A study of fort Sill Military Housing Needs

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EXECUTIVE SUMMARY

Access to affordable and high quality housing is of paramount importance to military families, military housing planners and policy makers. Most military bases do not have a sufficient supply of housing to satisfy the needs of their residents. Spillover demand from bases must be met by off-base housing in close proximity to the military bases. The objective of this study is to quantify housing needs for the Fort Sill military population by considering the changing demand of Fort Sill personnel and dependents in juxtaposition with the demand and supply conditions for housing in Comanche County, and separately for the applicable military housing area (HMA) (Comanche, Caddo, Kiowa and Stephens Counties)[1]. The study evaluates the housing need for military from three different perspectives: 1) adequacy 2) affordability and 3) quality.

The adequacy of housing is related to the overall demand and supply conditions of housing in the HMA. Population growth and its characteristics influence the rate of household formation, which in turn is the key determinant of housing demand. Demographic trends since 1990 in the HMA, which affect housing market activity, have been thoroughly examined. Major findings are:

1. The percentage of young adults in the 25-44 age-group has declined, while the proportion of adults in the generations between ages 45-64 and 65-and-above has increased.
2. The number of households with a child or children has declined, and the number of single occupant households has increased. This trend is expected to continue as the population ages.

[1] For purposes of this study, the "applicable military housing area" (HMA) has been defined to include residential areas in Comanche, Caddo, Kiowa and Stephens Counties. This area was selected on the basis of a reasonable commute radius; equidistance was also a factor, adjusted by routine road and traffic conditions.

The shift to an increasing, and potentially disproportionate, number of adults aged 45-64 increases the percentage of individuals that can be expected to own rather than rent residential properties. It also makes likely an increase in demand for large homes (three bedrooms and more). The increasing number of households in the over-65 age group signals an increased demand for alternative housing, as older adults are increasingly demanding housing options that are sizeable but low maintenance (i.e., patio homes, condominiums, assisted living). Declining household size, to the extent attributable to family unit redistribution into separate households, also implies that more housing is needed in the region over the next decade.

Demand for residential property in Comanche County and the HMA has been estimated using information on population, average household size and group quarter population. The supply of residential properties for inter-census years has been estimated using census data and housing permit data. Projection of supply from 2004 to 2010 has been made using the recent growth in housing supply. The study projects an estimated surplus of 2,113 houses in year 2004 and 1,807 units in 2010 for Comanche County. The HMA surplus is expected to grow from 6,137 units in year 2004 to 6,164 units in year 2010. The overall conclusion is that a surplus of housing units exists in the area, although the surplus is moderate compared to the national average of surplus housing units determined on the basis of demand and supply.

Projection of off-post demand for military housing has been made using both Fort Sill workforce and permanent party personnel. Two estimates of military housing demand have been derived. The upper bound estimate was derived by using the projected growth rate of Fort Sill workforce from the REMI (Regional Economic Modeling, Inc.) model. According to upper bound estimates, off-post housing demand is expected to increase from 6,815 units in 2004 to

7,252 units in 2010. Since a large percentage of permanent party personnel lives in off-post housing, we used the ratio of military occupied units of off-post housing to permanent party population to derive the lower bound estimates. Lower bound estimates indicate that military demand for off-post housing will grow from 5,930 units in year 2004 to 6,355 units in year 2010. Military demand constitutes a larger percent of rental units than owner-occupied units. High transactions costs of purchasing a home and the typically short and uncertain lengths of stay for military personnel discourage soldiers from buying homes.

To determine affordability, this study juxtaposes military allowances with fair market rent and median rent from the Business Research Center (BRC) survey of residential properties. The BRC analysis indicates that even though houses are generally less expensive and rent payments are generally lower than in major metropolitan areas, affordability remains a problem for lower rank military personnel, particularly for those with dependents in ranks E-1 to E-5. If utility and rental insurance costs are deducted from Basic Allowances for Housing (BAH), houses with three or more bedroom are unaffordable for most families in lower level enlisted ranks. From an analysis and comparison with different indicators of HMA housing costs, it can be concluded that existing housing allowances at Fort Sill do not appear to adequately subsidize rental or purchase of off-base housing of equivalent quality to government-provided on-base housing. This factor suggests an explanation for the large waiting list of soldiers requesting base housing.

Finally, the study evaluated the quality of residential housing stock in Comanche County and in the HMA. Quality references condition and maintenance of residential units as well as neighborhood conditions, unit age, proximity to schools and parks, area crime statistics, etc. The analysis indicates that there are not sufficient houses to satisfy demand of the entire area

population, including both civilian and military, if the housing stock is adjusted for quality. The estimated shortfall in Comanche County in 2004 is 2,788 units. The shortage is expected to grow to 3,165 in year 2010. For the HMA, the shortfall is estimated to be 4,492 units in 2004 which is projected to increase slightly to 4,620 units in year 2010. This finding confirms the finding of the 'Family Housing Market Analysis' – a study conducted in 2002 on the Fort Sill military housing needs, although the estimate of shortage in houses differs between the two studies.

The study concludes with a projection of estimated costs to renovate and upgrade houses to bring them up to the DOD (Department of Defense) code standards. The shortage of appropriate quality houses in the area should be addressed by building more single family and multi-family units over the next few years before the shortage becomes acute. Free forces of demand and supply in a using market do not always produce affordable units for a significant segment of the population. For low income people, affordability of good-quality houses is a pervasive concern. Incentive policies directed at the buyers/renters of houses and homeowners/developers are required at the federal, state and local level to reverse the shortage of affordable, quality housing units.

A STUDY OF FORT SILL MILITARY HOUSING NEEDS

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SECTION ONE—INTRODUCTION AND DEMOGRAPHICS

I. INTRODUCTION AND SCOPE OF STUDY

Access to affordable and high quality housing is vitally important to military families and therefore to housing planners and policy makers who attempt to improve the quality of life for those families. Quality of life encompasses, *inter alia*, residence in neighborhoods that are low in crime, ready availability of quality education for children, and opportunities for enriching social activities. Despite many efforts of military authorities over the years to improve the availability of good quality housing for the military community, availability and affordability of adequate housing for the military remains a daunting challenge.

Most military bases like Fort Sill do not have a sufficient supply of housing to satisfy the needs of their residents. Spillover demand from bases must be met by off-base housing in close proximity to military bases. The off-base housing market demand and supply dynamics dictates a careful and thorough analysis be undertaken to determine whether the community can meet the demand for off-base housing. Currently, Fort Sill has 1,415 family housing units on base, excluding barracks, visitor and guest quarters. Out of 8,144 family housing units required by military families in 2003, only 1,415 housing units were available on base, which led to a shortfall of 6,729 family housing units. Off-base housing served families and individuals for whom base housing was unavailable or who elected to live off-base. Off-base rentals and off-base owner occupied houses constituted about 60 percent and about 20 percent respectively of the total housing required by the Fort Sill population in 2003. This study assesses the need for housing by Fort Sill military families in Comanche County and the HMA by taking into

consideration the changing demand of the military population and supply conditions for housing. The HMA is defined to include all communities within a 20-mile commuting distance from Fort Sill, and includes Comanche, Caddo, Stephens and Kiowa Counties. The study will consider both the quantity and quality dimensions of the housing market. Military demand for off-base housing will be estimated by the projected need based on the permanent military population and Fort Sill workforce. In addition, the Business Research Center (BRC) has estimated costs to renovate and upgrade existing substandard residential properties into properties that meet or exceed applicable standards.

The organization of the study is as follows. Part I introduces the nature and scope of the study. Part II surveys other recent studies of the housing market that are relevant to this study. Part III explores the demographic trends of the HMA in terms of population and household growth and tenure, income and affordability. Housing needs and affordability depend on the demographic and income structure of a community. To be able to pinpoint the housing needs in the HMA, the dynamic shift in age structure and household type and tenure are examined. Area income distribution, along with the Fair Market Rent is also used to examine affordability of housing. Part IV provides demand and supply estimates for houses in Comanche County. The objective is to forecast any surplus or shortage for years until 2010. Part V thoroughly examines the off-base housing market for military housing from three different viewpoints:

- **Availability**--The study compares estimated demand for military houses and projected demand with supply of houses in the Comanche County and HMA.
- **Affordability**--Affordability for the military families is evaluated by comparing Basic Allowances for Housing (BAH) with HMA rents and mortgage payments at various interest rates.

- **Quality**-- Quality of rental units and houses is evaluated by using information from the Census and survey of apartments and major rental agencies.

Part VI examines existing policies for building affordable houses in the community and recommends measures that will create incentives for local builders to build affordable houses for the military.

II. A SURVEY OF EXISTING STUDIES

Cities and communities across the United States have addressed the affordable housing problem in different ways. For example, the San Diego City Council adopted a resolution that includes goals to (1) ensure the development of sufficient new housing units for all income levels, including multifamily rental housing; and (2) assist in the development of adequate housing to meet the needs of low and moderate-income households. San Diego established a requirement for developers to provide 20 percent of housing at a level of 65 percent area median income.

A University of Memphis cost-benefit study on affordable housing in Memphis found that social and economic benefits from affordable housing exceeded costs by a significant amount. [2] Local investment of $1 million in affordable housing construction would generate an additional $1.43 million in increased output during the year of construction and yield a positive net present value of $902,015. The study recommended that residents between 80 percent and 120 percent of the median income for the city should be targeted for home ownership and residents earning less than 80 percent of the median income should have access to "decent, safe and sanitary rental housing opportunities." [3]

[2] Regional Economic Development Center, the University of Memphis, January, 1988. "Affordable Housing in Memphis: Revenue Sources and Cost-Benefit Analysis".
[3] Ibid.

A conference on policies to promote affordable housing was co-sponsored by the Federal Reserve Bank of New York and the Furman Center for Real Estate and Urban Policy on February 7, 2002.[4] The goal of that conference was to "advance our understanding of the issue of affordable housing: the cost burdens that housing places on low-income and moderate-income households, and policies that, in pursuit of some other worthy goal, may have exacerbated the lack of affordable housing". Although the study mainly focused on housing conditions and the impact of building restrictions on housing affordability in New York, numerous and diverse studies also provided a national perspective on the housing problem and assessed different federal housing assistance programs.

LeGates (2001) examined an innovative approach to balancing jobs and housing in five[5] counties in California. The State of California passed legislation to fund what is known as Integrated Partnership Project (IRP) that is intended to increase housing in areas where jobs exceed housing and jobs where housing exceeds jobs. IRP will identify and deploy incentives to promote housing in job rich areas and economic development in areas with fewer jobs. LeGates discussed fifteen incentives including four incentives identified by the legislation that might be used to encourage housing development. The incentives identified by the legislation are: (1) tax credit priority for multifamily housing (2) a waiver of property tax for development of affordable housing (3) pooling redevelopment fund and (4) tax increment financing on the redevelopment model.

[4] "Policies to Promote Affordable Housing", Economic Policy Review, Federal Reserve Bank of New York, June 2003, Volume 9, Number 2.
[5] Alameda, Contra Costa, Santa Clara, San Joaquin and Stanislaus County.

A regional approach for identifying and solving housing problem has also been used by Economic Policy Responses Inc. (2000). The study developed the regional demand for housing based on the economic and social linkage of the region and the supply of housing was estimated based on the available stock and expected new units. The study emphasized the need for a combined incentive-regulatory based approach to meet the shortage of housing in the region. The City of Jacksonville, Florida (2000), conducted a comprehensive study of affordable housing in that community. The study estimated housing demand and supply, and considered dwelling conditions. Regulations and sources of funding for affordable housing and exemplary programs were designed to expand the availability of affordable housing. The study highlighted major problems and possible solutions in meeting community needs for affordable, quality housing. Among the problems discussed were lack of a community wide education program to inform housing consumers and providers about options, and lack of sufficient data on local demand and supply of affordable quality housing.

