Audit Report

OFFICE OF THE INSPECTOR GENERAL

MEDICAL FACILITY REQUIREMENTS - NAVAL HOSPITAL PORTSMOUTH

Report No. 93-160 September 2, 1993

Department of Defense

20000420 087

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

AQI00-07-1778

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202

September 2, 1993

MEMORANDUM FOR ASSISTANT SECRETARY OF DEFENSE (HEALTH AFFAIRS)

SUBJECT: Audit Report on Medical Facility Requirements - Naval Hospital Portsmouth (Report No. 93-160)

We are providing this final report for your information and use. It addresses the planned construction of a replacement acute care facility and renovation of existing facilities at the Naval Hospital Portsmouth, Virginia. In Part II of this report, we discuss many of the same issues addressed in your report, "Naval Hospital Portsmouth, VA: Revalidation of Requirement," August 13, 1992. Your staff's effort in revalidating the facility requirements at the Naval hospital is commendable. Continued efforts such as this will greatly assist in helping DoD obtain greater benefit from its medical funds and equitably provide health care to the entire beneficiary population.

DoD Directive 7650.3 requires that all audit recommendations be resolved promptly. Therefore, we request that the Assistant Secretary of Defense (Health Affairs), provide final comments on the unresolved recommendations and monetary benefits by November 1, 1993. See the "Response Requirements for Each Recommendation" section at the end of the Finding for the unresolved recommendations and the specific requirements for your comments. Recommendations and potential monetary benefits are subject to resolution in accordance with DoD Directive 7650.3 in the event of nonconcurrence or failure to comment. We also ask that your comments indicate concurrence or nonconcurrence with the internal control weakness highlighted in Part I. Your staff has indicated that you may prefer that we elevate this issue for immediate adjudication by the Deputy Secretary of Defense rather than use the normal mediation process. Please notify us if that is your desire.

The courtesies extended to the audit staff are appreciated. If you have any questions about this audit, please contact Mr. Michael A. Joseph at (804) 766-9108 or Mr. Jack L. Armstrong at (804) 766-3265. The planned distribution of this report is listed in Appendix I.

Robert J. Lieberman

Robert J. Lieberman
Assistant Inspector General
for Auditing

The following acronyms are used in this report.

ACF.....Acute Care Facility
CHAMPUS.....Civilian Health and Medical Program of the Uniformed Services
DMFO.....Defense Medical Facilities Office
GME.....Graduate Medical Education
JCAHO.....Joint Commission on Accreditation of Healthcare Organizations
MILCON.....Military Construction
MTF.....Military Treatment Facility
NAVCARE.....Navy Care Center
NAVFAC.....Naval Facilities Engineering Command
NHP.....Naval Hospital Portsmouth
OASD(HA).....Office of the Assistant Secretary of Defense (Health Affairs)

Office of the Inspector General, DoD

REPORT NO. 93-160 September 2, 1993
(Project No. 2LF-0021)

MEDICAL FACILITY REQUIREMENTS-NAVAL HOSPITAL PORTSMOUTH

EXECUTIVE SUMMARY

Introduction. The Naval Hospital Portsmouth (NHP) has acute care and outpatient facilities that provide a comprehensive range of medical services to active duty military personnel and retirees and their dependents. NHP has 600 patient beds and incurred over $144 million in expenditures for FY 1991. During our review, DoD was planning to construct an acute care facility (replacement hospital) and renovate existing facilities at Portsmouth at a cost of $330.0 million and spend an additional $100.2 million for equipment as part of the project. The planned composite facility included a 1,015,000 square foot acute care facility with 464 inpatient beds, outpatient facilities, and a hyperbaric facility (decompression chamber). Additionally, 522,804 square feet of renovations to existing facilities have been funded with 152 light care beds retained.

The Office of the Assistant Secretary of Defense (Health Affairs) (OASD[HA]) issued a report on the revalidation of requirements for the NHP. The OASD(HA) and the Navy have agreed to reduce the quantity of planned inpatient beds by 101 and defer funding for the hyperbaric facility.

Objectives. The objective of the audit was to determine if the construction of the NHP was planned and programmed to meet essential requirements in an economical, efficient, and timely manner. Applicable internal controls were also evaluated.

Audit Results. DoD was planning to construct an acute care facility at Portsmouth whose scope, even after the reductions agreed to by OASD(HA) and Navy, was not justified. DoD could save $49.9 million in construction costs by rescoping the acute care facility project and using renovated existing facilities to meet essential needs. Additional savings would be achieved in reduced equipment, operations and maintenance, and staffing, but those benefits could not be reliably quantified from information available to us. Constructing the facility as designed would further aggravate an already excessive rate of empty beds in Government hospitals in the Norfolk area, and further divert patients from already underutilized non-Federal hospitals in the area.

Internal Controls. Internal controls were not adequate to ensure that the construction project was justified and sized to meet minimal essential requirements. Additionally, controls did not ensure that equipment and staffing requirements were consistent

with the project scope justified in the economic analysis. See the Finding for details of the internal control weaknesses and Part I for a description of the controls assessed.

Potential Benefits of Audit. We identified potential monetary benefits of $49.9 million (see Appendix G).

Summary of Recommendations. We recommended that the planned acute care facility be redesigned and its scope reduced, and that greater use be made of existing facilities to meet project requirements. We also recommended that internal controls be established over the sizing of medical construction projects.

Management Comments. The Acting Assistant Secretary of Defense (Health Affairs) nonconcurred with draft report Recommendations 1.a., 1.b., 1.c., and 2., stating that the delay in construction that would occur by implementing the recommendations could increase the total project costs above the $49.9 million savings cited in this audit report. The Acting Assistant Secretary concurred with Recommendation 3., stating that with the creation of the Health Care Planning Division and initiation of the revalidation process, adequate internal controls are in place. See Part II and Part IV for a detailed discussion of management comments. The complete text of management's comments is in Part IV of this report.

Audit Response. The management comments overstated the costs of implementing Recommendations 1.a., 1.b., 1.c., and 2. Significant savings will occur if the recommendations are implemented. Additionally, the comments are inconsistent with the OASD(HA) analysis, which stated that $53.4 million would be saved if the design were reduced. Management comments were not fully responsive to Recommendation 3. The Acting Assistant Secretary did not state how his office would ensure that medical construction projects would be sized to meet minimum essential requirements. We requested that the Assistant Secretary of Defense (Health Affairs) reconsider his position on the unresolved recommendations by November 1, 1993.

TABLE OF CONTENTS

	Page
TRANSMITTAL MEMORANDUM	1
EXECUTIVE SUMMARY	i
PART I - INTRODUCTION	1
Background	1
Objectives	3
Scope	3
Internal Controls	4
Prior Audits and Other Reviews	4
PART II - FINDING AND RECOMMENDATIONS	7
Construction and Renovation Requirements	7
PART III - ADDITIONAL INFORMATION	25
APPENDIX A - Map of Hampton Roads, Virginia	27
APPENDIX B - Outpatient Clinics with Potential to be Relocated to Building 215 at NHP	29
APPENDIX C - Examples of Value Engineering Recommendations Not Accepted	31
APPENDIX D - Comparison of Average CHAMPUS and NHP Direct Health Care Costs	33
APPENDIX E - Locations of the Beneficiary Population	35
APPENDIX F - The Navy Hospital Portsmouth Complex	37
APPENDIX G - Summary of Potential Benefits Resulting from Audit	39
APPENDIX H - Organizations Visited or Contacted	41
APPENDIX I - Report Distribution	43

PART IV - MANAGEMENT COMMENTS 45

Acting Assistant Secretary of Defense (Health Affairs) 47

Audit Response to Management's Comments 61

This report was prepared by the Logistics Support Directorate, Office of the Assistant Inspector General for Auditing, DoD. Copies of the report can be obtained from the Secondary Reports Distribution Unit, Audit Planning and Technical Support Directorate at (703) 614-6303 (DSN 224-6303).

PART I - INTRODUCTION

Background

Health care costs. Health care costs in the United States continue to increase dramatically. The increase in health care cost, in excess of the rate of inflation, cannot be attributed solely to any one cause. The cost of facilities and equipment, procedures for new treatments, staffing, and cost related to insurance and administration are major contributors to cost growth. Having excessive idle hospital capacity within a community is also a contributor to high medical cost.

The greater Norfolk/Tidewater area includes 22 civilian hospitals, 3 military hospitals, and a Department of Veterans Affairs hospital, which are readily accessible to military eligible patients in the area. All of these facilities have idle capacity. Nevertheless, the Naval Hospital Portsmouth (NHP) serves a clear and continuing need, and it is in need of modernization. We undertook this audit to determine whether, in the process of achieving that modernization through a combination of construction and renovation, DoD has adequately justified the size and types of facilities to be provided.

Current operations. NHP has acute care and outpatient facilities and provides a comprehensive range of patient services to active duty military personnel and their dependents. It also provides health care to retired military and their dependents on a space available basis. NHP also has an extensive graduate medical education (GME) program. The Portsmouth catchment area encompasses the beneficiary population within a 40-mile radius of the NHP and includes seven Naval hospital branch clinics and two Navy care centers* (NAVCARE). Active duty dependents, military retirees, and their dependents may also receive health care in the civilian community under the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Medicare is also available to military retirees over 65 years old.

The Portsmouth catchment area comprises the southeastern Virginia cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, Smithfield, Suffolk, Poquoson, Virginia Beach, and Yorktown; and the counties of James City, Isle of Wight, and York (see Appendix A). As of December 31, 1991, the catchment area included over 326,000 active duty personnel, retirees, and dependent beneficiaries. The total population of the geographic area is about 1.3 million people.

The NHP complex is located on 110.5 acres and consists of two primary structures (Buildings 1 and 215) and a number of smaller structures (for example, Buildings 249 and 250) providing

---

* Contractor-owned and operated clinics.

administrative, fire and security, and logistics services. Building 1 was constructed around 1830 and has undergone renovations. It is about 200,400 square feet and is used primarily for psychiatric, gynecology, obstetrics, and pediatrics. Building 215 is the acute care facility (ACF) and was constructed around 1960. It is an 18-story building, including two levels for mechanical equipment, and contains about 504,575 square feet of space. Building 215 was originally designed as an 800-bed facility using 18 open wards. About 10 of the 18 open wards have been converted to patient rooms, offices, or exam rooms leaving 600 available beds. Building 215 also contains inpatient and outpatient services, such as neurosurgery, ophthalmology, radiology, and urology. Buildings 249 and 250 were constructed in the 1970's. Building 249 houses public works functions and Building 250 houses accounting, logistics, and personnel activities.

In FY 1991, DoD spent $320.5 million for health care in the Portsmouth catchment area. The Navy expended $215.9 million for over 1.2 million outpatient visits to the hospital and its seven branch clinics; 102,500 bed days (an average of 281 beds per day, not including bassinets) for inpatient care; and other medical services and support functions such as training. CHAMPUS spent $94.6 million for over 500,000 patient visits and 62,012 bed days (an average of 170 beds per day) for inpatient care. Additionally, DoD spent about $10.0 million for 273,000 outpatient visits to NAVCAREs.

Construction project. The Defense Medical Facilities Office (DMFO) was planning to construct a replacement hospital at Portsmouth and renovate existing facilities at a cost of $330.0 million in military construction (MILCON) funds. An additional $100.2 million in operations and maintenance and other procurement funds will be spent for equipment as part of the project.

The project is incrementally funded beginning in FY 1990. The Naval Facilities Engineering Command (NAVFAC) is managing the design and construction contracts for DMFO. Since 1990, interim support facilities, utilities, and a parking garage have been built or are near completion. As of July 1, 1992, DoD spent an estimated $25.4 million on construction. The construction of the ACF was planned to start in late FY 1993. The contract estimate for the ACF is $173.9 million, which does not include equipment that will be purchased with other funds. About $12.6 million has been spent on architect and engineering fees. The final phase of the project includes the renovation of Buildings 1 and 215 and site restoration. Completion of the project was estimated at June 2000.

Objectives

The objective of the audit was to determine if the construction of the NHP was planned and programmed to meet essential requirements in an economical, efficient, and timely manner. Applicable internal controls were also to be evaluated.

Scope

We reviewed the August 1988 project justification submitted to Congress, the September 1984 economic analysis, and the February 1988 economic analysis for the planned MILCON project. We reviewed data collected on civilian hospitals in the catchment area for 1983 through 1990 related to utilization of those facilities and types of medical services offered. Information on NHP's operations was also reviewed for FYs 1985 through 1992. The information included operating budgets, catchment area population data, patient workload data, historical operating costs, staffing, 1991 Master Plan, and health care provider contract data. Projected workload data obtained from the Defense Medical Information System for FYs 1991 through 1996 was reviewed for NHP, Langley Air Force Base, and Fort Eustis catchment areas. CHAMPUS information on patient work load and expenditures was also collected and analyzed for FYs 1985 through 1991. We did not verify the appropriateness of care for the workload data reviewed. We did not verify the accuracy of Defense Medical Information System data related to CHAMPUS and NHP cost and workload data.

For the MILCON project, we also reviewed value engineering studies, design drawings, engineering cost estimates, Program for Design and changes, engineering progress reports, and work-in-progress reports. For the existing hospital facilities we reviewed as-built drawings, maintenance and repair reports, engineering inspection reports, and Joint Commission on Accreditation of Healthcare Organizations (JCAHO) reports.

We obtained financial, facility, and workload data from the Hampton Veterans Affairs Medical Center and two area civilian hospitals: Portsmouth General Hospital and Chesapeake General Hospital. Similar data were obtained from McDonald Army Hospital, Fort Eustis, and First Medical Group, Langley Air Force Base. Data obtained on the civilian hospitals were for January 1991 through May 1992, and FYs 1983 through 1991 for the Hampton Medical Center and DoD hospitals. The review at the locations included physical inspections of the facilities and interviews with responsible financial and facility personnel. We obtained and reviewed procedures and policies related to medical facility planning and standards from DoD, Department of Veterans Affairs, Commonwealth of Virginia, and JCAHO. The documents were current criteria at the time of our audit.

We performed our audit from January through November 1992. Appendix H lists the DoD and non-DoD organizations visited or contacted. This economy and efficiency audit was made in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the IG, DoD, and accordingly included such tests of internal controls as were considered necessary.

Internal Controls

Controls assessed. We evaluated the internal controls related to the MILCON project. The evaluation included the controls established to monitor justifying, prioritizing, sizing, and processing the project, as well as controls related to the development of the equipment and staffing requirements.

