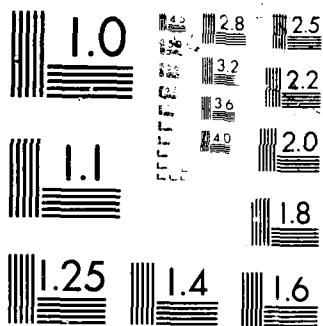


DETERMINING THE AVAILABILITY OF ADEQUATE OFF-BASE
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AIR COMMAND AND STAFF COLLEGE

STUDENT REPORT

DETERMINING THE AVAILABILITY OF
ADEQUATE OFF-BASE HOUSING

MAJOR THOMAS H. HOOD

38-1275

"insights into tomorrow"

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REPORT NUMBER 88-1275

TITLE DETERMINING THE AVAILABILITY OF ADEQUATE OFF-BASE
HOUSING

AUTHOR(S) MAJOR THOMAS H. HOOD, USAFR

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Submitted to the faculty in partial fulfillment of
requirements for graduation.

AIR COMMAND AND STAFF COLLEGE
AIR UNIVERSITY
MAXWELL AFB, AL 36112-5542

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PREFACE

"Excellent housing facilities and services shall be provided for all military members, their families, and eligible civilians. Continual improvement in quality is the measure of excellence." (9:1-2) "Communities near military installations normally are relied on as the primary source of housing for DOD personnel." (9:1-2) These statements are Department of Defense policy on housing for military members. If these policies are to be successful, the installation, major command, and Headquarters, United States Air Force need to know the availability of adequate community housing near all installations worldwide. To address this issue, the Office of the Deputy Assistant Secretary of Defense (Installations) developed a Family Housing Requirements Survey. The Department of the Army also developed a procedure, which was built on the DOD system, to provide an economic analysis of possible housing alternatives when an installation had a deficiency.

The purpose of this study is to ascertain if there is a better method of determining the adequacy of community housing than currently exists. Both the DOD and Army systems are being revised, so this study includes the proposed as well as the current systems in use. It is hoped that the deficiencies of the systems can be overcome and an improvement be developed.

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This material is being submitted to the faculty of Troy State University in Montgomery in partial fulfillment of the requirements for the Master of Business Administration degree.

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ABOUT THE AUTHOR

Major Thomas H. Hood began his career in the Air Force when he enlisted in the 34 Supply Squadron, Robins AFB, Georgia. He served as an Inventory Management Specialist and Packaging Supervisor before being commissioned through the Deserving Airman Program of the Air Force Reserve. During this time, he earned a Bachelor of Industrial Engineering degree from the Georgia Institute of Technology. He was then assigned to the 436 Civil Engineering Squadron, Dover AFB, DE, as a design engineer. Major Hood also had training attachments with the 306 Civil Engineering Squadron, McCoy AFB, FL, and the 1 Civil Engineering Squadron, MacDill AFB, FL. He held the positions of design engineer, Chief of Resources and Requirements, Chief of Operations, and Chief of Engineering and Environmental Planning. In these assignments, he became the liaison officer for the installation of the Work Information Management System (WIMS). The major is now serving as a Housing Operations Staff Officer, HQ USAF/LEEHO. He has attended the Base Civil Engineering Course and the Operations Management Applications Course at the Air Force Institute of Technology, Wright-Patterson AFB, OH. He has completed Squadron Officer School and Air Command and Staff College both by correspondence. In his civilian career, Major Hood is a Technical Specialist for Honeywell Federal Systems, Inc., McLean, VA. His specific position is communications software analyst working with the Worldwide Military Command and Control System (WWMCCS).

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EXECUTIVE SUMMARY

Part of our College mission is distribution of the students' problem solving products to DOD sponsors and other interested agencies to enhance insight into contemporary, defense related issues. While the College has accepted this product as meeting academic requirements for graduation, the views and opinions expressed or implied are solely those of the author and should not be construed as carrying official sanction.

"insights into tomorrow"

REPORT NUMBER 88-1275

AUTHOR(S) MAJOR THOMAS H. HOOD, USAFR

TITLE DETERMINING THE AVAILABILITY OF ADEQUATE OFF-BASE HOUSING

- I. Purpose: To ascertain if there is a better way of determining the availability of adequate off-base housing than currently exists.
- II. Objectives: To investigate the present and proposed methods of determining the availability of adequate off-base housing. To develop a better method than the current or proposed systems.
- III. Discussion of Analysis: The two methods currently in use to determine the availability of adequate off-base housing are studied. The proposed modifications to those systems are also studied. The DOD method features the use of DD Form 1376, Family Housing Questionnaire, to collect most of the data used in the Family Housing Requirements Survey. The remainder of the data is obtained from the housing office records. Since much of the data from the questionnaire is already available in the housing records, the proposed method eliminates DD Form 1376. In addition, two other forms are eliminated. The Army system uses the

CONTINUED

housing occupant data from the requirements survey and develops alternatives for correcting the housing deficiencies if they are found to exist. The alternatives are then subjected to a rigorous economic analysis to determine the best alternative. The Army system relies on the voluntary return of DA Form 1070, Community Housing Feedback, as the source of occupant information instead of the questionnaire. The remaining data is obtained from a previous market analysis of the community housing assets. The proposed version also eliminates the form previously used by the DOD system. The major problem is reliance on the voluntary return of forms from housing occupants.

- IV Conclusions: Both systems provide the needed information if all works as designed. The DOD system is strong on the data collection aspect of the requirements survey and weak on analysis of the community housing assets. The Army method is weak on the data collection but very strong on market analysis and developing alternatives to correct the deficiencies found. The proposed methods address some of the problems with the current systems but not others. Both systems still rely on voluntarily provided data, and the Army documentation is written for engineers not the layman who conducts the survey. The recommendations of this study address these deficiencies by developing a new system which relies on the strengths of the present ones.

- V Recommendations: The two systems should be combined to incorporate their strengths. The new method should be written in layman's language, and the DA Form 1070, Community Housing Feedback, should be replaced by DA Form 1070a, Application for Assignment to Housing, whenever possible. DA Form 1070a should contain information as DA Form 1070 and must be completed by military members requesting family housing. The housing office will have to follow up on the forms if they are not returned. In the future, a new form should be designed which would serve the same function as DA Form 1070a. Authorization to start on the DA Form 1070a Allowance for quarters (QA), Basic Housing, and/or Variable Housing Allowance (VHA). In this way, the member would not be entitled to allowance until the necessary information is provided.

Chapter One

INTRODUCTION

BACKGROUND

Headquarters, United States Air Force, Deputy Chief of Staff Logistics and Engineering, Housing Branch (USAF/LEEH) directs selected installations annually through their respective major commands (MAJCOMs) to conduct the Air Force Family Housing Requirements Survey. "The purpose of the annual survey is to gather information that is used throughout the year in decision-making processes and in reply to Congressional and Presidential inquiries." (1:93) Among these decision-making processes are programming new construction of military-owned housing, improvements to existing housing, build-to-lease projects, continental United States (CONUS) rental guarantee housing, bachelor housing, recertifying programs previously authorized and funded, and making unit assignments and mission changes. (1:93) The objective of the survey is to "ensure that married members of the Air Force have suitable housing in which to shelter their families." (1:93)

In addition to the Air Force, all the military services conduct surveys to determine the adequacy of housing. There are presently two systems in use within the Department of Defense (DOD). The first, the DOD system administered by the Department of the Navy, relies on information obtained by the voluntary completion of DD Form 1376, Family Housing Questionnaire, by the housing occupants selected to participate in the survey. This system has the weakness of relying on the return of a questionnaire. Historically, questionnaires have a low return rate. The second method is the Department of the Army system. It uses housing occupant data readily available to complete the forms required by the DOD system, and then expands on the method by performing a Segmented Housing Market Analysis (SHMA), and an economic analysis of possible housing alternatives. This method has the strength of using information already available to the housing office in addition to a scientific, analytical justification of the selected housing alternative. At present, both systems are being revised to overcome shortcomings in the present methods.

PURPOSE

The purpose of this study is to ascertain if there is a better way to determine the availability of adequate off-base housing than currently exists. There is concern at AF-LEEH that the method of determining the adequacy of off-base housing may be inadequate. Among the concerns are the low return rate of the

questionnaire, and the assumption made in the proposed update to this system that the member's family is adequately housed if the member does not return DD Form 1670, Community Housing Feedback. For these reasons, this study addresses both methods and the proposed changes to them. With this approach, it is hoped that a better system can be developed.

OBJECTIVES

There are two objectives for this study. The first is to investigate the present and proposed methods of determining the availability of adequate off-base housing. The second objective is to develop an alternative method to the current and proposed systems.

In Chapter Two, a brief history of military housing is presented. This builds a foundation for appreciation of the housing problem.

Chapter Two

HISTORY

HOUSING PROGRAMS

The first family housing for United States military personnel was privately-owned homes. When the War for Independence caused a requirement for a standing military, there was little thought for the need of family housing. Even after the war, when forts were built or claimed from the British, family housing was far short of the needs of the military members.

From that time until just prior to World War II, the only housing available was community housing assets and that built through the Military Construction Program (MCP). The Emergency War Powers Act of 1941 changed this by granting authority "to the Public Housing Administration to construct 20,000 units of low rent defense housing adjacent to military installations." (3:2) This housing became known as Lanham Act Housing since its sponsor was Congressman Henderson L. Lanham of Georgia.

With the larger military force remaining after the war, the services again found themselves with a housing shortage. The Second War Emergency Act addressed this problem by authorizing the construction of "several units of permanent family housing at a large number of Army Posts and Army Air Corps installations." (3:3) These units, which became known as Shell Housing, featured 1,200 square feet and had a "cost limitation of \$7.50 per unit." (3:3)

When the Air Force became a separate service in 1947, it required all housing on its bases as well as the federally-funded housing adjacent to them. This brought the inventory to approximately 30,000 units. In 1949, the Wherry housing program became law and was "the first major program which added materially to Air Force needs." (3:3) These houses "were constructed at an average cost of \$10,000 per unit." (3:3)

In 1951, the Title VIII Department - Housing program "offered the fastest method of obtaining large numbers of military housing up to that time." (3:4) After obtaining Congressional authority for the construction of 28,000 units between 1951 and 1954, "the Department of Defense revised the entire program and developed new programming criteria designed to provide safeguards from overbuilding." (3:4) Congress, not to be outdone, passed legislation requiring "all housing requests to be included for line item authorization in the Annual Military Construction Program." (3:4) This became the first congressional limitation on housing programs. Even with limitations however,

the Air Force did build "60,434 units for an approximate cost of one billion dollars." (3:5)

Since the Capehart program, there have been many other foreign and domestic housing programs too numerous to mention. In spite of these programs, however, the Air Force still has a need for housing. Today, with the stated policy of relying on community assets as the primary source of housing, AF/LEBH determines the Air Force still needs 34,300 more units. (d:--)

This 34,300 unit deficit was determined by the use of the Air Force implementation of the DOD system. With the present DOD policy of relying on community housing to meet the services' needs, a method of documenting where this cannot be done is very important if service members are to have adequate housing. In Chapter Three, the Air Force implementation of the DOD method is examined along with the proposed revision to the program. This begins the study of the two systems to determine the adequacy of off-base housing.

Chapter Three

DEPARTMENT OF DEFENSE METHOD

INTRODUCTION

Up to 1957, housing was assigned to military personnel without regard to the condition of those quarters. In addition, the member forfeited quarters allowances. "To eliminate inequities which began to accrue to personnel involuntarily occupying substandard public quarters, Congress passed legislation which permitted the Service Secretaries to designate substandard public quarters as inadequate and permit occupancy as rental units on a voluntary basis." (3:5) This was the precedent for determining the adequacy of housing.

With more service members living in community housing and the DOD policy of depending on these off-base assets, the adequacy of this housing is a major concern. DOD developed a system to determine the adequacy of community housing and gave it to the Navy to administer. Each of the services implemented the system, and the Navy provided the computer support needed. The present system provides guidance, and the individual services establish the procedure to implement it. This chapter discusses the Air Force procedure for this method. The procedure is provided in some detail to help the reader understand the complexity of the method as well as aid in understanding what is required in order to determine what the housing deficiencies are at a given installation.

PROCEDURE

The DOD system of determining family housing requirements features the use of the Family Housing Requirements Survey. It is "the procedure by which housing office personnel, on a continuing basis, identifies housing resources to find out the availability of housing facilities for occupancy by DOD personnel." (1:46) "This survey covers all military personnel authorized or entitled to BAQ at the 'with dependent rate,' key civilians with families and U.S. civilians declared eligible for military housing outside the United States." (5:1) The housing monitor, referred to in the following discussion, is an individual, appointed by the housing manager, who conducts the family housing requirements survey. The forms used in this method are:

- DD Form 1376 - Family Housing Questionnaire
- DD Form 1377 - Tabulation of Family Housing Survey
- DD Form 1378 - Determination of Housing Requirements and Project Composition

DD Form 1379 - Narrative on Family Housing.

A list of the actions and timetable for the 1986 survey are shown in Table 1. (5:3-4)

AF/LEEH notifies the MAJCOMs by letter announcing the survey. Shortly thereafter, LEEH sends a message to the Air Force Military Personnel Center (AFMPC) Survey Control Branch requesting the sample selection criteria for the bases. The sampling criteria, a random sample by grade of service members, is established to ensure that the survey is statistically valid. After LEEH receives the criteria from AFMPC, the survey instruction package is assembled, reproduced, and mailed to the MAJCOMs and installations which will perform the survey. Next, AFMPC notifies the installation Consolidated Base Personnel Office (CBPO) by letter to prepare a base personnel roster and forward it to the housing monitor.

The housing monitor now prepares DD Forms 1377 and 1378. The following information is on these forms (5:15-16):

<u>Current Data-DD Form 1377</u>	<u>Document</u>
Current Personnel	B
Vacant Available Private Rentals	D/E
Military Housing Inventory	F
Military Housing Occupancy/Vacancy	G
<u>Projected Data-DD Form 1378</u>	
Long Range Personnel	J
Designation of Existing Adequate Military Owned Units (Leased Units Excluded)	K
MILCON Units Under Contract	L
MILCON Units Approved	M
Long Range Leased	N
Current Leased	O
Designation of Substandard Military Units	P
Community Units Under Construction or Firmly Planned	Q.

The documents referred to above are background information forms included in the survey package. They include information on the base population by grade, military family housing assets, vacancies in military family housing, vacant community rental housing, number by grade of those service members entitled to family housing, military owned housing contracted or funded but not yet available, leased housing, substandard units, and housing planned in the community but not yet available.

Next, the housing monitor selects those who will receive the questionnaire as soon as the base personnel roster is received from the CBPO. This is done by selecting the appropriate sample size for the survey. A table is provided which shows how many respondents are needed by grade for a given

ACTION DATES
HQ USAF/MAJCOM/BASE

1 Jul	LEEH call letter/twx to ALMAJCOMs announcing upcoming survey.
12 Aug	LEEH twx to AFMPC Survey Control Branch requesting sample selection criteria for bases.
30 Aug	LEEH mails survey instructions to MAJCOMs and installations.
4 Sep	AFMPC mails roster instruction letter to CBPO.
5-19 Sep	Housing monitor prepares documents B thru Q, except J.
11-16 Sep	CBPO produces roster of base personnel.
17 Sep	Housing monitor selects respondents and sends Attachments 6 and 7 to LEEH and MAJCOM.
22-26 Sep	Housing monitor distributes questionnaires.
26 Sep	Suspense date at MAJCOM for documents B thru Q.
30 Sep	"As of date" for survey.
3 Oct	Respondents return questionnaires to distribution point for transfer to housing monitor.
10 Oct	Housing monitor sends confirm/reverse inspection results to LEEH and MAJCOM.
17 Oct	MAJCOM - Suspense date at LEEH for documents B thru Q.
17 Oct	Suspense date at FACSO for questionnaires.
20-24 Oct	LEEH inputs B thru Q data for ADP.
1 Dec	ADP produces DD Forms 1377 and 1378. LEEH mails results to MAJCOMs and bases.

Table 1. Survey Timetable.

base family population. The number of respondents selected to participate is 150% of the needed number of returned questionnaires or 100% of the families if the population is less than 1,000 families. This is done to make sure there will be enough respondents to complete a valid survey.

After the sample is selected, a description of the sample being taken and the background information on the sources of housing information provided in DD Forms 1377 and 1378 is sent to LEEH and the MAJCOM. The housing monitor then distributes questionnaires to the selected respondents. As the questionnaires are returned, each is checked to see which identify inadequate quarters. If one shows inadequate community housing for reasons other than the number of bedrooms and cost, the house is physically inspected by housing office personnel. This is to verify that the housing is truly inadequate. In addition, the questionnaires are checked to ensure that the data reported are valid. If not, the respondent is notified and the data corrected. "If the respondent cannot be contacted," the questionnaire is discarded. (5:11)

When all questionnaires are returned or the suspense date has arrived, the inspection results are sent LEEH and the MAJCOM. The questionnaires themselves are sent to the Naval Construction Battalion Center, Facilities Systems Office, Port Hueneme, California.

The housing monitor sends the completed DD Forms 1377 and 1378 to the MAJCOM during the time of the distribution of questionnaires. The MAJCOM then forwards them to LEEH who then submits them to the Defense Housing Office for data processing. When LEEH receives the computer-generated DD Forms 1377 and 1378, they are forwarded to the installation housing monitor. The housing monitor verifies the data, corrects the errors, and sends the 1377 and 1378 forms along with a DD Form 1379 to the MAJCOM. The DD Form 1379 is a narrative of the current housing assets and a justification for proposed housing projects at the installation. The information on this form "will be used for presentation before Congress as project justification." (5:30)

After the MAJCOM receives the DD Forms 1377, 1378, and 1379, they are checked and combined with other installation's forms and sent to LEEH. LEEH then prepares a presentation to AF/LEE on the results of the survey.

PROPOSED CHANGES

"Excellent housing facilities and services shall be provided for all military members, their families, and eligible civilians. Continual improvement in quality is the measure of excellence." (9:1-2) In pursuit of this goal, a new procedure was developed.

Much of the information provided on DD Form 1376, Family Housing Questionnaire, is already available to the housing office. The proposed changes to the DOD method eliminate the use of DD Forms 1376, 1377, and 1378 as well as the involved procedure described above. The new procedure calls for the use of the following forms:

- DD Form 1410 - Family Housing Inventory and Occupancy Report
- DD Form 1411 - Family Housing Inventory Designation and Assignment Report
- DD Form 1656 - Community Housing Referral Services (HRS) Report
- DD Form 1523 - Military Family Housing Justification.

These forms, which provide the same information as the previous forms, are completed with the information available from several sources. One of the most important, however, is DD Form 1670, Community Housing Feedback. This is the form that every military member who resides in community housing is asked to complete by the Housing Referral Office. It is very important that everyone complete it. It is as important to the revised procedure as the questionnaire is to the current procedure.

Secondly, "market analyses shall be accomplished at all locations where new construction is programmed." (9:2-10) This addresses one of the problems found with the current procedure. There is, however, no guidance as to how to conduct this analysis.

Lastly, "market analyses shall also be accomplished whenever the results of the survey are questionable or the ability of the community to provide housing is different than shown and would alter the findings of the survey." (9:2-10) This is a good revision, but once again, guidance is lacking.

Chapter Four discusses the other method of determining the adequacy of off-base housing. This is the Department of the Army system. It has a different emphasis and addresses some of the weaknesses of the DOD system.