Some studies have explored cost-effective ways of providing military housing. One study of particular interest in relation to the Fort Sill housing study was conducted by the National Defense Research Institute (NDRI)[6]. In a comprehensive study of military housing, NDRI found a strong preference by military personnel and their families for military housing over off-base housing across all ranks. Survey results suggested that many families living in rental houses and even those owning homes would prefer military housing if available. This preference is also reflected in long waiting lines for on-base houses. The preference for on-base housing can be attributed to the gap between the local market value of government housing and housing allowances provided to military families and their members. NDRI reported a stronger

[6] An Evaluation of Housing Options for Military Families, National Defense Research Institute, (1999).

preference for military housing among junior and middle-grade enlisted personnel than senior enlisted personnel and officers. Monetary reasons were cited as the most important reasons for preference for on-base houses. Other important reasons cited for preferring military housing include: security, convenience for work and availability. Overall, the survey respondents felt that military housing promotes military values and solidarity among military families. "Maintaining military values" was considered to be the least important of all reasons for choosing on-base houses.

III. DEMOGRAPHIC STRUCTURE AND HOUSING DEMAND

Population and Age Distribution

Housing market activity is strongly influenced by demographic trends in the HMA. This part briefly describes the demographic structure of the HMA. The growth of population and its characteristics influence the rate of household formation, which in turn is the key determinant of housing demand. Housing demand can be determined by various factors including employment growth, income growth, and mortgage rates. Population projections are universally adopted as a basis of household needs projections because of availability, high degree of institutional structure, and inherent credibility (Myers *et al*, 2002).

Table 1 presents population growth of the HMA. The HMA population has fluctuated considerably in the past two decades. Between 1980 and 1990, the population of Comanche County fell from 112,456 to 111,486 persons--a decline of 970 persons. The decline was even more dramatic for the remaining counties. The population of the remaining counties fell by 3,839 persons in the 1980s or by 4.4 percent. The Comanche County population grew in the 1990's, however, increasing by 3,510 persons to 114,996. Overall, the HMA added 3,274 persons in the

1990s, and reached 197,956 persons in 2000. The Comanche County population, which accounted for over 58 percent of the HMA in 2000, is projected to grow by 3.8 percent between 2000 and 2005 by 3.5 percent between 2005 and 2010. Stephens and Caddo counties are also expected to grow in the next decade, albeit at much slower rates than Comanche County. Unlike the other three counties in the HMA, the population of Kiowa is projected to decline both in 2005 and 2010. The decline is partly explained by out migration from rural to urban.

Table 1: HMA Population by County

	1980	1990	2000	2005	2010
Caddo County	30,905	29,550	30,150	30,300	30,800
% change		(-6.82)	(2.03)	(0.5)	(1.65)
Comanche County	112,456	111,486	114,996	119,400	123,600
% change		(-0.86)	(3.15)	(3.83)	(3.52)
Kiowa County	12,711	11,347	10,227	10,000	9,900
% change		(-10.7)	(-9.87)	(-2.22)	(-1.00)
Stephens County	43,419	42,299	43,182	42,900	42,900
% change		(-2.58)	(2.09)	(-.65)	(0.00)
HMA	**168,586**	**165,120**	**168,398**	**172,300**	**176,400**
% change		(-2.05)	(1.98)	(2.31)	(2.38)

Source: U.S. Census Bureau.

While an increasing population tends to generate more demand for housing, housing needs and preferences are also shaped by population characteristics such as age distribution, ethnicity, and family type. Table 2 presents the population of the HMA by age cohorts. The population is divided into 4 age cohorts: ≤24, 25-44, 45-64, and 65 and above. Each cohort has specific lifestyle profile and so tends to require specific type of housing. The 25-44 age cohort has declined from 32.1 percent in 1990 to 31.7 percent in 2000. The proportion of older generation between age 45-64 and 64 and above has increased in 2000 compared with their share in 1990.

Both cohorts are also projected to increase in 2005 and 2010. The shift to an increasing, and potentially disproportionate, number of adults aged 45-64 increases the percentage of individuals that can be expected to purchase/own rather than rent residential properties. It also makes likely an increase in demand for large homes (three bedrooms and more). The increased number of households in age group 65 and above would fuel demand for alternative housing options, particularly town homes and patio homes, because older adults are increasingly demanding housing options that are sizeable but low maintenance (i.e., town homes, patio homes, condominiums, assisted living) due to decreasing space needs and other lifestyle change.[7]

Table 2: Major Age Groups in the HMA (in thousands)

Comanche Age Category	1990	2000	2005	2010	1990-2000% Change
0 – 24	48,740	47,974	48,747	49,115	(-1.57)
25 – 44	35,763	35,329	34,679	34,165	(-1.2)
45 – 64	17,367	20,473	24,026	27,457	(17.84)
65 +	9,607	11,220	11,912	12,901	(16.79)
Total	**111,486**	**114,996**	**119,364**	**123,638**	**(3.15)**
Remaining HMA					
0 - 24	28,701	28,368	29,171	28,355	(-1.16)
25 -44	22,197	21,216	19,105	19,445	(-4.42)
45 – 64	16,759	19,415	20,941	21,812	(15.85)
65 +	15,139	14,560	13,975	13,985	(-3.82)
Total	**82,796**	**83,559**	**83,192**	**83,597**	**(.92)**

Source: U.S. Census Bureau.

Household Growth and Tenure

[7] Maxfield Research INC, 2001.

A total of 82,100 housing units stood in the HMA in 1990. Of this total, 43,589 units were in Comanche County, as shown in Table 3. Comanche County added 1,827 housing units by the year 2000, increasing the number of housing units to 45,416. Stephen County added 179 units, while Caddo and Kiowa both lost housing units in the 1990s. Household growth trends are typically more accurate indicators of housing needs since households by definition are occupied housing units. A total of 69,799 occupied housing units or households were counted in the HMA in 1990. Of this total, 46,442 were owner occupied and 23,357 were rented (Table 5). By 2000, the HMA added 1,962 owner occupied housing and 675 renter households. Comanche County added 1,403 owner occupied housing units and 836 renter households. Meanwhile, the remainder of HMA added 559 homeowner households and lost 161 renter households.

Table 3: Housing Units for 4-County Region

County	1980	1990	2000
Caddo	12,419	13,191	13,096
% change		(6.22)	(-0.72)
Comanche	39,954	43,589	45,416
% change		(9.10)	(4.19)
Kiowa	5,835	5,645	5,304
% change		(-3.26)	(-6.04)
Stephens	17,968	19,675	19,854
% change		(9.50)	(0.91)
Total	**76,176**	**82,100**	**83,670**
% change		(7.78)	(1.91)

Source: U.S. Census Bureau.

Table 4 provides Census report on households by type for Comanche County. The most striking feature of the table is the decline in the number of households with a child or children

and an increase in the number of householders living alone. In Comanche, the number of households with a child declined by 10 percent in 1990s.

Table 4: Household Type in Comanche County

Category	1980	1990	2000
Total Households	35,142	37,569	39,808
% change		(6.91)	(5.96)
Married w/o child	10,044	11,067	10,880
% change		(10.19)	(-1.69)
Married with child	13,149	12,076	10,842
% change		(-11.38)	(-10.22)
Living Alone	6,354	7,682	9,301
% change		(20.90)	(21.08)
Roommate	984	1,163	1,649
% change		(19.18)	(41.79)

Source: U.S. Census Bureau.

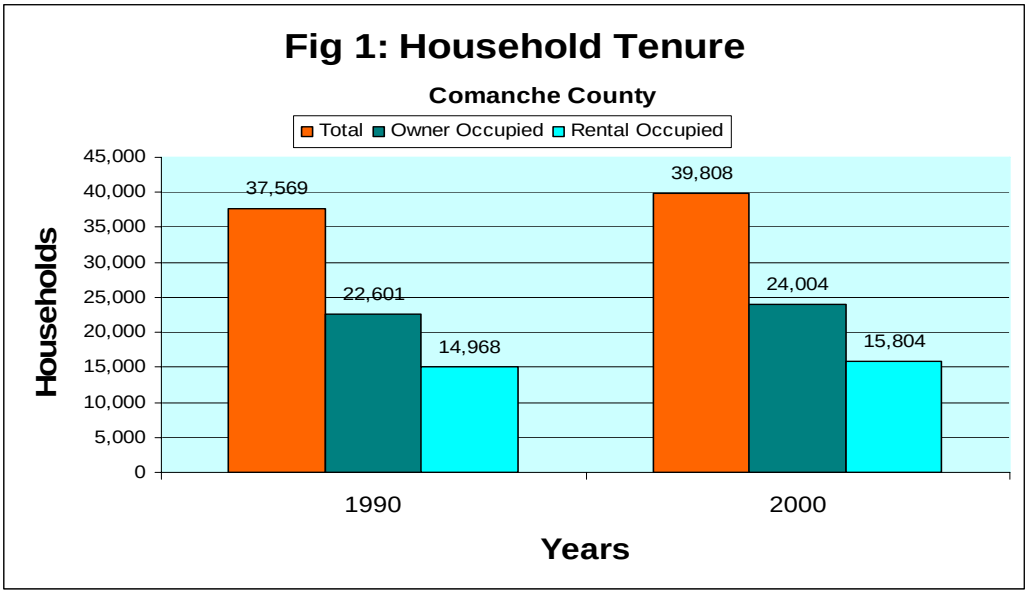
The overall decline in the number of households with children is the result of fewer people in each household caused by demographic and social trends such as divorce rate and couples' decision to have fewer children or no children at all. Household size is also generally expected to decline as the population grows older. Declining household size, to the extent attributable to family unit redistribution into separate households, also implies that more housing is needed in

the region over the next decade. The United States experienced a major shift in housing choice in recent years as the proportion of U.S. households that own their principal residences increased significantly. The rise in home ownership is partly explained by the aging population. Probability of homeownership increases with age. A range of economic conditions also favored home ownership in the 1990's. These include low mortgage rates, strong employment growth and rising personal income.

Table 5: Household Tenure

	1990				2000			
County	**Owner Occupied Units**	**Percent of Total**	**Renter Occupied Units**	**Percent Of Total**	**Owner Occupied Units**	**Percent of Total**	**Renter Occupied Units**	**Percent of Total**
Caddo	7,902	(72.64)	2,977	(27.36)	8,041	(73.39)	2,916	(26.61)
Comanche	22,601	(60.16)	14,968	(39.84)	24,004	(60.30)	15,804	(39.70)
Kiowa	3,377	(74.20)	1,174	(25.80)	3,167	(75.26)	1,041	(24.74)
Stephens	12,562	(74.93)	4,238	(25.28)	13,192	(75.54)	4,271	(24.46)
HMA	46,442	(66.57)	23,357	(33.43)	48,404	(66.82)	24,032	(33.18)

Source: U.S. Census Bureau.



The national housing boom of the 1990s is not reflected in the HMA as whole. The proportion of homeownership in the whole region remained at 67 percent. With the exception of Comanche County, the home ownership proportion increased in the remaining three counties. As might be expected, the proportion of home ownership is higher in rural counties compared with Comanche County, which is much larger than the rest of the HMA. The cost of owning a single family home is relatively lower in rural areas than bigger towns. Rental demand is lower in rural areas because the larger percentages of younger households, who are typically renters, migrate to urban areas.

Some analysts suggest expressing homeownership rates in per capita terms (the number of homeowners as a percent of total population) as opposed to the usual per household measure. The number of households can change because various factors including a reduction in renter households through doubling up or homelessness. Per capita homeownership can increase only if the number of owner households increases (Myers *et al,* 2002*)*. Table 6 provides per capita homeownership of the HMA. For similar reasons discussed earlier, Comanche County has the

lowest per capita homeownership compared with the other counties in the HMA. Despite the national housing boom of the 1990s, the average per capita homeownership of the HMA did not show any significant increase.

Table 6: Per Capita Home Ownership

	1990 U.S. Census			2000 U.S. Census		
County	**Population**	**Home Ownership**	**Per Capita Home Ownership**	**Population**	**Home Ownership**	**Per Capita Home Ownership**
Caddo	29,550	7,902	0.27	30,150	8,041	0.27
Comanche	111,486	22,601	0.20	114,996	24,004	0.21
Kiowa	11,347	3,377	0.30	10,074	3,167	0.31
Stephens	42,299	12,562	0.30	42,736	13,192	0.31
Total	**194,682**	**46,442**	**0.24**	**197,956**	**48,404**	**0.24**

Source: U.S. Census Bureau.

Income and Housing Affordability

Similar to demand for most other products, a significant factor influencing demand for housing is income. Median household income in the HMA is shown in Table 7. Among the four counties, Comanche has the highest household median income and Kiowa has the lowest income. Household median income was $24,378 or 81 percent of the national average (1990 Census). Household median income in Comanche rose to $38,867 in 2000 as compared to $41,994 national average. The median income in Comanche is still far less than the national average.

