

# 2005 HOUSING REQUIREMENTS ANALYSIS UPDATE

1 DECEMBER 2005



**FORT DRUM  
NEW YORK**

**Headquarters, Department of the Army  
Assistant Chief of Staff for Installation Management**

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## REQUIREMENTS SUMMARY – FORT DRUM

### BACKGROUND

This summary reports both the accompanied and unaccompanied government-provided housing requirements for military personnel stationed at Fort Drum. Current and projected total permanent-party military personnel were obtained from ASIP documents (SAMAS of February 2005) and adjusted to reflect proposed changes due to realignment of units within the Army (Headquarters, Department of the Army, 2005). This analysis updates the 2004 Housing Market Analysis (HMA) for Fort Drum (Robert D. Niehaus, Inc., 2004).

### KEY ASSUMPTIONS AND RESULTS

This analysis is based on criteria and methods approved by Headquarters, Department of the Army (2005), and reflects current guidance by the Office of the Secretary of Defense (OSD) regarding requirements analyses for military housing. Table 1 summarizes this study's key assumptions and results.

**Table 1. Government-Provided Military Housing Required and Key Assumptions, Fort Drum, 2010**

<b>Assumptions/Results</b>	<b>Accompanied</b>	<b>Unaccompanied</b>
1. Methodology Consistent with OSD Guidance for All Services		
2. Market Area is Based on a 20-Mile Commute		
3. Rental Mobile Homes are Inadequate for Military Members		
4. 2005 Basic Allowance for Housing (BAH) and Community Rental Costs		
5. One Bedroom Per Family Member for Accompanied, BAH Standard for Unaccompanied		
6. Unaccompanied E1-E5 Housed On Post		
7. Military Homeowners Estimated From 1997 VHA Survey and Recent Trends		
8. Based on Total Personnel of 17,164 in 2010 as Projected in Feb 2005 SAMAS and Aug G3 Force File		
Total Effective Housing Requirement	8,967	7,280
Floor Requirement		
On-Post Military Community	-	na
Key and Essential Personnel	102	na
Historic Housing	-	na
Quality of Life	-	na
Total Floor Requirement (see note)	102	6,206
Community Housing Shortfall	5,075	455
Initial Housing Requirement	5,177	na
On-Post Military Community Adjustment (see note)	-	na
Government-Provided Housing Requirement		
Total Military Housing Requirement	5,177	6,661
Percent Of Total Effective Housing Requirement	58%	91%
On-Post Housing Inventory	2,272	
Deficit/(Surplus)	2,905	6,661

Note: The on-post military community component of the accompanied floor requirement was initially assumed to be zero. The floor requirement for accompanied personnel reflects the greatest requirement among the other three categories on an individual grade basis. The on-post military community adjustment reflects any necessary increases when the initial housing requirement is less than 10 percent of the effective families on a grade by grade basis (see text). The floor requirement for unaccompanied personnel comprises all unaccompanied E1-E5 personnel.

Source: Headquarters, Department of the Army, 2005; and estimates prepared for this study.

The following points compare the results of this study to those of the 2004 HMA:

- The projected 2010 requirement is 5,177 family housing units, 9 less than the projected 2009 requirement of 5,186 units.
- The 2010 projection of total active-duty permanent-party military personnel is 17,164, which is 1,253 more than the 2009 projection of 15,911 personnel. The projected number of military families in 2010 is 8,967, or 665 more than the projected 2009 count of 8,302 families.
- The reduction in the on-post family housing requirement in spite of an increase in the number of families is due in part to a re-definition of the floor requirement. This study does not include the 10-percent on-post community factor in determining the floor requirement. Thus, the projected 2010 floor requirement in this analysis is 102 family housing units, or 802 units less than the projected 2009 floor requirement of 904 units.
- Currently, Fort Drum leases 2,000 housing units in the community for the exclusive use of military families. For the purposes of this study all leases are assumed to expire by 2010, at which time these leased units would convert from military housing to market-rate community housing. Of the 2,000 leased units 1,598 units are located within the market area, and are added to the private-sector rental housing stock in 2010. However, it is assumed that 70 percent of the leased units will continue to be occupied by the military families who are currently living in those units after the leases expire.
- Rental housing is less affordable now than it was in 2004 for military personnel in the Fort Drum market area. Rental costs have increased by an estimated 7.9 percent in the past year, while the weighted average Maximum Allowable Housing Cost (including both Basic Allowance for Housing and Out-Of-Pocket amounts) increased by 0.03 percent.
- Private builders are starting to respond to increased area housing demand. Additional market response of about 100 units per year above what was projected in the 2004 HMA has been incorporated into this update.

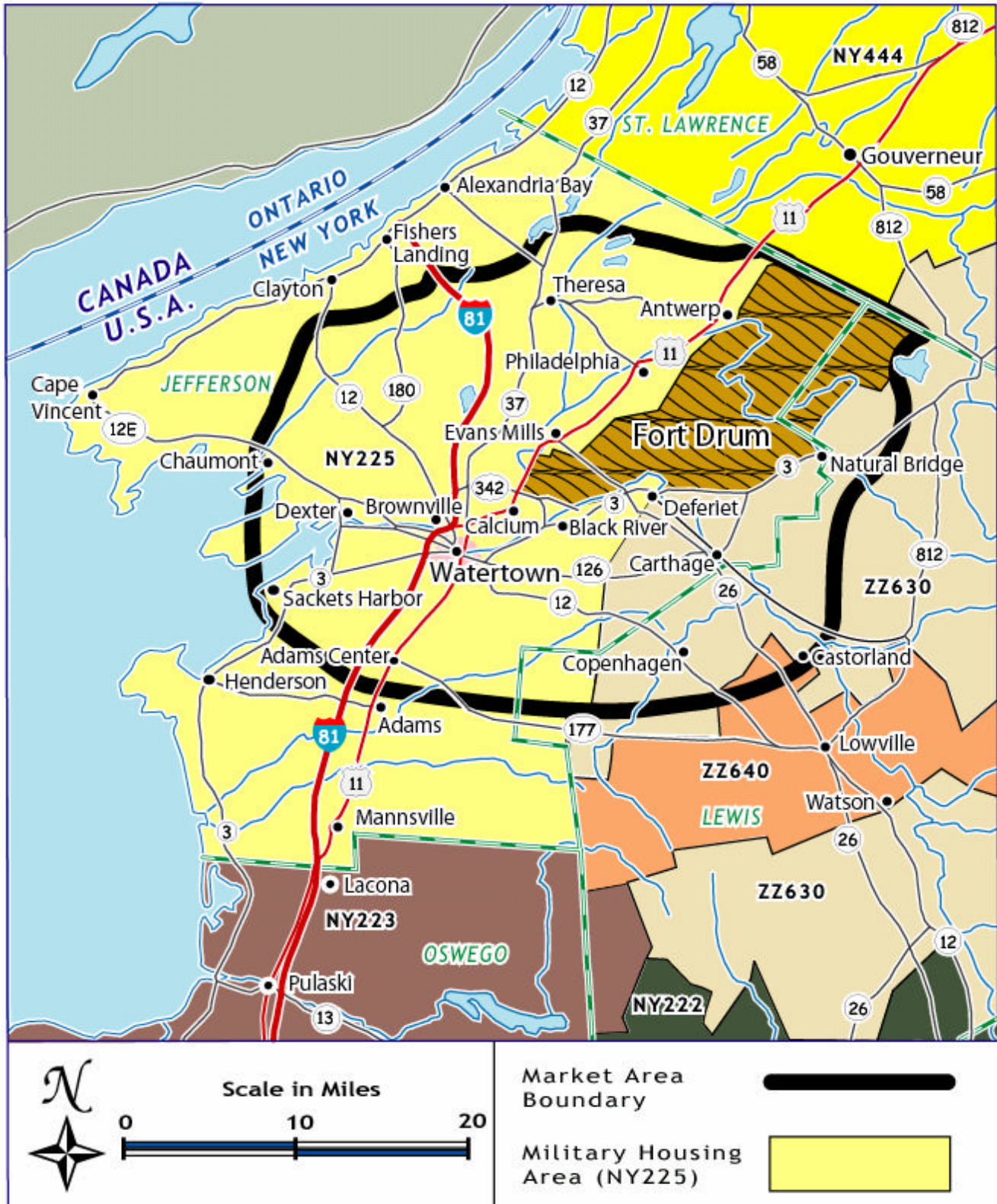
## HOUSING MARKET TRENDS

Fort Drum is located in northern New York State, just east of Lake Ontario. Its housing market area encompasses much of Jefferson County and a small portion of Lewis County (Figure 2-1).

Key indicators of local housing demand (total population, household population, average household size, and owner- and renter-occupied housing units) are displayed in Table 2. The projections to 2010 are identified as “baseline” projections, and assume on-post housing is used at its recent actual rate. The current total population of the housing market area is estimated to be 89,419 persons, while the household population is estimated to total 86,435 persons. Population in the Fort Drum housing market area declined between 1990 and 2000, but has since increased at an average annual rate of 1.6 percent. Population is projected to grow over the forecast period at 0.9 percent per year through 2010 (U.S. Bureau of the Census, 2005). Average household size has been declining steadily since 1990, and this trend is expected to continue through 2010. The occupied housing

stock is currently estimated to total 34,853 units, of which 22,214 units (63.7 percent) are estimated to be owner-occupied and 12,639 units (36.3 percent) are estimated to be renter-occupied.