Chapter Four

DEPARTMENT OF THE ARMY METHOD

INTRODUCTION

The Army method was developed to address what the Army saw as deficiencies in the DOD system. It too seeks to determine the adequacy of off-base housing but builds on the DOD system. The Army avoided the problem with the questionnaire and decided to use DD Form 1670, Community Housing Feedback, as its main data collection form. This method formulates alternative courses of action where community housing assets are insufficient and uses economic analyses to determine and justify the best alternative. This chapter outlines the Army procedure in some detail to give an appreciation for the method's complexity and approach in determining the best course of action if the community housing assets are insufficient for the installation's needs.

PROCEDURE

The method first identifies "the need for housing resources by referring to the most recent housing requirements survey." (2:3) This is essentially the DOD method with the one difference being the use of DD Form 1670 instead of the questionnaire. Next, "a complete Segmented Housing Market Analysis of the community" is done "to identify the economy housing assets available for Army housing needs." (2:3) This requires an extensive survey of the community's housing assets and their condition. It also requires a predetermination of the degree of "housing penetration" which can be expected and the distance from the installation which is considered adequate for commuting.

The next step is to "design housing alternatives in response to housing needs, housing market features, command choices, and special rights (prerogatives)." (2:3) A list of alternatives to address a shortage of adequate housing is formulated which meets the needs of military families and is consistent with command considerations. Examples of possible alternatives are (2:19)

- 1) Renting housing on the economy,
- 2) Renting housing on the economy with the Army guaranteeing payment of the rent,
- 3) Military construction,
- 4) Government leasing, or build to lease,
- 5) Renovating existing housing assets, and
- 6) Purchasing existing housing.

These alternatives and combinations of them are considered along with those which are unique to the community.

The most reasonable alternatives are then identified. Great care must be taken in this process since an alternative overlooked might be the best or only possible solution. In this identification procedure, those which are rejected must also be identified. "The reason an alternative cannot solve the housing problem must be thoroughly documented." (2:3) These descriptions are important since they make the case for the best alternative even stronger. It also shows Congress that all possible alternatives were considered.

The fifth step in the method is identification of "all cost kinds that are relevant to each alternative to be analyzed." (2:3) A cost kind is "a group of costs composed of a number of cost elements that all contribute to accomplishment of the same function." (2:61) Examples of cost kinds are categories like maintenance and repair and contract cost. This step is important to identify the costs associated with the chosen alternatives. Just as it is important not to exclude any alternatives, it is also important not to exclude relevant costs.

Next, "all cost elements that are relevant to each cost kind" are determined for each alternative. (2:3) A cost element is "a basic unit of cost, such as labor or material." (2:61) Cost elements are the lowest units of costs in evaluating alternatives. With this information, the analyst determines the total cost of each alternative. A matrix is prepared which shows in tabular form all relevant costs to the alternatives being considered. Each row identifies which costs are relevant, and each column shows which alternatives have the costs identified as a factor.

The eighth step is to "identify the wash costs." (2:8) A wash cost is "a cost which is identical for all alternatives being evaluated." (2:64) Since these costs are identical for all alternatives, they are excluded from the analysis. Next, inflation and other costs "needed to complete the economic analysis" are collected. (2:3) In this step, analytical methods are employed. Three types of cost estimating are used. They are detailed estimates, semidetailed estimates, and order-of-magnitude estimates. (2:10-11) Detailed estimates are made by using engineering techniques, are very precise, and are used in making bids. They are considered to be within 5% of actual cost. Semidetailed estimates have an accuracy to within 10% of actual cost. An example of this type is an estimate made on the basis of some factors of a cost being known but not all. Order-of-magnitude estimates are imprecise and can vary as much as 50% of real cost. An example would be estimating a cost by making a comparison with other known costs. Quantitative methods which are used in making the above estimates are (2:11)

Regression analysis,
Life-cycle costing,
Cash flow diagrams,
Designing alternatives to be equal,
Discounting and present value analysis,
Estimating the cost of inflation,
Risk and sensitivity analysis.
Sunk costs,
Incremental cost, and
Wash costs.

The next step is to "compute the total cost and other needed statistics." (2:3) If any statistical values are needed to compare alternatives, they are done now. Once this is done, the costs are totaled and comparisons made on the basis of total cost. There are four patterns which the alternatives may display (2:4):

Equal benefits with unequal costs,
Unequal benefits with equal costs,
Unequal benefits with unequal costs, and
Equal benefits with equal costs.

"The least costly alternative is preferred" where the benefits are equal with the costs unequal. (2:4) For the unequal benefits with equal costs case, "costs must be shown to be equal, and one set of benefits must yield an outcome that is more supportive of Government policy than the benefits from the other alternatives." (2:4) When alternatives have unequal benefits with unequal costs, "the least costly alternative is preferred unless strong evidence supports the existence and value of the benefits." (2:4) Alternatives which have equal benefits with equal costs are differentiated on the basis of risk. The Army method requires the selection be made "on the basis of minimal risk." (2:4)

The last step is to prepare the necessary documentation. The economic analysis report must conform to the format and include the parts shown in Table 2. (2:20-21)

ECONOMIC ANALYSIS

Letter of Transmittal

Executive Summary

- The Decision Objective
- Recommended course of action
- Major assumptions
- Alternative courses of action
- Economic analysis results
- Sensitivity factors

Preparers of the economic analysis

Approval authority for the economic analysis

Detailed summary of the economic analysis including
detailed cost buildup and discounting analysis

Detailed statement of sensitivity analysis

Detailed statement of assumptions

Detailed identification of alternatives

Identification of cost elements, cost kinds, and basic
parametric information required for cost calculations

Source documents

Nonmonetary factors

Table 2. Economic Analysis Report

PROPOSED CHANGES

The Department of the Army recognized that there were some deficiencies in its method. To address these problems, a new draft manual was developed. The proposed modification provides detail on obtaining housing data and performing a Segmented Housing Market Analysis, and refines the economic analysis portion. Housing data are obtained from local and national sources as well as historical information maintained by the housing office. The data are sought from organizations such as realtors, developers, lenders, community leaders, government officials, Chambers of Commerce, Census Bureau, and other similar organizations. There is also continued reliance on the voluntary completion of DD Form 1670, Community Housing Feedback, for the individual's input.

The Segmented Housing Market Analysis (SHMA) consists of a demand analysis for community housing, a supply analysis of the community's ability to meet the demand, and an analysis of "the dynamic nature of the housing market economy." (8:1-7,1-8) The first step is conducting "a demand analysis which consists of a definition and description of the housing market area, and an in-depth review of the economy of the housing market area." (8:1-7) This analysis includes "a population demographic analysis to estimate current and future trends in housing demand." (8:1-7)

Next, "a supply analysis which consists of a comprehensive systematic analysis of current housing stock and market conditions" is performed. (8:1-8) Factors considered are housing supply, residential building activity, tenure of occupancy, vacancy, mortgage markets, sales markets, and rental market. (8:1-8) With this information, the analyst determines the current and future community housing market conditions.

The final step in a Segmented Housing Market Analysis is determining "the demographic nature of the housing market economy, including concentration, current and future employment, employers, income levels, etc." (8:1-8) The Army recognized that even though the market may have sufficient housing assets to house service personnel, the civilian community also needs housing. This means that the Army cannot expect to get all the adequate housing it needs from the community. The housing available may be too far away, too high priced, or inadequate for larger service families. The demographic analysis of the community economy is necessary for these reasons.

The changes to the economic analysis of alternatives are primarily in three areas. They are analytical techniques, forms used, and reporting format. The analytical techniques are reduced to three. These are descriptive statistics, regression analysis, and estimating the cost of inflation. The descriptive statistics method employs the use of parametric statistics such

as mean, weighted mean, median, mode, stratified sample, and standard deviation. By calculating these statistics, the analyst can determine a good approximation of what a cost should be. Regression analysis consists of plotting data points and estimating future costs by determining the trend in present costs. Estimating the cost of inflation amounts to making a guess about what a future inflation rate will be and increasing cost figures for alternatives on that basis. If alternatives are to be compared, however, the cost of inflation is constant for all alternatives and is therefore a "wash cost." It is not necessary to consider the effects of inflation in these cases.

As in the proposed DOD method, DD Forms 1377 and 1378 are eliminated. Replacing them are the following forms:

- DD Form 1656 - Community Housing Referral Services (CHRS) Report
- DD Form 1657 - Determination of Unaccompanied Personnel Housing (UPH) Requirements
- DD Form 1522 - Military Family Housing Justification.

As in the present Army method, these forms are completed with information currently available to the housing office or from the required analyses.

The format for the revised economic analysis report is shown in Table 3. (3:2-4). There are some differences but most are a reorganization of the previous format.

Chapter Five provides an analysis of the present and proposed changes to the DOD and Army methods of determining the adequacy of off-base housing. Recommendations for future enhancements are offered and conclusions drawn.

PROPOSED ECONOMIC ANALYSIS

Letter of Transmittal

Preface

Executive Summary

Housing Market Area

Economy of the Housing Market

 Economic Character & History

 Employment

 Principal Employers

 Unemployment

 Economic Growth

 Income

Demographic Analysis

Housing Stock & Market Conditions

 Housing Supply

 Residential Building Activity

Vacancy Analysis

Mortgage, Sales, Rent Market

Appendices

 Each Appendix Tab

Preparer's Report

Table 3. Proposed Economic Analysis Report

Chapter Five

ANALYSIS, CONCLUSIONS, RECOMMENDATIONS

ANALYSIS

The DOD system relies on the Family Housing Requirements Survey which features the use of the Family Housing Questionnaire, DD Form 1376. The returned questionnaires, along with information on the availability of housing from other sources, are the basis for determining the housing needs of an installation. The information obtained from the questionnaires is jeopardized, however, by a history of poor return rates. This problem was addressed by increasing the sample sizes, but has been unsuccessful in correcting the problem. Since the lack of information is critical to the analysis, this problem has gained the attention of Congress. (5:10)

Another aspect of the procedure which has received Congressional attention is the requirement to do field inspections of community housing which is identified by the survey as inadequate. (5:20) The inspection is required whenever housing is identified as inadequate for reasons other than cost or number of bedrooms. The procedure also requires the "correction" of data which is inappropriate in the judgment of the housing monitor.

The proposed changes to the DOD system address many of the problems found in the current system. The questionnaire and all the complexity which is mandated by its use are eliminated. New forms are used, and these are easier to complete and read than the previous ones. The information obtained from the questionnaire is now provided from other sources. The primary source is the Community Housing Feedback, DD Form 1670. All service members living in the community are asked to complete this form when they find housing. AF/LEEH feels there is a problem with this, however, since "personnel who do not return this form will be considered acceptably housed." (7:2) There are a great number of service members who are "surveyed out" and others who see no good coming from the completion of the form. This in no way should be construed as adequately solved.

A problem with the changes is the justification of proposed housing projects lacks scientific evaluation. The justification is merely a narrative presentation in block 5 of DD Form 1670 (see Appendix A, pages 29-33). There is no requirement to justify the projects as does the Army method. Another problem is the lack of information on how to conduct a market analysis. While it is required in some cases and the basic format provided, there is no specific information on how to conduct one.

The Department of the Army method uses currently available information, formulates housing alternatives when a need exists, and conducts economic analyses to select the best alternative. This system relies on the information provided by the Community Housing Feedback form. The procedure also requires that a Segmented Housing Market Analysis be accomplished on the community housing assets. If the information obtained indicates a deficiency in adequate family housing, possible alternatives are formulated, and an economic analysis is performed to determine the best solution. The economic analysis procedure is well explained but is also very complex. It would be very difficult for housing managers to perform the necessary analysis unless they have had extensive training. There is also insufficient detail provided on how to conduct a survey and perform a Segmented Housing Market Analysis.

The proposed changes to this method do an excellent job of addressing the problems found with the present method. The means of obtaining housing data are thoroughly explained as is the Segmented Housing Market Analysis. The economic analysis is also simplified by specifying fewer analytical techniques used in the course of analyzing housing alternatives. The only remaining problem is that it is not written for the layman. Since the proposal is in draft, it is not too late to correct this deficiency. It must be done, however, if the audience is to be considered.

Over the period of fiscal years 1983 through 1986, the Army was more successful in obtaining funding from Congress for housing. (4:15) While Air Force and Navy housing on Oahu was transferred to the Army at the beginning of FY 81, the increase in Army housing was larger than the transfer. (4:15) It is also noteworthy that the Army had more housing units prior to FY 83 than the other services. (4:15) While this could be the result of expanding missions or the condition of the current family housing inventory, it could also be that their requirements are better supported. This study shows that the Army method does an excellent job of considering all alternatives and providing a detailed, scientific analysis to determine the best alternative. In addition, questions from the Congress are anticipated by explaining why some alternatives are not considered. This sound analysis may have something to do with their success.

RECOMMENDATIONS

The first recommendation is to combine the DOD and Army methods into a new method. A synthesis of these systems could provide a better approach than currently exists or is being proposed. The DOD system has an excellent explanation of the survey process. The Army system presents scientifically sound and well explained market analysis and economic analysis.

procedures. The analysis strengths of the Army method together with the survey procedure strengths of the DOD system would make an excellent method.

The second recommendation is to write the new system in layman's terms. While the DOD method does a good job of describing the survey procedures for the user, the Army method uses technical terms in the analysis descriptions. These technical terms do not add to the method; they only make the procedure more complex. Instead of the terms, the new method should describe the function. For example, instead of writing "identify the cost kinds," write "group the costs by category such as contract cost or maintenance and repair." Another example would be the term "wash cost." Instead of using this term, the new method should state "eliminate from the analysis costs which are equal for all alternatives being analyzed."

Another recommendation is to replace the DD Form 1670, Community Housing Feedback, with DD Form 1746, Application for Assignment to Housing, whenever possible. The same information is provided on both forms, but DD Form 1746 is used only when the service members apply for on-base housing. If members do not apply for base housing, they would only be able to provide the required information on DD Form 1670. The Housing Referral Office would have to follow up on those forms not returned in both cases. In the future, it is recommended that the housing information be included on a new form which also has the function of AF Form 594, Authorization to Start, Stop, or Change Basic Allowance for Quarters (BAQ), Rent Plus, and/or Variable Housing Allowance (VHA). If the required information is not provided, the member will not be entitled to allowances. The completion of this form would be required whenever a member is assigned to the installation and is living in the community.

The final recommendation has to do with the responsiveness of the survey process. The means are now in place at MACOMs to use the new Work Information Management System (WIMS) to do the data collection and transfer the results to AFLEBH. (10:--) WIMS is a computer system which maintains a large data base of Civil Engineering operational data including housing management. WIMS provides the expansion capability, the upload software, and the data transmission capability to accomplish this task. (10:--) New application software will have to be written, but this will not be a difficult task. (10:--) In addition, WIMS is already located at many bases and will be available to all housing offices within a few years. (10:--) When this occurs, data collection could be done at base level.

CONCLUSION

This study examined the DOD and Army systems for determining the availability of adequate off-base housing. In

addition, the proposed changes to these systems were studied. The strengths and weaknesses of each were shown, and the systems' ability to meet DOD housing objectives discussed. A brief history of military housing was presented in order to give an appreciation for the housing problem. Based on the findings, short and long-term recommendations were made to develop a new method which builds on the strengths of the present systems as amended by the proposed changes to each.

The goal of DOD Housing Management is "excellent housing and services shall be provided for all military members, their families, and eligible civilians. Continual improvement in quality is the measure of excellence." (9:1-2) This goal is within reach provided DOD's housing needs are well documented and recommendations based on sound, scientific analysis. The recommendations made in this study ensure good documentation and sound analysis. For this reason, implementation of these recommendations is strongly advocated.

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GLOSSARY

ABBREVIATIONS

<u>AF/LEE</u>	Headquarters, United States Air Force, Deputy Chief of Staff Logistics and Engineering, Engineering Branch
<u>AFMPC</u>	Air Force Military Personnel Center
<u>BAQ</u>	Basic Allowance for Quarters
<u>CBPO</u>	Consolidated Base Personnel Office
<u>DA PAM</u>	Department of the Army Pamphlet
<u>DOD</u>	Department of Defense
<u>FACSO</u>	Facilities Systems Office
<u>MAJCOM</u>	Major Command
<u>MCP</u>	Military Construction Program
<u>MILCON</u>	Military Construction
<u>SHMA</u>	Segmented Housing Market Analysis
<u>USAF/LEEH</u>	Headquarters, United States Air Force, Deputy Chief of Staff Logistics and Engineering, Housing Branch.
<u>USAF/LEEHO</u>	Headquarters, United States Air Force, Deputy Chief of Staff Logistics and Engineering, Housing Operations Branch
<u>VHA</u>	Variable Housing Allowance
<u>WIMS</u>	Work Information Management System
<u>WWMCCS</u>	Worldwide Military Command and Control System

CONTINUED

TERMS

Cash Flow Diagrams - A visual means of illustrating cost timing and magnitude.

Cost Element - "A basic unit of cost, such as labor or material." (2:61)

Cost Kind - "A group of costs composed of a number of cost elements that all contribute to accomplishment of the same function," e.g. maintenance and repair. (2:61)

Descriptive Statistics - A method of estimating costs on the basis of parametric statistical information concerning the costs.

Designing Alternatives to be Equal - This is comparing alternatives on the basis of the same year. This is done with discounting.

Discounting and Present Value Analysis - A technique used to translate cash flows to its equivalent value in a given year by the use of an interest rate. The present value is discounting where the comparison year is the current one.

Estimating the Cost of Inflation - A guess of what the inflation rate will be.

Housing Penetration - The number of community housing assets the Army can expect its members to lease. A prime consideration is the demand within the civilian population for housing.

Incremental Cost - A cost which changes due to "a change in operations." (2:63)

Life-Cycle Cost - Comparison of the total costs of alternatives over their full life.

Regression Analysis - A method of estimating cost on the basis of past trends.