Table 7: Median Household Income

Counties	1990		1997		1998	1999	2000	Change 1990-2000
Income Category (in thousands)	**Affordable Housing Cost**	**Number 1990**	**Percentage 1997**		**Number 1998**	**Percentage 1999**	**2000**	
Caddo County	$17,857	6,330	$25,045	16.8	$26,561	4,937	$26,995	12.36	$27347	-1,393
Comanche County	$256-372	$24,378	3,988	$31,132	10.6	$32,876	3,226	$32,720	8.1	$38,867	762
Kiowa County	$375-622.5	$16,322	9,004	$22,095	23.9	$23,118	6,145	$25,586	15.4	$26,053	-2,859
Stephens County	$625-872.5	$22,647	7,055	$30,175	18.73	$30,870	6,231	$30,428	15.6	$30,709	-824

Source: U.S. Census Bureau.

Table 8 provides the number of households in different income category in Comanche County. In 1990, over 50 percent of households had income less than $25,000. By 2000, only 35.6 percent of households had income less than $25,000. The number of households in each income category below $35,000 has declined. In particular, the number of households in $15,000-$24,900 range has declined by 2,859 or by 32 percent.

Table 8: Housing Affordability for Comanche County[1]

35 – 49.9	$875-1,247	6,276	16.7	7,244	18.1	968
50 – 74.9	$1,250-1,872	3,631	9.6	7,362	18.4	3,731
75 – 99.9	$1,875-2,497	832	2.2	2,718	6.8	1,886
>$100		560	1.5	2,067	5.2	1,507
Total		**37,676**		**39,930**		**2,254**

Source: Housing and Urban Development (HUD).
[1]Calculations are based on 30percent annual income.

Guidelines established by the Department of Housing and Urban Development (HUD) define "affordable" houses as those costing no more than 30 percent of household adjusted gross income. Based on that definition, with a median household income of $31,132, younger households in Comanche should be able to afford a monthly housing cost of $778. As can be seen from Table 8, over 35 percent of households in Comanche can afford houses that cost no more than $622 per month.

Two other measures applied by *The National Low Income Housing Coalition* in determining income-based access to housing are 'Housing Wage' and 'Hours per Week'. Those measures are applied to determine affordability of two bedroom apartments at a Fair Market Rent (FMR)[8]. Table 9 shows Housing Wage and Hours per Week at minimum wage that would enable a worker to rent zero to four bedroom apartments at FMR in Comanche County. The most striking observation is that an average FMR for a two-bedroom unit is beyond the reach of minimum wage earners in the County. To be able to afford a two-bedroom apartment at FMR, a minimum wage earner would have to work 76 hours per week. Table 9 also shows that the FMR has increased by more than 7 percent between 2000 and 2004, making quality housing even more elusive for low income households.

Table 9: Housing Affordability for Comanche County

	Fair Market Rents			**Housing Wage**			**Hours needed to Work Per Week**	
Bedrooms	**2000**	**2004**	**% change**	**2000**	**2004**	**% change**	**2000**	**2004**
0	$366	$395	(7.92%)	$7.04	$7.60	(7.95%)	54	59

[8] Out of Reach, National Low Income Housing Coalition, 2004 and Housing and Urban Development. (HUD).

1	$369	$397	(7.59%)	$7.10	$7.63	(7.46%)	55	59
2	$470	$506	(7.66%)	$9.04	$9.73	(7.63%)	70	76
3	$652	$702	(7.67%)	$12.54	$13.5	(7.66%)	97	105
4	$715	$770	(7.69%)	$13.75	$14.81	(7.71%)	107	115

Source: National Low Income Housing Coalition and Housing and Urban Development.

SECTION TWO—ANALYSIS AND FINDINGS

IV. ESTIMATING DEMAND AND SUPPLY OF HOUSES IN THE HMA

Part III above shows that the growth of population and households are the major drivers of future housing needs in any community. Demand for housing is estimated by using a methodology suggested by the Oklahoma Cooperative Extension service.[9] The following information is used to estimate demand for houses:

1. Population estimates using REMI model.[10]
2. US Census estimates in group quarters.
3. US Census estimates of average persons per household.

Estimates of population from years 2001 to 2010 were taken from projections from a leading regional input-output model, REMI version 5.3. The group-quarter population has been deducted from total population to determine the actual population to be housed. For example, in year 2000, a total of 10,320 lived in group-quarters consisting of 3,802 in institutionalized population (mostly correctional institutions and nursing homes) and 7,238 non-institutionalized population (mostly military quarters and college dormitories). The data on group-quarter populations for interim years is not available. The 1990 Census ratio of group-quarter population to total population was used for years from 1991 to 1999. Similarly, the ratio of 2000 group-quarter population to total population was used for years from 2001 to 2010. The number of households to be housed is determined by average household size. Like group-quarter population, data on

[9] Barta, S. and M. Woods, "Constructing a Community Housing Profile: Estimating Supply and Demand in Your Local Housing Market", Oklahoma Cooperative Extension Service, OSU.
[10] REMI Policy Insight®, version 5.3, Regional Economic Modeling, Inc, Amherst, MA. REMI uses data provided by government agencies such as the U.S. Department of Commerce, U.S. Department of Labor and U.S. Bureau of Economic Analysis.

average household size is available only for census years. Census 1990 data was used to determine an average household size of 2.72 for years between 1990 and 1999 and Census 2000 data was used to assume average household size of 2.63 for years between 2000 and 2010. To account for normal turnover in the housing market, a 4 percent adjustment was made to the number of households projected to participate in housing demand.[11] Prospective occupants, faced with a variety of choices, may spend some time in searching for houses either to buy or rent, which causes a `natural vacancy rate' similar to the natural unemployment rate in the labor market. The projected demand for housing units from year 2004 to 2010 is shown in Table 10A.

Housing supply figures are available from the Census for years 1990 and 2000. Residential building permits are used to construct estimates for housing supply for years 1991 to 1999 and 2001 to 2003. Projection of housing supply, for years between 2004 and 2010, is made by using past 5-year average growth of the supply of houses. The surplus is calculated by taking the difference between estimated demand and supply of houses. The estimated surplus has been reported in Table 10A for Comanche County and for HMA in Table 10B. There is an estimated surplus of 2,113 houses in year 2004 in Comanche County, which constitutes less than 5 percent of total housing stock. The surplus is not high, considering that the natural vacancy rate is 4 percent. The estimated surplus shows a decreasing trend until 2005 and then increases to 1,807 units in year 2010. The forecasted surplus for years from 2004 to 2010 is contingent on the assumption that housing stock continues to grow at the most recent 5-year average growth rate. If the actual housing stock grows at a lower rate, a shortage is anticipated because in that case, the

[11] The natural vacancy is caused by the normal turnover in an efficient market. The 4 percent vacancy rate has been suggested by Jerry Knox, Professor of Community and Regional Planning at Iowa State University.

surplus will fall below the natural rate of 4 percent. The projected surplus for the HMA will grow from 6,137 units in year 2004 to 6,164 units in year 2010.

Table 10A: Housing Supply and Demand for Comanche County

Year	Population	Group Quarters	Population to be Housed	Average Household Size	Number of Households	Housing Demand	Housing Supply	Surplus	Vacancy Rate
1990	111,486	9,154	102,332	2.72	37,622	39,190	43,589	4,399	10.09
1991	111,500	9,143	102,357	2.72	37,631	39,199	43,720	4,521	10.34
1992	120,900	9,914	110,986	2.72	40,804	42,504	43,942	1,438	3.27
1993	118,900	9,750	109,150	2.72	40,129	41,801	44,155	2,354	5.33
1994	118,700	9,733	108,967	2.72	40,061	41,730	44,312	2,582	5.83
1995	116,700	9,569	107,131	2.72	39,386	41,027	44,483	3,456	7.77
1996	116,600	9,561	107,039	2.72	39,353	40,992	44,654	3,662	8.20
1997	115,900	9,504	106,396	2.72	39,116	40,746	44,765	4,019	8.98
1998	115,600	9,479	106,121	2.72	39,015	40,641	44,980	4,339	9.65
1999	116,100	9,520	106,580	2.72	39,184	40,816	45,110	4,294	9.52
2000	114,966	10,320	104,646	2.63	39,789	41,447	45,416	3,969	8.74
2001	112,944	10,441	105,831	2.63	40,240	41,916	45,590	3,674	8.06
2002	113,400	10,479	106,210	2.63	40,384	42,067	45,702	3,635	7.95
2003	113,900	10,873	110,203	2.63	41,902	43,648	45,787	2,139	4.67
2004	121,183	10,882	110,301	2.63	41,939	43,687	45,800	2,113	4.61
2005	119,400	11,001	111,504	2.63	42,397	44,164	45,732	1,568	3.43
2006	122,505	11,031	111,809	2.63	42,513	44,284	45,878	1,594	3.47
2007	122,840	11,061	112,113	2.63	42,629	44,405	46,025	1,620	3.52
2008	123,174	10,962	112,212	2.63	42,666	44,444	46,171	1,648	3.57
2009	123,503	10,992	112,511	2.63	42,780	44,563	46,319	1,796	3.88
2010	123,880	11,124	112,756	2.63	42,873	44,659	46,466	1,807	3.89

Source: U.S. Census Bureau and estimates prepared for this study.

Table 10B: Housing Supply and Demand for HMA

Year	Population	Group Quarters	Population to be Housed	Average Household Size	Number of Households	Housing Demand	Housing Supply	Surplus	Vacancy Rate
1990	194,682	10,606	184,076	2.57	69,763	72,725	82,100	9375	11.42
1991	194,500	10,580	183,920	2.57	71,564	72,761	82,291	9530	11.58
1992	204,800	11,366	193,434	2.57	75,266	76,417	82,594	6177	7.48
1993	203,000	11,206	191,794	2.57	74,628	75,794	82,837	7043	8.50
1994	203,200	11,195	192,005	2.57	74,710	75,879	83,090	7211	8.68
1995	201,100	11,031	190,069	2.57	73,957	75,122	83,355	8233	9.88
1996	201,300	11,025	190,275	2.57	74,037	75,207	83,633	8426	10.07
1997	200,900	10,974	189,926	2.57	73,901	75,080	83,899	8819	10.51
1998	200,700	10,949	189,751	2.57	73,833	75,015	84,277	9262	10.99
1999	200,400	10,975	189,425	2.57	73,706	74,864	84,580	9716	11.49
2000	198,525	11,197	187,328	2.51	72,436	75,435	83,670	8235	9.84
2001	195,744	11,310	187,762	2.51	74,805	76,201	83,884	7683	9.16
2002	196,000	11,350	187,939	2.51	74,876	76,264	84,036	7772	9.25
2003	196,500	11,746	191,930	2.51	76,466	77,841	84,189	6348	7.54
2004	204,468	11,768	192,699	2.51	76,773	78,153	84,290	6137	7.28
2005	202,600	11,880	193,825	2.51	77,221	78,605	84,264	5659	6.72
2006	205,759	11,918	194,177	2.51	77,361	78,732	84,495	5763	6.82
2007	205,978	11,947	194,365	2.51	77,436	78,802	84,727	5925	6.99
2008	206,091	11,846	194,245	2.51	77,389	78,748	84,944	6196	7.29
2009	206,236	11,873	194,362	2.51	77,435	78,789	85,155	6366	7.48
2010	207,480	12,016	195,464	2.51	77,874	79,250	85,414	6164	7.22

Source: U.S. Census Bureau and estimates prepared for this study.

One important characteristic of a housing market is the vacancy rate. While a high vacancy rate indicates a surplus of houses, a low vacancy rate indicates tightening of the housing market. Census 2000 reports the vacancy rate in the rental housing market in Comanche County to be 13 percent and in the owner-occupied housing market to be 12 percent. The rental vacancy rate in Comanche County is high relative to other counties in the state and some selected cities in the nation (See Table A-1 in the Appendix). A high vacancy rate can reflect both strength and weakness of the housing market. On the one hand, a high vacancy rate indicates abundant supply of houses, but it can also reflect poor quality of houses. According to U.S. Census estimates, about 75 percent of all occupied houses in Comanche County, rental and owner-occupied, are over 30 years old.[12]

No separate data is available on ages of rental houses. Since most rental units are apartments, the average age for rental units may not be as high as for owner-occupied units. Further insight can be found by comparing the age structure of vacant houses with that of occupied houses. About 45 percent of occupied houses in Comanche County are between 25 and 44 years old, while about 40 percent of vacant houses are over 44 years old. This implies that the older the house, the higher the vacancy rate.