Figure 1. Housing Market Area



**Table 2. Recent Trends and Baseline Projections of Housing Demand, 1990, 2000, 2005, and 2010**

<b>Housing Market Indicator</b>	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>
Total Population	82,761	81,943	89,419	93,516
Average Annual Change (%)	N.A.	-0.1%	1.6%	0.9%
Household Population	80,533	79,209	86,435	90,396
Average Annual Change (%)	N.A.	-0.2%	1.6%	0.9%
Average Household Size	2.70	2.54	2.48	2.46
Occupied Housing Units	29,796	31,207	34,853	36,746
Average Annual Change (%)	N.A.	0.8%	2.0%	1.1%
Owner-Occupied Units	18,964	19,712	22,214	22,621
Percent of Baseline Total	63.6%	63.2%	63.7%	61.6%
Renter-Occupied Units	10,832	11,495	12,639	14,125
Percent of Baseline Total	36.4%	36.8%	36.3%	38.4%

Source: Estimates prepared for this study.

Market area housing supply indicators (total housing units, single-family units, multiple-family units, and manufactured homes) are displayed in Table 3. The current housing stock is estimated to total 41,131 units, having increased by an average of 351 units (0.9 percent) annually since 2000. Single-family units represent 61.6 percent of the total, while multi-family units constitute 25.8 percent, and manufactured homes 12.6 percent, of the total.

Currently, Fort Drum leases 2,000 housing units in the community for the exclusive use of military families. For the purposes of this study all leases are assumed to expire by 2010, at which time these leased units would convert from military housing to market-rate community housing. Of the 2,000 leased units 1,598 units are located within the market area, and are added to the private-sector rental housing stock in 2010.

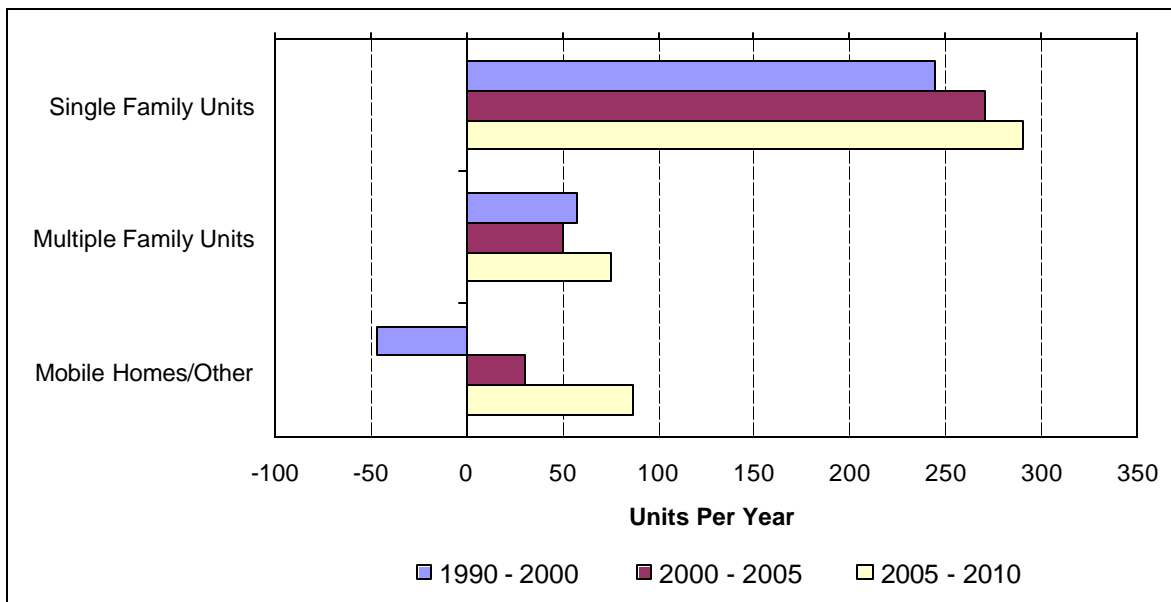
Housing units are forecast to continue increasing through 2010 at a rate of 1.8 percent per year, including the addition of the 1,598 units that are currently leased and that are located within the market area. Figure 2 plots the recent actual and future projected changes in the market area housing stock by type of structure.

**Table 3. Recent Trends and Baseline Projections of Housing Supply, 1990, 2000, 2005, and 2010**

<b>Housing Market Indicator</b>	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>
Total Housing Units	36,636	39,198	41,131	44,991
Average Annual Change (#)	N.A.	256	351	772
Average Annual Change (%)	N.A.	0.7%	0.9%	1.8%
Share of Total Housing (%)	100.0%	100.0%	100.0%	100.0%
Single Family Units	21,419	23,860	25,345	26,795
Average Annual Change (#)	N.A.	244	270	290
Share of Total Housing (%)	58.5%	60.9%	61.6%	59.6%
Multiple Family Units	9,747	10,329	10,604	12,577
Average Annual Change (#)	N.A.	58	50	75
Share of Total Housing (%)	26.6%	26.4%	25.8%	28.0%
Manufactured/Trailers/Other	5,469	5,009	5,182	5,619
Average Annual Change (#)	N.A.	(46)	31	87
Share of Total Housing (%)	N.A.	12.8%	12.6%	12.5%

Source: Estimates prepared for this study.

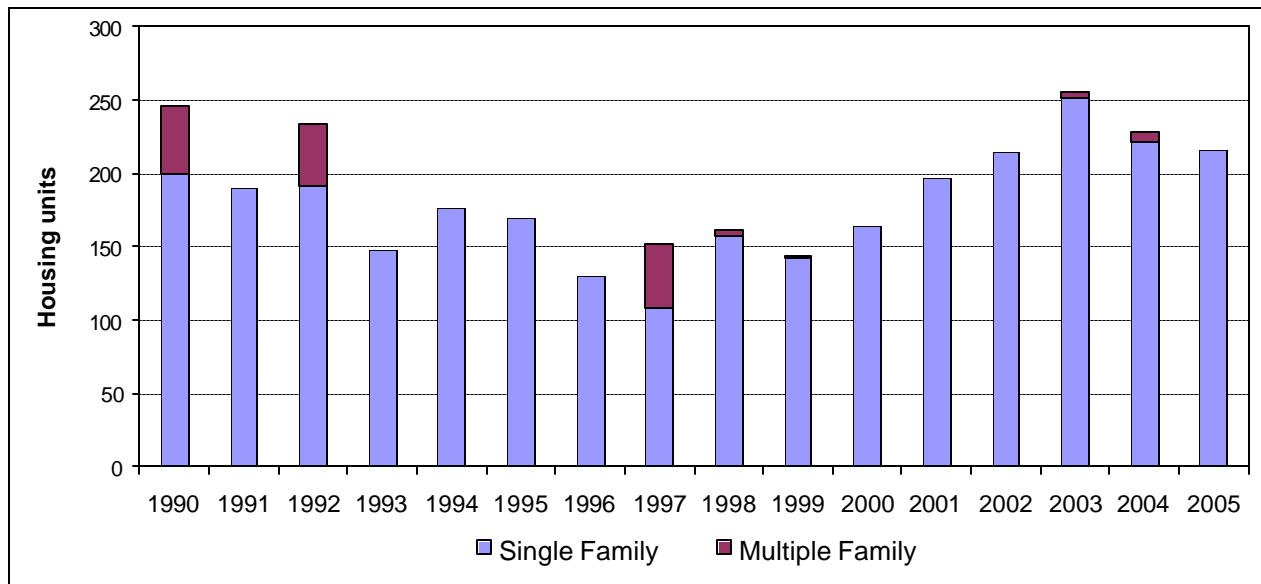
**Figure 2. Recent Trends and Baseline Projections of Changes in Housing Supply, 1990-2010**



Source: Estimates prepared for this study.

Figure 3 plots the trend in building permits for Jefferson County from 1990 to 2005.

**Figure 3. Annual Residential Building Permits, Jefferson County, 1990-2005**



Note: Building permit data for 2005 are estimated based on data through July.

Source: U.S. Bureau of the Census, 2005.

Housing demand and housing supply together determine vacancy rates in the market area. Vacancy rates for key segments of the housing market are presented in Table 4. The total vacancy rate is currently estimated at 15.3 percent. Units for sale are estimated to have a current vacancy rate of 1.9 percent. Based on interviews with local property managers, the current rental vacancy rate is extremely low at approximately 2.0 percent. In comparison, the U.S. Bureau of the Census estimates that the national average rental vacancy rate fluctuated between 7.2 percent and 10.4 percent between 1994 and 2004, and stood at 9.8 percent in the second quarter of 2005 (U.S. Bureau of the Census, 2005). The local rental market has tightened considerably in the past year due to the combination of increasing population and a lack of rental housing construction. The current vacancy rate is significantly lower than the rental vacancy rate observed in the 2000 census. The vacancy rate for all other vacant units (units rented or sold but not yet occupied; held for seasonal, recreational, or other uses; reserved for migrant workers, or other vacant units) is currently estimated to be 13.6 percent.

Without the simulated military transition from government-provided housing into private-sector units, rental vacancy rates are expected to increase temporarily to 10.0 percent in 2010. This increase reflects the addition of the 1,598 leased units to the market area rental housing stock. The data displayed in the tables are baseline projections which reflect conditions in the absence of the simulated transition of military families into private sector housing. The simulated transition of military families into the community is projected to reduce the 2010 rental vacancy rate to 5 percent, which is the established market-equilibrium vacancy rate.

A recent review of Fort Drum area planning and building activity by the National Association of Home Builders Research Center (2005) indicated that several builders have taken action to develop new housing in the vicinity of the post. Most of these actions are still in the planning stages, but in combination these actions could lead to development of hundreds of new housing units in the area. This analysis consequently assumes a greater market response than projected in the 2004 HMA, an increase of about 100 units per year over the 2004 HMA forecast.