Risk and Sensitivity Analysis - "A situation in which the probability connected with an outcome is known" and how "sensitive" the cost is with respect to that outcome. (2:64)

CONTINUED

Sunk Cost - Past expenditures or those "committed to a project."
(2:64)

Wash Cost - "A cost which is identical for all alternatives being
evaluated." (2:64)

APPENDIX

Appendix A - Forms

Appendix B - Sample Economic Analysis

APPENDIX

Appendix A - Forms

FAMILY HOUSING QUESTIONNAIRE		ARMY FORM 1376 DD FORM 1376 (Rev. 1-65)
(Please read the INSTRUCTIONS and PRIVACY ACT STATEMENT on reverse before completing this questionnaire.)		
1. NAME (Last, first, middle initial)		
2. LOCAL ADDRESS—This is the address where you are living with your family. If your family is not with you, indicate barracks or enlisted quarters. (Last, first, middle initial, apartment, room, or unit number.)		
3. ORGANIZATION TO WHICH YOU ARE ASSIGNED AND DUTY PHONE NUMBER (Include name and unit number. If you are not assigned, leave blank.)		
4. YOUR SOCIAL SECURITY NUMBER		
5. WHAT IS YOUR PAY GRADE? (Use as 2 in assignment form)		
OFFICER	ENLISTED	CHILDREN
☐ O-10	☐ E-9	☐ 05 1 year
☐ O-9	☐ E-8	☐ 05 2 years
☐ O-8	☐ E-7	☐ 05 3 years
☐ O-7	☐ E-6	☐ 05 4 years
☐ O-6	☐ E-5	☐ 05 5 years
☐ O-5	☐ E-4	☐ 05 6 years
☐ O-4	☐ E-3	☐ 05 7 years
☐ O-3	☐ E-2	☐ 05 8 years
☐ O-2	☐ E-1	☐ 05 9 years
☐ O-1		☐ 05 10 years
6. WHAT IS YOUR MARITAL STATUS?		
☐ 1	☐ 2	☐ 3
☐ 4	☐ 5	☐ 6
7. YOUR DEPENDENTS		
DO NOT INCLUDE YOUR SPOUSE		
For purposes of this survey, a dependent is someone who cannot support himself or herself and who would normally live with you.		
Age should be 18 or younger when you use it for dependent and 17 or younger for dependent child.		
8. IS YOUR FAMILY LIVING WITH YOU AT THE LOCAL ADDRESS YOU GAVE IN #1?		
9. IF YOU ARE NOT PRESENTLY ACCOMMODATED BY YOUR FAMILY IN THE AREA YOU HAVE PROVIDED THE QUESTIONNAIRE, PLEASE SHOW YOUR NAME AND ENTER THE DATE ON LINE 14.		
10. HOW MANY BEDROOMS ARE THERE IN THE HOUSING UNIT YOU LIVE?		
11. IN WHAT TYPE OF HOUSING ARE YOU NOW LIVING? (Select one only.)		
12. COMPARING YOUR PRESENT SITUATION, HOW DO YOU FEEL?		
13. HOW MANY MILES IS IT FROM YOUR LOCAL HOME TO YOUR DUTY STATION? (Include travel time.)		
14. HOW LONG DOES IT TAKE YOU TO TRAVEL FROM YOUR HOME TO YOUR DUTY STATION? (Include travel time.)		
15. HOW MUCH DOES YOUR HOUSING COST YOU ON THE AVERAGE EACH MONTH? (Include the following items: rent, utilities, taxes, etc.)		
16. CONSIDERING YOUR PRESENT SITUATION, DO YOU FEEL THAT THE HOUSING YOU NOW LIVE IN IS SATISFACTORY?		
17. IF YOU OWN OR ARE BUYING A HOME, HOW DO YOU CHECK THE HOME COMPARED TO YOUR PRESENT SITUATION?		
18. IF YOU OWN OR ARE BUYING A HOME, HOW DO YOU CHECK THE HOME COMPARED TO YOUR PRESENT SITUATION?		
19. SIGNATURE AND DATE		

DD FORM 1376
1 Jan 60

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

DD FORM 1376 (Rev. 1-65)
GPO: 1965 O - 345-111

INSTRUCTIONS

Use a pencil to complete the questionnaire. Print in the answers to the first four questions. For the remainder of the questions, fill in the answer, or place an "X" in the box, as appropriate.

EXAMPLE: How many bedrooms are there in the housing where you live?

3

What is your marital status?

2 X

MARRIED

1

OTHER (Widowed, divorced, single,
legally separated)

If you want to change an answer, be sure to erase completely. If a question does not apply to you, skip it and move to the next one.

PRIVACY ACT STATEMENT

FOR

DD Form 1376 (1 Jan 80) — FAMILY HOUSING QUESTIONNAIRE

This statement is provided in compliance with the provisions of the Privacy Act of 1974 (PL 93-579) which require that Federal agencies must inform individuals who are requested to furnish information about themselves as to the following facts concerning the information requested.

1. **AUTHORITY:** Annual Military Construction Authorization and Appropriation Acts.
2. **PRINCIPAL PURPOSE(S):** To obtain information to determine whether the programming of military family housing is necessary at an installation.
3. **ROUTINE USE(S):** Used with questionnaire forms filled out by other individuals to assist in determining the need for the programming of military family housing at an installation, and the extent of this need — number of units, rank, and grade types, and bedroom distribution.
4. **MANDATORY OR VOLUNTARY DISCLOSURE:** Voluntary. No effect on the individual if information is not provided. Further, the SSN, which is used for identification purposes, does not have to be disclosed and disclosure or nondisclosure will not affect the questionnaire.

TABULATION OF FAMILY HOUSING SURVEY				REPORT CONTROL SYMBOL			
DATE OF SURVEY		OFFICERS	ELIGIBLE ENLISTED	CIVILIANS	SUBTOTAL	OTHER ENLISTED	TOTAL
REQUIRE RESULTS	1. TOTAL PERSONNEL STRENGTH						
	2. PERMANENT PARTY HOUSING STRENGTH AND NON-CIVILIANS						
	3. NUMBER OF FAMILIES						
	4. HOUSING REQUIREMENTS FACTOR						
POSITIVE LIVING WITH FAMILIES	5. NOT LIVING WITH FAMILY TOTAL 11-10						
	6. UNVOLUNTARILY SEPARATED FAMILIES						
	7. PREFER MILITARY QUARTERS						
	8. PREFER PRIVATE HOUSING						
SUMMARY OF OCCUPIED HOUSING BY TYPE AND PREFERENCE	9. VOLUNTARILY SEPARATED FAMILIES						
	10. LIVING WITH FAMILY IN AREA TOTAL 11-10						
	11. SUITABLE HOUSES SUBTOTAL 11-10						
	12. IN MILITARY CONTROLLED HOUSING						
	13. PREFER RENTING OFF POST						
	14. PREFER OWNING OFF POST						
	15. IN PRIVATE HOUSING						
	16. PREFER MILITARY QUARTERS						
	17. PREFER RENTING OFF POST						
	18. UNSUITABLE HOUSES SUBTOTAL 11-11						
	19. IN MILITARY CONTROLLED HOUSING						
	20. PREFER RENTING OFF POST						
SUMMARY OF OCCUPIED HOUSING BY TYPE AND PREFERENCE	21. PREFER OWNING OFF POST						
	22. IN PRIVATE HOUSING SUBTOTAL 11-12						
	23. IN MILITARY CONTROLLED HOUSING						
	24. PREFER RENTING OFF POST						
	25. PREFER OWNING OFF POST						
	26. IN PRIVATE HOUSING SUBTOTAL 11-13						
	27. IN MILITARY CONTROLLED HOUSING						
	28. PREFER RENTING OFF POST						
	29. PREFER OWNING OFF POST						
	30. EXCESS DISTANCE						
	31. EXCESS COST ONLY						
	SUMMARY OF OCCUPIED HOUSING BY TYPE AND PREFERENCE	32. EXCESS COST ONLY (OTHER THAN)					
33. LESS THAN \$5							
34. \$5 TO \$10							
35. \$10 TO \$25							
36. \$25 TO \$50							
37. \$50 AND MORE							
38. OWNER OCCUPIED HOUSES TOTAL 11-14							
39. SUITABLE IN ALL RESPECTS							
40. UNSUITABLE SUBTOTAL 11-15							
41. EXCESS DISTANCE							
42. SUBSTANDARD							
43. EXCESS COST ONLY							
SUMMARY OF OCCUPIED HOUSING BY TYPE AND PREFERENCE	44. OWNER OCCUPIED HOUSES TOTAL 11-16						
	45. SUITABLE IN ALL RESPECTS FOR POST						
	46. UNSUITABLE SUBTOTAL 11-17						
	47. EXCESS DISTANCE FOR POST						
	48. SUBSTANDARD FOR POST						
	49. EXCESS COST ONLY FOR POST						
	50. RENTED HOUSES OFF POST TOTAL 11-18						
	51. SUITABLE IN ALL RESPECTS						
	52. UNSUITABLE SUBTOTAL 11-19						
	53. EXCESS DISTANCE						
	54. SUBSTANDARD						
	55. EXCESS COST ONLY						
SUMMARY OF OCCUPIED HOUSING BY TYPE AND PREFERENCE	56. MILITARY CONTROLLED HOUSING TOTAL 11-20						
	57. ADEQUATE AS PUBLIC QUARTERS						
	58. MILITARY OWNED						
	59. MILITARY LEASE						
	60. MILITARY SPONSORED						
	61. NOTED AFTER B. QUARTERS						
	62. VACANT HOUSING TOTAL 11-21						
	63. ARE RENTAL HOUSING						
	64. ARE AND ARE RENTAL HOUSING						
	65. MILITARY HOUSING USED ARE AS PUBLIC QUARTERS						
	66. NUMBER OF UNSUITABLE UNITS REPORTED						
	67. NUMBER OF REPORTED UNITS REQUIRED						
68. AT CURRENT FACTORY							
69. AT CURRENT FACTORY							

TABLE OF FAMILY HOUSING SURVEY

QUALITATIVE ANALYSIS OF REQUIREMENTS AND AREAS	1977-78 RESULTS		1978-79 RESULTS		TOTAL (1977-78 + 1978-79)	DEFICIENCY
	NUMBER	PERCENT	W. CONTROL	OFF POST		
1. 0 1 THROUGH 0 4						
2. 1 OR 2 BEDROOMS						
3. 3 BEDROOMS						
4. 4 OR MORE BEDROOMS						
5. 0 5 AND 0 6						
6. 1 OR 2 BEDROOMS						
7. 3 BEDROOMS						
8. 4 OR MORE BEDROOMS						
9. 0 3 THROUGH 0 4 AND 0 5 THROUGH 0 6						
10. 1 OR 2 BEDROOMS						
11. 3 BEDROOMS						
12. 4 OR MORE BEDROOMS						
13. ALL OFFICER GRADES (TOTAL 14-17-18-19)						
14. 1 OR 2 BEDROOMS						
15. 3 BEDROOMS						
16. 4 OR MORE BEDROOMS						
17. ALL ELIGIBLE MILITARY (TOTAL 20-21-22)						
18. 1 OR 2 BEDROOMS						
19. 3 BEDROOMS						
20. 4 OR MORE BEDROOMS						
21. ALL ELIGIBLE MILITARY (TOTAL 23-24)						
22. 1 OR 2 BEDROOMS						
23. 3 BEDROOMS						
24. 4 OR MORE BEDROOMS						
25. ALL ELIGIBLE MILITARY (TOTAL 25-26)						
26. 1 OR 2 BEDROOMS						
27. 3 BEDROOMS						
28. 4 OR MORE BEDROOMS						
29. ALL CIVILIANS, D EQUIVALENT						
30. 1 OR 2 BEDROOMS						
31. 3 BEDROOMS						
32. 4 OR MORE BEDROOMS						
33. ALL CIVILIANS, D EQUIVALENT						
34. 1 OR 2 BEDROOMS						
35. 3 BEDROOMS						
36. 4 OR MORE BEDROOMS						
37. ALL ELIGIBLE CATEGORIES TOTAL MILITARY						
38. 1 OR 2 BEDROOMS						
39. 3 BEDROOMS						
40. 4 OR MORE BEDROOMS						
41. ALL ELIGIBLE CATEGORIES TOTAL CIVILIANS						
42. 1 OR 2 BEDROOMS						
43. 3 BEDROOMS						
44. 4 OR MORE BEDROOMS						
45. REMARKS						

DD FORM 1377

INSTRUCTIONS FOR PREPARING
TABULATION OF FAMILY HOUSING SURVEY DD FORM 1177

GENERAL INSTRUCTIONS

This Tabulation of Family Housing Survey will be prepared in two steps.

1. **PRELIMINARY TABULATION.** This will consist of a simple counting and tabulating of the questionnaires and, in certain cases, vacant housing units. Questionnaires must be available for all personnel occupying military-controlled housing. Questionnaires for personnel occupying nonmilitary-controlled housing must be correctly classified on the basis of field inspection of unoccupied units. See Instructions for Processing Questionnaires on Family Housing, DD Form 1178.

2. **FINAL TABULATION.** This will consist of applying adjustment factors to specified items on the Preliminary Tabulation to express the survey findings to reflect 100 percent of the gross family housing requirements.

Entries on Lines 2-64 will show data in each column as follows:

- a. **OFFICERS.** Commissioned and warrant officers of all grades (PC codes 1, 2 and 3).
- b. **ELIGIBLE ENLISTED.** Grades E-9 through E-7 (PC code 4) plus Grades E-4 and E-3 as well as Grade E-6 with four or more years of service or with 100 to 109 years of service and a six year active duty commitment (PC code 5).
- c. **KEY CIVILIANS.** Civil Service employees who should reside on the installation because of the nature of their duty assignments. Note that the entry on Line 2 in Column a should include all Civil Service employees (PC codes 6 and 7).
- d. **SUBTOTAL.** Sum of entries in Columns a, b and c.
- e. **OTHER ENLISTED.** Grades E-4 through E-1 (other than those included above) (PC code 8).
- f. **TOTAL.** Sum of entries in Columns d and e.

Entries for the various columns in the Qualitative Analysis section, Lines 66-113, are presented under instructions on Lines 66-113 below. Total and subtotal lines will include entries in accordance with the direction of the lines in the sub-except for entries on Lines 71, 76, 78, 80 and 82 which are not equal to the sum of entries on the two lines immediately following; and as presented throughout the instructions which follow. In addition, there are certain "Yes" lines which must be entered as follows:

- 1. In each column, Line 4 must be the sum of Lines 1 plus 11 in the Final Tabulation. In the Preliminary Tabulation, Line 4 will usually be greater.
- 2. In each column, Line 11 must be the sum of Lines 14 + 40 + 46 + 52.
- 3. In each column, Line 12 must be the sum of Lines 15 + 41 + 47 + 53.
- 4. In each column, Line 19 must be the sum of Lines 16 + 42 + 48 + 54.
- 5. In column a, Line 18 must be the sum of Lines 17 plus 11, Column a.
- 6. In column a, Line 40 must be the sum of Lines 17 plus 11, Column a.
- 7. In column a, Line 10 must be the sum of Lines 17 plus 11, Column a.
- 8. In column a, Line 110 must be the sum of Lines 17 plus 11, Column a.
- 9. In column c, Line 106 must be the sum of Lines 13 plus 61, Column f.
- 10. In column d, Line 78 must be the sum of Lines 16 + 59 + 60, Column a.
- 11. In column d, Line 80 must be the sum of Lines 16 + 59 + 60, Column a.
- 12. In column d, Line 106 must be the sum of Lines 16 + 59 + 60, Column a.
- 13. In column d, Line 110 must be the sum of Lines 16 + 59 + 60, Column a.

Identification and authentication of the Final Tabulation will be provided as follows:

- 1. On Lines 65 and 114, enter the name of the installation, the nearest city or town and the State.
- 2. On Line 115, provide the name, title and signature of the authenticating officer and the date of his signature.

INSTRUCTIONS FOR ENTRIES ON LINES 1-5

Line 1 - Enter the "as of" date of the survey.

Line 2 - **TOTAL PERSONNEL STRENGTH.** Enter in appropriate columns the total strength as shown in the "Inventory report." In the installation on the "as of" date of the survey. Report all personnel of the Service which controls the installation as well as all personnel of tenant units of other Services, including fleet personnel, students, transients, rotational, hospital permits and personnel absent on temporary duty. Under Civilians report total Civil Service employees at the installation, but not employees of contractors or other nonmilitary enterprises on the installation.

Line 3 - **PERMANENT PARTY HOUSING STRENGTH.** Enter in appropriate columns the total number of fully permanent assigned on the "as of" date of the survey on permanent change of station orders, including students assigned in excess of 30 or more weeks and PCS personnel of tenant units of other Services. Under Civilians report only those key civilians who should reside on the installation because of the essential nature of their duties.

Line 4 - **NUMBER OF FAMILIES.** Enter in appropriate columns the number of those military personnel entitled to Permanent Party Housing Strength on Line 3 who are entitled to Basic Allowance for Quarters (BAQ) dependent's allowance. Under Civilians enter the number of those reported on Line 3 who submit dependent's as members of their immediate families. These entries will be obtained or furnished with personnel pay records, as will the entries on Lines 1 and 2, and therefore will always be equal to or greater than the number of questionnaires obtained in the survey.

Line 5 - **HOUSING REQUIREMENTS FACTOR.** Each entry on Line 4 divided by corresponding entry on Line 3, expressed as percent to the nearest tenth of one percent.

INSTRUCTIONS FOR ENTRIES ON LINES 6-64

A. Sort all questionnaires into four personnel categories to entry in Box PC.

- Category a - Code 1, 2 and 3 (all officers, including warrant) to be tabulated in Column a.
- Category b - Code 4 and 5 (eligible enlisted) to be tabulated in Column b.
- Category c - Code 6 and 7 (key civilians) to be tabulated in Column c.
- Category d - Code 8 (ineligible enlisted) to be tabulated in Column d.

NOTE: Apply the following instructions to EACH OF THE FOUR COLUMN CATEGORIES SEPARATELY AND IN TURN.

B. Sort category into two groups to entry in Box PL.

- Group 1 - Code 1 (living with family) to be tabulated on Lines 11, 57.
- Group 2 - Code 2 (not living with family) to be tabulated on Lines 6, 10.

C. Sort Group 2 by entry in Box LP.

- Code 1 - Enter total number on Line 8.
- Code 2 - Enter total number on Line 9.
- Code 3 - Enter total number on Line 10.

D. Complete total lines.

- Line 7 - Enter sum of Line 8 plus Line 9.
- Line 6 - Enter sum of Line 7 plus Line 10 (this entry must also be the total number of questionnaires in Group 2 in each column).

E. Sort Group 1 into two subgroups by entry in Box MC.

- Subgroup 1 - Code 1, 2, 3 and 4 (no private housing).
- Subgroup 2 - Code 5, 6 and 7 (in military controlled housing, a questionnaires is required for each military-controlled family housing unit which was occupied on the survey date).

F. Sort Subgroup 2 by entry in Box MS.

- Code 1 - Enter total number on Line 13 and on Line 51. Then count those with entry 1 in Box HP and enter total on Line 14 and count those with entry 3 in Box HP and enter total on Line 15. Then count those with entry 5 in Box MC and enter total on Line 54. Count those with entry 5 in Box MC and enter total on Line 55 and count those with entry 1 in Box MC and enter total on Line 56. Check to be sure that the entry on Line 53 is the sum of entries on Lines 54, 55 and 56.

- Code 3 - Enter total number on Line 20 and on Line 47. Then count those with entry 1 in Box HP and enter total on Line 21 and count those with entry 3 in Box HP and enter total on Line 22.

Enter in the spaces in parentheses in the stub on Lines 54, 55, 56 and 57 the number of units under military control which were vacant on the date of the survey. On each line this parenthetical entry plus the entry in Column a must equal the total number of such units in the installation as reported on DD Form 1410, Inventory and Occupancy of Military-Owned and Controlled Family Housing Units.

G. Sort Subgroup 1 by entry in Box NS.

- Code 1 - Enter total number on Line 16. Then count those with entry 1 in Box HP and enter total on Line 17 and count those with entry 2 in Box HP and enter total on Line 18. Do not tabulate those with entry 3 in Box HP.

- Code 2 - Enter total number on Line 23. Then count those with entry 1 in Box HP and enter total on Line 24 and count those with entry 2 in Box HP and enter total on Line 25. Do not tabulate those with entry 3 in Box HP.

- Code 3 - Enter total number on Line 26.
- Code 4 - Enter total number on Line 27.
- Code 5 - Enter total number on Line 28.
- Code 6 - Enter total number on Line 29.
- Code 7 - Enter total number on Line 30.
- Code 8 - Enter total number on Line 31.
- Code 9 - Enter total number on Line 32.
- Code 10 - Enter total number on Line 33.

H. Report Subgroup 1 by entry in Box NC.

- Code 1 - Enter total number on Line 46. Then sort further by entry in Box NS. Enter total number with entry 1 on Line 47, enter total number with entry 2 through 8 on Line 48, enter total number with entry 9 on Line 49, enter total number with entry 3 on Line 10 and enter total number with entry 4 through 8 on Line 51. Finally, check to be sure that the entry on Line 46 is the sum of entries on Lines 47, 48, 49, 50 and 51.

- Code 2 - Enter total number on Line 34. Then sort further by entry in Box NS. Enter total number with entry 1 on Line 35, enter total number with entry 2 through 8 on Line 36, enter total number with entry 9 on Line 37, enter total number with entry 3 on Line 38 and enter total number with entry 4 through 8 on Line 39. Finally, check to be sure that the entry on Line 34 is the sum of entries on Lines 35, 36, 37, 38 and 39.