V. Market for Military Housing

Military housing, despite its high cost to the DOD (Department of Defense)[13], is an important benefit for the military community. Military housing policy has two components: (1) On-base

[13] Military housing costs to the DOD about $10 million annually.

military housing, owned and operated by the military authorities,[14] is provided free of charge to qualifying families (2) Monetary allowances for housing, called Basic Allowance for Housing (BAH), is provided to the military to rent or purchase civilian houses in the communities surrounding base. Current government policy is to finance 100 percent of military housing and only 80 percent of civilian housing.[15] Housing allowances differ by military ranks, duty locations, and dependency status. Because of the availability of free housing on base, there is always an excess demand for on-base housing. On-base housing is rationed through a queuing system in which separate queues are maintained by military rank groups. The existing and potential market for military houses will be explored in this part of the study. To that purpose, a simple theoretical model will be presented below to illustrate supply and demand conditions for both on-base and off-base housing markets. A brief overview of the Fort Sill housing stock is also presented below.

Fort Sill has 13,711 housing units currently which can be categorized as follows; 1,415 family housing units, 805 guest quarters and 12,211 barracks/BOQ/Visitor quarters.[16] According to the FY 2003 Fort Sill Economic Report, soldiers' barracks are almost totally new or completely refurbished and include one and two bedrooms and common areas, which soldiers can share. The supply of family housing units on base, like most other military bases, is not adequate for housing all military personnel and their dependents. Fort Sill military rented 4,891 units and

[14] Recently there have been discussions on privatization of on-base military housing.

[15] According to National Defense Research Institute, (1999), An Evaluation of Housing Options for Military Families, Government policy is supposed to cover 85 percent of the housing costs (i.e. rent plus utilities) for military families living off-base. This policy goal has not been achieved for budgetary reasons and the military share of off-base housing is about 80 percent.

[16] Fort Sill FY2003 Economic Impact.

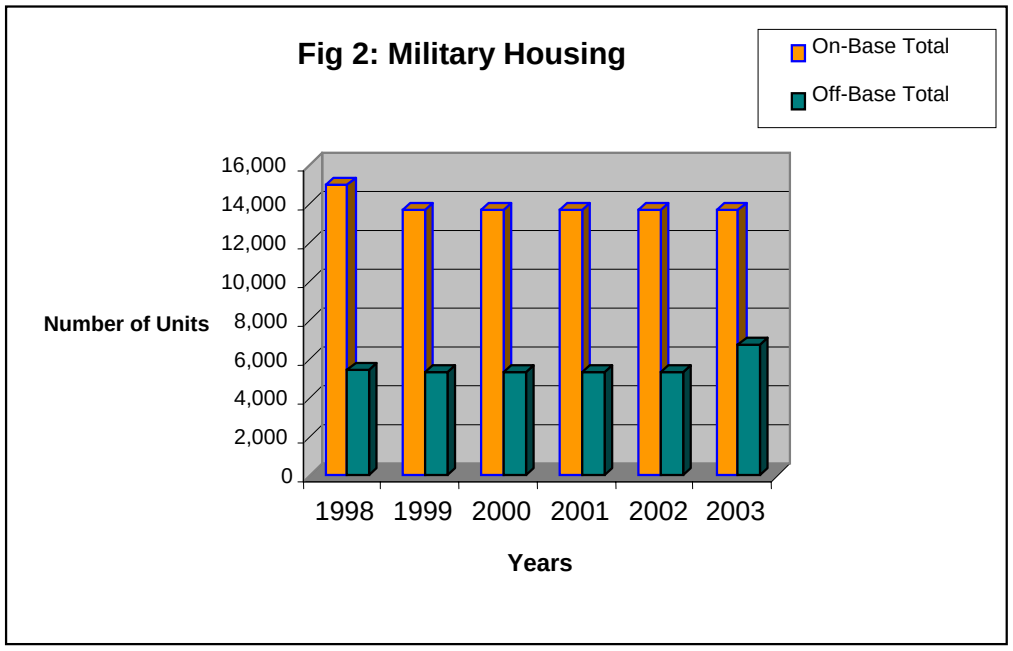
occupied 1,838 owner-occupied units off-base in FY 2003. According to a recent estimate,[17] about 75 percent of the total Fort Sill population lives in off-base properties, comprised of both rental and owner-occupied units. This demand for off-base housing contributes significantly to the total housing demand for the local and regional economy. Table 11 presents the number of Fort Sill personnel living on-base and off-base for the period from 1998 to 2003. This is also portrayed in Figure 2. The off-base housing requirement, as a percent of total housing required by military households, has increased from 80 percent in 1998 to 83 percent in 2003.

Table 11: Military Housing

Classification	1998	1999	2000	2001	2002	2003
On-Base Total	**15,064**	**13,715**	**13,711**	**13,711**	**13,711**	**13,711**
Off-Base Rentals	3,961	3,872	3,872	3,872	3,872	4,891
Off-Base Owner Occupied	1,539	1,499	1,499	1,499	1,499	1,838
Off-Base Total	**5,500**	**5,371**	**5,371**	**5,371**	**5,371**	**6,729**
Total	**20,564**	**19,086**	**19,082**	**19,082**	**19,082**	**20,440**

Source: Economic Impact, Fort Sill, Oklahoma, various issues.

[17] Fort Sill Housing Office.



The market for housing in the HMA and on base can be represented by following equations:

$S_{MA} = S_{OB} + S_B$

(1)

$D_{MA} = D_{NM} + D_M$

(2)

$D_M = D_{M,B} + D_{M,OB}$

(3)

$S_B = D_{M,B}$ (On-base market for housing)

(4)

$S_{OB} = D_{NM} + D_{M,OB}$ (Off-base market for housing)

(5)

Where:

S_{MA} = Supply of houses in the HMA

D_{MA} = Demand for houses in the HMA

S_{OB} = Supply of off-base houses

D_{OB} = Demand for Off-base houses

S_B = Supply of houses on base

D_M = Demand for houses by military

D_{NM} = Demand for houses by nonmilitary

$D_{M,B}$ = Demand of houses by military in base area

$D_{M,OB}$ = Demand of houses by military in the off-base area

The demand for on-base housing, as represented by D_M in Figure 3A, is downward sloping with respect to the rent for on-base housing. Since military housing authorities do not charge rent, the quantity demanded at zero rent is OB. The supply curve is perfectly inelastic at a given quantity of available housing (OA) and represented by S_B. The excess demand (AB) from the base is spilled over into the off-base market which affects the market for housing in the HMA. The off-base demand for houses by the military can be estimated by

$$D_{M,OB} = D_M - S_B \qquad (6)$$

Substituting (6) into (5), we get:

$$S_{OB} = D_{MA} - S_B \qquad (7)$$

Equation (7) represents equilibrium in the off-base area which implies that the supply of off-base houses match the demand for HMA houses net of the supply of on-base houses. Equation (7) is represented by Figure 3B. The total demand for off-base houses, for both military and non-military, is given by D_{MA}. Since S_B has remained more or less stable, the demand for houses by the military in the HMA will depend on the growth of military personnel on base. Any increase

in the supply of government-provided-housing on base will shift the demand curve to the left, by the amount of increased houses available.

On-Base and Off-Base Housing Market

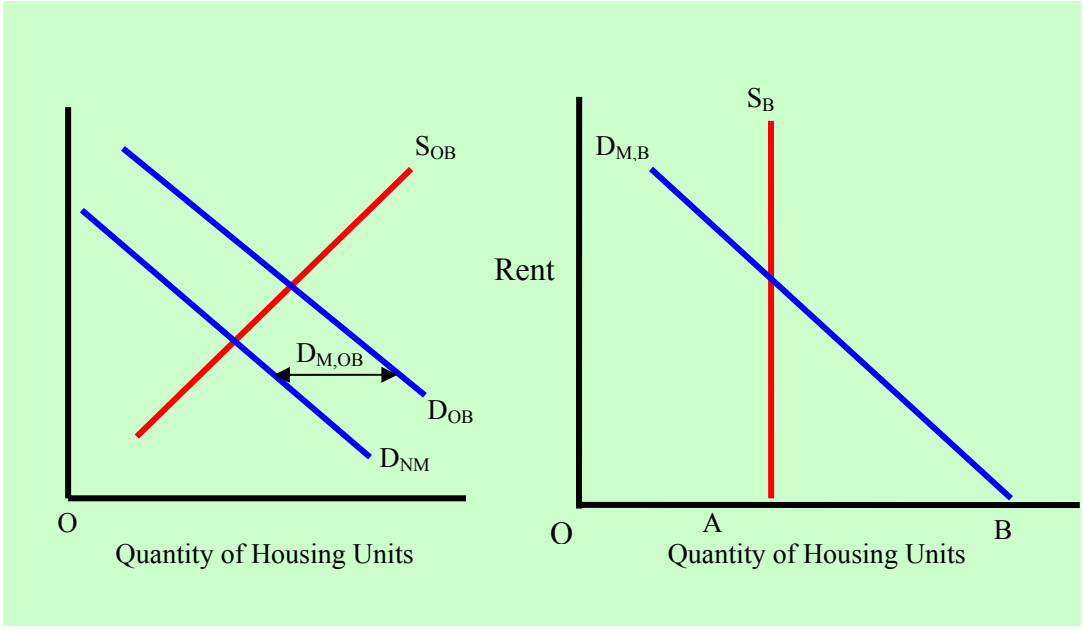


Fig 3A: Off-Base Housing

Fig 3B: On-Base Housing

Demand for Housing by the Military in the HMA

Certain factors affect the demand for houses by the military, both rental and owner occupied, in the HMA. The total demand for HMA houses by military households is *positively* related to the growth in the size of permanent party members (and/or work force) and their families and *inversely* related to the number of any new houses built on base. The demand for rental houses is generally stronger than owner-occupied houses among military families, because of shorter

duration of stay and high transaction costs.[18] Rental units constituted more than two-thirds of total military demand for houses and owner-occupied accounted for less than one-third of total demand in the years between 1998 and 2003. This trend is likely to continue in the near future.

Projection of off-base demand for military housing is made using both Fort Sill workforce and permanent party members. In the absence of an adequate sample size, traditional forecasting analysis using time series techniques and regression analysis could not be performed. Instead we used growth rates of workforce (upper bound estimates) and ratios of off-base occupied units to permanent population (lower bound estimates) to forecast housing demand. Column A in Table 12A shows Fort Sill workforce consisting of military, civilian, contract and other members of the workforce. Workforce data from years 2004 onward are taken from projections of REMI model. The growth in workforce is used to project growth in demand for housing. Columns B, C, and D show the upper bound estimates of demand for rental, owner occupied and total housing respectively. The demand for off-base rental units is expected to grow from 4,940 in year 2004 to 5,242 units in year 2010 and owner-occupied units will grow from 1,876 units to 2010 units in those years, according to these estimates.

The data shows that off-base military houses have higher correlation to the permanent party strength than workforce. Table 12B shows projection of housing demand using permanent party members. Data on permanent party members are drawn from Fort Sill economic impact reports. Column A shows the size of permanent party personnel. The growth of workforce is used to forecast growth of permanent party members for years from 2004 to 2010. We used the 1998-2003 five-year averages of ratios of rental and owner-occupied houses to permanent party

[18] These costs consist mostly of closing costs and time and efforts spent in finding a suitable house to buy. The average transaction cost per year declines with the increase in number of years a house is occupied.

members to derive the lower bound estimates of demand for rental and owner-occupied houses. Demand for off-base rental units and owner-occupied houses will be 4,589 and 1,766 units respectively in year 2010.