**Table 4. Recent Trends and Baseline Projections of Housing Vacancies, 1990, 2000, 2005, and 2010**

<b>Housing Market Indicator</b>	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>
Total Vacant Units	6,840	7,991	6,278	8,245
Total Vacancy Rate (%)	18.7%	20.4%	15.3%	18.3%
Vacant Units for Sale	387	654	439	444
For Sale Vacancy Rate	2.0%	3.2%	1.9%	1.9%
Vacant Units for Rent	988	1,557	258	1,569
Rental Vacancy Rate	8.4%	11.9%	2.0%	10.0%
Other Vacant Units (see Vacancy Rate)	5,464 14.9%	5,779 14.7%	5,581 13.6%	6,232 13.9%

Source: Estimates prepared for this study.

## HOUSING ALLOWANCES AND MAXIMUM ACCEPTABLE HOUSING COSTS

By OSD standards, to be suitably housed military members must pay no more than the Maximum Acceptable Housing Cost (MAHC) for a rental unit. This MAHC amount varies by pay grade and is equal, as of 2005, to the Basic Allowance for Housing (BAH) received by military personnel residing in community housing. Table 5 displays the 2005 BAH (MAHC) amounts by grade and accompaniment status.

**Table 5. Basic Allowance for Housing (BAH)/Maximum Acceptable Housing Cost (MAHC), With and Without Dependents, 2005**

<b>Pay Grade</b>	<b>With Dependents</b>	<b>Without Dependents</b>
	<b>BAH</b>	<b>BAH</b>
O7 & Above	\$1,275	\$1,209
O6	\$1,260	\$1,185
O5	\$1,250	\$1,126
O4	\$1,223	\$1,088
O3	\$1,182	\$935
O2	\$1,018	\$793
O1	\$846	\$695
W5	\$1,216	\$1,096
W4	\$1,199	\$1,038
W3	\$1,185	\$909
W2	\$1,108	\$858
W1	\$1,025	\$720
E9	\$1,195	\$903
E8	\$1,145	\$858
E7	\$1,082	\$738
E6	\$1,024	\$701
E5	\$830	\$632
E4	\$735	\$503
E3	\$735	\$503
E2	\$735	\$503
E1	\$735	\$503

Source: Headquarters, Department of the Army, 2005.

## DISTRIBUTION OF MARKET AREA RENTAL UNITS

Table 6 and Table 7 present the distribution of the current and projected total rental housing supply (occupied and vacant-for-rent units) by monthly rental costs and number of bedrooms. The cost bands were established based on minimum, maximum, and median rental costs in the market area and the upper and lower bounds of BAH (MAHC). The allocation of the market area rental units among the rental cost bands is based on classified listings of apartments and houses for rent from *Northern New York Classifieds*, rental lists from area real estate agents and property managers, telephone interviews with property managers, and internet website searches. Renter's insurance costs were estimated from quotes obtained from an area insurance provider (Allstate Insurance, 2005), and utility costs were escalated from the 2004 HMA using the fuels and utilities component of the Consumer Price Index for small to medium sized cities in the northeast urban region of the U.S. The projected rental housing supply in 2010 includes the addition of the 1,598 currently leased units that are located within the market area.

The market area has a wide range of rental opportunities, which can be summarized as follows:

- Based on a sample of 300 rental units, with rents ranging from \$324 to \$1,100 per month, the estimated median rent for one-bedroom units is \$495 per month. Utility costs are estimated to average \$101 per month. Renter's insurance costs are estimated to be \$11 per month. Median rent plus utilities plus renter's insurance is thus estimated to be \$607 per month for a one-bedroom rental.
- Based on a sample of 992 rental units, with rents ranging from \$370 to \$1,190 per month, the estimated median rent for two-bedroom units is \$575 per month. Utility costs are estimated at \$187 per month. Renter's insurance costs are estimated to be \$13 per month. Median rent plus utilities plus renter's insurance is thus estimated to be \$775 per month for a two-bedroom rental.
- Based on a sample of 258 rental units, with rents ranging from \$379 to \$1,622 per month, the estimated median rent for three-bedroom units is \$650 per month. Utility costs are estimated to average \$234 per month. Renter's insurance costs are estimated to be \$16 per month. Median rent plus utilities plus renter's insurance consequently is estimated to be \$900 per month for a three-bedroom rental.
- Based on a sample of 39 rental units, with rents ranging from \$379 to \$2,163 per month, the estimated median rent for units with four or more bedrooms is \$811 per month. Utility costs are estimated to average \$279 per month. Renter's insurance costs were estimated to be \$19 per month, so median rent plus utilities plus renter's insurance is estimated to be \$1,109 per month for a rental unit with at least four bedrooms.
- Based on an expanded rental database for this HMA update, median rental costs (rent plus utilities plus renter's insurance) in the market area have increased by 7.9 percent since the 2004 HMA. Median rental costs increased 8.1 percent for three bedroom units, 8.0 percent for four-or-more bedroom units, and 7.6 percent for two-bedroom units.

**Table 6. Total Rental Housing Supply (Occupied and Vacant for Rent), 2005**

Rental Cost	Number of Bedrooms					Total
	Studios	One	Two	Three	Four+	
Above \$1400	-	-	-	53	197	250
\$1301 - \$1400	-	-	2	95	121	218
\$1201 - \$1300	1	7	2	63	74	147
\$1101 - \$1200	1	7	59	275	146	488
\$1001 - \$1100	1	7	112	200	126	446
\$901 - \$1000	1	7	187	808	215	1,218
\$801 - \$900	42	478	345	1,134	24	2,023
\$701 - \$800	51	584	2,855	85	24	3,599
\$601 - \$700	146	1,695	1,305	21	24	3,191
\$501 - \$600	69	783	17	-	-	869
\$500 & Below	36	412	-	-	-	448
<b>Total</b>	<b>348</b>	<b>3,980</b>	<b>4,884</b>	<b>2,734</b>	<b>951</b>	<b>12,897</b>

Source: Estimates prepared for this study.

**Table 7. Total Rental Housing Supply (Occupied and Vacant for Rent), With Military Transition, 2010**

Rental Cost	Number of Bedrooms					Total
	Studios	One	Two	Three	Four+	
Above \$1400	-	-	-	45	87	132
\$1301 - \$1400	-	-	3	80	53	136
\$1201 - \$1300	1	7	2	53	56	119
\$1101 - \$1200	1	7	74	408	241	731
\$1001 - \$1100	1	7	152	300	390	850
\$901 - \$1000	1	7	364	1,150	315	1,837
\$801 - \$900	48	533	371	1,175	10	2,137
\$701 - \$800	57	651	2,958	71	13	3,750
\$601 - \$700	166	1,894	1,775	18	8	3,861
\$501 - \$600	77	873	121	-	-	1,071
\$500 & Below	41	459	-	-	-	500
<b>Total</b>	<b>393</b>	<b>4,438</b>	<b>5,820</b>	<b>3,300</b>	<b>1,173</b>	<b>15,124</b>

Source: Estimates prepared for this study.

This analysis uses a current estimate of 52.2 percent of the rental inventory as unsuitable by DoD criteria, reflecting an average of the available published and interview data for market area communities compiled for the 2004 HMA (Robert D. Niehaus, Inc., 2004). This percentage was scaled across all market-area units such that the largest shares of poor-quality units were in the lowest cost ranges.

**Table 8. Percentage of Rental Housing Unsuitable, by Rental Cost and Bedrooms, 2005**

Rental Cost	Number of Bedrooms				
	Studios	One	Two	Three	Four+
Above \$1400	100.0%	0.0%	0.0%	1.0%	1.0%
\$1301 - \$1400	100.0%	0.0%	1.0%	5.0%	5.0%
\$1201 - \$1300	100.0%	0.0%	2.0%	20.0%	20.0%
\$1101 - \$1200	100.0%	5.0%	5.0%	30.0%	41.0%
\$1001 - \$1100	100.0%	10.0%	14.0%	37.0%	54.0%
\$901 - \$1000	100.0%	12.0%	22.0%	43.0%	61.0%
\$801 - \$900	100.0%	25.0%	32.0%	61.0%	70.0%
\$701 - \$800	100.0%	34.0%	42.0%	75.0%	80.0%
\$601 - \$700	100.0%	45.0%	64.0%	90.0%	95.0%
\$501 - \$600	100.0%	55.0%	75.0%	100.0%	100.0%
\$500 & Below	100.0%	80.0%	100.0%	100.0%	100.0%

Source: Estimates prepared for this study.

All of the 1,598 leased units to be added to the rental housing stock in 2010 are considered suitable by Army standards. Thus, incorporating the 1,598 leased units into the rental housing stock increases the number of suitable units, and thereby reduces the percentage of rental housing that is unsuitable in 2010. The percent of unsuitable non-mobile-home rental housing in the market area changes to 42.8 percent. Mobile homes are estimated to represent 6.1 percent of the rental housing stock in 2010, bringing the total share of the rental housing stock that is unsuitable by DoD criteria to 46.3 percent (100 percent of the 6.1 percent of the rental housing stock that are mobile homes plus 42.8 percent of the remaining 93.9 percent that are non-mobile home rentals). Table 8 presents the percentage distribution of unsuitable units across bedroom types and cost band segments for market area rental units in the current year.

The suitable rental housing supply is the total rental supply (occupied and vacant units for rent) less the unsuitable rental housing supply less the suitable natural vacant units. Under current guidance for preparing housing studies for military installations, vacant units for rent are only included in the suitable rental housing supply to the extent the number of vacant units exceeds a natural, equilibrium, or “market-clearing” level of vacancies. There is a natural vacancy rate below which there is upward pressure on rental prices at a rate greater than the general rate of price inflation. Natural vacancies are not considered part of the available supply for market area households. In the Fort Drum market area, the current actual rental vacancy rate of 2.0 percent is below the equilibrium level (estimated at 5.0 percent).