- Code 3 and 4 - Enter total number on Line 40. Then sort further by entry in Box NS. Enter total number with entry 1 on Line 41, enter total number with entry 2 through 8 on Line 42, enter total number with entry 9 on Line 43, enter total number with entry 3 on Line 44 and enter total number with entry 4 through 8 on Line 45. Then entry has been made on Line 41, make a note of the number of questionnaires in Box MC.

simultaneously make notes for entries on Lines 42, 44 and 45. Then for each of these columns, enter the number of units or entries in Column 4. The sum of the units or entries in these four columns should equal the number of owned houses in on-post travel party.

1. The number of vacant units not under military control which are determined to be suitable for occupancy in military housing will be entered on Lines 59 and 60. The source of information for these entries will be the summaries of inspections of Available Vacant Rental Housing prepared pursuant to the directions contained in Instructions for Processing Questionnaire on Family Housing, DD Form 1374. Entries for Line 59 will be obtained from the summaries of inspections in the military-controlled housing office (Military Housing, 4, 5, 6, and 7) and other sources developed from multiple listing service, realtors or newspapers (Non-Government Listings). Entries for Line 60 will be obtained from the summary on PMA and A issues. If any. The total number of vacant units, regardless of source, suitable for officers will be entered in Column 4 and for enlisted men in Column 5. On Line 59, entries of zero in both columns will not be acceptable except under most unusual circumstances and must be fully explained under 114 REMARKS. Entries of zero on Line 60 must be explained under 114 REMARKS.

The number of vacant ADEQUATE military units, including, owned, leased and sponsored will be obtained from intelligence housing office records and will be entered in Columns 4, 5 and 6, as appropriate, on Line 61. The entry in Column 6 on this line must equal the entry in the sum of Line 53.

The sum of entries on Lines 59, 60 and 61 will be entered in appropriate columns on Line 58.

2. Entries on Lines 62 and 63 will be made from records of the inspection of suitable occupied units developed pursuant to instructions contained in Instructions for Processing Questionnaire on Family Housing, DD Form 1376 or from serial count of the questionnaires representing suitable units which were inspected. The number of units which were inspected will be entered on Line 62 in various columns, as appropriate. Similarly, the number of unsuitable occupied units which were inspected to be entered will be entered on Line 63.

3. Entries on Line 64 will not be required on the Preliminary Tabulation. Therefore, use instructions below for preparing the Final Tabulation.

INSTRUCTIONS FOR ENTRIES ON LINES 66-113

In this Qualitative Analysis of Requirements and Assets section, all questionnaires for personnel whose entries live on item (Line 12) or who are traveling with separated from their families (Line 7) and all existing suitable housing assets, both military-controlled and private, both occupied and vacant (Lines 13 and 61, and Lines 76, 79 and 81) will be accounted for. Entries on Lines 66-109, 110, 111, 112, 113 will be obtained from the questionnaires and from other sources as prescribed below. Entries on Lines 7, 81, 90, 93, 94, 97 and 106-109, such as totals, will be computed from preceding entries as follows:

- Line 78: sum of entries on Lines 66, 70 and 74
- Line 79: sum of entries on Lines 67, 71 and 75
- Line 80: sum of entries on Lines 68, 72 and 76
- Line 81: sum of entries on Lines 69, 73 and 77
- Line 82: sum of entries on Lines 83 and 85
- Line 83: sum of entries on Lines 84 and 86
- Line 84: sum of entries on Lines 85 and 86
- Line 85: sum of entries on Lines 86 and 87
- Line 86: sum of entries on Lines 87 and 88
- Line 87: sum of entries on Lines 88 and 89
- Line 88: sum of entries on Lines 89 and 90
- Line 89: sum of entries on Lines 90 and 91
- Line 90: sum of entries on Lines 91 and 92
- Line 91: sum of entries on Lines 92 and 93
- Line 92: sum of entries on Lines 93, 94 and 102
- Line 93: sum of entries on Lines 94, 95 and 103
- Line 94: sum of entries on Lines 95, 96 and 104
- Line 95: sum of entries on Lines 96, 97, 101 and 105

a. **EFFECTIVE REQUIREMENTS - NUMBER** Involves all personnel whose families live with them (Line 12) or who are involuntarily separated from their families (Line 7). In this preliminary tabulation, two entries will be obtained from questionnaires as prescribed below.

b. **EFFECTIVE REQUIREMENTS - PERCENT** Entries will be computed for Lines 66, 105 and 107-109. Entries in Column 4 divided by entries on Line 106 in Column 4, expressed as percent to nearest tenth of one percent. For Lines 111, 112, entries in Column 4 divided by entries on Line 110 in Column 4, expressed as percent to nearest tenth of one percent. (Not required in Preliminary Tabulation.)

c. **SUITABLE HOUSING - MILITARY CONTROL** Involves all adequate military owned, leased and sponsored units, including units occupied by both eligible and ineligible personnel, as well as vacant units. Entries will be obtained from housing records to reflect regardless of occupancy at the time of survey. All units in designated personnel category and in number of bedrooms.

d. **SUITABLE HOUSING - OFF POST** Involves all suitable private housing units, both occupied and vacant. In this preliminary tabulation, two entries will be obtained, one from serial count and one from summaries of Available Vacant Rental Housing, as prescribed below.

e. **SUITABLE HOUSING - TOTAL** Entries will be computed by adding entries in Columns 4 and 5 on each line. (Not required in Preliminary Tabulation.)

f. **DEFICIT** Entries will be computed by subtracting entries in Column 4 minus entries in Column 5 on each line. If the entry in Column 4 is greater than the entry in Column 5, the entry in Column 4 will be preceded by a minus sign. (Not required in Preliminary Tabulation.)

Entries in Columns 4 and 5 will be obtained by using all questionnaires with entry 1 in Box FL and entry 2 in Box FL and entry 3 in Box FL and by using the summary of Available Vacant Rental Housing. Then the questionnaires in the entry in Box PC as follows:

Code 1 - Separate these questionnaires into two groups: (1) Entry 5, 6 or 7 in Box HC and (2) Entry 1, 2, 3 or 4 in Box HC and entry 2 in Box FL. Then sort Group 1 into three subgroups in the entry in Box BR as follows to obtain entries to be made ON THE LEFT SIDE OF Column 4.

Code 1 or 2 - Enter total number on Line 67.

Code 3 - Enter total number on Line 68.

Code 4 - Enter total number on Line 69.

Enter sum of Lines 67, 68 and 69 on Line 66.

(These "right-side" entries are not subject to adjustment in preparing the Final Tabulation.)

Then similarly sort Group 2 by the entry in Box BR for entries on the right side of Column 4 on Lines 67, 68 and 69. These "right-side" entries are subject to adjustment in preparing the Final Tabulation.

Next, four each of these "right-side" questionnaires (those used for "right-side" entries in Columns 4) sort the questionnaires with entry 1 in Box HS or entry 2 in Box HS or entry 3 in Box HS or entry 4 in Box HS. Count these questionnaires and enter the number ON THE RIGHT SIDE of Column 4 of the appropriate line. Then entries are made on Lines 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113. Note that in determining these entries for Columns 4 questionnaires with entry 2 in Box FL or entry 3 in Box FL or entry 4 in Box FL are not to be used. This is because the respondents are substantially housed and report no vacant units are available will be accounted for in the deficit.

Then, using the Summaries of Available Vacant Rental Housing prepared pursuant to the Instructions for Processing Questionnaire on Family Housing, DD Form 1374, determine the number of suitable vacant private and FHA/VA units for this personnel category and enter the numbers ON THE LEFT SIDE of Column 4 on Lines 66-69. Again, these "left-side" entries are not subject to adjustment in preparing the Final Tabulation.

Proceed as for Code 1 to obtain further entries for Columns 4 and 5 using

Code 2 in Box PC for entries on Lines 70-73.

Code 3 in Box PC for entries on Lines 74-77.

Code 4 in Box PC for entries on Lines 78-81.

Code 5 in Box PC for entries on Lines 82-85.

Code 6 in Box PC for entries on Lines 86-89.

Code 7 in Box PC for entries on Lines 90-93.

Code 8 in Box PC for entries on Lines 94-97.

Code 9 in Box PC for entries on Lines 98-101.

Code 10 in Box PC for entries on Lines 102-105.

Code 11 in Box PC for entries on Lines 106-109.

Code 12 in Box PC for entries on Lines 110-113.

As indicated above, entries in Columns 4 showing suitable housing assets under military control will be obtained from housing records to reflect, regardless of occupancy at the time of survey, all units in designated personnel category and in number of bedrooms.

After entries have been made in Columns 4 and 5, it would be possible to complete entries in Columns 6 and 7. Note that this is not required and will be subject to change in the Final Tabulation. The entries in Columns 6 and 7 will probably be obtained due to adjustments to the "right-side" entries in Columns 4 and 5.

INSTRUCTIONS FOR PREPARING THE FINAL TABULATION

As indicated above, entries on Line 64 are required only on the Final Tabulation, NOT on the Preliminary Tabulation. Since the Final Tabulation must provide information on ALL families making up the current gross housing requirements (Line 12) on the Preliminary Tabulation must be adjusted. Adjusted to account for the families of each issue who did not fill out questionnaires. The Adjustment Factor to be entered on Line 64 will be computed separately for Officers, Column 4, for Eligible Enlisted, Column 4, for Other Enlisted, Column 4, and for Other Enlisted, Column 5. The factor will be the ratio obtained when the number entered in Box 4 of gross requirements minus the number of occupied military-controlled units is divided by the number of non-military-controlled units accepted off post in both housing and unoccupied families, as tabulated from the questionnaires on the Preliminary Tabulation. The formula for deriving this factor for each of Columns 4, 5, 6 and 7 is:

Adjustment Factor = $\frac{\text{Line 4 minus Line 52}}{\text{Line 6 plus Line 10 plus Line 11}}$

If higher requirements have been determined, requirements for a given category from 45 percent or more of the families in each category, the factor should be greater than 1.18.

Each Adjustment Factor will be applied in its appropriate column, but only to Preliminary Tabulation entries involving families not in (a) military-controlled housing (Lines 13, 14, 15, 16, 17, 18 and 19) and (b) the 45 percent factor will NOT be applied to Lines 11, 12 and 19 because there are no comparable factors, or to Lines 11, 15, 20, 22 and 52. 53 in military-controlled housing. The questionnaires required from ALL families occupying each housing on the survey date and the entries have already been reconciled to the total units in inventory on Lines 58, 63 because the original entries are already 100 percent. In the Qualitative Analysis section (Lines 66-113), the Adjustment Factor will be applied only to "right-side" entries in Columns 4, Effective Requirements, Number, and in Column 5, Suitable Housing, Off Post, as follows: the factor for officers will be applied to Lines 66-77, the factor for eligible enlisted to Lines 82-89, the factor for other enlisted to Lines 96-105 and the factor in Column 5 for other enlisted to Lines 110-113.

After the "right-side" entry has been adjusted, the corresponding "left-side" will be added and the sum entered in the proper space in the Final Tabulation. Then entries on Lines 66-113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

DETERMINATION OF HOUSING REQUIREMENTS AND PROJECT COMPOSITION							REPORT CONTROL SYMBOL	
DETERMINATION OF LONG-RANGE HOUSING REQUIREMENTS	OFFICERS		ENLISTED MEN				CIVILIANS	TOTAL
	OPERATIONAL	STUDENTS	OPERATIONAL		STUDENTS			
	1	2	3	4	5	6	7	8
1. TOTAL PERSONNEL STRENGTH								
2. PERMANENT PARTY HOUSING STRENGTH								
3. HOUSING REQUIREMENTS FACTOR								
4. CROSS-HOUSING REQUIREMENTS								
DETERMINATION OF LONG-RANGE HOUSING DEFICIT								
	OFFICERS	ENLISTED	KEY	SUB-TOTAL		OTHER	TOTAL	
	1	2	3	4	5	6	7	8
5. CROSS-ELIGIBLE HOUSING REQUIREMENTS								
6. VOLUNTARILY SEPARATED FAMILIES								
7. EFFECTIVE HOUSING REQUIREMENTS (1 minus 5)								
8. Programming Limit (1)								
9. SUITABLE HOUSING ASSETS (Form 10-1)								
10. MILITARY CONTROLLED ASSETS (Subitem 11-12)								
11. MILITARY OWNED - EXISTING								
12. MILITARY OWNED - UNDER CONTRACT								
13. MILITARY OWNED - APPROVED								
14. MILITARY LEASED - EXISTING AND APPROVED								
15. OTHER - OWNED								
16. NOT MILITARY CONTROLLED (Subitem 11-12)								
17. CURRENTLY OCCUPIED - OWNED								
18. CURRENTLY OCCUPIED - RENTED								
19. CURRENTLY VACANT - PRIVATE FOR RENT								
20. CURRENTLY VACANT - FOR AND OR FOR RENT								
21. UNDER CONSTRUCTION OR PLANNED								
22. NET HOUSING DEFICIT (7 minus 9)								
23. Programming Deficit (7 minus 9)								
PROPOSED HOUSING INCIDENTS AND PROGRAMMING LEVELS								
FISCAL YEAR 10	24. NEW CONSTRUCTION							
	25. OTHER - OWNED							
	26. MILITARY PROGRAMMING LEVEL - NO							
	27. MILITARY PROGRAMMING LEVEL - PERCENT							
	28. TOTAL PROGRAMMING LEVEL - NO							
FISCAL YEAR 11	29. TOTAL PROGRAMMING LEVEL - PERCENT							
	30. NEW CONSTRUCTION							
	31. OTHER - OWNED							
	32. MILITARY PROGRAMMING LEVEL - NO							
	33. MILITARY PROGRAMMING LEVEL - PERCENT							
FISCAL YEAR 12	34. TOTAL PROGRAMMING LEVEL - NO							
	35. TOTAL PROGRAMMING LEVEL - PERCENT							
	36. NEW CONSTRUCTION							
	37. OTHER - OWNED							
	38. MILITARY PROGRAMMING LEVEL - NO							
FISCAL YEAR 13	39. MILITARY PROGRAMMING LEVEL - PERCENT							
	40. TOTAL PROGRAMMING LEVEL - NO							
	41. TOTAL PROGRAMMING LEVEL - PERCENT							
	42. NEW CONSTRUCTION							
	43. OTHER - OWNED							
FISCAL YEAR 14	44. MILITARY PROGRAMMING LEVEL - NO							
	45. MILITARY PROGRAMMING LEVEL - PERCENT							
	46. TOTAL PROGRAMMING LEVEL - NO							
	47. TOTAL PROGRAMMING LEVEL - PERCENT							
	48. NEW CONSTRUCTION							
FISCAL YEAR 15	49. OTHER - OWNED							
	50. MILITARY PROGRAMMING LEVEL - NO							
	51. MILITARY PROGRAMMING LEVEL - PERCENT							
	52. TOTAL PROGRAMMING LEVEL - NO							
	53. TOTAL PROGRAMMING LEVEL - PERCENT							

DD FORM 1378

USE PREVIOUS EDITIONS OF THIS FORM AND DERIVATIVES

Page 1 of 1 Pages

DETERMINATION OF HOUSING REQUIREMENTS AND PROJECT COMPOSITION								
QUALITATIVE ANALYSIS OF REQUIREMENTS	REQUIREMENTS			SUITABLE HOUSING			PROGRAM DEFICIT (a minus b)	FISCAL YEAR 19____ PROJECT
	EFFECTIVE a	PERCENT b	PROGRAM LIMIT	MILITARY CONTROL c	OFF POST d	TOTAL (b + d)		
55. 0 - 10 THROUGH 9 - 8		%						
56. 1 AND 2 BEDROOMS		%						
57. 3 BEDROOMS		%						
58. 4 OR MORE BEDROOMS		%						
59. 0 - 5 AND 0 - 4		%						
60. 1 AND 2 BEDROOMS		%						
61. 3 BEDROOMS		%						
62. 4 OR MORE BEDROOMS		%						
63. 0 - 3 - 0 - 1 AND 0 - 4 - 0 - 1		%						
64. 1 AND 2 BEDROOMS		%						
65. 3 BEDROOMS		%						
66. 4 OR MORE BEDROOMS		%						
67. OFFICERS - TOTAL		%						
68. 1 AND 2 BEDROOMS		%						
69. 3 BEDROOMS		%						
70. 4 OR MORE BEDROOMS		%						
71. E - 5 - E - 7		%						
72. 1 AND 2 BEDROOMS		%						
73. 3 BEDROOMS		%						
74. 4 OR MORE BEDROOMS		%						
75. E - 6 - E - 4 (Eligible)		%						
76. 1 AND 2 BEDROOMS		%						
77. 3 BEDROOMS		%						
78. 4 OR MORE BEDROOMS		%						
79. ALL ELIGIBLE ENLISTED		%						
80. 1 AND 2 BEDROOMS		%						
81. 3 BEDROOMS		%						
82. 4 OR MORE BEDROOMS		%						
83. ALL ELIGIBLE MILITARY		%						
84. 1 AND 2 BEDROOMS		%						
85. 3 BEDROOMS		%						
86. 4 OR MORE BEDROOMS		%						
87. KEY CIVS - 0 EQUIVALENT		%						
88. 1 AND 2 BEDROOMS		%						
89. 3 BEDROOMS		%						
90. 4 OR MORE BEDROOMS		%						
91. KEY CIVS - E EQUIVALENT		%						
92. 1 AND 2 BEDROOMS		%						
93. 3 BEDROOMS		%						
94. 4 OR MORE BEDROOMS		%						
95. ALL ELIGIBLE CATEGORIES		100%						
96. 1 AND 2 BEDROOMS		%						
97. 3 BEDROOMS		%						
98. 4 OR MORE BEDROOMS		%						
99. E - 6 (Eligible) - E - 3		100%						
100. 1 AND 2 BEDROOMS		%						
101. 3 BEDROOMS		%						
102. 4 OR MORE BEDROOMS		%						
103. REMARKS (If there space is needed, continue on back)								

104. AUTHENTICATION

NAME AND TITLE (Typed or stamped)

SIGNATURE

DATE

105. NAME AND TITLE OF DATA GATHERER

DD FORM 1378

INSTRUCTIONS FOR PREPARING DETERMINATION OF HOUSING REQUIREMENTS AND PROJECT COMPOSITION - DD FORM 1378

This form will be prepared for each installation to show: (1) the derivation of long-range gross housing requirements, (2) the derivation of the long-range housing deficit, (3) the years in which acquisition of additional family housing is proposed, with programming levels to be produced by such acquisition, and (4) the determination of the first year's project composition by specified personnel groups and number of bedrooms per unit.

Use whole numbers for all entries except those requiring percentage figures, which will be shown to the nearest tenth of one percent (for example, 90.0 or 27.4). Percentage entries in Column e, Lines 6-53, will be computed against the GROSS ELIGIBLE HOUSING REQUIREMENTS on Line 5. Column d: percentage entries in Columns a-d will be computed against the total gross eligible housing requirements entered in each column on Line 5.

Entries on the various Lines will be as follows:

Line 1 & 2 - Enter long-range strengths (comparable to entries on Lines 2 and 3 of DD Form 1377) based on the Service's long-range planning documents. Personnel assigned to schools, special training courses, or classes AS THEIR PRIMARY DUTY will be classified as students, such personnel who are assigned for periods of 20 or more weeks will be considered as Permanent Family Housing Strength.

Line 3 - Enter factors based on dependency rate experience (over a period of at least three years) for the installation. If such experience factors are not available or are considered inappropriate for deriving long-range requirements, established installation category factors or Service-wide factors may be substituted. If substitute factors are used, full justification must be provided in Section 103, Remarks.

Line 4 - Compute entries by applying the factors on Line 3 against Permanent Family Housing Strength on Line 2.

