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AN ANALYSIS OF PUBLIC/PRIVATE VENTURES FOR THE CONSTRUCTION OF MILITARY FAMILY HOUSING

by

John Thomas Barrera

and

Ronald Victor Maldonado

December 1990

Thesis Advisor: Paul M. Carrick

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An Analysis of Public-Private Ventures for the Construction of Military Family Housing

by

John Thomas Barrera
Major, United States Marine Corps
B.A., University of North Carolina at Wilmington, 1977

and

Ronald V. Maldonado
Major, United States Marine Corps
B.S., University of Connecticut, 1975

Submitted in partial fulfillment of the requirements for the degree of

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December 1990

Authors: John T. Barrera   Ronald V. Maldonado

Approved by Paul M. Carrick, Thesis Advisor

Benjamin J. Roberts, Second Reader

David R. Whipple, Chairman,
Department of Administrative Sciences

ABSTRACT

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As a result of this analysis, this study concludes that DoD should continue to promote each public/private venture program to increase the supply of acceptable and affordable housing for its military families.

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I. INTRODUCTION

A. BACKGROUND

Recruiting and training qualified personnel is a major objective of today's all-volunteer force. The Department of Defense (DoD) competes directly with private industry to obtain these qualified personnel but is at a distinct disadvantage for reasons such as lower pay and exposure to imminent danger situations [Ref. 1:p. 1]. To compensate military members for these disadvantages, subsidies such as free medical and dental benefits are provided. One of the most valued of these subsidies is the provision of either free on-base housing or tax-free allowances to rent civilian housing.

DoD is the largest landlord in the world, owning more than 400,000 family housing units worldwide [Ref. 1:p. 1]. According to a 1985 DoD-wide Family Housing Survey, 1.02 million of the 2,173,000 active duty military personnel reside in civilian communities [Ref. 2:p. 2]. This figure equates to 47 percent of all active duty forces. Of this 47 percent, the vast majority live as a family (as distinguished from a single military member with no children). Furthermore, according to the survey, approximately 69 percent of all military families reside in the civilian community. Table 1 is a breakdown of military personnel who reside both on and off-base [Ref. 3:p. 3].

TABLE 1

DOD HOUSING OCCUPANCY (in Thousands)

SERVICE MEMBERS	OFF-BASE HOUSING	ON-BASE HOUSING	TOTALS
With families	870	391	1,261
Single	152	760	912
Totals	1,022	1,151	2,173

These figures are consistent with DoD Instruction 4165.63-M which specifies that the civilian community should serve as the primary source of housing for DoD families [Ref. 4:p.1-1]. Even so, there exists an alarming shortage of family housing for military personnel throughout the United States.

The Navy alone has 31 communities designated as "critical housing" areas. Of the 31 critical housing areas, 18 are located in the continental United States (CONUS). The cities of San Diego, San Francisco, and Washington D.C., as well as their surrounding communities, are included among the 18 CONUS areas. To be designated a critical housing area, four criteria must be met:

1. Government housing occupancy rate must exceed 99 percent.

2. Average waiting time to receive government housing exceeds 6 months.

3. The military housing deficit aboard base exceeds 15 percent.

4. The vacancy rate within the civilian rental market is less than three percent. [Ref. 5:p. 6]

Figures submitted by each service in December of 1989 to the Assistant Secretary of Defense (Production & Logistics) indicate that the DoD military family housing shortage is approximately 140,000 units. However, it must be noted that each service's method of determining its family housing shortage is dependent upon how each service defines acceptable housing. Even though DoD defines acceptable housing, each service presently interprets it differently. Because each services uses different criteria to identify acceptable housing, the shortage figures they submit are inconsistent. The result is that accurate military family housing shortages cannot presently be determined [Ref. 6].

The premise behind DoD's family housing program is to assure military personnel access to acceptable and affordable housing for themselves and their dependents at least cost to the government. "Acceptable" housing refers to housing which is within a one hour commute, or less than 30 miles, from the military individual's place of work, and meets other minimum requirements, such as square footage and access to utilities [Ref. 4:p. 2-6]. According to the Assistant Secretary of Defense (Acquisition & Logistics), "affordable" housing refers to a service member's ability to pay minimal out-of-pocket expenses, approximately 15 percent of base pay, after receiving a basic allowance for quarters (BAQ) and a variable housing allowance (VHA), to rent acceptable housing [Ref. 2:p. B-3].

Approximately every three to five years, military bases are required to conduct either housing market surveys or housing market analyses [Ref. 7]. The purpose of the survey/analysis is to ascertain whether additional housing is required for the particular base. Government-owned housing, built under the military construction (MilCon) program, will typically not be programmed as part of the individual service's budget unless the housing survey/ analysis indicates that the local community lacks the capacity to provide acceptable housing at affordable prices to service members [Ref. 1:p. 2].

Unfortunately, the combination of massive budget deficits and the rush to cut military spending, as a result of the dismantling of the Eastern Bloc, has left military construction near the bottom of DoD's list of priorities. This is evident by Secretary of Defense Richard Cheney's decision to freeze all military construction on January 24, 1990 [Ref. 8:p. 3]. Since that time, the original termination date of August 15, 1990 for the freeze on military construction has been extended indefinitely by Secretary Cheney [Ref. 9:p. 6]. To further complicate the situation, on August, 10, 1990, Secretary of the Navy H. Lawrence Garrett III, issued a memorandum to the U.S. Navy concerning military family housing. In the memorandum, Garrett states that immediate plans to alleviate the Navy's 44,000 unit family housing shortage need to be developed [Ref. 10]. He further notes that an aggressive program to alleviate housing shortages should emphasize the feasibility of public/private ventures (PPV) which are, in essence, privately financed and require no federally appropriated funds. This follows in the footsteps of recent testimony by Henry Hinton, from the General Accounting Office (GAO), before the Senate Armed Services Committee's Readiness, Sustainability and Support subcommittee. In his testimony, Mr. Hinton suggests that DoD use military construction (MilCon) as a last resort to alleviate housing shortages. He recommends that alternatives such as "801 build-to-lease" agreements, "802 rental guarantees," and "2667 non-excess government land-leases" undergo cost-benefit analysis before requests for military construction are made [Ref. 11:p. 8].

B. THESIS OBJECTIVE

The purpose of this thesis is to introduce alternative methods to construct new military family housing, other than military construction (MilCon) or individual rental of a privately owned unit. These alternatives can help reduce DoD's present housing crisis. By working closely with private developers to construct new military family housing, these alternatives will benefit both the government and the private develope..

C. SCOPE AND LIMITATIONS

Our analysis will provide base commanders and family housing directors information that will enable them to reduce their current or future housing shortages. Because of time constraints, we will not examine:

1. Bachelor officers/enlisted housing requirements.
2. Overseas housing shortages.
3. Transient lodging facilities.
4. Housing allowances.

Our study recognizes th..t a reduction in military manpower will occur. We believe that this manpower reduction will have little or no effect on the current DoD housing crisis within the United States.

D. THESIS OVERVIEW

Succeeding chapters of this thesis will focus on the following areas.

Chapter II will discuss DoD's present military construction (MilCon) program for providing military family housing. Discussion will include the steps required to implement a military family housing project. Additionally, the chapter will examine why the MilCon program is unable to meet the current DoD demand for military family housing.

Chapter III will provide a thorough background of public/private ventures currently authorized by Congress. The chapter will provide interpretation of each of the authorizations in providing housing to military members. It will also describe the process for implementing each program from the field level to final contract. Finally, we will identify those public/private ventures that have recently been constructed or awarded contracts to provide military family housing.

Chapter IV will discuss the research methodology used to assess the following primary and secondary research questions:

1. How can DoD, with the aid of civilian developers and private financial institutions, increase the supply of acceptable and affordable family housing to military personnel and their dependents at least expense to the government? [Primary]

2. When is it appropriate to completely privatize the construction, operation, and maintenance of military family housing? [Secondary]

3. What is the government's responsibility in providing housing to its military families? [Secondary]

4. What are the positive and negative social costs which should be considered when adopting a military housing policy aimed at privatization of family housing? [Secondary]

Finally, Chapter V will present the research findings and formulate recommendations concerning how DoD can efficiently increase the supply of military family housing. The recommendations will enable personnel to explore alternatives to meet their particular family housing needs in an efficient manner benefitting both the government and the private developer. Additionally, topics uncovered during the writing of this thesis will be recommended for future research.

II. THE MILITARY CONSTRUCTION PROCESS

A. CHAPTER OVERVIEW

This chapter identifies present military family housing construction needs within the Department of Defense (DoD). Additionally, this chapter examines DoD's present military construction process and the problems associated with the program. Finally, this chapter will introduce the concept of public/private ventures within DoD. A more extensive discussion of public/private ventures is in Chapter III.

B. MILITARY FAMILY HOUSING CONSTRUCTION NEEDS WITHIN DOD

Presently, 69 percent of married military personnel stationed in the United States reside in private-sector housing outside the confines of the military installation they work at [Ref. 3:p. 1]. There is a reason for this. Although the goal of DoD's military family housing program is to assure military personnel access to acceptable and affordable housing, DoD constructs family housing only when local communities cannot support this requirement [Ref. 4:pp. 1-2].

In many cases, the community may be unable or unwilling to fulfill this need for additional housing. As an example, rezoning to construct moderately priced housing, which is the type of housing frequently required by military personnel, may be voted down within the community. Other reasons why the private sector may not allow moderately priced housing within the community are:

1. Excess land may simply be unavailable for further development.

2. The added costs of rezoning, such as fire and police protection, new roads, and additional utilities may exceed the tax revenue base available to the community.

3. Environmental concerns.

4. The community's desire to retain high residential real estate values.

The end result is that the quantity of acceptable and affordable housing near many military installations continues to decrease. Frequently, personnel stationed in the vicinity of metropolitan cities, or high cost areas, reside in housing which, according to DoD standards is unacceptable [Ref. 2:p. 5]. This is a major problem because, according to Franklin L. Gertcher, the majority of military families live within commuting distance of large civilian communities [Ref. 12:p. 165].

This is a particularly acute problem for married enlisted personnel. A study of the private housing market by Rosenberry and Hartman indicate that even if "housing allowance programs" were made available to lower income households, it would be insufficient due to the absence of acceptable low income housing in metropolitan areas [Ref. 13:p. 38]. Even though military personnel receive a Basic

Allowance for Quarters (BAQ) and Variable Housing Allowance (VHA), the decrease in acceptable housing simply causes adequate rental property to escalate beyond the enlisted personnel's financial means. A General Accounting Office (GAO) study indicates that lower enlisted personnel compete for low cost housing in the civilian community. This ultimately results in an escalation of the rental rates for that type of housing [Ref. 14:p. 3].

Compounding the junior enlisted's housing problem is the policy stated in the Fiscal Year 1988 Continuing Appropriations Conference Report. In the report, Congress states that, due to military construction constraints, grade priorities should be established in the construction of new family housing [Ref. 15:p. 1005]. The report further states that priority should be given to "career" rather than "junior" service members, but that some flexibility should be allowed to construct junior enlisted housing in high cost, or remote areas. Although this policy is not mandatory, it places lower enlisted personnel at a distinct disadvantage against higher enlisted and officer personnel. The report states that "A prohibition against any construction of housing for the lowest ranking members would be too severe." [Ref. 15:p. 1005]

In many high cost-of-living areas, such as Southern California and Washington D.C., an increasing number of military members are forced to become "geographical bachelors" [Refs. 16,17]. The "geographical bachelor" includes all ranks of military personnel who, for various reasons, do not have their family members accompany them to their new duty station. However, according to a GAO study, a substantially greater percentage of lower ranking personnel are "geographical" bachelors than higher ranking personnel [Ref. 14:p. iii]. The overwhelming reason for not taking one's family is the inability to find acceptable and affordable housing at the new duty station. Each service is well aware of this situation. For instance, Navy personnel assigned to critical housing areas now have a statement attached to their orders stating that acceptable and affordable housing may be difficult to obtain at their new duty station [Ref. 5:p. 6]. This situation is of particular concern to housing personnel throughout DoD because of the rapidly increasing numbers of "geographical bachelors" [Refs. 18,19].

