

# Demographics Technical Report

## Fort Carson Regional Growth Plan

September 12, 2007



Pikes Peak Area  
Council of Governments  
Communities Working Together

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## A. DEMOGRAPHIC PROJECTIONS

The following is a demographic forecast of the authorized military personnel, civilian personnel, and their associated dependents that will be relocated to Fort Carson over the next five years. The new troops, civilians, and dependents will arrive at Fort Carson over the next few years due to troop movements as directed by Base Realignment and Closure (BRAC), Integrated Global Presence and Basing Strategy (IGPBS), and Army Modular Force (AMF) directives.

Recognizing that the number of additional military personnel authorized for Fort Carson may change over time, the use of a range for the projected increase in military personnel would be prudent in order to evaluate population impacts. A range, which establishes an "upper" and a "lower" number for the projected increase in military personnel, is given, referred to as the "Expected Growth Scenario" and the "Alternative Growth Scenario".

The "Expected Growth Scenario" assumes 11,400 additional troops will be authorized for Fort Carson. This number is based on information provided by officials at Fort Carson, and will function as the projected total number of troops that will be authorized for the installation during the next five years.

A second scenario, referred to as the "Alternative Growth Scenario", assumes a reduction to 75% of the "Expected Growth Scenario" in troop authorizations each year. This scenario results in 8,550 troops authorized for Fort Carson by the end of FY 2011. The "Alternative Growth Scenario" uses the same schedule for troop increases as the "Expected Growth Scenario, with larger increases in troops under both scenarios occurring in FY 2007 and FY 2009. Both Scenarios are presented in Table 1.

**Table 1. Military Personnel Authorized for Fort Carson**

Date	New Authorized Military Personnel to Fort Carson	
	Expected Growth Scenario	Alternative Growth Scenario
New Troops by FY 07	4,700	3,525
New Troops by FY 08	100	75
New Troops by FY 09	5,200	3,900
New Troops by FY 10	700	525
New Troops by FY 11	700	525
<b>Total Estimated Authorized Military Personnel</b>	<b>11,400</b>	<b>8,550</b>

Source: Fort Carson; RKG Associates for the Alternative Growth Scenario.

The use of two scenarios provides a basis for evaluating a range of potential impacts associated with the expansion of Fort Carson. This type of approach, referred to as a sensitivity analysis, affords the opportunity to respond to possible development impacts if changes occur in the authorization of military personnel during the next five years. In effect, the "Alternative Growth Scenario" introduces a contingency factor into the analysis in order to take into account the possibility of lower or slower growth at Fort Carson through FY 2011.



The overall goal of this analysis is to provide an “end state” as a basis for examining the long-term impacts of Fort Carson’s growth on the region. For example, it is important to understand housing impacts at the conclusion of base expansion in order to answer questions such as: “Does the regional homebuilder community have the capability of building the required number of dwelling units?” “Is there available developable land?” “What type of off-post housing can military personnel afford?” Using a range with an upper limit of 11,400 and a lower limit of 8,550 new military personnel provides more flexibility and responsiveness in the planning effort.

As information related to troop authorization is updated through 2011, the Fort Carson Regional Growth Plan should be monitored and adjusted to examine impacts based on the actual troop population. It is vital that as the troops are authorized for Fort Carson, an ongoing informational exchange occur on a quarterly or other consistent basis.

A regional organization working closely with Fort Carson can function as a conduit to provide information to the local and regional community. This type of periodic monitoring will require continued cooperation between military officials at Fort Carson and regional organizations such as the Pikes Peak Area Council of Governments (PPACG).

Data related to military personnel location indicate roughly 97% of personnel live and work in El Paso County, with less than 2.5% of personnel residing in Pueblo County, and less than 0.5% living in Fremont County. The regional housing supply (both current and future real estate development) suggests that the vast majority of housing will remain in El Paso County, specifically Colorado Springs, unincorporated El Paso County (specifically Security and Widefield) and the Fountain area. While Pueblo and Fremont Counties will increase their housing supply, unless there is a dramatic change in housing affordability or a change in base commuting patterns, the location of future housing will mirror current housing trends.