Line 5 - Obtain entries from Line 4 by combining entries for "operational" and "students" in each category.

Line 6 - The number of voluntarily separated families will be estimated on the basis of the current rate of such separation. Using the FINAL Tabulation of Family Housing Survey, DD Form 1377, in Columns a, b, c and e separately, compute the ratio of the entry on Line 10 to the entry on Line 4 as percent. Then apply these percentage ratios to the entries in Columns a, b, c and f on Line 5 of DD Form 1378 to obtain the entries for Line 6.

Line 7 - Line 5 minus Line 6.

Line 8 - Compute entries in Columns e-d by applying the PROGRAMMING LIMIT FACTOR (as entered in stub) to the corresponding entries on Line 7. The programming limit for all installations in the United States, Puerto Rico and the Panama Canal Zone will be ninety (90) percent but in all other locations will be eighty (80) percent.

Line 9 - Sum of Lines 10 and 16.

Line 10 - Sum of Lines 11 through 15.

Lines 11-13 - Include all appropriated fund, Capehart, acquired Wherry, Surplus Commodity and other military-owned housing. Include as "Approved" all units which have been authorized and are in an approved execution program, but which are not under contract. If entries on Line 11 vary from the numbers of units reported in corresponding columns on Line 53, Tabulation of Family Housing Survey (DD Form 1377) due to reallocation, conversion, etc., explain in Section 103, Remarks.

Line 14 - Include all units leased and allocated for leasing by the Service.

Line 15 - Include privately-operated Wherry, Rental Guaranty and any other military housing assets (existing, under contract and approved) which are not shown on Lines 11-14. (Specify type(s)).

Line 16 - Sum of Lines 17 - 21. The entries in Columns d and f should exceed the DD Form 1377 entries in Column d on Lines 106 and 110, respectively, by the amounts on Line 21, "Under Construction and Firmly Planned."

Line 17 - Same as the sum of entries on Lines 35 and 41, Columns a-f, DD Form 1377.

Line 18 - Enter the number of suitable rental units reported as occupied in the family housing survey. These entries will include all units classified as suitable for the occupant (Line 47, Columns a-f, DD Form 1377).

Line 19 - Same as entries on Line 59, Columns a-f, DD Form 1377. Entry of zero will be acceptable only under very unusual circumstances and must be explained fully in Section 103, Remarks.

Line 20 - Same as the entries on Line 60, Columns a-f, DD Form 1377. Entry of zero must be explained in Section 103, Remarks.

Line 21 - Enter number of suitable rental units which are under construction or firmly planned. Entry of zero must be explained in Section 103, Remarks.

Line 22 - Line 7 minus Line 9.

Line 23 - Line 8 minus Line 9.

Lines 24-53 - This section on PROPOSED HOUSING INCREMENTS AND PROGRAMMING LEVELS should not be filled in until the QUALITATIVE ANALYSIS section, Lines 55-102, has been completed.

In the five left-hand boxes, enter the last two digits of the next five consecutive fiscal years, beginning with the year following that which designates the program currently under consideration by Congress.

Lines 24-25, 30-31, 36-37, 42-43, and 48-49 - For "New Construction," enter by year the proposed numbers of new units to be built with appropriated funds. For "Other" enter by year the proposed numbers of units to be provided by (1) improvement to substandard housing, (2) leasing of private housing, or (3) Rental Guaranty construction, specify typical. In determining the distribution of units among officers, enlisted men and key civilians, consideration must be given to existing and programmed assets so that the end product will be reasonably proportionate to the requirements in each category.

Lines 26, 28, 32, 34, 38, 40, 44, 46, 50 and 52 - Sum of entries on lines as indicated.

Lines 27, 29, 33, 35, 39, 41, 45, 47, 51 and 53 - Ratio of entry on preceding line to entry on Line 5 expressed as percent to the nearest tenth of one percent.

Line 54 - Self-explanatory.

Lines 55-102 - This section should be completed before filling in the section on PROPOSED HOUSING INCREMENTS AND PROGRAMMING LEVELS, Lines 24 - 53. Figures entered in the various columns of this section will provide data for the following:

a. REQUIREMENTS - EFFECTIVE. Distribution of NET HOUSING REQUIREMENTS as entered on Line 7, Columns a, b, c, d and f above, based on experience for the installation. If current and previous observations do not provide sufficient experience or are not considered appropriate, reallocation category or Service-wide factors may be substituted. Full explanation of substitution must be provided in Section 103, Remarks.

b. REQUIREMENTS - PERCENT. For Lines 55-94 and 96-98, entry in Column a divided by entry on Line 95 in Column a, expressed as percent to the nearest tenth of one percent.

c. REQUIREMENTS - PROGRAM LIMIT. Distribution of PROGRAMMING LIMIT as entered in parentheses on Line 8, Columns a, b, c, d and f above. Actually, on each line, enter 90 percent or 80 percent, as appropriate, of entry in Column a.

d. SUITABLE HOUSING - MILITARY CONTROL. Distribution of MILITARY CONTROLLED ASSETS as entered on Line 10, Columns a-d, above.

e. SUITABLE HOUSING - OFF POST. Distribution of assets NOT MILITARY CONTROLLED as entered on Line 16, Columns a, b, c, d and f above. Except for adjustments due to rental units under construction or firmly planned, these entries should be the same as Lines 66-113, Column d, DD Form 1377.

f. TOTAL. Entry in Column d plus entry in Column e.

g. PROGRAM DEFICIT. Entry in Column c minus entry in Column f. Where entry in Column f is greater than entry in Column c, enter the difference preceded by a minus sign (-).

h. FISCAL YEAR 19__ PROJECT. Enter numbers of units of each category and size recommended as composition of first project requested in Lines 24-53. Entry on any line will not exceed a positive entry on the same line in Column g. Entry must be zero (0) if entry in Column g is preceded by a minus (-) sign.

Lines 103-105 - Self-explanatory.

NARRATIVE ON FAMILY HOUSING		REPORT CONTROL SYMBOL	
1. MISSION			
2. LOCATION			
3. COMMUNITY SUPPORT			
4. HOUSING ON POST			
5. JUSTIFICATION OF PROPOSED HOUSING			
6. AUTHENTICATION	NAME AND TITLE / Type of Stamp	SIGNATURE	DATE
7. NAME AND LOCATION OF INSTALLATION			

DD FORM 1379
1 MAY 64

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE.

INSTRUCTIONS FOR PREPARING NARRATIVE ON FAMILY HOUSING - DD FORM 1379

Information presented must be pertinent and significant. Each category should be restricted to space provided. If space is not sufficient for all essential facts, back of form may be used for continuation; in such instances additional information must be identified by number and title of category.

1. Describe **BRIEFLY** principal activity of installation. Use general terms which can be readily understood by laymen - for example: home port for STRAC division, home port for Polaris submarines, home base for B-52 bombers and KC-135 tankers, etc. Also describe subordinate activities and satellite installations, if any

2. Give number of miles and direction from nearest city or town which is generally known and is readily found on a highway map. Be sure that the direction given (N, NE, NNE, etc.) is direction in which installation lies from city or town. Also, describe **BRIEFLY** general character of area, covering: (1) population of the commuting area (within one (1) hour of the installation), (2) terrain (mountainous, coastal plain, desert, etc.), and (3) local economy (agricultural with principal products, such as citrus fruit, beef, poultry, grain, truck crops, etc.; industrial with principal products, such as automobiles, home appliances, aircraft, electronics, etc.; resort with principal season and sports, etc.).

3. Describe **BRIEFLY** local housing conditions, giving emphasis to housing generally available to military personnel. Cover type and condition (*old, dilapidated houses; converted apartments; new luxury apartments; new for sale houses; etc.*); size in relation to military needs (*number of bedrooms, floor area, etc.*) cost in relation to MAHC; accessibility to installation (*distance, traffic bottlenecks, public transportation, etc.*); and any other significant features (*competition with civilians immigrating for employment in new industries, general preferences of landlords for military or civilian tenants, etc.*). Also give information on plans for new private housing construction within the commuting area.

4. Provide **BRIEF** summation of each category of military-owned or controlled housing assets, giving planned occupancy by officers and enlisted men. Also, describe briefly any plans for new construction, rehabilitation or disposal as well as any unusual conditions affecting inventory or programming.

5. Give number of units proposed by fiscal year and occupancy by officers and enlisted men. Describe briefly outstanding facts and conditions which support need. If need based on military necessity, explain fully. Cite military and total programming levels to be attained if proposed housing provided. Report discussions with local interested groups and their reactions. State whether land must be acquired for the proposed project(s) and whether any site development or utility problems are anticipated.

6 and 7. Self-explanatory.

FAMILY HOUSING INVENTORY AND OCCUPANCY REPORT

FAMILY HOUSING INVENTORY AND OCCUPANCY REPORT				1. REPORT PERIOD (FISCAL YEAR)		REPORT CONTROL SYMBOL DD ARI(1)001	
2. INSTALLATION NAME		3. MAJOR COMMAND/ICID		4. AREA		5. TYPE OF REPORT	
7. STATE		8. ZIP CODE		9. REAL PROPERTY INVENTORY CODE (RPIC)		6. INSTALLATION STATUS	
10. COUNTRY		11. DOD COMPONENT		12. CONUS		13. OVERSEAS	
				14. FURNISHING		15. SUMMARY	
				16. SECUR. UNIT		17. ACTUAL	
				18. ADJUTANT		19. OTHER	
				20. ADJUTANT		21. OTHER	
				22. ADJUTANT		23. OTHER	
				24. ADJUTANT		25. OTHER	
				26. ADJUTANT		27. OTHER	
				28. ADJUTANT		29. OTHER	
				30. ADJUTANT		31. OTHER	
				32. ADJUTANT		33. OTHER	
				34. ADJUTANT		35. OTHER	
				36. ADJUTANT		37. OTHER	
				38. ADJUTANT		39. OTHER	
				40. ADJUTANT		41. OTHER	
				42. ADJUTANT		43. OTHER	
				44. ADJUTANT		45. OTHER	
				46. ADJUTANT		47. OTHER	
				48. ADJUTANT		49. OTHER	
				50. ADJUTANT		51. OTHER	
				52. ADJUTANT		53. OTHER	
				54. ADJUTANT		55. OTHER	
				56. ADJUTANT		57. OTHER	
				58. ADJUTANT		59. OTHER	
				60. ADJUTANT		61. OTHER	
				62. ADJUTANT		63. OTHER	
				64. ADJUTANT		65. OTHER	
				66. ADJUTANT		67. OTHER	
				68. ADJUTANT		69. OTHER	
				70. ADJUTANT		71. OTHER	
				72. ADJUTANT		73. OTHER	
				74. ADJUTANT		75. OTHER	
				76. ADJUTANT		77. OTHER	
				78. ADJUTANT		79. OTHER	
				80. ADJUTANT		81. OTHER	
				82. ADJUTANT		83. OTHER	
				84. ADJUTANT		85. OTHER	
				86. ADJUTANT		87. OTHER	
				88. ADJUTANT		89. OTHER	
				90. ADJUTANT		91. OTHER	
				92. ADJUTANT		93. OTHER	
				94. ADJUTANT		95. OTHER	
				96. ADJUTANT		97. OTHER	
				98. ADJUTANT		99. OTHER	
				100. ADJUTANT		101. OTHER	
				102. ADJUTANT		103. OTHER	
				104. ADJUTANT		105. OTHER	
				106. ADJUTANT		107. OTHER	
				108. ADJUTANT		109. OTHER	
				110. ADJUTANT		111. OTHER	
				112. ADJUTANT		113. OTHER	
				114. ADJUTANT		115. OTHER	
				116. ADJUTANT		117. OTHER	
				118. ADJUTANT		119. OTHER	
				120. ADJUTANT		121. OTHER	
				122. ADJUTANT		123. OTHER	
				124. ADJUTANT		125. OTHER	
				126. ADJUTANT		127. OTHER	
				128. ADJUTANT		129. OTHER	
				130. ADJUTANT		131. OTHER	
				132. ADJUTANT		133. OTHER	
				134. ADJUTANT		135. OTHER	
				136. ADJUTANT		137. OTHER	
				138. ADJUTANT		139. OTHER	
				140. ADJUTANT		141. OTHER	
				142. ADJUTANT		143. OTHER	
				144. ADJUTANT		145. OTHER	
				146. ADJUTANT		147. OTHER	
				148. ADJUTANT		149. OTHER	
				150. ADJUTANT		151. OTHER	
				152. ADJUTANT		153. OTHER	
				154. ADJUTANT		155. OTHER	
				156. ADJUTANT		157. OTHER	

MILITARY FAMILY HOUSING JUSTIFICATION				1. DATE OF REPORT (YYYYMMDD)		2. FISCAL YEAR		REPORT CONTROL SYMBOL DD AZL(AR)1716	
1. DOD COMPONENT		4. REPORTING INSTALLATION							
5. DATA AS OF		a. NAME				b. LOCATION			
ANALYSIS OF REQUIREMENTS AND ASSETS		CURRENT				PROJECTED			
		OFFICER (a)	E9-E8 (b)	E3-E1 (c)	TOTAL (d)	OFFICER (e)	E9-E8 (f)	E3-E1 (g)	TOTAL (h)
6. TOTAL PERSONNEL STRENGTH									
7. PERMANENT PARTY PERSONNEL									
8. GROSS FAMILY HOUSING REQUIREMENTS									
9. TOTAL UNACCEPTABLY HOUSED (a + b + c)									
a. INVOLUNTARILY SEPARATED									
b. UNACCEPTABLY HOUSED - MILITARY ASSETS									
c. UNACCEPTABLY HOUSED - COMMUNITY ASSETS									
10. VOLUNTARY SEPARATIONS									
11. EFFECTIVE HOUSING REQUIREMENTS									
12. ADEQUATE HOUSING (a + b)									
a. UNDER MILITARY CONTROL									
(1) Housed in Existing DOD Owned/Controlled									
(2) Under Contract/Approved									
(3) Vacant									
(4) Inactive									
b. PRIVATE HOUSING									
(1) Acceptably Housed									
(2) Vacant Rental Housing									
13. EFFECTIVE HOUSING DEFICIT (11 - 12)									
14. PROPOSED PROJECT									
15. TOTAL HOUSING ASSETS, INCLUDING PROPOSED PROJECT, AS PERCENTAGE OF PROJECTED EFFECTIVE REQUIREMENTS		a. MILITARY							
		b. ALL HOUSING							
16. REMARKS (Specify item numbers)									

[illegible]

COMMUNITY HOUSING REFERRAL SERVICES (HRS) REPORT (Continued)										1. REPORT PERIOD (IF APPLICABLE)	
2. INSTALLATION NAME		3. REAL PROPERTY INVENTORY CODE (RPLC)			4. MAJOR COMMAND/IED						
1B. PERSONNEL WITH DEPENDENTS UNACCEPTABLY HOUSED IN THE COMMUNITY											
BEDROOM ENTITLEMENT	010-07 (U)	06 (U)	05-04 (U)	01-01 W4-WI (U)	TOTAL OFFICER (U)	E9-E7 (U)	E6-E4 (U)	E3-E1 (U)	TOTAL ENLISTED (U)	TOTAL (U)	
a. ONE											
b. TWO											
c. THREE											
d. FOUR											
e. FIVE OR MORE											
f. TOTAL											
2C. VACANT COMMUNITY RENTAL UNITS											
10. PERSONNEL LIVING SEPARATELY FROM DEPENDENTS											
PAYGRADE	VOLUNTARY (U)	IN VOLUNTARY (U)	1 BEDROOM (U)	2 BEDROOMS (U)	3 BEDROOMS (U)	4 BEDROOMS (U)	5 OR MORE BEDROOMS (U)	TOTAL (U)			
a. 010-07											
b. 06											
c. 05-04											
d. 01-01 W4-WI											
e. TOTAL OFFICER											
f. E9-E7											
g. E6-E4											
h. E3-E1											
i. TOTAL ENLISTED											
j. TOTAL											

DETERMINATION OF UNACCOMPANIED PERSONNEL HOUSING (UPH) REQUIREMENTS						REPORT CONTROL SYMBOL DD-A&L(AH)1219		
1. DOD COMPONENT		2. REAL PROPERTY INVENTORY CODE (RPIC)				3. REPORT DATE (FYMMDD)		
4. INSTALLATION NAME				5. MAJOR COMMAND/CLAIMANT				
6. STATE		7. ZIP CODE		8. COUNTRY				
		OFFICER			ENLISTED			
		01-02 W1-W6 (a)	03-010 b)	TOTAL (c)	RECRUITS (d)	E1-E4 (e)	E1-E6 (f)	E7-E9 (g)
					TOTAL (h)			
9. PERMANENT PARTY PERSONNEL								
10. UNACCOMPANIED PERSONNEL (a + b)								
a. PERMANENT PARTY								
(1) Housed in UPH								
(2) In Unacceptable Private								
(3) In Acceptable Private								
b. TRANSIENT								
11. PERMANENT PARTY PERSONNEL								
12. UNACCOMPANIED PERSONNEL (a + b)								
a. PERMANENT PARTY								
b. TRANSIENT								
13. PERMANENT PARTY PROGRAMMING								
14. TOTAL PROGRAMMING LIMIT								
15. UPH CAPACITY (a + b + c)								
a. EXISTING ADEQUATE								
b. UPGRADABLE								
c. UNDER CONTRACT/APPROVED								
16. PRIVATE HOUSING (a + b)								
a. PERSONNEL ACCEPTABLY HOUSED								
b. VACANT RENTAL								
17. TOTAL HOUSING ASSETS (a + b)								
a. PERMANENT PARTY								
b. TRANSIENT								
18. PROGRAMMING DEFICIT								
19. PROPOSED PROJECTS								

DD Form 1657, OCT 85

Previous editions are obsolete

COMMUNITY HOUSING FEEDBACK		Privacy Act Statement		REPORT CONTROL SYMBOL DD FORM 1670
Complete in detail after you have leased or purchased housing and return to the Housing Office. You will be considered to be acceptably housed unless housing feedback is received within thirty days.		AUTHORITY: 5 USC 551 & 552 PURPOSE: To determine housing requirements, and resources ROUTINE USE: To initiate housing office action in determination, corrective action, and providing acceptable housing DISCLOSURE: Voluntary		
1. APPLICANT DATA				
a. NAME (Last, First, Middle Initial)		b. SOCIAL SECURITY NO.		c. PAY GRADE
d. HOME PHONE		e. WORK PHONE		f. COMPONENT
g. DO YOU HAVE DEPENDENTS? (If one)		h. ARE YOU ACCOMPANIED BY DEPENDENTS? (If one)		i. IF YOU ARE NOT ACCOMPANIED BY YOUR DEPENDENTS, IS IT BECAUSE ACCEPTABLE HOUSING WAS NOT AVAILABLE? (If one)
(1) Yes (2) No		(1) Yes (2) No		(1) Yes (2) No
2. DESCRIPTION OF HOUSING ACQUIRED				
a. ACCEPTABILITY (If one)		b. TYPE (If one)		c. MONTHLY COSTS
(1) ACCEPTABLE (2) UNACCEPTABLE		(1) MOBILE HOME (2) DETACHED (3) TOWNHOUSE (4) OTHER (If as applicable)		(1) RENT (2) PURCHASED (3) SHARE (4) FURNISHED (5) UNFURNISHED
d. HAVE YOU ACQUIRED PERMANENT HOUSING (If one)		e. NO OF BEDROOMS		f. MONTHLY COSTS
(1) Yes (2) No		(1) Yes (2) No		(1) RENT (2) PURCHASED (3) SHARE (4) FURNISHED (5) UNFURNISHED
3. IF HOUSING ACQUIRED IS UNACCEPTABLE, INDICATE REASON(S) (If as applicable)				
a. TOO EXPENSIVE		b. NO ELECTRICAL		c. TYPE DISCRIMINATION (If as applicable)
d. NO HOT WATER		e. NO HOT WATER		(1) RACE (2) COLOR (3) SEX (4) RELIGION (5) NATIONAL ORIGIN (6) AGE (7) HANDICAP
f. NO FURNISHABLE TOILET		g. UNDESIRABLE		6. DATE SIGNED
h. TOO FAR FROM BASE (If one may continue)		i. NO SINK/TOILET OR BATH		
j. NO SINK/TOILET OR BATH		k. WHO DISCRIMINATED? (If establishment or address)		
		l. SIGNATURE		

Previous editions are obsolete

DD Form 1670, APR 86

This form supersedes all editions of DD Form 1668 and all previous editions of DD Form 1748.