DoD today faces an enormous military family housing challenge. Due to both budget constraints and a continuing freeze on military construction, DoD's ability to fill the housing void, which the private sector cannot presently provide, creates a growing problem for military personnel. Recent Congressional hearings which may ultimately result in deep personnel cuts are not a part of the solution. This is because the majority of military installations in high cost areas will, in most probability, be unaffected by personnel cuts [Ref. 20:p. 206]. Since there are more military construction projects proposed than there are appropriated funds, many economically viable programs simply cannot be undertaken with the available military construction dollars [Ref. 21]. Furthermore, if a military construction housing project reaches Congress it receives close scrutiny from all four Congressional committees who oversee military construction, and may simply not survive the budget process. The bottom line is that the MilCon process cannot alleviate current family housing shortfalls within DoD [Ref. 22].

C. MILITARY CONSTRUCTION PROCESS (MCP)

Currently, under Title 10, United States Code, the Military Construction Process (MCP) provides DoD the authority to construct new housing units with appropriated funds [Ref. 23:p. 717]. More familiarly known as military construction (MilCon), the MCP process is the traditional method for providing housing for military personnel aboard military installations. A military construction project includes "all military construction work necessary to produce a complete and usable facility on a military installation." [Ref. 24:p. 723] An important point to remember about military construction is that once a MilCon housing project is built and accepted from a contractor, DoD owns the housing and bears all future maintenance and utility costs [Ref. 25].

There are three generally accepted areas of concern which place the MCP process in a negative light. These are:

1. Lengthy administrative process.
2. High construction costs.
3. The requirement of Congressional approval.

1. <u>Lengthy Administrative Process</u>

The MilCon process is painstakingly slow, frequently taking between five and seven years from the time a housing shortage is identified to when a unit is ready for occupancy [Ref. 25]. A close examination of the military construction process will identify reasons why this process is so encumbering.

The process for acquiring military family housing is similar to that used in the private-sector. However, due to the lengthy administrative process which Congress requires, to ensure that taxpayers dollars are being properly spent, military construction consistently takes longer to complete than if built and financed by the private sector [Ref. 25].

The process begins with the identification of a requirement for additional family housing. The requirement for family housing is determined on the basis of:

1. Current family housing conditions.
2. Projected long-range family housing requirements.
3. Discussions with local housing officials.
4. Market analysis. [Ref. 4:pp. 2-3]

To program military housing construction, a housing shortage must currently exist and be expected to continue into the foreseeable future. Installations are tasked by higher headquarters to survey their local housing market to determine whether housing in the local community is acceptable and affordable for its military members. These surveys are conducted every three to five years, unless either headquarters or the installation feels it should be conducted more frequently [Ref. 7]. The housing market survey, which is an informal survey, will initially verify that additional housing is required. The housing survey will be of sufficient detail to allow the military installation to identify the number of available housing units the military installation has, and the number of acceptable and affordable units the local community can provide [Ref. 26].

The next step in the process is the undertaking of a housing market analysis. Congress states that any contract entered into concerning a military family housing project will be carried out under the direction and supervision of either the Naval Facilities Engineering Command (NAVFAC) or the Army Corps of Engineers (COE) [Ref. 27:p. 732]. When tasked, the regional NAVFAC or COE responsible for that installation works closely with the requesting installation to identify the perceived requirement and begin the market analysis.

The regional Naval Facilities Engineering Command (NAVFAC) or Army Corps of Engineers (COE) budgets for funds to conduct market analyses, and other preliminary phase requirements, through the Department of Defense's Planning, Programming, and Budgeting System (PPBS). Funds to conduct the market analysis come from the DoD Military Family Housing Management Account which is broken down into two separate appropriations:

1. Operations and Maintenance (O&M) of Family Housing.
2. Construction of Family Housing. [Ref. 28]

The market analysis and other preliminary phase requirements, such as the Environmental Assessment and Site Engineering Investigation, utilize O&M dollars to undertake their studies.

Due to limited resources and expertise, NAVFAC or COE usually contract out the market analysis, as well as most of the other documentation required by Congress [Ref. 29]. Because of the extensive nature of the analysis, a typical study can cost between $25,000 and $50,000 and take several months to conduct [Ref. 30].

The market analysis serves a different purpose than the housing survey. The housing survey's intent is to provide information as to what housing is currently available on or near the military installation. The market analysis identifies both the military installation's and the civilian community's current housing needs, and their ability to fill those needs in the future [Ref. 28].

Previously, a housing survey or market analysis was not a mandatory requirement for inclusion of a military construction project into the PPBS system [Ref. 21]. However, in October of 1990, the Navy stated that any military construction projects, or for that matter any public/private ventures, proposed by the Navy for fiscal year 1994/1995 must contain a current market analysis [Ref. 31]. According to the DoD, the market analysis has become the preferred document for inclusion into the President's budget for military construction, and when requesting Congressional authorization to undertake a public/private venture [Ref. 21].

The market analysis' thoroughness is vitally important because it determines that no alternative means, other than military construction, is available to alleviate the current family housing shortage. The housing market analysis should, at a minimum, identify:

1. Military and civilian demand for housing.
2. Affordability and availability of existing and projected housing in the community.
3. Projected military occupancy in acceptable housing in the civilian community.
4. Projected deficit of housing for military members.
5. Analysis of the supply and demand for housing in the community. [Ref. 4:pp 2-6--2-7]

Once the determination has been made that no other alternative exists, the project can be budgeted for through the Planning, Programming, and Budgeting System (PPBS).

At approximately the same time that the budget is submitted to DoD, the individual service secretary will notify the Secretary of Housing and Urban Development (HUD) of the contemplated locations for the budgeted MilCon family housing projects [Ref. 32]. This is required because prior to entering into a contract to construct family housing, the service secretary is required to inquire from HUD whether "suitable alternative housing" is available in the vicinity of the proposed construction. If, within 21 days after receiving written notification from the service secretary, HUD does not reply to the notice then a contract may be entered into to commence construction [Ref. 33:p. 725].

Identifying a need, the initial step of the military construction process is viewed similarly whether it involves constructing a governmental facility or a private facility. The only difference may be in who identifies the need and why. In the public sector, governmental authorities identify the need for additional family housing without regard to whether it will be a profitable venture or not. On the other hand, a private developer will only consider undertaking a housing project after it has been verified that it can provide a positive return.

The second step involves forwarding the completed market analysis by the NAVFAC or COE to their respective headquarters. In the Navy's case, the request is forwarded to the Naval Facilities Engineering Command in Alexandria, Virginia. The task of producing all follow-on documentation, such as the site investigation and the environmental assessment, now rests with the individual NAVFAC or COE responsible for the project.

Hopefully, prior to initiation of the next step, the environmental study and site investigation, the NAVFAC or COE, along with the military installation, have decided upon possible sites to construct the family housing. Site selection is now more time-consuming and difficult than in the past. This is due to the lack of acceptable land either on or off base for the installation which requires additional housing. This not only adds to the lengthy administrative process but is a factor which will make it extremely difficult to satisfy future family housing needs [Ref. 29].

Thus, it has become more commonplace for the military installation to recommend more than one site on-base or, if land is unavailable on-base, to purchase several land options off-base. Purchasing a land option allows all bidders for the project the opportunity to use and purchase the same site. This makes it easier to evaluate cost estimates from bidders. Emphasis is placed on the costs of the design and construction of the project, rather than land value. As far as the military is concerned, by purchasing more than one land option, it reduces the chance that a suitable site will not be found. Since the Environmental Assessment or Environment Impact Statement and Site Engineering Investigation Report require between 120 and 150 days to complete, a site rejection for either one of these reasons would severely slow down the administrative process. If two sites are simultaneously tested, it decreases the chance that both will be unsuitable. Besides that, environmental concerns are more stringent than they have ever been and thus impact greater on decisions of site suitability [Ref. 25].

Upon completion of the Environmental Assessment and Site Engineering Investigation, the regional NAVFAC/COE forwards the completed reports, along with the recommended site to the NAVFAC or COE headquarters for final approval. Once approved by NAVFAC headquarters for example, the headquarters writes the initial Military Construction Project Form (DD Form 1391) and returns it to the regional NAVFAC. The DD Form 1391, known as the facility plan, briefly describes the purpose for the proposed construction, including a justification for the proposed project. The approved DD form 1391 authorizes the regional NAVFAC to solicit bids for the project.

It is at this point that Congress plays its pivotal role in the MilCon process. Although the regional NAVFAC is now permitted to solicit bids from private contractors, the military installation cannot undertake the rest of the project without funds appropriated from Congress.

By this point in the process, the military installation, along with the NAVFAC or COE, has submitted the entire project's cost to higher headquarters through the Department of Defense's PPBS system. Additionally, to budget for a family housing MilCon project the military installation is required to provide three principle documents to higher headquarters:

1. A housing survey.
2. A housing market analysis.
3. DD Form 1523, "Military Family Housing Justification." [Ref. 26]

These four documents are forwarded to NAVFAC or COE headquarters approximately one year prior to submission of the completed budget to the individual service comptroller (i.e., Navy Comptroller). For example, the Navy's Fiscal Year 1994/95 budget will be completed in June of 1992. This means that the project cost, housing survey, market analysis, and housing justification are required at NAVFAC headquarters approximately in June of 1991.

The NAVFAC or COE will construct an initial cost analysis, from the submitted data, utilizing the Office of the Secretary of Defense's (OSD) Tri-Service Cost Model [Ref. 26]. The proposed project is then consolidated with all other projects for approval by both the appropriate service secretary and the Secretary of Defense.

The Secretary of Defense then consolidates all services' requests and submits them as part of DoD's overall budget.

The Secretary of Defense will separate the military construction portion of the DoD budget and submit it as his "annual request for military construction authorization." This is done ten days after the President submits his annual budget to Congress in January of each year [Ref. 34:p. 735]. The annual request for military construction authorization is presented to the following Congressional committees who decide the authorized and appropriated amounts the MilCon program will receive:

1. Subcommittee on Military Installations and Facilities, Committee on Armed Services (House).

2. Subcommittee on Readiness, Sustainability, and Support, Committee on Armed Services (Senate).

3. Subcommittee on Military Construction, Committee on Appropriations (House).

4. Subcommittee on Military Construction, Committee on Appropriations (Senate). [Ref. 21]

Once Congress has approved the project it becomes part of the Military Construction Appropriation Bill which is signed into law by the President of the United States.

Funds authorized for construction of military family housing can be utilized for:

1. Site preparation and demolition.
2. Installation of utilities.
3. Ancillary supporting facilities.
4. Equipment and fixtures for the housing units.
5. Construction supervision, inspection, and overhead. [Ref. 24:p. 723]

Bids may then be submitted to develop the entire project or certain parts of the project. For instance, an architectural and engineering (A&E) firm, which specializes in the design of construction projects may bid only on the design phase of the project. Therefore another developer would have to be found who could undertake the actual construction using the A&E firm's project design.

On the other hand, bids may be proposed to develop the entire project from design through construction. This is commonly referred to as a "turnkey" operation. There are certain advantages and disadvantages with each type of proposal, but the main point is that the government wants the contractor to complete construction on time, with the approved specifications, and within cost.

The design phase consists of the actual preparation of plans and specifications necessary for constructing the project. The design will encompass construction drawings and specifications. Again, due to the lack of manpower and expertise in these areas, the majority of the design work is contracted out to private architectural and engineering (A&E) firms in strict compliance with Federal Acquisition Regulations (FAR). By law, the maximum amount allowed to contract out architectural and engineering services or construction design is $300,000 [Ref. 35:p. 720].