Internal control weaknesses. The audit identified material internal control weaknesses as defined by Public Law 97-255, Office of Management and Budget Circular A-123, and DoD Directive 5010.38. Controls were not adequate, and as a result the MILCON project was not justified and sized to meet minimum essential requirements as specified in the available economic analysis. Additionally, controls did not ensure that equipment and staffing requirements were consistent with project scope justified in the economic analysis. Details of these conditions are discussed in Part II of this report. Recommendation 3., if implemented, and recent efforts by the Office of the Assistant Secretary of Defense (Health Affairs) (OASD[HA]) to validate facility requirements, will correct the weaknesses. The monetary benefits associated with Recommendation 3. cannot be determined. A copy of the final report will be provided to the senior officials responsible for internal controls within OASD(HA) and Navy.

Prior Audits and Other Reviews

IG, DoD, Report No. 92-039, "Quick-Reaction Report on Construction of Nellis Air Force Base, Nevada, Hospital," January 30, 1992, showed that DMFO had not revalidated the project's requirements just before construction. The report concluded that the Nellis MILCON project was not economically justified. The OASD(HA) nonconcurred with the reported conclusion, but agreed that his office would establish procedures to revalidate the requirements and the economic analysis for medical MILCON projects.

The Center for Naval Analysis (the Center) issued a report entitled "A Comparison of Obstetric Costs Between Military and Civilian Health Care Providers," August 1992. The report compared the NHP and CHAMPUS cost of obstetric care, per delivery, during FY 1990. The report stated that it would cost NHP $1,100 (22.4 percent) more per delivery than the CHAMPUS cost of $4,900 if NHP tried to increase its obstetrics work load. Further, NHP patients had more visits and admissions per delivery

than CHAMPUS patients. This finding was of particular concern to the NHP since obstetrics was the largest type of health care provided and largest expense at the NHP. The report recommended that Navy examine its practice patterns in obstetrics to understand practice differences (length of stay, number of admissions, and visits) between military and civilian providers and develop incentives to providers for maintaining quality while containing costs. NHP disagreed with the report stating that it was flawed. The NHP said the report did not use diagnostic-related groups to derive cost per individual diagnosis. Diagnostic-related groups classify patients on principle diagnosis, procedures performed, age, and sex.

OASD(HA) report, "Naval Hospital Portsmouth, VA: Revalidation of Requirements," August 13, 1992, reported that the current work load at NHP did not support the planned ACF. The study focused on the inpatient work load at NHP and the complexity of those cases. The study used diagnosis-related group codes to identify cases that should not have been admitted or could have been treated on an outpatient basis. The key points of the study follow.

o The Navy had not maintained an 80-percent occupancy rate at any of its eight inpatient facilities constructed in the last 12 years.

o The number of occupied bed days at the NHP decreased by about 28,000 for the 3-year period ending in FY 1991.

o The active duty population of 67,000 personnel in the Portsmouth catchment area will decrease by approximately 19,600 (29 percent) personnel by FY 2000.

o Of the NHP patient work load, 59 percent are CHAMPUS eligible.

o In FY 1991, excess beds were available in the civilian community within the Portsmouth catchment area.

o CHAMPUS bed day cost was about $66 less than NHP direct care.

o About 10 percent of the occupied bed days were for patients inappropriately treated as inpatients instead of outpatients.

Based on its study, OASD(HA) recommended that the ACF be reduced by 104 inpatient beds to a total of 360 acute care beds. OASD(HA) also reported that the hyperbaric facility was not needed. The study also recognized that size reductions could

also be made in outpatient clinics, operating rooms, and ancillary departments. However, the OASD(HA) study did not attempt to determine the amount of excess space.

In November 1992, based on its discussion with OASD(HA), the Navy agreed to reduce the ACF by 101 patient beds and defer the acquisition of the hyperbaric chamber. The architects are in the process of reconfiguring the floor designs to reflect the reduction in total beds. However, the Navy does not plan to reduce the size of the ACF structure (1,015,000 square feet) nor move planned outpatient services to renovated space in the existing facility. Part II of this report addresses those issues.

PART II - FINDING AND RECOMMENDATIONS

CONSTRUCTION AND RENOVATION REQUIREMENTS

DoD was planning to construct an ACF at Portsmouth for which the scope was not economically justified and that exceeded valid needs. The condition occurred because the economic analysis was not used to effectively control or plan the size of the project. Further, neither DMFO nor the Navy updated the economic analysis as required by DoD Instruction 7041.3, and the analysis did not support the project justification submitted to Congress. DoD could save $49.9 million in construction costs by rescoping the project and using renovated existing facilities to meet minimum essential needs.

DISCUSSION OF DETAILS

Background

DoD criteria.

Budget guidance. DoD Budget Guidance Manual, chapter 262, "Military Construction Appropriations," provides guidance on the preparation of budget estimates. The manual requires that a net present value economic cost analysis be used to justify all MILCON projects with an estimated cost in excess of $2 million. When it is necessary to revise cost estimates as the result of congressional action or design changes, such changes will be considered as an additional budget submission and an economic analysis must be performed.

Instructions. DoD Instruction 6015.17, "Planning and Acquisition of Military Health Facilities," March 17, 1983, requires that an economic analysis be prepared to select the most cost-effective alternative. Changes being drafted to DoD Instruction 6015.17 (to be renamed "Procedures for the Planning, Programming, Budgeting, and Execution for Construction of Military Health Facilities") will require OASD(HA) to validate and revalidate the requirements for a MILCON project at various stages of the design and construction process.

DoD Instruction 7040.4, "Military Construction Authorization and Appropriation," March 5, 1979, requires that:

- a special effort be made to use efficiently all existing DoD installations and facilities, and

- an economic analysis be prepared and used as an aid to establish MILCON priorities and determine optimum allocation of resources to construction.

DoD Instruction 7041.3, "Economic Analysis and Program Evaluation for Resource Management," October 18, 1972, requires that an economic analysis:

o systematically identify benefits, other outputs, and costs associated with missions and alternate ways to accomplish a program;

o evaluate alternate financing, such as lease or buy; and

o be initiated early in the acquisition process and updated as developments occur, which could significantly alter the cost benefit relationship in the analysis.

DMFO procedures. DMFO has prepared detailed procedures for performing an economic analysis and sizing military treatment facilities (MTF). The "DoD Economic Analysis Procedures Manual," revised April 4, 1989, provides procedures for the development of MTF workload data, determining availability of other health care providers, analysis of beneficiary population, and performance of cost comparisons. The publication was originally drafted in FY 1985 and has been the primary DMFO guidance for preparing an economic analysis. The "DoD Medical Space Criteria Manual," revised August 1, 1991, provides details for the sizing of rooms and other spaces in MTFs. The size of an MTF is based on the results of the economic analysis and the application of the space criteria manual for room sizes needed to meet the projected work load. A detailed listing, Program for Design, is then prepared showing all types and sizes of the rooms and spaces for the MTF. The Program for Design is the official document used in the design of the MTF.

Economic analysis. A February 1988 analysis, used to justify the project to Congress, proposed renovation of Buildings 1 and 215 and construction of a new ACF. The new ACF would be constructed behind Building 1 and contain 859,570 square feet, while 200,400 square feet in Building 1 and 66,297 square feet in Building 215 would be renovated for administrative spaces and other medical support functions. This MILCON project encompassed a total requirement of 1,126,267 square feet. The project also included utilities, a new power plant, a parking garage, and medical equipment. The estimated construction cost, as of October 1989, for the alternative was $211.7 million (MILCON funds).

Current plans. At the time of our audit, the Navy planned to construct an ACF with 1,015,000 square feet of space, 464 inpatient beds, outpatient facilities, a clinic investigation facility, a hyperbaric facility (decompression chamber), and enclosed connecting bridges. Additionally, 522,804 square feet of renovations were to be made to Buildings 1, 215, 249, and 250. Building 215 would retain 152 light care beds providing the NHP with a 616-bed total capacity. The MILCON project also included support facilities, temporary buildings, utilities, and site and

grounds work. The MILCON project as funded exceeded the space and cost of the economic analysis used to justify the project to Congress, as shown in Table 1.

Table 1. Comparison of the Economic Analysis to the Project as Funded

	1988 Economic Analysis	Project as Funded
New Construction (square feet)	859,570	1,015,000
Renovation (square feet)	266,697	522,804
Total MILCON Cost (Million)	$211.7	$330.0

Audit Results

DoD was planning to construct an ACF with a total square footage that was in excess of economical facility requirements for medical outpatient clinics, food service, and nursing units. Project management did not ensure that project scope and cost, as justified to Congress for funding, were in accordance with the economic analysis. Neither DMFO nor Navy updated the economic analysis despite significant cost and design changes. Additionally, assumptions in the 1988 analysis used to justify the project were flawed or no longer valid. For example, available patient beds in local area hospitals were not adequately considered, and CHAMPUS costs did not increase as fast as NHP costs. We estimated that $49.9 million ($58.2 million in construction savings less $8.3 million in additional design cost) would be saved if DoD eliminated unjustified space from the ACF design before the construction contract is awarded and used renovated space in Building 215.

Facility requirements. DoD can reduce the size of the ACF by 339,194 square feet, from 1,015,000 square feet to 675,806 square feet, and still satisfy essential needs. As a result, the estimated ACF construction cost of $173.9 million would be reduced by $58.2 million ($171.50 a square foot) before redesign cost. The reduced construction could be accomplished by eliminating 224,795 square feet of excess space (for example, clinical space in excess of DMFO sizing criteria) and relocating functional areas totaling 114,399 square feet of space to Building 215, as shown in Table 2.

Table 2. Proposed Reductions in the Planned ACF Construction

	Excess Space (SF)[1]	Functional Space Moved to Building 215 (SF)	Total (SF)	Construction Cost Savings (Million)
Outpatient clinics	32,444	89,829	122,273	$21.0
Food service	5,800	24,570 [2]	30,370	5.2
Nursing units	41,009	0	41,009	7.0
Auxiliary areas	145,542	0	145,542	25.0
Total	224,795	114,399	339,194	$58.2

[1] Square feet.
[2] About 24,570 square feet of additional outpatient clinic space could be relocated instead of food service space.

The estimated $58.2 million ACF construction savings would be partially offset by redesign cost of $8.3 million, for a net savings of $49.9 million in MILCON funds. Redesign cost of $8.3 million was estimated by taking the current design contract cost as a percentage (7.2 percent) of estimated construction cost times the remaining ACF construction cost of $115.7 million after the proposed reductions (estimated cost of $173.9 million less $58.2 million).

We believe the estimated savings are conservative. We did not estimate the savings for equipment that would not be needed as a result of reducing the size of clinics and the number of patient beds. Additionally, operation, maintenance, and personnel savings were not estimated because the Navy could not provide us valid data on additional resources needed to operate the planned ACF; and it was unsure of how it would be staffed. Controls did not exist to ensure staffing availability consistent with the project's scope. Interest on the funds (long-term debt instruments issued by U.S. Treasury to fund Government operations) used to finance the construction was not included in the savings because it would be offset partially by construction cost inflation for the 2 years (NAVFAC estimate) it would take to redesign the ACF. Reducing the size of the clinics and nursing units would also reduce the requirements for ancillary and support services that we did not include in our savings.

Relocation of outpatient clinics and food service. The construction cost and size of the planned ACF could be reduced by approximately $26.2 million and 152,643 square feet of functional space, which is equivalent to the clinic space on the second floor of the planned ACF. We identified 18 outpatient clinics and the food service department as candidates for relocation into Building 215. They are located on the first and second floors of the planned ACF and are to contain 200,670 square feet of space,

or 48,027 (200,670 less 152,643) more square feet than needed to eliminate all clinics on the second floor of the planned ACF. Table 3. shows the total functional square footage that is a candidate for excess and relocation. However, we are recommending that only 114,399 square feet of space be reassigned to Building 215, as shown in Table 2.

Table 3. Potential Candidates for Reductions in the ACF Outpatient Clinics and Food Service

	Excess Space (SF)*	Functional Space that Could be Moved To Building 215 (SF)	Total (SF)
Outpatient clinics	32,444	137,856	170,300
Food service	5,800	24,570	30,370
Total	38,244	162,426	200,670

*Square feet.

Outpatient clinics. The Program for Design specifies 195,825 square feet of space for 22 outpatient clinics, 170,300 square feet (18 clinics) to be constructed at the ACF, and 25,525 square feet (4 clinics) to be renovated in Building 215 (see Appendix B for a list of the 18 clinics). Our analysis showed that 32,444 square feet planned for construction was not properly justified and 137,856 square feet (170,300 square feet minus 32,444 square feet) planned for construction does not have to be located in the planned ACF.

Planned clinic space increased by 65,329 square feet after the 1988 economic analysis was completed. The 1988 economic analysis specified that 130,496 square feet was required, not 195,825 square feet as planned. Although we believe the 1988 economic analysis overstated requirements, we used it as a basis to determine if the planned facilities were properly sized. The increase of 65,329 square feet resulted from adding five clinics and increasing the size of eight others. The five clinics were not economically justified; however, we realize that the five clinics may be needed to support inpatient functions. Accordingly, we have not recommended eliminating the five clinics, which account for 32,885 square feet of the increase. The remaining 32,444 square feet of the increase was attributed to increases in the size for eight clinics. The increase to the eight clinics is not justified on the basis of DMFO sizing criteria and indicates potential excess capacity. Appendix B lists the excess space by clinic.

Renovation of existing clinics in Building 215 provides a reasonable alternative to new construction for outpatient clinics. With the reduction of inpatient functions in

Building 215, space will become available and patient traffic should be reduced. Building 215 already contains approximately 70,000 square feet of clinics. The clinics planned for the ACF primarily consist of offices, exam rooms, and waiting rooms, making them likely candidates for relocation to Building 215. According to JCAHO, clinics do not have the same life, fire, and safety requirements as inpatient facilities. Thus, clinics are less expensive to renovate in Building 215 than to construct in the ACF. Congress funded renovations of 217,313 square feet of functional space at $55 a square foot in Building 215. We are not proposing renovating space beyond the 217,313 square feet funded by Congress. The Program for Design includes 104,435 square feet of renovations in Building 215, leaving 112,878 square feet of renovations that were funded but not included in the Program for Design. This space could accommodate the areas we recommended for relocation to Building 215.