In 2010, after the 1,598 units are added to the housing stock, but without the simulated transition of military families into private-sector units, the vacancy rate in the rental housing market is projected to be 10.0 percent. As military families transition, the rental vacancy rate is assumed to fall to the equilibrium level of 5.0 percent.

The distribution of the suitable rental housing supply in the Fort Drum market area by cost band and bedrooms is presented in Table 9 for 2005 and in Table 10 for 2010.

**Table 9. Suitable Rental Housing Supply, Fort Drum Housing Market Area, 2005**

Rental Cost	Number of Bedrooms					Total
	Studios	One	Two	Three	Four+	
Above \$1400	-	-	-	48	164	212
\$1301 - \$1400	-	-	2	79	94	175
\$1201 - \$1300	-	7	2	46	48	103
\$1101 - \$1200	-	7	52	175	63	297
\$1001 - \$1100	-	6	93	107	30	236
\$901 - \$1000	-	6	137	355	43	541
\$801 - \$900	-	347	220	443	4	1,014
\$701 - \$800	-	372	1,396	21	3	1,792
\$601 - \$700	-	832	383	2	1	1,218
\$501 - \$600	-	269	2	-	-	271
\$500 & Below	-	20	-	-	-	20
<b>Total</b>	<b>-</b>	<b>1,866</b>	<b>2,287</b>	<b>1,276</b>	<b>450</b>	<b>5,879</b>

Source: Estimates prepared for this study.

**Table 10. Suitable Rental Housing Supply, Fort Drum Housing Market Area, 2010**

Rental Cost	Number of Bedrooms					Total
	Studios	One	Two	Three	Four+	
Above \$1400	-	-	-	43	83	126
\$1301 - \$1400	-	-	3	73	49	125
\$1201 - \$1300	-	7	2	41	44	94
\$1101 - \$1200	-	7	68	275	139	489
\$1001 - \$1100	-	6	127	182	175	490
\$901 - \$1000	-	6	275	632	121	1,034
\$801 - \$900	-	387	241	443	3	1,074
\$701 - \$800	-	416	1,659	17	3	2,095
\$601 - \$700	-	1,009	619	2	-	1,630
\$501 - \$600	-	381	29	-	-	410
\$500 & Below	-	89	-	-	-	89
<b>Total</b>	<b>-</b>	<b>2,308</b>	<b>3,023</b>	<b>1,708</b>	<b>617</b>	<b>7,656</b>

Source: Estimates prepared for this study.

## MILITARY PERSONNEL AND THEIR HOUSING REQUIREMENTS

Tables 11 and 12 display the military personnel data used in this analysis for 2005 and 2010 respectively. These data were derived from ASIP and G3 personnel reports provided by Headquarters, Department of the Army. The data from the ASIP reports (SAMAS as of February 2005) for Fort Drum were adjusted for BRAC changes using data from the August G3 Force File (Headquarters, Department of the Army, 2005). The G3 data added a net total of 127 soldiers to the personnel totals derived from the ASIP reports for the projected year (2010).

The demographic characteristics (accompaniment rates, family sizes, voluntary separations, and military-military marriages) of Fort Drum personnel were assumed to be the same in this analysis as in the 2004 HMA. The demographic composition of Fort Drum personnel also is displayed in Tables 11 and 12.

**Table 11. Military Personnel by Accompaniment Status and Bedroom Entitlements, Fort Drum, 2005**

Pay Grade	Number of Bedrooms			Military Families	Military Couples	Voluntary Separations	Single Personnel	Permanent Party Personnel
	Two	Three	Four+					
O7 & Above	-	-	3	3	-	-	-	3
O6	-	-	27	27	-	1	-	28
O5	-	61	25	86	2	5	1	94
O4	-	154	90	244	-	9	-	253
O3	170	107	81	358	-	11	183	552
O2	104	12	25	141	7	4	281	433
O1	67	24	19	110	-	4	66	180
<b>Officers</b>	<b>341</b>	<b>358</b>	<b>270</b>	<b>969</b>	<b>9</b>	<b>34</b>	<b>531</b>	<b>1,543</b>
W5	-	5	-	5	-	-	-	5
W4	-	30	6	36	3	2	1	42
W3	18	41	26	85	-	2	8	95
W2	64	64	50	178	7	5	35	225
W1	22	47	24	93	2	3	-	98
<b>Warrants</b>	<b>104</b>	<b>187</b>	<b>106</b>	<b>397</b>	<b>12</b>	<b>12</b>	<b>44</b>	<b>465</b>
E9	-	-	69	69	2	5	-	76
E8	-	138	73	211	3	15	26	255
E7	-	485	226	711	30	56	90	887
E6	447	342	380	1,169	30	96	330	1,625
E5	840	341	312	1,493	62	132	896	2,583
E4	1,479	317	222	2,018	106	149	2,687	4,960
E3	683	145	49	877	23	49	1,378	2,327
E2	225	39	27	291	6	14	563	874
E1	144	50	5	199	-	10	271	480
<b>Enlisted</b>	<b>3,818</b>	<b>1,857</b>	<b>1,363</b>	<b>7,038</b>	<b>262</b>	<b>526</b>	<b>6,241</b>	<b>14,067</b>
<b>Total</b>	<b>4,263</b>	<b>2,402</b>	<b>1,739</b>	<b>8,404</b>	<b>283</b>	<b>572</b>	<b>6,816</b>	<b>16,075</b>

Source: Estimates prepared for this study using data from Fort Drum Housing Office, 2004; and Headquarters, Department of the Army, 2005.

**Table 12. Military Personnel by Accompaniment Status and Bedroom Entitlements, Fort Drum, 2010**

Pay Grade	Number of Bedrooms			Military Families	Military Couples	Voluntary Separations	Single Personnel	Permanent Party Personnel
	Two	Three	Four+					
O7 & Above	-	-	3	3	-	-	-	3
O6	-	-	28	28	-	1	-	29
O5	-	63	26	89	2	5	1	97
O4	-	159	93	252	-	10	-	262
O3	177	112	85	374	-	11	190	575
O2	109	13	26	148	7	4	291	450
O1	69	25	20	114	-	4	68	186
<b>Officers</b>	<b>355</b>	<b>372</b>	<b>281</b>	<b>1,008</b>	<b>9</b>	<b>35</b>	<b>550</b>	<b>1,602</b>
W5	-	5	-	5	-	-	-	5
W4	-	31	6	37	4	2	2	45
W3	20	43	27	90	-	3	8	101
W2	67	67	53	187	8	6	37	238
W1	24	51	25	100	2	3	-	105
<b>Warrants</b>	<b>111</b>	<b>197</b>	<b>111</b>	<b>419</b>	<b>14</b>	<b>14</b>	<b>47</b>	<b>494</b>
E9	-	-	74	74	2	5	-	81
E8	-	149	78	227	3	16	28	274
E7	-	519	242	761	33	60	96	950
E6	479	367	407	1,253	32	103	353	1,741
E5	900	365	334	1,599	67	142	959	2,767
E4	1,584	339	238	2,161	114	160	2,878	5,313
E3	732	156	52	940	25	52	1,476	2,493
E2	241	42	28	311	6	15	603	935
E1	155	54	5	214	-	10	290	514
<b>Enlisted</b>	<b>4,091</b>	<b>1,991</b>	<b>1,458</b>	<b>7,540</b>	<b>282</b>	<b>563</b>	<b>6,683</b>	<b>15,068</b>
<b>Total</b>	<b>4,557</b>	<b>2,560</b>	<b>1,850</b>	<b>8,967</b>	<b>305</b>	<b>612</b>	<b>7,280</b>	<b>17,164</b>

Source: Estimates prepared for this study using data from the Fort Drum Housing Office, 2004; and HQ, Dept. of the Army, 2005.

## FLOOR REQUIREMENTS, ACCOMPANIED PERSONNEL

For accompanied personnel, current OSD guidance allows a projected minimum on-post housing requirement, or the floor requirement, as the greatest of four criteria for each pay grade:

- **Military On-Post Community** – Ten percent of the effective accompanied housing requirement, for each grade, with a minimum of one on-post housing unit for any pay grade for which there is an effective accompanied housing requirement of at least one unit. The floor requirement is initially calculated assuming there is no military community component (a zero percent factor rather than 10 percent). If the total requirement for on-post military family housing for any individual pay grade is less than 10 percent of the effective number of families in that grade, the total requirement in that grade is then increased so the total requirement is 10 percent of the effective number of families.
- **Key and Essential Personnel** – All key and essential, or Priority 1, personnel.
- **Historic Housing** – On-post family housing units listed on or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act.

- Quality of Life** –The quality of life requirement is determined by the number of family personnel whose regular military compensation (RMC) falls below 50 percent of the median family income in the Fort Drum market area. Jefferson County has a 2005 median family income of \$45,700 (U.S. Department of Housing and Urban Development, 2005). One-half of this amount is \$22,850. The RMC for 2005 for each individual pay grade is the sum of the average annual base pay for that grade, housing and subsistence allowances for that grade, and a tax adjustment reflecting the fact that housing and subsistence allowances are not taxed as income. Table 13 provides the annual RMC by individual grade for Fort Drum family personnel for the year 2005. Personnel in all pay grades collect a regular military compensation higher than 50 percent of the estimated median family income for the market area. Thus, there is no quality of life requirement at Fort Drum.