The summary of the two scenarios for the forecast military personnel and dependents is presented below. For the “Expected Growth Scenario”, the total gain in military personnel is estimated to be 11,400, as well as 21,287 military dependents, 430 civilian personnel, 692 civilian dependents, for a total population increase of 33,810, as presented in Table 2. Please note that the figures presented in tables throughout this document, including multipliers, have been rounded.

**Table 2. Projection of New Personnel to Fort Carson – Expected Growth Scenario**

	Military Personnel	Military Dependents	Total Military Personnel and Dependents	Civilian Personnel	Civilian Dependents	Total Civilian Personnel and Dependents	Total Population
Number	11,400	21,287	<b>32,687</b>	430	692	1,122	<b>33,810</b>
Multiplier		1.87	<b>2.87</b>			2.61	

Source: RKG Associates, Inc., US Census, and Fort Carson.

Table 3 indicates the total net gain in population assuming the “Alternate Growth Scenario”. The total gain in military personnel is assumed to be 8,550, with 15,966 military dependents. It is assumed the same number of civilian personnel and dependents will be added, for a total population increase of 25,638.



**Table 3. Projection of New Personnel to Fort Carson – Alternate Growth Scenario**

	Military Personnel	Military Dependents	Total Military Personnel and Dependents	Civilian Personnel	Civilian Dependents	Total Civilian Personnel and Dependents	Total Population
Number	8,550	15,966	<b>24,516</b>	430	692	1,122	<b>25,638</b>
Multiplier		1.87	<b>2.87</b>			2.61	

Source: RKG Associates, Inc., US Census, and Fort Carson.

The methodology used in this analysis is based on current data from Fort Carson, including the existing number of military personnel by rank and paygrade, on-post housing data, off-post housing data, and the Basic Allowance for Housing (BAH) reports.

The key assumption in this demographic information is the dependent multiplier. This multiplier represents the number of dependents one military personnel member will contribute to the community, and may consist of a spouse, children, and/or other family member. This multiplier represents an average of dependents, and is further refined by rank and group in a later section of this memorandum. The average multiplier used in this analysis is 2.87, which means that for every military personnel, it can be assumed that 1.87 additional dependents would be added to the community (2.87 and 1.87 are rounded to the hundredths place). If the average multiplier of 2.87 were applied to the “Expected Growth Forecast” with 11,400 troops proposed to be relocated to Fort Carson, this would thus represent a total population of 32,687 (11,400 x 2.87 = 32,687), with 21,287 dependents. For comparative purposes, the multiplier for civilian dependents based on 2000 U.S. Census data is 2.61.

Several multipliers have been suggested and examined for their applicability to this project and are presented in Table 4. Four different sets of average multipliers were examined, which provide sufficient data to suggest that the average multiplier of 2.87 should be used. The four data sources include the U.S. Army “CG Smart Card”, the Environmental Impact Statement (EIS) prepared for the U.S. Army for Fort Carson in 2005, data from Fort Benning, Georgia, and data from Fort Riley, Kansas. These four sources are relatively consistent in their average multiplier, which ranges from 2.41 to 3.05. Two of the sources, Fort Benning and the U.S. Army Smart Card are very close to 2.80, and use 2.82 and 2.93, respectively.