Food service. About 30,370 square feet of space for food service could be eliminated from the ACF. The food service area increased from the 22,570 square feet justified in the 1988 economic analysis to a planned 30,370 square feet. In August 1989, the food service operational concept was changed from an all cook and serve to a cook and chill operation. Additionally, the estimated number of peak meals the dining room was to serve increased from 912 a day to 1,500. These two changes resulted in the 7,800 square feet increase in the food service area (kitchen and office areas by 6,065 square feet and the dining room by 1,735 square feet). We determined that only 2,000 of the 6,065 square feet of the kitchen and office area increase was justified for cook and chill operations. Further, the dining room serves 600 to 800 peak meals a day; therefore, the remaining 1,735 square feet increase was not adequately justified. As a result, 5,800 (7,800 less 2,000) square feet of the 7,800 square foot increase could be eliminated.

The food service area in Building 215 has 27,000 square feet or 2,430 more than the 24,570 (22,570 1988 estimate plus 2,000) square feet properly justified. This food service area was originally designed to support an 800-bed hospital and could adequately support the new ACF. The concept of food service has changed allowing more efficient use of kitchen facilities and staff. Food is prepared in advance of meal times and refrigerated (cook and chill operations), then delivered to the nursing units. The meals are reheated in rethermalization units and served to the patients. The additional distance from the kitchen to the nursing units that would result if the food service was located in Building 215 rather than the ACF would not affect the quality of the food.

To summarize, we identified 152,643 square feet of clinics or a combination of clinics and food service space that could be relocated (114,399) or eliminated (32,444 plus 5,800) so that the foot print of the planned ACF would not change; thus, reducing

the amount of redesign cost and time. We have left the identification of specific clinics or specific clinics and food service space to be relocated to the OASD(HA).

Nursing units. Approximately $7.0 million would be saved in construction costs if 41,009 square feet of nursing unit space was eliminated from the ACF. The 41,009 square feet reduction is based on our estimate that ACF patient bed requirements were overstated by 152 beds, as well as support functions such as nursing stations, medical examination rooms, and utility rooms.

The Program for Design shows a total of 616 patient beds, 464 for the ACF and 152 (light care, detoxification unit, and human immunodeficiency virus patients) for Building 215, with supporting nursing spaces of 202,428 square feet that would be built or renovated. Our review of bed day data shows that the average number of beds (excluding bassinets) used per day for FYs 1990 and 1991, and through the third quarter of FY 1992 was 287. We estimated that of the average 287 beds occupied, 17 were for minimal care patients on medical and surgical (13 beds) and psychiatric (4 beds) wards and should not be included in the ACF bed requirement. In a September 7, 1989, memorandum to DMFO, the NHP commanding officer stated that the appropriate location for minimal care beds was Building 215. He further stated that a realignment of the 464 ACF beds was accomplished with minimal care beds (Class 1) being appropriately reassigned to Building 215. However, the total number of beds in the ACF was never decreased to reflect the reassignment of minimal care beds to Building 215. We agree that some minimal care beds should be in Building 215; but, we have identified only 17 of the beds. Other beds may be appropriate for the minimal care area planned in Building 215, but we did not delete additional potential minimal care beds from the ACF because some minimal care patients may require additional nursing care services. Using the criteria specified in the "DoD Medical Space Criteria Manual," we estimated that only 312 beds (Table 4.) are needed in the ACF; thus, the ACF is overstated by 152 beds (464 minus 312).

Table 4. Projected Bed Requirements

Types of Patient Beds	Number of Beds	DoD Standard Utilization Rate	Number of Beds Required
Obstetrics	18	.75	24
Psychiatric	32	.80	40
Medical and Surgical	213	.90	237
ICU and CCU*	7	.65	11
Total	270		312

*Intensive Care Unit and Cardiac Care Unit.

Auxiliary areas. An additional $25.0 million would be saved by eliminating and relocating the spaces for the medical clinics, nursing units, and food service mentioned above. For each square foot planned for the ACF, a planning factor of up to eight-tenths of a square foot, referred to as a grossing factor, is added for general purpose traffic areas, ACF elevators, mechanical rooms, and thickness of the walls. As a result of reducing the ACF square footage by 193,652, (122,273 plus 30,370 plus 41,009) we estimated that the grossing factor requirement for the ACF would be reduced by 145,542 square feet.

Project management. DoD spent over $780,000 for two different economic analyses for NHP, and neither one was used to effectively control and plan the project. Responsible NAVFAC and NHP personnel informed us that the economic analyses were performed to show that a replacement hospital was needed, but were not used as a guide to size or justify the amounts of funds to be invested in the MILCON project.

Economic analyses. An analysis performed in 1984 served as the original baseline for the MILCON project. The 1984 analysis recommended that a new clinic be constructed and Building 215 be renovated and contain 474 beds for inpatient care at a total estimated cost of $120.5 million (MILCON).

The 1984 analysis projected about 587,872 outpatient visits annually, which is consistent with the FY 1991 NHP work load of 536,148 visits. The planned facility concept discussed in the analysis provided for separation of the outpatient clinics and acute care. We believe the separation minimized the construction costs. The planned separation was dropped when the budget estimate was increased to $200 million.

The 1988 analysis proposed constructing and renovating over 1.1 million square feet of space for a composite facility. The project was sized at 463 beds to provide care for a daily average of 393 beds, and sized to handle about 560,000 outpatient visits annually. This scenario was identified as the most economical because it offered the best mix of medical services between CHAMPUS and NHP. Although this alternative was selected as the most economical to meet the catchment area's health care needs, it was only one of seven alternatives considered to size the project.

Other alternatives ranged from not building or operating a MTF and placing all the beneficiaries on CHAMPUS or contract care to constructing a MTF that would meet the health care needs of all beneficiaries in the catchment area. Each scenario affected the size of the facility. The analysis computed the costs of building an all care facility containing 1.3 million square feet; however, this scenario was uneconomical.

Current plans specify a 1,537,804 square foot MTF, or 237,804 square feet more than the all care scenario. The number of visits projected is consistent with the FY 1991 work load, while the number of bed days decreased from 126,000 in FY 1988 to 102,500 in FY 1991 (64 average daily bed decrease). Yet the 1988 economic analysis was not updated to determine whether the planned composite facility was still economical or properly sized.

Cost growth. DD Form 1391, used to justify the project to Congress and obtain funding for $330.0 million MILCON funds and $100.2 million equipment funds, cited the 1988 economic analysis as the supporting document for the scope of the project. However, the 1988 analysis showed that the facility actually needed could be built at an estimated cost of $211.7 million, or $118.3 million less than requested in DD Form 1391. Our review revealed that the size of the project was enlarged to increase its capacity, new facilities were added to the project, and the 1988 economic analysis did not include all equipment costs, as evidenced by the following examples. These changes should have resulted in a new economic analysis.

o The September 3, 1991, Program for Design showed that 189,257 square feet were added to the ACF for additional rooms and increasing the size of planned rooms without additional justification.

o Congress funded 221,009 square feet of space for renovation of Buildings 1, 215, 249, and 250 for which specific use was not included in the Program for Design.

o A clinical investigation facility, a hyperbaric facility, and enclosed connecting bridges that were not in the economic analysis were added to the project with an estimated cost of $22.3 million (including contingency, inspection, and overhead fees).

o An estimated $125.8 million for equipment was not included in the economic analysis. The economic analysis showed that $10.9 million in equipment was needed for the MILCON project; however, the current project has $136.8 million ($36.6 million of MILCON and $100.2 million of other funds) planned for equipment. As of July 31, 1992, the Navy identified $95.2 million ($41.0 million of operations and maintenance, $22.4 million of other procurement, and $31.8 million of MILCON funds) in equipment requirements.

ACF design. In addition to increasing the scope of the project, the Navy also increased design features for the ACF, which contributed to project cost growth. The cost estimate for the ACF is $173.9 million, while the estimate in the 1988 economic analysis was $128.8 million. Value engineering studies performed by the Navy identified specific instances of overdesign.

In June 1989, NAVFAC engineers performed two studies of the concept design to determine whether changes to the design could be made to reduce construction cost without reducing the quality of the structure. The engineers identified 45 potential design changes that would save an estimated $106.9 million. Only 20 of the recommended changes valued at $23 million were made to the design. Our review of the remaining 25 recommendations revealed that 21 recommendations valued at $51.5 million may have been appropriate but were not made to the design, although the Navy did not adequately justify reasons for not making the changes (see Appendix C).

Economic analysis assumptions. Neither DMFO nor the Navy adequately updated or revalidated the 1988 economic analysis. We found that assumptions used in the 1988 economic analysis were flawed or no longer valid. CHAMPUS cost increases were overstated, the 1988 economic analysis understated the number of available patient beds at other health care facilities, and the Navy understated access to local civilian health care facilities. Assumptions related to cost to expand the work load and access to other health care facilities may have been valid when the analysis was performed. However, validation or updating the economic analysis before design completion would have identified changes influencing those assumptions.

Cost comparisons. The 1988 economic analysis included incorrect projections that NHP costs would be less than CHAMPUS or other negotiated rates. The projections indicated that providing health care to the CHAMPUS population in the MTF would be cost-effective. Our analysis shows that such an expansion of the MTF work load would cost rather than save money.

The analysis forecasted the same rate of inflation for both CHAMPUS and NHP care. However, NHP direct care cost have increased faster than CHAMPUS. In FY 1985, the average CHAMPUS cost was higher than direct care; but by FY 1991 the average CHAMPUS cost was less than direct care cost. (See Appendix D of this report for a comparison of average cost.)

The Navy does not agree with our analysis based on average cost. The Navy believes that use of average CHAMPUS and NHP cost is not appropriate because CHAMPUS psychiatry cost is low and NHP intends to recapture high-cost medical and surgical cases. However, data provided by the Navy show that NHP is treating psychiatric patients and plans to increase its psychiatric work load by an average of 12 beds per day if the ACF is constructed as planned. Additionally, NHP has not attracted the more complex cases as discussed later in this report. We agree with the Navy that the accounting systems that accumulate the cost for NHP and CHAMPUS have flaws and differences in the methods used to allocate cost. Although there are inconsistencies in both NHP and CHAMPUS accounting, they provide the only cost accounting data available.

Our average cost figures for NHP are conservative because the NHP cost used in the analysis are understated. NHP costs did not include items such as training, food operations for medical personnel, or travel for referred cases, which cost NHP at least $24.1 million in FY 1991. Additionally, the NHP costs do not reflect depreciation of the construction and equipment cost for the project. If the depreciation cost was amortized over 25 years, as used in the 1988 economic analysis, the annual NHP cost would increase by $17.2 million.

Workload complexity. The Navy stated that it performs more complex medical procedures on inpatients than CHAMPUS does, and the Navy plans to recapture the highest cost CHAMPUS inpatients based on diagnostic-related groups to justify the ACF on a cost-effective basis. The Navy has not been able to support its claim. The August 13, 1992, OASD(HA) study noted that NHP has a less complex work load than CHAMPUS. According to the study, medical procedures performed by CHAMPUS providers in FY 1991 were 25 percent more complex than those performed by NHP personnel. Therefore, CHAMPUS may have a further cost advantage over NHP because average CHAMPUS cost includes more complex medical treatment.

NHP will have problems identifying which diagnostic related groups are more economical to treat. The DoD cost accounting system does not track costs by diagnostic-related groups, or as previously discussed, allocate all costs. The Center for Naval Analyses study found that it was more costly to provide obstetric care at NHP than at CHAMPUS (as previously discussed in "Prior Audits and Other Reviews"). Of the 464 beds planned for the ACF, 17 are planned for obstetrics patients "recaptured" from CHAMPUS providers.

Other health care facilities. The 1988 economic analysis concluded that relying on other civilian and Government facilities was not a viable alternative. The analysis reported that there were an estimated 4,020 civilian beds in the area and by 1991 there would be a surplus of only 525 civilian beds. It further concluded that the civilian hospitals would reduce excess capacity to control costs. The analysis also claimed that it was not practical to use other Government hospitals because the rivers in the Portsmouth catchment area presented physical obstacles to Navy beneficiaries using those facilities.

We determined that about 8.6 percent of the beneficiaries live in the proximity of the NHP (see Appendix E). The remaining 91.4 percent of the beneficiaries are in closer proximity to civilian or other DoD health care facilities. Further, approximately two-thirds of the beneficiary population is eligible for CHAMPUS, Medicare, or third party insurance coverage at civilian hospitals.

The 1988 economic analysis understated the number of available beds at other hospitals. In 1990 there were 22 civilian health care facilities in the Portsmouth catchment area licensed by the Commonwealth of Virginia, with 5,235 beds. Of the 5,235 beds, a daily average of 2,035 beds were unoccupied (four times the number indicated in the analysis). Additionally, three other Government hospitals located at Fort Eustis, Langley Air Force Base, and Veterans Affairs Medical Center Hampton, had a daily average of 330 (53 percent) unoccupied beds. Our review of bed occupancy data for an 8-year period ending December 31, 1990, showed that the number of empty beds increased 5 percent during the period. Chief executives of local hospitals and the State Department of Health informed us that they do not expect the number of available beds to significantly change in the future.

Two major area civilian health care facilities were not included in the 1988 economic analysis, Portsmouth General Hospital and Louise Obici Hospital in Suffolk, Virginia. Portsmouth General has 311 beds and Obici has 243 beds. The daily average of available (unoccupied) beds in 1991 was 312: 198 beds at Portsmouth General and 114 beds at Obici. Portsmouth General is within one block of the main gate of the NHP and is visible from the new parking garage at NHP (see Appendix F).

We believe that the civilian hospitals are in the position to offer substantial fee discounts. They have relatively low variable operating costs, providing an opportunity to negotiate discounted CHAMPUS rates. For example, in 1991, one hospital had an average variable bed day cost of less than $400. Because of the civilian hospitals' position, a contract price could be negotiated at or above the $400 bed day cost to allow the hospital to cover its variable costs and a portion of its fixed costs. The FY 1991 average CHAMPUS hospital cost was $473.37 per bed day.

OASD(HA) study. Although the economic analysis was not updated, the OASD(HA) issued the results of a revalidation study of the requirements for the new composite facility in August 1992. The study concluded that the ACF was oversized by 104 patient beds and that the hyperbaric chamber was not justified. It showed that patients were inappropriately treated on an inpatient basis, overstating inpatient work load. Details of the study are discussed in "Prior Audits and Other Reviews."

Conclusion. The NHP replacement project was sized in excess of what economically can be justified. The Navy has a history of building MTFs with more patient beds than it has been able to fill. In FY 1991, the Navy was able to fill an average of only 931 (51 percent) of 1,954 patient beds in 8 MTFs constructed since FY 1980. Given the increasing cost of health care and the overbuilding of MTFs, DoD should take action to downsize the planned ACF at Portsmouth and use, to the extent possible, Building 215 for medical treatment purposes. By elimination of

the second floor from the ACF design, it will maintain the basic foot print of the building design and reduce the amount of redesign time.