It is the A&E's responsibility to convert the proposed plan into an acceptable design, taking into considerat. ˺ the aesthetics of the surrounding geographic area and the requirements specified in the Military Construction Project Form (DD Form 1391) and Title 10, United States Code. For example, Table 2 lists the maximum number of bedrooms and square footage authorized by individual ranks [Ref. 36:p. 726].

TABLE 2*

MAXIMUM BEDROOM AND SQUARE FOOTAGE AUTHORIZATIONS

Pay Grade	Maximum nos. of Bedrooms	Maximum Square Footage
07 and above	4	2100
06	4	1700
04 and 05	4	1550
	3	1400
03, 02 and 01 W1 to W4, E7 to E9	5	1550
	4	1450
	3	1350
	2	950
E1 to E6	5	1550
	4	1350
	3	1200
	2	950

* The different bedroom and square footage authorizations relate to the number of military dependents.

According to the Office of Management and Budget (OMB), the minimum square footage is as follows (Table 3) [Ref. 37]:

TABLE 3

MINIMUM BEDROOM AND SQUARE FOOTAGE

Number of Bedrooms	Minimum Square Footage
1	550
2	750
3	960
4 or more	1,190

The FAR also provides guidelines in selecting acceptable A&E firms to undertake design work. This selection process gives extensive consideration to small business and minority owned firms and ensures an equitable distribution of contracts among local A&E firms [Ref. 35:p. 720]. This design phase alone may consume between two and three years before a request for proposal(RFP) is released to the public for bids to construct the project [Ref. 29]. If the project is a "turnkey" operation, the developer undertaking the design phase would also be responsible for the construction; thus, an additional RFP would not have to be advertised after completion of the design.

In the private-sector, the economic merits of the project are evaluated after an architectural and engineering (A&E) firm develops a conceptual design and preliminary cost estimate. Should the new project prove to be cost effective, the private developer would then attempt to secure financing to undertake the project. Shortly afterward, the private developer would proceed into the full design stage with an A&E firm [Ref. 38].

The initial task of the A&E firm is to develop the design of the project to a 35 percent completion point [Ref. 29]. Simultaneously, an updated cost analysis of the entire project, originally stipulated in DD Form 1391, is provided by the regional NAVFAC or COE. The 35 percent project completion design will generally show what the completed facility will look like, the number of units in the complex and the overall layout of the project. At this point, it does not contain detailed figures, such as where electrical outlets and other utility hookups are located, or the exact layout of each housing unit. This detailed information is required for the 100 percent completion point in which an updated cost analysis, last provided at the 35 percent completion point, is also provided.

Once the project design has been completed by the contractor, it must be approved by the interested parties involved in the project [Ref. 29]. The project design usually requires approval by the regional NAVFAC or COE, the installation requiring the housing, and the NAVFAC or COE headquarters. Once the design has been approved, bids for the actual construction are solicited unless it is a "turnkey" operation. In that case, construction can commence immediately.

Once the Military Construction Appropriation Bill has been signed, requests for proposals (RFP), in accordance with the FAR, to construct the project will be publicly advertised [Ref. 25]. The RFP will remain open for 60 to 90 days at which time bids will be submitted by interested contractors. An informal evaluation board will then be held to evaluate the proposals. It will be chaired by the contracting officer at the requesting military installation. Using agreed upon source selection criteria, the lowest bidder meeting the source selection criteria will be awarded the contract. Barring a protest by competing contractors, construction will commence immediately [Ref. 25]. Although the contractor will typically sub-contract out much of his work in constructing a private project, he is not bound to the strict regulations which the governments contracting officer has to follow before accepting a bid for a MilCon project. For example, Congress has stipulated that consideration be given, by the contracting officer, to small business and minority owned business concerns before awarding a contract to another bidder [Ref. 39]. This applies to both the design and construction phases of the project. This adds time to an already lengthy governmental process which the private developer is not bound to when he undertakes a private project. Table 4 compares average time spans for a 300 unit MilCon and a comparable private developers' project [Ref. 21].

TABLE 4

CONSTRUCTION TIME FRAMES

EVENT	GOVERNMENT/PRIVATE DEVELOPER TIME FRAMES	
Conduct market analysis	6 months	6 months
Envir. assessment/site Inv	6-9 months	6-9 months
Approval by service secretary	6 months	N/A
Budget submission	1 year	N/A
Congressional auth/loan from financial institution	2 years	6 months
RFP/BID acceptance/protest	6 months	N/A
A&E Design	1-3 years	1 year
Start of construction	immediately	immediately
Completion/Acceptance	1 year	1 year
Total Years	7-10 years	1 year

As a result of the lengthy approval process and Congressional oversight, any military construction process undertaken becomes an expensive proposition for both the military installation and the military member. Because of this policy, both the military installation and the service member have to wait an inordinate amount of time before housing becomes available. The additional time span adds countless dollars to the project, while military personnel frequently have to pay additional housing costs because they are forced to live in the civilian community which costs more than their housing allowance provides [Ref. 1:p. 14]. It should once again be noted that even if a program is economically viable and has been approved by Congress, construction of the project can be indeterminately delayed or canceled by the Secretary of Defense or Congress.

2. High Construction Costs

Besides the lengthy time period associated with military construction, construction costs are considered to be higher than in the private-sector for three reasons.

Because the law mandates that the military services utilize either the Army Corps of Engineers (COE) or Navy Facilities Engineering Command (NAVFAC) to act as their principle agent for military construction, they can be considered middlemen in the construction process. As the principle agents for DoD, they are responsible for coordination, supervision, and inspection from the project's earliest stages, when a market analysis is conducted, through completion of the construction phase and acceptance of the project. Since the COE or NAVFAC usually hires a civilian A&E firm to design the project, and a contractor to build the project, the command that requested the housing project ends up paying the actual cost of these services. Additionally, this command is required to pay the cost of NAVFAC or COE personnel who manage the project [Ref. 25].

On the other hand, the private developer can cut out this middleman. He can utilize his own design team, or directly contract out this phase. For instance, the NAVFAC typically charges six percent overhead costs, which are spread across the planning and construction phases of the project [Ref. 25]. However, the private developer is still obligated to perform the services which NAVFAC or COE perform. If the private developer does not have his own design team, then he frequently pays approximately ten percent to contract out the design [Ref. 25]. As a result, there is little evidence that government costs are higher than a private developer's costs, when NAVFAC or COE personnel are involved in the process.

The Davis-Bacon Wage Act is the second factor considered to contribute to higher construction costs. The Davis-Bacon Wage Act was enacted in 1931 to protect local contractors from contractors who were able to import cheap labor and underbid the local contractor for construction projects. The act is administered by the Department of Labor (DOL), whose principle responsibility is to decide the "prevailing wage rate" that should be charged on federal construction projects [Ref. 40:p. 1135]. Although the act specifically states that local rates will be used in determining the prevailing wage rate, DOL typically uses unionized rates which, in most cases, are much higher than local rates [Ref. 41:p. 3]. Various studies conducted by the General Accounting Office (GAO), the University of Pennsylvania, and Professor D.N. Gujarati of the University of Chicago, clearly demonstrate that the wage rate determined by the DOL is typically the highest rate for the area when compared to the local or prevailing rate [Ref. 41:p. 38]. Wage rates determined by the act have tended to raise wages in the construction industry, oftentimes spreading to areas unaccustomed to such high rates.

Due to the inadequate, inconsistent, and haphazard manner in which DOL administers this act, it has been determined that annual costs to construct federal projects nationwide are between $500 million and $1 billion more than if the rates were not used [Ref. 41:p. 68]. "This estimate includes both the direct costs to the government of increased wage payments as well as the considerable administrative costs borne by the government and contractors operating under the act." [Ref. 41:p. 3]

As a result of the high wage rates established by Davis-Bacon, many private housing contractors are reluctant to bid on government contracts. Since the bidding contractor for a MilCon project is required to pay higher wages than he usually would, the individual project ends up costing between five percent and 15 percent more than if the contractor were undertaking the project as a private contract [Ref. 41:p. 23]. A study by the GAO of a Capehart housing project in Quantico, Virginia, in 1960, revealed that the Davis-Bacon rates charged to the project were between 28 percent and 100 percent higher than the local rates for the area. This resulted in increased costs of approximately 15 percent for the entire project [Ref. 41:p. 18]. Table 5 illustrate these disparities.

TABLE 5

QUANTICO PROJECT WAGE DATA

Craft	Davis-Bacon Wage	Area Survey Wage	Percentage by which Davis Bacon Exceeds Mid-point of Area Survey Wages
Labors	$2.42	$1.00 - 2.40	43
Carpenter	3.67	2.00 - 3.50	33
Cement mason	3.87	1.75 - 3.00	63
Bricklayer	4.15	2.75 - 3.75	28
Plumber	4.16	2.00 - 3.00	66
Electrician	4.45	2.00 - 3.50	62
Plaster	4.10	1.60 - 3.00	78
Painter	3.84	1.50 - 2.35	100

In one of its studies of the Act, the GAO concluded that from its inception in 1931, up through the present time, the act has been improperly administered. Furthermore, the GAO states that the likelihood of its ever being correctly administered by DOL is slim [Ref. 41:p. 18].

Although the original intent of the Davis-Bacon Act was to protect local contractors, the consensus today is that the act "as administered for decades is unnecessary and costly and constitutes a rather easily identifiable example of special interest legislation." [Ref. 41:p. 65] Unlike the 1930's when the Act was enacted, it is felt that the marketplace is efficient enough to set the prevailing wage rate [Ref. 41:p. 24]. Nationwide, most local contractors are unanimous in their desire to see Davis-Bacon repealed. It is clear that taxpayers do not benefit from this type of legislation because it increases the cost of military housing construction. As the military is fast approaching an era of fiscal restraint, DoD must seek other alternatives to meet the needs of its family housing requirements.

The third factor thought to contribute to higher construction costs are DoD building specifications. DoD building specifications are thought to be more rigid that those a private developer would utilize in constructing a project. The fact is that the DoD specifications utilized by NAVFAC and COE are very similar to the Uniform Building Codes. Both NAVFAC and COE usually utilize either the standard Uniform Building Codes (U.B.C) and/or local building codes for the given geographic area, whichever is more stringent [Ref. 25]. It should be noted that NAVFAC or COE are not required to follow local building codes because the property being developed is on federal property and exempt from the local codes [Ref. 32]. Thus, this factor will probably not contribute to higher construction costs. Another point, however, should be noted. The uniform building codes (U.B.C.) emphasize safety rather than quality [Ref. 29]. To ensure quality for a project, the government oftentimes includes items in the request for proposal (RFP) which are beyond the uniform or local building codes. This would include items such as the quality of carpeting, air conditioning, or even the construction of the roof. The intent is to ensure that the contractor does not produce an inferior product.

3. Requirement to be Congressionally Approved

Congressional interest and involvement in military construction is obvious for several reasons. A Congressman's or Senator's constituency may be heavily dependent upon military construction to create jobs for the local community. With several million dollars in military construction yearly, it could well mean the difference between a healthy local economy and a depressed one.

Due in large part to the extensive amount of federal funds spent on military construction, Congress also wishes to ensure that these funds are being properly spent. The Fiscal Year 1991 MilCon authorization is $8 billion. With four Congressional committees overseeing military construction, it's not surprising that the time required to propose, budget, authorize, and commence construction is so lengthy.

The Secretary of Defense, for instance, is required to submit a MilCon and family housing construction report each year to Congress at the same time he submits his "annual request for military construction authority." The report encompasses MilCon and family housing information for the current fiscal year and the two prior fiscal years. Each report contains detailed information which includes:

1. A list of projects undertaken, their status, and the amounts authorized and appropriated.
2. Information which enables the committees to evaluate trends in A&E construction design services.
3. Information which enables the committees to evaluate trends in construction, supervision, inspection, performance goals, and overhead costs.
4. A list of the projects with cost variations indicating whether the cost variation was the result of a lack of competition, quality of plans, specifications, or budget. [Ref. 42:p. 737]

The preparation of this information, in addition to the detailed information required to submit the annual military construction budget, makes this a tedious and time-consuming process. Extensive oversight by all four Congressional committees can make this a frustrating situation for military housing officials who desperately require additional housing. Expediting the construction process can only be considered if the service secretary certifies that the project is necessary to protect the national interest [Ref. 43:p. 735]. This seldom occurs within CONUS. Congress' intent, all too often, is to ensure that the proper laws are being followed, rather that how important the need for housing may be.

