - General/Flag Officer Quarters	192212	.00	192212	.00	192212	.00
	Demolition Excluding General/Flag Officer Quarters)	192232	.00	192232	.00	192232	.00
a64	**Conservation Programs**						
	Cultural Resources	xxxx53	.A0	xxxx53	.A0	ZG*053	.A0
	Endangered Species	xxxx53	.B0	xxxx53	.B0	ZG*053	.B0
	Pest Management	xxxx53	.C0	xxxx53	.C0	ZG*053	.C0
	Integrated Training Area Management (ITAM)	xxxx53	.D0	xxxx53	.D0	ZG*053	.D0
a65	**Restoration Programs**						
	Restoration Programs	DERA		DERA		DERA	
a66	**Compliance Programs**						

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Repair for Environmental Compliance (Exterior Utilities)	192488	.00	192488	.00	192488	.00
	Repair for Environmental Compliance - Other Real Property (GFOQ)	192518	.00	192518	.00	192518	.00
	Repair for Environmental Compliance - Other Real Property (GFOQ) (Historic)	192528	.00	192528	.00	192528	.00
	Repair for Environmental Compliance - Other Real Property (General Charges)	192578	.00	192578	.00	192578	.00
	Repair for Environmental Compliance - Other Real Property (Excluding GFOQ) (Historic)	192588	.00	192588	.00	192588	.00
a67	**Pollution Prevention Programs**						
	Pollution Prevention	xxxx54	.00	xxxx54	.00	ZG*054	.00
a68	**Fire and Emergency Response Services**						
	Fire Prevention and Protection	xxxx79	.M1	xxxx79	.M1	ZG*079	.M1
	Fire Protection	191212	.00	191212	.00	191212	.00
	Fire Protection	191222	.00	191222	.00	191222	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a69	**Program/Budget**						
	Office of the Director of Resource Management	xxxx96	.UA	xxxx96	.UA	ZG*096	.UA
	Resource Management Activities	xxxx96	.UB	xxxx96	.UB	ZG*096	.UB
a70	**ISA/ISSA/MOU/MOA Management *(Support Agreement/MOU/MOA Management)***						
	Office of the Director of Resource Management	xxxx96	.UA	xxxx96	.UA	ZG*096	.UA
	Finance and Accounting	xxxx96	.UC	xxxx96	.UC	ZG*096	.UC
a71	**Management Accounting**						
	Office of the Director of Resource Management	xxxx96	.UA	xxxx96	.UA	ZG*096	.UA
	Finance and Accounting	xxxx96	.UC	xxxx96	.UC	ZG*096	.UC
a72	**Installation TDA Management**						

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Director/Chief Provost Marshal and Administrative Staff	xxxx96	.TA	xxxx96	.TA	ZG*096	.TA
	Preservation of Order Activities	xxxx96	.TB	xxxx96	.TB	ZG*096	.TB
	Police Protection	191213	.00	191213	.00	191213	.00
	Police Protection	191223	.00	191223	.00	191223	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00

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	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		DBOF	
Scv	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Command Element/Headquarters Commandant	xxxx96	.NA	xxxx96	.NA	ZG*096	.NA
a92	**EEO *(Equal Employment Opportunity)***						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB
	Civilian Personnel Activities	xxxx96	.GC	xxxx96	.GC	ZG*096	.GC
a93	**EO *(Equal Opportunity)***						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB
	Civilian Personnel Activities	xxxx96	.GC	xxxx96	.GC	ZG*096	.GC
a94	**Internal Review**						

Appendix J -- AMSCO to Service Crosswalk (FY 1997)

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
a01	**Organizational and Job Design**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Civilian Personnel Activities	xxxx96	.GC	xxxx96	.GC	ZG*096	.GC
a02	**Filling Jobs**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Civilian Personnel Activities	xxxx96	.GC	xxxx96	.GC	ZG*096	.GC
a03	**Employee Services**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Civilian Personnel Activities	xxxx96	.GC	xxxx96	.GC	ZG*096	.GC
a04	**Workforce Effectiveness**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Civilian Personnel Activities	xxxx96	.GC	xxxx96	.GC	ZG*096	.GC
a05	**Workforce Transition**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Civilian Personnel Activities	xxxx96	.GC	xxxx96	.GC	ZG*096	.GC
a06	**NAF Personnel Support**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	NAF Personnel Activities	NAF		NAF		NAF	
a07	***(Military)* Personnel Manning**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Military Personnel Activities	xxxx96	.GD	xxxx96	.GD	ZG*096	.GD
a08	***(Military)* Personnel Services**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Military Personnel Activities	xxxx96	.GD	xxxx96	.GD	ZG*096	.GD
a09	**Substance Abuse**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Alcohol/Drug Abuse Program Activities	xxxx96	.GB	xxxx96	.GB	ZG*096	.GB
a10	**Army Community Services**						
	Family Centers (Army Community Services) (ACS)	xxx720	.00	xxxx96	.SR	xxx720	.00
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Family Centers, Army Reserve						
a11	**Child and Youth**						
	Child Development Services (CDS)	xxx719	.00	xxxx96	.SS	xxx719	.00
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
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	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Base NAF Activities	NAF		NAF		NAF	
a12	**Fitness and Recreation**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Sports Above Intramural	xxxx96	.SB	xxxx96	.SB	ZG*096	.SB
	Remote Site Programs	xxxx96	.SG	xxxx96	.SG	ZG*096	.SG
	Army Sports Program	xxxx96	.SH	xxxx96	.SH	ZG*096	.SH
	Community Support	xxxx96	.SJ	xxxx96	.SJ	ZG*096	.SJ
	Libraries	xxxx96	.SK	xxxx96	.SK	ZG*096	.SK
	Recreation Centers	xxxx96	.SP	xxxx96	.SP	ZG*096	.SP
	Bowling Centers (12 Lanes or Less)	xxxx96	.SQ	xxxx96	.SQ	ZG*096	.SQ
	NAF Activities	NAF		NAF		NAF	
a13	**Business Operations**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Bowling (More Than 12 Lanes)	xxxx96	.SC	xxxx96	.SC	ZG*096	.SC
	Information, Travel & Recreation	xxxx96	.SD	xxxx96	.SD	ZG*096	.SD
	Arts & Crafts	xxxx96	.SE	xxxx96	.SE	ZG*096	.SE
	Golf	xxxx96	.SF	xxxx96	.SF	ZG*096	.SF
	Entertainment	xxxx96	.SI	xxxx96	.SI	ZG*096	.SI
	Community Support	xxxx96	.SJ	xxxx96	.SJ	ZG*096	.SJ
	Outdoor Recreation	xxxx96	.SL	xxxx96	.SL	ZG*096	.SL
	Auto Crafts	xxxx96	.SM	xxxx96	.SM	ZG*096	.SM
	Officer/NCO/Enlisted/Community & Consolidated Clubs	xxxx96	.SN	xxxx96	.SN	ZG*096	.SN
	NAF Activities	NAF		NAF		NAF	
a14	**Continuing Education Services**						
	Director/Chief Personnel and Community Affairs	xxxx96	.GA	xxxx96	.GA	ZG*096	.GA
	Army Continuing Education System	333732	.00	333732	.00	333732	.00
a15	**Communication Systems and System Support**						
	Base Communications	xxxx95	.00	xxxx95	.00	ZG*095	.00
a16	**Visual Information Systems**						
	Audiovisual and Visual Information Production, Acquisition and Support Audiovisual (AV) and Visual Information Support	xxxx90	.00	xxxx90	.00	ZG*090	.00
a17	**Document Management**						
	Records Management, Publications	xxxx96	.Y0	xxxx96	.Y0	ZG*096	.Y0
a18	**Information Systems Security**						
	Automation Activities	xxxx96	.P0	xxxx96	.P0	ZG*096	.P0
a19	**Automation**						
	Automation Activities	xxxx96	.P0	xxxx96	.P0	ZG*096	.P0
a20	**IT *(Information Technology)* Planning**						
	Automation Activities	xxxx96	.P0	xxxx96	.P0	ZG*096	.P0
a21	**Installation Security Program Management Support**						