Table 12A: Off-Base Military Housing Demand (Upper Bound Estimates)

	A	B	C	D
Year	Work force	Rental Units Demand	Owner Occupied Units Demand	Total Demand
1998	15,205	3,961	1,539	5,500
1999	15,037	3,872	1,499	5,371
2000	13,434	3,872	1,499	5,371
2001	13,983	3,872	1,499	5,371
2002	13,788	3,872	1,491	5,363
2003	14,070	4,891	1,838	6,729
2004	14,358	4,940	1,876	6,816
2005	14,501	4,988	1,894	6,882
2006	14,642	5,050	1,913	6,963
2007	14,826	5,113	1,937	7,050
2008	15,011	5,177	1,961	7,138
2009	15,197	5,242	1,985	7,227
2010	15,387	5,242	2,010	7,252

Source: Housing Administration Office, Fort Sill and estimates prepared for this study.

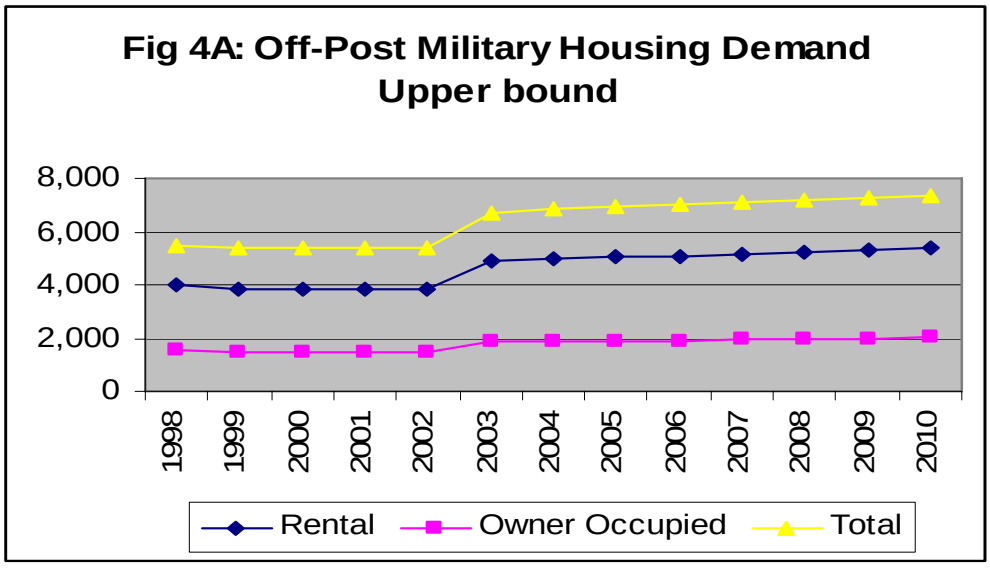
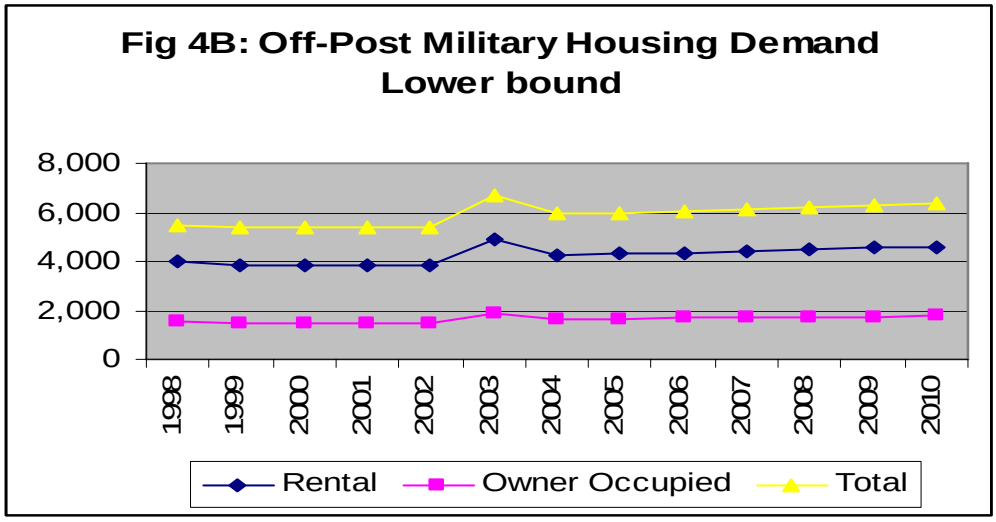


Table 12B: Off-Base Military Housing Demand (Lower Bound Estimates)

Year	A Permanent Personnel	B Rental Units Demand	C Owner Occupied Units Demand	D Total Demand
1998	9,526	3,961	1,539	5,500
1999	8,816	3,872	1,499	5,371
2000	7,790	3,872	1,499	5,371
2001	8,415	3,872	1,499	5,371
2002	8,658	3,872	1,491	5,363
2003	8,978	4,891	1,838	6,729
2004	9,162	4,282	1,648	5,930
2005	9,253	4,325	1,664	5,989
2006	9,343	4,367	1,680	6,047
2007	9,460	4,421	1,701	6,122
2008	9,578	4,477	1,723	6,200
2009	9,697	4,532	1,744	6,276
2010	9,818	4,589	1,766	6,355

Source: Housing Administration Office, Fort Sill and estimates prepared for this study.



Finally, Tables 13A and 13B show the breakdown of houses into owner-occupied and rental units for Comanche County and the HMA and separately for the military occupied units. The last columns show the share of military houses as a percentage of Comanche County and HMA occupied houses.[19] Military demand for owner-occupied houses constituted 8 percent of Comanche County occupied houses and only 4 percent of HMA occupied houses in 2003. According to resulting estimates, the share of owner-occupied houses is expected to increase very slightly for both Comanche County and HMA over the next few years. Military demand constitutes a larger percent of rental units than owner-occupied units. High transaction costs of purchasing a home and the typically short and uncertain lengths of stay for military personnel discourage soldiers from buying homes. The share of military-housed rental units as a percentage of total rental units in Comanche County is expected to grow from 30 percent to 32 percent in 2010. For the HMA, this share is expected to grow from 20 percent in year 2003 to 22 percent in 2010. These estimates indicate that availability of houses per se is not a problem. The primary concern is the availability good quality houses in an affordable price range, given that there is an estimated surplus of over 2000 houses in Comanche County and over 6,000 houses in the HMA.

[19] We have used upper bound estimates of military demand for houses in these tables.

Table 13A: Total Housing Occupancy and Military Housing Occupancy (Comanche County)

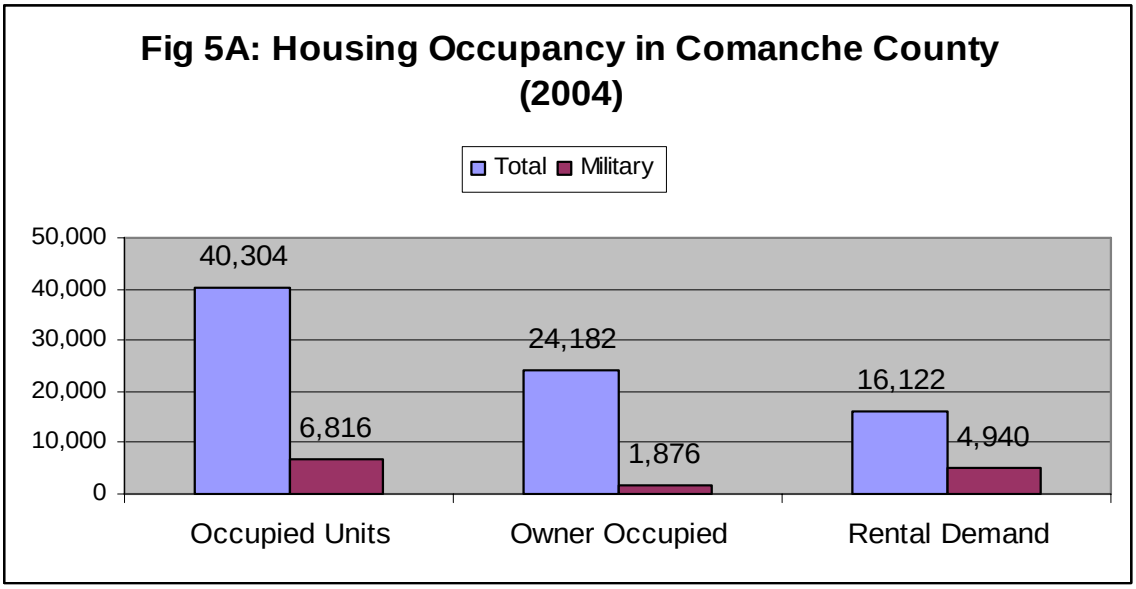
Year	Total Occupied Houses	Owner Occupied Houses	Rental Demand	Military Occupied Units	Military Owner Occupied	Military Rental housing Units	Military Occupancy % of Total Occupancy	Military Owner Occupancy % of Owner Occupancy	Military Rental % of Rental Demand
2009	40,761	24,456	16,304	7,227	1,985	5,242	17.73	8.12	32.15
2010	40,890	24,534	16,356	7,292	2,010	5,242	17.74	8.19	32.09
1992	38,669	23,201	15,468	6,359	1,814	4,555	16.44	7.82	29.45
1993	38,856	23,314	15,543	6,094	1,715	4,379	15.68	7.36	28.17
1994	38,995	23,397	15,598	5,596	1,618	3,978	14.35	6.92	25.50
1995	39,145	23,487	15,658	5,133	1,478	3,655	13.11	6.29	23.34
1996	39,296	23,577	15,718	5,215	1,575	3,640	13.27	6.68	23.16
1997	39,393	23,636	15,757	5,358	1,557	3,801	13.60	6.59	24.12
1998	39,582	23,749	15,833	5,500	1,539	3,961	13.90	6.48	25.02
1999	39,697	23,818	15,879	5,371	1,499	3,872	13.53	6.29	24.38
2000	39,808	24,004	15,804	5,371	1,499	3,872	13.49	6.24	24.50
2001	40,119	24,072	16,048	5,371	1,499	3,872	13.39	6.23	24.13
2002	40,218	24,131	16,087	5,363	1,491	3,872	13.33	6.18	24.07
2003	40,293	24,176	16,117	6,729	1,838	4,891	16.70	7.60	30.35
2004	40,304	24,182	16,122	6,816	1,876	4,940	16.91	7.76	30.64
2005	40,244	24,146	16,098	6,882	1,894	4,988	17.10	7.84	30.99
2006	40,373	24,224	16,149	6,963	1,913	5,050	17.25	7.90	31.27
2007	40,502	24,301	16,201	7,050	1,937	5,113	17.41	7.97	31.56
2008	40,630	24,378	16,252	7,138	1,961	5,177	17.57	8.04	31.85

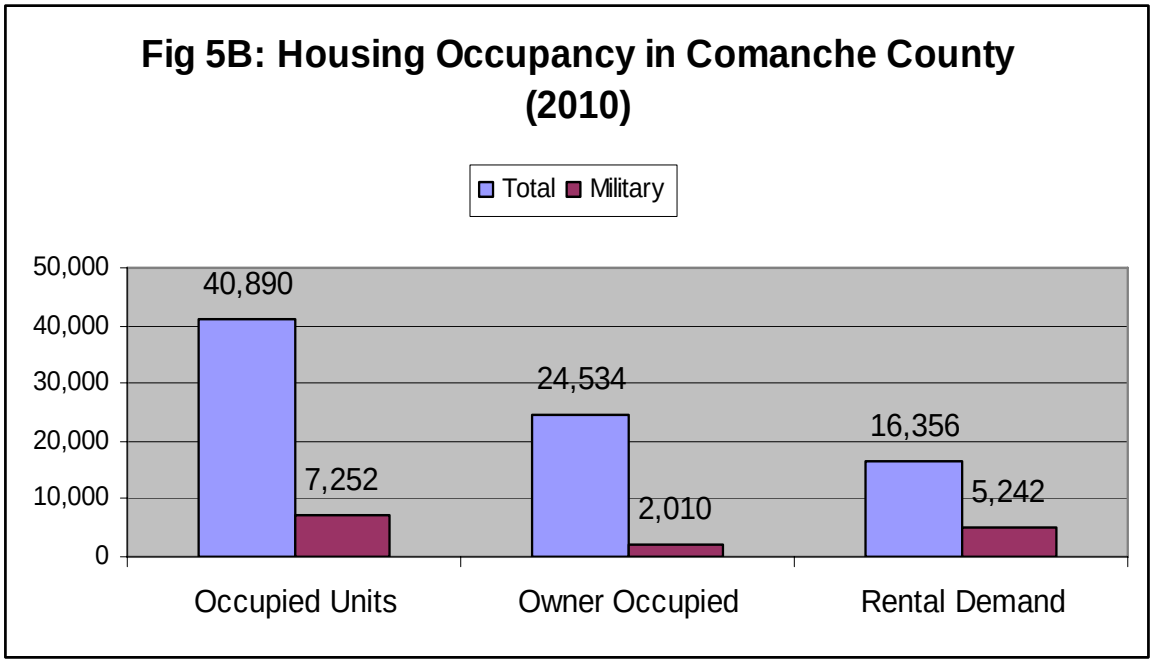
Source: U.S. Census Bureau and Housing Administration Office, Fort Sill.