RECOMMENDATIONS, MANAGEMENT COMMENTS, AND AUDIT RESPONSE

We recommend that the Assistant Secretary of Defense (Health Affairs):

1. Direct the redesign of the Navy Hospital Portsmouth acute care facility to:

a. Reduce the number of patient beds by 152.

b. Reduce the total size to 675,806 square feet.

c. Relocate 114,399 square feet (functional areas) of outpatient clinics or a combination of clinics and food service space to Building 215.

Management Comments. The Acting Assistant Secretary of Defense (Health Affairs) nonconcurred with Recommendation 1.a., stating that subsequent to the audit, the number of bed reductions agreed to between OASD(HA) and the Navy was changed from the original 104 to 101. Reducing the number of beds beyond the 101 bed reduction would significantly reduce the capability of the hospital to adjust to future requirements. He also stated that additional capacity is needed because of the uncertainties involving implementation of TRICARE (Army, Navy, and Air Force managed care program in Hampton Roads, Virginia), base closures, specialized treatment facilities, and possible consolidation of GME.

The Acting Assistant Secretary nonconcurred with Recommendations 1.b. and 1.c., stating that the OASD(HA) and the Navy have agreed to backfill some vacated ACF spaces with enhanced same day surgery capabilities. Additionally, moving the outpatient clinics and food service out of the ACF would impair the functional layout of the building and would not be cost-effective. The parking garage was situated so as to provide patients close access to clinics and to keep vehicles away from the emergency entrance. Moving outpatient clinics and food service areas to Building 215 increases congestion around the emergency room and will adversely affect the flow of vehicles, logistics, and patients. He also cited staff inefficiencies inherent in separating the clinics and inpatient areas.

The Acting Assistant Secretary stated that moving 114,399 square feet of outpatient clinics and food service area would require nearly double the amount of space due to a 1.93 grossing factor. According to the Acting Assistant Secretary, the master plan includes usage for nearly all of Building 215 and adequate space would not be available to relocate the clinics and food service. Many of the planned functional users of Building 215 would be

forced to seek other locations for construction. The report did not consider the cost of this additional construction or suggest where new buildings to support these displaced functions could be placed. He also commented that the report did not address the potential problem of floor loading limits in Building 215 if the cook and chill system is located in Building 215. Further, the report did not address how the Navy is to operate outpatient services or food services during the possible 2-year period that Building 215 would be down for renovation. He concluded by stating that even if space were available in Building 215, it was inappropriate for clinical use, especially in the high-rise wings, because the wings are long and narrow and usage is limited by single-loaded corridors. Details of the Acting Assistant Secretary's comments are contained in Part IV of this report.

Audit Response. We disagree with the Acting Assistant Secretary's comments on Recommendation 1.a. Although the number of beds was reduced by 101, the size of the ACF was not changed. As discussed in the report, we believe the ACF should be reduced by 152 beds. The Acting Assistant Secretary did not address the difference between our reduction of 152 beds and the agreed-upon reduction of 101 beds, except for his reference to potential future requirements. If requirements are so volatile, he should consider delaying the project until the impacts of such factors as base realignment and closure, specialized treatment facilities, and changes in GME are known. No documentation was provided to support any increases in requirements due to base realignment and closure or specialized treatment facilities. GME requirements are discussed in Part IV of this report, in our response to management comments on the finding.

On Recommendations 1.b. and 1.c., the Acting Assistant Secretary overstated the inconveniences and congestion problems associated with converting Building 215 into an outpatient facility. As discussed in the detailed audit response in Part IV, the inconveniences to staff and outpatients would be minimal. Little or no inpatient traffic would exist in Building 215 after the ACF is constructed. If the Coordinated Care Program functions as designed, outpatients will have appointments, which will further reduce the chance of patient overflow. Emergency outpatient care will be provided in the planned ACF. The Acting Assistant Secretary provided no additional justification for the need to use space created by eliminating 101 beds in the ACF for enhanced 1-day surgery capability.

The redesign of the ACF would not significantly affect the logistics functions or emergency room operations. Basic supply operations would remain in the same general locations; the planned traffic pattern would not change. If DoD opted to leave the food service in Building 215, the planned traffic pattern would change. Delivery trucks would drive and park between Building 215 and the parking garage. The change in traffic pattern would be insignificant because entry into the parking garage for the patients is through the main gate of NHP and

southwest, while the food service trucks would go north from the gate. The emergency room has access from two different directions, the east one is not affected by either patients entering the parking garage or vendor supply trucks. The major traffic problem at NHP has been access on and off the compound because of its two gates. Bottle necks occur daily at the NHP main gate, and the west side gate is next to a historical housing area with some restrictions on vehicle traffic. Our recommendations will not affect this problem.

There would be minimal personal inconvenience to MTF staff and patients. The MTF staff would have to walk to the building next door. The parking garage is across the street from Building 215, in the same location as planned. We did not state that the food service had to be moved, rather we gave OASD(HA) the alternative between relocating clinic space or a combination of clinic and food service space. The Navy was unable to provide any support regarding possible negative impacts of the inconvenience on productivity. DoD has constructed MTFs with separate outpatient and inpatient functions similar to what we are proposing at such naval hospitals as Bethesda and San Diego, and at such Army hospitals as Irwin, Madigan, and Tripler. Walter Reed has clinical services in 12 separate buildings to include portions of the old MTF. Unlike NHP physicians, civilian physicians in the local area have to drive between offices and hospitals.

The master plan is a conceptual document, while the Program for Design is the official design criteria document. The master plan effectively designated much of Building 215 for barracks and administrative space. It also contained additional plans to construct other barracks on the NHP compound. The Navy could not produce any studies or documents supporting the economic justification or requirements for the barracks. At the time of our audit, a design did not exist and Congress had not provided sufficient funds to implement the master plan recommendations. The master plan shows that $36.9 million in Navy MILCON funds will be needed to renovate 504,575 gross square feet, while Congress provided only $17.5 million for renovation of 317,389 square feet or the first six floors. However, the Program for Design shows only 104,435 square feet specifically planned for renovation.

The grossing factor of 1.93 used in the Acting Assistant Secretary's comments is the grossing factor of 1.68 used for new construction inflated by an additional 15 percent for "inefficiency." The grossing factor provides for hallway and mechanical spaces. Building 215 already has elevators, major corridors, and spaces for mechanical areas on the top two floors and in the basement. Thus, the Acting Assistant Secretary is including them twice by applying the 1.93 factor. OASD(HA) was unable to support its claim for increasing the grossing factor for "inefficiency." Office and exam room spaces in Building 215 that were previously converted from other uses met current DoD criteria. A renovation factor may be appropriate due to the

conversion to a cook and chill operation if food services are located in Building 215. However, NAVFAC engineers estimate that a factor of 1.1 would be adequate.

We do not agree that Building 215 is inappropriate for food service. The Navy was unable to produce any documents to show that floor loading limits would be exceeded by cook and chill equipment. Other Navy MTFs installed the cook and chill equipment in existing facilities. Navy engineers told us that the floor in Building 215 could be reinforced if required.

We disagree with the Acting Assistant Secretary's statement that Building 215 is not suitable for outpatient clinics. Building 215 is currently used for outpatient services. Many old open bay wards on the first six floors have been converted to clinics containing exam rooms and physician offices. One set of elevators has been dedicated to inpatients and staff. However, when inpatient functions are relocated to the ACF, both sets of elevators will be available to outpatients; thus, congestion will be reduced.

There would be little patient disruption if all recommendations were implemented. The inpatient functions and some of the outpatient functions would still be moved to the planned ACF. Other outpatient functions would remain in Building 1 until Building 215 renovations are completed. DoD has historically performed major renovations by working one vertical wing at a time; thus, keeping the remainder of the MTF operational, as was done at the Tripler and Fort Lee MTFs. Interim facilities are not required. A Navy engineering study recommended that Building 215 be renovated in vertical wing phases. Most of Building 215 would be vacated when the ACF is completed, rendering the renovation strategy cost-effective and feasible.

2. Reduce the military construction funds for the Naval Hospital Portsmouth project by $49.9 million.

Management Comments. The Acting Assistant Secretary nonconcurred with the recommendation, stating that the $49.9 million was overstated because of cost factors not considered in the report. The Acting Assistant Secretary further claimed that implementing the report recommendations would increase costs by $40.3 million. Costs cited as not considered in the report included: "heavy" renovation costs of approximately $128 per square foot, collateral equipment escalation, Building 215 redesign, interim facilities, construction for facilities to support operations displaced from Building 215, and life-cycle costs. He concluded that the agreement between the OASD(HA) and the Navy would save money because it avoided the costs cited above.

Audit Response. The Acting Assistant Secretary's conclusion that costs would increase by $40.3 million is inconsistent with the results of the OASD(HA) analysis, which stated that

$53.4 million in MILCON and operations and maintenance funds would be saved if the actual design were reduced. We acknowledge that other costs would accrue, such as annual operating and construction financing costs, as discussed in the facility requirements section of this report. We did not perform a life-cycle cost analysis because adequate data were not available for our review. The Acting Assistant Secretary's cost analysis does not represent a complete life-cycle cost analysis, but rather selects a few cost items that were significantly overstated. It ignores costs, such as maintenance and operations, which were identified in the previous study. A detailed analysis of the Acting Assistant Secretary's cost estimate is in Part IV of this report.

3. Establish and document internal controls to ensure that medical military construction projects are designed and constructed consistent with the scope in validated economic analysis.

Management Comments. The Acting Assistant Secretary concurred with Recommendation 3., stating that with the creation of the Health Care Planning Division and the initiation of the revalidation process, adequate internal controls are in place. The Health Care Planning Division is separate from the design and construction function, which allows for closer and more independent scrutiny of requirements. He further stated that medical facilities will now be sized on work load that is economical, considers provision of care in civilian facilities, and considers shortfalls in provider staffing.

The Acting Assistant Secretary stated that contract economic analyses are now based on Diagnosis Related Groups (DRGs) and application of managed care techniques. Appropriateness and complexity of care are considered as well. Medical Expense and Performance Reporting System costs are adjusted to bring them more in line with CHAMPUS costs and facility business plans are reviewed. An expanded use of data sources provides more comprehensive information upon which to base a decision and offers greater objectivity.

Audit Response. The Acting Assistant Secretary's comments are partially responsive to Recommendation 3. We agree that validation and revalidation of project requirements by the Health Care Planning Division provide an independent review of requirements and that basing economic analyses on DRGs and complexity of care is appropriate. However, the Acting Assistant Secretary did not clarify what procedures will ensure that design of a project that has been overscoped is changed to reflect minimum essential requirements. Additionally, he did not provide details on controls established to ensure that medical facilities are sized based on economical work load. OASD(HA) performed a validation of NHP requirements, but no major structural changes

were made to the design. We request that comments to the final report describe the specific actions that will ensure that project designs are rescoped and based on validated requirements.

In summary, we believe that our recommendations are cost-effective and feasible. We request that the Assistant Secretary reconsider his position and respond to this final report.

RESPONSE REQUIREMENTS FOR EACH RECOMMENDATION

Responses Should Cover:

Number	Addressee	Concur or Nonconcur	Proposed Action	Completion Dates	Related Issues
1.a.	ASD(HA)	X	X	X	
1.b.	ASD(HA)	X	X	X	
1.c.	ASD(HA)	X	X	X	
2.	ASD(HA)	X	X	X	M 1/
3.	ASD(HA)	X	X	X	IC 2/

1/ M = potential monetary benefits.

2/ IC = material internal control weakness.

PART III - ADDITIONAL INFORMATION

APPENDIX A - Map of Hampton Roads, Virginia

APPENDIX B - Outpatient Clinics with Potential to be Relocated to Building 215 at NHP

APPENDIX C - Examples of Value Engineering Recommendations Not Accepted

APPENDIX D - Comparison of Average CHAMPUS and NHP Direct Health Care Costs

APPENDIX E - Locations of the Beneficiary Population

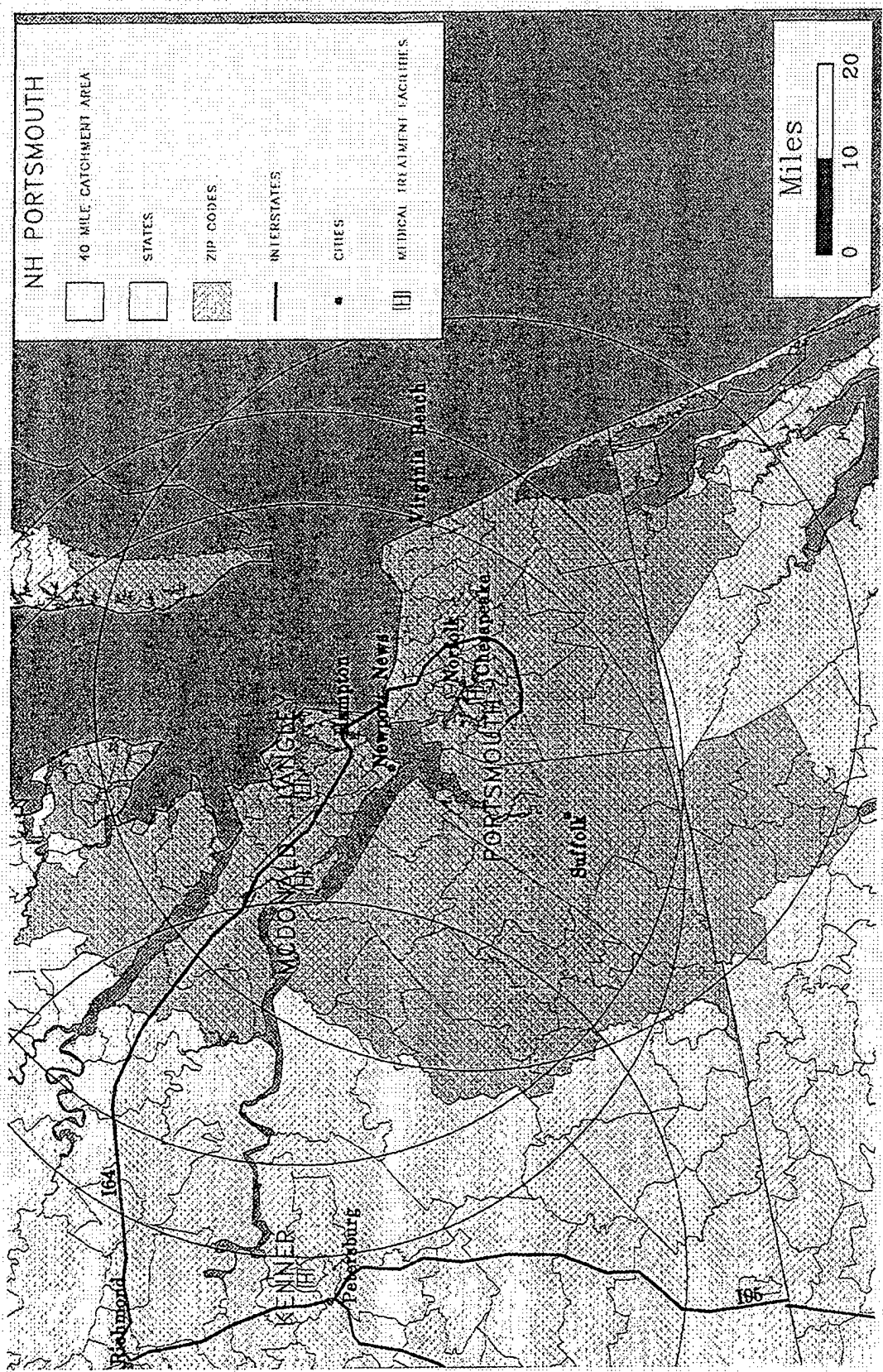
APPENDIX F - The Navy Hospital Portsmouth Complex