**Table 13. Regular Military Compensation, Fort Drum, 2005**

Pay Grade	Annual Basic Pay	Annual Local BAH	Annual BAS	Annual Allowances	National Avg. Ann Allow	National Avg. Tax Adv.	National Avg. Advantage %	Local Tax Adv	Annual RMC
O7 & Above	\$117,150	\$15,300	\$2,208	\$17,508	\$29,041	\$10,312	35.51%	\$6,216	\$140,874
O6	\$99,076	\$15,120	\$2,208	\$17,328	\$25,859	\$8,619	33.33%	\$5,776	\$122,179
O5	\$80,304	\$15,000	\$2,208	\$17,208	\$24,444	\$7,752	31.72%	\$5,458	\$102,969
O4	\$68,394	\$14,676	\$2,208	\$16,884	\$21,945	\$5,576	25.41%	\$4,290	\$89,568
O3	\$52,610	\$14,184	\$2,208	\$16,392	\$18,963	\$3,438	18.13%	\$2,972	\$71,974
O2	\$40,258	\$12,216	\$2,208	\$14,424	\$16,664	\$2,916	17.50%	\$2,524	\$57,206
O1	\$29,414	\$10,152	\$2,208	\$12,360	\$14,785	\$2,321	15.70%	\$1,940	\$43,713
W5	\$72,766	\$14,592	\$2,208	\$16,800	\$20,345	\$5,879	28.90%	\$4,855	\$94,420
W4	\$64,249	\$14,388	\$2,208	\$16,596	\$19,080	\$4,150	21.75%	\$3,610	\$84,454
W3	\$52,962	\$14,220	\$2,208	\$16,428	\$18,643	\$3,304	17.72%	\$2,911	\$72,301
W2	\$43,719	\$13,296	\$2,208	\$15,504	\$17,518	\$3,077	17.57%	\$2,724	\$61,947
W1	\$36,793	\$12,300	\$2,208	\$14,508	\$15,250	\$2,582	16.93%	\$2,457	\$53,758
E9	\$59,037	\$14,340	\$3,206	\$17,546	\$20,744	\$4,112	19.82%	\$3,478	\$80,061
E8	\$47,797	\$13,740	\$3,206	\$16,946	\$19,356	\$3,416	17.65%	\$2,991	\$67,734
E7	\$40,601	\$12,984	\$3,206	\$16,190	\$18,456	\$3,229	17.49%	\$2,832	\$59,623
E6	\$33,300	\$12,288	\$3,206	\$15,494	\$17,839	\$2,931	16.43%	\$2,545	\$51,339
E5	\$26,661	\$9,960	\$3,206	\$13,166	\$15,899	\$2,305	14.50%	\$1,909	\$41,736
E4	\$21,426	\$8,820	\$3,206	\$12,026	\$14,703	\$1,878	12.77%	\$1,536	\$34,988
E3	\$17,945	\$8,820	\$3,206	\$12,026	\$15,199	\$1,765	11.61%	\$1,396	\$31,368
E2	\$16,614	\$8,820	\$3,206	\$12,026	\$14,854	\$1,647	11.09%	\$1,333	\$29,973
E1	\$14,821	\$8,820	\$3,206	\$12,026	\$14,929	\$1,375	9.21%	\$1,107	\$27,955

Source: U.S Department of Defense, 2005.

Table 14 displays the projected floor requirement for accompanied personnel by criterion.

**Table 14. Floor Requirements by Criterion, Accompanied Personnel, 2010**

<b>Pay Grade</b>	<b>Military Families</b>	<b>Military Community</b>	<b>Key and Essential</b>	<b>Historic Units</b>	<b>Quality of Life</b>	<b>Floor Requirement</b>
O7 & Above	3	-	3	-	-	3
O6	28	-	14	-	-	14
O5	89	-	38	-	-	38
O4	252	-	-	-	-	-
O3	374	-	4	-	-	4
O2	148	-	-	-	-	-
O1	114	-	-	-	-	-
<b>Officers</b>	<b>1,008</b>	<b>-</b>	<b>59</b>	<b>-</b>	<b>-</b>	<b>59</b>
W5	5	-	-	-	-	-
W4	37	-	-	-	-	-
W3	90	-	-	-	-	-
W2	187	-	-	-	-	-
W1	100	-	-	-	-	-
<b>Warrants</b>	<b>419</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
E9	74	-	38	-	-	38
E8	227	-	-	-	-	-
E7	761	-	-	-	-	-
E6	1,253	-	1	-	-	1
E5	1,599	-	1	-	-	1
E4	2,161	-	3	-	-	3
E3	940	-	-	-	-	-
E2	311	-	-	-	-	-
E1	214	-	-	-	-	-
<b>Enlisted</b>	<b>7,540</b>	<b>-</b>	<b>43</b>	<b>-</b>	<b>-</b>	<b>43</b>
<b>Total</b>	<b>8,967</b>	<b>-</b>	<b>102</b>	<b>-</b>	<b>-</b>	<b>102</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

Table 15 presents the projected floor requirement for accompanied personnel by number of bedrooms.

**Table 15. Floor Requirements by Bedrooms, Accompanied Personnel, 2010**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	3	3
O6	-	-	14	14
O5	-	38	-	38
O4	-	-	-	-
O3	4	-	-	4
O2	-	-	-	-
O1	-	-	-	-
<b>Officers</b>	<b>4</b>	<b>38</b>	<b>17</b>	<b>59</b>
W5	-	-	-	-
W4	-	-	-	-
W3	-	-	-	-
W2	-	-	-	-
W1	-	-	-	-
<b>Warrants</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
E9	-	-	38	38
E8	-	-	-	-
E7	-	-	-	-
E6	1	-	-	1
E5	1	-	-	1
E4	3	-	-	3
E3	-	-	-	-
E2	-	-	-	-
E1	-	-	-	-
<b>Enlisted</b>	<b>5</b>	<b>-</b>	<b>38</b>	<b>43</b>
<b>Total</b>	<b>9</b>	<b>38</b>	<b>55</b>	<b>102</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

## COMMUNITY HOUSING REQUIREMENTS

Total potential community housing demand is defined for 2005 as those families in excess of the current occupants of on-post housing, and for 2010 as those families in excess of the projected floor requirement. For 2005, 4,012 military families are assumed to live on post (Robert D. Niehaus, Inc., 2004). For 2010, only the 102 families comprising the floor requirement are assumed to reside on post. All families in addition to these on-post occupants are considered to be requirements for community housing (U.S. Department of Defense, 2003). This is consistent with OSD guidance to rely primarily on community housing. Families seeking housing in the community are estimated to total 4,392 in 2005 and 8,865 in 2010 (Table 16 and Table 17).

**Table 16. Community-First Accompanied Housing Requirements, 2005**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	15	15
O5	-	32	13	45
O4	-	87	51	138
O3	124	78	59	261
O2	70	8	17	95
O1	36	13	10	59
<b>Officers</b>	<b>230</b>	<b>218</b>	<b>165</b>	<b>613</b>
W5	-	3	-	3
W4	-	20	4	24
W3	13	30	19	62
W2	45	45	35	125
W1	10	21	11	42
<b>Warrants</b>	<b>68</b>	<b>119</b>	<b>69</b>	<b>256</b>
E9	-	-	32	32
E8	-	83	44	127
E7	-	270	126	396
E6	230	176	196	602
E5	382	155	142	679
E4	680	146	102	928
E3	330	70	24	424
E2	139	24	17	180
E1	112	39	4	155
<b>Enlisted</b>	<b>1,873</b>	<b>963</b>	<b>687</b>	<b>3,523</b>
<b>Total</b>	<b>2,171</b>	<b>1,300</b>	<b>921</b>	<b>4,392</b>

Source: Estimates prepared for this study.

**Table 17. Community-First Accompanied Housing Requirements, 2010**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	14	14
O5	-	25	26	51
O4	-	159	93	252
O3	173	112	85	370
O2	109	13	26	148
O1	69	25	20	114
<b>Officers</b>	<b>351</b>	<b>334</b>	<b>264</b>	<b>949</b>
W5	-	5	-	5
W4	-	31	6	37
W3	20	43	27	90
W2	67	67	53	187
W1	24	51	25	100
<b>Warrants</b>	<b>111</b>	<b>197</b>	<b>111</b>	<b>419</b>
E9	-	-	36	36
E8	-	149	78	227
E7	-	519	242	761
E6	478	367	407	1,252
E5	899	365	334	1,598
E4	1,581	339	238	2,158
E3	732	156	52	940
E2	241	42	28	311
E1	155	54	5	214
<b>Enlisted</b>	<b>4,086</b>	<b>1,991</b>	<b>1,420</b>	<b>7,497</b>
<b>Total</b>	<b>4,548</b>	<b>2,522</b>	<b>1,795</b>	<b>8,865</b>

Source: Estimates prepared for this study.

The number of homeowners is based on data from the 1997 Variable Housing Allowance (VHA) Survey for the area adjusted for changes in housing affordability. Numerous factors determine the extent of homeownership at a military installation. Simple comparisons of housing allowances to home prices are not sufficient to explain changes in homeownership. A more precise measurement of affordability is needed. Table 18 presents a method for calculating changes in affordability of home ownership for Fort Drum personnel between 1997 (the date of the most recent VHA survey) and the present time. This method can then be used to adjust the 1997 VHA survey data relationships to the present time. If all other factors – availability of jobs for spouses, attractiveness of the area for retirement or multiple tours of duty, expected home price appreciation, extent of favorable tax treatment of homeownership – remained the same between 1997 and the present, the adjustment for the change in affordability could potentially provide an accurate measure of current homeownership.

This adjustment has two components. First, it is necessary to determine how much the affordability of home ownership for military personnel has changed between 1997 and the present. This requires comparison of homeownership costs to housing allowances. Second, it is necessary to estimate how sensitive military homeowners are to any given change in affordability.