Table 13B: Total Housing Occupancy and Military Housing Occupancy (HMA)

Year	Total Occupied Houses	Owner Occupied Houses	Rental Demand	Military Occupied Units	Military Owner Occupied	Military Rental housing Units	Military Occupancy % of Total Occupancy	Military Owner Occupancy % of Owner Occupancy	Military Rental % of Rental Demand
2009	73,918	49,272	24,600	7,227	1,985	5,242	9.78	4.03	21.31
2010	74,096	49,419	24,677	7,252	2,010	5,242	10.21	4.07	21.24
1992	71,057	47,207	23,825	6,359	1,814	4,555	8.95	3.84	19.12
1993	71,263	47,339	23,906	6,094	1,715	4,379	8.55	3.62	18.32
1994	71,480	47,481	23,982	5,596	1,618	3,978	7.83	3.41	16.59
1995	71,725	47,629	24,063	5,133	1,478	3,655	7.16	3.10	15.19
1996	71,955	47,785	24,147	5,215	1,575	3,640	7.25	3.30	15.07
1997	72,190	47,938	24,220	5,358	1,557	3,801	7.42	3.25	15.69
1998	72,516	48,151	24,332	5,500	1,539	3,961	7.58	3.20	16.28
1999	73,257	48,326	24,417	5,371	1,499	3,872	7.33	3.10	15.86
2000	72,479	48,404	24,032	5,371	1,499	3,872	7.41	3.10	16.11
2001	72,851	48,550	24,224	5,371	1,499	3,872	7.37	3.09	15.98
2002	73,000	48,636	24,272	5,363	1,491	3,872	7.35	3.07	15.95
2003	73,090	48,726	24,316	6,729	1,838	4,891	9.21	3.77	20.11
2004	73,170	48,786	24,341	6,815	1,876	4,940	9.31	3.85	20.29
2005	73,145	48,776	24,326	6,882	1,894	4,988	9.41	3.88	20.50
2006	73,346	48,906	24,396	6,963	1,913	5,050	9.49	3.91	20.70
2007	73,546	49,035	24,467	7,050	1,937	5,113	9.59	3.95	20.90
2008	73,734	49,155	24,534	7,138	1,961	5,177	9.68	3.99	21.10

Source: U.S. Census Bureau and Housing Administration Office, Fort Sill and estimates prepared for this study.





Affordability of Houses

The foregoing analysis considers the availability of houses in terms of demand and supply. It appears from the projections that there is an adequate number of houses to meet military demand, at present and in the foreseeable future. Affordability, however, can be a problem, even with an adequate supply of houses. Part III above explored affordability in terms of general demand and supply of the HMA. Here we will discuss affordability of houses to the military. Since the military occupies both rental units and owner occupied houses, both markets must be examined.

A primary determinant of affordability of rental houses for the military households is the Basic Allowance for Housing (BAH). BAH for Fort Sill ranges from $498 at the E-1 grade level to $946 at O+ level, for families with dependents and from $460 to $817, for families without

dependents.[20] The median rent in Comanche County ($452.00 according to 2000 Census) was higher than the minimum Basic Allowance for Housing (BAH) that the military household was entitled to in year 2000 ($314 without dependents and $407 with dependents). See BAH table in appendix.

To determine affordability of housing, different rent ranges are aligned against BAH for different pay scales, for military families with dependents and without dependents. This is reported in Table 14. According to 2000 Census, a total of 6,684 rental units, which constituted about 43 percent of all rental units, were available in Comanche County with rents between the minimum and maximum BAH for all military personnel. In year 2000, the military rented 3,872 units which constituted about 25 percent of all occupied rental units.

Military Allowances and Rent Ranges (Comanche County)

Rent Ranges	Without Dependents	With Dependents	Number occupied units
$450 to $499	E-1 to E-4		1,359
$500 to $549	E-5, O-1		1,304
$550 to $599	E-6	E-1 to E-4	930
$600 to $649	E-7, O-2		933
$650 to $699	E-8, O1E, I-2	E-5, O-1	505
$700 to $749	E-9, WO-3 to WO-5 O2E, O-3		540
$750 to $799	O-4 to O-5	E-6 to E-8, O-2	440

[20] BAH for different years are reported in Table A-2.

		O1E to O2E	
$800 to $899	O-6 to O-7	E-9, W-3 to W-5 O3E, O-3 to O-4	389
$900 to $999		O-5 to O-7	284

Source: U.S. Census Bureau and Housing Administration Office, Fort Sill.
Defense Technical Information Center.

An important insight into military affordability of HMA houses can be gained by comparing rents with military allowances. A survey of various rental agencies and apartment owners provides the following information on rental rates[21]:

1. For two-bedroom units, the median rent is $510. Adding utility and rental insurance costs of $118.00[22], the monthly cost of renting two-bedroom units is $628. Only soldiers with dependents belonging to ranks E-5 and above receive more than $628 in housing allowance. For soldiers without dependents, only those with ranks E-8 and above receive more than $628.
2. For three-bedroom units, the median rent is $595. Adding $171 utility costs, the monthly rental cost is $766. Soldiers (with dependents) with ranks E-6 and above receive housing allowances in excess of $766. For soldiers without dependents, only those with ranks WO-4 and above are provided housing allowances higher than the median rent.
3. For four-bedroom units, the median rent is $795. Adding $200.00 utility costs, monthly cost of renting is $1,044. The maximum BAH for any rank is $946.

[21] Information on rents has been collected on 1964 units, out of which 1,734 are apartments and 230 are houses. Since most military families live in Comanche County, we collected information on rents only on this county.
[22] Monthly utility and insurance costs are taken from 2000 Family Housing Market Analysis (FHMA), but have been adjusted upward using the inflation rate from the REMI model.

Table 15: Rents in Comanche County

Houses and Apartments	**1 bedroom**	**2 bedrooms**	**3 bedrooms**	**4 bedrooms**
Median Rents	$395	$510	$595	$795
Average Rents	$395	$508	$608	$843
Fair Market Rents	$397	$506	$702	$770
Total Units	**849**	**903**	**194**	**18**
Apartments				
Median Rents	$395	$510	$685	$792
Average Rents	$399	$508	$624	$777
Fair Market Rents	$397	$506	$702	$770
Total Units	**823**	**844**	**63**	**4**
Houses				
Median Rents	$275	$395	$595	$795
Average Rents	$283	$405	$600	$861
Fair Market Rents	$397	$506	$702	$770
Total Units	**26**	**59**	**131**	**14**

Source: Rental agencies and apartment management in the City of Lawton.

The above analysis suggests that, for military personnel ranked E-5 and below, housing allowances do not appear to be adequate for renting HMA houses or apartments. Housing allowances have not risen proportionately with the cost of renting or owning a house, particularly for lower ranking soldiers. Finally, Table 16 shows a different way of comparing military housing allowances with Fair Market Rent (FMR) by calculating the ratio of military housing allowance to fair market rents of houses depending upon number of bedrooms. Any number less than 100 indicates that the allowance is not sufficient to cover fair market rent of a specific type bedroom. As can be seen from the table, military allowances in 2004 were not adequate to enable E-1-E-8, WO1-WO2, O1E-O2E and O-1-O2 rank military personnel to afford three-bedroom units in Comanche County.

Table 16: Comparison of Military Housing Allowance/ FMR Comanche County[1]

	2000 ratio Military Allowance/ FMR					2004 ratio Military Allowance/ FMR				
Rank	0 bedrooms	1 bedroom	2 bedroom	3 bedroom	4 bedroom	0 bedroom	1 bedroom	2 bedroom	3 bedroom	4 bedroom
E1-E4	85.79	85.09	66.81	48.16	43.92	116.46	115.87	90.91	65.53	59.74
E-5	96.99	96.21	75.53	54.45	49.65	131.14	130.48	102.37	73.79	67.27
E-6	105.46	104.61	82.13	59.20	53.99	140.00	139.29	109.29	78.77	71.82
E-7	114.48	113.55	89.15	64.26	58.60	152.15	151.39	118.77	85.61	78.05
E-8	130.87	129.81	101.91	73.47	66.99	170.38	169.52	133.00	95.87	87.40
E-9	141.26	140.11	110.00	79.29	72.31	179.49	178.59	140.12	101.00	92.08
WO1	122.68	121.68	95.53	68.87	62.80	146.33	145.59	114.23	82.34	75.06
WO2	129.78	128.73	101.06	72.85	66.43	170.13	169.27	132.81	95.73	87.27
WO3	144.26	143.09	112.34	80.98	73.85	180.51	179.60	140.91	101.57	92.60
WO4	155.46	154.20	121.06	87.27	79.58	194.94	193.95	152.17	109.69	100.00
WO5	173.22	171.82	134.89	97.24	88.67	197.97	196.98	154.55	111.40	101.56
O1E	122.95	121.95	95.74	69.02	62.94	164.56	163.7	128.46	92.59	84.42
O2E	140.16	139.02	109.15	78.68	71.75	177.47	176.57	138.54	99.86	91.04
O3E	153.55	152.30	119.57	86.20	78.60	194.18	193.20	151.58	109.26	99.61
O-1	106.83	105.96	83.19	59.97	54.69	138.23	137.53	107.91	77.78	70.91
O-2	123.50	122.49	96.17	69.33	63.22	160.00	159.1	124.90	90.03	82.08
O-3	147.81	146.61	115.11	82.98	75.66	183.54	182.62	143.28	103.28	94.16
O-4	170.22	168.83	132.55	95.55	87.13	197.72	196.73	154.35	111.25	101.43
O-5	184.15	182.66	143.40	103.37	94.27	199.75	198.74	155.93	112.39	102.47
O-6	190.16	188.62	148.09	106.75	97.34	202.78	201.76	158.30	114.10	104.03
O-7+	20.01	204.34	160.43	115.64	105.45	206.84	205.79	161.46	116.38	106.10

Source: Defense Technical Information Center.
[1]Calculations are based on military allowances without dependents.

Demand for off-base owner occupied houses depends on, *inter alia*, the price of houses, interest rate, income/wealth of permanent party members, average duration of stay, availability of Veteran Administration (VA) loans and the amount of Basic Allowance for Housing (BAH). Since military families use BAH to pay monthly mortgages on houses, we have calculated the range of prices of houses that have mortgage payments equal to BAH at different pay scales. This is shown in Table 17. Current housing allowances allow the military to afford mortgages for houses with prices ranging from $70,000 to $150,000.

Table 18 depicts the price range of houses in Lawton. Prices of new, 3-bedroom houses range from $96,000 to $127,500, 4-bedroom units range from $136,000 to $170,000, and 5-bedroom units from $160,000 to $212,500 based on different square feet areas. Similarly, prices for 5-year old houses with 3 bedrooms range from $92,400 to $123,000, 4 bedrooms from $130,900 to $164,000, and 5 bedrooms from $154,000 to $205,000. For 15-year old houses, housing prices vary from $72,000 for 3-bedrooms units to $180,000 for 5-bedroom units. According to Census 2000 data, more than 50 percent of the owner-occupied housing is within the price range of $50,000 to $90,000. On the one hand, this data indicates availability of houses within the affordable range; on the other hand, many houses in that price range, particularly at the lower end, are substandard houses.