APPENDIX G - Summary of Potential Benefits Resulting from Audit

APPENDIX H - Organizations Visited or Contacted

APPENDIX I - Report Distribution

APPENDIX A: MAP OF HAMPTON ROADS, VIRGINIA



This page was left out of orignial document

APPENDIX B: OUTPATIENT CLINICS WITH POTENTIAL TO BE RELOCATED TO BUILDING 215 AT NHP

Clinic and Facility	Clinic Size (Square Feet)[1/]	Excess Space (Square Feet)[2/]
Allergy and Immunizations	6,140	
Cardiology and Pulmonary	11,375	3,515
Dentistry	10,930	2,970
Dermatology	3,995	
Ears, Nose, Throat, and Audiology	8,870	5,705
Gastroenterology	5,010	6,610
General Surgery	10,930	539
Internal Medicine	7,910	
Nephrology	6,185	
Neurosurgery	7,030	
Neurology, Endocrinology, and Rheumatology	6,360	3,695
Obstetrics and Gynecology	17,360	1,345
Occupational Therapy and Physical Therapy	9,010	
Ophthalmology and Optometry	8,075	
Orthopedics and Podiatry	21,105	8,065
Pediatrics	10,240	
Pharmacy	9,520	
Urology	10,255	
Total	170,300	32,444

1/ Per Program for Design.
2/ Exceeds the square footage, which was economically justified in the 1988 economic analysis and as specified in the "DoD Medical Space Criteria Manual."

This page was left out of orignial document

APPENDIX C: EXAMPLES OF VALUE ENGINEERING RECOMMENDATIONS NOT ACCEPTED

1. A total of $2 million could have been saved by rotating the planned ACF towers (containing the nursing units) 45 degrees so the towers would be flush with the face of the ACF. This action would have eliminated 3,600 square feet of space and reduced construction labor and materials. The recommendation was not accepted because it would increase the walk for the nurses to the farthest patient room by walking around an additional corner. The value engineering documentation indicated that the actual distance to the farthest room would actually decrease.

2. Increasing the height of the ACF from five to seven stories and reducing the footprint would save $12 million. The recommendation was not accepted because it would increase waiting time for elevators and create excessive redesign effort. We believe the cause for nonacceptance was unsupported and invalid because the value engineer recommendation included a proposal for additional elevators. According to NAVFAC policy and definition, value engineering is performed on the concept design whereby any design changes have a minimal impact on redesign effort.

3. The value engineering study recommended that 70 percent of the bathrooms in the patient rooms be reduced by 35 square feet each. This would have saved $1.2 million. However, the Navy did not accept this recommendation claiming that all bathrooms had to be wheelchair accessible. The Uniform Federal Accessibility Standards require that only 10 percent of the bathrooms be wheelchair accessible.

4. The value engineering study recommended that the nursing units on the fourth floor, southwest corner of the planned facility be moved to the fifth floor, saving $9.7 million. It was not accepted because it would increase waiting time for the elevators. The value engineers had included additional elevators in their proposal.

5. The value engineering study recommended that the clinics, clinic administration, social work, and dental areas be relocated to a separate facility next to the ACF. A new 336,000 square foot clinic could be built, reducing the ACF to 724,000 square feet and saving $17.9 million. According to the study, clinics do not have to meet the same construction standards as hospitals. It costs $60 a square foot less to construct a clinic. The Navy disagreed with the recommendation stating that the two buildings proposed would not fit on the existing site. However, the planned ACF requires over 277,000 square feet of open space to be built as designed. The value engineering proposal required 276,000 square feet of space to construct the ACF and the separate clinic.

This page was left out of orignial document

APPENDIX D: COMPARISON OF AVERAGE CHAMPUS AND NHP DIRECT HEALTH CARE COSTS

	Direct Care Cost[1/]	CHAMPUS Cost[2/]
Inpatient		
1985 bed day	$362.76	$540.16
1991 bed day	802.11	750.82
Percentage increase	120	39
Outpatient		
1985 per visit	$57.41	$56.78
1991 per visit	93.52	64.82
Percentage increase	63	14

1/ Does not include the cost of the branch clinics.

2/ Adjusted for internal "Partnership Program" cost.

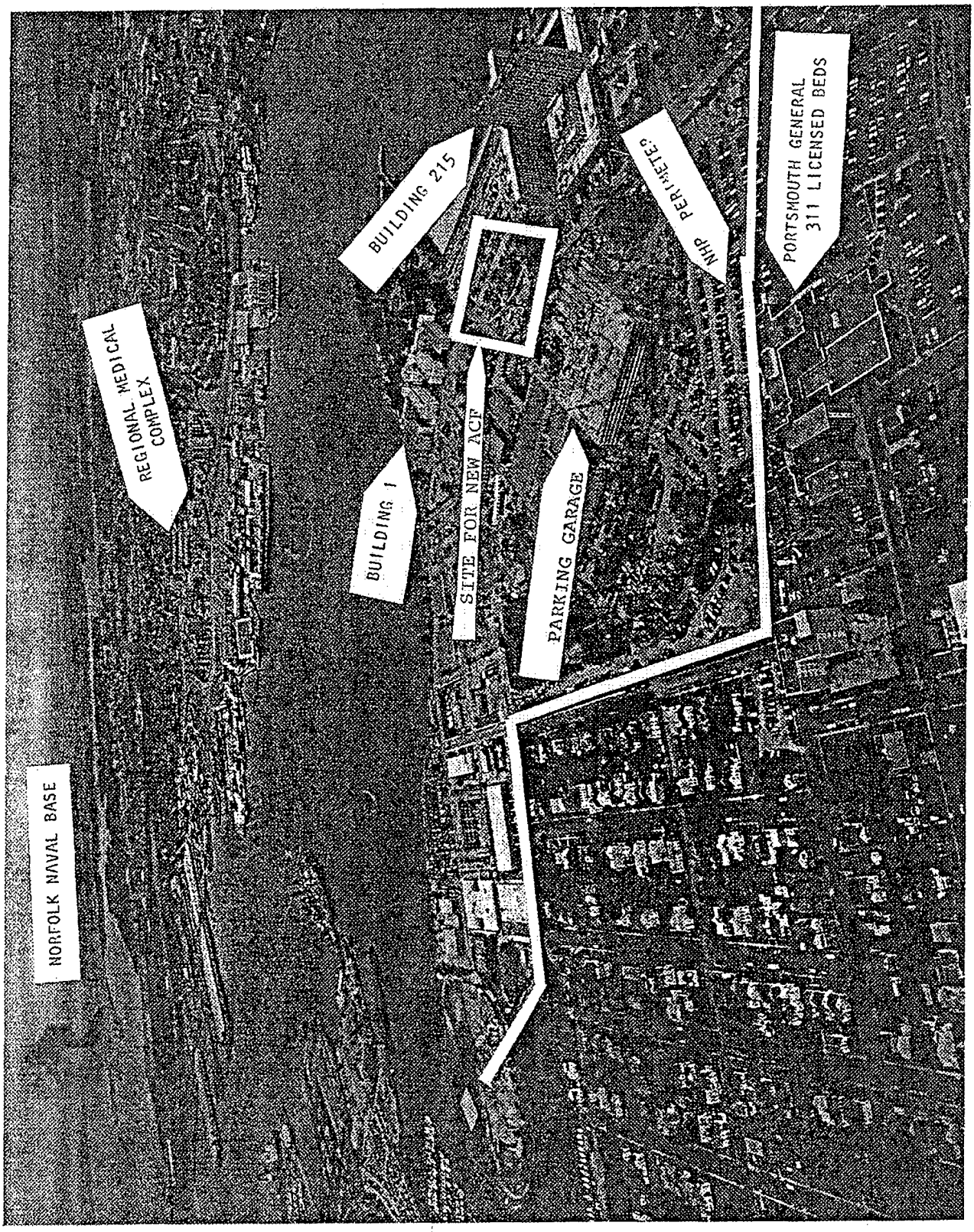
This page was left out of orignial document

APPENDIX E: LOCATIONS OF THE BENEFICIARY POPULATION

Location	Population	Percent
Chesapeake	13,911	4.3
Norfolk	193,148	59.2
Portsmouth	28,365	8.6
Virginia Beach	81,321	24.9
Other	9,490	3.0
Total	326,235	

This page was left out of orignial document

APPENDIX F: THE NAVAL HOSPITAL PORTSMOUTH COMPLEX



This page was left out of orignial document

APPENDIX G. SUMMARY OF POTENTIAL BENEFITS RESULTING FROM AUDIT

Recommendation Reference	Description of Benefits	Amount and Type of Benefit
1.	Economy and efficiency. Reduce the size of the ACF.	Included with amount for Recommendation 2.
2.	Economy and efficiency. Recover funding not justified for the project.	Funds Put to Better Use. $49.9 million would be saved if DoD eliminated unjustified space from the ACF design, (military construction appropri-tion 97X0500).
3.	Economy and efficiency and internal controls. To ensure that projects are designed and constructed to the same scope as that validated in the economic analysis.	Nonmonetary.

This page was left out of orignial document

APPENDIX H. ORGANIZATIONS VISITED OR CONTACTED

Office of the Secretary of Defense

Assistant Secretary of Defense (Force Management and Personnel), Washington, DC
Assistant Secretary of Defense (Health Affairs), Washington, DC
  Defense Medical Support Activity, Falls Church, VA
  Defense Medical Systems Support Center, Falls Church, VA
  Defense Medical Facilities Office, Falls Church, VA
Assistant Secretary of Defense (Program Analysis and Evaluation), Washington, DC

Department of the Army

U.S. Army Health Facilities Planning Agency, Falls Church, VA
McDonald Army Hospital, Fort Eustis, VA

Department of the Navy

Commander in Chief, U.S. Atlantic, Norfolk, VA
Assistant Secretary of the Navy (Manpower and Reserve Affairs), Washington, DC
Bureau of Medicine and Surgery, Washington, DC
  Naval Medical Data Services Center, Bethesda, MD
Commander Naval Base, Norfolk, VA
Commander Naval Facilities Engineering Command, Atlantic Division, Norfolk, VA
Commander Naval Facilities Engineering Command, Chesapeake Division, Washington, DC
National Naval Medical Center, Bethesda, MD
Naval Hospital, Portsmouth, VA

Department of the Air Force

1st Medical Group, Langley Air Force Base, VA

Other Defense Organizations

Office of the Civilian Health and Medical Programs of the Uniformed Services, Aurora, CO

Non-Defense Organizations

Department of Veterans Affairs, Washington, DC
  Veterans Affairs Medical Center, Hampton, VA

APPENDIX H. ORGANIZATIONS VISITED OR CONTACTED (cont'd)

Non-Government Organizations

Accreditation Council for Graduate Medical Education, Chicago, IL
Chesapeake General Hospital, Chesapeake, VA
Commonwealth of Virginia, Department of Health, Richmond, VA
Department of Emergency Medical Services, Chesapeake, VA
Fairfax Hospital, Fairfax, VA
Hampton Roads Planning District Commission, Chesapeake, VA
Joint Commission on Accreditation of Healthcare Organizations, Oakbrook Terrace, IL
Portsmouth General Hospital, Portsmouth, VA
Vector Research, Inc., Arlington, VA

APPENDIX I. REPORT DISTRIBUTION

Office of the Secretary of Defense

Assistant Secretary of Defense (Health Affairs)
Assistant to the Secretary of Defense for Public Affairs
Comptroller of the Department of Defense

Department of the Navy

Secretary of the Navy
Assistant Secretary of the Navy (Financial Management)
Auditor General, Naval Audit Service

Defense Agencies

Director, Defense Contract Audit Agency
Director, Defense Logistics Agency
Director, Defense Logistics Studies Information Exchange
Director, National Security Agency
Inspector General, Defense Intelligence Agency

Non-Defense Organizations

Office of Management and Budget
United States General Accounting Office
- National Security and International Affairs Division, Technical Information Center
- National Security and International Affairs Division, Defense and National Aeronautics and Space Administration Management Issues
- National Security and International Affairs Division, Military Operations and Capabilities Issues

Chairman and Ranking Minority Member of each of the following Congressional Committees and Subcommittees:

- Senate Committee on Appropriations
- Senate Subcommittee on Defense, Committee on Appropriations
- Senate Subcommittee on Military Construction, Committee on Appropriations
- Senate Committee on Armed Services
- Senate Committee on Governmental Affairs
- House Committee on Appropriations
- House Subcommittee on Defense, Committee on Appropriations
- House Subcommittee on Military Construction, Committee on Appropriations
- House Committee on Armed Services
- House Committee on Government Operations
- House Subcommittee on Legislation and National Security, Committee on Government Operations

APPENDIX I. REPORT DISTRIBUTION (cont'd)

Chairman and Ranking Minority Member of each of the following Congressional Committees and Subcommittees: (cont'd)

Senator John Warner, U.S. Senate
Congressman David Price, U.S. House of Representatives
Congressman Norman Sisisky, U.S. House of Representatives

PART IV - MANAGEMENT COMMENTS

Acting Assistant Secretary of Defense (Health Affairs)

Audit Response to Management's Comments

This page was left out of orignial document

Acting Assistant Secretary of Defense (Health Affairs) Comments

HEALTH AFFAIRS

THE ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D. C. 20301-1200

MAR 0 8 1993

MEMORANDUM FOR THE INSPECTOR GENERAL, DEPARTMENT OF DEFENSE

SUBJECT: Audit Report on Medical Facility Requirements - Naval Hospital Portsmouth (Project No. 2LF-0021)

Thank you for the opportunity to review the subject audit report. Although I do not concur with the recommendations in the report, I do agree that some aspects of planning the new facility were not appropriate.