Extensive cuts in the DoD budget, precipitated by the Gramm-Rudman-Hollings Balanced Budget Act of 1985, and the decrease in the Warsaw Pact threat, means that there will be fewer and fewer dollars for DoD to operate with. Military construction, which has never really commanded top government attention, faces a much more difficult road ahead. This is quite evident by Secretary of Defense Cheney's extension of the military construction moratorium. The moratorium affects construction of over 500 Navy and Marine Corps family housing units which, if built, would cost millions of dollars.

The extensive oversight which Congress involves itself in concern family housing simply makes it more and more difficult to house the military family when the local community cannot provide acceptable and affordable housing. A need identified today will be of little value to a family presently stationed at a military installation. For instance, a family housing project proposed in 1980 at Ft. Ord, California was not completed until 1990 entailing a mere ten year wait [Ref. 44]. Unfortunately, this is not a recent phenomenon. In 1979, a study conducted by GAO revealed that lower enlisted personnel were getting out of the service because acceptable and affordable housing was simply not available [Ref. 14:pp. 2-14].

D. CONCLUSION

As military members cope with increasing urban growth around military installations, they are becoming increasingly dissatisfied with DoD's inability to supply them with acceptable and affordable housing. In recent years, stronger pressure on DoD's budget has reduced the ability to fund increased housing units. An answer is needed! Congress' awareness of this problem has resulted in the passage of various public laws in the hopes of alleviating this shortfall. Although still in the early stages, these alternatives have demonstrated that privately financed military family housing projects can be successfully constructed, and can provide adequate returns to investors while minimizing the overall risk to the government [Ref. 22]. The time to cut military spending has arrived and military construction, along with family housing will see a reduction in available funds for military housing construction. Unless alternative avenues, made available by Congress, are utilized, the prospects indeed appear slim that the military family housing shortage will be reduced.

III. ALTERNATIVES TO MILITARY CONSTRUCTION

A. CHAPTER OVERVIEW

This chapter discusses alternatives to the Military Construction (MilCon) process which are currently being used by the individual services to alleviate the 140,000 unit housing shortage that currently effects DoD. Specifically, three public/private ventures will be discussed: the 801 Build-to-Lease Housing Program, the 802 Rental-Guarantee Program, and the construction of military family housing under Title 10, U.S.C. Section 2667.

Current DoD housing policy states that the local community will be used as the principle source of housing for its military family members. When the civilian housing market cannot provide acceptable housing by price, size, and location, DoD must look either to housing constructed under the MilCon process, or to public/private ventures.

Family housing constructed under the MilCon process involves identifying a housing need and submitting the request through the Planning, Programming and Budgeting System (PPBS). This is a long, drawn-out process, as identified in Chapter II, which can take five or more years from inception to completion. Three public/private ventures exist that give the DoD the flexibility to mitigate some of its housing needs.

B. 801 BUILD-TO-LEASE

1. The Authority

In 1984, Congress enacted the Military Construction Authorization Act (Public Law 98-115) as an alternative method to build military family housing. Initially enacted as a pilot program, this law allows DoD to consider the build-to-lease program. [Ref. 45:p. 7]

The Section 801 Build-to-Lease Program provides DoD with the authority to lease a newly constructed housing project for up to 20 years from a private developer. Under this program the private developer finances, builds, and maintains a housing project for a military installation. The original intent of the act was to have the developer construct and maintain the project. However, subsequent legislation permits separation of the construction and maintenance portions of the program. Congress' intent was to authorize each military service secretary the capability of entering into two contracts for up to 300 units each in areas where a shortage of acceptable and affordable housing exists [Ref. 45:p. 7].

The following year, Congress passed the Military Construction Act of 1985 (Public Law 98-407). This law authorized the Secretary of the Army to enter into one additional 801 contract for up to 600 units, resulting in a total of 900 units which could be built for the Army. The purpose of this legislation was to allow the Army greater flexibility due to the repositioning of Army units throughout the Continental United States (CONUS). The 1985 Fiscal Year Continuing Resolution introduced Public Law 98-473. It authorized the Secretary of the Army to enter into contracts for an additional 1200 units of 801 housing. This law was especially designed to accommodate the Army's new light infantry divisions. Subsequent legislation has been passed by Congress to extend the pilot program for all military services. The current authorization for the Section 801 program is Title 10 U.S.C. 2828 [Ref. 46]. Table 6 is a listing of current authorizations affecting the public/private ventures discussed in this chapter [Ref. 22].

TABLE 6

LAWS AFFECTING PUBLIC/PRIVATE VENTURES

Program	Number of Units Authorized	Authority
801 Build-to-Lease	19,500	Title 10 USC Section 2828
802 Rental Guarantee	5,400	Title 10 USC Section 2821
Section 2667	UNLIMITED	Title 10 USC Section 2667

2. Types of 801 Build-to-Lease Programs

The 801 Build-to-Lease Program offers three variants:

1. Build-to-lease off-base.

2. Build-to-lease on-base.

3. Lease-purchase on-base. [Ref. 1:pp. 6-7]

a. 801 Build-to-lease Off-Base

The build-to-lease off-base program allows DoD to contract with a private developer to finance and build a housing project in an area near a military installation. In return, DoD leases and operates the project for 20 years making direct payments to the contractor. The lease is paid with Operation and Maintenance (O&M) funds and allows for yearly increases up to the Consumer Price Index (CPI) [Ref. 1:pp. 6-7]. Although DoD is not authorized to renew the 20 year lease after it has expired, it has the option of purchasing the property at fair market value [Ref. 1:p. 6].

The base commander assigns military families to the housing unit once the project becomes available. Military families pay no out-of-pocket expenses, but they do forfeit their basic allowance for quarters (BAQ) and variable housing allowance (VHA) [Ref. 1:p. 6].

b. 801 Build-to-Lease On-Base

The next option is similar to the first except that the contractor builds the project on the military installation. In return, DoD pays a reduced lease payment for providing the property at a nominal fee. Upon expiration of the lease, DoD may:

1. Renew the lease on the structure for an additional 20 years.

2. Purchase the structure at the fair market value.

If the structure is impeding the installation's mission at the end of either lease period, the base commander has the option to request the removal of the structure, to include improvements, at the private developer's expense [Ref. 1:p. 6].

c. 801 Lease-Purchase On-Base

The lease-purchase on-base program allows the services to acquire title to the facility at the end of the lease without further investment. DoD has not exercised this option because the Office of Management and Budget (OMB) requires that all on-base lease-purchases be scored [Ref. 1:p. 7]. Scoring requires Congressional authorization and appropriation for the total cost of DoD's lease liability as if it were being paid in-full in the first year, even though the DoD plans to make payments throughout the life of the lease. The OMB has taken the position that a formal lease-purchase, without being scored, may be considered a circumvention of the Anti-Deficiency Act [Ref. 47:p. 17]. The Anti-Deficiency Act, more familiarly known as the Gramm-Rudman-Hollings Act, prohibits the government from entering into a contract that obligates itself beyond the current fiscal year without authorization from Congress.

3. How the 801 Build-to-Lease Program Works

The process for acquiring 801 family housing starts by identifying a shortage of acceptable and affordable housing. This procedure is exactly the same as outlined in Chapter II under the MilCon process. It commences with a housing survey. Once a housing survey confirms a requirement for additional housing, the Service Secretary recommends that the command initiate a Housing Market Analysis. The Office of the Secretary of Defense (OSD) requires that the services obtain a land option for any off-base proposed sites [Ref. 15:p. 1005]. The reason for obtaining a land option is to offer all bidders the opportunity to use and purchase the same site to construct the project [Ref. 29]. The services are authorized to spend up to 12 percent of the land's fair market value to secure the land option [Ref. 48:p. 687].

In any 801 off-base project, the private developer amortizes the cost of the land with a portion of the lease or rent payment. After identification of the housing shortage, an Environmental Assessment and Site Engineering Investigation is undertaken in accordance with OMB circular A-104, the DoD construction cost guide, and the tri-service model [Ref. 49]. The command then prepares a theoretical "rent cap" calculation demonstrating that the net present value of the 801 project is cheaper by at least five percent than the net present value of the MilCon family housing

[Ref. 49]. The "rent cap" calculation constitutes the payment by DoD to the developer over the life of the lease. Appendix A is a theoretical rent cap calculation developed at the field level for an 801 build-to-lease project.

Next, the command forwards the Environmental Assessment, Site Engineering Investigation, housing marketing analysis, and the theoretical "rent cap" calculation to their respective Service Secretary. The service secretary either approves or disapproves the project. If approved, the Service Secretary updates the "rent cap" calculation. It is then forwarded with the remaining documents to the Office of Management and Budget and Office of the Secretary of the Defense. OSD reworks the package into in an initial "rent cap" notification which is presented to the House and Senate Armed Services and Appropriations Committees. These are the same committees identified in Chapter II. This process takes approximately 7-8 weeks. Once the congressional committees concur with the Service Secretary, the command can advertise for bids [Ref. 49].

To promote maximum competition, the 801 legislation requires all contracts to be publicly advertised, competitively bid, and competitively negotiated. A Request For Proposal (RFP) is published in the Commerce Business Daily (CBD) and local newspapers for all interested parties. The

RFP is advertised for up to 90 days before the services end their bid request [Ref. 49].

Once all bids have been received, the respective services will form a selection committee to evaluate each proposal and select a winning bid. Each bidder must post a proposal bond. The purpose of the proposal bond is to ensure that only serious bidders respond to the advertisement. Once the winning bid is selected, the proposal bonds are returned to each bidder, with exception of the selected winner. Responses to the proposal must include a facility design and a estimated monthly lease payment. The evaluation and selection process will take at least 60 days. This period includes any bid clarifications [Ref. 49].

Once all clarifications have been completed, the contracting officer requests bidders to make their best and final offer (BAFO). Based on the BAFO, the selection committee selects the best proposal, placing emphasis on both quality and price. The selected winner has 15 days to post a performance bond. The performance bond covers the entire cost of the project and protects DoD if the contractor defaults. The selection committee must ensure that the winning bid is less than 95 percent of the updated theoretical cap calculation for a comparable MilCon project [Ref. 49].

Shortly afterwards, the command forwards the selected contractor's price proposal to the Secretariat level, for verification of completeness and accuracy. Once verified, it is forwarded to both the OSD and OMB. OSD compares the contractor's price proposal against the updated theoretical "rent cap" calculation to determine the actual margin of savings of the 801 project. The proposal must be at least five percent cheaper than a comparable MilCon project. OSD briefs the winning proposal to the appropriate Congressional committees. By law, a 21 day statutory period is required before congressional approval is granted [Ref. 45:p. 7]. Once Congress has approved the proposal, it is returned to the local command where a contract can be awarded within three to four days [Ref. 49].

During the construction phase, DoD requires that the contractor post a construction performance and payment bond. The bond amount is for 100 percent of the cost of the project. In the event that the contractor cannot complete the construction in the time required by the contract or is terminated for default, the bonding agent will become responsible for the project. In the past, the requirement to post bonds was seldom included in the RFP. The developer now shoulders some of the risk along with the government [Ref. 49].

All 801 projects' will be constructed according to DoD specifications. This has been interpreted by DoD to mean that construction can be accomplished by using either regional or local building codes which emphasize safety rather than quality. If DoD desires quality above what is specified in the local building codes, it is included in the RFP.