Table 17: Affordability of Houses at Various Interest Rates (30-year fixed mortgage)

House Prices	PMT @ 6%	Ranks	PMT @ 6.5%	Ranks	PMT @ 7%	Ranks
$70,000	$420	All Ranks	442	All Ranks	$466	E-5 and above
$75,000	$450	All Ranks	$474	E-5 and above	$499	E-6 and above
$80,000	$480	E-5 and above	$506	E-5 and above	$532	O-2 to O-7
$85,000	$510	E-5 and above	$537	E-6 and above	$566	O-2 to O-7
$90,000	$540	E-6 and above	$569	O-2 to O-7	$599	O-2 to O-7
$95,000	$570	O-2 to O-7	$601	O-2 to O-7	$632	O-2 to O-7
$96,000	$576	O-2 to O-7	$607	O-2 to O-7	$639	O-2 to O-7
$100,000	$600	O-2 to O-7	$633	O-2 to O-7	$665	O-2 to O-7
$105,000	$630	O-2 to O-7	$664	O-2 to O-7	$699	O-2 to O-7
$110,000	$660	O-2 to O-7	$696	O-2 to O-7	$732	O-2 to O-7
$115,000	$690	O-2 to O-7	$728	O-2 to O-7	$765	O-2 to O-7
$120,000	$720	O-2 to O-7	$759	O-2 to O-7	$798	O-2 to O-7
$125,000	$750	O-2 to O-7	$791	O-2 to O-7	$832	O-2 to O-7
$127,500	$765	O-2 to O-7	$807	O-2 to O-7	$849	O-2 to O-7
$130,000	$780	O-2 to O-7	$823	O-2 to O-7	$865	O-2 to O-7
$135,000	$810	O-2 to O-7	$854	O-2 to O-7	$898	O-2 to O-7
$136,000	$816	O-2 to O-7	$860	O-2 to O-7	$905	O-2 to O-7
$140,000	$840	O-2 to O-7	$886	O-2 to O-7	$931	O-2 to O-7
$145,000	$870	O-2 to O-7	$918	O-2 to O-7	$965	O-2 to O-7
$150,000	$900	O-2 to O-7	$949	O-2 to O-7	$998	O-2 to O-7
$155,000	$930	O-2 to O-7	$981	O-2 to O-7	$1,032	O-2 to O-7
$160,000	$960	O-2 to O-7	$1,012	O-2 to O-7	$1,065	O-2 to O-7
$165,000	$990	O-2 to O-7	$1,044	O-2 to O-7	$1,098	O-2 to O-7
$170,000	$1,020	O-2 to O-7	$1,076	O-2 to O-7	$1,131	O-2 to O-7
$175,000	$1,050	O-2 to O-7	$1,107	O-2 to O-7	$1,165	O-2 to O-7
$180,000	$1,080	O-2 to O-7	$1,139	O-2 to O-7	$1,198	O-2 to O-7
$185,000	$1,110	O-2 to O-7	$1,170	O-2 to O-7	$1,231	O-2 to O-7
$190,000	$1,140	O-2 to O-7	$1,202	O-2 to O-7	$1,264	O-2 to O-7
$195,000	$1,170	O-2 to O-7	$1,234	O-2 to O-7	$1,298	O-2 to O-7
$200,000	$1,200	O-2 to O-7	$1,265	O-2 to O-7	$1,331	O-2 to O-7
$205,000	$1,230	O-2 to O-7	$1,297	O-2 to O-7	$1,364	O-2 to O-7
$212,500	$1,275	O-2 to O-7	$1,344	O-2 to O-7	$1,414	O-2 to O-7

$100,000	$600	O-2 to O-7 O1E to O3E I-2 to W-5 E-7 to E-9	$632	O-2 to O-7 O1E to O3E I-2 to W-5 E-8 to E-9	$665	O-3 to O-7 O2E to O3E I-2 to W-5 E-8 to E-9
$110,000	$660	O-3 to O-7 O2E to O3E I-2 to W-5 E-7 to E-9	$695	O-3 to O-7 O2E to O3E W-3 to W-5 E-9	$732	O-4 to O-7 O3E W-4 to W-5
$120,000	$719	O-3 to O-7 O1E to O3E I-2 to W-5 E-9	$758	O-4 to O-7 O3E W-4 to W-5	$798	O-6 to O-7
$130,000	$799	O-6 to O-7	$822	O-4 to O-7 w/d	$865	O-5 to O-7 w/d
$140,000	$839	O-4 to O-7 w/d	$885	O-5 to O-7 w/d	$931	O-7 w/d
$150,000	$899	O-5 to O-7 w/d	$948		$998	

Source: Defense Technical Information Center.

Table 18: House Prices in Lawton

	New Houses			5 years Old			10 Years Old			15 Years Old		
No. of Bed Rooms	**$/sq feet**	**Total Area (sq feet)**	**Price In Dollars**	**$/sq feet**	**Total Area (sq feet)**	**Price In Dollar**	**$/sq feet**	**Total Area (sq feet)**	**Price In Dollars**	**$/sq feet**	**Total Area (sq feet)**	**Price In Dollars**
3 Bed Rooms	80	1,200	96,000	77	1,200	92,400	70	1,200	84,000	60	1,200	72,000
	80	1,500	120,000	77	1,500	115,500	70	1,500	105,000	60	1,500	90,000
	85	1,200	102,000	82	1,200	984,00	76	1,200	91,200	72	1,200	86,400
	85	1,500	127,500	82	1,500	123,000	76	1,500	114,000	72	1,500	108,000
4 Bed Rooms	80	1,700	136,000	77	1,700	130,900	70	1,200	84,000	60	1,700	102,000
	80	2,000	160,000	77	2,000	154,000	70	1,500	105,000	60	2,000	120,000
	85	1,700	144,500	82	1,700	139,400	76	1,200	91,200	72	1,700	122,400
	85	2,000	170,000	82	2,000	164,000	76	1,500	114,000	72	2,000	144,000
5 Bed Rooms	80	2,000	160,000	77	2,000	154,000	70	1,200	84,000	60	2,000	120,000
	80	2,500	200,000	77	2,500	192,500	70	1,500	105,000	60	2,500	150,000
	85	2,000	170,000	82	2,000	164,000	76	1,200	91,200	72	2,000	144,000
	85	2,500	212,500	82	2,500	205,000	76	1,500	114,000	72	2,500	180,000

Source: Estimates from local builders.

Quality of Housing

Second in importance only to availability and affordability, quality of houses is an important dimension of the housing market. Housing quality varies substantially in Comanche County and the rest of the HMA depending on neighborhood conditions, age of the house, proximity to schools and parks, and the area crime rate. Houses with rents below $400 are likely to be of relatively poor quality. The 2002 Family Housing Marketing Analysis used an estimate of 28 percent of non-mobile rental houses as substandard by DOD (Department of Defense) criteria.

Discussions with major rental agencies (Sundance Rentals, Park Jones Realty, White

Glove/REMAX Rentals and American Real Estate) and a survey of area apartments, seem to indicate that less than 5 percent of rental units need major repair and would be considered substandard by DOD criteria. Census 2000 suggests that 6 percent of the housing stock consist of mobile units. Excluding 11 percent from the market on grounds that these houses do not meet DOD criteria (5 percent for units needing major repairs and 6 percent for mobile units), we derived quality adjusted supply estimates for both Comanche County and the HMA. These estimates are reported in Table 19A and 19B. According to these estimates, there was a shortage of 2,788 units of quality housing in Comanche County that met DOD criteria in year 2004. This shortage is expected to grow up to 3,165 units in year 2010. For the HMA, the shortage is 4492 units, and is projected to grow to 4,620 units in year 2010.

Thus the analysis indicates that there are not sufficient code-qualified houses to meet housing needs of the entire area population including the military population. This finding confirms the finding of the `Family Housing Market Analysis' – a study conducted on the Fort Sill military housing needs, although the estimates of the shortage of houses differs between the two studies. Currently Fort Sill plans to build another 1,798 housing units on base under the RCI (Residential Community Initiatives). If materialized, this will reduce the amount of projected shortage for off-base housing derived from our analysis.

Table 19A: Housing Demand and Supply Adjusted for Quality and DOD Standards (Comanche County)

	A	B	C	D
Years	**Housing Demand**	**Supply**	**Quality Adjusted Supply**	**Quality Adjusted Shortage**
1990	39,190	43,589	38,925	265
1991	39,199	43,720	39,042	157
1992	42,504	43,942	39,240	3,264
1993	41,801	44,155	39,430	2,371
1994	41,730	44,312	39,571	2,159
1995	41,027	44,483	39,723	1,304
1996	40,992	44,654	39,876	1,116
1997	40,746	44,765	39,975	771
1998	40,641	44,980	40,167	474
1999	40,816	45,110	40,283	533
2000	41,447	45,416	40,556	891
2001	41,916	45,590	40,712	1,204
2002	42,067	45,702	40,812	1,255
2003	43,648	45,787	40,888	2,760
2004	43,687	45,800	40,899	2,788
2005	44,164	45,732	40,839	3,325
2006	44,284	45,878	40,969	3,315
2007	44,405	46,025	41,100	3,305
2008	44,444	46,171	41,231	3,292
2009	44,563	46,319	41,363	3,160
2010	44,659	46,466	41,494	3,165

Source: U.S. Census Bureau and estimates prepared for this study.

Table 19B: Housing Demand and Supply Adjusted for Quality and DOD Standards (HMA)

	A	B	C	D
Years	**Housing Demand**	**Supply**	**Quality Adjusted Supply**	**Quality Adjusted Shortage**
1990	72,725	82,100	71,984	741
1991	72,761	82,291	72,152	609
1992	76,417	82,594	72,418	3,999
1993	75,794	82,837	72,634	3,160
1994	75,879	83,090	72,855	3,024
1995	75,122	83,355	73,086	2,036
1996	75,207	83,633	73,330	1,877
1997	75,080	83,899	73,558	1,522
1998	75,015	84,277	73,887	1,128
1999	74,864	84,580	74,148	716
2000	75,435	83,670	73,118	2,317
2001	76,201	83,884	73,308	2,893
2002	76,264	84,036	73,443	2,821
2003	77,841	84,189	73,578	4,263
2004	78,153	84,290	73,661	4,492
2005	78,605	84,264	73,635	4,970
2006	78,732	84,495	73,835	4,897
2007	78,802	84,727	74,035	4,767
2008	78,748	84,944	74,224	4,524
2009	78,789	85,155	74,408	4,381
2010	79,250	85,414	74,630	4,620

Source: U.S. Census Bureau and estimates prepared for this study.

Based upon the need for code-qualified housing, as identified in this study, it is appropriate to consider methods for increasing the number of properties that satisfy DOD standards. Discussions with the local Home Builders' Association, with realtors, and with landlords indicates that the primary factors in developing and repairing residential properties are (1) cost and (2) availability of tenants that can afford the properties.

Given the surplus of properties in the area, this study reviewed various aspects of renovation and repair costs estimated necessary to cause existing properties to satisfy the DOD (Department of Defense) code standard. The annualized average cost of maintenance and repair of houses in different age-groups is shown in Table 20. The total cost of $25,000 to rehabilitate a house (which is required every 25 years) includes maintenance costs and re-roofing costs. For houses from 0 to 40 years, the total annualized average cost of bringing the house to the standard is $2,700 and for houses over 40 years old, the cost is $6,450. At this rate, the annualized cost of maintaining a stock of 1,000 code-qualified houses that are between 0 and 20 years old is $2.7 million.

The average quality of the housing stock can be increased by building new houses or renovating and upgrading old houses. For very old houses, cost benefit analysis may dictate demolition of rather than renovation. Demographics, privacy issues and other variables did not allow for hands-on analysis of properties suitable for demolition in the HMA. However, it is readily apparent, based on external analysis, that the shortage of good quality houses in the area should be addressed by development of additional single-family and multi-family units over the next few years before the shortage becomes acute.

Table 20: Annualized Cost of Repair[1]

	Maintenance			Re-roofing			Rehabilitation		
Age group	**Per unit cost**	**% required every year**	**Average cost/year**	**Per unit cost**	**% required every year**	**Average cost/year**	**Per unit cost**	**% required every year**	**Average cost/year**
0-20	$5,000	$0.20	$1,000	$4,500	0.10	$450	$25,000	0.05	$1,250
20-30	$5,000	$0.20	$1,000	$4,500	0.10	$450	$25,000	0.05	$1,250
30-40	$5,000	$0.20	$1,000	$4,500	0.10	$450	$25,000	0.05	$1,250
40+	$5,000	$0.20	$1,000	$4,500	0.10	$450	$25,000	0.05	$5,000

Source: Brune Engineering.
[1]Maintenance is required every 5 years; re-roofing and rehabilitation are required every 25 years.