APPLICATION FOR ASSIGNMENT TO HOUSING (Continued)

Privacy Act Statement

AUTHORITY: 5 USC 5911 & 5912.
PRINCIPAL PURPOSE: To identify customer needs for assistance and housing requirements.
ROUTINE USE: To initiate housing office action in providing housing for military and eligible civilian personnel.
DISCLOSURE: Voluntary. However, failure to provide the requested information will result in our inability to assist you.

GENERAL INSTRUCTIONS

This form provides the Housing Office with more timely and accurate information and will be used to provide you with military and/or community housing. All items not listed are self-explanatory. SECTION A (APPLICANT IDENTIFICATION AND FAMILY DATA) and SECTION B (HOUSING DATA) are to be completed by the applicant. Information on military spouses is now being requested for Basic Allowance for Quarters (BAQ) entitlement which must be included on your Military Pay Order which is forwarded to your respective financial center.

SECTION A - APPLICANT IDENTIFICATION & FAMILY DATA

- Item 4. **DoD Component** - Army, Navy, Air Force, etc.
 Item 5. **Address** - Enter complete current address (street number and name, apartment number, city, state/country and the nine-digit zip code)
 (Items 8 & 9 are used in Equal Opportunity Off Base Housing Program.)
 Item 8. **Race** - Enter the appropriate number
 1 - American Indian or Alaskan Native
 2 - Asian or Pacific Islander
 3 - Black 4 - White 5 - Other (specify)
 Item 9. **Ethnicity** - Enter the appropriate number
 1 - Hispanic Origin
 2 - Not of Hispanic Origin
 Item 12. **Career Information (Military Applicants/Military Spouse Only)**
 - Enter dates in order of TYMDD (September 25, 1985 would be entered as 850925)
 a. Enter the date your current rate/rank was effective
 b. Enter your active duty service computation date
 c. Enter the time (in months) which you have remaining on active duty
 d. Enter your estimated rotation date from the installation to which you are applying
 e. Enter your official report date (from your PCS orders)
 f. Enter your estimated arrival date
 g. For applicants assigned overseas, enter the date you departed from CONUS.
 h. Enter the effective date you were dropped from accountability at your previous duty station and gained on the rolls at your new duty station for record purposes. For overseas assignment, enter your date of departure from CONUS.
 Item 13. **Installation/ Organization Transferred From** - Enter the name of the installation you transferred from.
 Item 14. **Installation/ Organization Transferred To** - Enter the name of the installation to which you are applying for housing. Include the name of the Organization/ Department you will be assigned to.
 Item 17. **Dependents Residing with Me** -
 a. through e. List requested data for all authorized dependents who will be residing with you.
 f. Enter the effective date which those dependents listed were authorized to become your legal dependents (DD Form 137)
 g. Provide the Housing Office with information regarding any handicapped dependent or special family health problems which might influence your preference for a particular type of housing (i.e. single level vs. two story, ramps for wheelchairs, expected additions to family, etc).

SECTION B - HOUSING DATA

- Item 18. **Type Service Required** -
 Military Applicants - If temporary community housing is desired while awaiting military housing, mark both boxes in Item 18, and answer all questions.
 Civilian Applicants - Mark the box "Housing Referral Services" in Item 18b and answer all questions.
 Item 20. **Location** - Enter the location you would like to reside (i.e. XYZ APTS., ANYTOWN, USA).
 Item 25. **Signature** - The applicant must sign the DD Form 1746
 Item 26. **Date Submitted** - Enter the date the application was submitted to the Housing Office.

SECTION C - DISPOSITION

(To be completed by the Housing Office)

- Item 27. **Military Housing** -
 a. **Application Received** - Enter the year, month, day and hour the application was received in the Housing Office.
 b. **Application Effective** - Enter the date of change of duty station (Line 12h) if the application is received within five (5) days of this date. Otherwise the date the application is received in the Housing Office will be the effective (control) date.
 c. **DD Form 1747** - Enter the date that the DD Form 1747 was sent to the military applicant.
 d. **Housing Availability** - Enter the item letter for the applicable box(es) marked under item 4 of the DD Form 1747 returned to the applicant.
 e. **Waiting List** - Enter the identification of the assignment waiting list(s) to which the applicant is assigned.
 f. **Effective Placement** - The effective date and time of the applicant's placement on the list(s).
 g. **Bedrooms Requirement** - Enter the number of bedrooms required based on dependent data in item 17 and bedroom requirement criteria in DoD Instruction 6165.64.
 h. **Date Assigned** - Enter the date the unit was assigned.
 i. **Housing Unit Assigned** - Enter the address of the housing unit assigned.
 Item 28. **Community Housing** -
 a. **Applicant NOT placed on a Waiting List** - mark the appropriate box(es) as to the reason why the applicant was not placed on a Waiting List.
 b. Enter the address of the housing leased or purchased by the applicant.
 c. If the housing location described in item 28b is unacceptable check the appropriate box(es).
 d. Describe the process used to verify the acceptability of the housing described in item 28c (e.g. how verified (on site inspection), date verifier's name and title etc).

SECTION D - HOUSING REFERRAL CERTIFICATE

On this date I have received a listing of the existing housing restrictions approved by the Department of Defense, and I will not reside in any property on the DoD restricted list. I have been briefed on (1) the services provided by the Housing Office and (2) the DoD program on equal opportunity for military personnel in off base housing. I understand I am required to complete and return DD Form 1747 "Notification of Housing Selection" when housing has been obtained.

In addition, if any facility refuses to rent or sell to me or I have reason to believe I am being discriminated against, I will promptly notify the Housing Office.

29. SIGNATURE OF APPLICANT

30. DATE SIGNED (TYMDD)

AUTHORIZATION TO START, STOP, OR CHANGE BASIC ALLOWANCE FOR QUARTERS (BAQ), RENT PLUS, AND/OR VARIABLE HOUSING ALLOWANCE (VHA)

AUTHORITY: 37 USC 403; Public Law 96-343; EO 9397.

PRINCIPAL PURPOSE(S): To start, adjust, or terminate military member's entitlement to basic allowance for quarters (BAQ), rent plus, and/or variable housing (VHA) allowance.

ROUTINE USES: To adjust member's military pay record, information may be disclosed to AF components, such as AFMPC, major commands, and other AF installations; to other DOD components such as Army and Navy; other Federal agencies such as IRS, Social Security Administration and VA, GAO, members of Congress, State and local government; US and State courts, and various law enforcement agencies. Social Security Number (SSN) is used for positive identification.

DISCLOSURE IS VOLUNTARY. Nondisclosure may result in nonpayment of BAQ, rent plus, and/or VHA. Disclosure of your SSN is voluntary. However, this form will not be processed without your SSN because the Air Force identifies you for pay purposes by your SSN.

NAME (Last, First, MI)		SOCIAL SECURITY NUMBER	GRADE	TYPE OF ACTION	
DUTY LOCATION (Include Station, Name, City, State, and ZIP Code)	DATE OF ACTION (YYMMDD)	BAQ TYPE		START	CANCEL
		WITH DEPENDENTS	PARTIAL	CHANGE	REPORT
		WITHOUT DEPENDENTS		CORRECT	STOP

MARTIAL/DEPENDENCY STATUS	QUARTERS ASSIGNMENT/AVAILABILITY	
☐ SINGLE ☐ MARRIED - SPOUSE A MILITARY MEMBER? ☐ YES ☐ NO IF YES, SHOW SPOUSE'S SSN: _____ SPOUSE'S STATION OF ASSIGNMENT: _____ DATE OF MARRIAGE: _____	ASSIGNED ADEQUATE QUARTERS QUARTERS NO. _____	QUARTERS NOT AVAILABLE
☐ DIVORCED ☐ LEGALLY SEPARATED ☐ IS FORMER SPOUSE A MILITARY MEMBER? ☐ YES ☐ NO IF YES, SHOW FORMER SPOUSE'S SSN: _____ FORMER SPOUSE'S STATION OF ASSIGNMENT: _____ DATE OF DIVORCE/SEPARATION: _____	ASSIGNED INADEQUATE QUARTERS QUARTERS NO. _____ FAIR RENTAL VALUE \$ _____	ELECTION (Member in pay grade E-7 and above) COMMANDER DETERMINATION (Attached)
DEPENDENT CHILD - CHILD IS IN CUSTODY OF ☐ MEMBER, ☐ SPOUSE, ☐ FORMER SPOUSE, ☐ OTHER. (If other, use DD Form 137 to establish dependency). DO YOU OR YOUR SPOUSE RECEIVE CHILD SUPPORT FROM A MILITARY MEMBER? ☐ YES ☐ NO IF YES, SHOW MEMBER'S NAME/SSN/LOCATION: _____	ASSIGNED TRANSIENT QUARTERS FROM: _____ TO: _____	TERMINATION DATE

DEPENDENTS/SHARERS (Continue on back if required)

NAME OF DEPENDENT/SHARER	COMPLETE CURRENT ADDRESS (Include ZIP code)	RELATIONSHIP	DOB OF CHILDREN

CERTIFICATION OF DEPENDENCY SUPPORT

I certify that I provide, or am willing to provide adequate support (see AFR 35-18) for the above named dependents. I am aware that failure to support the above named dependents may result in stopping BAQ and recouping BAQ for any prior periods non-support.

CERTIFICATION FOR MEMBER ASSIGNED TO CONUS (VHA)

I certify that the above is the correct duty location for the purpose of claiming an entitlement to VHA.

CERTIFICATION FOR MEMBER ASSIGNED OVERSEAS (VHA)

I certify that the above is my dependent's address to be used for claiming an entitlement to VHA. I further understand that I will report any change of dependent's residence immediately to the Accounting and Finance Office (AFO).

CERTIFICATION FOR MEMBER OVERSEAS ENTITLED TO HOUSING ALLOWANCE (RENT PLUS)

I certify that my rent is _____ (stated in currency paid) being paid in _____ (currency in which rent is paid) and utilities are/are not (line one out) included in my rent. I am sharing with _____ military/Federal member(s) and rent stated is my share. My rental lease expires _____. Rental address is: _____
 Landlord's name, address and telephone No.: _____
 I further understand that I will report any changes immediately to the Air Force (AFO and HRO).

I will immediately notify the AFO of any change in the status of the dependents claimed above, such as divorce, marriage, death living in Government quarters, enlistment in the military service, etc. I certify that the information given regarding this authorization is correct.

IMPORTANT: Making a false statement or claim against the US Government is punishable by courts martial. The penalty for willfully making a false claim or a false statement in connection with claims is a maximum fine of \$10,000 or imprisonment for a year, or both.

DATE	SIGNATURE
I CERTIFY THAT I HAVE REVIEWED REQUIRED EVIDENCE AND ESTABLISHED DEPENDENCY OF MEMBER'S PRIMARY DEPENDENTS.	
I CERTIFY THAT DOCUMENTATION TO SUPPORT PAYMENT OF BAQ TO MEMBER WITHOUT DEPENDENTS IS IN FILE.	
I CERTIFY THAT DOCUMENTATION TO SUPPORT PAYMENT OF HOUSING ALLOWANCE (VHA) OR RENT PLUS HAS BEEN REVIEWED.	
DATE	SIGNATURE OF CERTIFYING OFFICER

APPENDIX

Appendix B - Sample Economic Analysis



DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF OF ENGINEERS
WASHINGTON, D.C. 20314

REPLY TO
ATTENTION OF:

5 OCT 1983

DAEN-ZCH-S

SUBJECT: Economic Analyses (EA) in Support of Housing Projects

SEE DISTRIBUTION

1. Reference:

a. Letter, DAEN-FEB, 18 Jun 78, subject: Repair Projects - Operational Necessity and Engineering Analysis of Economic Factors.

b. Message, DAEN-ZCH-S, 181231Z Jun 82, subject: Documents Required in Support of Housing Acquisition Requests.

c. Letter, DAEN-ZCH-F, 13 Apr 83, subject: Family Housing Improvement/Upgrade Program.

d. Message, DAEN-ZCH, 211619Z Apr 83, subject: Schedule for Submission of Economic Analyses (EA) of Army Housing Acquisition Alternatives.

e. Message, DAEN-ZCH, 181340Z May 83, subject: Submission of Economic Analyses (EA) of Army Housing Alternatives.

f. Letter, DAEN-ZCH-S, 19 May 83, subject: Submission of Economic Analyses (EA) of Army Housing Alternatives.

g. Worldwide Housing Economic Analysis Workshop, 15-16 Jun 83, Fort Belvoir, VA.

h. AR 415-15, Military Construction, Army (MCA) Program Development.

i. Army Facilities Energy Plan, Appendix H, 4 Nov 82.

j. Letter, DAEN-MPO-U, 10 Aug 82, subject: Energy Conservation Investment Program (ECIP) Guidance.

k. Letter, DAEN-ZCF-U, 18 Jan 83, subject: Energy Conservation Investment Program (ECIP) Guidance.

DAEN-ZCH-S

5 OCT 1983

SUBJECT: Economic Analyses (EA) in Support of Housing Projects

2. References 1a, 1b, 1c, and 1d establish requirements to submit EA's in support of housing projects. References 1e and 1f establish the use of abbreviated EA under certain circumstances. Reference 1g was held to alleviate MACOM concerns and confusion on the use of EA's to support housing programs.

3. The fundamental EA tool to support repair, improvement, upgrade and acquisition programs for housing is a technique called life cycle cost analysis. The workshop came to the following conclusions:

a. Life cycle cost analysis has been in the past and should continue to be a routine management decision making tool.

b. The confusion concerning EA's for the various kinds of projects centers around the schedule for submission of EA's and the means of presenting the results of the EA to HQDA for each kind of project.

c. The justification for each project and the EA supporting it should at a minimum address the following items:

(1) The operational necessity of the facility.

(2) Alternatives to accomplish the project. Alternatives can range from choice of systems and materials to other means of satisfying the requirement.

(3) Associated costs of each alternative, considered over the expected life of the facility (life cycle).

(4) Basic assumptions of the analysis.

(5) Sensitivity of major cost elements to the final ranking of the alternatives.

4. An EA must be prepared for family housing maintenance and repair projects and forwarded as follows:

a. Family housing maintenance and repair projects which exceed \$30,000 (as adjusted by the CCI) in an FY or aggregated projects greater than \$500,000 must be submitted to HQDA (DAEN-ZCF-U) for approval (see reference 1a). Projects for OCONUS units having absolute dollar limitation are excepted from adjustment by the CCI.

DAEN-ZCH-S

SUBJECT: Economic Analyses (EA) in Support of Housing Projects

b. All maintenance and repair projects included in the budget year program that exceed \$15,000 must be submitted to Commander, Facilities Engineering Support Agency, FESA-EB, for review (with informal copy to HQDA, DAEN-ZCH-F). This will be accomplished by 1 July of the calendar year preceding preparation of the FY budget submission to Congress. FY 86 M&R project EA's should be forwarded by 1 July 1984. This action does not replace submission requirements noted in paragraph 4a.

c. When replacing major family housing building components (i.e. heating systems, windows, exterior painting/siding, floors, etc.) an analysis will be prepared to determine the most economical method of replacement.

5. EA's must be prepared (and a summary of the EA included on all DD Forms 1391) and forwarded to HQDA (DAEN-ZCH-F) for all projects in the post acquisition construction program (i.e. LIIP, Substandard Upgrade, STAIRS, and ECIP). ECIP project EA's must be prepared and forwarded in accordance with references 1i, 1j and 1k. EA's for projects of the remaining post acquisition construction programs should be submitted on the DD Form 1391. The EA may be summarized in detail in paragraph 11 of the DD Form 1391, stressing the items identified in paragraph 3c above. Particular attention should be given to paragraph 4 of DD Form 1391, Consideration of Alternatives. Additional details may be included in the "special requirements paragraphs." If the cost of the post acquisition project is sufficiently high enough to warrant the inclusion of the alternative to totally replace the facility (50% of replacement cost), a fully documented EA, reference 1b, must be prepared. However, an abbreviated EA may be submitted at the time the front page DD Form 1391 is forwarded to HQDA. Submittal of EA's on the DD Form 1391 shall be IAW AR 415-15, Military Construction, Army (MCA) Program Development.

6. EA's prepared for the housing (family and unaccompanied personnel) acquisition program (i.e. new construction, lease, etc.) must comply with guidance set forth in references 1b and 1e. These EA's should be submitted to HQDA (DAEN-ZCH-M) in compliance with reference 1d. Guidance set forth in reference 1e is amended to include the requirement for the sensitivity analysis. The sample abbreviated EA provided in reference 1f is no longer to be used. Attached at Enclosure 1 is a new sample abbreviated EA for a post acquisition construction project. The graphs and the summary of costs for economic analysis report by year are optional if the automated economic analysis process is not available. The abbreviated format is not the same as the summary required in the DD Form 1391.

DAEN-ZCH-S

5 OCT 1983

SUBJECT: Economic Analyses (EA) in Support of Housing Projects

7. OCE will be providing automated support for conducting economic analyses through its Engineer One-Stop Service Districts and Divisions. Overseas commands may obtain support from their respective support divisions immediately. CONUS commands can obtain support from Baltimore, Fort Worth and Sacramento Districts as workload permits. The remaining CONUS One-Stop Service Districts and Divisions will be able to provide support by Jan 84. In addition, OCE will be implementing the automated program under the title, "ECONPACK," in the Military Construction Programming Administration and Execution System (PAX). Any user that has a DD Form 1391 processor terminal will be able to access the program.

8. At Enclosure 2 is a reference matrix showing the kind of EA and submission requirements for each category of project.

FOR THE ASSISTANT CHIEF OF ENGINEERS:

2 Encl
as


EVERETTE L. TUCKER, JR.
Colonel, Corps of Engineers
Chief, Army Housing Management Division
Office Assistant Chief of Engineers

DISTRIBUTION:

COMMANDER-IN-CHIEF

US ARMY, EUROPE & SEVENTH ARMY, ATTN: AEAEN-DCSENGR

COMMANDERS

US ARMY INSTALLATION SUPPORT ACTIVITY, EUROPE, ATTN: AEUSES-DS

US ARMY INTELLIGENCE & SECURITY COMMAND, ATTN: IALOG-I

US ARMY MATERIEL DEVELOPMENT & READINESS COMMAND, ATTN: DRCIS

US ARMY COMMUNICATIONS COMMAND, ATTN: CC-ENGR

MILITARY TRAFFIC MANAGEMENT COMMAND, ATTN: MT-SA

US ARMY MILITARY DISTRICT OF WASHINGTON, ATTN: ANEN

US ARMY HEALTH SERVICES COMMAND, ATTN: HSLO-F

US ARMY FORCES COMMAND, ATTN: AFEN

US ARMY TRAINING & DOCTRINE COMMAND, ATTN: ATEN

EIGHTH US ARMY, ATTN: ENJ

US ARMY RECRUITING COMMAND, ATTN: USARCPAL-LO-FS

US ARMY WESTERN COMMAND, APEN

US ARMY MILITARY ENLISTMENT PROCESSING COMMAND, ATTN: MEPCRM-F

SUPERINTENDENT US MILITARY ACADEMY, ATTN: MAEN-A

EXECUTIVE SUMMARY

UPDATE

AN ECONOMIC AND SENSITIVITY
ANALYSIS OF ALTERNATIVES

CHESAPEAKE GARDENS
FAMILY HOUSING
ABERDEEN PROVING GROUND
ABERDEEN, MARYLAND

PREPARED FOR ABERDEEN PROVING GROUND
BY
PACIFIC OCEAN DIVISION
U. S. ARMY CORPS OF ENGINEERS
BUILDING 230
FORT SHAFTER, HONOLULU, HAWAII 96858

MAY 1983

EXECUTIVE SUMMARY

The Decision Objective

The decision objective of this study has been to determine the most cost effective means of providing adequate family housing for 647 NCO personnel at Chesapeake Gardens, Aberdeen Proving Ground, Aberdeen, Maryland.