My staff and I concur that, as originally planned, the Naval Hospital Portsmouth replacement facility contained excess inpatient capacity. As you know, Health Affairs has performed a revalidation of requirement which confirmed that the ACF would be larger than necessary to support current or projected inpatient needs. Subsequent to release of our revalidation, we obtained an agreement with the Navy to reduce the inpatient capacity and defer acquisition of the hyperbaric unit. I firmly believe that this agreement represents the best interests of all parties, including the American taxpayer. This agreement will allow us to save money, proceed expeditiously with facility construction, and minimize the disruption to patients and staff.

As for specific recommendations, I cannot concur with moving the outpatient clinics and food service into Building 215 because I believe the cost of such action is greatly understated in the audit report. I also believe that doing so will significantly decrease the efficiency of operations and restrict the ability of Naval Hospital Portsmouth to adapt to future changes in health care delivery. The audit report does not present a sufficiently compelling case to support embarking on recommended design modifications of such profound magnitude, especially when our own analysis indicates implementation of the recommendations will actually increase total project cost.

The many issues surrounding the planning, design, and construction of the Naval Hospital Portsmouth are extraordinarily complex and could be studied in much greater detail for some time. In our respective studies, both the Department of Defense Inspector General and Health Affairs arrived at similar conclusions. Only the implementation of specific remedial actions is at issue. Yet the reality of the situation remains -- we must construct a new facility at Portsmouth.

Despite our non-concurrence with your report's recommendations, I believe the audit has been very valuable. It has helped those of us within Health Affairs to see some of our weaknesses and areas in which we must improve. Your report has helped us reaffirm our commitment to critically review major expenditures of medical military construction funds and confirms the need for us to aggressively pursue the revalidation process. Our goal must be to ensure that all future medical facilities are appropriately sized.

Our detailed response to the findings and recommendations can be found in the enclosure. Please direct any questions concerning it to COL Stuart W. Baker, MS, USA, at (703) 756-2081.

Edward D. Martin

Edward D. Martin, M.D.
Acting Assistant Secretary of Defense

Enclosure:
As stated

RESPONSE TO FINDINGS

The Department of Defense (DoD) is Planning to construct an Acute Care Facility (ACF) for which the scope is not economically justified and that exceeds valid needs.

NON-CONCUR

The design of the Naval Hospital Portsmouth replacement facility, as modified per the agreement between the Navy and Health Affairs (HA), will result in construction of an appropriate facility to support future workload in the Tidewater area. The basic concept of an addition to and alteration of existing facilities was supported in the 1988 Economic Analysis (EA). While it is true that the project authorized by Congress is $119 million more than the alternative recommended by the EA, the EA did not paint a complete picture of the facility requirements for Naval Hospital Portsmouth. The growth in cost of the project resulted from an escalation in scope attributable to a variety of legitimate reasons, including:

a. the Program for Design (PFD) utilized in the EA was not complete or consistent with DoD criteria;

b. the Navy proposed a greater commitment to Graduate Medical Education (GME) than envisioned in the EA and indicated it would provide the staff to support expanded teaching programs;

c. the design had to comply with the Uniform Federal Accessibility Standards (UFAS);

d. the Navy envisioned significant recapture based on the assumption that the direct care system is consistently less expensive than Civilian Health and Medical Program of the Uniformed Services (CHAMPUS);

e. the PFD developed by the EA utilized a net to gross conversion factor of 1.685, while the actual design adheres to the currently accepted medical center conversion factor of 1.80; and,

f. contingency expansion space in patient bedrooms was included in the design but not in the PFD developed in the EA.

Additionally, the cost estimate provided in the EA was based on 1989 construction costs, even though the bulk of construction was to occur in the 1990's.

The growth in cost and scope of the project reflect a logical progression which at the time seemed appropriate. In retrospect it is apparent that the 1988 EA is less than a perfect document and that some of the assumptions upon which it is based are no longer valid. For example, CHAMPUS costs have not grown as quickly as those in direct care and substantially more beds are now available in civilian community than was predicted by the EA. Also, the Navy's previous commitment to staffing levels has been subjected to outside factors and may have been in excess of what ultimately can be provided.

Enclosure

Nonetheless, subsequent to the EA, HA has performed its revalidation and recommended a substantial reduction in capacity. Implementation of the agreement between the Navy and HA will provide economically justifiable project and one sized consistent with current and future needs.

The EA was not used to effectively control or plan the size of the project.

PARTIALLY CONCUR

The audit report cites DoD Instruction 7040.4, "Military Construction Authorization and Appropriation", which states that an EA should be prepared and "used as an aid" to establish MILCON priorities and to determine optimum allocation of construction resources. The EA is not considered a rigid formula that must be strictly followed, but instead is a guide to determine the most appropriate solution. The executive summary of the EA stated:

> "there are a number of factors other than cost-effectiveness that will ultimately determine the size of facility that is constructed. These include the need for readiness, staffing capabilities, the effect on the value of health care benefits to the catchment area beneficiaries, and the implications of any decision on non-direct care providers ... mission and GME requirements [should] be considered and, if practical, included in the proposed hospital to ensure a sufficiently complex caseload to sustain the GME mission and to ensure a complete array of health care services for the Naval Hospital, Portsmouth, catchment area hospital."

Many factors, including proposed staffing and GME mission, were considered along with the EA when planning the Naval Hospital Portsmouth replacement facility. Title 10, Section 1087 of the U.S. Code authorizes DoD to program the greater of amount of space to support: (1) the "teaching and training of health-care professionals" or, (2) the most "cost-effective provision of inpatient and outpatient care to" eligible beneficiaries. HA acted in accordance with Title 10 when it added GME services not included in the EA's recommended solution.

It is clear that the EA was not used to control the project size. It was believed Title 10 USC provided latitude to diverge from a planning objective based strictly on cost-effectiveness. Additionally, as previously stated, the PFD resulting from the EA was not sufficient to support medical center operations consistent with DoD criteria. The EA recommended 463 beds, described what it considered cost-effective services to be offered, and indicated that proceeding with the project made economic sense. It was upon the basis of these conclusions and recommendations that detailed project planning was developed.

2

The EA was not updated by the Defense Medical Facilities Office (DMFO) or the Navy as required by DoD Instruction 7041.3.

PARTIALLY CONCUR

The EA was not updated during design because it was not recognized as necessary to do so. Paragraph 3(a) of DoD Instruction 7041.3 states that an EA should be updated when "actual performance data [is] at variance with predicted performance data." The number of beds recommended in the EA were 463, while the project as originally planned contained 464 beds. While the mix of services and the cost of the project were significantly different from those developed in the EA, it still appeared as if the project was consistent with the basic scope and intent of the original analysis. Moreover, it was believed that Title 10 USC authorized additional scope to support an expanded GME mission.

It is true, however, that the costs and benefits of expanding GME at Naval Hospital Portsmouth were not fully considered. The planning assumption employed during design supported GME programs even if they were not demonstrated to be cost-effective.

The revalidation of requirement performed by HA constitutes an update of the EA. Completion of the revalidation at an earlier point in the design process would have fully satisfied the requirement cited in the audit report. The actions taken to significantly reduce inpatient capacity and defer acquisition of the hyperbaric unit indicate the seriousness with which the results of the revalidation have been taken by HA.

[The EA] did not support the project justification submitted to Congress.

PARTIALLY CONCUR

For consideration in the FY 1990 President's budget, HA forwarded to Congress a DD1391 requesting a $330 million authorization in advance of appropriation to support the Naval Hospital Portsmouth replacement facility. Included in that DD1391 was a specific description of the work to be completed with the $8.5 million appropriation requested for FY 1990. Also included in Block 10 of that DD1391 was a general description of the work to be completed during the entire project. Although it does not provide detailed scope estimates of the facilities to be constructed, Block 10 clearly states the extent of the facilities included in the total project.

The project as submitted to Congress could not have been developed without the justification of the EA. As stated previously, the EA was used as a guide in developing the scope of the project. It was believed that the modifications to the recommended solution were necessary but still consistent with

3

the intent of the EA. While true that the solution recommended in the EA does not directly correspond to the DD 1391 submitted to Congress, it was felt that the EA clearly supported the project as it was authorized.

DoD could save $49.9 million in construction costs by rescoping the project and using existing facilities to meet minimum essential needs.

NONCONCUR

The audit report does not analyze all costs attributable to the redesign of the facility, a 24-30 month delay in construction, additional construction, and inefficiencies associated with operating a dysfunctional facility. Rather than save money, it is estimated that implementing the audit report's recommendations could actually increase the total project cost by as much as $40 million. A detailed description of cost calculations is provided in the attached TAB.

Controls were not adequate and as a result the MILCON project was not justified and sized to meet minimum essential requirements as specified in the available EA.

PARTIALLY CONCUR

Available records are not always adequate to clearly explain how the scope of the project evolved. Proper controls would have provided a clear audit trail detailing the evolution of the project scope. The absence of a clear audit trail suggests that complete controls were not in place.

Although the audit trail is not always clear, this does not mean that the project did not receive close scrutiny during planning and design. Requests from the Navy to increase scope were subjected to careful review and were not supported by the DMFO unless adequately justified. As stated previously, growth in cost and scope can largely be attributed to valid concerns.

The description of selected Value Engineering (VE) recommendations in the audit report does not accurately reflect the process by which these outside opinions are solicited. The authors of the VE study in question ignored basic operational concepts such as the realities of a site constrained by other buildings, vehicular access, and, importantly, the State Historic Preservation Office (SHPO). SHPO significantly influenced basic design decisions such as height of the ACF and its location relative to Building 1. All parties involved in design and construction hope to minimize expenditures whenever possible and utilization of VE has proven extremely worthwhile on many projects, including Portsmouth. However, VE recommendations which on the surface may appear very appealing may in fact have very sound technical or functional reasons for not being incorporated into a final design.

4

The audit report is also critical of the apparent lack of a definitive plan for utilization of Building 215. However, the audit report does not acknowledge that given the length of time to design and construct the ACF, many unforeseen factors could arise affecting facility requirements. Although the vast majority of space in Building 215 is planned for use, the remaining space appears as a logical place to absorb limited increases in activity due to increased requirements in the ACF.

Whatever deficiencies may have existed in internal controls in the past, the institution of the revalidation process and subsequent reduction of scope in the ACF reflects that controls are now in place and have proven effective.

RESPONSE TO RECOMMENDATIONS

1. Direct the redesign of the Navy Hospital Portsmouth ACF to:

1a. Reduce the number of patient beds by 152.

NONCONCUR

The revalidation conducted by HA reviewed workload and appropriateness of care and concluded that the inpatient capacity of the Naval Hospital Portsmouth replacement facility could be safely reduced by 104 beds. Subsequently, HA agreed with the Navy to instead delete 101 beds. Many factors can affect the determination of an appropriate number of beds. Given the size of the catchment area population and uncertainties surrounding implementation of TRICARE, Base Realignment and Closure actions, Specialized Treatment Facilities, and possible consolidation of DoD GME programs, it is not considered prudent to pursue greater reductions in inpatient capacity. Providing the 312 beds recommended in the audit report would significantly reduce the capability of Naval Hospital Portsmouth to adapt to future requirements for care in one of the largest catchment areas in the nation.

1b. Reduce the total size to 675,806 square feet

The audit report recommends removing 339,144 square feet by eliminating food service, outpatient clinics, nursing units, and associated gross support space (e.g., circulation, walls, mechanical areas). The Navy and HA have already agreed to eliminate 101 beds and backfill some vacated spaces with enhanced same day surgery capabilities. The size of the ACF cannot be reduced in accordance with the audit report recommendations without relocating the outpatient clinics and food service to Building 215. Effecting this relocation is not considered to be a wise or cost-effective move for several reasons.

Removing the outpatient clinics and food service area from the ACF violates the entire functional layout of the facility. The new facility will be constructed on a constrained site with extremely limited opportunity to divert from the traffic plan already developed. The parking garage was situated so as to provide patients close access to the clinics and to keep vehicles away from the emergency entrance. The present layout has all commercial deliveries being brought through the main gate to the one central loading dock area behind the ACF. The space between the new ACF and Building 215 is narrow and has a personnel bridge over the area to join the buildings. Moving outpatient clinics and food service areas to Building 215 introduces food delivery and outpatient vehicles into this tight area and increases congestion around the emergency room. Placing food service and the clinics in Building 215 clearly will adversely affect the flow of vehicles, logistics, and patients.

6

Also, there are inefficiencies inherent in having staff walk long distances between the clinics and the inpatient areas. Additional staff will be required to push food carts the extended distance between the galley and the inpatient areas.

1c. Relocate 114,399 square feet (functional areas) of outpatient clinics or a combination of clinics and food service space to Building 215.

NONCONCUR

The 114,399 square feet the audit report recommends for relocation is net square footage. With a net to gross conversion factor appropriate for renovations (1.93), the amount of square footage required in Building 215 almost doubles. This large amount of space in Building 215 is simply not available. The Naval Hospital Portsmouth Master Plan (dated August 1990) has already identified appropriate usage of virtually all of Building 215. Many of these functions would be forced to seek other locations for construction. The audit report did not consider the cost of this additional construction or suggest where new buildings to support these displaced functions could be placed on the constrained site.

The audit report also did not address the potential problem of floor loading limits in Building 215. The cook-chill system will introduce major refrigeration equipment that will overload the limits of the second deck of Building 215 where the existing food service is presently located. Also, as discussed in previous comments, the recommended move to Building 215 would introduce major functional inefficiencies. These inefficiencies are of major concern not only to interior work flow but to exterior delivery and traffic flow in a congested area.

Significantly, the audit report did not suggest how the Navy is to operate outpatient services or food service during the possible 2 year period that Building 215 would be down for construction. No consideration was given to the additional costs to provide these services during the downtime. The 1988 EA considered two options; (1) renovation of Building 215 or (2) construction of an addition/alteration to Building 215. The addition/alteration was recommended even though it was more expensive. The rationale behind the recommendation was that extensive renovations in Building 215 would result in major disruptions to ongoing patient care activities.

Finally, even if space were available in Building 215, it does not follow that the space is appropriate for clinical use. Building 215, especially in the high-rise wings, is long and narrow and with utility limited by single-loaded corridors.