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Security and Counterintelligence Operations	xxxx96	.TD	xxxx96	.TD	ZG*096	.TD
a22	**Force Protection**						
	Security and Counterintelligence Operations	xxxx96	.TD	xxxx96	.TD	ZG*096	.TD
a23	**Ammunition Supply**						
	Other Supply Operations	xxxx96	.BC	xxxx96	.BC	ZG*096	.BC
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
a24	**Retail Supply**						
	Other Supply Operations	xxxx96	.BC	xxxx96	.BC	ZG*096	.BC
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
a25	**Central Issue Facility**						
	Clothing Initial Issue Points (CIIP) / Central Issue Facilities (CIF)	xxxx96	.BB	xxxx96	.BB	ZG*096	.BB
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
a26	**Asset Management**						
	Other Supply Operations	xxxx96	.BC	xxxx96	.BC	ZG*096	.BC
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
a27	**Materiel Support Maintenance**						
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
	Direct and General Support (DS/GS) Maintenance of Non-Tactical Equipment	xxxx96	.C0	xxxx96	.C0	ZG*096	.C0
a28	**Transportation Services**						
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
	Transportation Services	xxxx96	.D0	xxxx96	.D0	ZG*096	.D0
a29	**Food Services/TISA**						
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
	The Army Food Service Program	xxxx96	.F0	xxxx96	.F0	ZG*096	.F0
	Troop Issue Subsistence Activities (TISA)	423892	.00	423892	.00	423892	.00
a30	**Laundry & Dry Cleaning Services**						
	Office of the Director of Logistics (DOL)	xxxx96	.BD	xxxx96	.BD	ZG*096	.BD
	Laundry and Drycleaning Services	xxxx96	.E0	xxxx96	.E0	ZG*096	.E0
a31	**Bldg. *(Facilities)* Maint. - Training & Ops**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a32	**Bldg. *(Facilities)* Maint. - Maint. & Production**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a33	**Bldg. *(Facilities)* Maint. - RDT&E**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a34	**Bldg. *(Facilities)* Maint. - Supply**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a35	**Bldg. *(Facilities)* Maint. - Administration**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a36	**Bldg. *(Facilities)* Maint. - AFH**						
	Recurring Maintenance and Repair - General/Flag Officer Quarters	192110	.00	192110	.00	192110	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Recurring Maintenance and Repair General/Flag Officer Quarters (GFOQ)	192111	.00	192111	.00	192111	.00
	Between Occupancy Maintenance Cleaning - General/Flag Officer Quarters	192112	.00	192112	.00	192112	.00
	Recurring Maintenance and Repair - General/Flag Officer Quarters (Historic)	192113	.00	192113	.00	192113	.00
	Between Occupancy Maintenance Cleaning - General/Flag Officer Quarters (Historic)	192114	.00	192114	.00	192114	.00
	Recurring Maintenance and Repair - Family Housing (Built Prior to 1950, Excluding GFOQ)	192130	.00	192130	.00	192130	.00
	Recurring Maintenance and Repair (Excluding GFOQ)	192131	.00	192131	.00	192131	.00
	Between Occupancy Maintenance Cleaning - Family Housing (Built Prior to 1950, Excluding GFOQ)	192132	.00	192132	.00	192132	.00
	Recurring Maintenance and Repair - (Excluding GFOQ) (Historic)	192133	.00	192133	.00	192133	.00
	Between Occupancy Maintenance Cleaning - Family Housing (Excluding GFOQ - Historic)	192134	.00	192134	.00	192134	.00
	Recurring Maintenance and Repair - General Charges	192170	.00	192170	.00	192170	.00
	Major Maintenance and Repair Projects - General/Flag Officer Quarters	192210	.00	192210	.00	192210	.00
	Major Projects - General/Flag Officer Quarters	192211	.00	192211	.00	192211	.00
	Repair on Historic Units - General/Flaq Officer Quarters (GFOQ)	192214	.00	192214	.00	192214	.00
	Major Maintenance and Repair Projects - Family Housing (Excluding GFOQ)	192230	.00	192230	.00	192230	.00
	Major Projects - Family Housing (Excluding GFOQ)	192231	.00	192231	.00	192231	.00
	Repair on Historic Units (Excluding GFOQ)	192234	.00	192234	.00	192234	.00
	Major Maintenance and Repair Projects - Mobile Home Spaces and Other Housing Facilities	192260	.00	192260	.00	192260	.00
	Major Projects - Mobile Home Spaces and Other Housing Facilities	192261	.00	192261	.00	192261	.00
	Alterations and Additions - General/Flag Officer Quarters	192310	.00	192310	.00	192310	.00
	Alterations and Additions - General/Flag Officer Quarters	192311	.00	192311	.00	192311	.00
	Alterations and Additions - General/Flag Officer Quarters (Historic)	192312	.00	192312	.00	192312	.00
	Alterations and Additions - Family Housing (Excluding GFOQ)	192330	.00	192330	.00	192330	.00
	Alterations and Additions (Excluding GFOQ)	192331	.00	192331	.00	192331	.00
	Alterations and Additions (Excluding GFOQ - Historic)	192332	.00	192332	.00	192332	.00
	Alterations and Additions - Mobile Home Spaces and Other Housing Facilities	192360	.00	192360	.00	192360	.00
a36	**Bldg. *(Facilities)* Maint. - AFH (continued)**						
	Dwelling Units - Mobile Home Spaces and Other Housing Facilities	192361	.00	192361	.00	192361	.00
	Administrative Real Property - Mobile Home Spaces	192362	.00	192362	.00	192362	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	and Other Housing Facilities						
	Other Real Property - Mobile Home Spaces and Other Housing Facilities	192363	.00	192363	.00	192363	.00
	Other - General/Flag Officer Quarters	192513	.00	192513	.00	192513	.00
	Other - General/Flag Officer Quarters (Historic)	192523	.00	192523	.00	192523	.00
	Other - General Charges	192573	.00	192573	.00	192573	.00
	Other - Excluding GFOQ (Historic)	192583	.00	192583	.00	192583	.00
	Self-Help Program	192600	.00	192600	.00	192600	.00
	Maintenance	194200	.00	194200	.00	194200	.00
	Government Rental Housing Program	194210	.00	194210	.00	194210	.00
	Domestic Leased Family Housing	194220	.00	194220	.00	194220	.00
	Build-to-Lease Family Housing	194230	.00	194230	.00	194230	.00
	Foreign Leased Family Housing (Other than GRHP)	194240	.00	194240	.00	194240	.00
a37	**Bldg. *(Facilities)* Maint. - UPH**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a38	**Bldg. *(Facilities)* Maint. - Community**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
a39	**Bldg. *(Facilities)* Maint. - Medical/Hospital**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
	Hospital and Medical Buildings	xxxx78	.K7	xxxx78	.K7	ZG*078	.K7
a40	**Maint. - Improved Grounds**						
	Grounds	xxxx78	.K3	xxxx78	.K3	ZG*078	.K3
	Grounds - General/Flag Officer Quarters	192511	.00	192511	.00	192511	.00
	Grounds - General/Flag Officer Quarters (Historic)	195521	.00	195521	.00	195521	.00
	Grounds - General Charges	192571	.00	192571	.00	192571	.00
	Grounds - Excluding GFOQ (Historic)	192581	.00	192581	.00	192581	.00
a41	**Maint. - Unimproved Grounds**						
	Grounds	xxxx78	.K3	xxxx78	.K3	ZG*078	.K3
	Grounds - General/Flag Officer Quarters	192511	.00	192511	.00	192511	.00
	Grounds - General/Flag Officer Quarters (Historic)	195521	.00	195521	.00	195521	.00
	Grounds - General Charges	192571	.00	192571	.00	192571	.00
	Grounds - Excluding GFOQ (Historic)	192581	.00	192581	.00	192581	.00
a42	**Bldg. *(Facilities)* Maint. - Other**						
	Buildings	xxxx78	.K2	xxxx78	.K2	ZG*078	.K2
	Other Non-Building Facilities	xxxx78	.K6	xxxx78	.K6	ZG*078	.K6
a43	**Maint. - Surfaced Area**						
	Surfaced Areas	xxxx78	.K5	xxxx78	.K5	ZG*078	.K5
	Surfaced Areas - General/Flag Officer Quarters	192512	.00	192512	.00	192512	.00
	Surfaced Areas - General/Flag Officer Quarters (Historic)	192522	.00	192522	.00	192522	.00
	Surfaced Areas - General Charges	192572	.00	192572	.00	192572	.00
	Surfaced Areas - Excluding GFOQ (Historic)	192582	.00	192582	.00	192582	.00
a44	**Heating/Cooling Services**						