Major Assumptions

Present value calculations utilize a discount rate of 10%, reflecting current policy (AR 11-29).

Future cost growth (inflation) was not included in this analysis. All costs are in estimated FY 1983 price (constant dollars).

Structure life for both new construction and rehabilitation was assumed to be 30 years.

Expense items which would be the same for all alternatives were not included in the analysis.

The period of analysis for the study is 25 years.

Alternative Courses Of Action

Construction of New Housing: This would take place over a five year period in three phases, from FY 1984 through FY 1988.

Rehabilitation of Existing Units: This would take place over a four year period in three phases, from FY 1984 through FY 1987.

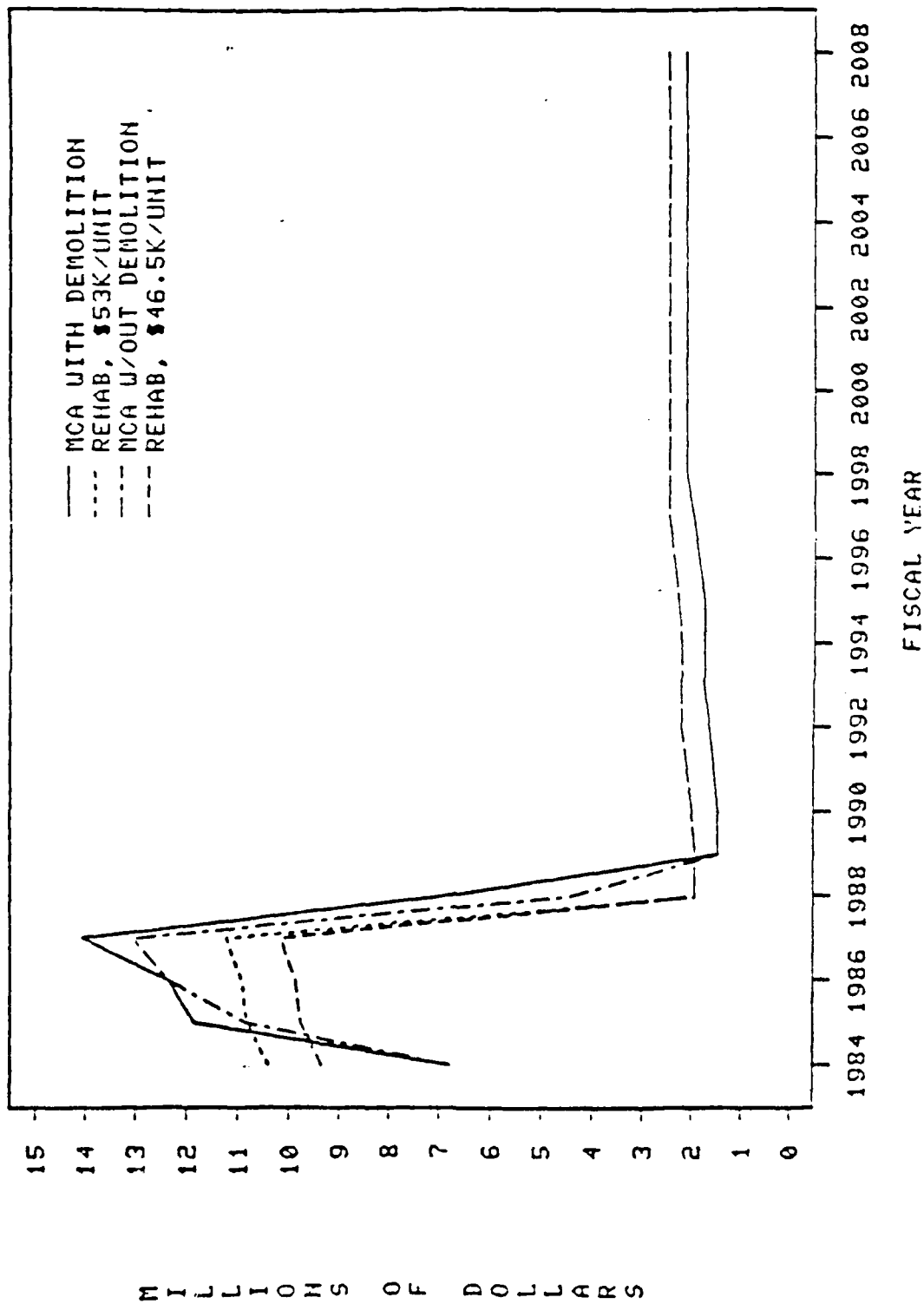
Economic Analysis" Results

In the analysis, two sets of calculations were performed for each of the two alternatives, reflecting different assumptions regarding demolition and unit costs for rehabilitation. It is possible that with the new construction alternative, the existing units could be sold for salvage, or put to some other productive use. For purposes of this possibility one set of calculations includes an economic return reflecting this. A second set of calculations for the new construction alternative includes instead a demolition cost, reflecting the assumption that there would be no other use for the existing units. The two sets of calculations for the rehabilitation alternative reflect two different per unit costs, \$46.5 thousand/unit and \$53 thousand/unit. The analysis indicates that all four scenarios result in costs that do not differ significantly. The least costly is rehabilitation with the lower per unit cost assumption, with a present worth cost of \$44.6 million. The most costly is new construction with the assumption that existing units would be demolished, with a present worth cost of \$48.6 million, only 9% higher. The present worth costs for the four scenarios are:

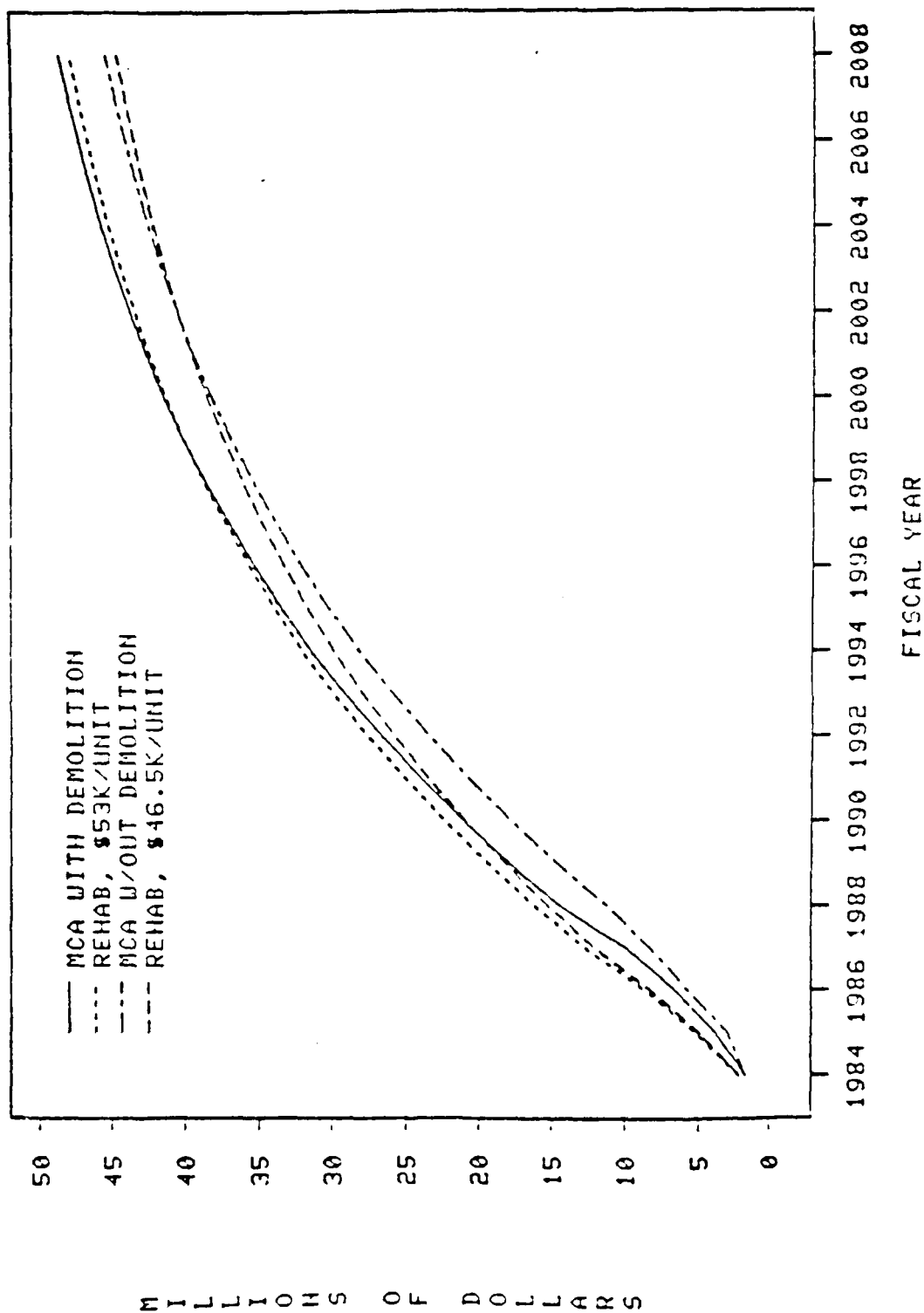
New Construction With Demolition	\$48.6 Million
Rehabilitation at \$53 Thousand/Unit	\$47.9 Million
New Construction Without Demolition	\$45.4 Million
Rehabilitation at \$46.5 Thousand/Unit	\$44.6 Million

The results of the analysis are depicted graphically and tabulated on the following pages.

ESTIMATED TOTAL ANNUAL OUTLAYS (CONSTANT DOLLARS)



CUMULATIVE NET PRESENT VALUE
FY 84 THROUGH INDICATED FISCAL YEAR



SUMMARY OF ITERATIONS

•• NET DISCOUNTED PRESENT VALUE ••

ABERDEEN PROVING GROUND, MD
MILITARY FAMILY HOUSING STUDY
CHESAPEAKE GARAGES
PACIFIC OCEAN DIVISION, CLONING OF ENGINEERS
MAY 1963

ITERATION	FY1984	FY1985	FY1986	FY1987	FY1988
MCA WITH DEMOLITION					
REHA.D. \$53K/UNIT	\$1,674,720	\$3,036,167	\$6,590,239	\$9,885,342	\$14,409,399
MCA W/OUT DEMOLITION					
REHA.D. \$45 SK/UNIT	\$2,199,292	\$5,175,681	\$8,591,390	\$12,625,716	\$16,153,881
	\$1,674,720	\$2,949,383	\$5,723,413	\$8,302,207	\$11,173,402
	\$2,153,145	\$5,001,308	\$8,230,807	\$11,907,753	\$15,238,030
ITERATION	FY1989	FY1990	FY1991	FY1992	FY1993
MCA WITH DEMOLITION					
REHA.D. \$53K/UNIT	\$17,800,773	\$21,021,033	\$23,932,019	\$26,599,397	\$29,075,082
MCA W/OUT DEMOLITION					
REHA.D. \$46 SK/UNIT	\$19,347,727	\$22,291,406	\$25,019,220	\$27,545,004	\$29,841,127
	\$14,445,776	\$17,707,056	\$20,608,022	\$23,355,400	\$25,841,605
	\$18,181,035	\$20,095,024	\$23,419,510	\$25,751,205	\$27,075,474
ITERATION	FY1994	FY1995	FY1996	FY1997	FY1998
MCA WITH DEMOLITION					
REHA.D. \$53K/UNIT	\$31,327,233	\$33,372,539	\$35,264,010	\$37,011,559	\$38,442,009
MCA W/OUT DEMOLITION					
REHA.D. \$46 SK/UNIT	\$31,927,310	\$33,043,377	\$35,612,019	\$37,252,692	\$38,739,261
	\$23,093,236	\$23,130,512	\$23,070,011	\$23,777,622	\$25,400,012
	\$29,055,137	\$31,579,101	\$34,219,105	\$37,142,042	\$39,122,209
ITERATION	FY1999	FY2000	FY2001	FY2002	FY2003
MCA WITH DEMOLITION					
REHA.D. \$53K/UNIT	\$40,118,506	\$41,463,339	\$42,605,691	\$43,790,124	\$44,006,591
MCA W/OUT DEMOLITION					
REHA.D. \$46 SK/UNIT	\$35,034,509	\$36,229,342	\$37,432,421	\$38,550,207	\$39,303,873
	\$37,373,070	\$38,521,014	\$39,550,417	\$40,503,125	\$41,572,574
					\$41,322,330
ITERATION	FY2004	FY2005	FY2006	FY2007	FY2008
MCA WITH DEMOLITION					
REHA.D. \$53K/UNIT	\$45,726,297	\$46,563,455	\$47,321,026	\$48,013,699	\$48,641,871
MCA W/OUT DEMOLITION					
REHA.D. \$46 SK/UNIT	\$42,492,300	\$43,327,450	\$44,093,020	\$44,779,702	\$45,407,874
	\$42,144,244	\$43,054,705	\$43,497,215	\$44,006,000	\$44,619,313

Sensitivity Factors

Sensitivity analysis can be used to demonstrate the extent to which study findings are affected by altering certain input assumptions. Since there may be significant variations in certainty about some of the input assumptions, they can be relaxed to determine the sensitivity of the ranking of alternatives to them.

Initial ranking of alternatives depends on which combination of scenarios is assumed to be the most realistic. The table on the following page summarizes required changes in selected expense items to produce a change in the ranking. Generally, the table reveals that relatively small changes in expense items can affect a reversal in the rankings, with the exception of the demolition cost. As indicated in the table, changes in the assumed cost of demolition are not sufficient alone to reverse the ranking. For the other expense items, however, fairly small changes in many instances could produce a reversal in the initial ranking.

If the life of the rehabilitation alternative were less than the assumed 30 years, and a second rehabilitation were required, the cost of the rehabilitation would have a higher net present value. Assuming a life cycle of 15 years, the present value could be as much as 10 to 15 percent higher than with a 30 year life assumption. Since the most costly new construction scenario results indicate costs which are only about 9% higher than the least expensive rehabilitation alternative, this is also a sensitive factor.

Apparently there are significant moisture- and drainage-related problems at the existing site. Should additional site preparation work be required to correct such problems as a part of a rehabilitation project, it is possible that the selection of a best alternative could be affected.

Comment

A number of factors, not incorporated into the economic analysis calculations, may be important considerations in choosing a "best" option. Some of these factors are data uncertainty, project implementation, and other essentially non-economic factors related to the goals and objectives of

SUMMARY OF SENSITIVITY

	<u>R1/NCA</u>	<u>R1/NCA-D</u>	<u>R2/NCA-D</u>	<u>MCA/R2</u>
Construction Costs				
MCA	-2.50%	-12.66%	-2.50%	+7.81%
Rehabilitation	+3.44%	+17.19%	+2.81%	-9.38%
Maintenance & Repair, Utilities				
MCA	-5.63%	-28.44%	-5.31%	+17.50%
Rehabilitation	+5.00%	+25.00%	+4.69%	-15.63%
Demolition	-	*	-90.00%	-

Note: R1 = Rehabilitation @ \$46.5 thousand/unit
R2 = " @ \$53.0 thousand/unit
MCA = New construction without demolition
MCA-D = " " with

Alternative listed first in each pairing is least costly in initial analysis, and percentage figure indicates required change in given expense item to reverse initial ranking.

* = Insensitive (I.e., even if demolition were free, ranking would not change)

the government. There exist varying levels of uncertainty regarding different input assumptions. For example, probably more certainty can be attached to construction cost estimates than to differences in recurring annual expenses far into the future.

Using the results of this economic analysis as the only selection criterion presumes that all of the alternatives are equivalent except for their costs. This suggests that the least costly alternative is the best choice. All of the alternatives in this analysis are equivalent in that each satisfies the objective of providing adequate housing. However, there may be qualitative differences, which although have not been included in the analysis, are nonetheless very real considerations in arriving at a decision.

The above factors and considerations deserve thoughtful attention in selecting a course of action. This economic analysis alone is not a substitute for sound management judgement. It has been an attempt to systematically quantify the relevant variables involved in each of the alternative solutions for achieving the decision objective. As such, it provides documentation that economic facts bearing on the ultimate management decision have been considered. By spelling out the costs of the different alternatives, a clearer picture of the economic implications of each course of action provides guidance for arriving at an intelligent choice and final decision.