2. Reduce the military construction funds for the Navy Hospital Portsmouth project by $49.9 million.

NONCONCUR

The audit report states that $49.9 million can be saved if its recommendations are implemented. This figure overstates the savings since many factors are not accounted in the report's analysis. In fact, the analysis in the attached TAB indicates that implementing the audit report's recommendations could actually cost over $40 million more than the current total project cost of $330 million.

An example of the costs not considered in the audit report include those for renovation work in Building 215. Although the report cites the cost of $55/sf noted in the DD1391, it represents the price of only cosmetic renovation. In fact, to implement the audit report's recommendations would require heavy renovation, which is estimated to cost approximately $128/sf. Also, as mentioned previously, the functions and square footage recommended for relocation was measured only in net. Applying a standard net to gross conversion factor of 1.93 for renovation would almost double the square footage (and cost) required to support the report's recommendations.

- Other costs not considered in the audit report include requirements for: collateral equipment escalation, Building 215 redesign, interim facilities, and construction for facilities to support operations displaced from Building 215.

The audit report suggests implementing significant changes in the design of the entire complex on the basis of one-time construction cost savings. DoD Instruction 7041.3, "Economic Analysis and Program Evaluation for Resource Management", requires that all investment costs, along with

> "total life-cycle cost should be compiled for each alternative under consideration, including any approved project. Life-cycle costs associated with an alternative provide a relatively complete picture of the overall resource implications of the acquisition."

The lack of a thorough consideration of life-cycle costs suggests that the audit report is not complete and using it as a basis for a major acquisition strategy would not be appropriate. There are far too many other factors (e.g., domino effect construction, labor inefficiencies, etc.) to be considered over the expected useful life of the building which should be analyzed prior to pursuing the report's recommendations.

Implementing the recommendations in the audit report will actually cost money while continuing with the agreement reached between HA and the Navy will save money. The Navy/HA agreement will entail virtually no redesign costs, no costs associated

with inflation due to a lengthy delay, personnel and vehicular efficiencies will be maintained, and costs will be reduced by construction avoidance.

3. Establish and document internal controls to ensure that medical military construction projects are designed and constructed consistent with the scope in validated EA.

CONCUR

With the creation of the Health Care Planning Division within HA and the initiation of the revalidation process, adequate internal controls are now in place. Personnel performing planning functions and analyzing requirements are separate from those executing the design. This allows for a closer and more independent scrutiny of actual requirements and an ability to reconsider previous plans if circumstances change.

Medical facilities are now sized based on workload that is economical. This process includes an aggressive consideration of provision of care in civilian facilities and addresses the reality of military provider staffing shortfalls.

Contract EA are now based on Diagnosis Related Groups (DRGs) and application of managed care techniques. Appropriateness and complexity of care are considered as well. Medical Expense and Performance Reporting System (MEPRS) costs are adjusted to bring them more in line with CHAMPUS costs and facility business plans are reviewed. An expanded use of data sources provides more comprehensive information upon which to base a decision and offers greater objectivity.

DETAILED REVIEW OF COST IMPLICATIONS OF IMPLEMENTING AUDIT REPORT RECOMMENDATIONS CONCERNING UTILIZATION OF BUILDING 215

The audit report understates the cost of implementing its recommendations by not considering several factors which also have cost implications.

A. Audit Report Projected Savings

By using the data on page 10 of the draft audit report, reducing the ACF by 339,194/sf could result in gross construction cost savings of $58.2 million. Subtracting the estimated redesign costs of $8.3 million, total savings are calculated at $49.9 million.

B. Additional Cost of Renovation Work in Building 215.

The audit report proposes to move clinics and food service to Building 215 as outlined in the table on Page 11. Utilizing only what the audit report considers "justified" functional space, 162,426/nsf would need to be moved into Building 215 to implement the report's recommendations. Utilizing a typical net to gross conversion factor for renovation of 1.93, the total gross square footage required would be 313,482. The cost of the renovation work originally estimated Building 215 was only $55/sf and represented the cost of cosmetic renovations. To implement the audit report's recommendations would entail heavy renovations, typically priced at 75% of new construction costs. The true cost of renovating Building 215 is calculated below:

Renovation space = 313,482/gsf
(Functional space moved to Bldg. 215 * net to gross conversion factor), or
162,426/nsf * 1.93 = 313,482/gsf

Additional Renovation Cost = $23,103,623
Renovation space * (.75 ACF cost per sf - $55/sf), or
(313,482/gsf) * ($171.6 * .75) - ($55/sf)) = $23,103,623

C. Delay Escalation Cost

The audit report states that the inflation due to the delay of construction for 24 to 30 months would be offset by the interest to be gained on the funds not obligated. In fact, the unobligated funds appropriated to date and the $225.5 million budgeted for FY 1994, will not and cannot be held in interest bearing accounts. Redesign will take at least two years from the time the recommendations are accepted. When the ACF contract is awarded, approximately $270 million will remain to be constructed on the project.

Delay escalation cost = $14,300,000
(Remaining work - report's savings) * (DoD(C)) escalation indices for MILCON for FYs 1994 and 1995), or
$(270M - 49.9M) * 0.065 = $14,300,000

TAB

D. Collateral Equipment Escalation Cost

A delay in construction will also delay acquisition of collateral equipment. Both O&M and OP accounts are affected. Approximately $120M has been identified for collateral equipment; however, this figure will be refined as room by room equipment planning is completed.

Collateral equipment escalation cost = $7,900,000
(Collateral equipment estimate) * (DoD(C)) escalation indices for FYs 1994 & 1995, or
($120M * 0.066) = $7,900,000

E. Design Costs for Building 215

Moving the clinics off the second floor of the ACF requires a redesign and the audit report estimates $8.3 million will be required for that effort. The space moved into in Building 215 will also need to be designed. The audit report appears to ignore that cost. Moreover, the report estimates design at 7.2% of construction, which does not account for the design agent's management and support of the design process paid out of MILCON funds.

Design Costs for Building 215 = $2,904,850
(Renovation spaced * construction cost) * 7.2%, or
(313,482 gsf * $171.6/sf * .75) * .072 = $2,904,850

F. Interim Facilities Costs

Leasing interim facilities will be required during the heavy renovation in Building 215. It is estimated that 2 years will be required for the renovations. Current rates for administrative space in the Norfolk area are $25/sf/year. It is likely that additional costs would be incurred to provide clinical space.

Interim Facilities Costs = $15,674,100
(Renovation space * $25/sf/year * 2 years), or
(313,482/gsf * $25 * 2) = $15,674,100

G. Displaced Functions Costs

If the outpatient clinics and food service are moved into Building 215, then the functions planned for those spaces must be moved out into other facilities yet to be programmed for construction. Most of the functions are administrative in nature and space could be constructed at the rate of $84/sf.

Displaced Functions Costs = $26,332,488
Renovation space * construction costs, or
313,482/gsf * $84/sf = $26,332,488

2

H. SUMMARY

Additional Renovation Work in Building 215	$23,103,623
Delay Escalation Cost	$14,300,000
Collateral Equipment Escalation Cost	$7,900,000
Design Costs for Building 215	$2,904,850
Interim Facilities Cost	$15,674,100
Displaced Functions Cost	$26,332,488
ADDED COSTS TO IMPLEMENT RECOMMENDATIONS	$90,215,061
LESS REPORT SAVINGS	($49,900,000)
TOTAL COSTS TO IMPLEMENT RECOMMENDATIONS	$40,315,061

The analysis above suggests that rather than saving money, implementing the audit report's recommendations will actually cost close to $40 million more than the current project total. While the accuracy of the numbers used above could be debated, the fact remains that they represent factors which will generate costs that were not considered in the audit report. The report recommends a course of action that would have a significant impact on the Naval Hospital Portsmouth replacement project. Yet the foundation upon which the recommendation is based is a one-time construction cost savings that ignores other legitimate costs as well as life-cycle costs. In light of other legitimate cost factors not considered, the audit report does not provide a sufficiently compelling argument to support its recommendations as they pertain to utilization of Building 215 and the downsizing of the ACF.

3

Audit Response to Management's Comments

This section provides an audit response to management comments regarding the finding. Comments regarding the recommendation were addressed in Part II.

Reference: DoD is planning to construct an ACF that is not economically justified, page 49.

Management comments. The Acting Assistant Secretary stated that the design of the NHP replacement facility, as modified by OASD(HA) and the Navy, will result in an appropriate facility to support future work load in the Tidewater area and is economical. The Acting Assistant Secretary agreed that the project cost estimate increased by $119 million and some of the assumptions supporting the 1988 economic analysis were flawed. CHAMPUS costs have not grown as quickly as those at NHP, more patient beds are available in the civilian community than predicted in the economic analysis, and NHP staffing levels may be in excess of what ultimately can be provided. However, the economic analysis did not present a complete picture of facility requirements, and the increased cost resulted from legitimate increases in project scope.

Audit response. The Acting Assistant Secretary disagreed with the IG, DoD, statement that the project was not economically justified; yet agreed that the amount funded exceeded the amount justified in the economic analysis. As discussed in our finding and the OASD(HA) study of August 1992, NHP is providing treatment that is not cost-effective. The Acting Assistant Secretary did not provide details showing how the project, as planned, was cost-effective.

We agree that the factors addressed by the Acting Assistant Secretary did contribute to the cost and scope increases. The scope of the project was modified significantly from the economic analysis used to support the funding request to Congress. As discussed in the finding under "DoD Criteria," when significant factors affect the cost of the project, the economic analysis should be redone. If the analysis had been redone, then it would have raised the same questions about the economic viability of the project that we have raised.

Since the performance of the economic analysis, the average MTF costs have increased faster than CHAMPUS costs, with average NHP costs exceeding the average CHAMPUS health care costs in the Hampton Roads area. If CHAMPUS can provide care cheaper than the MTF, then recapturing CHAMPUS work load is uneconomical. NHP should consider other more cost-effective methods for providing health care than expanding its facilities and services. As agreed by the Acting Assistant Secretary, excess capacity exists at other Government and civilian hospitals in the area.

According to the Acting Assistant Secretary, one cause of the increased scope and cost was that the Program for Design used in the economic analysis was incomplete or inconsistent with DoD criteria. This statement warrants clarification. The DMFO criteria for the grossing factor and patient room size was changed after the Program for Design was made for the economic analysis as requested by the Navy. The criteria changes account for only $10.6 million (4.9 percent) of the $218.5 million (MILCON and equipment) total project cost growth.

The Acting Assistant Secretary said that changing the design to comply with the Uniformed Federal Accessibility Standards increased the project's cost and scope. Navy engineers said that the size of all patient bathrooms had to meet the standards. However, the design exceeds the standards. According to the value engineering study, $1.2 million could have been saved if 70 percent of the patient bathrooms were reduced in size by 35 square feet. If the design had been reduced to accommodate the proposal, it still would have exceeded the standard.

The Acting Assistant Secretary stated that part of the project's cost increase was due to inflation. The 1988 economic analysis based the cost estimate on the bulk of construction being performed in 1989, while the actual construction will be performed in the 1990s. We believe that inflation was an insignificant factor in determining the project cost growth. The economic analysis based the cost estimate on construction starting in October 1989, while the estimate used in the project justification submitted to Congress was based on construction starting in January 1990. If the current project had been designed to be comparable to what was indicated in the economic analysis, the cost escalation for inflation would be less than 1 percent, or one quarter of the DoD specified annual inflation factor of 3.3 percent. Other factors influencing costs such as GME and net to grossing factor are discussed below.

Reference: The economic analysis was not used to effectively control or plan the size of the project, page 50.

Management comments. The Acting Assistant Secretary agreed that the economic analysis was not used to control the project size; but stated that the economic analysis should not be considered a rigid formula that must be strictly followed. He stated that the economic analysis should be used as a guide to determine the most appropriate solution. In addition to the economic analysis, staffing and GME mission were considered in planning the project. United States Code, title 10, section 1087, authorizes DoD to program the greater amount of space to support the "teaching and training of health care professionals" or the most "cost-effective provision of inpatient and outpatient care."

Audit response. We agree with the Acting Assistant Secretary that the economic analysis does not have to be rigidly followed, and the report did not state that it should. However, the differences between the economic analysis and the justification submitted to Congress were significant. First, the total project cost increased by 103 percent, from $211.7 million to $430.2 million (equipment and construction costs). Second, the size of the spaces to be constructed and renovated increased by 36 percent, from 1.1 million square feet to 1.5 million square feet. Because the cost and scope of the project increased significantly after the economic analysis was performed, a new analysis should have been performed and the project resubmitted to Congress in accordance with DoD budget guidance.

The Acting Assistant Secretary's quote from U.S.C., title 10, section 1087, excludes the provision that size is dependent upon the availability of health care providers that can reasonably be expected to be assigned to the facility. Earlier in the comments, the Acting Assistant Secretary concluded that the Navy's previous commitment to staffing levels may have been in excess of what will be provided. We found during the audit that the Navy did not have plans to increase the staff for the new facility.

In an OASD(HA) memorandum, April 21, 1992, we were told that OASD(HA) was unable to show how much space was needed or planned for GME. Additionally, the Navy was unable to provide an explanation or documentation showing how much space was required for GME. The economic analysis included only those GME programs that were considered cost-effective in FY 1988, and since that time NHP lost much of its cost advantage over CHAMPUS. Recent DoD budget reductions have further emphasized the need to control GME costs. In a January 27, 1993, memorandum, OASD(HA) recommended that GME programs at NHP be reduced from 14 (not counting dental) to 5 unless additional justification was provided. Additionally, the 14 GME programs at NHP are duplicated at other DoD MTFs, as shown in Table 1. Again, these and other factors should be reconsidered before making a commitment to construct an ACF that may be excess to needs.

Table 1. School Year 1992-1993 Graduate Medical Education Programs

NHP Medical Specialties	NHP Trainees	Navy Programs	DoD Trainees	DoD Programs
Anesthesia	15	4	141	8
Emergency Medicine	5	2	86	7
Gastroenterology	2	3	26	8
Internal Medicine	29	4	403	15
Nephrology	2	2	9	5
Obstetrics/Gynecology	24	4	202	14
Orthopedics	12	4	173	8
Otolaryngology	12	4	84	10
Pathology	8	4	89	11
Pediatrics	19	3	198	13
Psychiatry	16	3	144	8
Pulmonary	2	3	28	8
Surgery	29	4	302	15
Urology	15	4	53	10
Total	190	48	1,938	140

Reference: The economic analysis was not updated by DMFO or the Navy..., page 51.