**Table 18. Military Homeownership Affordability Analysis, Fort Drum**

Indicator	Comment/description	1997	2005	2010
Purchase Price	Average sales price of single-family home, projection to 2010 assumes 3.8%/year increase	\$ 59,900	\$ 84,250	\$101,735
Down Payment	Assumed to be 10% of Purchase Price; varies with use of VHA financing, other factors	\$ 5,990	\$ 8,425	\$ 10,173
Loan Amount	Purchase Price less Down Payment	\$ 53,910	\$ 75,825	\$ 91,561
Interest Rate	Annual average yield on new home mortgages as compiled by Federal Reserve Board; 2010 projection assumes moderate increase in rates	7.71%	5.85%	7.30%
Monthly Payment	Assumes 30-year fixed rate loan	\$ 385	\$ 447	\$ 628
Property Taxes	Annual amount assumed to be 1.5% of purchase price; shown as \$/month	\$ 75	\$ 105	\$ 127
Insurance	Annual amount assumed to be 0.75% of purchase price; shown as \$/month	\$ 37	\$ 53	\$ 64
Utility Costs	2005 cost is for a 3-BR unit as estimated for this analysis; 1997 is indexed from CPI; 2010 projection assumes 4.7%/year increases	\$ 114	\$ 234	\$ 295
Monthly Cost	Loan payment plus property taxes plus insurance plus utilities	\$ 611	\$ 839	\$ 1,114
Military Allowances	Weighted average housing allowance for military personnel, \$/month	\$ 686	\$ 889	\$ 1,162
Affordability Gap (\$)	Monthly Cost minus military allowance equals cost to be borne from base pay or other income (spouse, second job, etc.)	\$ (75)	\$ (50)	\$ (48)
Affordability Gap (%)	Monthly Cost as a percent of military allowance	89.1%	94.4%	95.9%
Adjustment Factor	Relative Change in Affordability Gap (%)	100.0%	105.9%	107.6%

Note: Total settlement/escrow costs are not shown.

Sources: U.S. Bureau of Labor Statistics, 2005; ACCRA, 2005; Manhattan Association of Realtors, 2005; and estimates prepared for this study.

The pro forma analysis starts with an estimate of the annual change in home prices between 1997 and the present. The calculations shown in Table 18 use the median price of a single-family home as reported by the Jefferson-Lewis Board of Realtors (2005). Home prices have increased at an average rate of 4.4 percent per year from 1997 through August 2005. Assuming a 10 percent down payment, it is possible to calculate the amount of the mortgage carried by the purchaser. The trend in home mortgage rates is determined using the

annual average yield on new home mortgages as compiled by the Federal Reserve Board (note the reduction of 186 basis points between 1997 and the 2005 average through May). This reduction in borrowing costs makes it possible to afford a larger mortgage with any given budget in 2005 compared to 1997.

Assuming a 30-year fixed rate loan, it is possible to calculate monthly costs of principal and interest on the loan. Allowances are then made for property taxes, insurance, and utility costs to determine the total monthly cost of homeownership. Comparing this cost to the weighted average housing allowance (BAQ plus VHA in 1997 and BAH in 2005) for personnel with dependents allows calculation of an Affordability Gap in dollar terms. As shown in Table 18, the affordability gap was negative in 1997, meaning that weighted average BAQ plus VHA exceeded the estimated costs of owning a home in the area, leaving a surplus of \$75. The gap fell in absolute value from 1997 to 2005, reducing the surplus to \$50.

The Affordability Gap measured as a percent of the weighted average housing allowance is also shown. In 1997 Fort Drum personnel had to pay, on average, about 89 percent of the average housing allowance to cover the cost of owning a home. Since then, the weighted average housing allowance has risen slower than the cost of owning a home. As a result, the cost of owning a home in 2005 was about 94 percent of the average housing allowance. This is an increase of 5 percentage points. The relative change in the Affordability Gap is a 5.9 percent increase in this gap between 1997 and 2005 (see the Adjustment Factor shown as the last row in Table 18).

These factors are all forecast five years in advance to permit their use in this analysis. This requires assumptions about future interest rates, home prices, utility costs, and housing allowance escalation. Interest rates are assumed to increase moderately to 7.3 percent by 2010 following the interest rate trend forecast by the Congressional Budget Office (2005). Home prices are assumed to increase 3.8 percent per year, consistent with the projected rise in interest rates. Utility costs are assumed to increase 4.7 percent per year, consistent with the changes in the household utility component of the Consumer Price Index (CPI) for small to medium sized cities in the northeast urban region over the 1997 to 2005 period (U.S Bureau of Labor Statistics, 2005). Weighted average housing allowances for Fort Drum military families increased 3.3 percent over the 1997 to 2005 period and are projected to increase 5.5 percent per year thereafter (consistent with possible rent increases over the 2005 to 2010 period in the local area).

Thus, the Affordability Gap as a percent of the military housing allowance increases by 1.7 percentage points over the period 2005 to 2010 (from about 105.9 percent of allowances in 2005 to about 107.6 percent of allowances in 2010). In other words, military homeownership is projected to be less affordable in relative terms in 2010 than in 2005, due primarily to the projected increase in housing prices and mortgage rates from 2005 to 2010.

The purpose of the analysis shown in Table 18 is to calculate and forecast changes in affordability between 1997, the present, and the projection year. In addition, it is necessary to estimate how sensitive military home purchases are to these changes in cost. There is very little information available on which to base such an analysis. Therefore a formulaic estimate must be used until adequate data can be obtained. It is possible to calculate the change in homeownership propensities for each grade using the relative change in the affordability gap. Specifically, the share of off-post families that are not homeowners (that is, are renters) can be assumed to decline (or increase) proportionately with the relative affordability gap. Symbolically, this can be expressed as:

$$\text{Current homeownership share} = \frac{1 - (1 - \text{homeownership share in 1997}) \times \text{Relative affordability gap in the current year}}{\text{Relative affordability gap in the current year}}$$

This adjustment factor can then be applied to each grade's homeownership propensity as calculated from the 1997 VHA survey to estimate current homeowners. Applying the adjustment factor to 2010 data provides a projection of future homeowners given the assumed trends in home prices, housing allowances, and interest rates. Use of this formula is necessarily judgmental, and should be considered a preliminary measure subject to revision based on availability of better data (preferably a local survey of military personnel).

Using the pro forma analysis, in the current year (2005), 11.6 percent of all families are estimated to own a home (972 homeowners). In contrast, using the unadjusted 1997 VHA survey data to estimate current year homeowners, there would be 1,141 homeowners (13.6 percent of families). At Fort Drum the monthly cost of owning a home is projected to increase at a faster rate than housing allowances. Over the 2005 to 2010 period it is expected that military homeownership rates will decrease as a result. In 2010, using the pro forma analysis it is projected that 11.2 percent of all families will be homeowners (1,007 homeowners; Table 20). (In 2010, using the VHA survey without any adjustments it is projected that 13.5 percent of all families would be homeowners.)

Military homeowners projected for 2010 are not affected by the definition of the floor requirement. All military members living on the installation in 2005 are considered renters. Therefore those personnel simulated to be part of the transition from on-post housing into community housing between 2005 and 2010 are treated as renters – they are transitioning from “renting” on-post housing to renting community housing.

Tables 19 and 20 present military family homeowners for 2005 and 2010. All homeowners are considered to be acceptably housed, regardless of the characteristics of the residence.

Tables 21 and 22 display military family renters for 2005 and 2010. These were computed as total families less those residing on the installation (in 2010, the floor requirement) less homeowners.

**Table 19. Accompanied Homeowners, 2005**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	12	12
O5	-	22	9	31
O4	-	22	13	35
O3	28	18	13	59
O2	6	1	2	9
O1	3	1	1	5
<b>Officers</b>	<b>37</b>	<b>64</b>	<b>50</b>	<b>151</b>
W5	-	2	-	2
W4	-	5	1	6
W3	3	7	4	14
W2	4	4	3	11
W1	1	2	1	4
<b>Warrants</b>	<b>8</b>	<b>20</b>	<b>9</b>	<b>37</b>
E9	-	-	26	26
E8	-	64	34	98
E7	-	138	64	202
E6	123	94	104	321
E5	58	24	22	104
E4	21	4	3	28
E3	4	1	-	5
E2	-	-	-	-
E1	-	-	-	-
<b>Enlisted</b>	<b>206</b>	<b>325</b>	<b>253</b>	<b>784</b>
<b>Total</b>	<b>251</b>	<b>409</b>	<b>312</b>	<b>972</b>

Source: Estimates prepared for this study.

**Table 20. Accompanied Homeowners, 2010**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	12	12
O5	-	23	9	32
O4	-	22	13	35
O3	28	18	13	59
O2	5	1	2	8
O1	3	1	1	5
<b>Officers</b>	<b>36</b>	<b>65</b>	<b>50</b>	<b>151</b>
W5	-	2	-	2
W4	-	5	1	6
W3	3	7	4	14
W2	4	4	3	11
W1	1	2	1	4
<b>Warrants</b>	<b>8</b>	<b>20</b>	<b>9</b>	<b>37</b>
E9	-	-	28	28
E8	-	69	36	105
E7	-	145	67	212
E6	130	99	110	339
E5	57	23	21	101
E4	22	4	3	29
E3	4	1	-	5
E2	-	-	-	-
E1	-	-	-	-
<b>Enlisted</b>	<b>213</b>	<b>341</b>	<b>265</b>	<b>819</b>
<b>Total</b>	<b>257</b>	<b>426</b>	<b>324</b>	<b>1,007</b>

Source: Estimates prepared for this study.

**Table 21. Accompanied Renters, 2005**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	3	3
O5	-	10	4	14
O4	-	65	38	103
O3	96	60	46	202
O2	64	7	15	86
O1	33	12	9	54
Officers	193	154	115	462
W5	-	1	-	1
W4	-	15	3	18
W3	10	23	15	48
W2	41	41	32	114
W1	9	19	10	38
Warrants	60	99	60	219
E9	-	-	6	6
E8	-	19	10	29
E7	-	132	62	194
E6	107	82	92	281
E5	324	131	120	575
E4	659	142	99	900
E3	326	69	24	419
E2	139	24	17	180
E1	112	39	4	155
Enlisted	1,667	638	434	2,739
<b>Total</b>	<b>1,920</b>	<b>891</b>	<b>609</b>	<b>3,420</b>

Source: Estimates prepared for this study.