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Utility Systems	xxxx78	.K1	xxxx78	.K1	ZG*078	.K1
	Heating Services and Cooling Services	xxxx79	.J4	xxxx79	.J4	ZG*079	.J4
	Exterior Utilities (All)	192410	.00	192410	.00	192410	.00
	Utilities - General/Flag Officer Quarters	193010	.00	193010	.00	193010	.00
	Utilities - General/Flag Officer Quarters (Historic)	193020	.00	193020	.00	193020	.00
	Utilities - Family Housing (Excluding General/Flag Officer Quarters)	193030	.00	193030	.00	193030	.00
	Utilities (Excluding GFOQ) (Historic)	193040	.00	193040	.00	193040	.00
	Utilities - Mobile Home Spaces and Other Housing Facilities	193060	.00	193060	.00	193060	.00
	Utilities - Military Housing Rental Guarantee Program	193960	.00	193960	.00	193960	.00
	Government Rental Housing Program	194310	.00	194310	.00	194310	.00
a45	**Water Services**						
	Utility Systems	xxxx78	.K1	xxxx78	.K1	ZG*078	.K1
	Water Services	xxxx79	.J1	xxxx79	.J1	ZG*079	.J1
	Exterior Utilities (All)	192410	.00	192410	.00	192410	.00
	Utilities - General/Flag Officer Quarters	193010	.00	193010	.00	193010	.00
	Utilities - General/Flag Officer Quarters (Historic)	193020	.00	193020	.00	193020	.00
	Utilities - Family Housing (Excluding General/Flag Officer Quarters)	193030	.00	193030	.00	193030	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Utilities - Family Housing (Excluding General/Flag Officer Quarters)	193030	.00	193030	.00	193030	.00
	Utilities (Excluding GFOQ) (Historic)	193040	.00	193040	.00	193040	.00
	Utilities - Mobile Home Spaces and Other Housing Facilities	193060	.00	193060	.00	193060	.00
	Utilities - Military Housing Rental Guarantee Program	193960	.00	193960	.00	193960	.00
	Government Rental Housing Program	194310	.00	194310	.00	194310	.00
a48	**Other Utility Services**						
	Utility Systems	xxxx78	.K1	xxxx78	.K1	ZG*078	.K1
	Other Utilities Operations	xxxx79	.J6	xxxx79	.J6	ZG*079	.J6
	Exterior Utilities (All)	192410	.00	192410	.00	192410	.00
	Other Utilities and Fuels - General/Flag Officer Quarters	193011	.00	193011	.00	193011	.00
	Other Utilities and Fuels - GFOQ Historic	193021	.00	193021	.00	193021	.00
	Other Utilities and Fuels (Excluding GFOQ)	193031	.00	193031	.00	193031	.00
	Other Utilities and Fuels (Excluding GFOQ) (Historic)	193041	.00	193041	.00	193041	.00
	Other Utilities and Fuels - Mobile Home Spaces and Other Housing Facilities	193061	.00	193061	.00	193061	.00
	Utilities - Military Housing Rental Guarantee Program	193960	.00	193960	.00	193960	.00
	Other Utilities and Fuel	194307	.00	194307	.00	194307	.00
	Government Rental Housing Program	194310	.00	194310	.00	194310	.00
a49	**Maint. - Railroad**						
	Railroads	xxxx78	.K4	xxxx78	.K4	ZG*078	.K4
a50	**Family Housing Management**						
	Management	191100	.00	191100	.00	191100	.00
	Management - General/Flag Officer Quarters	191110	.00	191110	.00	191110	.00
	Family Housing Office	191111	.00	191111	.00	191111	.00
	Indirect Support Services	191112	.00	191112	.00	191112	.00
	Programming and Studies	191114	.00	191114	.00	191114	.00
	Environmental Studies (GFOQ)	191118	.00	191118	.00	191118	.00
	Management - Family Housing (Excluding General/Flag Officer Quarters)	191120	.00	191120	.00	191120	.00
	Family Housing Office Including Family Housing Referral (Excluding GFOQ)	191121	.00	191121	.00	191121	.00
	Indirect Support Services	191122	.00	191122	.00	191122	.00
	Programming and Studies	191124	.00	191124	.00	191124	.00
	Environmental Studies (Excluding GFOQ)	191128	.00	191128	.00	191128	.00
	Military Housing Rental Guarantee Program	191129	.00	191129	.00	191129	.00
	Services	191200	.00	191200	.00	191200	.00
	Services - General/Flag Officer Quarters	191210	.00	191210	.00	191210	.00
	Municipal Type Services (GFOQ)	191216	.00	191216	.00	191216	.00
	Indirect Support Services	191217	.00	191217	.00	191217	.00
	Services - Family Housing Including Mobile Home	191220	.00	191220	.00	191220	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	(Excluding GFOQ)						
	Municipal Type Services (Excluding GFOQ)	191226	.00	191226	.00	191226	.00
	Indirect Support Services	191226	.00	191226	.00	191226	.00
	Military Housing Rental Guarantee Program (Excluding GFOQ)	191229	.00	191229	.00	191229	.00
	Furnishings	1913xx	.00	1913xx	.00	1913xx	.00
	Miscellaneous	1914xx	.00	1914xx	.00	1914xx	.00
	Operations	1941xx	.00	1941xx	.00	1941xx	.00
	Lease Payments	1944xx	.00	1944xx	.00	1944xx	.00
	Corps of Engineers Costs	1945xx	.00	1945xx	.00	1945xx	.00
a51	**Transient Housing Management**						
	Transient Housing Management	NAF		NAF		NAF	
a52	**UPH Management**						
	Unaccompanied Personnel Housing Operation, Administration and Furnishings	xxxx96	.H0	xxxx96	.H0	ZG*096	.H0
a53	**Facilities Engineering Services Management**						
	Public Works Management Engineering	xxxx79	.M6	xxxx79	.M6	ZG*079	.M6
	Miscellaneous Engineer Activities	xxxx79	.M8	xxxx79	.M8	ZG*079	.M8
	Design Costs	1927xx	.00	1927xx	.00	1927xx	.00
a54	**Master Planning**						
	Public Works Management Engineering	xxxx79	.M6	xxxx79	.M6	ZG*079	.M6
a55	**Real Estate/Real Property Administration**						
	Real Estate & Construction Administration	xxxx79	.M7	xxxx79	.M7	ZG*079	.M7
a56	**Real Estate Leases**						
	Miscellaneous Engineer Activities	xxxx79	.M8	xxxx79	.M8	ZG*079	.M8
	Real Estate Leases	xxxx96	.A0	xxxx96	.A0	ZG*096	.A0
a57	**Custodial Services**						
	Custodial	xxxx79	.M4	xxxx79	.M4	ZG*079	.M4
	Custodial Services	191215	.00	191215	.00	191215	.00
	Custodial Services	191225	.00	191225	.00	191225	.00
a58	**Indoor Pest Control**						
	Pest Management	xxxx79	.M3	xxxx79	.M3	ZG*079	.M3
	Entomology Services	191214	.00	191214	.00	191214	.00
	Entomology Services	191224	.00	191224	.00	191224	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a59	**Outdoor Pest Control**						
	Pest Management	xxxx79	.M3	xxxx79	.M3	ZG*079	.M3
	Entomology Services	191214	.00	191214	.00	191214	.00
	Entomology Services	191224	.00	191224	.00	191224	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a60	**Refuse Removal**						
	Refuse Handling Operations	xxxx79	.M2	xxxx79	.M2	ZG*079	.M2
	Refuse Collection and Disposal	191211	.00	191211	.00	191211	.00
	Refuse Collection and Disposal	191221	.00	191221	.00	191221	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a61	**Snow and Sand Removal**						
	Snow/Ice, Sand Removal, and Street Sweeping	xxxx79	.M5	xxxx79	.M5	ZG*079	.M5
a62	**Minor Construction**						
	Minor Construction	xxxx76	.L0	xxxx76	.L0	xxxx76	.L0
a63	**Real Property Demolition**						
	Demolition of Real Property	xxxx79	.M9	xxxx79	.M9	ZG*079	.M9
	Demolition - General/Flag Officer Quarters	192212	.00	192212	.00	192212	.00
	Demolition Excluding General/Flag Officer Quarters)	192232	.00	192232	.00	192232	.00
a64	**Conservation Programs**						
	Cultural Resources	xxxx53	.A0	xxxx53	.A0	ZG*053	.A0
	Endangered Species	xxxx53	.B0	xxxx53	.B0	ZG*053	.B0
	Pest Management	xxxx53	.C0	xxxx53	.C0	ZG*053	.C0
	Integrated Training Area Management (ITAM)	xxxx53	.D0	xxxx53	.D0	ZG*053	.D0
a65	**Restoration Programs**						
	Restoration Programs	DERA		DERA		DERA	
a66	**Compliance Programs**						
	Environmental Compliance	xxxx56	.00	xxxx56	.00	ZG*056	.00
	Environmental Studies (GFOQ)	191118	.00	191118	.00	191118	.00
	Environmental Studies (Excluding GFOQ)	191128	.00	191128	.00	191128	.00
	Repair for Environmental Compliance (GFOQ)	192218	.00	192218	.00	192218	.00
	Repair for Environmental Compliance (Excluding GFOQ)	192238	.00	192238	.00	192238	.00
	Repair for Environmental Compliance (Mobile Homes, Etc.)	192268	.00	192268	.00	192268	.00
	Repair for Environmental Compliance (Exterior Utilities)	192488	.00	192488	.00	192488	.00
	Repair for Environmental Compliance - Other Real Property (GFOQ)	192518	.00	192518	.00	192518	.00
	Repair for Environmental Compliance - Other Real Property (GFOQ) (Historic)	192528	.00	192528	.00	192528	.00
	Repair for Environmental Compliance - Other Real Property (General Charges)	192578	.00	192578	.00	192578	.00
	Repair for Environmental Compliance - Other Real	192588	.00	192588	.00	192588	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Property (Excluding GFOQ) (Historic)						
a67	**Pollution Prevention Programs**						
	Pollution Prevention	xxxx54	.00	xxxx54	.00	ZG*054	.00
a68	**Fire and Emergency Response Services**						
	Fire Prevention and Protection	xxxx79	.M1	xxxx79	.M1	ZG*079	.M1
	Fire Protection	191212	.00	191212	.00	191212	.00
	Fire Protection	191222	.00	191222	.00	191222	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a69	**Program/Budget**						
	Office of the Director of Resource Management	xxxx96	.UA	xxxx96	.UA	ZG*096	.UA
	Resource Management Activities	xxxx96	.UB	xxxx96	.UB	ZG*096	.UB
a70	**ISA/ISSA/MOU/MOA Management *(Support Agreement/MOU/MOA Management)***						
	Office of the Director of Resource Management	xxxx96	.UA	xxxx96	.UA	ZG*096	.UA
	Finance and Accounting	xxxx96	.UC	xxxx96	.UC	ZG*096	.UC
a71	**Management Accounting**						
	Office of the Director of Resource Management	xxxx96	.UA	xxxx96	.UA	ZG*096	.UA
	Finance and Accounting	xxxx96	.UC	xxxx96	.UC	ZG*096	.UC
a72	**Installation TDA Management**						
	Office of the Director of Resource Management	xxxx96	.UA	xxxx96	.UA	ZG*096	.UA
	Resource Management Activities	xxxx96	.UB	xxxx96	.UB	ZG*096	.UB
a73	**Management Analysis**						
	Office of the Director of Resource Management	xxxx96	.UA	xxxx96	.UA	ZG*096	.UA
	Resource Management Activities	xxxx96	.UB	xxxx96	.UB	ZG*096	.UB
a74	**Contracting**						
	Contracting Operations	xxxx96	.W0	xxxx96	.W0	ZG*096	.W0
a75	**Contracting Administration**						
	Contracting Operations	xxxx96	.W0	xxxx96	.W0	ZG*096	.W0
a76	**Correctional Services**						
	Correction of Military Offenders	xxxx96	.TC	xxxx96	.TC	ZG*096	.TC
	Correction of Military Offenders (CONUS)	xxxx96	.TE	xxxx96	.TE	ZG*096	.TE
	Correctional Facilities	434707	.00	434707	.00	434707	.00
a77	**Law Enforcement Services**						
	Director/Chief Provost Marshal and Administrative Staff	xxxx96	.TA	xxxx96	.TA	ZG*096	.TA
	Preservation of Order Activities	xxxx96	.TB	xxxx96	.TB	ZG*096	.TB
	Police Protection	191213	.00	191213	.00	191213	.00
	Police Protection	191223	.00	191223	.00	191223	.00
	Government Rental Housing Program	194110	.00	194110	.00	194110	.00