The RFP will also describe the performance design criteria. These performance design characteristics are similar to a MilCon turnkey housing operation. The emphasis under the 801 program is to allow the contractor room for imagination and creativity rather than dictating how to build the structure. Local and military building inspectors are used to inspect the structure. While the local building inspector emphasizes safety, the military inspector ensures that the private developer yields a quality product [Ref. 49].

In the 801 program, DoD has chosen to use a triple-net lease, which alleviates the developer from having to provide maintenance, pay taxes, and pay utility costs on the building. Under the triple-net lease, the DoD is responsible for all increases in taxes, utilities, and maintenance costs [Ref. 1:p. D-10].

Congress clarified the maintenance portion of this policy in a Congressional conference report, dated December 22, 1987. The report states that DoD will assume responsibility for all maintenance after a one-year warranty period. We believe that, under the triple net-lease, it was

Congress' intent to minimize the private developer's risk in a joint Public/Private Venture [Ref. 15:p. 1005]. By separating the construction and maintenance aspects of the program, the developer has a much greater chance of obtaining financing [Ref. 1:p. D-10].

But, under the triple-net lease, DoD must ensure that the developer meticulously follows the provisions of the one-year warranty. Once DoD accepts the one-year old structure and the warranty expires, the private developer is no longer responsible for any maintenance problems, except latent defects [Ref. 29].

The Department of Labor has determined that the Davis-Bacon Act applies to the 801 program because federal funds are used to make the lease payments. Since the private developer has to pay the prevailing wage rate, the cost of construction may be five to 15 percent more than if the Act did not apply [Ref. 41:p. 23].

4. <u>801 Programs Undertaken</u>

Presently, there are over 9000 homes constructed under this legislation with an additional 10,500 awaiting construction. Appendix B is a list of the programs completed and awaiting construction.

C. 802 RENTAL GUARANTEE PROGRAM

1. The Authority

Section 802 of the Military Construction Act of 1985 authorizes housing to be built and operated by a private developer and rented directly to eligible military families [Ref. 1:p. D-12]. Under this program Congress allows DoD to guarantee the developer a 97 percent occupancy rental rate. DoD does not make the rental payments. The private developer collects the rental payments directly from the military occupants. Past legislation initially permitted a 15 year maximum guarantee of the 97 percent occupancy rental rate. However, Congress now permits a 25 year maximum rental guarantee, and a triple-net lease to cover tax increases, maintenance, and utilities [Ref. 45:p. 7]. The 802 program can only be exercised by military commands whose present housing capacity exceeds a 97 percent occupancy rate for 18 consecutive months. Similar to the 801 Build-to-Lease Program, the Rental Guarantee has been extended through subsequent legislation. The current authority for the 802 Rental Guarantee Program is Title 10, U.S.C. Section 2821 [Ref. 46].

2. Types of 802 Rental Guarantee Programs

The 802 Rental Guarantee Program offers two variants:

1. Rental Guarantee Off-Base.
2. Rental Guarantee On-Base.

a. 802 Rental Guarantee Off-Base

Under the rental-guarantee off-base program, DoD contracts with a private developer to construct and operate a housing project on private land. The initial per-unit rent is specified in the contract and is no higher than comparable rental dwelling units in the general market area. A rental escalation clause is permitted. The private developer must give rental priority to eligible military families. The 802 program cannot be renewed when the project is built on privately-owned land. As in the 801 program, the project must be built to DoD specifications [Ref. 45:p. 8].

b. 802 Rental Guarantee On-Base

This program is the same as the 802 Rental Guarantee Off-Base programs except that DoD may renew the project, since it is located on government owned land. The renewal period may not exceed the original contract term.

3. <u>How the 802 Rental Guarantee Program Works</u>

The means for acquiring 802 rental facilities are similar to the process outlined in the 801 program. The major difference is that under the 802 program the command must demonstrate that their on-base housing capacity has exceeded a 97 percent occupancy rate for 18 consecutive months, as opposed to establishing a housing shortage under the 801 program [Ref. 45:p. 7].

4. 802 Programs Undertaken

Previously, no successful 802 programs have been built by DoD, although four contracts were awarded under this program. The reasons why the programs were unsuccessful are:

1. Developers could not obtain financing because programs were proposed in areas which currently had a 99 percent occupancy rate, while the government was only guaranteeing a 97 percent occupancy rate.

2. Rental rates proposed by the government were $200 below prevailing rates.

3. The maximum rental guarantee rate was limited to 15 years.

4. They did not include a rental escalation clause. [Ref. 21]

The program now incorporates a 25 year guaranteed rental rate, including a rental escalation clause. DoD housing administrators believe that this program has the potential to add significantly to available housing. Presently, DoD has one 802 program under construction at Marine Corps Air Station, Kaneohe, Hawaii. The program is under the supervision of the Army, which is responsible for all housing in Hawaii [Ref. 21].

D. MILITARY FAMILY HOUSING UNDER SECTION 2667 LAND LEASE

1. The Authority

This alternative is known by several different names, to include, Third Party Ventures, Joint Development, and 2667 Lease Authority. Title 10, U.S.C., Section 2667 is the authority that specifically covers the outlease of federal property. An outlease is the governmental lease of a parcel of land to a private enterprise. Although the lease grants the lessee the right to possess, use, and enjoy a parcel of land for the duration of the lease, the government retains ownership. Section 2667 allows a service secretary to outlease federal property, under his jurisdiction, to promote the public interest or national defense. Although Congress has given the service secretaries the authority to outlease military land, the service secretary cannot enter into a contract to lease government property if the fair market rental value of the property exceeds $200,000, without Congressional approval. Congress has 30 days to respond to the service secretary notification request [Ref. 50:p. 674].

Section 2667 permits a developer to build and operate a commercial venture on leased federal property. Often, the developer not only develops the property but also manages it. Lease periods may not exceed five years unless the service secretary determines that the lease will promote the national defense or be in the public interest. [Ref. 51:p. 680] When the government enters a 2667 Land Lease agreement, any rent paid by the lessee goes into the treasury as a miscellaneous receipt [Ref. 51:p. 680].

The section 2667 legislative authority has existed for years but has seldom been used. Recently, military bases throughout the country have used this program to construct fast food outlets, such as McDonald's and Burger King, as well as convenience stores and child development centers [Ref. 52]. In 1985, the Army became the first service to use this legislation to create affordable military family housing at Fort Ord, California [Ref. 52].

2. Military Family Housing Under Title 10, U.S.C. Section 2667

Under the terms of the lease, the government requires the lessee to build and operate a facility on government land. When government officials use Section 2667 for the construction of family housing, the Federal Acquisition Regulations (FAR) do not have to be followed. This policy gives the contracting officer a free hand in developing an acceptable RFP in the construction of family housing. Because few restrictions apply when constructing military family housing under section 2667, the contracting officer encourages developers to pursue aesthetics, cost, and quality in their proposal which results in keen competition [Ref. 53].

The government's intention is to avoid the typically complex DoD construction specifications, which frequently inhibit the creativity of the private developer. Using the design and construction criteria from the RFP and local building codes, the developer establishes the final standards in his proposal. The developer's construction standards and site design will be a major consideration by the services in the selection of the winning proposal [Ref. 52].

Unfortunately, the local and national construction standards codes are often unfamiliar to military inspectors. To assure adherence to the local building codes and maintenance of a quality product, the services often rely on both the local and military building inspectors [Ref. 49].

Under the outlease provisions, the government may revoke the lease whenever it is in the best interest of the government. The service secretary may, however, omit a revocation clause if he believes it is in the best interest of the service or the public [Ref. 51:p. 680].

The Department of Labor has determined that the Davis Bacon-Wage Act does not apply to military housing constructed under section 2667, Title 10, USC [Ref. 49]. The reason for this is that the military is not expending appropriated funds for the construction of family housing. Instead, the developer expends his own funds in hopes of receiving a return on his investment from the military members, who pay to use the facilities and services. Generally, the government administers the outleasing of government property with other contracts, such as an 801 on-base program regulated by other federal laws. The Section 2667 makes no guarantee to use the structure and lacks the legal obligation to guarantee revenues to the developer with appropriated funds [Ref. 49].

Developers may find themselves liable for state and local taxes in a public/private Venture. State and local governments can annex a military installation and collect taxes on commercial ventures operating on military property [Ref. 51:p. 680]. Also, many federal laws give the states the ability to collect taxes from developers operating on military property [Ref. 51:p. 680]. Since the developer's tax liability raises his operating expense, the tax liability's impact can have an influence on his cost analysis.

Title to the facility remains with the lessee [Ref. 51:p. 680]. Upon the expiration of the lease, several options exist for the disposition of this facility . Options include: (1) renewal of the lease, (2) sale of the facility to the government, (3) abandonment by the lessee instead of removal, or (4) title passage to the government. If the lessee has the option, within the lease, to remove the structure and chooses to abandon the facilities, the title passes directly to the government [Ref. 54:p. 39]. Congressional authorization is necessary any time the government, by the terms of the lease, acquires the structure after the lease expiration [Ref. 24:p. 723].

3. How the Section 2667 Land Lease Works

Unlike the military construction process, the 801 Build-to-Lease Program, and the 802 Rental Guarantee Program, there are no guidelines for constructing military family housing under Title 10, U.S.C. Section 2667. However, a shortage of acceptable and affordable housing identified through a market analysis, must exist before DoD can commence with a military housing project, under this program [Ref. 52].

Once the housing market analysis establishes that a shortage of acceptable and affordable housing exists, a request to construct military family housing under Section 2667 is submitted to the service secretary. If the service secretary approves the request, he will notify Congress of his intention to allow construction of military family housing [Ref. 52]. Thirty days after notifying Congress, the command is authorized to advertise for bids [Ref. 50:p. 674].

Because this program allows for maximum creativity and innovation the command can emphasize the areas which they feel are most important in providing quality housing. This allows the command the opportunity to develop a community atmosphere by encouraging developers to provide amenities not authorized under the other construction programs. A selection committee is formed to determine the winning proposal based upon the evaluation criteria established by the command. Upon selection of the winning proposal, the contractor starts construction [Ref. 52].

The primary purpose of the private/public venture is to benefit from the private-sector's experience. Using 2667 Land Lease for housing provides three advantages: (1) The lease period can be for up to 50 years. For example, Fort Ord leased two housing projects under 2667 Land Lease program. The first project, Brostrom Park, was developed using an outlease for 25 years, at a cost of one dollar, as was Thorson Village, the second project, which was leased for 50 years, at the same nominal fee. This provision offers the land, which is a major capital cost component, essentially free of charge and permits the developer to amortize his construction costs over a longer period; (2) The use of the land is not restricted to housing projects. Since the builder is allowed to include other revenue-producing activities in addition to housing, the result may be a reduction in the rent paid by the service member.

This policy results in accomplishing the command's goal of expeditiously obtaining acceptable and affordable housing for the military member. Because of the lack of bureaucratic oversight and restrictions, construction can start much sooner than under the other programs.

4. U.S.C. Section 2667 Programs Undertake

Currently, this option has been used twice to provide military housing. While this program has thus far had limited use, it has been successful in demonstrating that under the right circumstances, the military command and private developer can work together to provide a housing community which can exceed the standards authorized under the other construction programs. The right circumstances include:

1. A high cost of living area.
2. The availability of federal property.
3. The community's inability to provide acceptable and affordable housing.
4. A coordinated effort between the military and private developer.

E. CONCLUSION

The public/private ventures discussed in this chapter provide the base commander the ability to expand his alternatives in solving his family housing shortage.

The 801 program has proven to be the most successful by providing over 19,000 military family housing units. Because of its capability to attract third party financing and its ability to receive direct payments for the DoD, we believe that this program will continue to meet DoD's future housing requirements.

Changes in the 802 program, such as the 25 year rental guarantee period, the inclusion of a rental escalation clause, and a triple-net lease should increase this program's popularity with future lending institutions.