Economic analysis prepared
by: William T. Hunt
Pacific Ocean Division
U. S. Army Corps of Engineers
Building T-1
Fort Shafter, Hawaii 96858

Phone: Area Code 808
438-2259

SUMMARY OF COSTS FOR ECONOMIC ANALYSIS REPORT BY YEAR

ADERDEEN PROVING GROUND, MD
MILITARY FAMILY HOUSING STUDY
CHESAPEAKE GARDENS
PACIFIC OCEAN DIVISION, COMPS OF ENGINEERS
MAY 1983

HCA WITH DEMOLITION

1	SUBMITTING ORGANIZATION	LOGISTICS DIRECTORATE, HOUSING DIVISION, ADERDEEN PROVING GROUND, MD
2	DATE OF SUBMISSION	
3	PROJECT TITLE	ECONOMIC ANALYSIS OF FAMILY HOUSING ALTERNATIVES
4	DESCRIPTION OF PROGRAM OBJECTIVE	PROVIDE 647 ADEQUATE FAMILY HOUSING UNITS FOR ENLISTED PERSONNEL
5	ALTERNATIVE	HCA WITH DEMOLITION
6	ECONOMIC LIFE	30 YEARS
7	PERIOD OF ANALYSIS	25 YEARS
8	BASE YEAR	1984
9	STARTING YEAR	1984

PROJECT / PROGRAM COSTS

PAGE 001

YEAR	CONSTR COST 20 YR LIFE (01)	LAND ACQUISITION (04)	ALLOWANCES (MCA) (06)	INT AND MIP MCA (09)	UTILITIES MCA (10)	SERVICES MCA (12)	IMPROVEMENT OF OLD UNITS (14)	TOTAL ANNUAL OUTLAYS ()
1984	\$5,296,030	\$0	\$0	\$0	\$1,328,000	\$182,000	\$0	\$6,006,000
1985	\$10,329,000	\$0	\$0	\$20,000	\$1,306,000	\$182,000	\$0	\$11,837,000
1986	\$10,836,030	\$0	\$0	\$81,000	\$1,238,000	\$182,000	\$0	\$12,337,000
1987	\$12,547,030	\$0	\$0	\$162,000	\$1,149,000	\$182,000	\$0	\$14,040,000
1988	\$4,182,000	\$0	\$0	\$229,000	\$1,075,000	\$182,000	\$1,300,000	\$6,768,000
1989	\$0	\$0	\$0	\$262,000	\$1,038,000	\$182,000	\$0	\$1,482,000
1990	\$0	\$0	\$0	\$262,000	\$1,038,000	\$182,000	\$0	\$1,482,000
1991	\$0	\$0	\$0	\$344,000	\$1,038,000	\$182,000	\$0	\$1,554,000
1992	\$0	\$0	\$0	\$426,000	\$1,038,000	\$182,000	\$0	\$1,645,000
1993	\$0	\$0	\$0	\$527,000	\$1,038,000	\$182,000	\$0	\$1,747,000
1994	\$0	\$0	\$0	\$527,000	\$1,038,000	\$182,000	\$0	\$1,747,000
1995	\$0	\$0	\$0	\$527,000	\$1,038,000	\$182,000	\$0	\$1,747,000
1996	\$0	\$0	\$0	\$541,000	\$1,038,000	\$182,000	\$0	\$1,861,000
1997	\$0	\$0	\$0	\$755,000	\$1,038,000	\$182,000	\$0	\$1,975,000
1998	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
1999	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2000	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2001	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2002	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2003	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2004	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2005	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2006	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2007	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000
2008	\$0	\$0	\$0	\$896,000	\$1,038,000	\$182,000	\$0	\$2,116,000

P R O J E C T / P R O G R A M C O S T S

YEAR	DISCOUNTED PRESENT VALUE	CUMULATIVE DISCOUNTED PV	DISCOUNTED P V RESIDUAL	CUMULATIVE NET DISC P V
1984	\$6,489,266	\$6,489,266	\$4,814,545	\$1,674,720
1985	\$10,260,124	\$16,749,390	\$12,913,223	\$3,835,167
1986	\$9,721,378	\$26,470,769	\$19,890,540	\$6,590,228
1987	\$10,057,561	\$36,528,330	\$26,642,988	\$9,835,342
1988	\$4,537,755	\$41,066,086	\$26,656,686	\$14,407,399
1989	\$877,391	\$41,943,467	\$24,062,693	\$17,693,773
1990	\$797,619	\$42,741,086	\$21,720,033	\$21,021,053
1991	\$765,229	\$43,506,316	\$19,584,297	\$23,922,019
1992	\$732,136	\$44,238,452	\$17,639,055	\$26,559,297
1993	\$706,419	\$44,944,871	\$15,868,988	\$29,075,042
1994	\$642,159	\$45,587,070	\$14,259,837	\$31,327,233
1995	\$583,817	\$46,170,888	\$12,790,348	\$33,372,539
1996	\$565,376	\$46,735,264	\$11,472,224	\$35,214,040
1997	\$545,453	\$47,281,720	\$10,270,069	\$37,011,659
1998	\$531,277	\$47,813,006	\$9,170,996	\$38,442,009
1999	\$482,979	\$48,295,986	\$8,177,400	\$40,118,506
2000	\$439,072	\$48,735,058	\$7,271,719	\$41,463,339
2001	\$399,156	\$49,134,215	\$6,447,523	\$42,486,691
2002	\$362,859	\$49,497,085	\$5,698,961	\$43,798,124
2003	\$329,831	\$49,826,967	\$5,020,376	\$44,806,591
2004	\$299,892	\$50,126,860	\$4,400,562	\$45,726,297
2005	\$272,629	\$50,399,489	\$3,836,033	\$46,563,459
2006	\$247,045	\$50,647,334	\$3,323,308	\$47,323,026
2007	\$225,313	\$50,872,648	\$2,858,948	\$48,013,699
2008	\$204,830	\$51,077,478	\$2,435,607	\$48,641,871

SUMMARY OF COSTS FOR ECONOMIC ANALYSIS

REPORT BY YEAR

ABERDEEN PROVING GROUND, MD.
MILITARY FAMILY HOUSING STUDY
CHESAPEAKE GARDENS
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
JULY 1973

REMARKS, \$53K/UNIT

1. SUBMITTING ORGANIZATION	LOGISTICS DIRECTORATE, HOUSING DIVISION, ABERDEEN PROVING GROUND, MD
2. DATE OF SUBMISSION	
3. PROJECT TITLE	ECONOMIC ANALYSIS OF FAMILY HOUSING ALTERNATIVES
4. DESCRIPTION OF PROGRAM OBJECTIVE	PROVIDE 647 ADEQUATE FAMILY HOUSING UNITS FOR ENLISTED PERSONNEL
5. ALTERNATIVE	REHAB, \$53K/UNIT
6. ECONOMIC LIFE	30 YEARS
7. PERIOD OF ANALYSIS	25 YEARS
8. BASE YEAR	1984
9. STARTING YEAR	1984

PROJECT / PROGRAM COSTS

YEAR	REHAB COST 153K FA (03)	LAND ACQUISITION (04)	ALLIANCES 30 YR REHAB (07)	INIT AND PER 30 YR REHAB (09)	UTILITIES 20 YR REHAB (11)	SERVICES 30 YR REHAB (13)	TOTAL ANNUAL OUTLAYS (1)	DISCOUNTED PRESENT VALUE
1981	\$8,480,000	\$0	\$775,000	\$0	\$ 00,000	\$127,000	\$10,352,000	\$9,508,383
1985	\$8,585,000	\$0	\$1,176,000	\$130,000	\$806,000	\$114,000	\$10,811,000	\$9,370,823
1985	\$8,604,000	\$0	\$1,179,000	\$229,000	\$785,000	\$113,000	\$10,911,000	\$8,577,711
1987	\$8,621,000	\$0	\$1,181,000	\$526,000	\$767,000	\$113,000	\$11,208,000	\$9,028,857
1988	\$0	\$0	\$0	\$526,000	\$1,231,000	\$182,000	\$11,939,000	\$1,262,730
1989	\$0	\$0	\$0	\$526,000	\$1,231,000	\$182,000	\$11,939,000	\$1,147,936
1990	\$0	\$0	\$0	\$591,000	\$1,231,000	\$182,000	\$2,004,000	\$1,078,562
1991	\$0	\$0	\$0	\$650,000	\$1,231,000	\$182,000	\$2,103,000	\$1,038,949
1992	\$0	\$0	\$0	\$790,000	\$1,231,000	\$182,000	\$2,203,000	\$979,869
1993	\$0	\$0	\$0	\$790,000	\$1,231,000	\$182,000	\$2,203,000	\$890,807
1994	\$0	\$0	\$0	\$790,000	\$1,231,000	\$182,000	\$2,203,000	\$809,825
1995	\$0	\$0	\$0	\$855,000	\$1,231,000	\$182,000	\$2,268,000	\$757,926
1996	\$0	\$0	\$0	\$953,000	\$1,231,000	\$182,000	\$2,366,000	\$718,796
1997	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$680,793
1998	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$618,903
1999	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$562,639
2000	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$511,490
2001	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$464,991
2002	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$422,719
2003	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$384,290
2004	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$349,354
2005	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$317,575
2006	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$288,723
2007	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$262,475
2009	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$238,614

SUMMARY OF COSTS FOR ECONOMIC ANALYSIS
REPORT BY YEAR

ABERDEEN PROVING GROUND, MD
MILITARY FAMILY HOUSING STUDY
CHESAPEAKE GARDENS
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
MAY 1983

MCA W/OUT DEMOLITION

1	SUBMITTING ORGANIZATION	LOGISTICS DIRECTORATE, HOUSING DIVISION, ABERDEEN PROVING GROUND, MD
2	DATE OF SUBMISSION	
3	PROJECT TITLE	ECONOMIC ANALYSIS OF FAMILY HOUSING ALTERNATIVES
4	DESCRIPTION OF PROGRAM OBJECTIVE	PROVIDE 647 ADEQUATE FAMILY HOUSING UNITS FOR ENLISTED PERSONNEL
5	ALTERNATIVE	MCA W/OUT DEMOLITION
6	ECONOMIC LIFE	30 YEARS
7	PERIOD OF ANALYSIS	25 YEARS
8	BASE YEAR	1984
9	STARTING YEAR	1984

P R O J E C T / P P D U C R A H C O S T S

YEAR	CUMULATIVE DISCOUNTED PV	DISCOUNTED PV RESIDUAL	CUMULATIVE INIT DISC PV
1981	\$19,908,293	\$7,707,090	\$2,199,292
1985	\$19,279,186	\$14,103,305	\$5,175,881
1985	\$27,876,897	\$19,285,499	\$8,591,358
1987	\$35,705,754	\$23,280,008	\$12,625,745
1987	\$37,148,485	\$21,014,604	\$16,153,001
1989	\$38,316,422	\$18,968,694	\$19,317,727
1990	\$39,394,984	\$17,103,490	\$22,291,486
1991	\$40,423,934	\$15,404,666	\$25,019,268
1992	\$41,403,823	\$13,858,818	\$27,545,004
1993	\$42,294,630	\$12,453,503	\$27,841,127
1994	\$43,104,456	\$11,177,145	\$31,927,310
1995	\$43,862,232	\$10,019,005	\$33,843,377
1995	\$44,581,179	\$8,969,130	\$35,612,049
1997	\$45,261,973	\$9,009,280	\$37,252,692
1998	\$45,880,877	\$7,141,615	\$38,739,261
1999	\$46,443,516	\$6,350,590	\$40,092,926
2000	\$46,955,007	\$5,630,797	\$41,324,209
2001	\$47,419,978	\$4,977,057	\$42,442,940
2002	\$47,842,718	\$4,384,430	\$43,458,287
2003	\$48,227,008	\$3,843,130	\$44,383,878
2004	\$48,576,363	\$3,350,112	\$45,226,250
2005	\$48,893,958	\$2,902,335	\$45,991,623
2006	\$49,182,691	\$2,496,797	\$46,685,884
2007	\$49,445,157	\$2,127,082	\$47,318,075
2008	\$49,683,771	\$1,791,293	\$47,892,477

PROJECT / PROGRAM COSTS

YEAR	CUMULATIVE DISCOUNTED PV	DISCOUNTED P.V. RESIDUAL	CUMULATIVE NET DISC P.V.
1984	\$9,916,782	\$6,763,636	\$2,153,145
1985	\$17,374,052	\$12,373,553	\$5,001,500
1986	\$25,141,248	\$16,920,360	\$8,220,887
1987	\$32,412,922	\$20,425,169	\$11,987,753
1988	\$33,675,653	\$18,437,572	\$15,238,080
1989	\$34,823,590	\$16,642,554	\$18,181,036
1990	\$35,902,152	\$15,006,087	\$20,876,064
1991	\$36,931,102	\$13,515,584	\$23,415,518
1992	\$37,910,590	\$12,159,304	\$25,751,686
1993	\$38,801,798	\$10,926,323	\$27,875,474
1994	\$39,611,623	\$9,806,486	\$27,805,137
1995	\$40,369,550	\$9,750,369	\$31,579,181
1996	\$41,088,347	\$7,869,211	\$33,219,106
1997	\$41,769,141	\$7,027,098	\$34,742,042
1998	\$42,388,044	\$5,263,835	\$36,122,209
1999	\$42,950,684	\$3,571,814	\$37,378,870
2000	\$43,462,175	\$4,940,270	\$38,521,804
2001	\$43,927,166	\$4,366,718	\$39,560,447
2002	\$44,349,895	\$3,846,765	\$40,503,120
2003	\$44,734,176	\$3,371,845	\$41,362,330
2004	\$45,083,531	\$2,939,286	\$42,144,244
2005	\$45,401,126	\$2,546,420	\$42,854,705
2006	\$45,687,849	\$2,190,613	\$43,499,235
2007	\$45,952,325	\$1,866,236	\$44,086,088
2008	\$46,190,939	\$1,571,626	\$44,619,313

PROJECT / PROGRAM COSTS

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YEAR	REHAB COST \$16.5M FA (02)	LAND ACQUISITION (04)	ALLOWANCES 30 YR REHAB (07)	INT AND IRR 30 YR REHAB (09)	UTILITIES 30 YR REHAB (11)	SERVICES 30 YR REHAB (13)	TOTAL ANNUAL OUTLAYS ()	DISCOUNTED PRESENT VALUE
1984	\$7,440,000	\$0	\$775,000	\$0	\$00,000	\$137,000	\$9,352,000	\$8,916,702
1985	\$7,532,000	\$0	\$1,176,000	\$130,000	\$806,000	\$114,000	\$9,758,000	\$9,459,079
1986	\$7,549,000	\$0	\$1,179,000	\$229,000	\$706,000	\$113,000	\$9,856,000	\$7,766,386
1987	\$7,554,000	\$0	\$1,181,000	\$526,000	\$767,000	\$113,000	\$10,151,000	\$7,271,674
1988	\$0	\$0	\$0	\$526,000	\$1,231,000	\$182,000	\$1,939,000	\$1,262,730
1989	\$0	\$0	\$0	\$526,000	\$1,231,000	\$182,000	\$1,939,000	\$1,147,936
1990	\$0	\$0	\$0	\$591,000	\$1,231,000	\$182,000	\$2,004,000	\$1,078,562
1991	\$0	\$0	\$0	\$590,000	\$1,231,000	\$182,000	\$2,103,000	\$1,028,949
1992	\$0	\$0	\$0	\$790,000	\$1,231,000	\$182,000	\$2,203,000	\$979,809
1993	\$0	\$0	\$0	\$790,000	\$1,231,000	\$182,000	\$2,203,000	\$850,807
1994	\$0	\$0	\$0	\$790,000	\$1,231,000	\$182,000	\$2,203,000	\$909,825
1995	\$0	\$0	\$0	\$833,000	\$1,231,000	\$182,000	\$2,268,000	\$757,925
1996	\$0	\$0	\$0	\$933,000	\$1,231,000	\$182,000	\$2,366,000	\$718,796
1997	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$680,793
1998	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$618,903
1999	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$562,639
2000	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$511,490
2001	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$464,591
2002	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$422,719
2003	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$384,290
2004	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$349,354
2005	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$317,595
2006	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$288,723
2007	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$262,475
2008	\$0	\$0	\$0	\$1,052,000	\$1,231,000	\$182,000	\$2,465,000	\$238,614

SUMMARY OF COSTS FOR ECONOMIC ANALYSIS REPORT BY YEAR

ABERDEEN PROVING GROUND, MD
MILITARY FAMILY HOUSING STUDY
CHESAPEAKE GARDENS
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
MAY 1983

REHAB. \$46 5K/UNIT

1	SUBMITTING ORGANIZATION	LOGISTICS DIRECTORATE, HOUSING DIVISION, ABERDEEN PROVING GROUND, MD
2	DATE OF SUBMISSION	
3	PROJECT TITLE	ECONOMIC ANALYSIS OF FAMILY HOUSING ALTERNATIVES
4	DESCRIPTION OF PROGRAM OBJECTIVE	PROVIDE 247 ADEQUATE FAMILY HOUSING UNITS FOR ENLISTED PERSONNEL
5	ALTERNATIVE	REHAB. \$46 5K/UNIT
6	ECONOMIC LIFE	30 YEARS
7	PERIOD OF ANALYSIS	25 YEARS
8	DATE YEAR	1984
9	STARTING YEAR	1984

PROJECT / PROGRAM COSTS

YEAR	DISCOUNTED PRESENT VALUE	CUMULATIVE DISCOUNTED PV	DISCOUNTED PV RESIDUAL	CUMULATIVE NET DISC PV
1981	\$6,489,266	\$6,489,266	\$4,814,545	\$1,674,720
1985	\$9,393,340	\$15,882,606	\$12,913,223	\$2,969,383
1986	\$9,721,378	\$25,603,984	\$19,080,540	\$5,723,443
1987	\$9,341,211	\$34,945,196	\$26,642,988	\$8,302,207
1988	\$7,896,872	\$37,832,088	\$26,656,686	\$11,175,402
1989	\$877,381	\$38,709,470	\$24,062,673	\$14,646,776
1990	\$797,619	\$39,507,089	\$21,720,033	\$17,787,056
1991	\$765,229	\$40,272,319	\$19,584,297	\$20,688,022
1992	\$732,136	\$41,004,455	\$17,639,055	\$23,365,400
1993	\$706,419	\$41,710,874	\$15,868,988	\$25,841,035
1994	\$642,199	\$42,353,073	\$14,259,837	\$28,093,236
1995	\$583,017	\$42,936,091	\$12,798,348	\$30,128,542
1996	\$565,376	\$43,502,267	\$11,472,224	\$32,030,043
1997	\$545,463	\$44,047,731	\$10,270,069	\$33,777,642
1998	\$531,277	\$44,579,009	\$9,170,996	\$35,403,012
1999	\$482,979	\$45,061,989	\$8,177,480	\$36,884,509
2000	\$439,072	\$45,501,061	\$7,271,719	\$38,229,342
2001	\$399,156	\$45,900,218	\$6,447,523	\$39,452,694
2002	\$362,869	\$46,263,088	\$5,698,961	\$40,564,127
2003	\$329,881	\$46,592,970	\$5,020,376	\$41,572,594
2004	\$299,892	\$46,892,862	\$4,400,562	\$42,492,300
2005	\$272,629	\$47,165,492	\$3,836,033	\$43,329,458
2006	\$247,845	\$47,413,337	\$3,323,308	\$44,090,028
2007	\$225,313	\$47,638,651	\$2,858,948	\$44,779,762
2008	\$204,830	\$47,843,481	\$2,439,607	\$45,407,874

HOUSING ECONOMIC ANALYSIS REFERENCE SHEET

KIND OF PROJECT	KIND OF ECONOMIC ANALYSIS	TIME OF SUBMISSION TO HQDA
1. Maintenance & Repair AFH BP 1920 (more than \$15K/FY)	1. a. Exceeding \$30,000 maintenance & repair per dwelling unit (adjusted by CCI; except for foreign source units for which the dollar limitation is absolute) in a FY.	1. a. Attach to DD Form 1391 at time of submission for approval to HQDA, DAEN-ZCF-U.
	b. Exceeding \$15,000 maintenance & repairs per dwelling unit pro- grammed to be accom- plished in the budget year.	b. Attach to DD Form 1391 and submit to Commander, Facilities Engineering Support Agency, FESA-EB with info cy to HQDA, DAEN-ZCH-F by 1 Jul of the calendar year preceeding preparation of the FY budget submission to Congress.
	c. During replacement of major components within a building.	c. Attached to project document and retained at the installation.
2. Post Acquisition Con- struction Program	2. a. LIIP, Substand- ard Upgrade, STAIRS w/o Replacement Alternative	a. With MCA/AFH full DD 1391 sub- mission.

b. LIIF, Substand-
ard Upgrade, STAIRS
with Replacement
Alternative

b. Fully Documented. Summary
on DD Form 1391.

b. With MCA/AFH full DD 1391 sub-
mission.

c. ECIP

c. ECIP format (see Army
Facilities Energy Plan).

c. With project submittal.

Acquisition Program

a. New Construction

a.

(1) Guidance Year
Project

(1) Abbreviated. Summarize
on DD Form 1391.

(1) Submit with PARR to
DAEN-ZCH-M.

(2) Program Year
Project

(2) Fully Documented

(2) Submit with PARR to
DAEN-ZCH-M.

(3) Budget Year
Project

(3) Updated from previous
fully documented submission.

(3) Submit with PARR to
DAEN-ZCH-M.

b. Lease

b.

(1) Title 10 Actions -
New

(1) Fully Documented

(1) Submit to DAEN-ZCH-M at
least 6 months prior to the
desired date of occupancy or
prior to a firm commitment by
the US Government.

(2) Title 10 Actions -
Renewals

(2) Fully Documented

(2) Submit 9 months prior to
the expiration of the current lease
to DAEN-ZCH-M.

(3) Non-Title 10
Actions (New & Renewals)

(3) Fully Documented

(3) Submit to support PARR to
DAEN-ZCH-M.

END

DATE

FILMED

DTIC

JULY 88