**Table 4. Multipliers for Fort Carson**

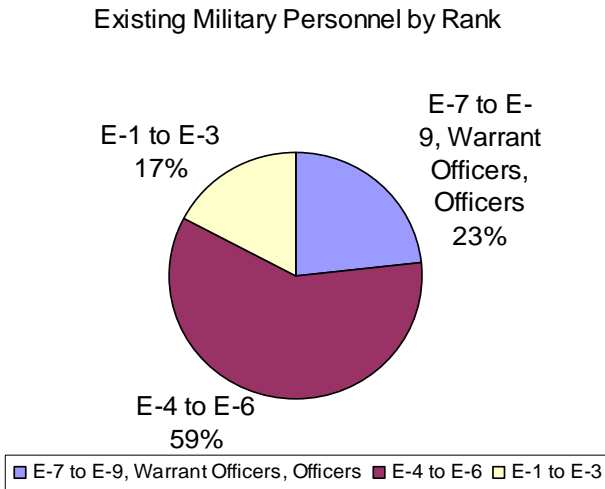
<b>CG Smart Card</b>				<b>From Fort Benning Estimates</b>			
	Military Personnel	Military Dependents	Total Military Personnel and Dependents		Military Personnel	Military Dependents	Total Military Personnel and Dependents
Number	16,208	31,320	<b>47,528</b>	Number	5,810	10,570	<b>16,380</b>
Multiplier		1.93	<b>2.93</b>	Multiplier		1.82	<b>2.82</b>
Source: US Army, 2007				Source: Fort Benning Office of Public Affairs, 2006			
<b>Army EIS Multiplier</b>				<b>From Fort Riley - Estimated BRAC Actions</b>			
	Military Personnel	Military Dependents	Total Military Personnel and Dependents		Military Personnel	Military Dependents	Total Military Personnel and Dependents
Number	20,145	41,300	<b>61,445</b>	Number	9,700	13,655	<b>23,355</b>
Multiplier		2.05	<b>3.05</b>	Multiplier		1.41	<b>2.41</b>
Source: Draft Environmental Impact Statement; US Army 2006				Source: RKG Associates, REMI, Fort Riley, 2006			

The average multiplier of 2.87 is further refined in order to analyze the incoming troops and dependents in order to assess housing needs, demand for schools, etc. Thus, three groups of military



personnel have been identified, and are presented in Figure 1 with their respective percentages of the current on-post population.

The first group, "E-1 to E-3" represents the smallest portion of the population (17%), and is made up of new recruits and Privates. The second group, "E-4 to E-6", includes mid-level enlisted personnel, but make up 59% of the current population of Fort Carson. The third group, "E-7 to E-9, Warrant Officers, and Officers" make up approximately 23% of the total population.



**Figure 1. Existing Military Personnel by Rank**

Thus, it is assumed that under the "Expected Growth Scenario", 11,400 troops will be relocated to Fort Carson, the troops will likely break down along similar groups, unless other information is made available that suggests otherwise. Under the "Alternative Growth Scenario", 8,550 troops will be relocated, and will also consist of 23% "E7-Officers", 59% "E4-E6", and 17% "E1-E3". Table 5 presents the breakdown of troops by rank.

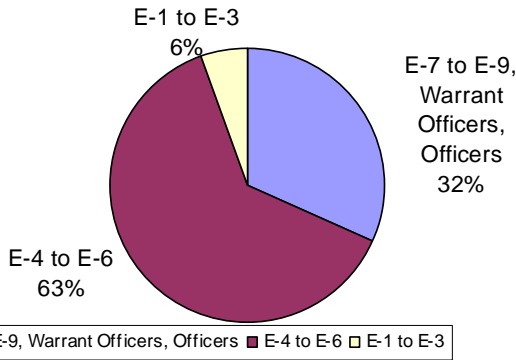
**Table 5. Forecast New Military Personnel by Rank**

Rank	<i>Expected Growth Scenario</i>		<i>Alternative Growth Scenario</i>	
	Percent of Military Personnel	Allocation of Military Personnel	Percent of Military Personnel	Allocation of Military Personnel
E7-Officers	23%	2,660	23%	1,995
E4-E6	59%	6,769	59%	5,077
E1-E3	17%	1,971	17%	1,478
<b>Total Military Personnel</b>	<b>100%</b>	<b>11,400</b>	<b>100%</b>	<b>8,550</b>

Source: RKG Associates



Military Dependents by Rank from Sample Data



Source: Fort Carson, RKG Associates

Figure 2. Military Dependents by Rank from Sample Data

Table 6 presents the data used to analyze the breakdown of dependents. These breakdowns provide more detail for the allocation of dependents by rank. Thus, “E-7 to E-9s, Warrant Officers and Officers” appear to have dependent ratios of 2.54, “E-4 to E-6” have dependent ratios of 1.97, and “E-1 to E-3” have much lower dependent ratios of 0.61. These multipliers may be rounded to 2.5, 2.0 and 0.6 in future analysis.