Section 2667 is significant for its lack of specificity, as contrasted with the MilCon, 801, and 802 programs. Section 2667 allows a base commander maximum flexibility in developing a housing program which can provide military occupants amenities beyond the basics they are accustomed to. This statute will allow base commanders the flexibility to plan future public/private ventures, such as Thorson Village at Ft. Ord, Ca. Thorson Village has inspired the imagination and creativity of both the military installation and the developer in providing an atmosphere few, if any, military family housing sites currently provide.

IV. METHODOLOGY

A. INTRODUCTION

This chapter identifies the research undertaken in describing the present Department of Defense (DoD) family housing shortage and the methods undertaken to resolve this situation. Our objective is to thoroughly describe the military construction process and provide alternatives to military construction, which can help reduce the extensive housing shortage that currently exists today. By evaluating this process, we will answer our primary and secondary research questions. We used several methods to conduct our research. Among these were:

1. A literature review and search.
2. Personal and telephonic interviews.
3. Public laws pertaining to military construction, military family housing, and public/private ventures.
4. DoD guidelines which apply to military housing; memorandums; and Office of Management and Budget (OMB) circulars.
5. Personal observations.

B. A LITERATURE REVIEW AND SEARCH

A search of the applicable literature in the area of military family housing revealed several significant sources of information. Among these sources of information were Captain Christopher King's thesis, An Examination of Three

Forms of Private Sector Financing of Military Facilities. This thesis provided numerous references and an extensive bibliography, which aided us in focusing our study to specific areas. Additionally, Captain King's thesis presented a good overview of the public/private process.

The literature research also revealed several Logistic Management Institute (LMI) Reports as well as General Accounting Office (GAO) analyses of military family housing. These reports provided insight into the problems associated with military family housing and formed a basis for follow-up questions for DoD personnel in answering our primary and secondary research questions.

C. PERSONAL AND TELEPHONIC INTERVIEWS

This thesis presents an extensive description of the military family construction and public/private venture process. This level of analysis was undertaken to show why the present acquisition system is unable to decrease the current housing shortage and why the process cannot meet future demands, even with a significant reduction in manpower requirements within the Armed Forces. Commander Ray Pylant, who currently spearheads public/private ventures for the Office of the Secretary of Defense, provided us with information on how the various programs operate and the various advantages and disadvantages of each.

At the military service level we received valuable information as to how each service interprets and undertakes procedures for the various family housing programs. The Family Housing sections within the Air Force, the Navy, and the Marine Corps, along with the Naval Facilities Engineering Command in Alexandria, Virginia, stated the requirements they institute to carry out the specific family housing programs under their guidance.

At the field level we interviewed housing personnel directly involved in on-going MilCon and public/private ventures. Their personal observations and experiences brought to light the complications involved in completing any successful type of family housing construction program. This was especially true of the "2667" programs built at Fort Ord, California, which remain the only "2667" programs undertaken anywhere within DoD. The lessons learned from these "2667" programs formed the basis of DOD's publication, "The Ft. Ord Formula" which introduces the reader to this type of public/private venture.

D. PUBLIC LAWS PERTAINING TO MILITARY CONSTRUCTION, MILITARY FAMILY HOUSING, AND PUBLIC/PRIVATE VENTURES

We conducted an extensive examination of the applicable statutes which pertain to military construction, military family housing, and public/private ventures. This enabled us to verify much of the information we obtained through interviews and why certain actions are required under each program. In addition, the statutes expanded our knowledge of the specifications required of the programs and the amount of flexibility allowed under each.

In 1982, Congress passed the Military Construction Codification Act which forms the basis for the present statutes under Title 10, United States Code, concerning military construction. Congress' consolidation of the numerous military construction requirements enabled us to gain a requisite knowledge of the MilCon process and the breath of specifications required under the program. Sections 2801 through 2863 provided the specific regulations which DOD must follow in order to obtain and use MilCon funding. Included in these sections were applications which pertain specifically to military family housing projects.

The following sections of Title 10, applicable to public/private ventures, were examined:

1. Section 2662--Real property transactions.
2. Section 2667--Leases of non-excess government property.
3. Section 2821--802 Housing Rental guarantee.
4. Section 2828--802 Build-to-Lease program.

E. DOD GUIDELINES PERTAINING TO MILITARY HOUSING, MEMORANDUM, OFFICE OF MANAGEMENT AND BUDGET (OMB) CIRCULARS

DOD Instruction 4165.63-M (DOD Housing Management) provided us with policy guidance which applies to military family housing throughout DOD. Responsibilities and requirements are delineated for all levels throughout DoD Instruction. Vital terms such as "acceptable" and "affordable" housing are defined, which form the basis of most military housing studies conducted by either the Logistics Management Institute (LMI) or the General Accounting Office (GAO). In addition, pertinent legal authorities are noted, as well as the requirements necessary to conduct a housing market analysis acceptable to Congress.

The dynamic nature of public/private programs currently available to military installations has resulted in increased correspondence pertaining to the subject. Among these are the Secretary of the Navy's memorandum concerning the need to find alternative avenues, other than MilCon, to reduce present housing shortages, and the Chief of Naval Operations message emphasizing the importance of housing market analyses. The need to expeditiously reduce the current 140,000 unit housing shortfall will undoubtedly increase the amount of correspondence which will be promulgated by higher headquarters in the near future.

Office of Management and Budget (OMB) Circulars A-18 and A-104 provided us with limitations on the size of family housing units and net present value techniques required of all lease-versus-buy housing projects.

F. PERSONAL OBSERVATION

We attended several military housing conferences at the Naval Facilities Engineering Command, Western Division. The conferences covered various housing topics and were represented by DOD, military service, NAVFAC, and field level personnel. In addition, actual public/private programs were discussed with the installation representatives and decisions made concerning the programs.

Additionally, we visited both Brostrom Park and Thorson Village at Ft. Ord, Ca. These are the only DOD family housing projects constructed under the auspices of the 2667 outlease program. Personnel who were intimately involved in the development and construction of both projects were interviewed. Their insight and experience added immeasurably to our research and understanding of the 2667 program.

V. CONCLUSION AND RECOMMENDATIONS

A. CONCLUSION

The premise behind DoD's family housing program is to assure military families access to acceptable and affordable housing. Even though DoD is the largest landlord in the world, there is still a 140,000 unit shortage of family housing throughout DoD.

The civilian community serves as the primary source of housing for military families, presently housing 69 percent of all military families. Military construction is programmed only when the civilian community cannot provide acceptable housing at affordable prices to military families. A combination of factors inhibit the MilCon process. Among these are:

1. Federal budget constraints.
2. More projects than available dollars.
3. Lengthy administrative process.
4. High construction costs.
5. The requirement of Congressional approval.

The result is that the present military construction process cannot decrease current military family housing shortages.

Congress' awareness of this problem has resulted in the passage of various public laws as alternatives to MilCon in hopes of reducing the current housing crisis. Alleviating the military family housing shortage will take a coordinated effort by both the DoD and the private sector. Public/ private Ventures have to be aggressively pursued and should complement the present military construction process.

Currently, there exist three primary public/private ventures to reduce the present housing shortage. Congress has authorized the 801 build-to-lease, 802 rental guarantee, and Section 2267 outlease of government property.

The 801 build-to-lease employs a 20 year lease in which the developer retains ownership of the project. The developer has the option to build, maintain, and operate the project. A cost analysis must demonstrate that the project costs less than a MilCon project by at least five percent. This program requires that the government make the lease payment directly to the developer. Finally, Congressional approval is necessary.

The 802 rental guarantee program is constructed by the developer who has the option to build, operate, and maintain the facility. The government enters into a 25 year occupancy guarantee of 97 percent. The agreement shall provide for priority occupancy for military families. Military members pay rent directly to the developer, which is comparable to rental rates in the general area. Similar to the 801 program, a cost analysis must show that the program is at least five percent less than a comparable

MilCon project. Final approval authority is provide by Congress.

Section 2667 outlease allows the base commander extreme flexibility in quickly providing the types of military family housing that he desires. The government can outlease federal property for up to 50 years at a nominal fee, provided that the construction is in the public interest. The developer constructs and maintains the project. Congressional and service secretary approval is required.

With 19,500 801 build-to-lease housing units in various stages of development, the individual services have taken steps to attack the extensive DoD housing shortage. Further pursuit of these public/private venture programs, especially the 802 rental guarantee and Section 2667 outlease, should help in further reducing the overall housing shortage.

B. RECOMMENDATION

DoD's current military family housing process does not meet today's present housing demand. In the past, the DoD has relied upon both the local community and federal appropriated funds to provide housing. Because federal funding may not always be available to construct military family housing, and adequate and affordable civilian housing is becoming more difficult to obtain, the current housing shortage has not been alleviated. A solution is required.

In the absence of appropriated funding and adequate and affordable housing in the local community, public/private ventures provide a mechanism for the base commander to reduce his present housing crisis. Past experience has shown that public/private venture housing can be occupied within 12 months from publication of the RFP. This process is in contrast to the lengthy military construction process. [Ref. 47:p. 2-8] There are several public/private venture programs available to DoD. We recommend three programs: 801 Build-to-Lease, 802 Rental Guarantee, and Section 2667 of Title 10, US Code.

Section 801 build-to-lease housing has worked well in a number of military installations, with over 9000 units under contract, with another 10,500 authorized. We feel this program can be very successful in high cost areas where the government subsidizes the service member's housing allowance. Construction of the 801 projects should be in areas where land sites can be obtained and where the private developer believes that he can rent to the civilian community, once the lease has expired. If a land site cannot be retained or acquired by DoD, on-base construction should be considered with the initial intent to renew the lease. If the lease is not renewed by DoD, developers may be reluctant to bid on the project.

The 802 rental guarantee program is the second option available to a base commander. Although it has not enjoyed the success that the 801 build-to-lease program has, recent adjustment in its legislation has increased its potential. We recommend its use in low cost off-base areas which cannot support the requirements of a base's expansion. We also recommend its use in on-base vicinities (where the land is considered a free cost component), where there is high cost of living standards, such as the on-going 802 project in Kaneohe Bay, Hawaii.

The third option available to the base commander is the construction of military housing under Title 10, US Code, Section 2667. Section 2667 housing offers the temporary outlease of unoccupied federal property for a period of up to 50 years, whenever the service secretary deems it is in the public interest. Since 2667 legislation is not confined to housing construction, rents can be subsidized by the developer to provide other forms of revenues. For the best application of Section 2667 housing, we recommend its use in high cost areas where free federal property can reduce construction cost. Additionally, the base commander has to be flexible enough to permit the developer to rent to the civilian community if the DoD does not completely occupy the structure.

With limited appropriated funds for military construction of family housing, public/private ventures can be recognized not only as a cost-effective solution to DoD's housing shortage, but as a significant investment in our military members' morale and retention. Finally, we strongly recommend that military construction be complemented by the 801 build-to-lease, the 802 rental guarantee, and the Section 2667 housing programs.

The DOD will then be better equipped to attack the military housing crisis, fulfilling its landlord responsibilities to its military members and providing the incentive subsidy of acceptable and affordable housing. The housing shortage solution will aid in the assurance of the continued recruitment and retention of quality military personnel.

C. RECOMMENDATIONS FOR FUTURE WORK

This study has shown that both the local community and federally appropriated construction funding for military family housing will fail to alleviate the present DoD housing shortage. The Department of Defense must continue to turn to the private sector to construct additional housing. Emphasis in this area is needed to extend public/private ventures programs.

Additional work in the following areas would be beneficial.

1. A study of the military family housing constructed under Title 10, US code, Section 2667 at Fort Ord, California.
2. A study of the unsuccessful 801 Build-to-Lease program at Twentynine Palms, California.

3. An examination of the on-going 802 Rental Guarantee at Kaneohe Bay, Hawaii.

4. A study on the inflationary impact of the Davis-Bacon Wage Act on the 801 Build-to-Lease and 802 Rental Guarantee Programs.