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
	Domestic Leased Family Housing	194120	.00	194120	.00	194120	.00
	Build-to-Lease Family Housing	194130	.00	194130	.00	194130	.00
	Foreign Leased Family Housing (Other than GRHP)	194140	.00	194140	.00	194140	.00
a78	**Physical Security**						
	Security and Counterintelligence Operations	xxxx96	.TD	xxxx96	.TD	ZG*096	.TD
a79	**Administrative & Civil Law**						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB
	Administrative Support	436099	.90	436099	.90	436099	.90
a80	**Criminal Law & Discipline**						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB
a81	**Client Services**						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB
	Claims and Legal Services	436099	.46	436099	.46	436099	.46
a82	**Religious Support**						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB
a83							

	Army Installation "Carrier" Appropriation/Account	OMA		RDTE		Army Working Capital Fund (Formerly DBOF)	
Svc	**Army SBC Service**	**AMSCO**		**AMSCO**		**AMSCO**	
a93	**EO *(Equal Opportunity)***						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB
	Civilian Personnel Activities	xxxx96	.GC	xxxx96	.GC	ZG*096	.GC
a94	**Internal Review**						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB
a95	**Installation Safety and Occupational Health**						
	Special Garrison Staff Proponents	xxxx96	.NB	xxxx96	.NB	ZG*096	.NB

Appendix K -- FY 1999 BASOPS Accounting Structure

This appendix shows the 7-position (programming level) AMSCOs and 8-position (execution) AMSCOs approved for use beginning in FY 1999. Each table compares the existing structure to the new structure so the crosswalks can be easily identified.

7th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES			
BASE OPERATIONS: SUBCHAPTER VII. BASOPS (-) ****96.**			
Current Activity Structure		Proposed Activity Structure	
Code		Code	
.00			

Current Activity Structure		Proposed Activity Structure	
Code		Code	
.00	REAL PROPERTY MAINTENANCE ACTIVITIES	.00	FACILITIES MAINTENANCE MANAGEMENT
.K0	MAINTENANCE AND REPAIR OF REAL PROPERTY	.K0	MAINTENANCE AND REPAIR (ARNG USE ONLY)
		.A0	MAINTENANCE & PRODUCTION FACILITIES
		.B0	TRAINING & OPERATIONS FACILITIES
		.C0	RDT&E FACILITIES
		.D0	SUPPLY & STORAGE FACILITIES
		.E0	ADMINISTRATIVE FACILITIES (INCLUDING INFORMATION TECHNOLOGY FACILITIES)
		.F0	UNACCOMPANIED PERSONNEL HOUSING FACILITIES, ENLISTED BARRACKS
		.G0	OTHER UNACCOMPANIED PERSONNEL HOUSING FACILITIES
		.H0	DINING FACILITIES
		.Q0	OTHER FACILITIES (WITHOUT FACILITY CATEGORY GROUPS [FCGs])
		.R0	AIRFIELD FACILITIES
		.S0	TRAINING/INSTRUCTION SUPPORT FACILITIES
		.T0	PORTS
		.U0	MEDICAL AND HOSPITAL FACILITIES
		.V0	GROUNDS
		.W0	COMMUNITY SUPPORT
		.X0	FAMILY HOUSING
		.10	SURFACED AREAS (INCLUDING BRIDGES AND OTHER APPURTENANCES)
		.20	AIRFIELDS, PAVED AND UNPAVED (INCLUDING BRIDGES AND OTHER APPURTENANCES)
		.30	REAL PROPERTY DEMOLITION
		.40	RAILROADS (INCLUDING BRIDGES AND OTHER APPURTENANCES)
		.50	UTILITY SYSTEMS
NOTE:	Proposed additions, changes, etc. to the FY99 Army Management Structure are displayed in shaded cells.		

7th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES			
BASE OPERATIONS: SUBCHAPTER VI. REAL PROPERTY SERVICES ****79.**			
Current Activity Structure		Proposed Activity Structure	
Code		Code	
.00	REAL PROPERTY SERVICES	.00	REAL PROPERTY SERVICES
.J0	OPERATION OF UTILITIES	.J0	OPERATION OF UTILITIES
.M0	MUNICIPAL SERVICES	.M0	MUNICIPAL SERVICES
		.N0	FACILITIES ENGINEERING SERVICES
		.P0	FIRE AND EMERGENCY RESPONSE SERVICES
		.Y0	REAL PROPERTY SERVICES (ARNG USE ONLY)
NOTE:	Proposed additions, changes, etc. to the FY99 Army Management Structure are displayed in shaded cells.		

8th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES	
BASE OPERATIONS: SUBCHAPTER VII. BASOPS (-) ****96.**	
Current	Proposed

Code	Activity Structure	Code	Activity Structure
.00	**BASE OPERATIONS**	**.00**	**BASE OPERATIONS**
.Z0	**BASE OPERATIONS**	**.Z0**	**BASE OPERATIONS**
			COMMAND AND STAFF
.T0	**PRESERVATION OF ORDER/COUNTERINTELLIGENCE OPERATIONS**	**.10**	**PROVOST MARSHALL**
.TA	Director/Chief Provost Marshal and Administrative Staff	.11	Office of the Director/Chief Provost Marshall
		.12	Correctional Services
.TB	Preservation of Order Activities	.13	Law Enforcement Services
		.14	Physical Security
.T4	Physical Security/Anti-Terrorism -Training Program (ARNG Use Only)	.15	Physical Security/Anti-Terrorism - Training Program (ARNG Use Only)
.T5	Physical Security/Anti-Terrorism - Personnel Compensation, Guards (ARNG Use Only)	.16	Physical Security/Anti-Terrorism - Personnel Compensation, Guards (ARNG Use Only)
.T6	Physical Security/Anti-Terrorism - Security Protection, Service Agreements (ARNG Use Only)	.17	Physical Security/Anti-Terrorism - Security Protection, Service Agreements (ARNG Use Only)
.T7	Physical Security/Anti-Terrorism - Equipment, Security Guards (ARNG Use Only)	.18	Physical Security/Anti-Terrorism - Equipment, Security Guards (ARNG Use Only)
.T8	Preservation of Order (Navajo Army Depot Use Only) (ARNG Use Only)	.19	Preservation of Order (Navajo Army Depot Use Only) (ARNG Use Only)
.TC	Correction of Military Offenders	.1A	Correction of Military Offenders
.TE	Correction of Military Offenders (CONUS)	.1B	Correction of Military Offenders (CONUS)
.NB	Special Garrison Staff Proponents	**.20**	**STAFF JUDGE ADVOCATE**
		.21	Office of the SJA
		.22	Administrative and Civil Law
		.23	Criminal Law and Discipline
		.24	Client Services
.NB	Special Garrison Staff Proponents	**.30**	**CHAPLAIN**
		.31	Office of the Chaplain
		.32	Religious Support Services
		.33	Chaplain Special Staff Work
.NB	Special Garrison Staff Proponents	**.40**	**PUBLIC AFFAIRS**
		.41	Office of the Chief of Public Affairs
		.42	Community Relations
		.43	News Media Facilitation
		.44	Information Strategies
.NC	Museum Activities	.45	Museum Activities
.NB	Special Garrison Staff Proponents	**.50**	**INSPECTOR GENERAL**
		.51	Office of the IG
		.52	Command Inspections
		.53	Complaint/Assistance Services
		.54	Command Investigations
.N0	**Command Element, Special Staff, HQ Commandant**	**.60**	**INSTALLATION MANAGEMENT**
.NA	Command Element/Headquarters Commandant	.61	Office of the Commander
.NB	Special Garrison Staff Proponents	.62	Protocol Services
		.63	Installation Management
.NB	Special Garrison Staff Proponents	.64	Equal Employment Opportunity
.NB	Special Garrison Staff Proponents	.65	Equal Opportunity
.NB	Special Garrison Staff Proponents	.66	Internal Review
.NB	Special Garrison Staff Proponents	.67	Installation Safety and Occupational Health
.NE	Command Element Special Staff (Navajo Army Depot Use Only) (ARNG Use Only)	.6A	Command Element Special Staff (Navajo Army Depot Use Only) (ARNG Use Only)
.NG	Base Communications (Services) Navajo Army Depot Use Only (ARNG Use Only)	.6B	Base Communications (Services) Navajo Army Depot Use Only (ARNG Use Only)
.NH	Base Communications (Salaries) Navajo Army Depot Use Only (ARNG Use Only)	.6C	Base Communications (Salaries) Navajo Army Depot Use Only (ARNG Use Only)
			OPERATIONS
		.70	**OPERATIONS**
.NB	Special Garrison Staff Proponents	.7A	Force Protection