Table 6. Multipliers by Group

Rank	Personnel On-Post		Personnel Receiving BAH		Total Personnel	Percent of Dependents by Rank	Assumed Dependents for Families with Dependents	Percent of Dependents by Rank	Implied Multiplier
	Barracks	On-Post Housing	Personnel W/Out Dependents	Personnel With Dependents					
Source of Data:	Office of Garrison Commander	Directorate of Public Works	Fort Carson BAH Report	Fort Carson BAH Report			Factor provided by RKG Associates		
O-8	0	0	0	0	0	0%	0	0%	
O-7	0	3	0	0	3	0%	9	0%	
O-6	0	10	1	46	57	0%	171	1%	
O-5	0	26	17	160	203	1%	569	2%	
O-4	0	34	40	251	325	2%	872	3%	
O-3	0	95	238	383	716	5%	1,462	5%	
O-2	0	50	144	114	308	2%	502	2%	
O-1	0	25	36	28	89	1%	162	1%	
W-5	0	2	1	4	7	0%	18	0%	
W-4	0	7	1	42	50	0%	150	1%	
W-3	0	25	6	69	100	1%	287	1%	
W-2	0	46	15	99	160	1%	443	2%	
W-1	0	6	5	44	55	0%	153	1%	
E-9	0	20	7	51	78	0%	217	1%	
E-8	0	65	29	227	321	2%	893	3%	
E-7	0	234	86	888	1,208	8%	3,432	12%	
<b>E-7 to E-9, Warrant Officers, Officers</b>	<b>0</b>	<b>648</b>	<b>626</b>	<b>2,406</b>	<b>3,680</b>	<b>23%</b>	<b>9,341</b>	<b>32%</b>	<b>2.54</b>
E-6	0	370	279	1,473	2,122	13%	5,637	19%	
E-5	764	598	294	1,689	3,345	21%	6,995	24%	
E-4	1,812	778	185	1,122	3,897	25%	5,811	20%	
<b>E-4 to E-6</b>	<b>2,575</b>	<b>1,746</b>	<b>758</b>	<b>4,284</b>	<b>9,363</b>	<b>59%</b>	<b>18,442</b>	<b>63%</b>	<b>1.97</b>
E-3	1,185	173	27	202	1,587	10%	1,147	4%	
E-2	567	97	6	50	720	5%	450	2%	
E-1	397	0	0	22	419	3%	67	0%	
<b>E-1 to E-3</b>	<b>2,149</b>	<b>270</b>	<b>33</b>	<b>274</b>	<b>2,726</b>	<b>17%</b>	<b>1,664</b>	<b>6%</b>	<b>0.61</b>
<b>Total</b>	<b>4,725</b>	<b>2,664</b>	<b>1,417</b>	<b>6,964</b>	<b>15,770</b>	<b>100%</b>	<b>29,447</b>	<b>100%</b>	<b>1.87</b>

Source: RKG Associates, Fort Carson  
As of Spring 2007.



These dependent ratios are then applied to the forecast expansion for both the "Expected Growth Scenario" and the "Alternative Growth Scenario", as presented in Table 7.

**Table 7. Allocation of New Military Personnel and Dependents by Rank**

<b>Rank</b>	<b>Percent of Military Personnel</b>	<b>Allocation of Military Personnel</b>	<b>Implied Multiplier</b>	<b>Allocation of Dependents</b>	<b>Total New Military Personnel and Dependents</b>
<b><i>Expected Growth Scenario</i></b>					
E7-Officers	23%	2,660	2.54	6,752	9,412
E4-E6	59%	6,769	1.97	13,332	20,101
E1-E3	17%	1,971	0.61	1,203	3,174
<b>Total Military Personnel</b>	<b>100%</b>	<b>11,400</b>	<b>1.87</b>	<b>21,287</b>	<b>32,687</b>
<b><i>Alternative Growth Scenario</i></b>					
E7-Officers	23%	1,995	2.54	5,064	7,060
E4-E6	59%	5,077	1.97	9,999	15,076
E1-E3	17%	1,478	0.61	902	2,380
<b>Total Military Personnel</b>	<b>100%</b>	<b>8,550</b>	<b>1.87</b>	<b>15,966</b>	<b>24,516</b>

Source: RKG Associates



Table 8 and Table 9 provide an annual breakdown of net military personnel and dependents for the "Expected Growth Scenario" and the "Alternative Growth Scenario", respectively.