APPENDIX A

SECTION 801 BUILD-TO-LEASE MILITARY HOUSING PROGRAM
FOR THE GENERAL VICINITY OF
TWENTYNINE PALMS, CALIFORNIA
(NORTH SITE)

AN ECONOMIC ANALYSIS OF ALTERNATIVES
FOR PROVIDING FAMILY HOUSING

Prepared by
Western Division
Naval Facilities Engineering Command
San Bruno, California

October 1990

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CHAPTER 1

OVERVIEW OF ECONOMIC ANALYSIS

A. BACKGROUND

The Marine Corps has a critical shortage of over 6,500 units of military family housing at the three Marine Corps Bases in Southern California. Present reliance on the private sector to provide housing has resulted in creating an unacceptable economic burden on military personnel. To partially remedy this problem, the Marine Corps proposes that 200 units be built for lease by the U.S. Government as authorized by 10 USC Section 2828G (Formerly Section 801) in the vicinity of the Marine Corps Air Ground Combat Center, Twentynine Palms, CA.

The housing would be constructed on a 35 acre site for which the Marine Corps has acquired an "Option to Purchase" . The site is approximately three miles from the Combat Center and has a purchase price of $700,000.

The Section 801 (Build-to-Lease) housing must be less costly than the cost of housing built as part of the Military Construction (MILCON) program, and hence, the requirement for this economic analysis. In summary, the results of the economic analysis are indicated as follows:

MILCON Alternative Net Present Value	$18,298,916
Lease Alternative Net Present Value (95% of MILCON Alternative)	$17,383,970
Maximum Yearly Lease Payment	$2,001,351
Maximum Monthly Lease Payment	$834

The maximum lease payments are generated from the "lease alternative net present value (95% of MILCON Alternative)." It is expected that private developers will be able to provide housing within this cost constraint.

With regard to the Section 801 Build-to-Lease program, the major statutory and policy provisions are the following:

* The cost of new housing units must be 5% less than alternative means to provide the housing.

* Occupants would forfeit Basic Allowances for Quarters (BAQ) and Variable Housing Allowances (VHA) in return for assigned quarters.

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* The Government would pay rent, utilities, maintenance and administrative costs.

* The new housing units must be constructed in conformance with DoD specifications and local codes and ordinances.

* In the event that Lessor receives a bonafide offer to purchase the property during the term or upon termination of the lease agreement, the Government has the right of first refusal to acquire all right, title, and interest in the lease housing facilities.

* The leasing arrangement shall not exceed 20 years.

* A validated deficit in military housing must exist in the area.

* The new housing units will be built on the site for which the Navy has puchased an option.

B. ALTERNATIVE COURSES OF ACTION

The economic analysis compares two potential housing alternatives as set forth below:

1. Military Construction (MILCON). Construction of the housing units uses funds appropriated for Military Construction. This alternative assumes funds will be appropriated as part of the FY 1991 Military Construction Program and the units would be delivered in part by the second half of FY 1992. It is assumed that the units would be built on the site previously described.

2. 801 Build-to-Lease Program. The Navy will enter into a long-term agreement to lease 200 rental units to be constructed by private developers with delivery in part by the second half of FY 1992. Maintenance of the units will be the responsibility of the Government. The units will be located on the site previously described.

C. METHODOLOGY AND ASSUMPTIONS

The economic analysis is a comparison of the MILCON alternative and the lease alternative, or in simpler terms, a 'buy versus lease' comparison. OMB Circular A-104 provides the guidelines for making comparisons. The analysis expresses all future costs in then-year dollars, and then discounts them to determine their present value. The results of the analysis are maximum lease

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payment levels, or ceilings, which ensure that the net present value of the lease alternative is 95 percent or less of the net present value of the MILCON option.

The analysis makes the following assumptions:

1. The structure life for new construction is assumed to be 45 years.

2. New housing would be constructed on private land under the 801 Program. MILCON alternative assumes the purchase of private land at the same cost indicated in the lease alternative.

3. The 801 Program assumes the residential units will return to private control at the end of the 20 years.

4. In order to facilitate the estimate of tax revenues and imputed residual value, it is assumed that a demand for the housing facilities will exist beyond the analysis period (FY 2013).

D. ECONOMIC ANALYSIS RESULTS

The analysis establishes the maximum or ceiling cost that will insure that the Section 801 Build-to-Lease housing is the least costly alternative. The advantages and disadvantages of the alternatives, are summarized in Table 1.

TABLE 1-1

COMPARISON OF HOUSING ALTERNATIVES

ELEMENT	MILCON	BUILD-TO-LEASE
a. Net Present Value	Disadvantage	Advantage
b. Initial Government Outlay	Disadvantage	Advantage
c. Recurring O&M Costs	Equal	Equal
d. Adds to available housing assets	Equal	Equal
e. Ensures housing available for 20 years	Equal	Equal
f. Housing available after 20 years	Advantage	Disadvantage
g. Time required to implement project	Equal	Equal

CHAPTER 2

DETAILED SUMMARY

A. BACKGROUND

The housing requirement at Twentynine Palms is critical and longstanding. Despite the construction of 100 FY89 new MILCON units, the projected net deficit still exceeds 2,000 units. Approximately 700 families are currently waiting 6-12 months for assignment to existing military housing. The number of families waiting for military housing is expected to increase to over 1,000, and the wait will exceed 12 months with the arrival of the final group of the 7th Marines transferring from Marine Corps Base Camp Pendleton. Expansion in the community surrounding Twentynine Palms is limited by the boundaries of the Combat Center and The Joshua Tree National Monument. The lack of water is further restricting growth. Furthermore, both the civilian and military populations are increasing rapidly, creating a greater demand for housing. Retirees are attracted to the high desert climate and younger families are commuting to escape the excessively high cost coastal urban communities. This has resulted in increased housing costs in the Twentynine Palms area and a dramatic decrease in the overall vacancy rate. A recent Market Analysis conducted by the Navy for the Combat Center indicates the projected housing supply will not meet the military housing demand by an estimated 2,106 units.

B. HOUSING REQUIREMENT

Provisions set forth in the Build-to-Lease Program specify that an agreement may be entered into when validated military housing deficits exist. Table 2 below shows the expected housing shortage or deficit for Twentynine Palms.

TABLE 2

PROJECTED HOUSING REQUIREMENT
(Eligible accompanied Personnel)

	(a) Effective Requirement	(b) Military Housing	(c) Off-Post Housing	(d) Total (b+c)	(e) Deficit (a-d)
Officer	582	225	357	582	0
Enlisted	4757	1586	1065	2651	2106
Total	5339	1811	1422	3233	2106

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C. SUMMARY OF COST ELEMENTS OF THE ALTERNATIVES

The economic analysis undertaken herein analyzed the costs associated with the two housing alternatives. The cost element categories included in calculating the net present values of each of the alternatives are summarized in Table 3.

TABLE 3

COST ELEMENT

MILCON Alternative:

* Construction costs
* Land acquisition
* Annual insurance cost
* Imputed one-time impact/development fee
* Imputed taxes
* Terminal value of buildings and land

801 Build-to-Lease Alternative:

* Shelter rent payment
* Real estate tax increases
* Insurance increase

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D. METHODOLOGY AND ASSUMPTIONS

Prior to performing the analysis, investigations were made to determine the expense elements which should be addressed. The development of expense element estimates is detailed in Appendix A of this report. Calculations were performed to estimate the present value of the stream of future expenditures required for the implementation of each alternative.

The DoD Construction Cost Guide and in particular the Tri-Service Cost Model were used to estimate construction cost. Other cost estimates are based on Navy historical data and market surveys.

In developing the worksheets to show various expenditures and calculations to generate the net present value of each alternative, additional assumptions were used and are as follows:

a. A discount rate of 9.10% is applied (per OMB and OSD guidelines) to determine the present value of current dollar expenditures.

b Price level changes due to inflation are included in this analysis. OMB/OSD inflation rate guidelines are utilized on all applicable cost items.

c. Cost to the Government which do not reflect direct expenditures are referred to as imputed costs. OMB Circular A-104 requires imputed costs be added to the cost of the MILCON alternative for insurance and local taxes. Also, imputed costs include one-time impact or development fees. These cost elements will be calculated in the same manner as for the lease alternative and will fulfill the same purpose.

d. The length of the analysis period is 23 years (FY 1991 through FY 2013). The lease alternative assumes the residential units revert to private control when the lease expires.

e. Land cost used in the analysis is the purchase price set forth in the "Option to Purchase" negotiated for the North Site. The negotiated price is based on fair market value established by studies prepared by a qualified appraiser. The land cost assumes an acreage requirement of approximately 35 acres based on a density of 8 housing units per acre and additional land needed for construction of septic tanks/leach field.

f. Construction for both alternatives is assumed to be completed by FY 1993. Units are assumed to be delivered starting the second half of FY 1992. For purposes of analysis, MILCON funds are assumed to be committed in FY 1991, and rent payments (lease alternative) and maintenance costs for FY 1992 assume an occupancy level of 25% for the year.

g. Cost of operations, maintenance, repair, and housing allowances is set at 0 for the two alternatives. As the Government is responsible for the items in either case, the cost becomes irrelevant in this analysis.

Worksheets covering the net present values of the alternatives are attached as pages 13 and 14.

E. CALCULATIONS

The "bottom-line" results including the cost elements used in this analysis are shown in Table 4. The value of the MILCON net present value is the total cost of the MILCON process. In order for the lease alternative to be considered cost-effective, it must have a net present value which is 95% or less of the net present value of the MILCON. From the latter net present value, a hypothetical shelter rent was established and used in the calculations. Attachments 3 and 4 of Appendix A contain the calculations of both net present values.

TABLE 4

ECONOMIC ANALYSIS RESULTS

Number of units	200
Starting FY	1991
Discount rate	9.10%
SUMMARY OF RESULTS	
MILCON NPV	$18,298,916
95% MILCON NPV	$17,383,970
Shelter monthly rent ceiling	$834
MILCON DATA	
Land cost	$700,000
Construction cost	$18,890,200
% cost spent 1st. year	25%
Annual insurance cost per unit	$250
Real estate tax rate	1.1%
Real estate tax increase rate	2%
Building deterioration rate	2.2%
Land appreciation rate	1.5%
Imputed impact/development per unit	$3,885
LEASE DATA	
Shelter rent ceiling	$2,001,351

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APPENDIX A

COST ELEMENT BUILD-UP

INTRODUCTION

This section describes the procedures that were followed in the derivation of cost items for this economic analysis.

GENERAL

The cost of each alternative is its net present value. Future cash flows are first adjusted for inflation, and then discounted to determine their present value. Expenditure flows consist of cost elements shown in Table 3.

Inflation factors used are those published by the Navy comptroller as of May 3, 1990 and are as shown on Attachment 1 of Appendix A hereof.

The used discount rate of 9.10% is .125% above the average of 10-year and 30-year U.S. Treasury bonds as of 15 October 1990.

MILCON COST ELEMENTS

1. Initial construction costs. The DoD Construction Cost Guide and the Tri-Service Cost Model were used as the basis for calculation. Required special construction includes (a) seismic bracing reinforcement due to the vicinity being in seismic zone 4 and (b) septic tanks and leach field because of the lack of a local sewer system. The cost estimate for the latter is based on Means Cost Estimate for 1990. Attachment 2 of Appendix A hereof contains the calculations for the construction cost estimates. A SIOH cost of 1% is assumed to be the additional overhead cost that the MILCON alternative would incur when compared with the lease alternative.

2. Land costs. The land cost is based on the Option to Purchase contract negotiated between the owner of the proposed site and the WESTNAVFACENGCOM Real Estate Department ($700,000).

3. Annual insurance expenses. The expenses are estimates based on quotations from local insurance firms. The estimates include earthquake insurance for land located in seismic zone 4.