8th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES

BASE OPERATIONS: SUBCHAPTER VII. BASOPS (-) ****96.**

Code	Current Activity Structure	Code	Proposed Activity Structure
.TD	Security and Counterintelligence Operations	.7B	Installation Security Program Management Support
			ENGINEERING
.H0	**UNACCOMPANIED PERSONNEL HOUSING OPERATION, ADMINISTRATION AND FURNISHINGS**	**.90**	**UNACCOMPANIED PERSONNEL HOUSING MANAGEMENT**
.HA	Initial and Replacement Issue and Handling of Furnishings	.9A	Initial and Replacement Issue and Handling of Furnishings
.HB	Operation of Unaccompanied Personnel Housing	.9B	Operation of Unaccompanied Personnel Housing
.HC	Leased Unaccompanied Personnel Housing	.9C	Leased Unaccompanied Personnel Housing
.A0	**REAL ESTATE LEASES**	**.A0**	**REAL ESTATE LEASES**
.AA	Recruiting Leases	.AA	Recruiting Leases
.AB	Non-Recruiting Leases	.AB	Non-Recruiting Leases
.AC	Real Estate Leases - Army Reserve	.AC	Real Estate Leases - Army Reserve
.AD	Real Property Leasing Costs (ARNG Use Only)	.AD	Real Property Leasing Costs (ARNG Use Only)
.AE	Agricultural and Grazing Leases (Navajo Army Depot Use Only) (ARNG Use Only)	.AE	Agricultural and Grazing Leases (Navajo Army Depot Use Only) (ARNG Use Only)
.B0	**INSTALLATION SUPPLY OPERATIONS**	**.B0**	**SUPPLY OPERATIONS AND MANAGEMENT**
.BA	Military Clothing Sales Stores (MCSS)	.BA	Military Clothing Sales Stores (MCSS)
.BB	Clothing Initial Issue Points (CIIP)/Central Issue Facilities (CIF)	.BB	Central Issue Facility
		.BC	Clothing Initial Issue Points (CIIP)
.BD	Office of the Director of Logistics (DOL)	.BD	Office of the Director/Chief of Logistics (DOL)
.BC	Other Supply Operations	.BE	Ammunition Supply
		.BF	Retail Supply
		.BG	Supply Management
.BW	Installation Supply Operations (Navajo Army Depot Use Only) (ARNG Use Only)	.BH	Installation Supply Operations (Navajo Army Depot Use Only) (ARNG Use Only)
.C0	**DIRECT and GENERAL SUPPORT (DS/GS) MAINTENANCE OF NON-TACTICAL EQUIPMENT**	**.C0**	**MATERIEL MAINTENANCE**
.CA	Administrative and Operational Support Airlift (OSA) Aircraft	.CA	Administrative and Operational Support Airlift (OSA) Aircraft
.CB	Army Owned Non-Tactical Vehicles	.CB	Army Owned Non-Tactical Vehicles
.CC	Construction Equipment	.CC	Construction Equipment
.CD	Electronic and Communications Equipment	.CD	Electronic and Communications Equipment
.CE	Unaccompanied Personnel Housing Furniture	.CE	Unaccompanied Personnel Housing Furniture
.CF	Other Commodity Group Items	.CF	Other Commodity Group Items
.D0	**TRANSPORTATION SERVICES**	**.D0**	**TRANSPORTATION SERVICES**
.DA	Non-GSA Transportation Motor Services	.DA	Non-GSA Transportation Motor Services
.DB	Installation Transportation Office Operations	.DB	Installation Transportation Office Operations
.DC	GSA-Owned and Leased Transportation	.DC	GSA-Owned and Leased Transportation
.DD	Movement of Privately-Owned Household Goods	.DD	Movement of Privately-Owned Household Goods
.DE	Transportation Services (Navajo Army Depot Use Only) (ARNG Use Only)	.DE	Transportation Services (Navajo Army Depot Use Only) (ARNG Use Only)
.E0	**LAUNDRY AND DRY-CLEANING SERVICES**	**.E0**	**LAUNDRY AND DRY-CLEANING SERVICES**
.F0	**THE ARMY FOOD SERVICE PROGRAM**	**.F0**	**FOOD SERVICES**
.FA	Operation of Garrison Bread Bakeries/Milk Plants/Ration Points	.FA	Operation of Garrison Bread Bakeries/Milk Plants/Ration Points
.FB	Dining Facilities, Food Service Attendants (KPs)	.FB	Dining Facilities, Food Service Attendants (KPs)
.FC	Dining Facilities, Cooks	.FC	Dining Facilities, Cooks
.FD	Dining Facilities, Full Contract Operation	.FD	Dining Facilities, Full Contract Operation
.FE	Dining Facilities, Decor/Equipment Items	.FE	Dining Facilities, Decor/Equipment Items
.FF	Dining Facilities, Other	.FF	Dining Facilities, Other
.GF	Other Personnel Support	**.J0**	**OTHER PERSONNEL SUPPORT**
			PERSONNEL AND COMMUNITY
.G0	**PERSONNEL SUPPORT**	**.K0**	**CIVILIAN PERSONNEL MANAGEMENT**

8th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES

BASE OPERATIONS: SUBCHAPTER VII. BASOPS (-) ****96.**

Current Code	Current Activity Structure	Proposed Code	Proposed Activity Structure
.GA	Director/Chief Personnel & Community Affairs		
.GC	Civilian Personnel Activities		
.S0	**COMMUNITY AND MORALE SUPPORT ACTIVITIES**	**.L0**	**MORALE, WELFARE AND RECREATION**
.S1	Youth Development Programs (YDP)	.L1	Youth Development Programs (YDP)
.S2	Youth Leisure and Social Recreation Services	.L2	Youth Leisure and Social Recreation Services
.S3	Youth Physical Fitness and Sports	.L3	Youth Physical Fitness and Sports
.S4	Youth School-Age/Latch Key	.L4	Youth School-Age/Latch Key
.S5	Youth Services Program and Facilities Management - Base	.L5	Youth Services Program and Facilities Management-Base
.GA	Director/Chief Personnel & Community Affairs	.LA	Office of the Director/Chief of Personnel and Community Activities
.SB	Sports Above Intramural	.LB	Sports Above Intramural
.SC	Bowling (More than 12 Lanes)	.LC	Bowling (More than 12 Lanes)
.SD	Information, Travel and Recreation	.LD	Information, Travel and Recreation
.SE	Arts and Crafts	.LE	Arts and Crafts
.SF	Golf	.LF	Golf
.SG	Remote Site Programs	.LG	Remote Site Programs
.SH	Army Sports Program	.LH	Army Sports Program
.SI	Entertainment	.LI	Entertainment
.SJ	Community Support	.LJ	Community Support
.SK	Libraries	.LK	Libraries
.SL	Outdoor Recreation	.LL	Outdoor Recreation
.SM	Auto Crafts	.LM	Auto Crafts
.SN	Officer/NCO/Enlisted Community and Consolidated Clubs	.LN	Officer/NCO/Enlisted Community and Consolidated Clubs
.SP	Recreation Centers	.LP	Recreation Centers
.SQ	Bowling Alleys (12 Lanes and Under)	.LQ	Bowling Alleys (12 Lanes and Under)
.SR	Family Centers (Army Community Centers) (RDTE Appropriation Only)	.LR	Family Centers (Army Community Centers) (RDTE Appropriation Only)
.SS	Child Development Services (CDS) (RDTE Appropriation Only)	.LS	Child Development Services (CDS) (RDTE Appropriation Only)
.ST	Youth Services Program (RDTE Appropriation Only)	.LT	Youth Services Program (RDTE Appropriation Only)
.SU	ARNG Communities of Excellent Program-Awards (ARNG Use Only)	.LU	ARNG Communities of Excellence Program-Awards (ARNG Use Only)
.GD	Military Personnel Activities	**.M0**	**MILITARY PERSONNEL SUPPORT**
		.MA	Office of the Director/Chief of Military Personnel
.GB	Alcohol/Drug Abuse Program Activities	.MB	Alcohol/Drug Abuse Program Activities
		.MC	Military Personnel Services
		.MD	Military Personnel Manning
.GE	Garrison Army Bands (MTOE Non-Deployable Bands)	ME	Garrison Army Bands (MTOE Non-Deployable Bands)
.GF	Other Personnel Support	.MF	Reenlistment Activities
			OPERATIONS
.Q0	**RESERVE COMPONENT SUPPORT**	**.Q0**	**RESERVE COMPONENT SUPPORT**
.QA	Overhead and Identifiable Incremental Costs - FORSCOM/TRADOC CONUS Installations (ARNG Use Only)	**.QA**	Overhead and Identifiable Incremental Costs-FORSCOM/TRADOC CONUS Installations (ARNG Use Only)
.QC	Overhead and identifiable Incremental Costs - OCONUS INSTALLATIONS (ARNG Use Only)	.QC	Overhead and identifiable Incremental Costs-OCONUS INSTALLATIONS (ARNG Use Only)
.QE	Rental of Bivouac Facilities (ARNG Use Only)	.QE	Rental of Bivouac Facilities (ARNG Use Only)
.QF	Overhead and Identifiable Incremental Costs - AMC and Other MACOM Installations (ARNG Use Only)	.QF	Overhead and Identifiable Incremental Costs-AMC and Other MACOM Installations (ARNG Use Only)
.R0	**UNAPPLIED PROGRAM ADJUSTMENTS**	**.R0**	**UNAPPLIED PROGRAM ADJUSTMENTS**
			RESOURCE MANAGEMENT
.U0	**RESOURCE MANAGEMENT OPERATIONS**	**.U0**	**FINANCIAL MANAGEMENT**
.UA	Office of the Director of Resource Management	.UA	Office of the Director of Resource Management
.UB	Resource Management Activities	.UB	Program/Budget
.UC	Finance and Accounting	.UC	Management Accounting
		.UD	Support Agreements/MOU/MOA Management