**Table 8. Forecast New Personnel and Dependents by Year – Expected Growth Scenario**

Fiscal Year/ Rank	Additional Personnel	Allocation By Rank		Multiplier	Additional Dependents	Total New Residents	Cumulative Personnel	Cumulative Dependents	Cumulative Total
<b>FY 07</b>	<b>4,700</b>								
E7-Officers		23%	1,097	2.54	2,784	3,881			
E4-E6		59%	2,791	1.97	5,497	8,287			
E1-E3		17%	812	0.61	496	1,308			
Total			4,700		8,776	13,476	4,700	8,776	13,476
<b>FY 08</b>	<b>100</b>								
E7-Officers		23%	23	2.54	59	83			
E4-E6		59%	59	1.97	117	176			
E1-E3		17%	17	0.61	11	28			
Total			100		187	287	4,800	8,963	13,763
<b>FY 09</b>	<b>5,200</b>								
E7-Officers		23%	1,213	2.54	3,080	4,294			
E4-E6		59%	3,088	1.97	6,081	9,169			
E1-E3		17%	899	0.61	549	1,448			
Total			5,200		9,710	14,910	10,000	18,673	28,673
<b>FY 10</b>	<b>700</b>								
E7-Officers		23%	163	2.54	415	578			
E4-E6		59%	416	1.97	819	1,234			
E1-E3		17%	121	0.61	74	195			
Total			700		1,307	2,007	10,700	19,980	30,680
<b>FY 11</b>	<b>700</b>								
E7-Officers		23%	163	2.54	415	578			
E4-E6		59%	416	1.97	819	1,234			
E1-E3		17%	121	0.61	74	195			
Total			700		1,307	2,007	11,400	21,287	32,687
<b>End State</b>	<b>11,400</b>								
E7-Officers			<b>2,660</b>		<b>6,752</b>	<b>9,413</b>			
E4-E6			<b>6,769</b>		<b>13,332</b>	<b>20,101</b>			
E1-E3			<b>1,971</b>		<b>1,203</b>	<b>3,174</b>			
<b>Total</b>			<b>11,400</b>		<b>21,287</b>	<b>32,687</b>			

Source: RKG Associates, Inc. and Fort Carson.



Table 9. Forecast New Personnel and Dependents by Year – Alternative Growth Scenario

Fiscal Year/ Rank	Additional Personnel	Allocation By Rank		Multiplier	Additional Dependents	Total New Residents	Cumulative Personnel	Cumulative Dependents	Cumulative Total
<b>FY 07</b>	<b>3,525</b>								
E7-Officers		23%	823	2.54	2,088	2,911			
E4-E6		59%	2,093	1.97	4,122	6,216			
E1-E3		17%	609	0.61	372	981			
Total			3,525		6,582	10,107	3,525	6,582	10,107
<b>FY 08</b>	<b>75</b>								
E7-Officers		23%	18	2.54	44	62			
E4-E6		59%	45	1.97	88	132			
E1-E3		17%	13	0.61	8	21			
Total			75		140	215	3,600	6,722	10,322
<b>FY 09</b>	<b>3,900</b>								
E7-Officers		23%	910	2.54	2,310	3,220			
E4-E6		59%	2,316	1.97	4,561	6,877			
E1-E3		17%	674	0.61	411	1,086			
Total			3,900		7,283	11,183	7,500	14,005	21,505
<b>FY 10</b>	<b>525</b>								
E7-Officers		23%	123	2.54	311	433			
E4-E6		59%	312	1.97	614	926			
E1-E3		17%	91	0.61	55	146			
Total			525		980	1,505	8,025	14,985	23,010
<b>FY 11</b>	<b>525</b>								
E7-Officers		23%	123	2.54	311	433			
E4-E6		59%	312	1.97	614	926			
E1-E3		17%	91	0.61	55	146			
Total			525		980	1,505	8,550	15,966	24,516
<b>End State</b>	<b>8,550</b>								
E7-Officers			1,995		5,064	7,060			
E4-E6			5,077		9,999	15,076			
E1-E3			1,478		902	2,380			
<b>Total</b>			<b>8,550</b>		<b>15,966</b>	<b>24,516</b>			

Source: RKG Associates, Inc. and Fort Carson.