Management comments. The Acting Assistant Secretary agreed that the economic analysis was not updated because it was not recognized as necessary. While the mix of services and the cost of the project were significantly different from the economic analysis, it appeared that the project was consistent with the scope and intent of the analysis. The Acting Assistant Secretary contends that DoD Instruction 7041.3 does not require the economic analysis to be updated unless the actual performance data are at variance with predicted performance data. He also said that the OASD(HA) study of August 13, 1992, constituted an updated economic analysis, and that OASD(HA) and Navy actions that were taken to reduce inpatient capacity and defer the acquisition of the hyperbaric unit indicate the seriousness with which OASD(HA) took the results.

Audit response. We agree with the Acting Assistant Secretary that the service mix changed, and existing procedures allow other considerations to influence the outcome of the analysis or actual construction of the project. However, the Acting Assistant Secretary's quote of DoD Instruction 7041.3 omits the requirement to update the economic analysis when developments occur that effect the cost of the outcome. NHP's costs increasing faster than CHAMPUS costs while increasing the project's scope are examples of developments that occurred after the economic analysis was completed that would affect the outcome of the economic analysis. Therefore, an updated analysis was required.

Although the OASD(HA) study represents a beneficial control mechanism, we do not consider the study an updated economic analysis because it did not address issues such as the increased GME programs and the cost to provide additional medical specialties. The study also did not cover the whole project submission, particularly those functions that caused the increases to the project's cost, such as additional renovation work and equipment. The study recommended reducing the size of the planned facility; however, the Navy and OASD(HA) agreed that the structure would remain the same size, and that only the interior walls, flooring, ceiling, and utilities would be reduced. As a result, only $5 million of the potential $53.4 million in potential savings estimated in the OASD(HA) study would be realized.

Reference: Controls were not adequate and as a result the MILCON project was not justified and sized to meet minimum essential requirements..., page 52.

Management comments. The Acting Assistant Secretary partially agreed that controls were not adequate to ensure that the MILCON project was justified and sized to meet essential requirements. He stated that although the records were not available to adequately explain how the scope of the project evolved, Navy requests to increase the scope received careful review and were attributed to valid concerns.

The Acting Assistant Secretary also stated that the value engineering discussion in the report did not accurately reflect the process by which outside opinions were solicited. He stated that the value engineers ignored basic operational concepts, such as site constraints, vehicular access, and historic preservation issues.

Audit response. As stated in Part II of the report under "Cost growth" and "ACF design," the estimated costs increased substantially after the economic analysis was published. As stated in the OASD(HA) remarks, the increases were not always documented and some were not justified. During our meeting with Navy officials, January 21, 1993, we were told that a meeting should be scheduled to discuss the specifics of the value engineer recommendations. When we later contacted the Navy official to set a date, we were informed that the Navy was not interested in a meeting and would address its concerns in comments to the report.

Our review of the two value engineer studies included Navy documentation and discussions with responsible Navy design and value engineers. As stated in Part II, the Navy rejected 20 value engineering proposals for valid reasons. However, there were 21 value engineering proposals totaling $51.5 million that the Navy rejected without sufficient justification. The value engineer team consisted of multidisciplinary engineers and

planners, to include health care specialists, to which OASD(HA) paid $52,203. This team visited the planned construction site and had access to all information that was available to the design contractor. It should be noted that we made no recommendations to reduce the scope of the project based on the value engineer study. However, the rejection of valid value engineering recommendations does help explain how the ACF's planned construction cost increased by $45.1 million since completion of the economic analysis.

Detailed review of cost implications of implementing audit report recommendations concerning utilization of Building 215, page 58.

Management comments. The Acting Assistant Secretary nonconcurred with the report recommendations to reduce the size of the ACF and reassign outpatient clinics or outpatient clinics and food service areas to Building 215. The Acting Assistant Secretary estimated that the report's recommendations would increase total project cost by over $40 million.

Audit response. We disagree with the Acting Assistant Secretary's comments and believe the recommendations are still valid and cost-effective. The details are discussed in the following comments.

Reference: B. Additional cost of renovation work in Building 215, page 58.

Management comments. The Acting Assistant Secretary stated that relocating the clinics and food service to Building 215 would increase the cost of the project by $23,103,623. The calculation was based on renovating 313,482 square feet of space at a cost of $128.70 a square foot rather than $55 a square foot. The 313,482 square feet to be renovated was derived by multiplying 162,426 square feet by a net to gross conversion factor of 1.93.

Audit response. The Acting Assistant Secretary's comments overstated the number of square feet to be renovated and the cost of renovation. We recommended that 114,399 net (functional) square feet be relocated, not 162,426 square feet, as stated by the Acting Assistant Secretary. The 162,426 square feet addressed in Part II of the report was the total functional (net) square footage that did not have to be located in the planned ACF. We provided OASD(HA) the option on the areas to be reassigned to Building 215.

We disagree that a net to gross conversion factor of 1.93 should be applied to the renovation of Building 215. The conversion factor consisted of a standard 1.68 grossing factor for new outpatient facility construction, plus an additional 15-percent inefficiency factor that DMFO personnel felt was needed. The audit report used net square feet because the mechanical, hallways, elevator, and other areas that make up the gross space

factor already exist in Building 215. Additionally, the DMFO or the Navy did not provide support for the 15-percent inefficiency factor.

The Acting Assistant Secretary stated that the $55 per square foot renovation cost used in our report was for cosmetic work, new paint, and tile floors. However, the project justified to Congress was for renovation work in Building 215 to include medical areas, light care wards, and administrative functions. According to the Program for Design, the function of Building 215 was to change. For example, the food service area was to be converted to a computer center, which requires different environmental systems, such as humidity and cooling, and electrical support systems. This renovation is not cosmetic.

OASD(HA) could not substantiate the renovation cost estimate of $128.70 per square foot (75 percent of the $171.60 for the planned ACF). DMFO personnel did not prepare a detailed estimate of Building 215 renovations. According to DMFO personnel, the 75 percent of new construction cost for renovations came from DoD instructions specifying a ceiling or approval authority for renovation projects.

We believe that $55 a square foot is closer to the true cost to renovate Building 215. The Navy's master plan for converting Building 215 indicated that replacing plumbing, heating, and air conditioning systems; the electrical system; and interior walls would cost $65 a square foot. The inpatient facility at Fitzsimons Army Medical Center is being renovated, to include the correction of all life and safety deficiencies, at an estimated cost of $65 a square foot. As discussed in our report, outpatient facilities do not have to meet the same standards as an inpatient facility.

Since FY 1984, $36 million ($69.60 a square foot) has been spent on improvements and life and safety corrections in Building 215. Of the $36 million, $5.5 million was for asbestos removal. Many of the open bay wards have been converted into examination rooms, physician offices, administrative functions, or the type of spaces we are recommending for elimination from the planned ACF and remain in Building 215. It is important to note that Building 215 supports most of the inpatient and outpatient functions in its current configuration. We realize that additional expenditures would be required to complete renovations; but we believe that the $55 a square foot requested from Congress was for that purpose.

Reference: C. Delay Escalation Cost, page 58.

Management comments. The Acting Assistant Secretary stated that construction escalation costs of approximately $14.3 million would not be offset by interest gained on unobligated funds because the unobligated MILCON funds cannot be deposited into interest bearing accounts.

Audit response. We believe the Acting Assistant Secretary misinterpreted the report. We stated that interest on funds used to finance the project was not added to our estimated monetary benefits because it would be partially offset by escalation cost resulting from a 2-year delay. We were referring to the cost to the U.S. Government to borrow the money to finance the project, not money that DoD would earn from interest bearing accounts. Our statement is valid. We estimate the cost to finance the project to be more than $32.3 million ($49.9 million construction savings times 6.8 percent long-term interest times 9.524 DoD prescribed present value factor) over the life of the project, or $3.4 million the first year. Again, this cost more than offsets the cost of inflation due to construction delay..

Reference: D. Collateral Equipment Escalation Cost, page 59.

Management comments. The Acting Assistant Secretary said there would be a 2-year delay in the acquisition of $120 million in collateral equipment. The Acting Assistant Secretary estimates the escalation cost to be $7.9 million ($120 million at 6.6 percent inflation rate).

Audit response. We take exception to the Acting Assistant Secretary's estimate for equipment cost escalation. The justification to Congress contained $100.2 million for collateral equipment, not $120 million (operations and maintenance and other procurement funds) addressed by the Acting Assistant Secretary. As addressed in Part II, only $63.4 million in collateral equipment requirements had been identified. As a result, escalation or delay cost of $3.74 million ($63.4 million at 6.6 percent) would be incurred on the amount identified. By reducing the planned ACF by 152 patient beds, as recommended, DoD would save an estimated $1.2 million in equipment purchase costs. The Government would save an additional $757,700 ($1.2 million times 6.8 percent times 9.524) in the cost of financing the project over the life of the project. We believe that the net escalation cost would be $1.8 million.

Reference: E. Design Costs for Building 215, page 59.

Management comments. The Acting Assistant Secretary stated that the report ignores the cost to redesign Building 215, which is estimated at $2.9 million.

Audit response. We disagree with the Acting Assistant Secretary's design costs of $2.9 million because the cost will be incurred regardless of use of the building unless the building is demolished or not renovated. DoD would have to incur design costs for the renovation of Building 215 regardless of whether the building contained outpatient clinics or was converted to bachelor housing.

Reference: F. Interim Facilities Costs, page 59.

Management comments. The Acting Assistant Secretary said that leasing facilities at $25 per square foot per year during the 2-year renovation of Building 215 would be required. The Acting Assistant Secretary estimates this cost at $15.7 million (313,482 gross square feet times $25 times 2 years).

Audit response. The interim facility cost of $15.7 million claimed by the Acting Assistant Secretary is unsupported. OASD(HA) was unable to provide a list of activities to be relocated temporarily from Building 215. Approximately 184,000 square feet or 60 percent of the functional space in Building 215 would become vacant when the inpatient functions and support services are relocated to the ACF. We believe that the renovations could be accomplished without additional temporary facilities.

The Acting Assistant Secretary was unable to support the $25 per gross square foot lease cost for administrative space. According to the General Services Administration, the average rental charge, including its overhead, is $14 per net square foot in the local area. The $14 per net square foot would convert to $7.26 per gross square feet, or $17.74 per square foot less than the Acting Assistant Secretary's figure.

Reference: G. Displaced Functions Cost, page 59.

Management comments. The Acting Assistant Secretary stated that if the outpatient clinics and food services are moved into Building 215, then the functions planned to be located in Building 215 would have to be moved to other facilities. Those other facilities would have to be constructed at a cost of $26.3 million (313,482 gross square feet times $84 per square foot estimated construction cost).

Audit response. We disagree with the Acting Assistant Secretary's cost estimate of $26.3 million to construct new facilities for displaced administrative functions. Those functions are already in existing facilities. We did not recommend that any activities be deleted from the Program for Design. As stated in our response to management's comments to Recommendations 1.b. and 1.c., the Program for Design is the official design document, which only specified 104,434 net square feet for renovation. The master plan shows Building 215 being backfilled with bachelor quarters and light care beds. Those spaces could be used for administrative functions if a requirement exists.

Reference: H. Summary, page 60.

Management comments. The Acting Assistant Secretary nonconcurred with the report statement that DoD could save $49.9 million in construction costs by rescoping the project and

using existing facilities. He stated that the report did not consider all legitimate costs or life-cycle costs. He estimates that the total project costs will increase by $90.2 million, if Building 215 is utilized as recommended in the report, or a net increase of $40.3 million when the total cost increase is reduced by the reported savings of $49.9 million. The report did not analyze all costs attributed to the redesign, a 24- to 30-month delay in construction, additional construction, and inefficiencies associated with a dysfunctional facility.

Audit response. We disagree with the Acting Assistant Secretary's estimate that costs could increase by $90.2 million if the recommendations are implemented. We have reviewed the Acting Assistant Secretary's figures and found them to be incorrect and unsupported. Additionally, the OASD(HA) cost estimates did not reflect all the potential savings that would accrue from reducing the size of the ACF. For instance, using the same operating cost of $9 per square foot that OASD(HA) used in its study of the NHP project, we estimate the annual operating savings to be $2 million. The present value of the savings would be approximately $19.3 million in operating costs over the next 25 years. The OASD(HA) operating cost estimate of $9 per square foot includes maintenance and repair, utilities, and housekeeping costs.

Our analysis shows that the actual savings resulting from implementing the recommendations would be $32.4 million greater than we had estimated. Table 2. shows the Acting Assistant Secretary's estimates and our adjustments. We are not claiming life-cycle cost savings, because we were unable to do a complete life-cycle cost analysis due to the lack of information at OASD(HA) and from the Navy.

Table 2. Adjustments to OASD(HA) Additional Project Costs

	OASD(HA) Estimate (Million)	Audit Adjustment (Million)	Audit Estimate (Million)
Additional Renovation Work	$ 23.1	$(20.0)	$ 3.1
Interest to Finance the Project	0	(32.3)	(32.3)
Delay Escalation Cost	14.3	0	14.3
Collateral Equipment Escalation Cost	7.9	(6.1)	1.8
Design Cost for Building 215	2.9	(2.9)	0
Interim Facility Cost	15.7	(15.7)	0
Displaced Functions Cost	26.3	(26.3)	0
Facility Maintenance and Operations	0	(19.3)	(19.3)
Total	$90.2	$(122.6)	$(32.4)

Note: The amounts shown without parentheses are cost increases, while the amounts in parentheses are cost decreases or savings.

AUDIT TEAM MEMBERS

Shelton R. Young	Director, Logistics Support Directorate
Michael A. Joseph	Program Director
Jack L. Armstrong	Project Manager
Douglas L. Jones	Team Leader
Raheema T. Shabazz	Auditor
Cheri D. Givan	Auditor
Evelyn D. Woods	Auditor

INTERNET DOCUMENT INFORMATION FORM

A . Report Title: Medical Facility Requirements-Naval Hospital Portsmouth

B. DATE Report Downloaded From the Internet: 04/19/99

C. Report's Point of Contact: (Name, Organization, Address, Office Symbol, & Ph #): **OAIG-AUD (ATTN: AFTS Audit Suggestions)**
Inspector General, Department of Defense
400 Army Navy Drive (Room 801)
Arlington, VA 22202-2884

D. Currently Applicable Classification Level: Unclassified

E. Distribution Statement A: Approved for Public Release

F. The foregoing information was compiled and provided by:
DTIC-OCA, Initials: __VM__ **Preparation Date 04/19/99**

The foregoing information should exactly correspond to the Title, Report Number, and the Date on the accompanying report document. If there are mismatches, or other questions, contact the above OCA Representative for resolution.