8th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES			
BASE OPERATIONS: SUBCHAPTER VII. BASOPS (-) ****96.**			
Code	**Current Activity Structure**	Code	**Proposed Activity Structure**
		.UE	Non-DFAS Finance and Accounting
		.V0	**MANAGEMENT ANALYSIS**
		.VA	Installation TDA Management
		.VB	Management Analysis
			ACQUISITIONS
.W0	**CONTRACTING OPERATIONS**	**.W0**	**CONTRACTING OPERATIONS**
		.WA	Office of the Director/Chief of Contracting
		.WB	Contracting
		.WC	Contracting Administration
			INFORMATION TECHNOLOGY
.P0	**AUTOMATION ACTIVITIES**	**.X0**	**INFORMATION TECHNOLOGY, MANAGEMENT AND PLANNING**
		.XA	Office of the Director/Chief of Information Technology
		.XB	Information Systems Security
		.XC	Automation
		.XD	Information Technology Planning
.Y0	**RECORDS MANAGEMENT, PUBLICATIONS**	**.Y0**	**DOCUMENT MANAGEMENT**

8th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES

8th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES			
BASE OPERATIONS: SUBCHAPTER V. MAINTENANCE AND REPAIR (RPMA) ****78.**			
Code	**Current Activity Structure**	Code	**Proposed Activity Structure**
		.R1	Buildings
		.R2	

8th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES

BASE OPERATIONS: SUBCHAPTER V. MAINTENANCE AND REPAIR (RPMA) ****78.**

Code	Current Activity Structure	Code	Proposed Activity Structure

8th POSITION BASE OPERATIONS ARMY MANAGEMENT STRUCTURE CODES

BASE OPERATIONS: SUBCHAPTER VI. REAL PROPERTY SERVICES ****79.**

Code	Current Activity Structure	Code	Proposed Activity Structure
.00	**REAL PROPERTY SERVICES**	**.00**	**REAL PROPERTY SERVICES**
.M0	MUNICIPAL SERVICES	.M1	MUNICIPAL SERVICES
.M2	Refuse Handling Operations	.M1	Refuse Handling Operations
.M3	Pest Management	.M2	Indoor Pest Control
		.M3	Outdoor Pest Control
.M4	Custodial	.M4	Custodial
.M5	Snow/Ice and Sand Removal and Street Sweeping	.M5	Snow/Ice and Sand Removal and Street Sweeping
		.N0	**FACILITIES ENGINEERING SERVICES MANAGEMENT**
.M6	Public Works and Management Engineering	.N1	Public Works and Management Engineering
.M8	Miscellaneous Engineer Activities	.N2	Miscellaneous Engineer Activities
.M7	Real Estate and Construction Administration	.N3	Real Estate/Real Property Administration
		.N4	Master Planning
.M1	Fire and Emergency Services	**.P0**	Fire and Emergency Services
.J0	OPERATION OF UTILITIES	**.J0**	**OPERATION OF UTILITIES**
.J1	Water Services	.J1	Water Services
.J2	Waste Water Services	.J2	Waste Water Services
.J3	Electric Services	.J3	Electrical Services
.J4	Heating Services and Cooling Services	.J4	Heating/Cooling Services
		.J5	Gas Services
.J6	Other Utilities Operations	.J6	Other Utility Services
.JA	Utilities - State Training Facilities (ARNG USE ONLY)	.JA	Utilities - State Training Facilities (ARNG USE ONLY)
.JB	Utilities - Regl/Natl Tng Facilities (ARNG USE ONLY)	.JB	Utilities - Regl/Natl Tng Facilities (ARNG USE ONLY)
.JD	Utilities - Armories (ARNG USE ONLY)	.JD	Utilities - Armories (ARNG USE ONLY)
.JE	Utilities - Special Training Applications (ARNG USE ONLY)	.JE	Utilities - Special Training Applications (ARNG USE ONLY)
.JF	Utilities - State Log Support Facilities (ARNG USE ONLY)	.JF	Utilities - State Log Support Facilities (ARNG USE ONLY)
.JG	Utilities - Log Spt - NGB, Regl, Special (ARNG USE ONLY)	.JG	Utilities - Log Spt - NGB, Regl, Special (ARNG USE ONLY)
.JH	Utilities - (Navajo Army Depot)(ARNG USE ONLY)	.JH	Utilities - (Navajo Army Depot)(ARNG USE ONLY)
		.Y0	**ARNG REAL PROPERTY SERVICES**
.MA	State Tng Facilities (ARNG USE ONLY)	.YA	State Tng Facilities (ARNG USE ONLY)
.MB	Regl Natl Training Facilities (ARNG USE ONLY)	.YB	Regl Natl Training Facilities (ARNG USE ONLY)
.MF	State Log Support Facilities (ARNG USE ONLY)	.YF	State Log Support Facilities (ARNG USE ONLY)
.MG	NGB, Regl Spec Log Spt Facil (ARNG USE ONLY)	.YG	NGB, Regl Spec Log Spt Facilities (ARNG USE ONLY)
.MH	State Tng Facilities (ARNG USE ONLY)	.YH	OTHER FACILITIES (without FCGs)
.MI	Regl Natl Training Facilities (ARNG USE ONLY)	.YI	Regl Natl Training Facilities (ARNG USE ONLY)
.MM	State Log Support Facilities (ARNG USE ONLY)	.YM	State Log Support Facilities (ARNG USE ONLY)
.MN	NGB, Regl Spec Log Spt Facilities (ARNG USE ONLY)	.YN	NGB, Regl Spec Log Spt Facilities (ARNG USE ONLY)
.MP	State Tng Facilities (ARNG USE ONLY)	.YP	State Tng Facilities (ARNG USE ONLY)
.MQ	Regl Natl Training Facilities (ARNG USE ONLY)	.YQ	Regl Natl Training Facilities (ARNG USE ONLY)
.MU	State Log Support Facilities (ARNG USE ONLY)	.YU	State Log Support Facilities (ARNG USE ONLY)
.MV	NGB, Regl Spec Log Spt Facilities (ARNG USE ONLY)	.YV	NGB, Regl Spec Log Spt Facilities (ARNG USE ONLY)
.MS	State, Regl, Natl, NGB Facilities (ARNG USE ONLY)	.YS	State, Regl, Natl, NGB Facilities (ARNG USE ONLY)
.MT	State Log Support Facilities (ARNG USE ONLY)	.YT	State Log Support Facilities (ARNG USE ONLY)
.MX	DS/GS Maint Equip - (Navajo Army Depot) (ARNG USE ONLY)	.YX	DS/GS Maint Equip - (Navajo Army Depot) (ARNG USE ONLY)

.MY	Engineer Support - (Navajo Army Depot) (ARNG USE ONLY)	.YY	Engineer Support - (Navajo Army Depot) (ARNG USE ONLY)

Appendix L -- Derivation of Lease Space Requirement

Since the leased space requirement is a fraction of the total facility space requirement, it is important to understand how the space requirement is derived. The RPLANS process generates facility space allowances, which, with installation input, become facility space requirements. Separate space requirements are developed for each facility use category (e.g., administrative space, storage, classroom space, etc.) and location based on the organizations stationed there. The location of organizations comes from the Army Stationing and Installation Plan (ASIP). RPLANS includes all organizations stationed to an installation in the installation's space requirement, even though some organizations may occupy or use leased space off-post. In effect, the installation commander is responsible for providing facilities to organizations stationed to his/her installation. Organizations stationed off-post (such as recruiters, ROTC units, and most reserve units) have separate space requirements generated in RPLANS by location.

For programming purposes, an installation's lease requirement should be proportional to only the shortage of owned facilities. For example, on an installation where 80 percent of the storage space requirement is met with owned assets and 20 percent is leased, a reduction in the installation's storage requirement of 10 percent should reduce the lease requirement for storage by half.