**Table 22. Accompanied Renters, 2010**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	2	2
O5	-	2	17	19
O4	-	137	80	217
O3	145	94	72	311
O2	104	12	24	140
O1	66	24	19	109
Officers	315	269	214	798
W5	-	3	-	3
W4	-	26	5	31
W3	17	36	23	76
W2	63	63	50	176
W1	23	49	24	96
Warrants	103	177	102	382
E9	-	-	8	8
E8	-	80	42	122
E7	-	374	175	549
E6	348	268	297	913
E5	842	342	313	1,497
E4	1,559	335	235	2,129
E3	728	155	52	935
E2	241	42	28	311
E1	155	54	5	214
Enlisted	3,873	1,650	1,155	6,678
<b>Total</b>	<b>4,291</b>	<b>2,096</b>	<b>1,471</b>	<b>7,858</b>

Source: Estimates prepared for this study.

## COMMUNITY HOUSING SHORTFALL

Military renters compete with civilian households for adequate rentals in the community. The military community housing shortfall is determined as the difference between the military's share of adequate quality rental housing in the private sector and the military rental requirement. One of the key factors in the capture of adequate units is the share of poor quality housing in the community rental inventory. As stated previously, an estimated 52.2 percent of the rental stock is unacceptable in quality by Army standards in 2005 and 46.3 percent of the rental stock is unacceptable in quality by Army standards in 2010. When there is insufficient private sector rental housing of adequate quality in a cost band/bedroom category, a community shortfall exists in that cost band/bedroom category.

The analysis simulates the ability of the communities near the installation to absorb the potential transition of military families into private-sector housing over the five year study period. For purposes of this analysis it is assumed that the development community would partially respond to the potential increase in off-post renters by building additional units each year over the projected pace of residential construction. Thus, the annual addition to the local community housing supply is assumed to expand by about 128 units per year over projected baseline growth in response to the transitioning families. Although this expansion creates additional units to

absorb some of the families potentially transitioning into the private-sector, not all families are expected to find “suitable” units, since not all units in the market area are acceptable in quality by Army standards.

Another principal assumption of the methodology is that military members obtain their proportionate share of rental housing within a market area. This proportionate share, or capture rate, is based on the percentage that military rental housing demand is of total rental housing demand within a market area. By 2010, the 1,598 leased units in the market area are assumed to become part of the private rental housing stock, and therefore military members would obtain their proportionate share of these units. For purposes of this analysis, however, since military families already occupy these units, it is assumed that 70 percent of the units would be occupied by military renters as soon as the units become part of the private rental housing stock.

Tables 23 and 24 display acceptably housed renters in 2005 and 2010.

**Table 23. Expected Suitable Rentals for Accompanied Military Personnel, 2005**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	3	3
O5	-	7	2	9
O4	-	37	20	57
O3	62	29	17	108
O2	35	3	3	41
O1	20	2	-	22
<b>Officers</b>	<b>117</b>	<b>78</b>	<b>45</b>	<b>240</b>
W5	-	1	-	1
W4	-	7	1	8
W3	7	11	5	23
W2	24	16	7	47
W1	5	9	2	16
<b>Warrants</b>	<b>36</b>	<b>44</b>	<b>15</b>	<b>95</b>
E9	-	-	3	3
E8	-	9	3	12
E7	-	56	13	69
E6	59	41	16	116
E5	207	22	1	230
E4	238	2	-	240
E3	117	1	-	118
E2	50	-	-	50
E1	40	-	-	40
<b>Enlisted</b>	<b>711</b>	<b>131</b>	<b>36</b>	<b>878</b>
<b>Total</b>	<b>864</b>	<b>253</b>	<b>96</b>	<b>1,213</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

**Table 24. Expected Suitable Rentals for Accompanied Military Personnel, 2010**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	1	1
O5	-	1	10	11
O4	-	72	49	121
O3	79	47	44	170
O2	54	7	8	69
O1	36	5	1	42
<b>Officers</b>	<b>169</b>	<b>132</b>	<b>113</b>	<b>414</b>
W5	-	1	-	1
W4	-	13	3	16
W3	9	18	14	41
W2	32	29	28	89
W1	11	27	8	46
<b>Warrants</b>	<b>52</b>	<b>88</b>	<b>53</b>	<b>193</b>
E9	-	-	5	5
E8	-	39	25	64
E7	-	184	90	274
E6	181	152	108	441
E5	444	60	4	508
E4	507	5	3	515
E3	237	2	-	239
E2	78	1	-	79
E1	50	1	-	51
<b>Enlisted</b>	<b>1,497</b>	<b>444</b>	<b>235</b>	<b>2,176</b>
<b>Total</b>	<b>1,718</b>	<b>664</b>	<b>401</b>	<b>2,783</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

Tables 25 and 26 display the shortfall of community housing for military family renters in 2005 and 2010. These are the renters who would not be successful in finding housing that meets all Army standards for affordability, location, quality, and number of bedrooms. The projected community housing shortfall is a critical component of the projected requirement for housing at the installation.

**Table 25. Community Housing Shortfall, Accompanied Personnel, 2005**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	-	-
O5	-	3	2	5
O4	-	28	18	46
O3	34	31	29	94
O2	29	4	12	45
O1	13	10	9	32
<b>Officers</b>	<b>76</b>	<b>76</b>	<b>70</b>	<b>222</b>
W5	-	-	-	-
W4	-	8	2	10
W3	3	12	10	25
W2	17	25	25	67
W1	4	10	8	22
<b>Warrants</b>	<b>24</b>	<b>55</b>	<b>45</b>	<b>124</b>
E9	-	-	3	3
E8	-	10	7	17
E7	-	76	49	125
E6	48	41	76	165
E5	117	109	119	345
E4	421	140	99	660
E3	209	68	24	301
E2	89	24	17	130
E1	72	39	4	115
<b>Enlisted</b>	<b>956</b>	<b>507</b>	<b>398</b>	<b>1,861</b>
<b>Total</b>	<b>1,056</b>	<b>638</b>	<b>513</b>	<b>2,207</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

**Table 26. Community Housing Shortfall, Accompanied Personnel, 2010**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	-	-
O6	-	-	1	1
O5	-	1	7	8
O4	-	65	31	96
O3	66	47	28	141
O2	50	5	16	71
O1	30	19	18	67
<b>Officers</b>	<b>146</b>	<b>137</b>	<b>101</b>	<b>384</b>
W5	-	2	-	2
W4	-	13	2	15
W3	8	18	9	35
W2	31	34	22	87
W1	12	22	16	50
<b>Warrants</b>	<b>51</b>	<b>89</b>	<b>49</b>	<b>189</b>
E9	-	-	3	3
E8	-	41	17	58
E7	-	190	85	275
E6	167	116	189	472
E5	398	282	309	989
E4	1,052	330	232	1,614
E3	491	153	52	696
E2	163	41	28	232
E1	105	53	5	163
<b>Enlisted</b>	<b>2,376</b>	<b>1,206</b>	<b>920</b>	<b>4,502</b>
<b>Total</b>	<b>2,573</b>	<b>1,432</b>	<b>1,070</b>	<b>5,075</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

**TOTAL GOVERNMENT-PROVIDED HOUSING REQUIREMENTS**

Tables 27 and 28 display the requirement for government-provided housing in 2005 and 2010, respectively. The projected requirement is calculated as the floor requirement plus the community housing shortfall.

**Table 27. Total Requirement for Government-Provided Housing, Accompanied Personnel, 2005**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	3	3
O6	-	-	12	12
O5	-	32	14	46
O4	-	95	57	152
O3	80	60	51	191
O2	63	8	20	91
O1	44	21	18	83
<b>Officers</b>	<b>187</b>	<b>216</b>	<b>175</b>	<b>578</b>
W5	-	2	-	2
W4	-	18	4	22
W3	8	23	17	48
W2	36	44	40	120
W1	16	36	21	73
<b>Warrants</b>	<b>60</b>	<b>123</b>	<b>82</b>	<b>265</b>
E9	-	-	40	40
E8	-	65	36	101
E7	-	291	149	440
E6	265	207	260	732
E5	575	295	289	1,159
E4	1,220	311	219	1,750
E3	562	143	49	754
E2	175	39	27	241
E1	104	50	5	159
<b>Enlisted</b>	<b>2,901</b>	<b>1,401</b>	<b>1,074</b>	<b>5,376</b>
<b>Total</b>	<b>3,148</b>	<b>1,740</b>	<b>1,331</b>	<b>6,219</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

**Table 28. Total Requirement for Government-Provided Housing, Accompanied Personnel, 2010**

Pay Grade	Number of Bedrooms			Total
	Two	Three	Four+	
O7 & Above	-	-	3	3
O6	-	-	15	15
O5	-	39	7	46
O4	-	65	31	96
O3	70	47	28	145
O2	50	5	16	71
O1	30	19	18	67
<b>Officers</b>	<b>150</b>	<b>175</b>	<b>118</b>	<b>443</b>
W5	-	2	-	2
W4	-	13	2	15
W3	8	18	9	35
W2	31	34	22	87
W1	12	22	16	50
<b>Warrants</b>	<b>51</b>	<b>89</b>	<b>49</b>	<b>189</b>
E9	-	-	41	41
E8	-	41	17	58
E7	-	190	85	275
E6	168	116	189	473
E5	399	282	309	990
E4	1,055	330	232	1,617
E3	491	153	52	696
E2	163	41	28	232
E1	105	53	5	163
<b>Enlisted</b>	<b>2,381</b>	<b>1,206</b>	<b>958</b>	<b>4,545</b>
<b>Total</b>	<b>2,582</b>	<b>1,470</b>	<b>1,125</b>	<b>5,177</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

Table 29 displays the projected requirement for on-post family housing by criterion.