4. Imputed impact/development fees. As the option site is located in the City of Twentynine Palms, the estimated fees used in the analysis are based on discussions with the local City representatives. The fees cover a wide range of possible one-time charges, i.e., school district fee ($374,400), building permit fees ($200,000), site development plan fee ($2,600), and water connection fee ($200,000).

5. Imputed real estate taxes. Local property taxes on the land and improvements, which is governed by California's Proposition 13 passed several years ago, are estimated to be 1.1%. The estimate includes possible taxes imposed by assessment districts.

6. Terminal value of property and buildings. The terminal value is based on a 45 year life expectancy taken from the Marshall Valuation Service.

LEASE COST ELEMENTS

1. Shelter rent. The rent is the lease payment required to compensate the contractor for capitalization of the initial costs of the project. The lease payment is nonescalating.

2. Real estate tax increase. Real estate taxes are assumed to increase at a rate of 2%. The contractor is compensated for 100% of all real estate tax increases after the second year of the lease.

ATTACHMENT 1 OF APPENDIX A

INFLATION FACTORS AS PUBLISHED BY NAVY COMPTROLLER

YEARS	F.Y. YEAR	INDICES (%)	ESCALATION FACTORS
0	1991	BASE	1.000
1	1992	4.0%	1.040
2	1993	3.7%	1.078
3	1994	3.4%	1.115
4	1995	3.1%	1.150
5	1996	3.1%	1.185
6	1997	3.1%	1.222
7	1998	3.1%	1.260
8	1999	3.1%	1.299
9	2000	3.1%	1.339
10	2001	3.1%	1.381
11	2002	3.1%	1.424
12	2003	3.1%	1.468
13	2004	3.1%	1.513
14	2005	3.1%	1.560
15	2006	3.1%	1.609
16	2007	3.1%	1.658
17	2008	3.1%	1.710
18	2009	3.1%	1.763
19	2010	3.1%	1.817
20	2011	3.1%	1.874
21	2012	3.1%	1.932

ATTACHMENT 2
OF
APPENDIX

CONSTRUCTION COST ESTIMATE FOR MILCON PROPOSAL

CONSTRUCTION DATA

HOUSING COST PER NET SQUARE FOOT	$48.00
AVG NET SQUARE FEET/UNIT(ANSF/U)	1075
(a) 2-BEDROOM UNITS @ 950 SF	100
(b) 3-BEDROOM UNITS @ 1200 SF	100
(c) AREA OF 2-BEDROOM UNITS	95000
(d) AREA OF 3-BEDROOM UNITS	120000
(c) ANSF/U=(c+d)/(a+b)	1075
BASELINE 5' LINE COST	$10,320,000
AREA COST FACTOR	1.32
PROJECT SIZE FACTOR	0.98
UNIT SIZE FACTOR	0.99
PROJECT FACTORS	1.28
ADJUSTED 5' LINE COST BASELINE X PROJECT FACTORS	$13,209,600
SOLAR UNIT COST	$0
SOLAR UNIT COST X ACF X UNIT	$0
SITE AND SUPPORT PERCENT	30%
SITE AND SUPPORT COST ADJ 5' LINE + SITE/SUPPORT	$3,962,900
SPECIAL CONSTRUCTION UNIT COST OF SEPTIC TANKS/LEACH FIELD PER 1990 MEANS COST ESTIMATES	$3,000
SEPTIC TANKS/LEACH FIELD (SIZE x UNIT COST)	$600,000
ZONE 4 SEISMIC BRACING	$40,000
TOTAL SPECIAL CONSTRUCTION	$640,000
UNADJUSTED PROJECT COST ADJ 5' LINE + SOLAR + SITE AND SUPPORT	$17,812,500
CONTINGENCY FACTOR	1.05
SIOH FACTOR	1.01
TOTAL PROJECT COST UNADJ PROJECT COST X CONTINGENCY x SIOH	$18,890,200

I.- MILITARY CONSTRUCTION ALTERNATIVE

YEARS	F.Y. YEAR	INFLATION FACTOR	CONSTRUCTION	LAND ACQ	OPERATIONS, MAINT & REPAIR	EQUIP-MENT	IMPUTED IMPACT FEE	INSURANCE	RESID VALUE	PROPERTY TAX	TOTAL ANNUAL OUTLAYS	DISCOUNT FACTOR AT 9.10%	NET PRESENT VALUE	CUMULATIVE NPV
0	1991	1.000	4722650	700000	0		777000	0		7700	[illegible]	1.000	6207350	6207350
1	1992	1.040	14167650		0		0	13000		[illegible]	[illegible]	0.917	13052560	19259910
2	1993	1.078	0		0	0		53924		[illegible]	[illegible]	0.840	230100	19490010
3	1994	1.116			0	0		55767		[illegible]	280116	0.770	215707	19705716
4	1995	1.150			0	0		57486		228846	286331	0.706	202102	19907818
5	1996	1.186			0	0		59268		233422	292690	0.647	189358	20097176
6	1997	1.222			0	0		61105		236091	299196	0.593	177422	20274598
7	1998	1.260			0	0		63000		242853	305853	0.544	166241	20440839
8	1999	1.299			0	0		64863		247710	312573	0.498	155768	20596607
9	2000	1.339			0	0		66966		252664	319630	0.457	145957	20742564
10	2001	1.381			0	0		69042		257717	326759	0.419	136767	20879330
11	2002	1.424			0	0		71182		262872	334054	0.384	128158	21007488
12	2003	1.468			0	0		73389		268129	341518	0.352	120093	21127581
13	2004	1.513			0	0		75664		273492	349156	0.322	112537	21240118
14	2005	1.560			0	0		78010		278961	356971	0.295	105460	21345578
15	2006	1.609			0	0		80428		284541	364968	0.271	98829	21444407
16	2007	1.658			0	0		82921		290231	373153	0.248	92617	21537024
17	2008	1.710			0	0		85492		296036	381528	0.227	86797	21623821
18	2009	1.763			0	0		88142		301957	390099	0.208	81345	21705166
19	2010	1.817			0	0		90874		307996	398870	0.191	76236	21781402
20	2011	1.874			0	0		93691	-5364536	314156	-4956689	0.175	-868354	20913048
21	2012	1.932			0	0		72447	-16592510	240329	-16279734	0.161	-2614132	18298916
22	2013	1.992			0	0		0	0	0	0	0.147	0	18298916
													18298916	

REPRODUCED AT GOVERNMENT EXPENSE

II.- SECTION 801 LEASE HOUSING ALTERNATIVE

YEARS	F.Y. YEAR	INFLATION FACTOR	SHELTER RENT	MAINT RENT	INSURANCE 801	R. E. TAXES	TOTAL PAYMENT	DISCOUNT FACTOR AT 9.10%	NET PRESENT VALUE	CUMULATIVE NPV
0	1991	1.000	0	0			0	1.000	0	0
1	1992	1.040	500338	0			500338	0.917	458605	458605
2	1993	1.078	2001361	0			2001361	0.840	1681411	2140015
3	1994	1.116	2001361	0	1833	4399	2007584	0.770	1545964	3685979
4	1995	1.150	2001361	0	3562	8886	2013799	0.706	[illegible]	5107382
5	1996	1.186	2001361	0	5344	13463	2020158	0.647	1306958	6414340
6	1997	1.222	2001361	0	7181	18132	2026664	0.593	1201803	7616143
7	1998	1.260	2001361	0	9076	22894	2033320	0.544	1105179	8721322
8	1999	1.299	2001361	0	11029	27751	2040130	0.498	1016380	9737710
9	2000	1.339	2001361	0	13042	32705	2047098	0.457	934794	10672504
10	2001	1.381	2001361	0	15118	37758	2054227	0.419	859807	11532311
11	2002	1.424	2001361	0	17258	42912	2061522	0.384	790889	12323200
12	2003	1.468	2001361	0	19465	48170	2068986	0.352	727546	13050746
13	2004	1.513	2001361	0	21740	53532	2076623	0.322	669323	13720070
14	2005	1.560	2001361	0	24086	59002	2084439	0.295	615804	14335874
15	2006	1.608	2001361	0	26504	64581	2092436	0.271	566606	14902480
16	2007	1.658	2001361	0	28997	70272	2100620	0.248	521377	15423856
17	2008	1.710	2001361	0	31568	76077	2106996	0.227	479794	15903651
18	2009	1.763	2001361	0	34218	81998	2117567	0.209	441562	16345212
19	2010	1.817	2001361	0	36950	88037	2126338	0.191	406408	16751620
20	2011	1.874	2001361	0	39767	94197	2135315	0.175	374082	17125702
21	2012	1.932	1501013	0	32004	75360	1608377	0.161	258267	17383969
22	2013	1.992	0	0	0	0	0	0.147	0	17383969
									17383969	

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APPENDIX B

STATUS OF SECTION 801 PROJECTS

STATUS OF SECTION 801 PROJECTS

LEASES AUTHORIZED: 19,500 (Army 7,500; Navy 6,200; and Air Force 5,800)

- FY 1984 - 1,800 units (600 per service, 2 projects each, and each project limited to 300 units).
- FY 1985 - 1,800 units (all Army).
- FY 1986 - 1,800 units (600 per Service with no limitation on the number of projects per service).
- FY 1987 - 3,000 units (1,000 per service with no limitation on the number of projects per service).
- FY 1988 - 7,600 units (3,500 for Army; 2,000 for the Navy; and 2,100 for Air Force) with no limitation on number of projects per service.
- FY 1990 - 3,500 units (2,000 Navy; 1,500 Air Force).

Projects Awarded

Totals: 9,123 units (Army 3,800; Navy 2,602,; and Air Force 2,691).

SERVICE	LOCATION	NO. OF UNITS	STATUS
Army	Fort Hood	300	Completed
Army	Fort Polk	300	Completed
		300	Completed
Army	Fort	400	Completed
	Wainwright	150	Completed
Army	Fort Drum	1,000	Completed
		400	Completed
		300	Completed
Army	Fort Bliss	300	Under construction
Army	Fort McCoy	80	Awarded
Navy	Norfolk	300	Completed
Navy	Earle	300	Under construction
Navy	Mayport	200	Completed
Navy	New York	1,000	Awarded
		202	Awarded

Navy	Washington, D.C.	600	Awarded
Air Force	Eielson AFB	300	Completed
Air Force	Hanscom Field	163	Completed
Air Force	Goodfellow AFB	200	Completed
Air Force	March AFB	200	Completed
Air Force	Ellsworth	200	Completed
		828	Under construction
Air Force	Castle	200	Awarded
Air Force	Travis	300	Awarded
Air Force	Hurlburt	300	Awarded

PROJECTS IN PROCUREMENT

Totals: 1,150 units (Army 200; Navy 600; and Air Force 350).

Service	Location	No. of Units	Status
Army	Fort Stewart	200	RFP Issued
Navy	Pt. Mugu/ Pt. Hueneme	300	RFP Issued
Navy	San Diego	300	RFP Issued
Air Force	Cannon	350	RFP Issued

Projects Under Construction

The following locations are being considered for Section 801 projects. This list is subject to changes in both project location and project size, and does not represent a DoD commitment to proceed with any project listed.

Service	Location	No. of Units
Army	Charles Melvin Price Sup. Ctr, IL	215
Army	Ft. Belvoir	650
Army	Ft. Bragg	450
Army	Ft. Campbell	300
Army	Ft. Devens	100
Army	Ft. Myer	600

Army	Oahu Consolidated Housing Off.	715
Army	Walter Reed	440
Navy	Dahlgren	150
Navy	Long Beach	300
Navy	Mayport	300
Navy	New London	300
Navy	Newport	250
Navy	Pensacola	300
Navy	San Diego	200
Navy	29 Palms	200
Navy	Warminster	200
Navy	Wash. D.C.	300
Navy	Whidby Isl.	300
Air Force	Andrews	450
Air Force	Bolling	450
Air Force	Cannon	350
Air Force	Mt. Home	470
Air Force	Onizuka	170

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