The lease space requirements for off-post organizations could remain proportional to the magnitude of the total facility space requirement (which is generally proportional to the population). If, for example, a recruiting unit's space requirement were cut in half (either by reducing the size of the unit or changing the facility allowance criteria), we would expect the lease space requirement to decrease by 50 percent. It is interesting to note that the "shortage" analysis that could be used for installations works as well for off-post organizations. Since off-post organizations generally do not own any facilities (some Army Reserve units "own" their Reserve Centers), most organizations could be considered to be 100 percent "short" of their required (owned) facilities. From this viewpoint, the shortage of required versus owned facilities could be used as a pacing measure for determining <u>all</u> lease resource requirements.

Using the facility shortage by unit of measure is insufficient by itself. The accounting system does not separate lease costs by unit of measure, facility use category, or any other factor that could easily be related to the derived facility shortage. One factor common to all built facilities is the plant replacement value (PRV)[27]. We would expect lease costs to be greater for a more complex administrative building than an unheated storage building. Similarly, the PRV for the administrative building will be much greater than the storage building. Weighting the facility shortfall by PRV would effectively "level the playing field" when leasing many different categories of facilities.

[27] Land, such as that leased to augment training area requirements, does

Appendix M -- Generic Standard Service Costing Cost Function

This appendix describes the rational for and derivation of a generic cost function for Standard Service Costing that will provide the flexibility necessary to build program requirements and assess the resource constrained program for its impact to service quantity and quality.

There are two major costing methodologies. The first, the engineer build, works from the bottom up, deriving the cost for a service by observing the costs (time, materials, equipment) to perform individual tasks, rolling these up to activity level, and finally summing these activity costs to the service level. This method is input oriented, focusing on the resources necessary to perform the tasks. Activity Based Costing (ABC) is an engineer build costing methodology. Costs are assigned to the individual tasks, then rolled up to activity level. This is the more time consuming and expensive method for deriving costs

The second method, parametric analysis, works from the top down, deriving the relationships between costs and the output of services or activities. In the simplest form, a cost per unit output, such as dollars per meal served, is the result of parametric analysis. For example, the total costs for all meals served are divided by the total number of meals served to derive a unit cost per meal. If the unit cost is $1 per meal, 100 meals should cost $100, 500 meals should cost $500, and so on.

The relationship between cost and output quantity may not always be neatly linear. There could be efficiencies of scale; e.g. serving thousands of meals could cost less per meal than serving only a few dozen meals. The service could have a large fixed cost (y-intercept on a graph), with a small per unit cost added to the fixed cost. Cost could even be related to more than one output pacing measure (multi-variant).

Quality also plays a major roll in cost. Quality pacing measures, such as cycle time, accuracy, and availability of the service, can drive the cost per unit output up or down. For example, a commander can speed up the cycle time to move soldiers through the meal line by adding cooks and servers to the dining facility serving line, at an additional cost. Complicating quality, services may have different quality metrics and standards, measured in many cases on differing scales.

Parametric analysis methods easily allow consideration of these factors where historical data supports them. Because of this, we will use parametric analysis methods for developing the SSC Cost Factors and Functions.

While the relationship between quantity and cost is generally well understood and accepted, the impact of quality on service cost is more nebulous. From a costing standpoint, we are interested in the four basic quality-to-cost relationships shown in figure 15.

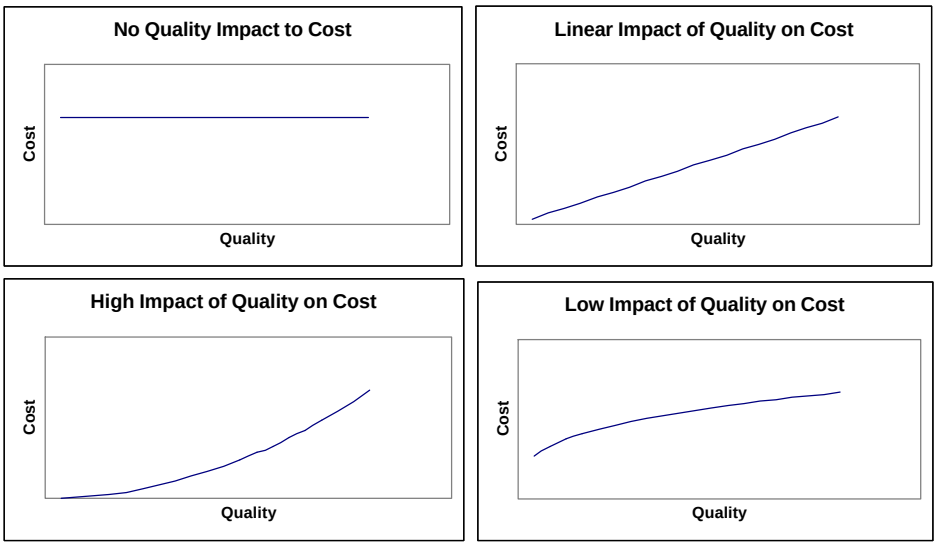

Figure 15 -- Basic Quality to Cost Relationships

The upper left corner of figure 15 shows the graph where quality has no impact on cost. Changing the quality of the service will not change the cost. The Army probably has a few services that have this "zero" slope (or close to "zero" slope) in the quality-to-cost relationship. Utilities may fit this relationship. Most services more likely fit one of the other curves.

In the upper right corner of figure 15, the cost is shown as a linear function of quality. As the quality increases by some increment, the cost increases proportionally. Here we can see the need for continuous or near continuous quality variables.

Under a three-point quality scale, one increment of quality could change the cost by 33 percent. With a continuous scale, cost becomes a true function of quality. A continuous scale still allows the quality standard ranges (such as Green, Amber, and Red) to be overlaid on the scale and be more easily adjusted if analysis shows the standard ranges are inappropriate. For

example, if cycle time though the dining facility serving line was a quality metric, the Army could overlay quality range standards that rated cycle times faster than two minutes as Green, between two and five minutes as Amber, and greater than five minutes as Red. If commanders found it was impossible to cost effectively meet the two minute standard, the ACSIM could change the standard to five and ten minute break points without changing the quality metric or the scale on which it was measured.

Continuing clockwise in figure 15 to the lower right graph, we see that quality has a smaller impact on cost near the standard quality than at low qualities. As large changes in the quality are made, only small changes in the cost occur. Conversely, small changes in the resourcing levels near the standard quality cause significant changes in the service quality. Services that fall under this model may need to be resourced at or near 100 percent to retain high quality levels.

Finally, in the lower left corner of figure 15, quality has a significant impact on cost near the standard quality. Small changes in quality make big differences in cost. Services in this category may be targets for resource reductions as the service quality will not be significantly impacted.

There is an apparent fifth relationship, the inverse relationship, as shown in figure 16.

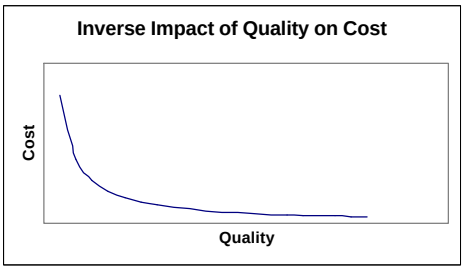

Figure 16 -- Inverse Quality-to-Cost Relationship

In the inverse relationship, costs go down as quality increases. This is not appropriate for programming purposes, nor does it reflect reality. Under an inverse relationship, perfect quality (at infinity) costs nothing. Some quality metrics, however, naturally have inverse relationships to cost. Cycle time is such a case. Low cycle times are indicators of higher quality. Reducing the cycle time may require a larger staff, which will cost more. In these

cases, it may be appropriate to use the inverse of the quality metric as the basis for the developing the quality-to-cost relationships.

Sometimes, inverse relationships appear where the costs and quality metrics are based on differing levels of aggregation. During the ACSIM's October 1997 meeting with the MACOM installation and resource managers, one command indicated poor quality toner cartridges cost him more in the aggregate than good quality cartridges -- hence, an inverse relationship. Upon closer examination, the poor quality toner cartridges cost less per unit, but failed sooner, requiring the purchase of more cartridges. Once the quality ratings and costs are aligned to the same basis (the individual toner cartridge), it is easier to see that higher quality costs more (per cartridge).

Putting the costs and quality metrics on the same basis simplifies the derivation of the quality-to-cost relationships. Specifically, if quality per unit output is the basis for the quality metric scale, then cost per unit output should be the cost basis. In the dining facility example, if the cycle time were measured per meal served, then the cost per meal served would be used in deriving the quality-to-cost relationship. Costs and quality can have virtually any basis, but a unit output basis is the most convenient to use (since SBC data collects total cost and total output metric data for each service) and will provide the most consistent results. The ISR Part III quality metrics can be developed to any basis since they do not yet exist, but a unit output basis provides the most flexibility in developing the SSC cost factors and functions.

Costs per unit output can be derived from SBC data. However, they should not be used to derive BOS program requirements without considering the effects of quality. They can (and should) be used with quality data to derive the SSC cost factors and functions that <u>can</u> be used to derive BOS program requirements.

An analysis of the 1995 SBC data revealed that SBC could be used in developing expected cost factors for most services.[28] The coefficient of determination (R^2) seemed to fall

[28] USACEAC, CALIBRE Systems, and Dr. Lawrence Gordon, a college professor and noted expert on managerial costing, conducted independent analyses of the 1995 SBC data, achieving similar results. Analysis methods included linear and log-linear regression of the primary and alternate SBC pacing measures against cost, the two in combination in multi-variant analyses, and other demographic data (such as installation population and real property inventory).

into three main groups. The first group, with R^2 above 0.8, suggests a close relationship between quantity and cost already exists. Quality, if it influences cost, is very consistent across the Army for these services. In Food Services, for example, the high R^2 in the quantity-to-cost relationship may be indicative of the small variance allowed from established food service quality standards across the Army. In other cases, the high R^2 may indicate quality does not significantly impact cost.