**Table 29. Total On-Post Military Family Housing Required, Fort Drum, 2010**

Pay Grade	Military Families	Military Community	Key and Essential	Historic Units	Quality of Life	Floor Requirement	Private Sector Shortfall	Initial Housing Requirement	10-Percent Military Comm. Factor	Total Military Housing Requirement
O7 & Above	3	-	3	-	-	3	-	3	1	3
O6	28	-	14	-	-	14	1	15	3	15
O5	89	-	38	-	-	38	8	46	9	46
O4	252	-	-	-	-	-	96	96	25	96
O3	374	-	4	-	-	4	141	145	37	145
O2	148	-	-	-	-	-	71	71	15	71
O1	114	-	-	-	-	-	67	67	11	67
Officers	1,008	-	59	-	-	59	384	443	101	443
W5	5	-	-	-	-	-	2	2	1	2
W4	37	-	-	-	-	-	15	15	4	15
W3	90	-	-	-	-	-	35	35	9	35
W2	187	-	-	-	-	-	87	87	19	87
W1	100	-	-	-	-	-	50	50	10	50
Warrants	419	-	-	-	-	-	189	189	43	189
E9	74	-	38	-	-	38	3	41	7	41
E8	227	-	-	-	-	-	58	58	23	58
E7	761	-	-	-	-	-	275	275	76	275
E6	1,253	-	1	-	-	1	472	473	125	473
E5	1,599	-	1	-	-	1	989	990	160	990
E4	2,161	-	3	-	-	3	1,614	1,617	216	1,617
E3	940	-	-	-	-	-	696	696	94	696
E2	311	-	-	-	-	-	232	232	31	232
E1	214	-	-	-	-	-	163	163	21	163
Enlisted	7,540	-	43	-	-	43	4,502	4,545	753	4,545
<b>Total</b>	<b>8,967</b>	<b>-</b>	<b>102</b>	<b>-</b>	<b>-</b>	<b>102</b>	<b>5,075</b>	<b>5,177</b>	<b>897</b>	<b>5,177</b>

Note: The total military housing requirement is the greater of the initial housing requirement and the 10 percent community factor for each grade.

Source: Estimates prepared for this study.

## UNACCOMPANIED PERSONNEL HOUSING REQUIREMENTS

The analysis of the unaccompanied personnel housing requirement follows the same procedures as identified above for accompanied personnel. The total requirement is the sum of the floor requirement (defined for unaccompanied personnel as all E1-E5 personnel) and the community housing shortfall. Table 30 presents the total requirement for government-provided housing for unaccompanied personnel in 2005 and 2010, respectively.

**Table 30. Total Requirement for Government-Provided Housing, Unaccompanied Personnel, 2005 and 2010**

2005 Pay Grade	Number of Bedrooms			Total	2010 Pay Grade	Number of Bedrooms			Total
	One	Two	Three			One	Two	Three	
O7 & Above	-	-	-	-	O7 & Above	-	-	-	-
O6	-	-	-	-	O6	-	-	-	-
O5	-	-	-	-	O5	-	-	-	-
O4	-	-	-	-	O4	-	-	-	-
O3	-	84	-	84	O3	-	53	-	53
O2	-	119	-	119	O2	-	112	-	112
O1	-	53	-	53	O1	-	41	-	41
<b>Officers</b>	-	256	-	256	<b>Officers</b>	-	206	-	206
W5	-	-	-	-	W5	-	-	-	-
W4	-	-	-	-	W4	-	-	-	-
W3	-	3	-	3	W3	-	2	-	2
W2	-	15	-	15	W2	-	11	-	11
W1	-	-	-	-	W1	-	-	-	-
<b>Warrants</b>	-	18	-	18	<b>Warrants</b>	-	13	-	13
E9	-	-	-	-	E9	-	-	-	-
E8	-	7	-	7	E8	-	6	-	6
E7	-	56	-	56	E7	-	51	-	51
E6	-	207	-	207	E6	-	179	-	179
E5	896	-	-	896	E5	959	-	-	959
E4	2,687	-	-	2,687	E4	2,878	-	-	2,878
E3	1,378	-	-	1,378	E3	1,476	-	-	1,476
E2	563	-	-	563	E2	603	-	-	603
E1	271	-	-	271	E1	290	-	-	290
<b>Enlisted</b>	5,795	270	-	6,065	<b>Enlisted</b>	6,206	236	-	6,442
<b>Total</b>	<b>5,795</b>	<b>544</b>	<b>-</b>	<b>6,339</b>	<b>Total</b>	<b>6,206</b>	<b>455</b>	<b>-</b>	<b>6,661</b>

Source: Estimates prepared for this study using data from Robert D. Niehaus, Inc., 2005.

**REFERENCES**

- Barney, Sue, 2005. Personal communication with property manager, Woodcreek Apartments. September. Calcium, NY.
- Bockus, Margaret, 2005. Personal communication with manager, Palmer Street Apartments. September. Watertown, NY.
- Congressional Budget Office, 2005. *CBO's Current Economic Projections*. Downloaded from [www.cbo.gov](http://www.cbo.gov). March. Washington, DC.
- Deanna, 2005. Personal communication with leasing consultant, The Ledges. September. Evans Mills, NY.
- Federal Reserve Board, 2005. Information on new home mortgage yields downloaded from agency website. June. Washington, DC.
- Fort Drum Housing Office, 2004 and 2005. Information on key and essential personnel, historic housing units, selected demographic characteristics of post personnel, off-post rental referral lists, and on-post housing assets. Fort Drum, NY.
- Foster, Gerald, 2005. Personal communication with owner, Northgate Apartments. September. Watertown, NY.
- Giannuzzi, John, 2005. Personal communication with vice president of property management, Madison Barracks. September. Sackets Harbor, NY.
- Headquarters, Department of the Army, 2005. ASIP Station Reports for Fort Drum (SAMAS as of 3 February 2005), and proposed BRAC-related personnel changes (August G3 Force File), Basic Allowance for Housing rates, and military demographic characteristics compiled by the Defense Manpower Data Center. Arlington, VA.
- Humes, Thomas, 2005. Personal communication with broker/appraiser, Humes Realty & Appraisal Service. October. Black River, NY.
- Jesmar, Michelle, 2005. Personal communication with community manager, Stonewood East. September. Philadelphia, NY.
- Kathy, 2005. Personal communication with community manager, Kelsey Creek I. September. Watertown, NY.
- Murphy, Pat, 2005. Personal communication with rental agent, Colonial Manor. September. Watertown, NY.
- National Association of Housing Builders Research Center, 2005. Personal communication with Robert Harris and Clyde Price. October. Upper Marlboro, MD.
- Northern New York Classified, 2005. Listing of houses and apartments for rent downloaded from the agency website. September. Watertown, NY.

- Robert D. Niehaus, Inc., 2004. *2004 Housing Market Analysis, Fort Drum, New York*. December. Santa Barbara, CA.
- Russell, Helen, 2005. Personal communication with manager, The Meadows. September. Evans Mills, NY.
- Thompson, BJ, 2005. Personal communication with manager, Whispering Woods. September. Carthage, NY.
- U.S. Air Force, 1998. Variable Housing Allowance Survey Data, 1997. Housing Directorate. Washington, DC.
- U.S. Army, 1999. Army Regulation 210-50. Assistant Chief of Staff for Installation Management. February. Washington, DC.
- U.S. Bureau of the Census, 1991. 1990 Census of Population and Housing, Summary Tape File 1 (STF 1) 100 Percent Data. Suitland, MD.
- U.S. Bureau of the Census, 1992. 1990 Census of Population and Housing, Summary Tape File 3 (STF 3) Sample Data. Suitland, MD.
- U.S. Bureau of the Census, 2001. Census 2000 Summary File 1 (SF 1) Data. Suitland, MD.
- U.S. Bureau of the Census, 2002. Census 2000 Summary File 3 (SF 3) Data. Suitland, MD.
- U.S. Bureau of the Census, 2005. Population estimates for New York counties. Data downloaded from agency website. August. Suitland, MD.
- U.S. Bureau of Economic Analysis, 2005. Regional Economic Information System. Department of Commerce, Regional Economic Measurement Division. Washington, DC.
- U.S. Bureau of Labor Statistics, 2005. Consumer Price Index. Data downloaded from the agency web site. August. Washington, DC.
- U.S. Department of Defense, 1993. *DOD 4165.63-M. DOD Housing Management*, Section 2.4.3, September. Washington, DC.
- U.S. Department of Defense, 2003. "Housing Requirements Determination Process Policy Guidance." Memorandum for Secretaries of the Military Departments and Directors of the Defense Agencies from Paul Wolfowitz, Deputy Secretary of Defense. 8 January. Washington, DC.
- U.S. Department of Defense, 2005. Data on Regular Military Compensation by Grade. Directorate of Compensation. January. Pentagon. Washington, DC.
- U.S. Department of Housing and Urban Development, 2005. Fair market rents, income limits, and median family income. Downloaded from agency website. August. Washington, DC.
- Vacancynet.com, 2005. Listing of houses and apartments for rent downloaded from the agency website. September. Washington, DC.

Veoletta, 2005. Personal communication with property manager, Ontario Village. September. Watertown, NY.

Woodruff, Debbie, 2005. Personal communication with property manager, Coffeen Heights Apartments. September. Watertown, NY.

Youngs, Christina, 2005. Personal communication with office manager, Heather Acres. September. Watertown, NY.