SECTION THREE—CONCLUSIONS AND RECOMMENDATIONS

V. SUMMARY AND POLICY RECOMMENDATIONS

The objective of this study was to quantify the housing needs of the military population of Fort Sill located in Lawton, Oklahoma, and to investigate whether Comanche County and the surrounding counties have an adequate supply of houses that meet the DOD standards. To address this issue, we attempted to derive a quantified estimate of housing demand and supply in Comanche County and the HMA. Since most military live in Comanche County in close proximity to base, more emphasis was placed on the housing market characteristics of Comanche County than the rest of the HMA.

Most studies indicate a close linkage between population growth and housing needs, and therefore the pattern of demographic changes are thoroughly examined. Population projections and household sizes are universally adopted for projection of housing needs. For military housing needs projection, we have used projected growth in Fort Sill workforce and permanent party population. A comparison of military demand with the estimate of HMA demand and supply indicates that demand for family housing units by the military constitutes only a small percent of the total demand for houses. The availability of houses per se is not the problem, given that there is an estimated surplus of over 2000 houses in Comanche County and about 6,000 houses in the HMA. The bigger question concerns the availability good quality houses at an affordable price range.

To determine affordability, this study juxtaposes military allowances with fair market rent and median rent from our survey of houses and apartments. A thorough analysis of the military affordability of off-base houses has been conducted above using different criteria, such as the

fair market rent, median rent, mortgage payments at different interest rate, etc and comparing them with military allowances. Military allowances for higher ranks generally allow the military to rent good quality rental units or purchase houses with affordable mortgage payments. This study indicates that even though houses are generally cheaper and rent payments are generally lower than major metropolitan area, affordability is a problem for lower rank soldiers, particularly for those from rank E1 to E5 with dependents.

Finally the study evaluated the quality of the housing stock. Housing is an important index of quality of life. Living in quality houses greatly enhances the quality of life. Quality not only implies the condition and maintenance of the house but also neighborhood conditions, age of the house, proximity to schools and parks, and the area crime rate. An accurate estimate on the quality of houses is unavailable. Based upon DOD criteria, a reasonable estimate suggests that 5 percent of houses may be considered substandard. This estimation has also been used in our analysis based on the survey of apartments and discussions with rental agencies and homebuilders. An estimate of good quality housing stock is derived by deducting 5 percent for substandard houses and 6 percent for immobile houses from our original estimate of supply. Revised estimates show that there is a shortage of good quality houses in the area. We presented some estimate of costs to renovate and upgrade houses to bring them up to the DOD standard. The shortage of good quality houses in the area should be addressed through building more single family and multi-family units, over the next few years, before the shortage becomes an acute one.

Free forces of demand and supply in a housing market do not always produce affordable units for a significant segment of the population. For low income people, affordability of good-quality houses is a major concern. Policies directed either at the buyers/renters of houses or

homeowners/builders are required at the federal, state and local level to meet the shortage of affordable, quality housing units. There are six federal housing programs which are in place.

1) **Housing Voucher Supplement** tenant's rental payment in privately owned, moderately priced permanents chosen by the tenants. This program covered 1.6 million households.
2) **Low-income Housing Tax Credits** provide tax incentives for private equity investments and are often used in conjunction with other federal, state and local government and private subsidies in the production of new and affordable housing priorities. This program covers 70,000 units.
3) **Hope IV** provides grants - mixed with funds from other federal, state, local and private sources - to revitalize severely distressed public housing, support community and social services and promote mixed-income communities.
4) **Part 202** provides grants to develop supportive housing for the elderly and project-based rental assistance.
5) **Part 811** provides grants to develop supportive housing for persons with disabilities and project-based rental assistance.
6) **Part 515** provided below market loans to support the development of housing for families and the elderly in rural areas and project-based rental assistance through the part 521 program.

In addition, there are also specific programs funded by the federal government. These programs include:

1) **Development Block (CDBG) Program**. The funds are used for housing assistance for low- and moderate income homeowners for housing rehabilitation, emergency home repair, demolition, and housing improvements needs.

2) **HOME Investment Partnerships (HOME) Program.** This program provides funds to support Lawton's local housing programs. The funds are used to assist low-and moderate –income homeowners, home buyers, and renters in purchase, construction, rehabilitation, or rental of decent, safe, sanitary and affordable housing. Home funds also support Community Housing Development Organization (CHDO) activities to develop affordable housing.

3) **Capital Fund Grant (CFG) Program.** HUD is proposing a financial reform with regard to public housing's backlog of capital needs. In order to address this backlog of capital improvement needs for public housing, they are proposing an alternative and voluntary financing method, which would involve converting current public housing grants to project based Part 8 financing and private market borrowing for capital improvements.

The following policies can be either strengthened or introduced to provide incentives to local builders to build affordable units for the lower rank military and low income population.

1. Builders have to pay land acquisition expenses, development and designing costs, and undertake before they start actual construction. Rents should cover the total costs of providing a housing unit in the private rental housing market. The total costs include, in addition to building a unit, operating expenses such as administrative expenses, utilities, debt service, etc. If the present value of rents does not cover the total development and operating costs, there will be no incentive to build rental units. Banks, in conjunction

with the government, can provide low interest loans to builders. Developers can benefit from public subsidies to leverage private funds for home construction. The Millennium Commission[23] suggested that states could issue tax-exempt debt for multifamily projects, with the condition that eligible properties must restrict rents on at least 20 per cent of the units to make them affordable to occupants with incomes below 80 per cent of AMI.[24]. The Commission concluded that access to credit, at the lowest feasible rent, is critical to the production of housing, and that builders can pass on the savings to renters or home buyers.

2. Developers, in addition to costs, face the risk of not being to able to sell or rent all the units. The military can reserve a block of units for their personnel to lessen risks for homebuilders at guaranteed rent payments.
3. Multifamily units, such as the ones being developed by McSha properties, should be encouraged. The 2000 Census reports that Comanche County has only 1,321 structures with 20 or more units, which is only 3 percent of all structures and 8 percent of all occupied units. Multifamily construction should target people with lower income ratings and may ease up the shortage of good-quality rental units.
4. Building more single family homes at price ranges from about $80,000 to $120,000 houses will make houses affordable to soldiers with ranks from E1 to E5. New construction at current market prices cost between $96,000 and $127,500 for three-bedroom houses. Since the affordable price range falls below the expected price range from a profit-maximizing viewpoint, builders will need incentives to build houses within

[23] Millennial Housing Commission, *Meeting Our Nation's Housing Challenges, 2002*.
[24] AMI is the acronym for "area's median income".

those price ranges. Oklahoma's Affordable Housing Tax Credit Program is designed as a "tool for creation and maintenance of rental housing units for low and very low- income households in the state of Oklahoma" to further such goals as 1) make such units affordable to households having the lowest income and 2) assist in the provision of quality housing at a reasonable cost to meet a variety of needs, including family, elderly and special needs population. The tax credit program is a good one, but the application process is complex and needs to be simplified.

5. For individual households who need incentives to afford new housing, the First Time Home Buyers Program and Veteran Administration loan and low interest mortgage stand out as important incentives.

In summary, the study concludes that there is an adequate number of houses in Comanche County and the HMA to meet the housing needs of the entire population including the military population. However, our analysis indicates that there are not enough houses to meet housing needs of the entire area population including the military population, if the housing stock is adjusted for quality. Even though houses are generally cheaper and rent payments are generally lower than in major metropolitan areas, housing allowances, particularly for those who are E5 and below, are not adequate for renting good quality houses or apartments. Housing allowances have not risen proportionately with the cost of renting or owning homes. A gap seems to exist between the average rent/price of housing that meet DOD Code Standards and the rent/price that military personnel of lower ranks can afford.

APPENDIX

Table A-1: Home and Rental Vacancy Rates for HMA and Selected Counties.

HMA	Total Housing Units	Total Occupied Units	Total Vacant Units	Vacancy Rate	
				Home Ownership Rate	Rental Rate
County					
Caddo	13,096	10,957	2,139	3.4	11.5
Comanche	45,416	39,808	5,608	4.3	13.2
Kiowa	5,304	4,208	1,096	5.5	19.4
Stephens	16,940	14,761	2,179	2.6	8.9
Oklahoma					
Tulsa	243,953	226,892	17,061	1.6	8.6
Oklahoma	295,020	266,834	28,186	2.1	11.4
New York					
Bronx	490,659	463,212	27,447	2.0	4.2
Orange	122,754	114,788	7,966	1.5	4.3
Texas					
Wichita	53,304	48,441	4,863	2.3	11.2
Dallas	854,119	807,621	46,498	1.3	6.3

Source: U.S. Census Bureau.

Table A-2: Military Housing Allowance

	2004		2003		2002		2001		2000	
Rank	with depend	w/o depend	with depend	w/o depend	with depend	w/o depend	with depend	w/o depend	with depend	w/o depend
E-1	598	460	506	392	505	356	461	329	407	314
E-2	598	460	506	392	505	356	461	329	407	314
E-3	598	460	506	392	505	356	461	329	407	314
E-4	598	460	506	392	505	356	461	329	407	314
E-5	650	518	561	440	561	418	514	382	486	355
E-6	767	553	687	470	614	456	533	415	514	386
E-7	779	601	700	509	618	508	553	465	553	419
E-8	793	673	714	575	622	571	596	518	596	479
E-9	804	709	752	618	651	588	651	524	651	517
W-1	767	578	687	490	614	483	533	449	521	449
W-2	785	672	706	574	620	571	571	518	571	475
W-3	801	713	723	623	625	589	617	528	617	528
W-4	805	770	763	690	664	615	664	569	664	569
W-5	809	782	809	703	699	634	696	634	696	634
O1E	782	650	703	561	619	561	562	514	562	450
O2E	799	701	721	609	624	584	611	522	611	513
O3E	805	767	770	687	672	614	672	562	672	562
O-1	663	546	567	464	567	448	517	407	505	391
O-2	764	632	684	541	613	541	532	496	514	452
O-3	801	725	722	637	625	595	616	541	616	541
O-4	829	781	829	701	716	623	710	623	710	623

O-5	904	789	904	710	810	674	810	674	810	674
O-6	911	801	911	723	843	696	843	696	843	696
O-7+	946	817	946	754	946	754	946	754	946	754

Source: Defense Technical Information Center.

Survey Questionnaire

The following questionnaire was used for interviewing the apartment management.

The objective of the questionnaire is to determine the quantity and quality of rental units in Lawton-Fort Sill and the surrounding region (within 20-mile radius of Fort Sill) and to investigate whether rental housing meets DOD code standards. Attached please find DOD code standards.

Please circle the appropriate response, unless otherwise indicated.

1. Please indicate the total number of apartments by bedroom and the corresponding rent per apartment.
   1. __1 BDR $_____per month
   2. __2 BDR $_____per month
   3. __3 BDR $_____per month
   4. __4 or more BDR $_____per month

2. Are any of the apartment units vacant?
   1. No
   2. Yes

3. If yes, please indicate the number of vacant apartments per bedroom?
   1. ___1 BDR
   2. ___2 BDR
   3. ___3 BDR
   4. ___4 or more BDR
   5. ___ Total

4. In your best estimation, how long do the apartments (described in question 3) remain vacant?
   ___less than 1 month
   ___about 1-3 months
   ___between 4-6 months
   ___more than 6 months
   ___1 year
   ___more than 1 year

5. Please indicate if the following facilities are present in the Apartment Complex.

____Laundry Facilities
____Pest control Program
____Smoke Detectors
____Extractor Fans
____ Adequate Parking
____ Sewage Disposal
____ Facilities for proper drainage

6. How would you rate your plumbing facilities?
Not at all good Good Very Good

7. Was there any major plumbing problem last year?
1. No
2. Yes

If Yes, What caused the problem? Please give details

_____

_____

_____

9. Do all your units meet the DOD code standards (Please see attached)?
1. No
2. Yes

If no, what percentage of your units does not meet code standards? Explain.

_____

_____

_____

10. What percent of your units are rented by military households?

11. In your perception, is there a shortage of affordable rental housing for the military? Explain.

_____

_____

_____

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