At the other extreme, some SBC data had very low R^2 (below 0.2). Feedback from the installations and MACOMs had already expressed a general dissatisfaction with most of these services' pacing metrics. As a result, many pacing metrics were changed or the definitions clarified for the 1996/1997 SBC data collection.

The quantity-to-cost relationships with R^2 in the 0.2 to 0.8 range indicate there could be additional factors, not considered in the SBC quantity or demographic data, which impact cost. Relationships between quantity metrics and service costs should improve further with better data quality, additional years of data, and improved quantity metrics. However, to the extent that the efficiency of a service is linked to the quality of that service, not having a measure for quality poses a serious impediment in terms of drawing a definitive conclusion from the analysis. The analysis strongly suggests that good justification for continuing to refine the quantity metrics exists and including quality metrics in the regression analysis.

How could this analysis of quality to cost be done with available (or soon to be available) data?

If we assume for a moment that a linear relationship exists between unit quality and unit costs, the unit costs can be expressed in the form of $y=ax+b$ as shown in equation 4:

$$\frac{Cost}{UnitQuantity} = \frac{UnitCost}{UnitQuality} \times \frac{Quality}{UnitQuantity} + FixedCost$$

Equation 4 -- Basic Linear Cost-to-Quality Relationship

Where:

- *Cost/Unit Quantity* is the dependent variable ("y"),

Sensitivity analyses on selected service metrics were also conducted. Up to 60 various tests were performed on each service.

- *Unit Cost/Unit Quality* is the slope of the line ("a"),
- *Quality/Unit Quantity* is the independent variable ("x"), and
- *Fixed Cost* is the y-intercept ("b").

The standard cost becomes a point on the line at the standard quality. The actual cost for a given quality is statistically on the same line. From this we can derive equation 5:

$$\frac{UnitCost}{UnitQuality} = \frac{ActualCost}{ActualQuality} = \frac{StdCost}{StdQuality}$$ Where the *Fixed Cost = 0*.

Equation 5 -- Cost-to-Quality Ratios Ignoring Fixed Costs

Substituting the *Standard Cost/Standard Quality* ratio for the *Unit Cost/Unit Quality* ratio and multiplying both sides of equation 4 by the *Unit Quantity*, we get equation 6:

$$Cost = UnitQuantity \times \frac{StdCost}{StdQuality} \times \frac{Quality}{UnitQuantity}$$

Equation 6 -- Cost Function of Unit Quality, the Cost-to-Quality Ratio and Quantity

And finally rearranging, we get equation 7:

$$Cost = UnitQuantity \times \frac{StdCost}{UnitQuantity} \times \frac{Quality}{StdQuality}$$

Equation 7 -- Cost Function of Quality Index and Quantity

Where:

- *Cost* is the cost to provide the service
- *Unit Quantity* is the quantity of the service to be provided,
- *Standard Cost/Unit Quantity* is the Standard Service Costing cost factor, i.e., the cost of one unit of service quantity at the standard quality, and
- *Quality/Standard Quality* is the quality index, i.e., the ratio of the provided quality to the standard quality.

wants to buy the standard quality, the quality index become one, and the cost will equal the SSC cost factor for the service multiplied by the quantity of the service needed.

Equation 6 provides an easy mechanism for using regression analysis to derive SSC cost factors from historical data. The quality index becomes the independent variable (x-axis), and the cost per unit quantity becomes the dependent variable (y-axis). The slope of the best-fit line is the SSC cost factor and the y-intercept, if any, is the fixed cost.

When plotting the historical data, the best-fit line may actually be a curve, as we showed in figure 15 (and repeat in figure 17, below). This suggests that the quality index could have an exponential component, "n," which expresses the shape and severity of the curve. The greater the "n" factor, the greater the impact quality has on cost. Equation 8 takes this *quality impact* factor into account and shows the fixed cost mentioned in the previous paragraph.

$$Cost = Quantity \times SSCCostFactor \times \left(\frac{Quality}{StdQuality} \right)^{n} + FixedCost$$

Equation 8 – SSC Cost Function – Single Quantity and Quality Variables

The modified quality index will always default to “one” at the standard quality, regardless of the “n” factor. Therefore, the SSC cost factor derived in this method will be the cost to buy one unit of service output at the standard quality, regardless of the shape of the curve.

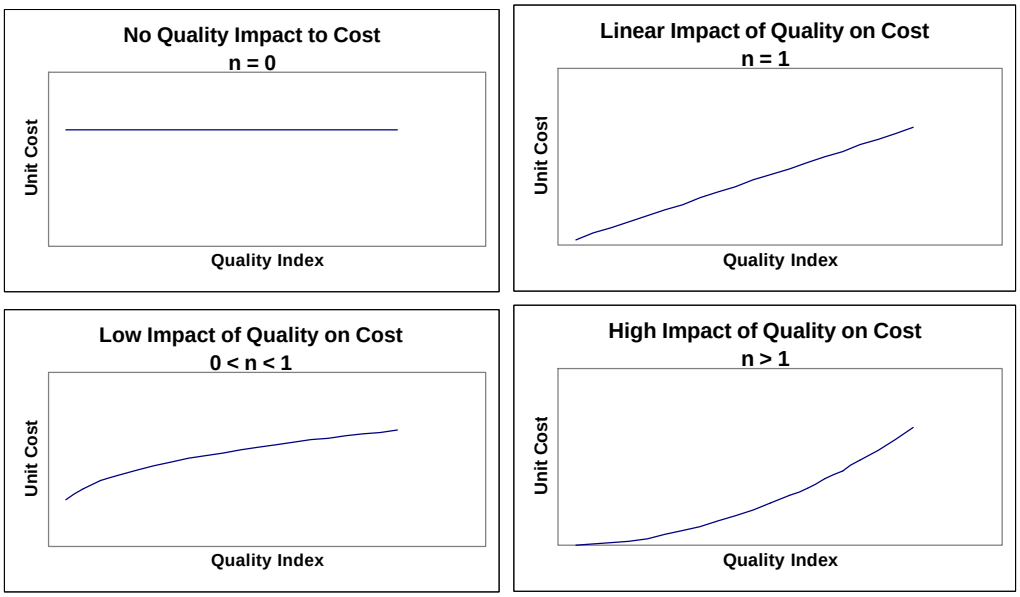

Figure 17 -- Quality Index to Unit Cost Cases

In the case where quality does not impact on cost at all (figure 17, upper left), the "n" factor equals zero. This means that regardless of the measured quality, the quality index factor will always equal one; costs will always equal the quantity times the SSC Cost Factor.

As the quality impact on cost increases, "n" increases. In the range from zero to one, as shown in the lower left of figure 17, quality has a low impact on cost near the standard quality. Conversely, near the standard quality, a change in resourcing will make a big difference in expected quality.

When "n" equals one, the impact of quality on cost is linear (figure 17, upper right). As "n" continues to increase above one, the curve takes on a convex shape; here small changes in quality near the standard quality make large impacts on cost (figure 17, lower right). Near the standard quality in this last case, changes in resourcing have little impact on expected service quality.

This methodology for developing the SSC cost factor can work for multiple quantity and quality variables as well using multi-variant regression analysis. The resulting cost function will have multiple sets of SSC cost factors and "n"-factors, one set for each combination of quantity and quality variables in the cost function. The generic form of the multi variable SSC cost function is shown in equation 9:

$$Cost = FixedCost + Quantity_1 \times SSCCostFactor_{1a} \times \left(\frac{Quality_1}{StdQuality_1} \right)^{Quality\,\mathrm{Im}\,pact_{1a}} +$$
$$Quantity_2 \times SSCCostFactor_{2a} \times \left(\frac{Quality_2}{StdQuality_2} \right)^{Quality\,\mathrm{Im}\,pact_{2a}} +$$
$$Quantity_1 \times SSCCostFactor_{1b} \times \left(\frac{Quality_2}{StdQuality_2} \right)^{Quality\,\mathrm{Im}\,pact_{2b}} +$$
$$Quantity_2 \times SSCCostFactor_{2b} \times \left(\frac{Quality_1}{StdQuality_1} \right)^{Quality\,\mathrm{Im}\,pact_{1b}} + \ldots$$

Equation 9 -- Generic SSC Cost Function

Where:

- *Cost* is the total cost of providing the service,
- *Fixed Cost* is the "y"-intercept of the equation,
- $Quantity_1$ and $Quantity_2$ (to $Quantity_n$) are the service quantity levels (one for each quantity metric),
- $SSC\ Cost\ Factor_{1a,1b,2a,2b\ to\ n}$ are the cost factors for each quantity-quality combination,
- $Quality_1$ and $Quality_2$ (to $Quality_n$) are the service quality levels (one for each quality metric),
- $Standard\ Quality_1$ and $Standard\ Quality_2$ (to $Standard\ Quality_n$) are the service quality level standards (one for each quality metric), and
- $Quality\ Impact_{1a,1b,2a,2b,\ to\ n}$ are the quality impact factors for each quantity-quality combination.